Select and Implement a Backup Solution

Evaluate current and alternative backup software for fit with emerging architectures to meet critical restore requirements.
Use this blueprint and accompanying Vendor Landscape analysis to support your backup solution selection and implementation.

**Phase 1**
Launch a Backup Selection Project

**Phase 2**
Analyze Backup Requirements and Shortlist Vendors

**Phase 3**
Select a Backup Solution

**Phase 4**
Plan the Backup Implementation

Use the project steps and activity instructions outlined in this blueprint to streamline your selection process and implementation planning.

Save time and money, and improve the impact of your backup procurement by leveraging Info-Tech’s research and project steps.

Use Info-Tech’s backup Vendor Landscape analysis to support your vendor reviews and selection. Refer to the use-case performance results to identify the vendors that align with the requirements and solution needs identified by your earlier project findings.

Not everyone’s needs are the same. These differences drive out different categories and niches within the backup market space. Understand your own business’s processes and the unique technical and functional requirements that accompany them. Use your own set of requirements to determine the backup solution that best fits your organization.
Our understanding of the problem

This Research Is Designed For:

✓ Enterprises seeking to re-engineer their backup strategy and architecture.
✓ IT managers and system admins that need to select a backup solution.
✓ Any-sized organization looking to understand more about the backup products within the market.

This Research Will Help You:

✓ Select and procure a backup solution that fits with your organization’s specific requirements.
✓ Plan and implement your backup strategy from architectural design to the vendor software solution.
✓ Assess the feasibility and desirability of switching to a new backup software provider.

Outcomes of this Research:

✓ Understand what’s new in the backup software market.
✓ Determine which products are most appropriate for particular use cases and scenarios.
✓ Select a backup software that aligns with the specific needs of the various applications in the backup infrastructure.
✓ Shortlist backup software vendors, create an RFP, and score the responses to select which is the best fit.
✓ Develop an implementation plan that addresses common pitfalls in backup strategy implementations.
Executive summary

Resolution

- Establish & align your IT goals with the business requirements. Backup is all about restoration of primary data, but more important is doing that within reasonable total costs, which can only be determined by establishing clear Restore Time and Restore Point Objectives (RTO/RPO).
- Use Info-Tech’s Backup Software Vendor Landscape analysis to identify vendors in the marketplace that fit your organization’s needs based on your identified requirements and use-case scenario.
- Don’t take shortcuts as you evaluate vendors, select a software solution, and execute your implementation. Do your due diligence during evaluation to ensure that your organization will be able to fully reap the benefits of the solution.

Situation

- Backup software and architecture is a mature but evolving market, with a landscape full of vendors with cutting edge solutions and diverse offerings. As a result, finding a solution that is the best fit for your organization can be a complex and laborious process.
- Legacy backup architectures aren’t cutting it anymore, with advances in technology and data growth organizations need to rethink their backup solution.

Complication

- Backup infrastructure isn’t a one-size-fits-all investment; unique evaluations and solution customization is required in order to deploy a solution that fits your organization.
- Backup options abound. Disk, tape, or cloud? Each has drawbacks, efficiencies, and cost factors that should be considered.

Info-Tech Insight

1. Evaluate your backup strategy regularly: regular backup review, including alternatives, is critical to backup success.
2. Backup infrastructure is never green field: any organization with a history has been doing backup. Existing software was likely determined by past choices and architecture. Determine whether your current solution is up to the task.
3. Leverage use cases: base your vendor selection on your requirements and use case, not on their overall performance.
Step 1: Assess Value and Identify Fit
Step 1: Assess value and identify fit

This step will walk you through the following activities:

1.1: Understand the value of a backup strategy to determine what you are protecting.
1.2: Assess your organization’s need to revamp its current backup solution through a problem and opportunity assessment.
1.3: Map your organization’s infrastructure & architecture.
1.4: Avoid the pitfalls for your procurement project.
1.5: Review the market overview for backup software.

This step involves the following participants:

- IT Backup Manager
- Backup Admin
- DB Admin

Outcomes of this step:

- Identification of the opportunities associated with revamping your backup strategy.
- Completion of the Backup Architecture Strategy Plan.
- Confirmation of the organization’s suitability for a backup software investment.
- An appraisal of Info-Tech’s Vendor Landscape market overview for backup software.
- Determination if now is the right time to proceed with this project.
Backup is boring, but too important to be ignored; regular backup review, including alternatives analysis, is critical

Backup should be boring as it quietly ensures the availability of foreground business-enabling IT services. It only becomes interesting (visible) if it fails.

- **Don’t let a failure be your evaluation driver.** An organization that assesses alternatives before serious issues arise can make more thorough assessments and more informed decisions. Organizations that fail to evaluate alternatives see their backup software degrade and are forced to look at new software regardless.

- **It’s not just about switching vendors; it’s about knowing your options.** Evaluating alternate backup solutions and surveying available features and functionality is a good exercise and a healthy way to assess whether your current solution is still a good fit.

- **Be proactive.** Complacency inevitably leads to unhappiness. When organizations make the “if it ain’t broke” assumption at the same time they make upgrades and changes to other areas of their infrastructure, their backup software eventually lags.

> “You should evaluate backup software annually to ensure that it meets the needs of your organization. As your needs evolve, your solution should change.”
> – Mark Coney, Systems Engineer, Healthcare/Academic

Organizations that regularly evaluate their backup software see more success, whether or not the analysis leads to a vendor change.
It’s about restore: failure in backup is failure to meet recovery objectives; always evaluate features in light of these objectives

It should be called restore software.

• Backing up data is a regular operational activity, so the software component of that activity is called backup software. But the goal of backup is data and system protection for business continuity and disaster recovery.
• Like buying insurance, the true value of a backup investment is only seen when it is needed, and what is needed is restore.

Meeting business objectives is the ultimate measure of success.

• New features exist to minimize backup windows, minimize time to manage, and mitigate increases to storage and network capacity requirements.
• However, if you can’t restore the right data on time, then it’s all a failed exercise.

“[Our primary reason for changing software was] recovery time. In case of a disaster, every minute is of monetary importance.”
– IT Manager, Healthcare

The value of any backup software is in how it helps the enterprise meet these critical objectives (RPO, RTO, RGO) at the best cost. Any feature or function of backup software that has no impact on meeting your recovery objectives, or the total cost of meeting those objectives, is of no value.
Re-evaluate your backup software; backup solutions have different histories, but increasingly have a common future.

Your current backup solution was likely designed for a legacy architecture. Is it right for a converged future or should you look at alternatives?

Convergence: Modern Backup Today

- Mainframe Backup to Tape
- Windows Backup to Tape
- Virtual Backup
- Online Backup (Cloud)
- Disk VTL
Use Info-Tech’s *Backup Architecture Strategy Plan* to document and assess your current backup infrastructure

1.1 *Backup Architecture Strategy Plan Template*

**Use your charter as a backup strategy assessment and planning tool.** Use this master document to centralize the critical information regarding the current assessment of your backup strategy as well as opportunities to improve it.

Prior to the project planning, identify if now is the right time to revamp your backup architecture. Determine the ideal architecture before you get into the software selection.

Create a backup architecture strategy plan. Going into the procurement for the project with a solid understanding of the current flaws in your backup architecture is fundamental to successfully redeveloping your backup solution.

Build the architecture strategy:
- Complete the backup acquisition strategic assessment.
- Identify problems with your current infrastructure/solution.
- Identify opportunities for improvement.
- Outline the current backup infrastructure and methodology.
- Construct the ideal backup infrastructure.

Populate the relevant sections of your strategy plan as you complete activities 1.1 to 1.4.

Complete sections 5 and 6 with the *Backup Architecture Mapping Template*. 
Set your backup software requirements within the context of your comprehensive backup architecture goals and strategy.

A comprehensive data protection architecture includes multiple layers. Backup software is a critical component but not the whole story.

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**Primary Data**
- is the data that is accessed directly by online systems (e.g. applications, databases)
- Data is stored on disk drives that are:
  - Directly attached to a computer system.
  - Network attached as a Storage Area Network (SAN).
  - Network Attached Storage (NAS) disk array.

**On-site Backup**
- **On-site backup** is the secondary copy of primary data stored on site (close to the primary live data) either on disk or on data tape.
- Secondary copies are moved off-site for disaster recovery insurance. Either physically or electronically moved to reside on disk, tape, or cloud.

**Off-Site Backup**
- Backup software manages the creation and storage of the secondary copy as well as the restore of the data to be read by online systems.

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Info-Tech Research Group

11
Identify and analyze what you are protecting

### 1.1 1 Hour

**Inventory the critical systems and data that are being backed up regularly.**

Exercise: What are the critical business activities in your organization? What applications or data sources are associated with those activities? With what method do you back up that data currently?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application / Data</th>
<th>Backup Method</th>
</tr>
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<tbody>
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Record the results in Section 2 of the *Backup Strategy Assessment Template.*
Consider how capabilities around backup software have improved before updating your legacy backup.

Backup software was originally designed to back up directly to tape, but now integrates with storage arrays, VTLs, tape, and cloud backup technologies.

Then…

- Backup software initially focused on backing up servers to tape. This required physical transport of tape cartridges off-site for DR purposes.
- With the advent of disk, virtual tape libraries (VTLs) emulated a tape library while backing up to disks to allow backup software (and backup administrators) to back up to disk using existing procedures with minimal impact.

Now

- Today, backup software can integrate with storage arrays to manage snapshot (instant copy) creation and can control automated replication between sites at the array level, improving management and optimizing backup operations.
- It can also deduplicate data at both source servers and targets, and can backup to multiple media such as tape, VTLs, NAS, deduplication appliances, and cloud.

Look to the Supplementary Appendix for further information on media types (disk, tape, cloud).
Identify and analyze problems with your current backup solution

Exercise: Meet as a group to brainstorm issues or shortcomings with your current backup solution.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Details/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of tape</td>
<td>Currently spending $500 per month on tapes as we are doing full daily backups and a legal hold is preventing re-use of tape cartridges.</td>
</tr>
<tr>
<td>Not leveraging second site</td>
<td>We have a second site which provides an opportunity for off-site data protection.</td>
</tr>
<tr>
<td>Not leveraging snapshots, data deduplication, or any other advanced features.</td>
<td>As we are not leveraging advanced storage efficiencies such as data deduplication, our storage costs are higher.</td>
</tr>
<tr>
<td>Current backup methodology is too complex</td>
<td>We are currently using a mix of D2T &amp; D2D backup architecture. Exchange and network backups are being stored on tapes, whereas virtual machine backups are stored on EMC SAN, while the VM DEV backups are stored on HP StorageWorks DL350. We are trying to simplify the solution, where the target is one location and preferably on disk.</td>
</tr>
<tr>
<td>Tape restore is complex</td>
<td>Getting data back from off-site tape stores is difficult and time consuming.</td>
</tr>
<tr>
<td>24-hour restore point</td>
<td>Any restored job is on the average, 24-hours old, as currently no incremental backups are in place.</td>
</tr>
<tr>
<td>Failed backups have greater impact on business</td>
<td>Failed backup jobs have a greater impact on business, as the data restore window increases in 24-hour increments.</td>
</tr>
<tr>
<td>Legal hold</td>
<td>Requirements to keep everything forever is driving increased cost and complexity for our tape-based backup processes.</td>
</tr>
</tbody>
</table>

Record the results in Section 3 of the *Backup Architecture Strategy Plan Template*. 
Identify the drivers behind your backup strategy agenda

1.2 1 Hour

Understand the drivers that are motivating your own organization’s backup strategy optimization to ensure that the implemented solution provides returns in the critical areas identified.

Instructions

1. Book a meeting with the project’s key stakeholders to outline the purpose of the future backup software and the drivers behind this business decision.

2. Document plans to ensure that these drivers are taken into consideration and realized following implementation.

Materials

- Whiteboard and markers or sticky notes

Time Commitment

- One-hour brainstorming session

Participants

- IT Backup Manager
- Backup Admin
- System Admin
- DB Admin
- Project Stakeholders
Outline potential opportunities to be realized with a new backup solution implementation

1.2 1 Hour

Exercise: Meet as a group to brainstorm and then rank potential opportunities with a new backup solution.

Example:

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorten Restore Points</td>
<td>Through more save points throughout the day via incremental disk to disk backups, we will be able to significantly shorten restore points. Currently restore points are 24 hours with a minimum restore of point of 11 hours (the time it takes for full backups).</td>
<td>Little benefit</td>
</tr>
<tr>
<td>Significantly Reduce Restore Times</td>
<td>Currently the average restore time for an Exchange job (example) is four hours. Restore time is significantly longer if the file needs to be retrieved from a tape at Iron Mountain. Restore from onsite disk will be much faster both because it is local and random access disk is a faster restore media than linear tape.</td>
<td>Strongly benefit</td>
</tr>
<tr>
<td>Improved Business Continuity</td>
<td>Leveraging disk snapshots and site to site replication will mean greater reliability and uptime for our servers (particularly the VM based servers). Replicating the backups between sites will provide both off-site backup (without the cost of transporting tapes) and rapid restore from backup capability at the second site (particularly if primary replication fails).</td>
<td></td>
</tr>
<tr>
<td>Longer Onsite Retention Periods</td>
<td>Incremental backups to onsite deduplicated disk should allow for retention of backups for longer periods of time. Longer retention could be spun to disk in quarterly increments.</td>
<td></td>
</tr>
<tr>
<td>Save on Tape Costs</td>
<td>Tape is a relatively inexpensive medium however current practice of full daily backups to tape is expensive (more than a dozen tapes a week). Tape will still have a role but a secondary role. Also we will save on transportation and storage costs if we do site to site replication.</td>
<td></td>
</tr>
</tbody>
</table>

Record the results in Section 4 of the Backup Architecture Strategy Plan Template.
Match the capabilities of backup media with the restore requirements of the primary data

A best-fit approach to backup architecture is to determine the media that will meet restore requirements for data and systems at lowest possible cost.

- **Assess every backup medium** to ensure you are getting the right fit for your backup and restore requirements. Start with requirements and balance capabilities against total cost.
- **Don’t just jump to disk.** Many Info-Tech clients we speak to assume that disk is the obvious solution to their backup and recovery woes. This is the wrong approach as storage, tape, or cloud may be capable of solving your problem at the appropriate cost.

Look to the Supplementary Appendix for further information on backup media (disk, tape, cloud).
What does your infrastructure look like? Map it out

The example below is a simplified subset of the overall infrastructure as it relates to backup infrastructure. Draw a line, on the left side map out your current backup infrastructure. Then, on the right side design your ideal layout.

Enterprise Backup Structure:

Current layout:

- On Premise
- Tape Library
- Application Servers
- Tapes trucked offsite
- Storage Facility

Ideal layout:

- Primary Site
  - Primary Storage
  - Disk Backup Appliance
  - Optional Tape Library
- Second Site
  - DR Storage
  - Disk Backup Appliance
  - Optional Tape Library

Complete this exercise with the Backup Architecture Mapping Template.
Avoid these pitfalls to ensure the success of your backup procurement

Identify risks and mitigation strategies early to improve your ability to perform a successful procurement and implementation of your backup solution.

Common Pitfalls

**Business Engagement**
- Lack of consensus on the expectations and needs for a backup solution.
- Not considering the cost of data migration (switching solutions can be cost prohibitive).
- Not engaging business stakeholders and identifying their business needs (RPO/RTO/RGO).
- Unrealistic expectations of restoring files backed up with a previous solution.
- Selecting a solution that is not user or business friendly.

**Procurement Process**
- Not following a clear and planned procurement process.
- Creating too many mandatory requirements.
- *Getting caught up with the bells and whistles.* Fancy features are nice, but look for the solution that meets your organization’s specific needs.
- Not conducting a custom review of vendors based on the specific business requirements and organizational considerations.
- Selecting a demo or pilot that is not valuable to the business.

**Project Management**
- Not identifying proper management and ownership of the procurement process.
- Not identifying the constraints and business requirements for the selection.
- Failing to properly transition from implementation to maintenance.
- Improper change management that makes the solution’s integration into the live environment disruptive and riddled with incidents.

Even if the organization’s business landscape would benefit from a new backup solution, and the IT department has the maturity to manage a backup solution, a successful procurement and implementation is not guaranteed. Avoid the pitfalls related to business engagement, project management, software procurement, and implementation that could disrupt your backup software strategy selection and implementation project.
## Backup software market overview

### How it got here

- Backup software was originally focused on backup data from internal hard drives to internal and external tape drives and libraries. With advances in disk arrays and backup software, backup broadened to include networked storage for both the host and the backup target (disk to disk).

- Virtualization goes mainstream. With advances in server capacity (memory, RAM, multi-core processing) the majority of industry standard server workloads are virtualized. Previously discrete backup solutions for physical and virtual machines are consolidating, making it possible to deploy a single solution for a mixed physical and virtual environment.

- Massive data growth made compression and deduplication essential to managing storage utilization as efficiently as possible.

### Where it’s going

- Tape is being replaced by cloud technology. Integration with public cloud storage providers is becoming increasingly important as organizations grow more comfortable with cloud computing and look for flexibility in archiving and disaster recovery.

- The backup market is evolving from a focus on backing up and protecting data to a focus on the abilities to recover it. Look to speed and granularity of recovery, as well as the ability to perform physical to virtual and virtual to physical restores.

- Backup is becoming part of a larger data management strategy. Rather than focusing on a discrete solution, vendors will begin to offer backup as part of a larger data management strategy, touting data monitoring, management, and discovery capabilities with their backup solution.

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As the market evolves, capabilities that were once cutting edge become default and new functionality becomes differentiating. Ability to perform data compression/deduplication has become a Table Stakes capability and should no longer be used to differentiate solutions. Instead focus on ease of use and how the solution fits with your current backup architecture to get the best fit for your requirements.
Backup software vendor selection/knock-out criteria: market share, mind share, and platform coverage

- Organizations are using either traditional backup, image-based backup, or virtual backup targeted solutions to backup their infrastructure. Info-Tech focused on those vendors that offer robust backup solutions for both physical and virtual environments.
- Solutions that have a strong market and/or reputational presence among large to mid-sized enterprises were included.

Included in this Vendor Landscape:

- **Acronis.** Founded in 2002, Acronis provides a cost-effective, data protection backup solution.
- **Barracuda.** Offers a self-contained backup solution, requiring no extra software.
- **Catalogic.** Spun off from Syncsort, DPX offers advanced snapshot cataloguing & granular explorer restore capabilities.
- **CommVault.** A strong backup solution offering physical and virtual backup with great hardware integration capabilities.
- **Dell.** Recent integrations of Vranger, AppAssure, and Netvault resulted in the creation of the Backup & Disaster Recovery Suite that is very robust, all under one license.
- **EMC.** Market share leader in storage and disk backup, EMC’s Avamar offers standout bandwidth optimization and reliability with one-step recovery options.
- **FalconStor.** With roots in OEM of VTLs, FalconStor has shifted to the buy side with Continuous Data Protector.
- **HP.** Traditionally known for cost effectiveness with Data Protector, HP offers strong integration with HP hardware.
- **IBM.** Second in market share, Tivoli Storage Manager is highly scalable and fast following in VM backup features.
- **Quantum.** Offers a complete data protection solution with VM protection technology, at one simple price.
- **Symantec.** Market share leader, Symantec’s Backup Exec and NetBackup have strong developer support behind them, which has enabled it to respond quickly to the demands of virtual and physical backup.
- **Unitrends.** Recent acquisition of PHD Virtual allowed for creation of a robust virtual and physical backup solution. It offers flexible backup approaches that make data recovery fast, flexible, and yet still cost effective.
- **Veeam.** Offers easy-to-use virtual backup, with unique backup verification and granular recovery direct from backups.
Use Info-Tech’s vendor research and use-case scenarios to support your own organization’s vendor analysis

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Description</th>
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<tbody>
<tr>
<td>BaaS</td>
<td>Backup as a Service (BaaS) in this case is focused on being able to provide backup services to clients in different industries with a wide range of RTO/RPOs (from near CDP to weekly backups), with an importance placed on reliability and brand perception. Further, the solution needs to be compatible with many different systems in a heterogeneous environment (Windows, Linux, UNIX, HPUX, etc.), conducive to scaling with data growth.</td>
</tr>
<tr>
<td>Mid-Market</td>
<td>The typical mid-market client at Info-Tech. Currently using Windows/Linux OS, this segment is looking for a solution that will integrate well with their current architecture to meet their RTO/RPO needs at a fair price. This value-focused segment is looking for ease of implementation and an intuitive user interface, but still wants the capability to customize to the situation.</td>
</tr>
<tr>
<td>Enterprise</td>
<td>The enterprise client is looking for a robust solution that will integrate with current systems, which tend to be mixed hardware, software, and media storage types blended into a heterogeneous environment. Archiving storage capabilities are a must, with capability to store multiple copies replicated off-site and scale well as data growth is exponential. Government mandated regulations require strict storage requirements and RTO/RPOs.</td>
</tr>
<tr>
<td>Highly Virtualized</td>
<td>The highly virtualized client is looking for strong integration with a wide range of hypervisors to the extent that one could backup in Hyper-V and restore in VMware. The capability to manage hundreds of VMs with instant recovery snapshotting capabilities, boot synthetic VMs in a virtualized lab setting, and manage data growth (scalability) with monitoring tools is a must.</td>
</tr>
<tr>
<td>Highly Virtualized</td>
<td>Environment</td>
</tr>
<tr>
<td>All-in-One Solution</td>
<td>This case is for the mid-market or enterprise client looking for a new hardware solution that is supplied and supported by the same vendor as the software, integrated together as one solution.</td>
</tr>
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</table>
Step 2: Structure the Backup Software Selection Project

Phase 1: Launch a Backup Software Selection Project

Phase 2: Analyze Backup Requirements and Shortlist Vendors

Phase 3: Select a Backup Solution

Phase 4: Plan the Backup Implementation
Step 2: Structure the backup software selection project

This step will walk you through the following activities:

2.1: Identify the scope and purpose.
2.2: Determine staff resourcing.
2.3: Outline roles and expectations.
2.4: Create a project plan.
2.5: Determine metrics.
2.6: Create a documentation plan.

This step involves the following participants:

- IT project manager
- Project sponsor
- Project steering committee (members), or key business stakeholders
- Managers of storage & backup

Outcomes of this step:

- A completed and approved project charter for your backup solution selection project.
- The creation of a granular project plan that outlines the steps and resourcing relating to each stage of the project.
- An appraisal of the oversight and stakeholder engagement requirements for the project, including the creation of a steering committee or a plan for working with the organization’s IT steering committee.
- Launch of your backup selection project.
Make your strategy flexible and plan for change

Your backup needs are going to change. Be prepared and be agile.

Get the backup admin a seat at the table for project planning. Be sure that the backup admin is well apprised of the IT strategy for the coming year so the infrastructure can be prepared for increased demand.

Clarify your needs. How much notice will you need in order to incorporate a new application into your backup process? Communicate to your stakeholders that without sufficient warning, their data may temporarily be at risk. Make sure that they fulfill their end of the bargain and provide plenty of warning before bringing a new server online.

Document the process for introducing new systems into the backup environment. Assume that new applications will receive an intermediate level of service unless there is a business case made for an exception. Consider developing a standard request form and insist that application owners provide you with a detailed rundown of the application’s backup requirements.

Data growth is inevitable. Work with your storage team to understand data growth patterns for your organization and anticipate how your capacity needs will change. Plan for more growth than expected, and try to secure budget accordingly.

“In a production environment, the management isn’t going to come out of the blue and say, ‘I need 100 new instances right now.’ That’s not going to happen. But that happens all the time in a backup system. ‘We have fifty new servers coming online; start backing them up.’ You just don’t have the capacity.”

– Dan Giles, President, Sileg Consulting, Inc.
Identify the scope and purpose of your backup selection process

Sample Project Overview

[Organization] plans to select and implement a backup solution in order to improve to the business’s processes. This procurement and implementation of a new backup solution will enable the business to improve the efficiency and effectiveness of business processes. This project will oversee the assessment and shortlisting of backup vendors, selection of a backup software, the configuration of the solution, and the implementation of the technology into the business environment.

Rationale Behind the Project

- Consider the business drivers identified in Activity 1.2 as you formalize and document the drivers for investing in backup software.
- Be specific to business units impacted and specific considerations (opportunities and risks identified).

Consider

Cost savings through leaner and more repeatable processes is often an overarching business objective that is driven by multiple factors. To ensure this objective is achieved, confirm the primary drivers are met following the implementation of the software to reduce backup and restore windows.

Business Drivers

- Reduce Cost
- Process Efficiency
- Risk Management
Identify the scope and purpose of your backup selection process

2.1 2 Hours

Be up-front as you begin your project by outlining the purpose for the project and the rationale for a backup software investment.

Instructions

Scoping Meeting
1. Hold a meeting with the project manager, project sponsor, and critical business and process analysts who understand the context and drive behind the backup procurement project.
2. Brainstorm and discuss, as a group, the purpose of the project and the organizational drivers supporting the business’s decision to invest in a backup solution.
   • Be specific, identifying the motivations regarding individual stakeholders and business units as they relate to specific business drivers.
3. Create a general statement that provides an overview of the purpose and scope of the project.

Follow-Up Work
1. The project manager documents the meeting’s findings in the charter’s Section 2 Project Overview, and Section 3 Rationale for Backup Software Procurement.

Materials
• Backup Procurement Project Charter Template
• Whiteboard and markers

Participants
• Project manager
• Backup admins
• DB admins

Time Commitment
1. One-hour meeting
2. One hour of additional documentation work (Project Manager)

Total Time: Two hours
Select the staff resourcing for your backup software selection team

2.2 2 Hours

Identify the staff who will be on the core team and evaluation team for the project.

Instructions

Resource Identification and Planning
1. Hold a meeting with the project manager, project sponsor, critical business analysts/process analysts, and SMEs who will likely be engaged in the project.
   • Have attendees arrive with an understanding of their upcoming schedules and any additional projects or considerations that might impede their involvement.
2. Identify the skills and roles that will be needed in order to fulfill the project.
3. Identify staffing allocations; ensure that the necessary skills and expertise are engaged with the project at the appropriate time.
4. Document staffing for the project in the project charter. *Consider creating a RACI chart around specific stages and tasks to ensure that responsibilities and expectations are clearly documented.*

Follow-Up Work
If you have a large IT shop, distribute the staffing across IT and business management to ensure that the identified staffing does not conflict with any other projects or business functions.

Materials
- Backup Procurement Project Charter Template
- Whiteboard and markers
- Staff schedules

Participants
- IT Project Manager
- Systems Admins
- Backup Admins
- Technical Staff

Time Commitment
1. One-hour meeting
2. One hour of additional documentation work (PM)
*Total Time: Two hours* (plus confirmation time and effort)
Clarify ownership of backup tasks to avoid domain disputes

Taking advantage of specialized backup tools can help, but clarify responsibilities and avoid unnecessary conflict.

Put someone in charge. Identify one manager who will be in charge of overseeing the backup environment. While operational tasks may fall to subordinates, this individual should be in charge of managing the backup team and ensuring that the terms of backup SLAs and SOPs are upheld to the letter.

Ensure accountability by clearly formalizing roles. You need to make it crystal clear who is responsible for each stage of your backup operations. Clarify the duties of each backup team member and secure sign-off to make sure that duties are clear from start to finish. Doing so can help you identify, diagnose, and respond to problems in a more efficient fashion.

Avoid leaving things up to application administrators. Your other administrators already have a lot on their plate, and maintaining the smooth operation of their applications might mean they push backup to the back burner.

Have backups for your backup team. You need to ensure that if one member of the backup team is absent for any reason, another member is capable of stepping up to the plate. You can’t afford to wait until your backup admin returns from vacation to initiate recovery processes. Build in redundancy and outline the chain of responsibility.

Clarify Backup and Recovery Roles

Backup Administrator
- Has ownership of and oversees the backup environment.
- Is able to perform operational tasks, including initiating backups, changing media, and communicating with service providers.
- Maintains details of backup tests and results; monitors key metrics.
- Consults with management regarding infrastructure changes.

Application Administrators
- Notifies backup admin of any special software requirements.
- Alerts backup admin of any configuration changes that may affect backup.
- Participates in recovery testing as needed.

Technical Staff
- Is responsible for day-to-day operations, including changing tapes, initiating backup and restore processes, and running recovery tests with the backup administrator.
- May triage and respond to recovery requests submitted from the help desk.

Help Desk:
- Understands backup procedures in terms of recovery requests.
- Interprets and communicates backup policies.
- Understands backup time frame.
- Collects recovery requests and submits tickets to backup staff.
Clarify ownership of backup tasks to avoid domain disputes

1. Use the list of critical applications you have already created and list the apps in the left column.

2. For each application, identify the critical backup tasks that are performed in your organization and list in the center column.

3. Identify who is responsible for each task and add his or her name in the right column.

4. Review the chart. Are there any backup-related tasks that are not being captured?

5. Discuss: Are there any tasks for which there is no clear owner?

6. Discuss: Are there any duties that are currently misaligned?

<table>
<thead>
<tr>
<th>Application</th>
<th>Responsibilities</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM</td>
<td>Hourly snapshots of backend database</td>
<td>DB Admin</td>
</tr>
<tr>
<td></td>
<td>Weekly random “spot” restore test</td>
<td>Backup Admin</td>
</tr>
<tr>
<td></td>
<td>Nightly incremental backup</td>
<td>Backup Admin</td>
</tr>
<tr>
<td></td>
<td>Weekly full backup</td>
<td>Backup Admin</td>
</tr>
<tr>
<td>Exchange</td>
<td>Nightly incremental backup</td>
<td>Backup Admin</td>
</tr>
<tr>
<td></td>
<td>Weekly full backup</td>
<td>Backup Admin</td>
</tr>
<tr>
<td></td>
<td>Quarterly recovery test</td>
<td>Backup Admin</td>
</tr>
</tbody>
</table>
Outline roles and expectations related to each project team to ensure project follow-through occurs

### Staffing Plan
Build a RACI chart to outline the expectations regarding each project member at different stages of the project.
- **R** (Responsible), **A** (Accountable), **C** (Consulted), **I** (Informed)

<table>
<thead>
<tr>
<th>Individual</th>
<th>Gather Requirements</th>
<th>Create Requirements List</th>
<th>Research Vendors</th>
<th>Short-list Vendors</th>
<th>RFP</th>
<th>Analyze RFPs</th>
<th>Evaluate Vendors</th>
<th>Select Vendor</th>
<th>Plan Implementation</th>
<th>Demo Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td></td>
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<td></td>
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<tr>
<td>IT Backup Manager</td>
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<tr>
<td>Steering Committee</td>
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<tr>
<td>Backup Admin 1</td>
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<tr>
<td>Backup Admin 2</td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>DB Admin</td>
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<tr>
<td>Business Rep</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems Admin</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This template is just a sample of steps and activities to include when planning staff responsibilities. Consider breaking the RACI charts down by stage of the process to create a more granular project plan. Consult the recommended project steps in *Section 5 Project Plan and Timeline* to support your write-up.
Create a project plan that outlines the evaluation, selection, and implementation for your backup solution

At this point in the project, **slow down** and ensure you have done the appropriate project planning and are following your business’s procurement procedures before proceeding with your review and selection.

Identify key steps for each stage of the selection and procurement project.

**Stage** | **Key Activity**
--- | ---
Analyze Requirements | • Interview business stakeholders.  
• Conduct technical assessment.  
• Create requirements list.  

Analyze Use-Case Scenarios | • Analyze use-case scenarios.  
• Determine fit against use-case scenarios.  

Produce Your Vendor Shortlist | • Analyze backup software vendors.  
• Shortlist against requirements and criteria.  

Backup Solution Procurement | • Create RFP.  
• Submit RFPs to vendors.  
• Conduct demos with shortlisted vendors.  
• Select backup vendor and solution.  
• Create contract and service package.  

Plan Implementation | • Configure solution.  
• Create SLAs & policies.  
• Train end users.  

The project’s implementation planning stage should be separated out as its own project. Use *Step 6 Plan Your Backup Software Implementation* to outline your project and complete this stage of your selection and implementation of your backup software.
Select your procurement vehicle

Procurement Vehicle

Now is the time to select the procurement vehicle to follow as you analyze and select your backup solution from the options in the market.

Info-Tech Recommendation

Info-Tech recommends the use of an RFP process, rather than a direct award or RFI process, due to the number of considerations and cost related to a backup procurement.

Please note that the remainder of this blueprint follows this structure. If this is not the vehicle your organization will use, simply adapt the procurement steps in step 5 to fit your own project plan.

Selection Support

Small Enterprise

Controlled set of requirements?

Yes

RFQ

No

RFP

Medium–Large Organizations

Limited knowledge of backup technology?

Yes

RFI + RFP

No

RFP

Extensive backup requirements and strong business implications

RFP

Definitions

Request for Quotation: A simple description of the product and a small number of requirements.

Request for Information: A document requesting marketing-level information on the vendor’s solution, it is meant to improve the client’s understanding of the products in the marketplace and the specific product of the vendor.

Request for Proposal: A lengthy document outlining the requirements, scope, systems, and processes related to the desired solution.

Additional Research

Consult this blueprint for more information on procurement vehicle options.
Create a plan for your backup software selection project

2.4 1 Hour

Instructions
1. Create a meeting for the project’s management and leadership to scope the steps and stages of the project.
2. Identify the procurement vehicle for your procurement process.
3. Document the steps in the project’s charter.
4. Identify the milestones associated with each step and determine the expected completion date/due date or additional consideration related to the milestone.

Optional structure for designing your project plan.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Key Activity</th>
<th>Participants</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup Solution</td>
<td>• Create RFPs for shortlisted vendors.</td>
<td>• Core team</td>
<td>• RFP proposals</td>
</tr>
<tr>
<td>Procurement</td>
<td>• Submit RFPs to vendors.</td>
<td>• Project manager</td>
<td>• Selected backup software</td>
</tr>
<tr>
<td></td>
<td>• Evaluate proposals.</td>
<td>• Writers</td>
<td>solution</td>
</tr>
<tr>
<td></td>
<td>• Conduct demos for shortlisted vendors.</td>
<td>• Evaluation team</td>
<td>• Vendor contract and service</td>
</tr>
<tr>
<td></td>
<td>• Select backup software suite.</td>
<td>• Vendors</td>
<td>package</td>
</tr>
<tr>
<td></td>
<td>• Create and approve contract and service package.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample

If you are a public sector organization with stringent procurement considerations, you may want to reach out to additional people to ensure your process complies with organizational standards.

Optional structure for outlining your project milestones.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Start Date</th>
<th>End Date</th>
<th>Dependencies</th>
<th>Due Date</th>
<th>Product/Event</th>
</tr>
</thead>
</table>
Determine the metrics you will use to assess the performance of your backup software selection project

Your project cannot be deemed a success if a metric or measure cannot be applied to gauge its performance. Identify the metrics that will be used to assess the performance of your backup software selection and implementation.

### Project Performance

#### Timeline Adherence
- Was the project completed during its initially defined timeline?
- Did the backup software selection occur in its defined period?
- Did the implementation and initial process roll-out occur during the outlined window?
- What percentage of project milestones were met?

#### Process Design Performance
- Time to map, model, design, and backup/restore demo process vs. subsequent processes.

#### Project Costs
- Allocated project budget vs. actual project expenses.

#### Discount Pricing Negotiated
- Percentage of discount negotiated.

#### Budget Adherence
- Actual cost vs. budgeted cost for the solution.
Determine the broader metrics that you will use to assess the value of your backup software solution

The ROI and perceived value of the organization’s backup software solution will be a critical indicator of the success of the selection and implementation.

Backup Strategy Solution and Technology Adoption

**Solution Performance**
- Restore SLAs met.
- Functional and technical requirements met.
- Optimized backup and restore processes.
- Successful backup rates (e.g. 99%).
- Reduced backup windows.

**User Satisfaction and Business Feedback**
- User satisfaction feedback.
- Business files restored successfully in shorter time frames.
- IT backup admin satisfaction survey with the backup solution.
Determine the metrics you will use to assess the performance of your backup selection project

What considerations will be used to evaluate the performance and success of your completed project?

**Instructions**

1. As a group, brainstorm the metrics that will be used to evaluate the completed project.
2. Adapt the charter to include the metrics relevant to your project.

**Participants**
- Project manager
- System admins
- Core team

**Charter Sections**
- 6 – Financial Obligations for Backup Software Selection
- 7 – Project Costs

**Materials**
- Whiteboard and markers
- Sticky notes and markers

---

What project considerations and organizational drivers will drive your metric selection?

- User Feedback
- Budget Adherence
- Completion Time
- Project Plan Adherence
- SLA Recovery Adherence
- Cost Savings After One year
- Discount Percentage
Start your documentation and audit trail at the beginning

- Create a clear policy for recording notes and identify a centralized location for placing documents.
- Ensure the different members of your project team use these documentation procedures for their notes and collected project documents.

**Ensure Compliance Occurs During Your Procurement Project**
- To ensure compliance with business regulations related to large resource investments, create a plan for centralizing documents related to your procurement.
- For example, in a public sector organization, documentation of its procurement procedures is a requirement.

**Value**
- Beyond concerns of procedural compliance, creating an audit trail and strong documentation practices will ensure that critical documents, evaluation notes, and information is captured and not lost along the way.

**Prevents**
- Documents and information from getting lost in someone’s inbox or accidentally lost.
- One person becoming the holder of all the information related to critical project points.

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**Info-Tech Insight**

A formalized process has authority but an informal process can be ignored. Start from a documented baseline and demonstrate how configuration of the procurement process will increase your performance.
Outcomes from Phase 1 of your backup selection and procurement project

Launch Your Backup Selection Project

Vendor Landscape – Analyze Backup Requirements and Shortlist Vendors

Select Your Backup Solution

Plan Your Backup Implementation

Outcomes from Phase 1: Launch Your Project

• Creation of a backup strategy architecture plan to determine the organization’s need to revamp its current backup solution.
• Creation of a project plan for your backup software procurement project.
• Successful identification of project resourcing requirements.
• Creation of project oversight and approval for launching procurement project.

Next Steps

• Download the materials and storyboard for Phase 2: Vendor Landscape – Analyze Backup Software Requirements and Shortlist Vendors.
• Follow the project steps in order to determine the technical and functional requirements for your future backup solution, create an RFP, review the vendors in the landscape, and shortlist vendors for further evaluation.

Included in Phase 2: Vendor Landscape – Analyze Backup Solution Requirements and Shortlist Vendors

• In-depth profiles of Info-Tech’s backup software use-case scenarios.
• Development of a synthesized requirements list and drafted RFP.
• Info-Tech’s backup software Vendor Landscape includes:
  ◦ Vendor overviews.
  ◦ Vendor profiles and scoring.
  ◦ Use case performance.
Step 3: Identify the Requirements for the Backup Software
Table of contents

Step 3: Gather and Analyze Requirements

Step 4: Produce Vendor Shortlist

4.1. Review Info-Tech’s Vendor Landscape Methodology
4.2: Review Info-Tech’s backup vendor evaluation
4.3: Review vendor performance for use-case scenarios
   4.3.1: BaaS solution
   4.3.2: Mid-market backup solution
   4.3.3: Enterprise backup solution
   4.3.4: Highly virtualized backup
   4.3.5: All-in-one backup solution
4.4: Analyze vendor profiles and scoring results
4.5: Create custom vendor shortlist

Please note this phase of the project also includes Info-Tech’s Backup Software Vendor Landscape Analysis.
Step 3: Identify the requirements for the backup software

This step will walk you through the following activities:

3.1: Interview business stakeholders to determine critical business processes.
3.2: Rank business processes to determine core applications and their tiered priority.
3.3: Map the recovery and backup process workflows.
3.4: Assess recovery technical capabilities.
3.5: Extract business functional and technical capabilities to create and prioritize a requirements list.
3.6: Create an RFP.

This step involves the following participants:

- Business unit stakeholders
- IT staff
- IT project manager

Outcomes of this step:

- Successful gathering of requirements from the business (RPO/RTO/Critical application lists determined).
- Completed exercises with IT for extraction of technical requirements regarding architecture, integration, and implementation for the future backup software suite.
- Documentation of high-level functional and solution requirements for backup; these findings will be used as a reference as the business begins analyzing and shortlisting vendors and will also serve as the critical foundation for the RFP completed in this section.
Engage both the business and IT while assessing backup requirements and identifying selection criteria

Conduct both a **business assessment and technical assessment** to build your solution requirements.

<table>
<thead>
<tr>
<th>Business Assessment</th>
<th>Technical Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
<td><strong>Findings</strong></td>
</tr>
<tr>
<td>• Conduct an assessment of current critical business applications (3.1).</td>
<td>• Business unit understanding of the backup and restore process.</td>
</tr>
<tr>
<td>• RPO/RTO evaluation with the business unit (3.2).</td>
<td>• Applications the IT department thought were critical turn out not to be as important and vice versa.</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td><strong>Outcomes</strong></td>
</tr>
<tr>
<td>• Business unit understanding of the backup and restore process.</td>
<td>• Functional requirements determined.</td>
</tr>
<tr>
<td>• Applications the IT department thought were critical turn out not to be as important and vice versa.</td>
<td>• A list of applications and files to restore and backup is ascertained, in order of importance.</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td><strong>Outcomes</strong></td>
</tr>
<tr>
<td>• Functional requirements determined.</td>
<td>• Technical requirements determined.</td>
</tr>
<tr>
<td>• A list of applications and files to restore and backup is ascertained, in order of importance.</td>
<td></td>
</tr>
</tbody>
</table>

**Info-Tech Insight**

Focus on what the business needs backup to do and the applications it must be able to support. Don’t use these opportunities to create a long list of features; instead use them to understand the motivations and functional uses that will be integral to a successful adoption and ROI of the backup solution.
Talk to users and stakeholders about their data availability and recovery needs

Give users and stakeholders a seat at the table, but don’t let them dictate your backup policy.

Facilitate meaningful dialogue with core user groups and build a backup strategy that is practical and feasible.

- You need to determine how to best meet user and stakeholder needs, but it is up to the user and stakeholder to decide what those needs are. Involve them in the decision-making processes but don’t give them the final say.

- Giving users or stakeholders decision-making power will lead to an unmanageable infrastructure. On the other hand, not listening to your users will build a backup system that is out of step with real world use cases.

- Avoid getting too technical. Most users won’t care about how the magic happens. They just want to feel assured that their data will be available when they need it.

Key Questions to Ask

- What applications are used by your business unit?
- How critical are these apps to your ability to do your job?
- How critical are these apps to the mission of the organization as a whole?
- What would the impact be of losing a minute, hour, day, or week of the data for each app?
- How long could you afford to wait for the data to be restored?
Start by identifying mission-critical business activities

The ultimate goal of backup is to support resumption of normal business activity. Start by identifying those critical activities with the business unit.

What are the most critical business activities (processes, functions, or services) in your organization? What drives revenue or is otherwise mission critical? Below is an example of possible business activities.

**Mission-Critical Criteria:**

1. Is there a hard-dollar impact from downtime?
2. What is the impact on goodwill/customer trust?
3. Is regulatory compliance a factor?
4. Is there a health or safety risk?

**Business Activity** | **Impact on the Business**
--- | ---
Sales | • Generates revenue
Manufacturing | • Generates product, which drives revenue
Call Center | • Drives goodwill and customer loyalty
HR | • Supports and attracts talent pool; however, deficiencies do not cause immediate business impact
Marketing and Business Development | • Generates customer interest and product demand
Assess the requirements for data restoration, retention, and offsite availability

All storage tiers must be backed up and recoverable, within appropriate timelines and in compliance, regardless of the business value they add.

Start the backup strategy by understanding requirements for primary data. Successful backup architecture implementations require a clear picture of what is required to ensure reasonable availability and business continuity for all primary data. This will be critical to eventually determining what backup media and architecture effectively supports the organization’s data at the most appropriate total cost.

The physical architecture of storage typically consists of three separate tiers that house data of different value.

- **Primary Tier**: Highest performance and fastest storage → typically houses mission-critical data.
- **Secondary Tier**: Intermediate speed and performance → can be a mix of mission-critical and non-critical data.
- **Archival Tier**: Slowest and cheapest storage → for data that rarely needs to be read and is not time-sensitive.
Separate mission critical from merely pervasive or important

When you draw a circle around a system and call it mission critical, that has a significant impact on the time and money needed to support it.

When email or a shared drive goes down, it may impact productivity, but that doesn’t necessarily make it mission critical and justify the cost of higher availability. Ask the following questions when identifying mission-critical applications.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a hard-dollar impact from downtime?</td>
<td>• For example, when an online ordering system goes down, it impacts sales and therefore revenue.</td>
</tr>
<tr>
<td>What is the impact on goodwill/customer trust?</td>
<td>• If downtime means delays in service delivery, or otherwise impacts goodwill, there is an intangible impact on revenue that may make the associated systems mission critical.</td>
</tr>
<tr>
<td>Is regulatory compliance a factor?</td>
<td>• Is redundancy and/or high availability required due to legal or regulatory compliance requirements?</td>
</tr>
<tr>
<td>Is there a health or safety risk?</td>
<td>• For example, police and medical organizations have systems that are mission critical due to their impact on health and safety rather than revenue or cost. Are there similar considerations in your organization?</td>
</tr>
</tbody>
</table>
Match the value of data with the cost to back up and restore to maximize return on your backup investment.

Consider the cost of data loss as well as the cost of downtime in any estimation of restore requirements.

Evaluate the direct worth of the data.
If you were to sell your data, what would it be worth? If you were to lose your data, what would be the direct costs (e.g. regulation-related fines for 1 hour of data)? These direct costs should serve as a baseline for what is spent on backup, and used to derive RTOs and RPOs.

Evaluate the indirect value of the data.
Will the loss of, or loss of access to, data result in lost revenue? If so, how much revenue? Determine average yearly lost revenue for a range of windows given measured annual risk of an incident. RTOs and RPOs should be set by balancing these losses against yearly cost to maintain those objectives.

Last good image
Data is back online/App is up and running

Types of Apps
- Mission Critical
  - Directly Impacts Revenue
  - e-Commerce, Web Servers
- Critical
  - Indirectly Impacts Revenue
  - SAP, CRM, email
- Business Critical
  - Impacts Business Operations
  - ERP System, Finance DB, HR System
- Non-Critical
  - Minimal Business Impact
  - User Files, Print Server, Archive

Example Apps
- Last good image
- Data is back online/App is up and running

Data Value
Recovery Point
Recovery Time

RTO = 30 mins
RTO = 2 hrs
RTO = 8 hrs
RTO = 72 hrs

RPO = immediate
RPO = 15 mins
RPO = 6 hrs
RPO = 24 hrs

PLATINUM
GOLD
SILVER
BRONZE

weeks days hours minutes seconds
months

Mission Critical
Critical
Business Critical
Non-Critical

Example Apps
- e-Commerce, Web Servers
- SAP, CRM, email
- ERP System, Finance DB, HR System
- User Files, Print Server, Archive

Types of Apps
- Mission Critical
  - Directly Impacts Revenue
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- Business Critical
  - Impacts Business Operations
  - ERP System, Finance DB, HR System
- Non-Critical
  - Minimal Business Impact
  - User Files, Print Server, Archive
Rank the recovery needs of your core applications and identify rough service tiers

1. Create a rough graph, divided into two columns. In this exercise, exact precision is not required. The y-axis will indicate recovery time needs for your RPOs and RTOs, starting at 0 in the top left.

2. Take the list of core applications from the previous exercise and record each, along with the recovery point and recovery time objectives, on an index card. Sort the index card first according to the RPO.

3. Plot the applications on the left hand side of the graph according to their RPO. The points do not need to be precise.

4. Sort the cards again, this time according to the RTO. Plot the applications on the right half of the graph.

5. Examine the graph and look for points where there is an obvious drop-off or elbow. Draw a horizontal line corresponding with each drop-off to divide your RPOs and RTOs into tiers. Service at each tier will be based on the strictest requirements in each tier.

---

RPO Tiers Example

- Gold: RPO = 5 mins
- Silver: RPO = 4 hrs
- Bronze: RPO = 24 hrs

RTO Tiers Example

- Gold: RTO = 0-4 hrs
- Silver: RTO = 4-24 hrs
- Bronze: RTO = 24-48 hrs
Initially offer users a single tier of service and ask them to make the case for exceptions

Let your users make the case for enhanced services and avoid costly over-provisioning.

Most of your data needs will be met by an intermediate tier of service. If it were up to your stakeholders, most of your data would be over-protected. Realistically, only mission-critical applications will need the top tier of service; other applications can usually make do with a reduced offering.

Manage the exceptions rather than the norm. If an application owner or stakeholder insists that a particular data set requires a level of service beyond what you have offered, open the lines of communication. Discuss the additional cost to the organization and ask for a business case to justify the additional service. If the justification is there, adjust the application’s service level.

Consider chargeback software for “showback:” Some organizations implement chargeback programs to help manage excessive user demands. While the chargeback usually implies a fee that is attached to services, it can also be used to help track and communicate the value and cost of backup and recovery options without billing specific departments.

This blueprint takes a tiered approach to disaster recovery that includes identifying tier 1, 2, and 3 systems. While using nomenclature such as “gold, silver, and bronze” helps communicate system importance, it's important to understand how this will be received. If your corporate culture is one where this type of ranking will cause offense, use terms such as “red, white, and blue” that don't imply a ranking.
Determine backup requirements through an evaluation of current business needs and process attainability

Consider all of your requirements – RPOs, RTOs, RGOs, and retention requirements – and devise a backup schedule that can best meet them. Compare your desired recover capabilities with what is currently attainable. If a gap remains, discuss 1) if your goals are realistic or if they can be adjusted, and 2) what can feasibly be done to better meet them.

Be certain that your backup process will capture data with the kind of regularity required by your recovery objectives. If you need to recover from ten minutes ago, but are only performing daily backups, your schedule is not meeting your organization’s needs.

Discuss the gaps between the desired state and the present state. Consider the backup diagram you created earlier and the desired state you have just sketched out. What are the points of divergence? What is the case for doing them one way rather than the other? Are there factors that are not being captured that should be acknowledged in your policy?

Think about how technology can help – but make sure that you start with your requirements. Requirements drive technological needs, not the other way around. Identify places where software or hardware solutions can help you meet your needs.
Identify and rank the critical *applications* that support your business activities

What are the applications necessary for the business activity? For example, for Sales, what applications are critical to account management and selling product? For this exercise, focus on identifying Gold applications.

### Example: Applications supporting Sales

<table>
<thead>
<tr>
<th>Application</th>
<th>Impact on the Business</th>
<th>*Criticality (Tier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Catalog</td>
<td>• Sales tool and supports the company brand (affects revenue and goodwill).</td>
<td>Gold</td>
</tr>
<tr>
<td>CRM</td>
<td>• Supports sales, billing, and account management (affects revenue and goodwill).</td>
<td>Gold</td>
</tr>
<tr>
<td>Billing System</td>
<td>• Required for invoicing. Note: Important but not critical; does not stop new sales, but delays collecting on existing sales.</td>
<td>Silver</td>
</tr>
<tr>
<td>Corporate Website</td>
<td>• Generates sales leads; promotes company brand (affects revenue and goodwill).</td>
<td>Gold</td>
</tr>
<tr>
<td>Email</td>
<td>• Used in client communications, but is secondary to calling (does not deter sales).</td>
<td>Silver</td>
</tr>
<tr>
<td>Inventory System</td>
<td>• Provides pricing and availability information; required for the online catalog application.</td>
<td>Gold</td>
</tr>
</tbody>
</table>
Gain confidence by documenting your backup procedures and processes

Focus your efforts on establishing and documenting recovery requirements and processes for the most cost-effective optimization plan.

Technology is important, but it’s secondary to the human factor. Whether you are optimizing your present infrastructure or planning an upgrade, having well-documented processes, more than any other factor, contributes to backup confidence.

Refining processes is a more viable option for many organizations. Securing budget for new backup-related capital expenditures may be off the table for many IT departments. Refining and documenting processes offers a more cost-effective route to optimization than investing in new technology.

Clear procedures can help manage stakeholder expectations and prove the value of backup. Well-documented processes and procedures can provide standards against which you can measure the success of your backup environment, enabling you to clearly communicate the value of backup and recovery to stakeholders while setting expectations for end users. Moreover, documenting and communicating these procedures reminds users of the value you deliver with data recovery.

Backup Operating Procedures

![Backup Operating Procedures chart]

Source: Info-Tech Research Group, n = 70
Map the recovery response workflows

3.3 2 Hours

Begin with a hypothetical scenario: a user in a particular role makes a request for certain data. What happens next?

1. Draw the recovery response workflow beginning from the first point of contact (e.g. a help desk ticket is submitted).
2. Plot the present restore process on the table using cue cards. First, identify steps in the process using white cards. On each card, note the owner of the step as well as the method of backup, including target.
3. Using cards of another color, record issues that are being experienced with each step.
4. Using cards of a third color, record present risks associated with the step.
5. If time permits, repeat the exercise with additional core applications.

Effect of Documenting Incident Escalation Policy on Overall Backup Confidence

Source: Info-Tech Research Group; N=70
Exercise: Map your current backup procedures

Focus on one or two core business activities and outline your backup workflow.

What are the critical business activities in your organization? What applications or data sources are associated with those activities? With what method do you back up that data currently?

1. Select one core application and identify:
   • The method of backup, including backup medium.
   • The backup schedule (e.g. daily incrementals, weekly full).
   • The individual responsible for initiating and/or ensuring the completion of the backup task.
   • Any other process factors that affect the backup workflow.

2. Plot the present backup process on the table using cue cards. First, identify steps in the process using white cards. On each card, note the owner of the step as well as the method of backup, including target.

3. Using cards of another color, record issues that are being experienced with each step.

4. Using cards of a third color, record present risks associated with the step.

5. If time permits, repeat the exercise with additional core applications.
Make adjustments to meet your backup window, if necessary

There are really only two ways to better meet your backup window: move less data or move your data faster.

Meeting your backup window is critical to your success. If you do not complete backups within their allotted time, you risk the backup failing or running into regular business hours, slowing down day-to-day operations.

It is unlikely that your backup window is going to get any bigger; if anything, it will shrink, especially if your organization does business overseas or offers flexible working hours. If you find you are overrunning your backup window, there are really only two options: reduce the amount of data being backed up, or increase the speed at which the data moves.

Improving throughput can be costly. Look closely and identify bottlenecks in your data traffic. While it is possible that identifying a bottleneck can lead to a quick fix, the only solution may be a costly investment in new network infrastructure or application servers.

Data compression is your first line of defense, but be sure you have the means to restore the data effectively. Rehydrating compressed data may require proprietary algorithms that may be tied to a specific product. Keep this in mind if you anticipate changing vendors.

Data deduplication can help reduce the volume of data, but isn’t a magic bullet. Deduplication has become ubiquitous over the last several years, and can be effective in reducing the overall volume of data. However, deduplication processes can affect performance on either the source or target systems, and may require you expand your RTO. Keep in mind, too, that vendor-reported deduplication rates may be difficult to reproduce in the wild. Deduplication rates improve on data with longer retention rates because, with a greater amount of information, it is more likely there will be duplicate blocks. Also, some types of data simply deduplicate better than others. Take vendor claims with a grain of salt.

Splitting the backup may leave data partially vulnerable. Another option is to split your backup up. For example, some applications may be incrementally backed up on Monday and Wednesday and others on Tuesday and Thursday. This effectively reduces the volume of data being backed up, but increases your risk of data loss.
Assess recovery technical capabilities with a gap analysis

Compare your desired recover capabilities with what is currently attainable. If a gap remains, discuss 1) if your goals are realistic or if they can be adjusted, and 2) what can feasibly be done to better meet them.

### Example: Online Catalog Dependencies

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Achievable RPO</th>
<th>Desired RPO</th>
<th>Achievable RTO</th>
<th>Desired RTO</th>
<th>Are the goals attainable? If not, what needs to change?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Server</td>
<td>24 hours</td>
<td>24 hours</td>
<td>45 mins</td>
<td>5 mins</td>
<td>Yes if it’s a problem with one server, No if the cluster is affected. Requires automated failover to DR site, or split the workload across two sites.</td>
</tr>
<tr>
<td>MQ Server</td>
<td>24 hours</td>
<td>Near-zero</td>
<td>45 mins</td>
<td>5 mins</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS Transaction Server</td>
<td>5 mins</td>
<td>Near-zero</td>
<td>8 hours</td>
<td>1 hour</td>
<td>Yes, but one-hour RTO not deemed necessary. Modified approach can allow a transaction backlog of up to four hours.</td>
</tr>
<tr>
<td>Inventory System</td>
<td>5 mins</td>
<td>5 mins</td>
<td>2.5 hours</td>
<td>1 hour</td>
<td>Yes</td>
</tr>
<tr>
<td>Customer Database</td>
<td>5 mins</td>
<td>5 mins</td>
<td>8 hours</td>
<td>4 hours</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Extract functional and technical requirements from your business and IT assessments

3.5 Record and consolidate the findings of your requirements gathering activities

Instructions

1. Use your business interviews and mapped processes to identify functional and capability requirements.
2. Use your project meetings and interviews with IT staff to identify technical requirements and considerations that will guide the selection of a backup solution.

Outcome

Create a preliminary document of solution requirements based on this requirements gathering process.

Add as You Proceed

As you identify the use cases for your backup solution, add to these gathered requirements.

As you evaluate vendors in the market and identify the full capabilities of different backup solutions, add and adjust the requirements documented.
Balance RPOs, RTOs, and disaster recovery capabilities with TCO when deciding on the best-fit backup architecture

If restore and disaster recovery objectives and total cost of ownership are unbalanced, you are either spending too little or spending too much.

Conduct a proper cost/benefit analysis of all TCO aspects to fit within a proper RPO, RTO, and DR at a non-detrimental cost.

**Under-protection of data is risky**
because data can be lost and thereby threaten business continuity. This can often result in not only short-term revenue loss, but long-term brand and reputation damage.

**Over-protection of data is costly**
because low- to no-value data eats up valuable resources that could be directed at value-add initiatives.

**Best-fit protection of data is ideal**
because it safeguards valuable data at the lowest possible cost. It’s *just right*.

We aim to balance at least 50% of our time/budget innovating...as opposed to keeping the lights on [backup maintenance]. In switching vendors we were able to reduce our total costs drastically, while still getting the features we needed.

– Michael Somerville, NISS Manager, University of San Diego
Analyze the costs & benefits of a given feature of backup software against availability & recovery objectives

Balance the cost of achieving recovery objectives against the cost of failing to achieve objectives. Differentiate cool from must-have features.

Example: Continuous Data Protection (CDP)

• What is it? Method of continually tracking changes to data so that recovery can be made to any point in time (unlike, for example, snapshots, which can only restore to the point in time of the snapshot).

• Is CDP worth it? Depends entirely on the Restore Point Objective (RPO) of the data being stored. If losing hours or even minutes of rapidly changing data is deemed critically expensive, then CDP is a worthwhile investment. However, if data loss is tolerable within the range of hours or even days, CDP has little value.

• How do we assess the value of the objective? Business impact analysis (BIA) uncovers the cost of data and time loss for the business. BIA should be a part of business continuity planning and can be leveraged to set RTO and RPO for data.

The question “can we afford this feature?” may well also be phrased “can we afford this objective?” if meeting the objective is more expensive than potential loss from failure to meet the objective.
Create and prioritize your solution requirements based on your business and technical assessments

3.5 Variable Time Commitment

1. Identify Your Requirements
   • Use the findings of your process mapping and interviews to uncover the requirements for the future backup solution.
   • Research market trends and additional opportunities with backup software and architectures.
   • Use your use-case findings to further develop your solution requirements.

2. Prioritize Your Requirements
   • Identify the significance of each requirement for your solution evaluation.
   • Info-Tech recommends identifying features and requirements as mandatory, important, or optional.
   • Control the number of mandatory requirements you document. Too many mandatory requirements could create an unrealistic framework for evaluating solutions.

3. Create a Requirements Package
   • Consolidate your identified requirements into one list, removing redundancies and conflicts.
   • Categorize the requirements based on their priority and nature.

   **Info-Tech Insight**
   No solution will meet 100% of your requirements. Control the number of mandatory requirements you place in your procurement process to ensure that vendors that are the best fit for your organization are not eliminated unnecessarily.

   **Categorize your requirements as:**
   • Mandatory Requirements
   • Functional Requirements
   • Technical Requirements
   • Capability Requirements

   Use this requirements package as you evaluate vendors and create your RFP for shortlisted vendors.
Step 4: Produce a Vendor Shortlist
Step 4: Produce a vendor shortlist

1. Assess value and identify fit
2. Structure the backup selection project
3. Identify the requirements for the backup software
4. Produce a vendor shortlist
5. Select a backup solution
6. Create an implementation plan
7. Measure the value of the backup solution

This step will walk you through the following activities:

4.1: Review Info-Tech's backup vendor evaluation.
4.2: Review vendor performance with use-case scenarios.
4.3: Identify top vendors from relevant scenarios.
4.4: Create a custom vendor shortlist.

This step involves the following participants:

- Project manager
- Business analysts
- Subject matter experts

Outcomes of this step:

- Identification of the opportunities associated with backup software.
- Confirmation of the organization’s suitability for a backup software investment.
- An appraisal of Info-Tech’s backup software use-case scenarios and identification of the use-case scenarios that apply to the business’s need for backup software.
- An appraisal of Info-Tech’s Vendor Landscape market overview for backup software.
- Determination if now is the right time to proceed with this project.
4.1 Info-Tech’s Vendor Landscape Methodology
Vendor Landscape use-case scenarios are evaluated based on weightings of features and vendor/product considerations.

### 4.1 Scoring Overview

Use cases were scored around the features identified in the general scoring as being relevant to the functional considerations and drivers for each scenario.

### Calculation Overview

**Advanced Features Score X Vendor Multiplier = Vendor Performance for Each Scenario**

Please note that both advanced feature scores and vendor multipliers are based on the specific weightings calibrated for each scenario.

#### Product and Vendor Weightings

- **Affordability**: 20%
- **User Interface**: 10%
- **Sales**: 10%
- **Reach**: 5%
- **Focus**: 5%
- **Viability**: 15%
- **Architecture**: 35%

#### Advanced Features Weightings

- **Feature 1**: 20%
- **Feature 2**: 15%
- **Feature 3**: 15%
- **Feature 4**: 15%
- **Feature 5**: 15%
- **Feature 6**: 10%
- **Feature 7**: 5%
- **Feature 8**: 10%
Vendor performance for each use-case scenario is documented in a weighted bar graph.

### 4.1 Scoring Overview

#### Vendor Performance
Vendors qualify and rank in each use-case scenario based on their relative placement and scoring for the scenario.

#### Vendor Ranking
- **Champion**: The top vendor scored in the scenario.
- **Leaders**: The vendors who placed second and third in the scenario.
- **Players**: Additional vendors who qualified for the scenarios based on their scoring.

#### Value Score™
Each use-case scenario also includes a Value Index that identifies the Value Score for a vendor relative to their price point. This additional framework is meant to help price-conscious enterprises identify vendors who provide the best “bang for the buck.”
4.2 Review the Backup Software Vendor Evaluation
Review Info-Tech’s Vendor Landscape of the backup software market to identify vendors that meet your requirements

The following section includes an overview of vendor performance and the analysis of each use-case scenario. **Review the accompanying deliverable in order to understand the strengths, weaknesses, and capabilities of each vendor.**

**Vendors Evaluated**

Each vendor in this landscape was evaluated based on their features, product considerations, and vendor considerations. Each vendor was profiled using these evaluations and, based on their performance, qualified and placed in specific use-case scenarios.
As the market evolves, capabilities that were once cutting edge become default and new functionality becomes differentiating. Ability to perform data compression/deduplication has become a Table Stakes capability and should no longer be used to differentiate solutions. Instead focus on ease of use and how the solution fits with your current backup architecture to get the best fit for your requirements.
Table Stakes represent the minimum standard; without these, a product doesn’t even get reviewed.

<table>
<thead>
<tr>
<th>Feature</th>
<th>What it is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression</td>
<td>Data can be compressed at the client or media agent for overall data reduction.</td>
</tr>
<tr>
<td>Encryption</td>
<td>Data can be encrypted prior to transmission across the LAN.</td>
</tr>
<tr>
<td>Script Automation</td>
<td>Support for command line utilities for custom scripting to automate complex activities.</td>
</tr>
<tr>
<td>Monitoring and Reporting</td>
<td>Ability to monitor active processes and the status of virtual machines with default and custom reports.</td>
</tr>
<tr>
<td>Application Awareness</td>
<td>App-specific agents exist to handle requirements for target workloads, such as Microsoft Exchange, SharePoint, or SQL.</td>
</tr>
<tr>
<td>Bandwidth Throttling</td>
<td>Controlling download and upload speeds to manage bandwidth usage.</td>
</tr>
</tbody>
</table>

**What does this mean?**

The products assessed in this Vendor Landscape™ meet, at the very least, the requirements outlined as Table Stakes.

Many of the vendors go above and beyond the outlined Table Stakes, some even do so in multiple categories. This section aims to highlight the products’ capabilities in excess of the criteria listed here.

If Table Stakes are all you need from your backup solution, the only true differentiator for the organization is price. Otherwise, dig deeper to find the best price to value for your needs.
Advanced Features are the capabilities that allow for granular differentiation of market players and use-case performance

### 4.2 Scoring Methodology

Info-Tech scored each vendor’s features on a cumulative four-point scale. Zero points are awarded to features that are deemed absent or unsatisfactory, one point is assigned to features that are partially present, two points are assigned to features that require an extra purchase in the vendor’s product portfolio or through a third party, three points are assigned to features that are fully present and native to the solution, and four points are assigned to the best-of-breed native feature.

<table>
<thead>
<tr>
<th>Feature</th>
<th>What we looked for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous data protection</td>
<td>Data changes are continuously tracked, enabling true any-point-in-time recovery.</td>
</tr>
<tr>
<td>Automated VM replication &amp; discovery</td>
<td>Automatically discover and protect VMs as they move, come online, and change. Replicate production VMs to a secondary data store.</td>
</tr>
<tr>
<td>Snapshot cataloguing &amp; file explorer</td>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
</tr>
<tr>
<td>End-user self-service &amp; RBAC</td>
<td>Role-based access controls (RBAC) allow help desk admins or end users to conduct recoveries on their own (self-service).</td>
</tr>
<tr>
<td>Deduplication (global, source, target)</td>
<td>Redundant data at separate backup nodes is removed, leaving a single copy (global). It can removed as it is being written to disk or after (target), or it can be removed before transmission (source).</td>
</tr>
<tr>
<td>Hypervisor to hypervisor backup &amp; restore</td>
<td>Ability to backup a VM on one hypervisor (e.g. VMware) host and restore it on another (e.g. Microsoft Hyper-V) and vice versa.</td>
</tr>
</tbody>
</table>

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stopplights) in the Appendix.
## Advanced Features continued

<table>
<thead>
<tr>
<th>Scoring Methodology</th>
<th>Feature</th>
<th>What we looked for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Info-Tech scored each vendor’s features on a cumulative four-point scale. Zero points are awarded to features that are deemed absent or unsatisfactory, one point is assigned to features that are partially present, two points are assigned to features that require an extra purchase in the vendor’s product portfolio or through a third party, three points are assigned to features that are fully present and native to the solution, and four points are assigned to the best-of-breed native feature.</td>
<td>Physical backup appliance (all-in-one solution)</td>
<td>The solution can be delivered on a hardware appliance as an “all-in-one” solution.</td>
</tr>
<tr>
<td></td>
<td>Advanced synthetic virtual lab environment</td>
<td>Able to create and run a booted up, simulated testing environment synthetically from a backup copy.</td>
</tr>
<tr>
<td></td>
<td>End-point machine backup</td>
<td>Machines at the edge of the environment (laptops, desktops, etc.) can be backed up.</td>
</tr>
<tr>
<td></td>
<td>Backup &amp; deduplication to tape</td>
<td>Deduplicated data can be backed up to and restored from tape media, without intervention from a third party (natively).</td>
</tr>
<tr>
<td></td>
<td>Public cloud integration</td>
<td>Data can be backup to and restored from a public service provider cloud environment. Controls available in the solution for managing data in the public and private cloud as well as integrating with numerous third-party public cloud solutions (e.g. Amazon, Azure).</td>
</tr>
<tr>
<td></td>
<td>Auto-restore testing</td>
<td>Automatically verify recoverability of VMs that have been backed up.</td>
</tr>
</tbody>
</table>

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.
Vendor scoring focused on overall product attributes, and vendor performance in the market

### Scoring Methodology

Info-Tech Research Group scored each vendor’s overall product attributes, capabilities, and market performance.

Features are scored individually as mentioned in the previous slide. The scores are then modified by the individual scores of the vendor across the product and vendor performance features.

Usability, overall affordability of the product, and the technical features of the product are considered, and scored on a five-point scale. The score for each vendor will fall between worst and best in class.

The vendor’s performance in the market is evaluated across four dimensions on a five-point scale. Where the vendor places on the scale is determined by factual information, industry position, and information provided by customer references, and/or available from public sources.

### Product Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability</td>
<td>The end-user and administrative interfaces are intuitive and offer streamlined workflow.</td>
</tr>
<tr>
<td>Affordability</td>
<td>Implementing and operating the solution is affordable given the technology.</td>
</tr>
<tr>
<td>Architecture</td>
<td>The solution is well designed with multiple deployment options, platform support, and strong integration capabilities are available.</td>
</tr>
</tbody>
</table>

### Vendor Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viability</td>
<td>Vendor is profitable, knowledgeable, and will be around for the long term.</td>
</tr>
<tr>
<td>Strategy</td>
<td>Vendor is committed to the space and has a future product and portfolio roadmap.</td>
</tr>
<tr>
<td>Reach</td>
<td>Vendor offers global coverage and is able to sell and provide post-sales support.</td>
</tr>
<tr>
<td>Sales</td>
<td>Vendor channel partnering, sales strategies, and process allow for flexible product acquisition.</td>
</tr>
</tbody>
</table>
Review vendor scoring for each product and vendor consideration (1 of 2)

### 4.2 Performance Overview

<table>
<thead>
<tr>
<th>Product</th>
<th>Overall</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
<th>Vendor</th>
<th>Overall</th>
<th>Viability</th>
<th>Strategy</th>
<th>Reach</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronis</td>
<td>3</td>
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<td>Barracuda</td>
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<td>CommVault</td>
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<tr>
<td>FalconStor</td>
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<td>3</td>
</tr>
</tbody>
</table>

*The vendor declined to provide pricing and publically available pricing could not be found

For an explanation of how the Info-Tech Harvey Balls are calculated, see [Information Presentation – Criteria Scores (Harvey Balls)](Information_Presentation___Criteria_Scores_Harvey_Balls) in the Appendix.
Review vendor scoring for each product and vendor consideration (2 of 2)

### 4.2 Performance Overview

**Legend**
- ⭐⭐⭐⭐⭐ = Exemplary
- 🟢🟦🟦🟦 = Good
- 🟢🟦icers = Adequate
- ⬜🟦 = Inadequate
- ⬜معالجة = Poor

<table>
<thead>
<tr>
<th>Product</th>
<th>Overall</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
<th>Vendor</th>
<th>Overall</th>
<th>Viability</th>
<th>Strategy</th>
<th>Reach</th>
<th>Sales</th>
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<td>IBM</td>
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</tr>
<tr>
<td>Symantec: Backup Exec*</td>
<td>3</td>
<td>3</td>
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<td>Symantec: NetBackup*</td>
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<td>3</td>
</tr>
</tbody>
</table>

*The vendor declined to provide pricing and publically available pricing could not be found

For an explanation of how the Info-Tech Harvey Balls are calculated, see Information Presentation – Criteria Scores (Harvey Balls) in the Appendix.
Review each vendors’ performance for each advanced feature (1 of 2)

4.2 Performance Overview

<table>
<thead>
<tr>
<th>Evaluated Features</th>
<th>CDP</th>
<th>Auto VM discovery replication</th>
<th>Snapshot catalog &amp; exploring</th>
<th>Self-service RBAC</th>
<th>Global, target, and source dedup.</th>
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<th>Physical backup appliance</th>
<th>Advanced virtual lab</th>
<th>End-point machine backup</th>
<th>Backup &amp; dedup. to tape</th>
<th>Public cloud integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronis</td>
<td>●</td>
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<td>Barracuda</td>
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<td>EMC</td>
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<tr>
<td>FalconStor</td>
<td>●</td>
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</tr>
</tbody>
</table>

Legend:
- ● = Feature is best in its class
- ● = Feature is fully present in its native solution
- ● = Feature is present at additional cost
- ● = Feature is partially present
- ● = Feature is absent

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.
### 4.2 Performance Overview

#### Evaluated Features

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<td>HP</td>
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<td>Quantum</td>
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<tr>
<td>Symantec: Backup Exec</td>
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**Legend**

- **★** = Feature is best in its class
- **= Feature is fully present in its native solution
- **= Feature is present at additional cost
- **= Feature is partially present
- **= Feature is absent

For an explanation of how Advanced Features are determined, see [Information Presentation – Feature Ranks (Stoplights)](#) in the Appendix.
4.3 Review the Backup Software Use Cases
Select a use-case scenario that best aligns with your organization to determine the optimal vendor solution fit.

### 4.3 Use-Case Alignment Exercise

Select the most applicable use case to your infrastructure determined in the previous activities. The use case will help you to narrow down a shortlist of vendors that offer the best software for your requirements.

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BaaS</strong></td>
<td>Backup as a Service (BaaS) is focused on being able to provide backup services to clients in different industries with a wide range of RTO/RPOs (from near CDP to weekly backups), with an importance placed on reliability and brand perception. Further, the solution needs to be compatible with many different systems in a heterogeneous environment (e.g. Windows, Linux, UNIX, HPUX), conducive to scaling with data growth.</td>
</tr>
<tr>
<td><strong>Mid-Market or Homogeneous</strong></td>
<td>The typical mid-market client at Info-Tech. Currently using Windows/Linux OS, this segment is looking for a solution that will integrate well with their current architecture to meet their RTO/RPO needs at a fair price. This value-focused segment is looking for ease of implementation and an intuitive user interface, but still wants the capability to customize to the situation.</td>
</tr>
<tr>
<td><strong>Enterprise or Heterogeneous</strong></td>
<td>The enterprise client is looking for a robust solution that will integrate with current systems, which tend to be mixed hardware, software, and media storage types blended into a heterogeneous environment. Archiving storage capabilities are a must, with the capability to store multiple copies replicated off-site and scale well as data growth is exponential. Government mandated regulations require strict storage requirements and RTO/RPOs.</td>
</tr>
<tr>
<td><strong>Highly Virtualized Environment</strong></td>
<td>The highly virtualized client is looking for strong integration with a wide range of hypervisors to the extent that one could backup in Hyper-V and restore in VMware. The capability to manage hundreds of VMs with instant recovery snapshotting capabilities, boot synthetic VMs in a virtualized lab setting, and manage data growth (scalability) with monitoring tools is a must.</td>
</tr>
<tr>
<td><strong>All-in-One Solution</strong></td>
<td>This case is for the mid-market or enterprise client looking for a new hardware solution that is supplied and supported by the same vendor as the software, integrated together as one solution.</td>
</tr>
</tbody>
</table>
Analyze the Vendor Landscape use-case scenarios relevant to your organization

4.3 Variable Time Commitment

Instructions
1. Conduct a general review of the vendors in Info-Tech’s Backup Software Vendor Landscape.
2. Review the use-case scenario findings relevant to your organization.
   • If your organization has strong alignment to multiple use-case scenarios, look for vendors that span multiple scenarios.
3. Identify vendors you believe are a fit for your organization.

Resource
- Vendor Landscape Analysis Backup Software

Participants
- IT project manager
- Project team

Time Allotment
- Workshop
  One hour + additional review time
- DIY
  One to two days review time
4.4.1: BaaS (Backup-as-a-Service) Backup Software Use-Case Scenario
## Feature weightings for the BaaS use case

<table>
<thead>
<tr>
<th>Core Features</th>
<th>Feature Weightings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End-user self-service &amp; RBAC</strong></td>
<td>Role-based access controls (RBAC) allow help desk admins or end users to conduct recoveries on their own (self-service).</td>
</tr>
<tr>
<td><strong>Snapshot cataloguing &amp; file explorer</strong></td>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
</tr>
<tr>
<td><strong>Hypervisor to hypervisor backup &amp; restore</strong></td>
<td>Ability to backup a VM on one hypervisor (e.g. VMware) host and restore it on another (e.g. Microsoft Hyper-V) and vice versa.</td>
</tr>
<tr>
<td><strong>Public cloud integration</strong></td>
<td>Data can be backup to and restored from several public cloud service providers.</td>
</tr>
</tbody>
</table>

### Additional Features
- Continuous data protection (CDP)
- Auto VM discovery & replication

![Feature Weightings Graph]

*The pie chart illustrates the percentage weightings of each feature.*
### Vendor considerations for the BaaS use case

#### Product Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability</td>
<td>The end-user and administrative interfaces are intuitive and offer streamlined workflow.</td>
</tr>
<tr>
<td>Affordability</td>
<td>Implementing and operating the solution is affordable given the technology.</td>
</tr>
<tr>
<td>Architecture</td>
<td>The solution is well designed with multiple deployment options, platform support, and strong integration capabilities available.</td>
</tr>
</tbody>
</table>

#### Vendor Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viability</td>
<td>Vendor is profitable, knowledgeable, and will be around for the long term.</td>
</tr>
<tr>
<td>Strategy</td>
<td>Vendor is committed to the space and has a future product and portfolio roadmap.</td>
</tr>
<tr>
<td>Reach</td>
<td>Vendor offers global coverage and is able to sell and provide post-sales support.</td>
</tr>
<tr>
<td>Sales</td>
<td>Vendor channel partnering, sales strategies, and process allow for flexible product acquisition.</td>
</tr>
</tbody>
</table>
The following vendors qualified for the BaaS use case based on their evaluation results:

### Qualifying Vendors

<table>
<thead>
<tr>
<th>Vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>CommVault</td>
</tr>
<tr>
<td>Unitrends</td>
</tr>
<tr>
<td>Dell</td>
</tr>
<tr>
<td>Veeam</td>
</tr>
<tr>
<td>Symantec: NetBackup</td>
</tr>
<tr>
<td>Catalogic</td>
</tr>
<tr>
<td>IBM</td>
</tr>
<tr>
<td>Acronis</td>
</tr>
<tr>
<td>Symantec: Backup Exec</td>
</tr>
<tr>
<td>FalconStor</td>
</tr>
</tbody>
</table>
Vendor performance for the BaaS use-case scenario

4.4.1

BaaS (Backup as a Service)

End-User Self-Service/RBAC
Public Cloud Integration
Hypervisor to Hypervisor Backup & Restore
Snapshot Cataloguing & File Explorer
Continuous Data Protection
Automated VM Discovery and Replication
### What is a Value Score?

The Value Score indexes each vendor’s product offering and business strength relative to its price point. It does not indicate vendor ranking.

Vendors that score high offer more bang-for-the-buck (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*Vendors who scored 0 declined to provide pricing and publicly available pricing could not be found.

On a relative basis, Unitrends maintained the highest Info-Tech [Value Score](#) of the vendor group for this use-case scenario. Vendors were indexed against Unitrend's performance to provide a complete, relative view of their product offerings.

Average Score: 60.4
4.4.2: Mid-Market Backup Software Use-Case Scenario
# Feature weightings for the mid-market use case

## Core Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-restore testing</td>
<td>Automatically verify recoverability of VMs that have been backed up.</td>
</tr>
<tr>
<td>Snapshot cataloguing &amp; file explorer</td>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
</tr>
<tr>
<td>Physical backup appliance (all-in-one)</td>
<td>The solution can be delivered on a hardware appliance as an “all-in-one” solution (both software and hardware).</td>
</tr>
<tr>
<td>Public cloud integration</td>
<td>Data can be backed up to and restored from several public cloud service providers.</td>
</tr>
</tbody>
</table>

## Additional Features

- Hypervisor to hypervisor backup & restore
- End-user self-service/RBAC
- Advanced virtual lab
- End-point machine backup
- Backup and deduplication to tape

## Feature Weightings

- End-point machine backup: 10%
- Advanced virtual lab: 15%
- End-user self-service/RBAC: 5%
- Physical backup appliance: 20%
- Snapshot cataloguing & file explorer: 15%
- Hypervisor to hypervisor backup & restore: 15%
- Public cloud integration: 5%
- Backup & dedup. to tape: 5%
- Auto-restore testing: 10%
Vendor considerations for the mid-market use case

<table>
<thead>
<tr>
<th>4.4.2</th>
<th>Product Evaluation Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usability</td>
<td>The end-user and administrative interfaces are intuitive and offer streamlined workflow.</td>
</tr>
<tr>
<td>Affordability</td>
<td>Implementing and operating the solution is affordable given the technology.</td>
</tr>
<tr>
<td>Architecture</td>
<td>The solution is well designed with multiple deployment options, platform support, and strong integration capabilities available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>Vendor Evaluation Features</th>
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</tr>
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<td>Strategy</td>
</tr>
<tr>
<td>Reach</td>
</tr>
<tr>
<td>Sales</td>
</tr>
</tbody>
</table>

![Vendor Evaluation Features Pie Chart]

- Affordability: 25%
- Usability: 30%
- Architecture: 10%
- Viability: 5%
- Strategy: 20%
- Reach: 5%
- Sales: 5%
The following vendors qualified for the mid-market backup software use case based on their evaluation results:

**Qualifying Vendors:**

- Unitrends
- CommVault
- Dell
- Veeam
- Symantec: Backup Exec
- IBM
- Catalogic
- Quantum
- Acronis
- Barracuda
Vendor performance for the mid-market backup software use-case scenario

Mid-Market

- End-User Self-Service/RBAC
- Public Cloud Integration
- Backup & Dedup to Tape
- End-Point Machine Backup
- Advanced Virtual Lab Environment
- Physical Backup Appliances
- Auto-Restore Testing
- Hypervisor to Hypervisor Backup & Restore
- Snapshot Cataloguing & File Explorer
What is a Value Score?

The Value Score indexes each vendor’s product offering and business strength relative to its price point. It does not indicate vendor ranking.

Vendors that score high offer more bang-for-the-buck (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*Vendors who scored 0 declined to provide pricing and publicly available pricing could not be found.

For an explanation of how Price is determined, see Information Presentation – Price Evaluation in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see Information Presentation – Value Index in the Appendix.
4.4.3: Enterprise Backup Software Use-Case Scenario
### Feature weightings for the enterprise use case

#### Core Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous data protection</strong></td>
<td>Data changes are continuously tracked, enabling true any-point-in-time recovery.</td>
</tr>
<tr>
<td><strong>Snapshot cataloguing &amp; file explorer</strong></td>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
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<tr>
<td><strong>Physical backup appliance (all-in-one)</strong></td>
<td>The solution can be delivered on a hardware appliance as an “all-in-one” solution (both software and hardware).</td>
</tr>
<tr>
<td><strong>Public cloud integration</strong></td>
<td>Data can be backup to and restored from several public cloud service providers.</td>
</tr>
</tbody>
</table>

#### Additional Features

- End-user self-service/RBAC
- Deduplication (global, target, source)
- Advanced virtual lab
- Backup and deduplication to tape
- Hypervisor to hypervisor backup & restore

![Feature Weightings Chart]

- CDP: 30%
- Hypervisor to hypervisor backup & restore: 5%
- Backup & dedup. to tape: 5%
- Dedup. (global, target, source): 5%
- Physical backup appliance: 20%
- Advanced virtual lab: 5%
- Public cloud integration: 8%
- Snapshot cataloguing & file explorer: 13%
- End-user self-service/RBAC: 10%
Vendor considerations for the enterprise use case

4.4.3

Product Evaluation Features

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<tr>
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<td>Vendor offers global coverage and is able to sell and provide post-sales support.</td>
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<td>Sales</td>
<td>Vendor channel partnering, sales strategies, and process allow for flexible product acquisition.</td>
</tr>
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</table>
The following vendors qualified for the enterprise backup software use case based on their evaluation results:

**Qualifying Vendors:**

- IBM
- CommVault
- Unitrends
- Dell
- Symantec: NetBackup
- FalconStor
- Veeam
- Catalogic
- Barracuda
Vendor performance for the enterprise backup software use-case scenario

Enterprise Client

- CommVault
- IBM
- Unitrends
- Symantec: Netbackup
- Dell
- Catalogic
- FalconStor
- Veeam
- Barracuda

- End-User Self-Service/RBAC
- Public Cloud Integration
- Advanced Virtual Lab Environment
- Physical Backup Appliances
- Hypervisor to Hypervisor Backup & Restore
- Deduplication (Global, Target, and Source)
- Snapshot Cataloguing & File Explorer
- Continuous Data Protection
- Automated VM Discovery and Replication
What is a Value Score?

The Value Score indexes each vendor’s product offering and business strength relative to its price point. It does not indicate vendor ranking.

Vendors that score high offer more bang-for-the-buck (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*Vendors who scored 0 declined to provide pricing and publicly available pricing could not be found.

For an explanation of how Price is determined, see Information Presentation – Price Evaluation in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see Information Presentation – Value Index in the Appendix.
4.4.4: Highly Virtualized Backup Environment Use-Case Scenario
## Feature weightings for the highly virtualized use case

<table>
<thead>
<tr>
<th>Core Features</th>
<th>Feature Weightings</th>
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<tbody>
<tr>
<td><strong>End-user self-service &amp; RBAC</strong></td>
<td>Role-based access controls (RBAC) allow help desk admins or end users to conduct recoveries on their own (self-service).</td>
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<tr>
<td><strong>Snapshot cataloguing &amp; file explorer</strong></td>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
</tr>
<tr>
<td><strong>Advanced synthetic virtual lab environment</strong></td>
<td>Able to create and run a booted up, simulated testing environment synthetically from a backup copy.</td>
</tr>
<tr>
<td><strong>Public cloud integration</strong></td>
<td>Data can be backup to and restored from several public cloud service providers.</td>
</tr>
</tbody>
</table>

### Additional Features

- Hypervisor to hypervisor backup & restore
- Auto restore testing
- Auto VM discovery & replication
- Deduplication (global, target, source)
- Continuous data protection (CDP)

![Feature weightings diagram](image)
Vendor considerations for the highly virtualized use case

### Product Evaluation Features

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<tr>
<td>Strategy</td>
<td>Vendor is committed to the space and has a future product and portfolio roadmap.</td>
</tr>
<tr>
<td>Reach</td>
<td>Vendor offers global coverage and is able to sell and provide post-sales support.</td>
</tr>
<tr>
<td>Sales</td>
<td>Vendor channel partnering, sales strategies, and process allow for flexible product acquisition.</td>
</tr>
</tbody>
</table>
The following vendors qualified for the virtualized backup software use case based on their evaluation results:

<table>
<thead>
<tr>
<th>Qualifying Vendors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veeam</td>
</tr>
<tr>
<td>CommVault</td>
</tr>
<tr>
<td>Unitrends</td>
</tr>
<tr>
<td>Symantec: NetBackup</td>
</tr>
<tr>
<td>Dell</td>
</tr>
<tr>
<td>Catalogic</td>
</tr>
<tr>
<td>Symantec: Backup Exec</td>
</tr>
<tr>
<td>IBM</td>
</tr>
<tr>
<td>Acronis</td>
</tr>
<tr>
<td>Barracuda</td>
</tr>
</tbody>
</table>
Vendor performance for the virtualized backup software use-case scenario

Highly Virtualized Environment

- End-User Self-Service/RBAC
- Public Cloud Integration
- Advanced Virtual Lab Environment
- Auto-Restore Testing
- Hypervisor to Hypervisor Backup & Restore
- Deduplication (Global, Target, and Source)
- Snapshot Cataloguing & File Explorer
- Continuous Data Protection
- Automated VM Discovery and Replication
What is a Value Score?

The Value Score indexes each vendor’s product offering and business strength relative to its price point. It does not indicate vendor ranking.

Vendors that score high offer more bang-for-the-buck (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*Vendors who scored 0 declined to provide pricing and publicly available pricing could not be found.

For an explanation of how Price is determined, see Information Presentation – Price Evaluation in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see Information Presentation – Value Index in the Appendix.
4.4.5: All-in-One Backup Solution Use-Case Scenario
# Feature weightings for the all-in-one backup use case

## 4.4.5

<table>
<thead>
<tr>
<th>Core Features</th>
<th>Feature Weightings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical backup appliance (all-in-one)</strong></td>
<td></td>
</tr>
<tr>
<td>The solution can be delivered on a hardware appliance as an “all-in-one” solution (both software and hardware).</td>
<td></td>
</tr>
<tr>
<td><strong>Snapshot cataloguing &amp; file explorer</strong></td>
<td></td>
</tr>
<tr>
<td>Snapshots of the data are catalogued for recovery reference. The software contains an explorer function to find individual files within a snapshot, with the ability to search a file by name for easy, near-instant recovery.</td>
<td></td>
</tr>
<tr>
<td><strong>Hypervisor to hypervisor backup &amp; restore</strong></td>
<td></td>
</tr>
<tr>
<td>Ability to backup a VM on one hypervisor (e.g. VMware) host and restore it on another (e.g. Microsoft Hyper-V) and vice versa.</td>
<td></td>
</tr>
</tbody>
</table>

## Additional Features

- Advanced synthetic/virtual lab
- Auto restore testing
- End-user self-service/RBAC
- Deduplication (global, target, source)
- Continuous data protection (CDP)

![Feature Weightings Diagram](image)
Vendor considerations for the all-in-one backup use case

### Product Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usability</strong></td>
<td>The end-user and administrative interfaces are intuitive and offer streamlined workflow.</td>
</tr>
<tr>
<td><strong>Affordability</strong></td>
<td>Implementing and operating the solution is affordable given the technology.</td>
</tr>
<tr>
<td><strong>Architecture</strong></td>
<td>The solution is well designed with multiple deployment options, platform support, and strong integration capabilities available.</td>
</tr>
</tbody>
</table>

### Vendor Evaluation Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viability</strong></td>
<td>Vendor is profitable, knowledgeable, and will be around for the long term.</td>
</tr>
<tr>
<td><strong>Strategy</strong></td>
<td>Vendor is committed to the space and has a future product and portfolio roadmap.</td>
</tr>
<tr>
<td><strong>Reach</strong></td>
<td>Vendor offers global coverage and is able to sell and provide post-sales support.</td>
</tr>
<tr>
<td><strong>Sales</strong></td>
<td>Vendor channel partnering, sales strategies, and process allow for flexible product acquisition.</td>
</tr>
</tbody>
</table>
The following vendors qualified for the all-in-one backup use case based on their evaluation results:

### Qualifying Vendors:

- Unitrends
- Symantec: NetBackup
- Symantec: Backup Exec
- CommVault
- Dell
- IBM
- Barracuda
- HP
- FalconStor
- EMC
Vendor performance for the all-in-one backup use-case scenario

All-in-One Solution (Appliances)

- Unitrends
- Symantec: Netbackup
- Symantec: Backup Exec
- Dell
- CommVault
- IBM
- Catalogic
- Barracuda
- HP
- EMC

- End-User Self-Service/RBAC
- Public Cloud Integration
- Advanced Virtual Lab Environment
- Physical Backup Appliances
- Auto-Restore Testing
- Hypervisor to Hypervisor Backup & Restore
- Deduplication (Global, Target, and Source)
- Snapshot Cataloguing & File Explorer
Value Index for the all-in-one backup use-case scenario

What is a Value Score?

The Value Score indexes each vendor’s product offering and business strength **relative to its price point**. It **does not** indicate vendor ranking.

Vendors that score high offer more **bang-for-the-buck** (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*Vendors who scored 0 declined to provide pricing and publicly available pricing could not be found.*

On a relative basis, Unitrends maintained the highest Info-Tech **Value Score™** of the vendor group for this use-case scenario. Vendors were indexed against Unitrends’ performance to provide a complete, relative view of their product offerings.

For an explanation of how Price is determined, see [Information Presentation – Price Evaluation](#) in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see [Information Presentation – Value Index](#) in the Appendix.
4.5: Vendor Profiles and Scoring
Use the information in the Backup Software Vendor Landscape Analysis to streamline your vendor analysis process

4.5 Vendor Landscape Overview

The Backup Software Vendor Landscape Analysis includes vendor profiles and scoring for each vendor against the evaluation framework previously outlined.

**Vendor Profiles**
- Include an overview for each company.
- Identify the strengths and weaknesses of the product and vendor.
- Identify the three-year TCO of the vendor’s solution (based on a ten-tiered model).

**Vendor Scoring**
- Use the Harvey Ball scoring of vendor and product considerations to assess alignment with your own requirements.
- Review the use-case scenarios relevant to your organization’s Use-Case Fit Assessment results to identify a vendor’s fit to your organization’s backup needs.
- Review the stoplight scoring of advanced features to identify the functional capabilities of vendors.
Acronis Backup products have traditionally been successful in the SMB space with support for Windows and Linux.

**Overview**
- Anywhere to anywhere migration and universal restore capabilities allow a user to use a single console to backup/restore on all major hypervisors, all major operations systems, and all major applications.
- Broad virtual machine support, with agents for VMware vSphere/ESX/ESXi, Microsoft Hyper-V, Red Hat Enterprise Virtualization, Citrix XenServer, and Parallels. One license provides protection for an unlimited number of virtual machines.
- Strong usability features, including a unified console that offers users a familiar look and feel in Windows, Linux, and bootable environments.

**Strengths**
- Acronis offers a number of product bundles that cater to different use cases, giving the perception of complexity.
- No direct integration with public cloud; integration with third-party public cloud vendors requires staging to FTP/STP.

**Challenges**
- 3 year TCO for this solution falls into pricing tier 5, between $25,000 and $50,000
- Pricing provided by vendor.
Acronis has an innovative product with good usability and standout disaster recovery features

Acronis is designed specifically for smaller and medium-sized environments, with strong Windows and Linux compatibility built into the product. Acronis offers an integrated suite of backup products, all in one, for easy integration and features beyond just backup. Acronis is a safe long-term bet for the smaller enterprise given the easy system migration capabilities (based on best-in-class hypervisor agnostic migration). A free trial is available on the website for download.

<table>
<thead>
<tr>
<th>Use-Case Scenario Performance</th>
<th>BaaS</th>
<th>Mid-Market</th>
<th>Highly Virtualized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario Performance</td>
<td>8 out of 10</td>
<td>9 out of 10</td>
<td>9 out of 10</td>
</tr>
<tr>
<td>Value Index</td>
<td>73 3 out of 10</td>
<td>74 3 out of 10</td>
<td>73 3 out of 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Features</th>
<th>CDP</th>
<th>Auto VM discovery replication</th>
<th>Snapshot catalog &amp; exploring</th>
<th>Self-service RBAC</th>
<th>Global, target, and source dedup.</th>
<th>Hyperv. to hyperv.</th>
<th>Auto restore testing</th>
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<th>Advanced virtual lab</th>
<th>End-point machine backup</th>
<th>Backup &amp; dedup to tape</th>
<th>Public cloud integration</th>
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</tr>
</tbody>
</table>
Barracuda

Overview

- Barracuda Backup is a complete, cloud-integrated backup solution for protecting physical and virtual environments that includes software, appliance, and offsite replication.

Strengths

- All-inclusive purpose-built backup appliance (PBBA); including software, storage, cloud management, and deduplication.
- Backup software, local, and remote storage that can be rapidly installed in under an hour.
- Near-CDP (continuous data protection) available through snapshot technology, with the advanced ability to retain the CDP backups for any length of time based on customer retention policies.
- Cloud-based central management for seamless multisite administration.
- Barracuda has its own public and private cloud solution that is deeply integrated with its Barracuda Backup product.

Challenges

- Doesn’t support archiving to tape, however, Barracuda is releasing a “Tape Out” functionality very shortly to address this.
- The LiveBoot feature (for near instant recovery) is for VMware only.

Pricing provided by vendor.

3 year TCO for this solution falls into pricing tier 6, between $50,000 and $100,000
Barracuda has made significant leaps in modernizing the unified backup solution

Barracuda’s hardware and software solutions are robust, utilizing its cloud-integration to the fullest extent. Barracuda offers an excellent all-in-one solution, with hardware support.

**Use-Case Scenario Performance**

<table>
<thead>
<tr>
<th>Scenario Performance</th>
<th>Value Index</th>
<th>Mid-Market</th>
<th>Enterprise Client</th>
<th>Virtualized Environment</th>
<th>All-in-One Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10 out of 10</td>
<td>9 out of 9</td>
<td>10 out of 10</td>
<td>8 out of 10</td>
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<tr>
<td></td>
<td></td>
<td>66 5 out of 10</td>
<td>71 4 out of 9</td>
<td>63 5 out of 10</td>
<td>71 2 out of 10</td>
</tr>
</tbody>
</table>

**Features**

- **CDP**
- Auto VM discovery replication
- Snapshot catalog & exploring
- Self-service RBAC
- Global, target, and source dedup.
- Hyperv. to hyperv.
- Auto restore testing
- Physical backup appliance
- Advanced virtual lab
- End-point machine backup
- Backup & dedup to tape
- Public cloud integration
Catalogic Software

Overview
- As a spinoff of Syncsort, Catalogic Software offers a fresh perspective on disaster recovery with innovative solutions to backup data using advanced snapshot cataloguing to reduce copies of data and increase recovery times.

Strengths
- Catalogic employs snapshot technology cataloguing to reduce copies of data, leading to lower storage costs.
- Advanced search functionality out of the box, able to search for files, volumes, or snapshots and instantly recover them.
- Centralized dashboard to view all data, local, snaps, and mirrors.
- Advanced Disaster Recovery (DR) is available through its ECX product offering that provides automation to the DR process, such that it is highly consistent and auditable.

Challenges
- Catalogic Software doesn’t retain the same brand longevity or support capabilities it had with NetApp & Syncsort. Without the large backing of its previous partnerships there is a risk that it will not be as competitive.
- Entirely software centric, offering no hardware solutions.

4.5

Product: Catalogic DPX 4.3.1
Employees: 115
Headquarters: Woodcliff Lake, NJ
Website: CatalogicSoftware.com
Founded: 2013
Presence: Privately held

3 year TCO for this solution falls into pricing tier 7, between $100,000 and $250,000

Pricing provided by vendor.
Catalogic offers a top-notch backup product, thoughtfully designed and packed with robust, easy-to-use features. 

**Info-Tech Recommends:**
Catalogic's DPX software offers the best-in-class snapshot cataloging and granular file-level search explore functionality. DPX’s architecture, design, and interface are excellent.

### Use-Case Scenario Performance

<table>
<thead>
<tr>
<th>Scenario Performance</th>
<th>BaaS</th>
<th>Mid-Market</th>
<th>Enterprise Client</th>
<th>Virtualized Environment</th>
<th>All-in-One</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value Index</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Performance</strong></td>
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<td>7</td>
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<td>out of 10</td>
<td>out of 10</td>
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<td>out of 10</td>
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<tr>
<td><strong>Index</strong></td>
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<td>9 out of 10</td>
<td>8 out of 9</td>
<td>8 out of 10</td>
<td>6 out of 10</td>
</tr>
</tbody>
</table>

### Features

- CDP
- Auto VM discovery replication
- Snapshot catalog & exploring
- Self-service RBAC
- Global, target, and source dedup.
- Hyperv. to hyperv.
- Auto restore testing
- Physical backup appliance
- Advanced virtual lab
- End-point machine backup
- Backup & dedup to tape
- Public cloud integration

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Info-Tech Research Group
CommVault

Overview

• Simpana 10 offers enhanced data reduction features with an easy-to-use interface. Expect CommVault to continue to expand its market and mind share on the back of easy migration tools and new, more flexible pricing options.

Strengths

• Integrates well with a range of third-party array storage providers, including Dell, EMC, IBM, HDS, HP, NetApp, and Nimble Storage, for script-free snapshot control.
• Comprehensive feature package is ready to handle just about any backup scenario put before it.
• Deduplication Accelerated Streaming Hash capabilities enable backup of deduplicated data to a range of secondary disk targets, including disk, tape, and the cloud for efficient archiving.

Challenges

• CommVault’s capacity-based licensing model can be complex and expensive for growing businesses.
CommVault Simpana is a full-featured product that fits into a variety of use-case scenarios.

CommVault's Simpana is an attractive solution that offers robust features, ideal for the mid-market client looking for an all-in-one solution.

### Use-Case Scenario Performance

#### BaaS
- **Value Index**: 73 (4 out of 10)

#### Mid-Market
- **Value Index**: 71 (4 out of 10)

#### Enterprise Client
- **Value Index**: 72 (3 out of 9)

#### Virtualized Environment
- **Value Index**: 69 (4 out of 10)

#### All-in-One
- **Value Index**: 65 (3 out of 10)

### Features

- **CDP**: 
- **Auto VM discovery replication**: 
- **Snapshot catalog & exploring**: 
- **Self-service RBAC**: 
- **Global, target, and source dedup.**: 
- **Hyperv. to hyperv.**: 
- **Auto restore testing**: 
- **Physical backup appliance**: 
- **Advanced virtual lab**: 
- **End-point machine backup**: 
- **Backup & dedup to tape**: 
- **Public cloud integration**: 

---

Info-Tech Research Group
Dell Backup & Disaster Recovery Suite

Overview

- Launched in August 2014, Dell Backup & Disaster Recovery Suite is an amalgamation of AppAssure, vRanger, and NetVault products under one licensing model, offering a robust coverage of advanced features for an affordable price.

Strengths

- Advanced features are covered comprehensively with the shared functionality from all three products available in one licensing model.
- A flexible pricing model allows customers to buy each product separately, based on the need for specific features.
- Customer support, ease-of-use, and scalability have been cited as positives by Info-Tech customers using vRanger.
- One of the first products to achieve VMware Ready certification for vSphere 5, and its native catalog service enables users to easily search and restore files and systems across all backups.

Challenges

- While being robust in feature offerings, the multiple user interfaces of several products makes accomplishing daily tasks more difficult.
- Installing and implementing three products is more difficult than just one, especially in a complex data environment.

4.5

Product: Dell Backup & Disaster Recovery Suite
Employees: 108,800
Headquarters: Round Rock, TX
Website: Dell.com
Founded: 1984
Presence: NASDAQ: DELL
FY13 Revenue: $56.94B

3 year TCO for this solution falls into pricing tier 7, between $100,000 and $250,000

Pricing provided by vendor.
Dell’s backup and disaster recovery suite offers strength and reliability in virtual and physical backup, with robust features.

<table>
<thead>
<tr>
<th>Product</th>
<th>Overall</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
<th>Vendor</th>
<th>Overall</th>
<th>Viability</th>
<th>Focus</th>
<th>Reach</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
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<td>3</td>
<td>4</td>
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<td>4</td>
<td>3</td>
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</table>

Info-Tech Recommends:
Dell’s new suite of amalgamated products is feature robust, but still lacks a single user-interface to manage it all.

Use-Case Scenario Performance

<table>
<thead>
<tr>
<th>Scenario Performance</th>
<th>Value Index</th>
<th>BaaS</th>
<th>Mid-Market</th>
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<th>All-in-One</th>
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<td>31</td>
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<td>31</td>
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<td></td>
<td></td>
<td>6 out of 10</td>
<td>8 out of 10</td>
<td>6 out of 9</td>
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<td>5 out of 10</td>
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</table>

Features

<table>
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<tr>
<th>CDP</th>
<th>Auto VM discovery replication</th>
<th>Snapshot catalog &amp; exploring</th>
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</tbody>
</table>

122
EMC

Overview

- EMC Avamar offers backup and recovery through a complete software and hardware solution, utilizing integrated variable-length deduplication technology to provide faster daily full backups for virtual and physical environments.

Strengths

- Availability of software-only option as well as Avamar Data Store, a pre-integrated appliance, simplifies implementation, management, and support.
- Integration with vSphere to permit monitoring and management from within vCenter, which enables visibility into protection policies, and backup status for VM admins, and allows them to define backup policies for VMs as they are created.
- Grid-based architecture simplifies scaling of virtual infrastructure backup, and integration with Data Domain deduplication capabilities improves backup for larger streaming loads.
- Offers optimized bandwidth control with changed block dedup.

Challenges

- Cost and licensing complexity have been cited by many Info-Tech customers as deterrents.

---

The vendor declined to provide pricing, and publicly available pricing could not be found.

<table>
<thead>
<tr>
<th>Product: Avamar 7.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees: 63,900</td>
</tr>
<tr>
<td>Headquarters: Hopkinton, MA</td>
</tr>
<tr>
<td>Website: EMC.com</td>
</tr>
<tr>
<td>Founded: 1979</td>
</tr>
<tr>
<td>Presence: NYSE: EMC</td>
</tr>
<tr>
<td>FY11 Revenue: $20B</td>
</tr>
</tbody>
</table>

The vendor declined to provide pricing, and publicly available pricing could not be found.
EMC’s Avamar offers great deduplication functionality with solid vSphere integration

**Product**

<table>
<thead>
<tr>
<th>Overall</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
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</tbody>
</table>

**Vendor**

<table>
<thead>
<tr>
<th>Overall</th>
<th>Viability</th>
<th>Focus</th>
<th>Reach</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
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</tr>
</tbody>
</table>

**Use-Case Scenario Performance**

<table>
<thead>
<tr>
<th>All-in-One</th>
<th>Value Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 out of 10</td>
<td></td>
</tr>
</tbody>
</table>

The vendor declined to provide pricing and publicly available pricing could not be found.

**Info-Tech Recommends:**

EMC’s backup solution is a mature solution with strong functional capabilities that are most aligned with the all-in-one (hardware and software), enterprise market. EMC offers excellent management software, built into its Avamar software solution, able to manage the most complex environments with ease.

**Features**

- CDP
- Auto VM discovery replication
- Snapshot catalog & exploring
- Self-service RBAC
- Global, target, and source dedup.
- Hyperv. to hyperv.
- Auto restore testing
- Physical backup appliance
- Advanced virtual lab
- End-point machine backup
- Backup & dedup to tape
- Public cloud integration

4.5
FalconStor

Overview

- FalconStor is a data protection vendor that provides Continuous Data Protection with CDP, storage virtualization with its Network Storage Server, and disk target solutions like its Virtual Tape Library and File-interface Deduplication Systems.

Strengths

- CDP offers data protection at large scale, with up to 1,000 snapshots and 64TB per LUN, with an advanced multi-threaded architecture for simultaneous replication, compression, and encryption operations.
- MicroScan reads data at a 512 byte level for efficient replication.
- FalconStor offers flexible CDP deployment options, such as a Virtual Appliance (up to 10TB), Storage Appliance (preconfigured with up to 192TB), VS Series HA Appliance (up to 288TB with higher performance and availability), and Gateway Appliance (to leverage existing storage) and a software-only solution.

Challenges

- Flexibility can come with added complexity, as multiple consoles are required for added utilities, such as RecoverTrac and HyperTrac.
- Some customers have expressed frustration with delays for product updates.

Product: Continuous Data Protector 7.7 (CDP)
Employees: 272
Headquarters: Melville, NY
Website: FalconStor.com
Founded: 2000
Presence: NASDAQ: FALC
FY13: Revenue $58.6M

3 year TCO for this solution falls into pricing tier 7, between $100,000 and $250,000

Pricing provided by vendor.
FalconStor offers stand out application support and continuous data protection capabilities

<table>
<thead>
<tr>
<th>Use-Case Scenario Performance</th>
<th>Value Index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BaaS</strong></td>
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<tr>
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<tr>
<td>16 8 out of 10</td>
<td>19 7 out of 9</td>
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**Info-Tech Recommends:**

FalconStor’s CDP product is designed for the enterprise client. Organizations with short RPO/RTOs are a good fit with the best-in-class continuous data protection capabilities built into this solution.

**Features**

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<tr>
<th>CDP</th>
<th>Auto VM discovery replication</th>
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**Product**

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<th>Overall</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
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**Vendor**

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<tr>
<th>Overall</th>
<th>Viability</th>
<th>Focus</th>
<th>Reach</th>
<th>Sales</th>
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<td>3</td>
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</table>

**Overall Usability Afford. Arch. Overall Viability Focus Reach Sales**

3 3 4 3 3 3 3
Hewlett-Packard Company (HP)

Overview

• HP has a strong portfolio of desktops, servers, and storage along with a growing software lineup, providing a full gamut of physical and virtual backup options (from disk to virtual to tape).

Strengths

• For VMware environments, Data Protector Granular Recovery Extension capability enables VMware admins to recover single items directly from the vSphere console.
• Data Protector offers strong integration with HP hardware, such as snapshots and replication with 3Par, EVA, P9000, and native deduplication with StorageOnce D2D Systems, and with EMC’s Data Domain Boost, VNX/VMAX arrays, and NetApp FAS.
• Automatic detection and policy application to new VMs.
• Recently added integration between Data Protector and VMware vCloud Director, allowing VM admins to manage protection of multiple vCenter instances from one interface and browse vCloud Director setup and configuration. Supports advanced integration with mission critical apps, such as SAP HANA.

Challenges

• HP continues to struggle to gain a strong foothold in the market despite recent surges in mind share from 3Par and StoreOnce D2D in the storage and disk backup markets respectively.
HP Data Protector provides great hardware integration with 3Par, LeftHand, and StoreOnce D2D

Info-Tech Recommends:

Data Protector should be on the shortlist of any HP customer, whether looking at storage, disk backup, or servers, given its strong integration with HP hardware. HP’s data protector is a mature solution with strong functional capabilities that are most aligned with the all-in-one (hardware and software), enterprise client.

Use-Case Scenario Performance

All-in-One

9 out of 10

Value Index

The vendor declined to provide pricing and publicly available pricing could not be found

Features

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</table>
IBM Tivoli Storage Manager for Virtual Environments conducts incremental forever backups for virtual environments, eliminating the need for periodic full backups in VMware and Hyper-V environments.

- Supports recovery of individual files from within VMs, non-disruptive snapshots at the VM level, and "instant restore" that allows a guest to access a volume while the volume is being recovered.

- Excellent scalability: IBM has increased scalability with 10x improvement to daily ingest of de-duplicated and replicated data, capable of managing as many as four billion data objects.

Strengths

- Complexity tends to be the primary complaint from a usability standpoint, both from an ongoing management and a support standpoint. IBM is investing heavily in improving this perception.

Challenges

Overview

- A worldwide leader in IT hardware, software, and services, and number two in market share, IBM has a strong history in backup, pioneering tape backup, disk-to-disk backup, and the incremental forever approach to backup.

Overview

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- A worldwide leader in IT hardware, software, and services, and number two in market share, IBM has a strong history in backup, pioneering tape backup, disk-to-disk backup, and the incremental forever approach to backup.
Pioneer in backup, IBM’s Tivoli Storage Manager stands apart for its enterprise class scalability.

**Info-Tech Recommends:**
IBM’s TSM is designed for the fast growing, enterprise client that is looking for robust features and scalability.

### Use-Case Scenario Performance

<table>
<thead>
<tr>
<th>Scenario Performance</th>
<th>BaaS</th>
<th>Mid-Market</th>
<th>Enterprise Client</th>
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<td>6 out of 10</td>
<td><strong>LEADER</strong></td>
<td>8 out of 10</td>
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### Features

- CDP
- Auto VM discovery replication
- Snapshot catalog & exploring
- Self-service RBAC
- Global, target, and source dedup.
- Hyperv. to hyperv.
- Auto restore testing
- Physical backup appliance
- Advanced virtual lab
- End-point machine backup
- Backup & dedup to tape
- Public cloud integration
Quantum

- Traditionally known for its disk and tape backup products – DXi and Scalar, respectively – Quantum entered the VM backup market through acquisition of Pancetera Software in 2011 and now offers virtual, physical, and cloud storage options.

Overview
- Full-featured vmPRO standard is available free for up to 1TB.
- vmPRO backups are stored in native VMDK format, enabling full visibility through vCenter. Customers can boot VMs from backups, using vmPRO GUI or a simple file browser, whether in an off-site data center or in the cloud.
- Native format backup also avoids issues with vendor lock-in associated with proprietary backups, for long-term flexibility.
- Quantum’s Progressive Optimization technology leverages VMware’s APIs for Data Protection to deliver up to 75% reduction in host, network, and storage resource utilization.
- Integration with Quantum’s DXi Disk Backup Systems enables deduplication, encryption, and replication.

Strengths
- vmPRO currently does not support Microsoft Hyper-V or Citrix XenServer.
- Convincing customers of the benefits of backing up in a native VMDK (Virtual Machine Disk) format may be a challenge.

Challenges

---

Product: Quantum vmPRO 3.2.0
Employees: 1,300
Headquarters: San Jose, CA
Website: Quantum.com
Founded: 1980
Presence: NYSE: QTM
FY14 Revenue: $553.17M
Quantum’s vmPRO software offers flexible, fast, and simply-managed virtual backup for VMware environments

**Info-Tech Recommends:**
Quantum is best suited to the mid-market client that is familiar with its disk and tape hardware solutions. The best deal can be achieved through packaging hardware and software. Look to see Quantum expand its feature offerings in the next few version releases. Quantum was traditionally focused on its disk and tape hard drive backup solutions, but has expanded its offering to include mid-market backup software solutions through the acquisition of Pancetera.
Symantec Backup Exec

Overview

- Symantec is the largest provider of security software in the world and the market share leader in the backup software market.
- Backup Exec 2014 is a single platform for all backup needs, including physical, virtual, and public cloud backup.

Strengths

- Backup Exec remedies many of the outstanding issues and missed features of the previous 2012 version, bringing back features such as Job Monitor.
- Symantec V-ray technology provides visibility into virtual and physical environments leading to quick and complete backup and file-level granular recovery.
- Backup Exec uses an OpenStorage Technology API, allowing direct integration of hardware with Backup Exec software. This allows snapshots to be managed by the solution and enables recovery of snapshots from the backup software.
- From a single console it is possible to manage all aspects of the solution.

Challenges

- Backup Exec 2014 doesn’t offer role-based access control or end-user self-service features with this product. Symantec’s roadmap includes adding this feature for users.
Symantec Backup Exec is the market share leader and an excellent backup solution for Windows/Linux environments.

<table>
<thead>
<tr>
<th>Product</th>
<th>Vendor</th>
<th>Info-Tech Recommends:</th>
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<tbody>
<tr>
<td>Overall Usability</td>
<td>Overall Viability</td>
<td>Symantec's Backup Exec software solution is a strong contender in the mid-market space as the leader in market share.</td>
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<td>Afford.</td>
<td>Focus</td>
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<td>Arch.</td>
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Symantec NetBackup

Overview

- Symantec is the largest provider of security software in the world and a market-share leader in the backup software market, with a broader portfolio, which includes Netbackup as the robust enterprise edition of its backup software.

Strengths

- NetBackup’s unified console and integration with Symantec backup appliances simplifies deployment, management, maintenance, and monitoring processes.
- Excellent virtual machine support, with automated protection and recovery of entire VMs as well as granular recovery of files, databases, or individual database items.
- OpenStorage Initiative Application Programming Interface (API) allows NetBackup to integrate with a variety of storage targets, including EMC, ExaGrid, Fujitsu, HP, and IBM arrays.

Challenges

- While Symantec offers a broad portfolio of solutions, integration across its product family is not as strong a point as with some competitors.
- Symantec has discontinued its Real Time Continuous Data Protection (CDP) software, focusing instead on Replication Director and NetBackup Accelerator. It feels these are more cost-effective approaches to aggressive RPOs and RTOs.
Symantec unites exceptional virtual and physical machine protection features with convenient management tools

<table>
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Info-Tech Recommends:
Symantec's NetBackup software is recommended to organizations looking for an enterprise-class, all-in-one solution.
Unitrends

Overview

- Unitrends is a fast growing (33% year-over-year) data protection company, now merged with PHD Virtual, focusing on flexibility, offering virtual and physical appliances, broad server, storage, OS, and hypervisor support, and providing multiple recovery and data protection strategies.

Strengths

- Incremental forever strategy allows Unitrends to enable fully customizable combinations of full, synthetic full, incremental, or differential backups on both single-server or multiple-server backup jobs.
- Near continuous data protection model allows for RPOs as low as 60 seconds, and failover virtualization enables Instant Recovery for VMware, leveraging storage vMotion, for recovery into live mode or audit mode for verification and testing.
- Unitrends Enterprise Backup provides robust cloud integration. It supports single tenant private clouds and multiple tenant public cloud targets, including Amazon and Google Cloud.
- Instant VM Recovery uniquely enables users to run VMs from backup targets directly for restore testing.

Challenges

- While Unitrends does not support direct backup to tape, it supports tertiary backup to tape for long-term retention.

Product: Unitrends Certified Recovery Suite
Employees: 400
Headquarters: Burlington, MA
Website: Unitrends.com
Founded: 1989
Presence: Privately held

3 year TCO for this solution falls into pricing tier 5, between $25,000 and $50,000

Pricing provided by vendor.
Unitrends offers flexible backup and recovery options primarily targeted at mid-sized businesses

### Use-Case Scenario Performance

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<td>Mid-Market</td>
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### Info-Tech Recommends:

Unitrends Certified Recovery Suite is a well-rounded, full featured, all-in-one backup solution that is affordably priced for the mid-market client.

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<th>Product</th>
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<td>Overall</td>
<td>Usability</td>
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### Features

- CDP
- Auto VM discovery replication
- Snapshot catalog & exploring
- Self-service RBAC
- Global, target, and source dedup.
- Hyperv. to hyperv.
- Auto restore testing
- Physical backup appliance
- Advanced virtual lab
- End-point machine backup
- Backup & dedup to tape
- Public cloud integration
Veeam

Product: Veeam Availability Suite v8
Employees: 1,600
Headquarters: Baar, Switzerland
Website: Veeam.com
Founded: 2006
Presence: Privately held

Overview
- Designed specifically for virtual backup, Veeam was the first to offer the ability to restore files without restoring the VM image. It differentiates on ease-of-use and price, and offers solutions for management and reporting on virtual infrastructure.

Strengths
- Veeam’s patented vPower technology allows it to run a virtual machine from a compressed and deduplicated backup file on backup storage for quick recovery.
- SureBackup automated recovery verification ensures recoverability, by powering on VMs behind a proxy, testing OS, and apps, then powering off VMs and sending a report.
- Introduces Veeam Cloud Connect for easy, fully integrated cloud backup for Veeam service providers to offer Backup-as-a-Service (BaaS).
- Veeam optimizes network utilization using multiple methods, including bandwidth throttling, WAN optimization, intelligent load balancing, and a forever incremental backup model.

Challenges
- Backup of physical infrastructure and backup to tape requires a third-party backup solution; Veeam is not an all-in-one solution. However, it partners with other vendors to provide the entire backup solution.

3 year TCO for this solution falls into pricing tier 5, between $25,000 and $50,000

Pricing provided by vendor.

4.5

Pricing:
- $1
- $1M+

Changes:
- 4.5
Veeam offers cost effective and practical virtual infrastructure backup and recovery verification

Info-Tech Recommends:

Veeam Availability Suite v8 is a champion in the virtualized environment, differentiating itself through ease of use and affordability.

Use-Case Scenario Performance

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Features

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4.6: Create a Custom Shortlist
Evaluate alternative backup software vendors not included in Info-Tech’s Vendor Landscape

Info-Tech only evaluated a portion of vendors in the backup software market. Don’t just narrow your backup procurement project to only include vendors recognized in Info-Tech’s Vendor Landscape.

Additional Vendors in the Backup Software Market

To name a few…
Outcomes from Phase 2: Analyze Backup Requirements and Shortlist Vendors

Outcomes from Phase 2: Vendor Landscape – Analyze Backup Requirements and Shortlist Vendors

- Completion of high-level backup and restore process mapping.
- Identification of functional and technical requirements for your organization’s backup solution, integrated into a completed RFP template.
- Identification of your organization’s relevant use-case scenarios.
- In-depth knowledge of vendors in the backup software market.
- Creation of a custom vendor shortlist based on vendor profiles and scoring.

Next Steps

- Download the materials and storyboard for Phase 3: “Select Your Backup Solution.”
- Follow the steps within this phase in order to send RFPs to shortlisted vendors, successfully evaluate vendors, and successfully select and procure a backup solution.

Included in Phase 3: Select Your Backup Solution

- Project steps for standardizing RFPs from vendors, evaluating vendors, selecting your backup software, and finalizing the procurement of your solution.
- Resources to support your procurement steps:
  - Vendor Response Template
  - Backup Demo Script Template
  - Backup Software Evaluation and Scoring Tool
Phase 1: Launch a Backup Software Selection Project

Phase 2: Analyze Backup Requirements and Shortlist Vendors

Phase 3: Select a Backup Solution

Phase 4: Plan the Backup Implementation

Step 5: Select a Backup Solution
Step 5: Select a backup solution

This step will walk you through the following activities:

5.1: Determine your procurement strategy.
5.2: Standardize the potential responses from vendors.
5.3: Evaluate the RFPs.
5.4: Create a demo script.
5.5: Conduct onsite vendor presentations and demos.
5.6: Conduct client reference interviews.
5.7: Select your backup software suite.

This step involves the following participants:

- Project manager.
- Subject matter experts.
- Evaluation team.
- Vendor representatives.
- Steering committee.

Outcomes of this step:

- Identification of the opportunities associated with backup software.
- Confirmation of the business’s suitability for a backup software investment.
- An appraisal of Info-Tech’s Vendor Landscape market overview for backup software.
- Determination if now is the right time to proceed with this project.
Determine the role of third parties in your backup procurement and implementation

Identify if you wish to have a third-party firm help to guide your organization’s evaluation or selection of a backup software and architecture, or support your organization’s configuration and implementation of a customized solution.

Third-Party Involvement During Vendor Selection

• Involving a third-party firm to support your organization’s evaluation of backup vendors can be valuable as they will have expertise and insights into vendor solutions that extend past the knowledge of your in-house staff.
• Beware of relationships between vendors and third parties to ensure that vendors are fairly evaluated based on your organization’s needs.

The Value of a System Integrator

• A system integrator is responsible for identifying, loading, and integrating information and data from other enterprise systems. Most system integrators will also assist with platform configuration and customization.
• Large enterprises often need a specialist, not a jack-of-all-trades employee, to lead the backup software integration. Any money saved in hiring or assigning the task of system integrator to a less qualified individual will create more problems later on and it may even compromise the functionality or adoption of the backup system.
• When selecting a system integrator, look for specific experience with the portfolio of applications being integrated. Ask for customer referrals to verify the success of previous integrations.

It is standard industry practice that two separate contracts exist for the two different phases of selection and implementation of application technology. Parties involved in an application’s procurement are disqualified from contract considerations as an integrator for the selected suite. This division helps to improve the legitimacy and fairness of the procurement process.

Organizations deploying an out-of-the-box version of the backup software are far more likely to be able to implement without the assistance of a third-party integrator. Organizations with multiple points of integration (especially between SaaS and on-premise applications) or complex data migration needs will want to strongly consider hiring a third-party system integrator.
Determine your procurement strategy

Critical Points and Checks in Your Procurement

- Follow your organization’s procurement procedures to ensure that you adhere to its policies.
- Based on your organization’s policies, identify if you are going to conduct a private or public RFP process.
  - If your RFP will contain sensitive information, use a private RFP process that is directed to specific vendors in order to protect the proprietary practices of your business.

If you are still not sure of a vendor’s capabilities, we recommend sending an RFI before proceeding with an RFP.

Additional vendor selection research
If your organization lacks a clear procurement process, refer to Info-Tech's Optimize IT Procurement research to help construct a formal process for selecting a backup technology.

Much of your procurement process should already be outlined from your charter and initial project structuring. In this stage of the process, focus on the successful completion of steps 12-15.

Info-Tech’s 15 Step Procurement Process

Use Info-Tech’s Procurement Process to ensure that your backup software selection is properly planned and executed.

1. Initiate procurement.
2. Select procurement manager.
3. Prepare for procurement; check that prerequisites are met.
4. Select appropriate procurement vehicle.
5. Assemble procurement teams.
6. Create procurement project plan.
7. Identify and notify vendors about procurement.
8. Configure procurement process.
9. Gather requirements.
10. Prioritize requirements.
11. Build the procurement documentation package.
12. Issue the procurement.
13. Evaluate proposals.
14. Recommend a vendor.
15. Present to the management team.
Backup software licensing traditionally has been complex. Total cost is calculated per server agent with additional charges for advanced features.

In traditional licensing models, you pay by the feature multiplied by the server agent, with additional charges for application-specific agents to meet the particular requirements of database servers, or email, or document management such as SharePoint servers.

Look for options that reduce complexity by moving away from the by-feature and by-host multipliers. Opportunities for licensing simplification include:

- **Solutions that include advanced features and functions in the base license.** For example, IBM Tivoli and Catalogic both include deduplication at no extra cost.

- **Capacity-based licensing.** In capacity-based licensing, cost is based not on the number of host servers protected, but on the total amount of storage backed up. Symantec and CommVault have added capacity-based licensing.

---

**Premium Price for Premium Product**

In reputational terms, CommVault gets frequent negatives from customers for the total cost of its licensing. “Love the software, hate the pricing” is a common refrain from CommVault users. HP Data Protector, on the other hand, has been aggressive on license pricing.

---

**Caution: Maintenance Gotcha**

As with storage, hardware vendors will often lowball (discount) licensing to get the deal, but lock the customer into high price maintenance contracts. Some organizations that have changed backup providers cite high support/maintenance costs as a motivation to switch. In product demonstrations, make sure you get value for money spent on maintenance/support.

---

“We made the switch for a number of reasons. Maintenance costs of our previous solution were greater than the purchase price of our current solution. The previous solution used client-based licensing; our current solution is based on backup target capacities. Our current solution also integrates with our SAN storage leveraging snapshot capabilities to reduce backup times where our previous solution couldn’t.”

– Team Lead/Supervisor, Public Admin
Create a demo script

5.4 **Backup Software Vendor Demo Script Template**

Use a demo script to help identify how a vendor’s solution will fit your organization’s particular business capability needs.

**Make sure the solution will work for your business.**
Provide the vendor with a mapped process that you would like to see modeled in their software.

Provide the following information to vendors in your script:
- Mapped process.
- If required, sample data.
- Example of your organizational structure as it relates to the process.

**Ask for a display of the tool’s interface and capabilities.**
Provide prompts to display:
- How to document and build a process in the modelling interface.
- How to create user forms.
- How users will interact with a running process.
- A view of the user interface.
- A view of the monitoring dashboards and management interfaces.

Use the space in Scenario 4 of the **Backup Software Demo Script Template** to outline your business process for the vendor model.

**Use Scenarios 1-3 in the** **Backup Software Demo Script Template** **to support your review of the tool’s capabilities.**

**Instructions**

1. Create a demo script that will be sent to vendors that outlines a mapped process from your organization.
2. Construct the demo script with your project team, providing both prompts for the vendor to display the capabilities and a process scenario for the vendor to model.

**Participants**
- Project manager
- Writers selected from the project team

**Information Sources**
- Requirements package
- Use-case results

---

**Backup Software Vendor Demo**

**Introduction:** How to Use This Tool

Use this demonstration template to help you organize your demo model with a solution that meets your requirements. The following sections of the template provide you with a common scenario to which you can add your new solution.

- **Scenario 1:** Overview of the solution
- **Scenario 2:** Exploring the solution
- **Scenario 3:** Implementing the solution
- **Scenario 4:** Outlining your business process for the vendor model

Make sure the solution will work for your business. Provide the vendor with a mapped process that you would like to see modeled in their software.

Provide the following information to vendors in your script:
- Mapped process.
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Use the space in Scenario 4 of the **Backup Software Demo Script Template** to outline your business process for the vendor model.

**Use Scenarios 1-3 in the** **Backup Software Demo Script Template** **to support your review of the tool’s capabilities.**
Conduct onsite vendor presentations and demos

5.5 Conduct vendor demonstrations

Vendor demonstrations create a valuable opportunity for your organization to confirm that the vendor’s claims in the RFP are actually true.

A display of the vendor’s functional capabilities and their execution of the scenarios given in your demo script will help to support your assessment of whether a vendor aligns with your backup software requirements.

Who to engage

Have your evaluation team, selected at the outset of the project, present to evaluate each vendor’s presentation. In specific cases you may choose to bring in a SME to evaluate a specific area of the tool.

Evaluation Team

- Project manager
- Business representative
- SMEs
- IT manager

Examine how the vendor’s solution performs against your evaluation framework.

What should be included in a vendor demonstration?

- Vendor’s display of their solution for the scenarios provided in the demo script.
- Display of functional capabilities of the tool.
- Briefing on architectural and integration capabilities.
Conduct client reference interviews to identify how other organizations have successfully used the vendor’s solution

Have vendors supply client references to confirm the value of their implemented solution.

Vendors are inevitably going to provide references that will give positive feedback, but don’t be afraid to dig into the interviews to understand some of the limitations related to the solution.

- **Even if a vendor is great for one client doesn’t necessarily mean it will fit for you.** Ask the vendor to provide references to organizations in your own or a similar industry, or someone who has implemented the solution to protect similar business processes or applications data.

- **Use these reference calls as an opportunity to gain a more accurate understanding of the quality of the vendor’s service support and professional services.**

If you are looking to include a high level of customization in your backup solution, pay particular attention to this step and the client responses, as these will help you understand how easy a vendor is to work with.

Make the most of your client reference interviews by preparing your questions in advance and following a specific script.
Don’t just choose the vendor that gave the best presentation; select the vendor that meets your solution requirements

Select the backup software that best fits your organization’s backup and restore needs.

Tab 5. Overall Score from the Backup Software Evaluation and Scoring Tool

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
<th>Vendor 1</th>
<th>Vendor 2</th>
<th>Vendor 3</th>
<th>Vendor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPM Features</td>
<td>60%</td>
<td>75%</td>
<td>80%</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Architecture</td>
<td>25%</td>
<td>55%</td>
<td>60%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Support</td>
<td>15%</td>
<td>10%</td>
<td>70%</td>
<td>60%</td>
<td>95%</td>
</tr>
<tr>
<td>Total Score</td>
<td>100%</td>
<td>60%</td>
<td>74%</td>
<td>80%</td>
<td>91%</td>
</tr>
</tbody>
</table>

Use your objective evaluation to select a vendor to recommend to management for procurement.

Don’t automatically decide to go with the highest score; validate that the vendor is one you can envision working with for a long time.

• Select a vendor based, not only on their evaluation performance, but also based on your belief that you could form a lasting and supportive relationship.
  ◦ With its evolving functionality and complexity, backup software may require more vendor engagement and partnering than many other application suites in the form of ongoing support.

Following the identification of your selected software, submit your recommendation to the organization's management or procurement committee for final approval.
Negotiate and finalize a contract outlining the terms of service for your backup solution

Defer First to Your Organization’s Process

Follow your own organization’s contract negotiation and approval process as you finalize the deal with your selected backup software vendor.

- Each industry and organization has different requirements and considerations that will alter how a contract negotiation and approval process are performed.

Info-Tech’s Contract Negotiation Tips and Reminders

Explore discounting options.

- Most vendors offer some form of discounting, based on volume of users or the nature of your industry. Explore how the vendor’s discounting model can improve the ROI of your investment.

Value is captured not only in the functional capabilities of the solution, but also in its ongoing support and utilization.

- **Training:** Determine the mode and rigor of end-user and developer training.
- **Implementation:** Outline the vendor’s role and the expected results related to the configuration and implementation of the backup solution.
- **Service Support:** Identify the level of support your organization requires for the ongoing maintenance and performance of the tool.

**Info-Tech Insight**

Offering to be a potential reference after a successful deployment could help secure higher quality service during implementation and after deployment. Just be clear that the offer is contingent on a successful implementation.
Outcomes from Phase 3 of your backup selection and procurement project

Outcomes from Phase 3: Select Your Backup Solution

- Successful evaluation of shortlisted backup vendors.
- Selection of a single backup vendor solution for the organization.
- A completed vendor contract negotiation.
- Approval of the selected solution and budget by the project's oversight.

Next Steps

- Download the materials and storyboard for Phase 4: Plan Your Backup Implementation.
- Create a project plan for deploying the selected backup software into the organization’s IT landscape and integrating it into the business’s work environment.

Included in Phase 4: Plan Your Backup Implementation

- A work breakdown structure where you can outline the key activities relating to each step of configuring and deploying the selected backup software into the infrastructure.
- Creation of service level agreements and data retention policies, which will be documented using the backup SLA template.
- Implementation of scheduled restore testing and continued backup performance monitoring to gauge the value/effectiveness of the backup software investment.
Step 6: Create a Backup Implementation Plan

Phase 1: Launch a Backup Software Selection Project

Phase 2: Analyze Backup Requirements and Shortlist Vendors

Phase 3: Select a Backup Solution

Phase 4: Plan the Backup Implementation
Step 6: Create a backup implementation plan

This step will walk you through the following activities:

6.1: Create your backup implementation project plan.
6.2: Establish and communicate data retention policies.
6.3: Construct service level agreements (SLAs).
6.4: Transition to IT operations staff.

This step involves the following participants:

- IT staff
- IT project manager
- System admins

Outcomes of this step:

- The completion of the project plan for implementing the backup software into the backup infrastructure.
- A clear plan for successfully transitioning from the old backup solution to the new one.
- Creation of service level agreements & data retention policies.
Prepare for changes in people, processes, and technology

People
• Determine which individuals’ responsibilities will change within your organization.
• Identify where gaps have been created, in terms of employee capabilities.
• Adjust human capital roles (e.g. switch from tape to disk or cloud-based solution requires less labor).
• Spot the key areas for transformation, adaptation, and revision in terms of organizational roles.

Processes
• Review backup and restore processes annually.
• Implement vendor performance management metrics to help cultivate the vendor relationship.
• Create a streamlined process for continuous backup performance reviews (backup & restore tests) to identify areas of strength and areas of weakness within the backup solution.

Technology
• Evaluate whether storage equipment should be retained, sold, or disposed of, based on its relevancy to the organization on an on-going basis, as well as its financial value.
• Update your existing infrastructure where appropriate, in order to avoid wasteful redundancy and create cost savings where possible.
• Identify any new technological/architectural requirements that may be necessary in order to facilitate optimal utilization and implementation of the vendor’s solution.
Create your project plan for guiding the implementation of your selected backup solution

6.1 Backup Solution Work Breakdown Structure Template

- Refine Solution Architecture
- Install and Configure Software (on-premise) or Configure Solution (SaaS)
- Transition to Smooth Operations

Ongoing Operations: Steady State Backup & Recovery

Use the Backup Solution Work Breakdown Structure Template to plan your configuration and implementation of the backup solution.

Considerations as you build your implementation roadmap:
- Backup isn’t plug and play technology; spend time identifying the data retention policies and service level agreements that will be required for successful utilization of the backup software.
- The role of a third-party integrator in your steps.
- The degree of vendor involvement in initial implementation, design mapping, and end-user training.

“The difficulty is out of the box [the product] doesn’t do much, you need a working knowledge of the product to properly configure and install it.”

– Anonymous
Run your implementation phases in tandem based on dependent activities and timeline considerations

<table>
<thead>
<tr>
<th>Implementation Timeline</th>
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</thead>
<tbody>
<tr>
<td>Refine Solution Architecture</td>
</tr>
<tr>
<td>Install and Configure Solution</td>
</tr>
<tr>
<td>Create SLAs &amp; Data Retention Policies</td>
</tr>
<tr>
<td>Implement Trial Process on a Few Servers</td>
</tr>
<tr>
<td>Transition to Operations</td>
</tr>
</tbody>
</table>

Identify the strategic investments and resourcing that will be required for the implementation of your backup solution.

People
Process
Technology

Following the implementation of your backup software and successful transition to operations, your organization will be ready to perform regular backups and full restores, and begin monitoring.

Consider the integration requirements and connections to your organization’s other data and information sources as you plan your implementation and build your processes.
Establish and communicate clear data retention policies

Holding onto historical data exposes your organization to significant risk. Err on the side of caution and avoid making yourself vulnerable.

Archiving is not about keeping data. It’s about figuring out what you need to lose. Your historical data may be valuable, but there needs to be a compelling business case to hold on to it. If you are storing data beyond the point required of you by compliance regulations, ask:

- Has this data been accessed recently?
- What is the benefit in keeping this data? Where does its value lie?
- Does that value justify the cost of keeping it, considering the cost of storage, as well as maintenance costs for any equipment that may be required for data in legacy formats?
- Is the data even accessible at this point? Media decay and a lack of compatible technology may render it useless, even if you did want to keep it.

Don’t expose yourself to unnecessary risk. Historical data sprawl can make e-discovery and compliance increasingly difficult, leaving the organization vulnerable to fines and other censures when an e-discovery or litigation request comes through. The more data that accumulates, the more difficult it will be to respond to such requests in a timely fashion.

Be careful of what you hold on to. Storing Personally Identifiable Information (PII) – including contact information, financial account information, and personal characteristics – also opens your company up to legal liability by increasing the risk of violating privacy laws.

Make room for exceptions. Some data sets or particular records may require a longer retention period. Be prepared to make exceptions, as long as there is a strong business case for it.
Determine risk and value criteria for classification of information sources

When risk outweighs value, purge documents as soon as the regulations allow. Value comes from clean, clear information that has a clear use case.

<table>
<thead>
<tr>
<th>Risk</th>
<th>VS.</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Risk comes in many forms: compliance, litigation, loss of opportunity, productivity, etc.</td>
<td>• Value is the opposite of risk: increased productivity, new opportunities, simplified processes, findability, etc.</td>
<td>• Information has no inherent value. Its value to the enterprise comes from how and who uses the information.</td>
</tr>
<tr>
<td>• Mitigating any one of these risks is often at the expense of increasing other kinds of risks.</td>
<td>• The value of information to the enterprise must be put in the context of tangible benefits: revenue, opportunity, competitive advantage, etc.</td>
<td>• As information sharing and use expands, and regulations change, the value of retaining information must be balanced with the risks that are associated with that use case and sharing method.</td>
</tr>
<tr>
<td>• When developing an information governance strategy, you must define which risks are the most damaging to the enterprise and which are acceptable risks.</td>
<td>• What is acceptable risk? The amount of risk at which the harm, should the worst case happen, is less costly than regulating or protecting the information source.</td>
<td>• What is high value information? Information that can be used to generate revenue or cut costs. E.g. customer sentiment, internal productivity analysis.</td>
</tr>
<tr>
<td>• What is acceptable risk? The amount of risk at which the harm, should the worst case happen, is less costly than regulating or protecting the information source.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The biggest risk for most enterprises is keeping too much. Unaccessed content is not information, it is garbage – or potentially a legal disaster.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Differentiate your backup and data archiving policies

Your backup and your archive are two different, if not complementary, resources, with different roles and requirements.

<table>
<thead>
<tr>
<th>Backups are for recovery.</th>
<th>Archives are for discovery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Backups <em>copy</em> data to a secondary location.</td>
<td>• Archives <em>move</em> primary copies of the data to a secondary location.</td>
</tr>
<tr>
<td>• Short-term data stored to enable quick recovery of operational information and capabilities.</td>
<td>• Long-term storage to enable access to historical business information.</td>
</tr>
<tr>
<td>• Requires high read and write performance with high-capacity, low cost/GB.</td>
<td>• Works well with low-performance, low-cost storage, with lower write performance requirements.</td>
</tr>
<tr>
<td>• Speed of recovery is paramount, though the data may be disorganized as compared to archival data.</td>
<td>• Speed of recovery is less important than searchability.</td>
</tr>
<tr>
<td>• Can be stored in a proprietary format as the lifecycle of the backed up data is shorter.</td>
<td>• Proprietary data formats should be avoided to ensure readability over the long term.</td>
</tr>
</tbody>
</table>

• Using your backup as your archive is not cost-effective. Keeping multiple copies of “cold” data intensifies capacity demands and introduces multiple, potentially discrepant copies of important data.

• E-discovery processes associated with archiving can tie up compute resources as well as backup staff resources.

• A strong archiving policy requires better indexing and search capabilities than are needed by backups. Applying these capabilities to all backed up files is a misalignment of resources that could be used more effectively elsewhere.
Present yourself to your users as a service provider, and clarify what you can do for them – and what they need to do for themselves.

Ensure that your SLA includes all of the information your users will want to have by building it around four pillars.

**Services:** Include a detailed description of the services you are offering your users. Nominally this will mean data recovery, but be specific about recovery points and backup granularity.

**Standards:** Discuss what users can expect in terms of level of service. How quickly will you respond to requests? How will you keep users updated as to the status of their request?

**Practices:** Describe the processes and policies that your recovery services plan will follow. How are recovery requests prioritized? What is covered or not covered by recovery operations?

**Measures:** Clearly communicate the standards by which you will judge success. What will be considered a successful recovery? Select metrics that will allow you to demonstrate your successes.
Create service level agreements for each recovery tier

For each recovery tier, your service level agreement (SLA) should accomplish the following.

- Describe what the recovery policy covers, including:
  - What is protected by the policy.
  - What is excluded from the policy.
  - What data is available to be recovered (granularity).
- Identify available recovery points for the data, as determined by the backup schedule.
- Identify data retention periods.
- Describe the recovery process, from initial request to recovery completion, including estimated recovery time.
- Identify who on the backup team is responsible for the recovery task.
- Clarify how simultaneous requests will be prioritized.
- Outline the user’s responsibilities to ensure recoverability.
- Outline metrics that will be used to determine success and maintain a minimum performance level.
- Describe how and with what regularity the backup will be tested to ensure recoverability.

“We had a strong desire to keep things as simple as possible, explainable. When it comes to backup and recovery, we want there to be clarity of understanding with various levels of stakeholders. We don’t talk about physical, we don’t talk about virtual, we don’t talk about different computing platforms. We talk about data types, that being database data and regular data, and we have some fairly simple attributes around those and a couple of add-on options.”
— IT Manager, Municipal Government

When crafting your recovery SLA, be cautious not to make any concrete promises. An unexpected backup failure may affect your ability to restore from a particular version of the data, including the most recent copy.
What are your service level agreements for backup & recovery?

| 6.3 | Time commitment varies |

Discuss: What level of service are you currently offering users? What do you want to offer users? What standard of service do your users expect? How do you prioritize recovery tasks? Do your users understand the recovery process? What are your measures of success?

<table>
<thead>
<tr>
<th>Services</th>
<th>Standards</th>
<th>Practices</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application 3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Communicate your recovery services plan with SLAs

Keep backup in the background; bring recovery to the fore.

Treat backup as a service to remind users and stakeholders of its true value. Backup proves its worth when it comes time to restore. A service level agreement reminds users exactly what you are capable of and helps set expectations.

Clarify the process. What should your user do if they need to initiate a recovery? What information do they need to provide, and to whom? What will happen when they make a recovery request? Take some of the mystery away and reassure your users that you are on their side.

Language matters. Keep your recovery service level agreement clear by putting it in plain English. Avoid jargon, including terms like “RPO” and “RTO.”

Step away from the technology. It is unnecessary in a recovery SLA to explain to your users exactly how the backup happens. They will care less about whether you use disk or tape than they will about having their data available to them when they need it.

"We thought it was very important to take a big step back and not talk about the technology change that’s happening, but rather talk about how the organization will now be handling backup and restoration. So in all of our discussions with IT leaders in the departments we’re not talking about Veeam or DPM or TSM at all. We’re talking about how will you be able to restore your system in these scenarios. And behind the scenes, whether we are using Veeam or TSM or a truckload of floppy disks, that’s our issue to worry about...We want these to be business discussions."

– IT Manager, Municipal Government

Treat the SLA like a contract with your users. Clarify not only your obligations as a service provider, but outline what the user’s role is in ensuring that their data is safely backed up. Identify what is excluded from the backup policy and describe best practices for your users and stakeholders to follow to ensure their data will be recoverable.
Hand over the management of your backup solution to the operations team

**Switch IT’s role from that of planter to gardener for your solution.**
Prepare IT for managing the steady state production of processes and IT support for the tool.

**Implementation Team** — **Integrators**
**Vendor Implementation Team**

**Transition Planning**
Prepare IT staff and the organization to manage the steady state performance of the application.

**Risk Management**
Track risks associated with your new backup solution.
- Assign owners and create plans for resolving open risks.

**Organizational Change Management**
Train the necessary IT staff in how to support the daily operations of the suite.

**Project Management**
- Conduct a post-mortem to evaluate the completion of the project.
- Review the project’s performance against its metrics and expectations (Activity 2.5).
- Perform a formal sign-off and transfer for managing the tool.

Make sure the tacit knowledge and learning about the backup solution are not isolated to the implementation team. As you transition the support of the software to operations, make sure that the knowledge and insight are conveyed.
Step 7: Measure the Value of the Backup Solution
Step 7: Measure the value of the backup solution

This step will walk you through the following activities:

7.1: Count the metrics that matter to your business.
7.2: Implement scheduled restore tests and continue to monitor backup performance.
7.3: Continue to grow the scope and impact of your backup solution.

This step involves the following participants:

- Project Sponsor
- IT Project Manager
- Systems Admins
- Backup IT Staff

Outcomes of this step:

- Selection and application of metrics that will gauge the value and effectiveness of the backup software investment.
- Scheduled restore testing and continued backup performance monitoring procedures.
- Identification of how to review the opportunities related to backup and creation of a plan/perspective that will allow the software suite to increase its scope and impact within the business.
Count the metrics that matter to your business to evaluate the success of your backup implementation

Measure and monitor the success of your backup implementation by analyzing the considerations that are important to your organization.

Review the metrics from Activity 2.5 to plan how to monitor and measure the ongoing success of your backup solution.

Did you effectively gather requirements and accurately capture what the business wanted in your final selection?
  • Indicators:
    o User complaints about missing files or restore times.
    o Backup failure rates.
    o Ability to meet SLAs.
    o Successful restore testing.

Value of introducing a new backup solution
Has your organization’s backup/restore performance improved as a result of deploying the backup solution?
  • Use the measure and metrics to gauge the business value from upgrading your backup solution.
Monitor backup operations and gain confidence in your capabilities

Organizations that monitor their backup processes are significantly more confident than those that do not.

Don’t wait for an error message. Data collection should be a daily process. Monitor the health of your backup success using key performance indicators. In addition to keeping an eye on hardware and software logs for failure reports, watch for metrics including total terabytes backed up and time to backup. Monitor performance across time to get a better sense of trends and to identify problems before they become serious.

Review trends quarterly. Calculate capacity growth rates and check against any new initiatives being undertaken in your IT environment. Ensure that you will be able to provision new applications that are brought online and still meet your organization’s recovery objectives.

Create a schedule and assign responsibility. Maintaining a clean bill of health for your backup environment is critical. Assign ownership, maintain a schedule, and keep meticulous records of test results.

“Generally data collection should be a daily process. That’s usually behind the scenes. You can automate all that. You’d have weekly summaries to look at levels, to do a quick scan like ‘hey, my storage is fine, my throughputs are fine, I’m good.’ On a quarterly basis you would do the same type of capacity planning as you would on any other system. You’re going to do a quarterly review of ‘where am I now, what’s coming down the pipe, am I good to go for these new projects?’”

– Dan Giles, President, Sileg Consulting, Inc.

Level of Confidence in Organizational Backup Capabilities

Source: Info-Tech Research Group; N=68
Ensure recoverability with regularly scheduled restore tests

If a stakeholder asks, “How do you know you’ll be able to recover this?” the only acceptable answer is, “Because we tested it and it works.”

Look beyond error reporting: the proof is in the restore. Don’t assume that just because your backup system is not reporting errors that the backup is sound. Test your recovery capabilities regularly and don’t leave anything to chance. Adopt a skeptical position: always assume the backup won’t work until you have evidence that it does.

Test restore critical servers quarterly and plan spot checks each month. The data on these servers is perhaps your organization’s most critical asset, and it is important that your investment is protected. Don’t leave anything to chance: attempt a restore of each critical server on at least a quarterly basis, and ensure that the backups are consistent with primary data.

Simulate real world conditions as faithfully as possible. When you do need to perform a restore, you can’t always count on having all of the resources or expertise you need. Consider the possibilities and prepare for them all.

Don’t focus on what works. Focus on what doesn’t. Your backup tests may succeed 95% of the time, but are you willing to roll the dice on that success rate when you really need it? Conduct a rigorous investigation any time your results aren’t what you expected and track down the source of the problem.

Document everything. Document each and every test and its result. If something goes wrong, outline the steps taken to solve the problem.

<table>
<thead>
<tr>
<th>Core application</th>
<th>Test Method</th>
<th>Test Regularity</th>
<th>Response to Failure</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
Your data will continue to grow, and with it, your backup solution must adapt

**Increase scope and impact of the software**

- Number of users will continue to grow.
- Data will continue to grow.
- The backup architectures and technologies will continue to evolve.
- **Grow how you leverage the software**: Explore and expand how you use your backup software so that advanced functionality can be unlocked to increase performance.

**Continuous improvement**

- Processes will continue to improve with additional streamlining and insight during further design iterations.

**An evolving landscape**

- Vendors will continue to push the functional capabilities of backup software; update your solution to harvest additional value.
### Summary of accomplishment

<table>
<thead>
<tr>
<th>Knowledge Gained</th>
<th>Processes Optimized</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At the completion of the backup procurement project charter, your project team and organization will have an enhanced understanding of the backup infrastructure and processes and the current state of the market place.</td>
<td>• Following the completion of your procurement and the implementation of the backup solution, you will have streamlined and optimized your backup and restore processes as well as how they interact in the backup infrastructure/architecture.</td>
</tr>
<tr>
<td>• Understand the use cases and business functions that can be supported by your backup software.</td>
<td></td>
</tr>
</tbody>
</table>

### Deliverables Completed

- Backup Architecture Strategy
- Mapped backup infrastructure
- Backup and restore processes mapped
- Backup Procurement Project Charter
- Backup Software Requirements Document
- Backup Software RFP
- Completed evaluation of backup software vendors
- Negotiated and finalized contract with selected vendor
- Demo Script
- Backup Implementation Plan (statement of work)
- Service level agreements and data retention policy documents
Insight breakdown

### Introduction and Step 1

- **Backup almost always has a history.** Look to leverage your existing infrastructure as you review your backup architecture. Not everyone's needs are the same but these differences create categories and niches within the backup marketplace. Understand your own business's backup/restore architectural processes and the unique technical and functional requirements that go along with them. Use your own set of requirements to determine the backup solution that best fits your organization.

### Step 2

- Create a project oversight team that has an understanding of the business needs and technical infrastructure capabilities.
- **Outline the roles and expectations at the start.** Clarify ownerships of backup and recovery tasks to avoid domain disputes down the road.
- **A formalized process has authority, an informal process can be ignored.** Start from a documented baseline to build project management in at the beginning and demonstrate how configuration of the procurement process will increase your performance.

### Step 3

- Focus on what the business needs the backup solution to do and the applications it must be able to support. Don't use these opportunities to create a laundry list of features; instead use them to understand the motivations and functional uses that will be integral to a successful adoption and ROI of the technology.
- Focus your efforts on establishing and documenting backup/recovery requirements and processes for the most cost-effective optimization plan.
- If having a feature to meet an objective is more expensive than the potential loss from failure to meet the objective, think twice before adding that feature to your requirements list.
- No solution will meet 100% of your requirements; limit the number of mandatory requirements to ensure optimal vendor fit.
### Insight breakdown continued

#### Step 4

- **Leverage use cases:** base your vendor selection on your requirements and use case, not on their overall performance.
- If Table Stakes are all you need from your backup solution, the only true differentiator for the organization is price. Otherwise, dig deeper to find the best solution to value for your needs.
- Refer to “Info-Tech Recommends” in the *Backup Software Vendor Landscape Analysis* deliverable for a breakdown of the insights for this section.

#### Step 5

- Organizations deploying an out-of-the-box version of the backup solution are far more likely to be able to implement without the assistance of a third-party integrator. Organizations with multiple points of integration (especially between SaaS and on-premise applications) or complex data migration needs will want to strongly consider hiring a third-party system integrator.
- If you are still not sure of a vendor’s capabilities we would recommend sending an RFI before proceeding with an RFP.
- **Offering to be a potential reference** after a successful deployment could help secure higher quality service during implementation and post deployment. Just be clear that the offer is contingent on a successful implementation.

#### Step 6

- **A backup solution is not plug and play:** spend time identifying the data retention policies and service level agreements that will be required for successful utilization of the backup software.
- **Archiving is not about keeping data.** It’s about figuring out what you need to lose. When risk outweighs value, purge documents as soon the regulations/policies allow.
- **When crafting your recovery SLA, be cautious not to make any concrete promises.** An unexpected backup failure may affect your ability to restore from a particular version of the data, including the most recent copy.
- Treat the SLA like a contract with your users. Outline user roles and expectations to ensure data recoverability.
• **Organizations that monitor their backup processes are significantly more confident than those that do not.** Regular review of your backup strategy, infrastructure, and software solutions against changing market trends on an annual basis is the key to backup success.

• **Don’t focus on what works. Focus on what doesn’t.** Your backup tests may succeed 95% of the time, but are you willing to roll the dice on that success rate when you really need it? Conduct a rigorous investigation any time your results aren’t what you expected and track down the source of the problem.

• **Adapt your backup solution as your data grows.** Data continues grow while at the same time new cutting edge technologies continue to be released; allow your backup solution to evolve and grow with these advances.
Appendices
Enterprise backup success defined

Enterprise backup success was calculated as an aggregate of respondents’ ratings of their success in the following:

- My organization can restore data within target RTOs/RPOs.
- My organization can restore data with Restore Granularity Objectives (RGOs).
- My organization’s mission critical data is completely secure.
- My IT group monitors and reports on its backup environment at least monthly.
- My organization leverages the complete feature set and functionality of our backup software.
- Our TCO per TB per year for our backup software is within an acceptable range.
Bibliography


Companies who helped

Vendors Who Briefed with Us

- Acronis
- Barracuda
- Catalogic Software
- Dell
- FalconStor
- IBM
- Quantum
- Symantec
- Unitrends
- Veeam

Interviews

- Thomas Kolbe, Systems Architect, University of San Diego
- Adam Little, System Engineer I, Rivers Casino Holdings Acquisitions Co.
- Mark Coney, Systems Engineer, Healthcare/Academic
- Michael Somerville, NISS Manager, University of San Diego
- Phillip Warren, Olivet Nazarene University
- Jackie Ramsey, System Administrator, Liberty Medical Group
- Nick Furnell, Senior Systems Engineer, Transform Medical Group
- Brandon Lovelace, Santa Barbara City College
- Tim Campbell, President, Ascendum IMS LLC
Vendor Landscape Analysis Appendix
Vendor Landscape Methodology: Overview

Info-Tech’s Vendor Landscapes are research materials that review a particular IT market space, evaluating the strengths and abilities of both the products available in that space, as well as the vendors of those products. These materials are created by a team of dedicated analysts operating under the direction of a senior subject matter expert over a period of several weeks.

Evaluations weigh selected vendors and their products (collectively “solutions”) on the following eight criteria to determine overall standing:

- **Features**: The presence of advanced and market-differentiating capabilities.
- **User Interface**: The intuitiveness, power, and integrated nature of administrative consoles and client software components.
- **Affordability**: The three-year total cost of ownership of the solution; flexibility of the pricing and discounting structure.
- **Architecture**: The degree of integration with the vendor’s other tools, flexibility of deployment, and breadth of platform applicability.
- **Viability**: The stability of the company as measured by its history in the market, the size of its client base, and its percentage of growth.
- **Focus**: The commitment to both the market space, as well as to the various sized clients (small, mid-sized, and enterprise clients).
- **Reach**: The ability of the vendor to support its products on a global scale.
- **Sales**: The structure of the sales process and the measure of the size of the vendor’s channel and industry partners.

Evaluated solutions within scenarios are visually represented by a Pathway to Success, based off a linear graph using above scoring methods:

- Use-case scenarios are decided upon based on analyst expertise and experience with Info-Tech clients.
- Use-case scenarios are defined through feature requirements, predetermined by analyst expertise.
- Placement within scenario rankings consists of features being evaluated against the other scoring criteria.

Info-Tech’s Vendor Landscapes are researched and produced according to a strictly adhered to process that includes the following steps:

- Vendor/product selection
- Information gathering
- Vendor/product scoring
- Information presentation
- Fact checking
- Publication

This document outlines how each of these steps is conducted.
Vendor Landscape Methodology: Vendor/Product Selection & Information Gathering

Info-Tech works closely with its client base to solicit guidance in terms of understanding the vendors with whom clients wish to work and the products that they wish evaluated; this demand pool forms the basis of the vendor selection process for Vendor Landscapes. Balancing this demand, Info-Tech also relies upon the deep subject matter expertise and market awareness of its Senior Analysts to ensure that appropriate solutions are included in the evaluation. As an aspect of that expertise and awareness, Info-Tech’s analysts may, at their discretion, determine the specific capabilities that are required of the products under evaluation, and include in the Vendor Landscape only those solutions that meet all specified requirements.

Information on vendors and products is gathered in a number of ways via a number of channels.

Initially, a request package is submitted to vendors to solicit information on a broad range of topics. The request package includes:

- A detailed survey.
- A pricing scenario (see Vendor Landscape Methodology: Price Evaluation and Pricing Scenario, below).
- A request for reference clients.
- A request for a briefing and, where applicable, guided product demonstration.

These request packages are distributed approximately eight weeks prior to the initiation of the actual research project to allow vendors ample time to consolidate the required information and schedule appropriate resources.

During the course of the research project, briefings and demonstrations are scheduled (generally for one hour each session, though more time is scheduled as required) to allow the analyst team to discuss the information provided in the survey, validate vendor claims, and gain direct exposure to the evaluated products. Additionally, an end-user survey is circulated to Info-Tech’s client base and vendor-supplied reference accounts are interviewed to solicit their feedback on their experiences with the evaluated solutions and with the vendors of those solutions.

These materials are supplemented by a thorough review of all product briefs, technical manuals, and publicly available marketing materials about the product, as well as about the vendor itself.

Refusal by a vendor to supply completed surveys or submit to participation in briefings and demonstrations does not eliminate a vendor from inclusion in the evaluation. Where analyst and client input has determined that a vendor belongs in a particular evaluation, it will be evaluated as best as possible based on publicly available materials only. As these materials are not as comprehensive as a survey, briefing, and demonstration, the possibility exists that the evaluation may not be as thorough or accurate. Since Info-Tech includes vendors regardless of vendor participation, it is always in the vendor’s best interest to participate fully.

All information is recorded and catalogued, as required, to facilitate scoring and for future reference.
Vendor Landscape Methodology: Scoring

Once all information has been gathered and evaluated for all vendors and products, the analyst team moves to scoring. All scoring is performed at the same time so as to ensure as much consistency as possible. Each criterion is scored on a ten-point scale, though the manner of scoring for criteria differs slightly:

- Features is scored via **Cumulative Scoring**.
- Affordability is scored via **Scalar Scoring**.
- All other criteria are scored via **Base5 Scoring**.

Cumulative Scoring is on a four-point scale. Zero points are awarded to features that are deemed absent or unsatisfactory, one point is assigned to features that are partially present, two points are assigned to features that require an extra purchase in the vendor’s product portfolio or through a third party, three points are assigned to features that are fully present and native to the solution, and four points are assigned to the best-of-breed native feature. The assigned points are summed and normalized to a value out of ten. For example, if a particular Vendor Landscape evaluates eight specific features in the Feature Criteria, the summed score out of eight for each evaluated product would be multiplied by 1.25 to yield a value out of ten to represent in a Harvey Ball format.

In Scalar Scoring, a score of ten is assigned to the lowest cost solution, and a score of one is assigned to the highest cost solution. All other solutions are assigned a mathematically-determined score based on their proximity to / distance from these two endpoints. For example, in an evaluation of three solutions, where the middle cost solution is closer to the low end of the pricing scale it will receive a higher score, and where it is closer to the high end of the pricing scale it will receive a lower score; depending on proximity to the high or low price it is entirely possible that it could receive either ten points (if it is very close to the lowest price) or one point (if it is very close to the highest price). Where pricing cannot be determined (vendor does not supply price and public sources do not exist), a score of 0 is automatically assigned.

In Base5 scoring a number of sub-criteria are specified for each criterion (for example, Longevity, Market Presence, and Financials are sub-criteria of the Viability criterion), and each one is scored on the following scale:

- 5 - The product/vendor is exemplary in this area (nothing could be done to improve the status).
- 4 - The product/vendor is good in this area (small changes could be made that would move things to the next level).
- 3 - The product/vendor is adequate in this area (small changes would make it good, more significant changes required to be exemplary).
- 2 - The product/vendor is poor in this area (this is a notable weakness and significant work is required).
- 1 - The product/vendor fails in this area (this is a glaring oversight and a serious impediment to adoption).

The assigned points are summed and normalized to a value out of ten as explained in Cumulative Scoring above.

Scores out of ten, known as Raw scores, are transposed as is into Info-Tech’s **Vendor Landscape Shortlist Tool**, which automatically determines Vendor Landscape positioning (see Vendor Landscape Methodology: Information Presentation – Vendor Landscape, below), Criteria Score (see Vendor Landscape Methodology: Information Presentation – Criteria Score, below), and Value Index (see Vendor Landscape Methodology: Information Presentation – Value Index, below).
Vendor Landscape Methodology: Information Presentation – Criteria Scores (Harvey Balls)

Info-Tech’s criteria scores are visual representations of the absolute score assigned to each individual criterion, as well as of the calculated overall vendor and product scores. The visual representation used is Harvey Balls.

Harvey Balls are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion raw score is multiplied by a pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process, based on the expertise of the Senior or Lead Research Analyst, to eliminate any possibility of bias. Weighting factors are expressed as a percentage, such that the sum of the weighting factors for the vendor criteria (Viability, Strategy, Reach, Channel) is 100%, and the sum of the product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted vendor criteria scores and of the weighted product criteria scores is calculated to yield an overall vendor score and an overall product score.
4. Both overall vendor score / overall product score, as well as individual criterion raw scores are converted from a scale of one to ten to Harvey Ball scores on a scale of zero to four, where exceptional performance results in a score of four and poor performance results in a score of zero.
5. Harvey Ball scores are converted to Harvey Balls as follows:
   • A score of four becomes a full Harvey Ball.
   • A score of three becomes a three-quarter full Harvey Ball.
   • A score of two becomes a half-full Harvey Ball.
   • A score of one becomes a one-quarter full Harvey Ball.
   • A score of zero becomes an empty Harvey Ball.
6. Harvey Balls are plotted by solution in a chart where rows represent individual solutions and columns represent overall vendor / overall product, as well as individual criteria. Solutions are ordered in the chart alphabetically by vendor name.
Info-Tech’s Value Index is an indexed ranking of solution value per dollar as determined by the raw scores assigned to each criteria (for information on how raw scores are determined, see Vendor Landscape Methodology: Scoring, above).

Value scores are calculated as follows:

1. The TCO Affordability criterion is removed from the Affordability score and the remaining product score criteria (Features, Usability, Architecture). Affordability scoring is adjusted with the TCO weighting distributed in proportion to the use case’s weighting for Affordability. Weighting is adjusted as to retain the same weightings relative to one another, while still summing to 100%.

2. An adjusted multiplier is determined for each vendor using the recalculated Affordability scoring.

3. The multiplier vendor score and vendor’s weighted feature score (based on the use case scenario’s weightings), are summed. This sum is multiplied by the TCO raw score to yield an interim Value Score for each solution.

4. All interim Value Scores are then indexed to the highest performing solution by dividing each interim Value Score by the highest interim Value Score. This results in a Value Score of 100 for the top solution and an indexed Value Score relative to the 100 for each alternate solution.

5. Solutions are plotted according to Value Score, with the highest score plotted first, and all remaining scores plotted in descending numerical order.

Where pricing is not provided by the vendor and public sources of information cannot be found, an Affordability raw score of zero is assigned. Since multiplication by zero results in a product of zero, those solutions for which pricing cannot be determined receive a Value Score of zero. Since Info-Tech assigns a score of zero where pricing is not available, it is always in the vendor’s best interest to provide accurate and up-to-date pricing. In the event that insufficient pricing is available to accurately calculate a Value Index, Info-Tech will omit it from the Vendor Landscape.

Vendors are arranged in order of Value Score. The Value Score each solution achieved is displayed, and so is the average score.
Vendor Landscape Methodology: Information Presentation – Feature Ranks (Stoplights)

Advanced features are determined by analyst expertise, leveraging information gained from conversations with clients. Advanced features chosen as part of the evaluation are representative of what Info-Tech clients have indicated are of importance to their vendor solution. Advanced features are evaluated through a series of partial marks, dedicated to whether the solution performs all aspects of the Info-Tech definition of the feature and whether the feature is provided within the solution. Analysts hold the right to determine individual, unique scoring criteria for each evaluation. If a feature does not meet the criteria, Info-Tech holds the right to score the feature accordingly.

Use cases use features as a baseline of the inclusion and scoring criteria.

Stoplight Legend

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Feature 1</td>
<td>Feature is best in class</td>
</tr>
<tr>
<td>Feature 2</td>
<td>Feature is fully present and native to the solution</td>
</tr>
<tr>
<td>Feature 3</td>
<td>Feature is available at an additional cost</td>
</tr>
<tr>
<td>Feature 4</td>
<td>Feature is partially present</td>
</tr>
<tr>
<td>Feature 5</td>
<td>Feature is not available or unsatisfactory</td>
</tr>
</tbody>
</table>
Vendor Landscape Methodology: Information Presentation – Price Evaluation

Info-Tech’s Price Evaluation is a tiered representation of the three-year Total Cost of Ownership (TCO) of a proposed solution. Info-Tech uses this method of communicating pricing information to provide high-level budgetary guidance to its end-user clients while respecting the privacy of the vendors with whom it works. The solution TCO is calculated and then represented as belonging to one of ten pricing tiers.

Pricing tiers are as follows:
1. Between $1 and $2,500
2. Between $2,500 and $5,000
3. Between $5,000 and $10,000
4. Between $10,000 and $25,000
5. Between $25,000 and $50,000
6. Between $50,000 and $100,000
7. Between $100,000 and $250,000
8. Between $250,000 and $500,000
9. Between $500,000 and $1,000,000
10. Greater than $1,000,000

Where pricing is not provided, Info-Tech makes use of publicly available sources of information to determine a price. As these sources are not official price lists, the possibility exists that they may be inaccurate or outdated, and so the source of the pricing information is provided. Since Info-Tech publishes pricing information regardless of vendor participation, it is always in the vendor’s best interest to supply accurate and up to date information.

Info-Tech’s Price Evaluations are based on pre-defined pricing scenarios (see Product Pricing Scenario, below) to ensure a comparison that is as close as possible between evaluated solutions. Pricing scenarios describe a sample business and solicit guidance as to the appropriate product/service mix required to deliver the specified functionality, the list price for those tools/services, as well as three full years of maintenance and support.

Price Evaluation

Call-out bubble indicates within which price tier the three-year TCO for the solution falls, provides the brackets of that price tier, and links to the graphical representation.

3 year TCO for this solution falls into pricing tier 6, between $50,000 and $100,000

Scale along the bottom indicates that the graphic as a whole represents a price scale with a range of $1 to $1M+, while the notation indicates whether the pricing was supplied by the vendor or derived from public sources.

Pricing solicited from public sources
Vendor Landscape Methodology: Information Presentation – Vendor Awards

At the conclusion of all analyses, Info-Tech presents awards to exceptional solutions in three distinct categories. Award presentation is discretionary; not all awards are extended subsequent to each Vendor Landscape and it is entirely possible, though unlikely, that no awards may be presented.

Awards categories are as follows:

- **Champion Awards** are presented to the top performing solution in a particular use case scenario. As a result, only one Champion Award is given for each use case, and the entire Vendor Landscape will have the same number of Champion Awards as the number of evaluated use cases.

- **Leader Awards** are presented to top performing solutions for each use-case scenario. Depending on the use-case scenario and the number of solutions being evaluated, a variable number of leader awards will be given. This number is at the discretion of the analysts, but is generally placed at two, and given to the solutions ranking second and third respectively for the use case.

- **Best Overall Value Awards** are presented to the solution for each use-case scenario that ranked the highest in the Info-Tech Value Index for each evaluated scenario (see Vendor Landscape Methodology: Information Presentation – Value Index, above). If insufficient pricing information is made available for the evaluated solutions, such that a Value Index cannot be calculated, no Best Overall Value Award will be presented. Only one Best Overall Value Award is available for each use-case scenario.

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**Vendor Awards for Use Case Performance**

Info-Tech's **Champion Award** is presented to solutions that placed first in an use-case scenario within the Vendor Landscape.

Info-Tech’s **Leader Award** is given to solutions who placed in the top segment of a use-case scenario.

Info-Tech’s **Best Overall Value Award** is presented to the solution within each use-case scenario with the highest Value Index score.
Vendor Landscape Methodology: 
Fact Check & Publication

Info-Tech takes the factual accuracy of its Vendor Landscapes, and indeed of all of its published content, very seriously. To ensure the utmost accuracy in its Vendor Landscapes, we invite all vendors of evaluated solutions (whether the vendor elected to provide a survey and/or participate in a briefing or not) to participate in a process of fact check.

Once the research project is complete and the materials are deemed to be in a publication ready state, excerpts of the material specific to each vendor’s solution are provided to the vendor. Info-Tech only provides material specific to the individual vendor’s solution for review encompassing the following:

- All written review materials of the vendor and the vendor’s product that comprise the evaluated solution.
- Info-Tech’s Criteria Scores / Harvey Balls detailing the individual and overall vendor / product scores assigned.
- Info-Tech’s Feature Rank / stoplights detailing the individual feature scores of the evaluated product.
- Info-Tech’s Raw Pricing for the vendor either as received from the vendor or as collected from publicly available sources.
- Info-Tech’s Scenario ranking for all considered scenarios for the evaluated solution.

Info-Tech does not provide the following:

- Info-Tech’s Vendor Landscape placement of the evaluated solution.
- Info-Tech’s Value Score for the evaluated solution.
- End-user feedback gathered during the research project.
- Info-Tech’s overall recommendation in regard to the evaluated solution.

Info-Tech provides a one-week window for each vendor to provide written feedback. Feedback must be corroborated (be provided with supporting evidence), and where it does, feedback that addresses factual errors or omissions is adopted fully, while feedback that addresses opinions is taken under consideration. The assigned analyst team makes all appropriate edits and supplies an edited copy of the materials to the vendor within one week for final review.

Should a vendor still have concerns or objections at that time, they are invited to a conversation, initially via email, but as required and deemed appropriate by Info-Tech, subsequently via telephone, to ensure common understanding of the concerns. Where concerns relate to ongoing factual errors or omissions, they are corrected under the supervision of Info-Tech’s Vendor Relations personnel. Where concerns relate to ongoing differences of opinion, they are again taken under consideration with neither explicit nor implicit indication of adoption.

Publication of materials is scheduled to occur within the six weeks following the completion of the research project, but does not occur until the fact check process has come to conclusion, and under no circumstances are “pre-publication” copies of any materials made available to any client.
Pricing scenario (1 of 2)

Vendors are asked to provide list costs for backup software licensing to address the needs of a reference organization described in the pricing scenario. Please price out the lowest possible three-year Total Cost of Ownership (TCO) including list prices for software and licensing fees to meet the requirements of the following scenario.

- An organization is looking to implement a backup software solution. The following is a simplification of an Info-Tech client’s infrastructure. The company is considering a green field purchase of new backup software, and would like quotations from the leading vendors in the market.

- The expected solution capabilities are as follows:

  **Capacity:** All said and done, the organization has approximately 20 TB of raw undeduplicated data and is growing at rate of 20% per year of raw undeduplicated data. The solution must be sufficient to support its infrastructure until at least the end of the three-year term. For the purposes of this scenario assume that, based on a compound increase of 20% per year, the organization will have 34.56 TB of undeduplicated data at end of year three.

  **Physical Servers:** Each server is a two processor server with Xeon 5600 processors with eight total cores (four cores/processor) and 256 GB of RAM.

  The organization has six servers for Exchange (see below), five servers for SharePoint (including one SQL database, see below), five host servers for virtualization, as well as four physical servers for Microsoft Windows Server 2008 R2 (64-bit), for a total of 20 physical servers.

  - **MS Exchange 2010**
    - Six servers: two front end client access services servers, two back end mailbox servers, two Blackberry enterprise services servers.

  - **SharePoint 2010**
    - Five servers: two front end web services servers, two back end application servers; application servers are connected to one SQL Server 2005 SP4 database
Virtual Servers

The organization has five host servers – **two each with 2 Xeon 5600 processors with 12 total cores (six cores/processor) and three each with 2 Xeon 5600 processors with eight total cores (four cores/processor), for 48 cores total; each server has 256 GB of RAM** – running a VMware virtual infrastructure on ESX4.1, structured in a single ESX cluster running 27 virtual machines supporting Microsoft Windows Server 2003/2008.

- Windows servers 2003/2008 (virtual machines – 27 total)
  - 13X Microsoft Windows Server 2008 R2 (64-bit)
  - 8X Microsoft Windows Server 2008 (64-bit)
  - 2X Microsoft Windows Server 2003, Standard Edition (64-bit)

Storage

All servers are connected to a SAN/unified storage device from another vendor (e.g. X-IO).
Supplementary Content Appendix

Evaluate backup storage media to determine the optimal architecture for your backup solution.
Form the strategy for selecting the right media around the value of the restore, as well as the backup

Don’t focus so much on improving backup procedures that you forget the reason they’re in place – to protect your data in the event of loss.

• Think about what will make you sleep at night. Some architectures inspire more confidence than others. Disk to disk (D2D) arrays and cloud replication systems lead the way with 27% declaring “complete confidence” in their system, while traditional tape libraries and direct cloud backup lag at 14-16%.

• Decide how much “complete confidence” is worth. The key business value of backup is the ability to restore critical data, uncorrupted, with acceptable downtime. To maximize value, acceptable downtime should be a realistic goal given the backup architecture in place. For example, don’t back up all data to disk; it will break the budget. However, don’t back up large amounts of data to tape that will need to be restored in seconds. It won’t happen.

• Align the backup architecture strategy with the overall storage and server strategies to avoid costly constraints and bottlenecks that result in unbalanced spending and load balancing. All factors that are considered in a storage strategy – capacity, performance, growth, etc. – will be relevant and essential to consider for the backup strategy.
Cloud backup eases the pain of upfront capital costs & increases flexibility, but entrusts valuable data to a third party

**Cost Factors**
- Monthly service charges that vary in direct proportion with the amount of backup storage used.
- Highly increased bandwidth allotment.

**Drawbacks**
- Restore time is much lower than on-premise disk and relies on broadband internet connection. Speed and performance issues can cripple a large and urgent backup.
- Total incremental costs can be higher than storing data on premise, making it critical to assess cost to serve in-house for comparison.
- Security and compliance are concerns for large organizations that store sensitive data because the backup is stored by a third-party vendor with completely independent security policies; also, vendors often do not own the actual facility.

**Efficiencies**
- Long-term backups can be kept in the cloud indefinitely with very little management overhead.
- Cloud backup vendors implement redundant storage features behind the scenes, securing long-term availability of data.
- Third-party cloud backup vendors can sometimes take advantage of economies of scale, making backup cheaper than it would be otherwise.

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### Importance Factors of Cloud Backup Users

<table>
<thead>
<tr>
<th>Factor</th>
<th>Extremely Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed of Backup</td>
<td>71%</td>
<td>75%</td>
</tr>
<tr>
<td>Low Upfront Costs</td>
<td>57%</td>
<td>50%</td>
</tr>
<tr>
<td>Speed of Restore</td>
<td>42%</td>
<td>13%</td>
</tr>
<tr>
<td>Low Overall TCO</td>
<td>71%</td>
<td>57%</td>
</tr>
</tbody>
</table>

Speed of backup and low upfront costs are the most important factors for those who use cloud backup.
Consider using cloud backup for any implementation of offsite replication, especially where failover is not a priority

Understand these four truths to cloud backup deployment to ensure the business keeps all options on the table.

1. **Switching from owned DR site to cloud backup is not daunting.** Cloud storage service providers have made purchasing their services and transferring data to their infrastructure, fairly easy. Most vendors offer a simple e-commerce system, and online documentation, that requires little-to-no communication with the vendor or any resellers.

2. **Cloud backup does not add significant complexity.** Backing up to a cloud storage service is simple, requiring a small software agent to be installed and configured on each server to be backed up. In some cases, you can use your existing backup software to replicate your onsite backup to your cloud storage provider using, for example, a Representational State Transfer (REST) or Simple Object Access Protocol (SOAP) Application Programming Interface (API).

3. **A backup architecture refresh is the perfect time to consider cloud backup.** If your organization has recently re-assessed its backup architecture, now is an ideal time to compare moving your backups to a cloud storage service instead of purchasing a new enterprise network attached storage (NAS) or storage area network (SAN). You can avoid the capital expenditure by moving existing and new backups to cloud storage instead, turning your capital expenditure into a more predictable operating expense instead.

4. **You can move your central DR site to the cloud.** Multi-site businesses currently backing up to a central data center can experience all of these benefits, while also reducing reliance on the central data center and risk surrounding having all of the backups in one location. The right software front-ends can also reduce reliance on IT support for quick, one file restores.

"My primary backup solution is used for two purposes. One is if the site blows up in some catastrophic site event; the second is to recover individual files, to the point where our users know we can do this."

– Bob Davis, IT Director, Rea & Associates
Look to cloud replication to capitalize on cloud economics while overcoming cloud backup restore speed limitations

Maintain reasonable and reliable RTOs by storing short-term backups on site; backing up directly to cloud should be reserved for remote offices.

- **Cloud integration has become a mainstream feature** of traditional backup software as well as some primary and backup-targeted storage solutions. Many backup software vendors can already target backups at the cloud, and soon many NAS appliances will likely have available cloud integration.

- **Cloud is gaining traction** with 93 percent of US SMBs backing up some portion of their data to the cloud. Enterprises on average use cloud services for 38 percent of their overall backup tasks (TechTarget Survey).

- **Onsite storage is key.** Direct to cloud backup and direct from cloud restore remains problematic because of the latency involved in remote storage. Enterprise-grade solutions will continue to combine some form of onsite storage with cloud storage.

- **Don’t underestimate bandwidth.** Small shops moving to cloud backup usually underestimate their anticipated bandwidth usage by a significant margin. For a more accurate estimate, calculate not only the size of your data sets, but also the frequency of changes and tuning of policies around tiering backup (i.e. from onsite backup to cloud) is critical because uploads are cheap, but downloads can be cost prohibitive.

Cloud gateway devices from cloud backup vendors add a disk tier between primary data and the cloud to improve restore speed for a subset of data, and reduce bandwidth utilization using data reduction techniques like data deduplication and compression.
Use tapes for cost-effective backup of data that is not mission critical. Caution: tape TCO can be expensive

Cost Factors
- Tape drives and enclosures
- Offsite storage/Off-premise archiving
- Manual labor & maintenance

Drawbacks
- Much slower than disk for restores (must be read sequentially).
- Difficult to match backup job speed to that of tape drives, which run very fast. This is problematic for tape because it must decelerate before stopping, necessitating a rewind; this “shoe-shining” motion reduces backup speeds and causes additional wear on the tape.
- Tape often requires multiplexing to scale throughput.
- Tape media needs carefully controlled conditions (temperature, humidity) and decays over time, requiring planning and execution of tape rotation.

Efficiencies
- Recent release of Linear Tape File System allows data to be stored on tape drives in native format, and enables tape drives to be readable without a tape library or other device.
- Tape is more physically portable than disk, and cartridges can be easily removed and placed offsite.
- Green IT: Tape uses less energy than disk-based storage because it does not require continual spinning in long-term storage.
- Tapes are stored offline so they are not vulnerable to malicious attacks, viruses, or power surges.

Speed is the top priority for organizations looking to get off tape

<table>
<thead>
<tr>
<th>Speed</th>
<th>% of Tape Users Looking at New Backup Medium</th>
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</thead>
<tbody>
<tr>
<td>Backup Speed</td>
<td>![Backup Speed Chart]</td>
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<tr>
<td>Restore Speed</td>
<td>![Restore Speed Chart]</td>
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<tr>
<td>Management Complexity</td>
<td>![Management Complexity Chart]</td>
</tr>
<tr>
<td>Offsite Replication</td>
<td>![Offsite Replication Chart]</td>
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<tr>
<td>Reliability</td>
<td>![Reliability Chart]</td>
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<tr>
<td>Low TCO</td>
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<tr>
<td>Low Upfront Costs</td>
<td>![Low Upfront Costs Chart]</td>
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<tr>
<td>Power Consumption</td>
<td>![Power Consumption Chart]</td>
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Backup infrastructures are changing; make sure the backup software component is keeping up with your backup strategy

Tape isn’t dead, but almost two-thirds of organizations have recently implemented or are considering new architecture options to back up mission-critical data.

Out with the old and in with the new.
• If you are purchasing new backup media, it’s often a great time to look into new software to fully leverage the benefits of your purchase.

Two birds with one stone.
• Upgrading your backup architecture? The time and resources required to integrate new backup media with old software may be offset by automation enabled by newer software.
• In many cases, the organizations that sell the hardware have partnerships with backup software providers that make integration much easier and reduce overall costs through bundling agreements.

But, tape still has a place...

“[In certain circumstances] cloud is not an option. Regulatory requirements prevented us from exploring cloud archiving or replication. Being in the gaming industry means we have to keep our data within the state, leaving only tape or disk as viable options.”

– Adam Little, Systems Engineer, Rivers Casino
Conduct your own business case for tape; the media itself is the cheapest option, but adds complexity and manual process

All the required manual actions that tape incurs have real business costs and required human labor adding to the total cost of ownership (TCO). This is often one of the most costly expenses, the most difficult to scale upward, and it introduces the possibility of human error.

These actions include:

• Insertion and removal of tape cartridges.
• Rotation of tape cartridges.
• Indexing of tapes and drives.
• Physical offsite relocation.
• Physical offsite recovery.

Tape also possesses some inherent physical attributes that make it more susceptible to magnetic fields, moisture, humidity, temperature, and electric currents.

“Every single tape you have sitting on the shelf should be read and re-verified once a year. Every piece of tape media should be read and replaced every three years. You need to maintain, online, every kind of tape drive and every piece of software you’ll need to recover data from that tape.

If people do the actual business case, if you add all that in, you’re better off with spinning disk.”

– Peter Marshall, CPIT

“I have been in the data protection business for 14+ yrs and tape is not dead and won't go away anytime soon...What you need to determine is your RTO (Restore Time Objective) and RPO (Restore Point Objective). This will determine where the data lives.”

– Scott Rex, Data Protection Consultant, Jaguar Data Solutions
Deploy a disk-based backup strategy to improve reliability and restore time and ease management

Cost Factors
- Disk enclosures and disk drives (SAS, FC, SATA, SSD)
- Networking (interfaces, switches, etc.)
- Backup software

Drawbacks
- Must be stored online and remain online, which uses more power and is vulnerable to power surges, viruses, and malicious attacks.
- High upfront costs related to acquiring the disk enclosures and drives, as well as ongoing costs to keep the disks online.
- Changes in backup operations require additional staff training.

Efficiencies
- Restore speeds are much faster than tape due to random access.
- Integrates well with SAN snapshots and virtual machine backups, making it a good candidate in storage consolidation efforts.
- Data can be easily sent over a WAN for offsite replication.
- Can more easily utilize deduplication to drive down data volume.
- Scalable: uses array enclosures which can be expanded more easily than tape (where multiplexing of libraries is often required).

Virtual Tape Libraries (VTLs) share all the drawbacks and efficiencies of disk, but because they present as tape to backup software, they share some of the same inefficiencies as tape, like sequential reads and writes. However, for tape users, VTL is an easy transition because the software is the same as for tape; the target changes, but the procedures stay the same, and VTLs eliminate all the manual handling of tape.

Data integrity and restore speed are the two biggest issues that drive organizations from tape libraries to using disk-based media.
Disk backup targets enable faster restore times than tape, but can require changes in infrastructure, software, and tools.

Many move away from tape using a virtual tape library as a first step because it requires few changes to existing hardware, software, or IT skills.

**Backup to Tape**

- SAN
- Backup Server
- Tape Libraries

**Backup to Disk**

- SAN
- Backup Server
- Disk Array

**Backup to Virtual Tape**

- SAN
- Backup Server
- Virtual Tape Library

VTLs virtualize a disk array to present to backup software as tape, making it simple to transition from a tape environment, but increasing scalability and performance of the backup and recovery processes.

Transitioning to administration of disk from VTL or tape requires a change in skill set and sometimes new software.

Disk presents to backup software as network attached storage, which requires a different skill set to manage than do tape drives or VTLs. It may even require new backup software or network interface.
Use snapshots and replication as supplementary to the backup plan, but don’t think of them as substitutes

Thin snapshots can minimize capacity needs by saving only changed blocks, but can’t stand in for an airtight backup process.

Maintain critical application or volume uptime using **point-in-time snapshots**. Snapshots are read-only virtual copies of data within the array that are created extremely quickly; they are a necessity for maintaining very short RTOs and RPOs for mission critical data.

**Keep snapshots thin to keep storage costs in check.** With thin snapshots, only changed data (following an initial full-volume snapshot) is copied for a point-in-time snapshot. Changed data and the unchanged original can be combined to render a virtual full point-in-time copy. This enables more snapshots to be made and kept on primary storage with far less disk overhead.

**Replicate data (often as snapshots) between sites** to make second copies of data available for backup offsite for disaster recovery. Consider, however, that replication requires two copies of data, one for each site; this should be a consideration in determining retention periods on the array.

**Don’t mistake replication for backup.** If you rely on replication for your backup, you risk storing backups of corrupted data. Replication can help you achieve aggressive RPOs for specific volatile data sets, but don’t adopt it as a backup alternative.

“I have customers who think that replication is good enough for a backup. I met with one company who said this is our primary storage. We’ve got it replicated over to our other site, 20 kilometers away, and that’s our backup. Guys: replication is not backup. What happens if you delete a file here? It gets deleted on the other side. Oops.”

– Jim Griffiths, Fox Net Solutions
Backup software is only one part of a storage infrastructure that ensures availability & recoverability.

**Availability and recovery are critical to overall IT service levels.** Make sure that backup software integrates well with all aspects of the architecture.

**Availability and recoverability are optimized at every system level.**

- **In servers,** availability and recovery are boosted by component redundancy (NICs, power supplies) as well as clustering of multiple physical and virtual machines.

- **In primary storage** consolidated in a SAN or NAS array, recovery is achieved through disk redundancy (RAID), built-in capabilities for data snapshots and volume replication, and by replication between arrays (to enable, for example, site-to-site failover capabilities).

- **In backup storage targets,** recovery is aided by faster I/O, such as when disk is used instead of tape for random access read, which is significantly faster than sequential read.

Make sure that backup software supports, integrates, and works well with the new or improved architecture.

Better meeting a recovery objective, or lessening the impact of backup on the infrastructure may be impacted more by an architectural change than backup software. But the two go hand in hand.

**Other sets that address system/data availability and recovery**

- **Mitigate Costs & Maximize Value with a Best-Fit Backup Architecture Strategy**
- **Leverage Server Virtualization for DR Affordability and Agility**
- **Mitigate Costs & Maximize Value with a Consolidated Network Storage Strategy**

Source: Info-Tech Research Group, N=57