Unitrends Continuity Use Cases
White Paper

Don’t Jeopardize Your Business: 5 Key Business Continuity Use Cases for Cloud

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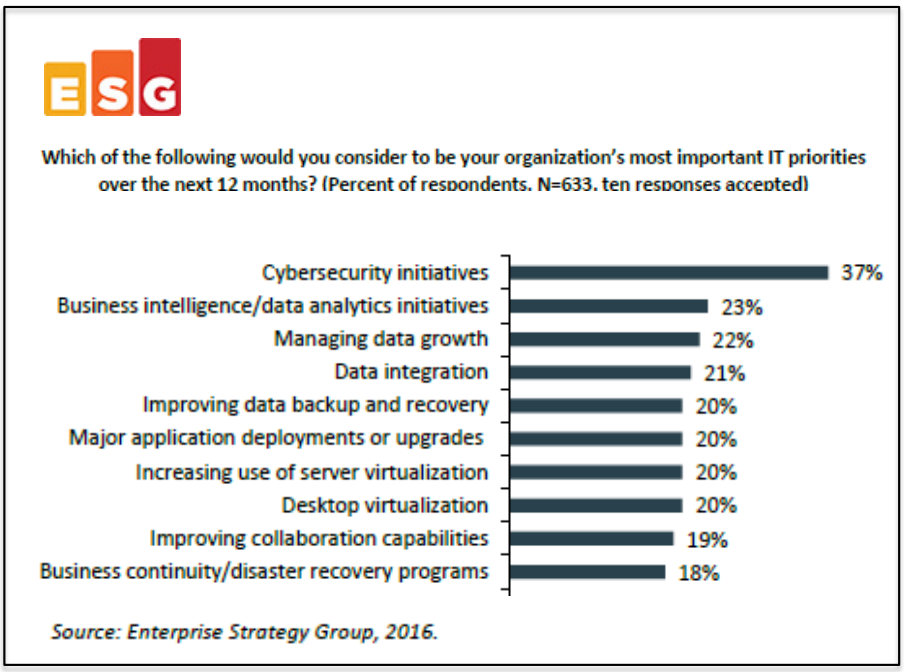
Summary

Backup and recovery continue to be among the top initiatives as identified by IT professionals in annual surveys. It is also interesting to note that managing data growth and business continuity and disaster recovery are also among the top ten IT initiatives for 2016. These are all interrelated and need to be addressed together to ensure business can continue to operate throughout a disaster.

The Conversation

Discussion has evolved over time from backups to business recovery. While backups were deemed to be a necessary, critical enabler for recovery, it really has been recovery that businesses have cared about all along. We now understand that recovery must be not only easy and fast but must have minimal impact on business operations. It is essential that recovery be delivered in a way to ensure continuity for the business.

The crucial question is, "How can business continuity be assured while an enterprise is recovering from a disaster?" Part of the answer is to reduce dependencies of the recovery process on the very same enterprise infrastructure that suffered a disaster in the first place. An emerging approach to this is cloud computing. Because of the wide availability of high speed wide area networks (WANs) and the separation from the enterprise data center, the cloud, enables enterprises to quickly backup and restore data, applications, and even operating systems. Utilizing virtualization, the cloud also enables businesses to use those servers and applications in real time. Corporate operations can continue in the cloud while the issues at the local facility are repaired.



In addition to using cloud for backups and disaster recovery, there are additional use cases that benefit from flexible, scalable cloud capacity on an interim basis. Since cloud operators charge by the usage, applications must be rapidly spun-up, and then spun-down as the project completes to keep expenses to a minimum.

This paper explores a variety of common use cases associated with business continuity and how they can be addressed with an easy to use, flexible cloud infrastructure. It will describe how the cloud can contribute to continuity by storing data and systems and allowing virtual instances of those systems to be spun-up and down. Whether it's recovering from an outage or expanding computing capabilities to meet sudden demand, think about how these use cases could apply to your business.

Why Cloud for Continuity?

A survey by the Cloud Industry Forum identified that the leading reasons respondents have adopted cloud computing are:

- Flexibility of the infrastructure (77%)
- Ease of scalability (76%)
- 24/7 Availability of support (74%)

Cloud is being touted for many things, including its computing, storage and services. An increasing number of organizations are progressing on their journey to the cloud. IDC reported that worldwide revenues from public cloud services will exceed $195 billion by 2020, more than doubling 2016 revenues, representing a compound annual growth rate (CAGR) of 20.4%. Unitrends found similar rapid adoption of Cloud computing in our February 2016 survey. About half of the respondents were already utilizing cloud for backup and recovery and 40% were going to increase their use of cloud during the upcoming year.

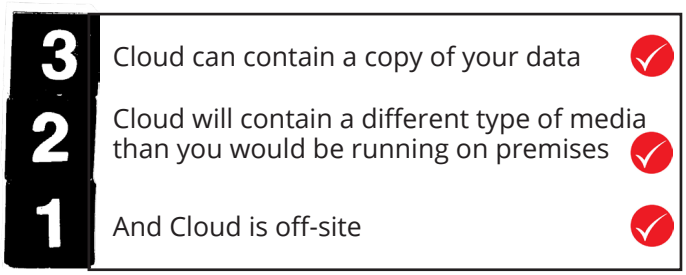
Sixty four percent (64%) of respondents also reported that using cloud has saved their organization time, crucial for IT staffs struggling with flat hiring plans, budgets and growing demands. One of the prior impedances to adopting cloud was concerns about security and storing data off site. This issue is waning as more have experience with maturing cloud implementations and their security. It is easy to understand that the VP of security of a large Cloud provider has more resources and knowledge of how to protect data than the IT Director of the average small or mid-sized organization.

Continuity Use Case #1 Off-site Backup Copies

An industry best practice that sets the stage for business continuity is the Rule of Three: Have 3 copies of your data, use at least 2 types of media and be certain that 1 copy is stored off-site. Cloud addresses all three elements of 'Rule of Three' very nicely.

1. Cloud can contain a copy of your data
2. Cloud will contain a different type of media than you would be running on premises
3. And Cloud is off-site

There are also financial benefits. Cloud services are purchased using your operational budget (Opex) rather than using your capital budget (Capex) and you pay only for what you use. Utilizing cloud for off-site backup storage is less costly than building and operating a secondary site. And finally, cloud users benefit from economies of scale. Cloud infrastructure consists of larger and more efficient computing and storage arrays and these savings can be passed along to users as lower fees. All of this points to why clouds are suitable targets for off-site back-up copies. Let's explore how.



[1] IDC Press Release 'IDC Forecasts Worldwide Cloud IT Infrastructure Market to Grow 24% Year Over Year in 2015, Driven by Public Cloud Datacenter Expansion', October 2015.

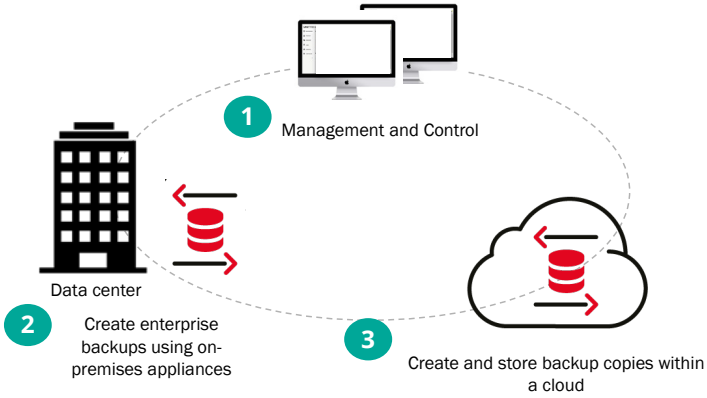
[2] Unitrends Whitepaper, 'Cloud for Business Continuity: Separating Fact From Fiction', June 2016.

[3] Cloud Industry Forum, 'Cloud and the digital imperative', Cloud and the digital imperative snapshot

Steps involved with using cloud to provide off-site backup copies are:

1. Use a trusted and industry leading backup management system to control a regular process.
2. Install a backup appliance on premises and create regular backups.
3. Make a secondary copy in the cloud.
4. Use the cloud backup copy for additional protection, long term retention and recovery as required.

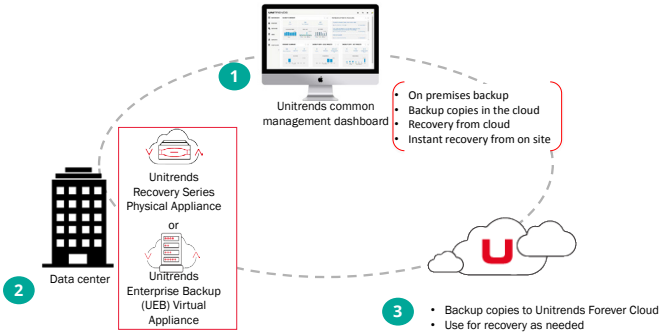
Off-site Backup Copies in the Cloud



Creating off-site backup copies of your on-premises backups ensures the utmost protection for your assets. Unitrends enables you to easily set this up based on Unitrends Connected Continuity Platform™. The intuitive Unitrends management dashboard controls both on-premises and in-cloud Unitrends backups, can be used to replicate secondary copies from the datacenter, Unitrends appliance or software to the Unitrends cloud.

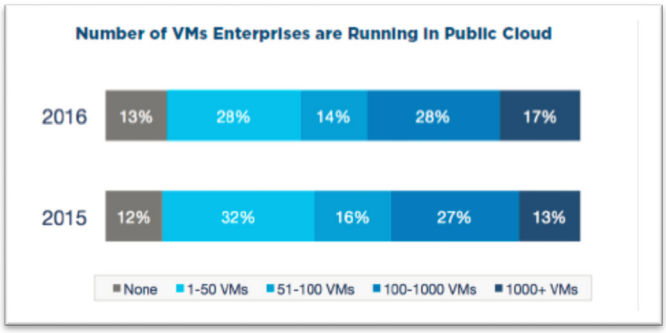
This illustrates one way that Unitrends addresses the need for off-site backup copies also complemented by on site instant recovery. There are other solutions available.

Sample Unitrends Solution for Off-site Backup Copies



Continuity Use Case #2 Protection for Cloud Workloads

Enterprises and SMBs are increasingly moving workloads of all types to the cloud, especially to the public cloud. A recent survey of over 1000 IT professionals found that 57% of large enterprises and 35% of SMBs identified moving more workloads to the cloud as a top 2016 initiative.[4] This report also found a substantial increase in the number of VMs planned to be running in the Public Cloud in 2016 illustrating a growing confidence in cloud infrastructure and services. Note especially the portion of enterprises operating over 1000 virtual machines (VMs) in the public cloud is projected to increase 4% this year alone.



These results demonstrate growing use of clouds,however, IT staffs must continue to be very aware, that just because a workload resides in a cloud, that does not mean that their data is protected or replicated by the cloud provider. Data and application protection is still the primary responsibility of the owner. The same corporate policies that apply to data stored on premises should also apply to data in the cloud. While environmental and network security is generally more robust in the cloud than provided by many enterprises, cloud data can still be at risk. Several common sources of loss can be attributed to the owners including accidental deletion by a user, getting overwritten by a misconfigured application or corruption during an upgrade.

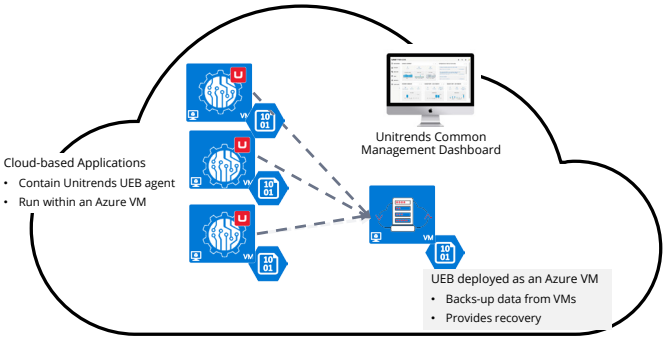
As the number of VMs in the cloud increase, so does the need to address their protection. To execute, you would deploy your applications in the cloud utilizing the cloud's computing, networking and storage services. A backup solution is also deployed in that cloud as a VM. The cloud workloads would then be backed up to and protected by the backup solution in that cloud. From there it can be replicated elsewhere in the cloud as another copy in a separate location.

[4] Rightscale, "2016 State of the Cloud Report", January 2016.

Let's look at a specific solution that addresses this use case and discuss how to do it in a bit more detail. In this example, we will look at the Microsoft Azure cloud and Unitrends Enterprise Backup. Start with the Unitrends dashboard which provides the same intuitive access to managing comprehensive backup and recovery processes as it does for those Unitrends appliances in the data center:

1. Deploy an instance of Unitrends Enterprise Backup into the Azure cloud as a VM to perform all required backup, recovery and management procedures. Optimize protection by setting-up automated backups.
2. Immediately begin to back-up your Azure workloads to the Unitrends software deployed in the same cloud.
3. The same management dashboard can be used to recover your assets at whatever level of granularity is required, be it a file, a volume or complete system.

Sample Unitrends Solution to Protect Cloud Workloads



Remember you are responsible for protecting your company's cloud data to ensure business continuity. You cannot assume that your cloud vendor or SaaS provider is doing that for you.

Continuity Use Case #3 Disaster Recovery

Disasters can strike at pretty much any time. Data loss can come from something as simple as a deleted email to a complete application or device outage that impacts a broad group. This could be due to a physical disaster, an external network outage or a hardware failure that is not immediately recoverable.

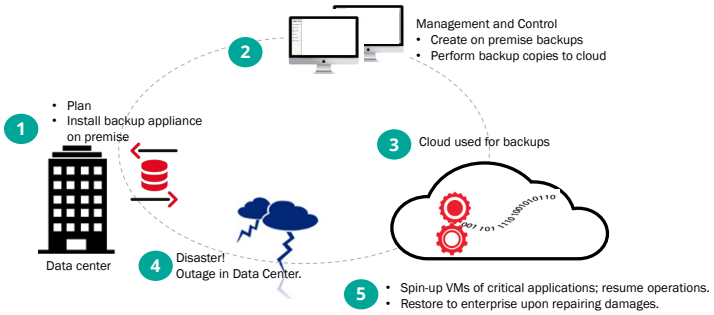
Disasters happen more than you think. 31% of the respondents to the Unitrends survey reported that they had experienced substantial data loss within the last 2 years.[5]

And when it does happen, it's costly. Aggregated results from multiple studies indicate that downtime typically costs $90,000 - $300,000 USD per hour depending on the industry and application that has been lost! Quick recovery from a disaster is a challenge of its own. But, the real goal is to first restore business operations, end the data loss and then return operations to the original equipment

Cloud is well poised to provide a solution to this challenge. By its nature, it's not co-located with the enterprise data center. A disaster in any particular data center is extremely unlikely to impact the cloud, especially if the cloud service includes multiple replications across geographies. With the right Disaster Recovery as a Service (DRaaS), critical systems can be rapidly spun-up in the cloud as VMs, upon demand. With the proper service, enterprises are able to access their cloud applications in the cloud and resume operations even before repairs are made to the local data center.

Developing a plan is the first step in addressing Disaster Recovery. A number of tools are available to assist you with this effort and some DRaaS offers include planning. A good DRaaS plan includes items such as identifying which systems are critical and need recovery as soon as possible, and which can take longer, Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO). From there you would set-up your on-premises backups and create off-site backup copies in cloud. When/if a disaster occurs the following steps are taken by you, your DRaaS vendor or the two of you working together depending upon your service:

Recovery in the Cloud



- Declare an event.
- Spin-up critical systems as VMs in the cloud.
- Redirect users via the network to resume operations utilizing the cloud copies.

[5] Unitrends Whitepaper, 'Cloud for Business Continuity: Separating Fact From Fiction', June 2016. From Fiction', June 2016.

- Upon resolution of the disaster, transfer updated workloads from the cloud back to the data center and failback users to the original data center.

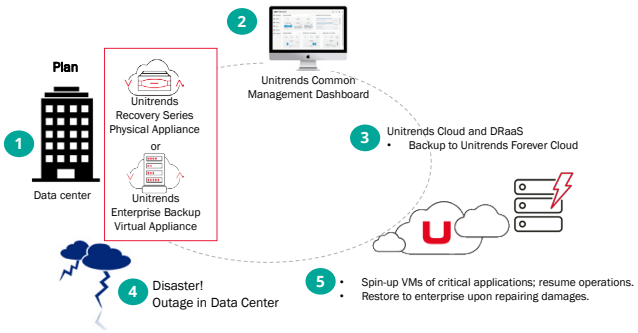
To look at this in more detail, we will use a solution consisting of the Unitrends DRaaS offer. As part of signing up for the DRaaS service, you are assigned resources from the Unitrends Cloud Operations team to assist in the planning and setup of your DRaaS program. The process begins with creation of a detailed disaster recovery plan including your RTO and PRO objectives, identification of critical systems, failover and failback steps and, very importantly, testing of the procedures. As illustrated by recent experiences in the airline industry, it is essential that recovery procedures are tested regularly. You may select to have Unitrends perform validation testing and provide regular Recovery Time Actual (RTA) reports or, you may schedule periodic manual testing with the Unitrends Cloud Ops team.

Upon completion of the plan, next steps entail:

1. Using the common Unitrends dashboard to create your backups with Unitrends Enterprise Backup or Recovery Series appliances on your site.
2. Select the virtual machines (VMs) you want to mirror in the Unitrends Cloud.
3. Using the same dashboard, copy your backups to the Unitrends Cloud with continuous data replication to ensure the cloud copies stay current.
4. In the event of an outage at your primary site, you would declare the disaster with the Unitrends Cloud Ops team—available 24 hours a day, 365 days a year.
5. Your business is up and operational in the Unitrends Cloud within an hour from the declaration of disaster as defined by Unitrend's DRaaS SLA.
6. After the disaster, backups of your data and VMs are copied to a Recovery Series appliance or NAS device and shipped to your primary site.

This example reflects one solution from Unitrends. Other solutions are available, depending on the customers' requirements including use of the Unitrends Boomerang product, a simple to use product designed to address the specific needs of VMware users who have selected a cloud service from Amazon or Microsoft. We will use the Boomerang solution to illustrate our final two Cloud continuity use cases.

Unitrends Solution: Disaster Recovery in the Cloud

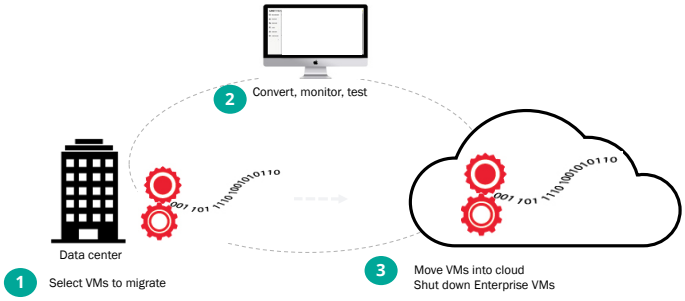


Continuity Use Case #4 Migration

This next use case focuses on business continuity while migrating applications to the cloud. As more applications move into the cloud, this requirement will become more prevalent. Results from a recent survey asking about application migration found that almost half (44%) of respondents said they could afford less than an hour of downtime due to migrations. The same report stated that minimizing downtime and performance impact on production were the top 2 challenges associated with migration[5] to cloud underscoring the importance of maintaining business continuity at all times.

> Minimizing downtime and performance impact on production were the top 2 challenges associated with migration to cloud

Migration to the Cloud



How can migration occur while minimizing cost to IT and impact to the business? What tools exist to assist with this?

Firstly, identify which systems need to migrate to the cloud based on their critical importance to business operations. To prepare, a backup appliance or software is then installed on

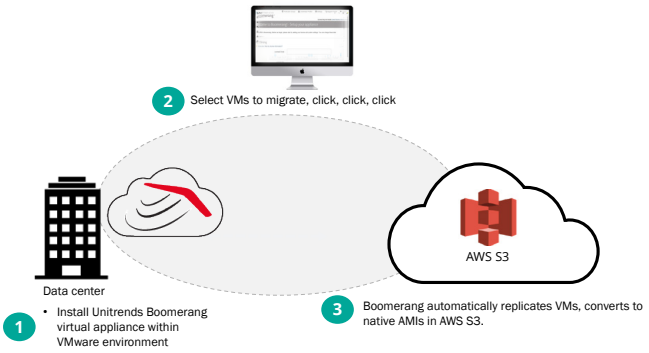
[5] 2016 Cloud Migration Survey", CloudEndure, 2016.

premise and data and application backups created. Using a management tool, the newly created backups are replicated in the cloud. It critical to verify that the operation executed properly by checking logs or using other data validation capabilities of your solution. Once the integrity of the data is verified, VMs running at the enterprise are shut down and the associated VMs in the cloud are spun-up and operations may resume in the cloud.

To give you a specific example of how this could work, we will use Unitrends Boomerang and Amazon AWS cloud:

1. Install the Unitrends Boomerang virtual backup appliance, on your premise.
2. Using the Boomerang management tool create on-site backups and then migrate selected VMs to the cost effective S3 storage in the Amazon cloud.
3. Using the Boomerang management tool, you can verify that the VMs replicated properly. With a single click, Boomerang remodels your VMs as native Amazon Machine Images (AMIs) and spin them up in AWS EC2 for use. You can then shut down VMs at the enterprise and operate in the cloud.
4. Change your mind? No problem; Boomerang can reverse convert AMIs to ready-to-run VMs and move them back to your datacenter with a single click.

Sample Unitrends Solution: Rapid Cloud Migration



Our final continuity use case begins with the same migration, but has a different second half to address a different business requirement.

Continuity Use Case #5 Bursting Capacity

Two of the top features drawing enterprises and small businesses to the cloud are flexibility and scale. By utilizing a virtual infrastructure in a cloud, you are able to easy scale usage up or down, paying for only the capacity that you require. This is the basis of our final continuity use case – the need for cloud bursting capacity.

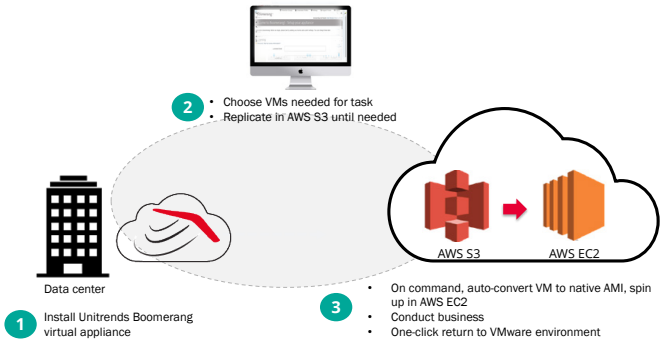
Two of the top features drawing enterprises and small businesses to the cloud are flexibility and scale.

A variety of computing requirements can be addressed with bursting. Retail is a cyclical business that requires more capacity during holiday seasons and when the holiday ends, computer capacity can return to its steady state. Other examples include content providers that need additional capacity to keep up with the demands of streaming specific major media events and educational institutions that temporarily require additional capacity to support registrations and preparations for the new academic year.

There are other use cases. Perhaps additional capacity of development tools is required during a particular project or an infrequently used application is more cost effectively stored in the cloud and spun-up only when needed.

This solution to meeting temporary computing capacity is similar to the migration case. Start by installing a backup appliance or software on premises and creating a backup copy to the cloud. The difference between bursting and migration is that, with bursting, the application in the cloud is spun-up only for the time when it is required. It is used only as needed and then spun-down. Let's look at this in detail using the same specific products as in the last section.

Sample Solution: Cloud Bursting



1. Upon installing the Boomerang virtual backup appliance on site, create backups.
2. Select those VMs which will require temporary capacity and back them up to the S3 storage in the Amazon cloud.
3. When the additional capacity is required, use the Boomerang management console to easily convert the VM into an Amazon Machine Image & then spin them up into AWS EC2.
4. When the additional capacity provided by the cloud is no longer required, the application and its data can move back to the enterprise environment with 1 click on the Boomerang console.

Can your business benefit from easy, temporary capacity provided by a cloud?

Addressing Your Continuity Use Cases with Unitrends

We selected the continuity use cases in this paper as they are common to many businesses regardless of size or industry. Consider your business and how each of these use cases may apply to keeping your computing infrastructure functioning at peak performance. Whether you are just starting on your journey to the cloud, or are already a heavy user, your ideas and systems must be assured for continuity.

Unitrends Connected Continuity Platform addresses your needs with support for over 220 different versions of operating systems, hypervisors and applications with support for physical and virtual, local, private and public cloud based environments. With one platform includes integrated backup and recovery capabilities, multiple cloud options, disaster recovery and recovery assurance services. You can have 100% confidence that your business can recover lost data and systems and high system uptime. To learn more about the elements of the Connected Continuity Platform visit Unitrends at Unitrends.com.

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About Unitrends

Unitrends is trusted by business visionaries, IT leaders and Pro's who know that in today's digital world protecting their ideas and keeping their business running is non-negotiable. The Connected Continuity Platform™ enables organizations of all sizes to protect their data and assure business continuity for their physical, virtual and cloud based environments.

Unitrends offers the industry's broadest portfolio of cloud empowered continuity solutions in a single super intuitive platform delivering unmatched flexibility as needs evolve, providing 100 percent confidence in recovery and business continuity.

Unitrends' Continuity Solutions are backed by a global support team that consistently achieves a 98% satisfaction rating and are sold through a community of thousands of expert technology partners, service providers and resellers worldwide.