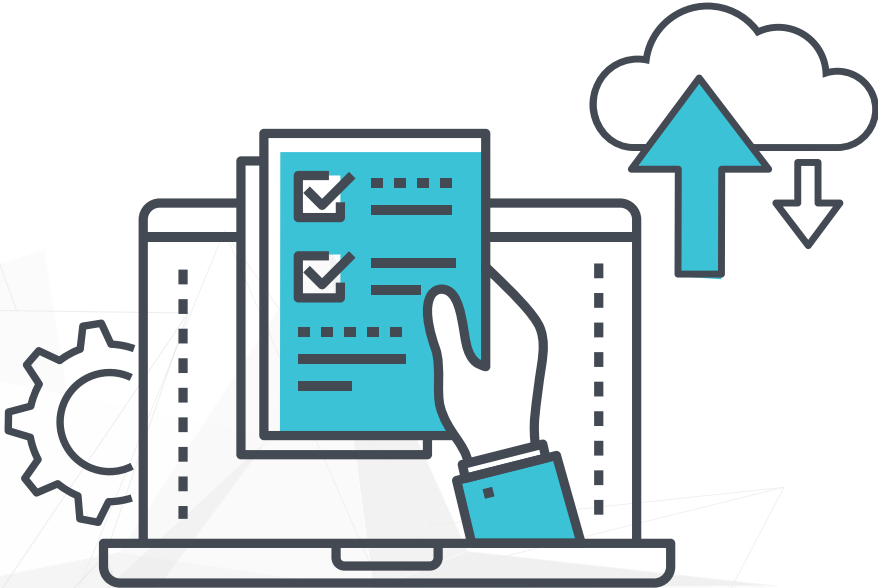


BACKUP AND DRaaS IT BUYER'S GUIDE

FIVE WAYS TO BEAT DOWNTIME





What You Will Learn

When it comes to data protection and business continuity, what is your goal? That's easy – a solution that is simple to use, you know will work every time, has built in resiliency, and protects everything you have in your data center with absolutely zero downtime or data loss. Is that possible? The good news is that we are closer than ever to being able to achieve this lofty goal.

However, you will need to make careful choices about the solution you implement as many of today's backup and disaster recovery solutions have large gaps forcing you to compromise or pay high costs to compensate. Additionally, some backup solution vendors are further along in incorporating new and exciting technologies such as artificial intelligence, machine learning and predictive analytics that make IT administrators faster and more productive at their jobs.

Backup tools sit in a very strategic location. They touch and manage all corporate data and the majority of applications. With complete access to the lifeblood of a company, backup providers are building ways for corporations to not just protect the data at hand, but to use their reach for capabilities far beyond data protection. Selecting the right solution is increasingly more than just about basic backup.

Before choosing a backup vendor, understand the wide variety of offerings, what to look for and potential gaps in coverage to put your organization in the best position to achieve the lofty goal of total protection all the time.

How to Use This Guide

This buyer's guide is designed to help you understand the options in the market today and insights into emerging technologies. Why? Because there are hundreds of vendors, new technologies emerging in storage, infrastructure and data management, and broad continuity strategies to consider. After all you won't be around to guide the future if you can't protect your infrastructure today.

Let's look at the high-level goal and the component pieces:

- 1 Protect everything in your data center including virtual, physical, storage, and cloud
- 2 Gain quick recovery (RTO) from local events, ransomware, remote sites and the cloud
- 3 Your company requires near-zero data loss (RPO) and long-term data retention
- 4 Avoid a disaster with your cloud disaster recovery option, and
- 5 Gain confidence to know that you will recover every time with automated testing, reporting, and the highest levels of support

We will provide guidance on each of these topics. At the end of each section we have created a checklist to use to ensure your solution is the best the market offers. And, finally, on the last page, we've added a convenient chart that can help you create a shortlist of leading features.

Protect Your Evolving Datacenter

Your environment is complicated, but protecting it doesn't have to be. You need to protect everything in your data center, whether it be physical or virtual, deployed on premises, at a remote location, with a SaaS provider or in the cloud. In addition, new technologies are emerging, such as new hyperconverged infrastructure such as Nutanix and Cisco UCS. A simple, all-in-one approach to backup, recovery automation, and cloud continuity built to deal with all forms of computing styles makes IT administrators more productive so they can do more in less time. Today's leading data protection solutions can protect all your diverse environments and come pre-integrated and optimized to provide high-speed, error-less, and effortless performance.



Purpose-built Appliances

If you were to build your own backup and recovery solution, you would probably have to integrate dozens of different pieces of software and hardware - servers, storage, deduplication, OS, security, analytics, search, and monitoring. Unfortunately, many vendors ask you to take that approach by partnering with other suppliers rather than building their own total solution. The amount of time you will have to spend on data protection and recovery is directly proportional to the number of servers and components you have to install, manage, and maintain. Time is money. Newer vendors are taking the integrated approach specifically to reduce time and money spent on continuity. Visionaries in IT are deploying single, complete solutions, purpose-built to perform data and application protection - in other words, an appliance. Today's leading appliances are able to protect all computing platforms, including virtual systems, physical Windows and Linux systems, hyperconverged infrastructure, legacy systems, and cloud workloads deployed in hyperscale clouds such as Amazon AWS and Microsoft Azure. A modern, intuitive user experience is a priority: it should always be possible to operate your backup system without referring to a manual and use a single, central appliance to manage 1000's of remote devices.

Wide Protection for all Workloads

Today's data centers have a wide range of computing styles including on-premises and remote cloud - including IaaS, SaaS, and PaaS, and new technologies such as hyperconverged infrastructure. Your backup and recovery solution should be able to easily protect hundreds of versions of operating systems, hypervisors, and applications.

Policy-based Management

Backups should be easy to define and schedule. Administrators should have the choice of how backups are set, either by entering the backup details themselves or using intelligent, policy-based scheduling technology. Policy-based management allows administrators to define their recovery goals (RPO and RTO) with the system calculating and filling in the deployment details. This form of scheduling allows administrators to align data management and availability tactics to business policies, without needing to understand details such as file locations and snapshot schedules.

Built-in WAN Optimization

Getting your data to an offsite location is critical for disaster recovery, but your WAN may not have the capacity for handling large backup files. Your backup appliance should come with integrated WAN optimization technologies such as adaptive deduplication, deduplication acceleration, compression, and encryption. These technologies provide data protection and reduce the size (and cost) of synchronizing data backups to a remote location or cloud DRaaS.

To ensure you have all aspects of data protection maximized while keeping costs and administrative time commitments to a minimum, here is a list of technologies that should be part of your data protection solution:

CAPABILITY TO LOOK FOR	DESCRIPTION
Fewer protection solutions	A multi-vendor protection strategy greatly increases IT complexity and costs. Reducing the number of solutions means managing fewer licenses, maintenance and service agreements.
Purpose-built appliance	A purpose-built all-in-one solution is easier to install, upgrade, service, and manage.
Intuitive user Interface	A modern, intuitive user experience is a priority: it should always be possible to operate your backup system without referring to a manual, and substitutes or managers should be able to stand in when primary admins are unavailable.
Wide coverage	Your backup and recovery solution should be able to protect hundreds of versions of operating systems, hypervisors, and applications.
Policy-based management	Administrators should have the choice of how backups are set, either by entering the backup details themselves or using intelligent policy-based scheduling technology.
Deduplication	Deduplication tends to achieve better data reduction efficacy against smaller backup sets (the amount of data being backed up each time), while compression tends to achieve better results against larger data sets.
Compression	Data compression reduces the overall size of files and makes their movement and storage more efficient.
Cloud-enabled	Integrated support for multiple types of cloud including private and hyperscale clouds such as AWS and Azure.
RESTful-API	Can easily integrate with other applications.
AES Encryption	Secures data privacy both at-rest and in-flight.
Near zero Downtime	Supports P2V, V2V, V2P.



Checklist: Protect Everything in Your Evolving Data Center

CAPABILITY	DESCRIPTION
<input type="checkbox"/> Fewer protection solutions	A multi-vendor protection strategy greatly increases IT complexity and costs. Reducing the number of backup solutions means managing fewer licenses, maintenance and service agreements.
<input type="checkbox"/> Purpose-built appliance	A purpose-built all-in-one solution is easier to install, upgrade, service, and manage.
<input type="checkbox"/> Intuitive user Interface	A modern, simple, intuitive user experience is a priority: it should always be possible to operate your backup system without referring to a manual, so substitutes or managers can stand in when primary admins are unavailable.
<input type="checkbox"/> Wide coverage	Your backup and recovery solution should be able to natively protect hundreds of versions of operating systems, hypervisors, and applications.
<input type="checkbox"/> Policy-based management	Administrators should have the choice of how backups are set, either by entering the backup details themselves or using intelligent policy-based scheduling technology.
<input type="checkbox"/> Deduplication	Deduplication tends to achieve better data reduction efficacy against smaller backup sets (the amount of data being backed up each time), while compression tends to achieve better results against larger data sets.
<input type="checkbox"/> Compression	Data compression reduces the overall size of files and makes their movement and storage more efficient.
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Strategies to Beat Downtime

While instant recovery with zero downtime is ideal, putting in place the resources to meet this objective may not be affordable for every application in every organization. Organizations need to inventory their applications and triage them by their importance to the functioning of the business. More backup capabilities should be invested to protect mission-critical applications than those apps that can be off line for a short while. The following features should be considered to support mission-critical apps.



Local Disasters – Utilize an Appliance

Today's backup and recovery appliances are themselves full computing platforms, equipped with CPUs, a large amount of storage, backup software and remote management capabilities. These appliances are the first line of recovery. If a single server or data center rack goes off-line the appliance can run the failed applications with the most recent copy of backed up data. Simple, neat, easy, and fast.

Site-level Disasters – Support for Multiple Locations

Backup and recovery tools can now be managed remotely meaning that organizations no longer need to have IT deployed at every site there is a server. A single appliance / user interface should be able to manage all remote devices. Appliances in different locations can act as backups for each other so that site level disasters such as electrical failures or flood do not bring down an entire enterprise. Cross-site monitoring and recovery with backup appliances should also be instantaneous.

Enterprise-level Disaster – Recover from Ransomware

Ransomware is designed to cripple the entire enterprise to ensure a ransom is paid. The only real defense against ransomware is having solid and frequent backups to replace encrypted files. Cyber-criminals look to exploit gaps in your security systems that can come from using multiple backup and recovery tools and complex backup and recovery solutions that make securing the infrastructure too difficult to stave off threats. Look for a backup solution delivered in hardened Linux because ransomware targets Windows applications due to their popularity and the fact that Windows is generally an "open architecture". Linux appliances are written to be locked down.

To ensure you can meet aggressive RTO schedules, your backup and business continuity solution should include the following technologies:

CAPABILITY TO LOOK FOR	DESCRIPTION
Instant recovery from local disasters	If a single server or data center rack goes off-line, a backup appliance will detect the failure and automatically bring up applications running with the most recent copy of backed up data.
Manage protection for multiple sites	A single appliance / user interface should be able to manage all remote devices.
Easy ransomware recovery	Look for a backup solution delivered in hardened Linux as ransomware targets Windows applications due to their popularity and the fact that Windows is an "open architecture".
Bare metal backups	Bare metal restores allow application recovery across servers by different vendors and hardware configurations.



Checklist: Avoid Downtime & Data Loss

CAPABILITY	DESCRIPTION
<input type="checkbox"/> Instant recovery from local disasters	If a single server or data center rack goes off-line, a backup appliance will detect the failure and automatically bring up applications running with the most recent copy of backed up data.
<input type="checkbox"/> Manage protection for multiple sites	A single appliance / user interface should be able to manage all remote devices.
<input type="checkbox"/> Easy ransomware recovery	Look for a backup solution delivered in hardened Linux as ransomware targets Windows applications due to their popularity and the fact that Windows is an "open architecture".
<input type="checkbox"/> Bare metal backups	Bare metal restores allow application recovery across servers by different vendors and hardware configurations.
<input type="checkbox"/> Automatic ransomware detection	Your recovery solutions should use machine learning, change rate prediction, data entropy and randomness of data creation as measurements to detect in near real-time an active ransomware infection. Once an infection is identified, notifications should be automatically sent to administrators to take action and stop more files from being encrypted, thus speeding recovery.
<input type="checkbox"/> Data loss prediction	Utilize intelligent tools that can simulate different disaster or outage scenarios and predict how and what types of data would be lost in a downtime event so you can set the right RPO.
<input type="checkbox"/> Application downtime prediction	Tools can now identify, simulate, and test the many steps and time required to recover complex applications This lets you know if your RPO is achievable.

Avoid Data Loss

Once you have parsed mission-critical applications from those that don't need near-instantaneous recovery, you are in a position to set recovery point objectives (RPOs) for all classes of apps. A recovery point objective is basically deciding how much data you can afford to lose. Here are features and functions that can help define and deliver on your RPO objectives.



Automatic Ransomware Detection

Nothing can bring an enterprise to its knees more completely than ransomware. Newer variants of the malware will delay notifying you of their presence so it has more time to encrypt additional files. Fortunately, leading backup and recovery solutions are now using machine learning, change rate prediction, data entropy, changes in compression and deduplication rates, and randomness of data creation as measurements to detect in near real-time an active ransomware infection. Once an infection is identified, notifications should be automatically sent to administrators to take action and stop more files from being encrypted, thus avoiding more data loss.

Application Downtime Predictions

An RTO is calculated based on how long it takes to get business up and running again, which means full access to critical applications. Applications today are complex stacks of software, data, databases, and settings frequently spread across disparate hardware. If any one of the components is out of line, a critical application will remain unavailable to business users. Choose to use newly available, intelligent tools to identify, simulate, and test the many steps required to recover complex applications and get valuable business information flowing again. Only after testing can you know that your RTO is achievable.

Data Loss Prediction

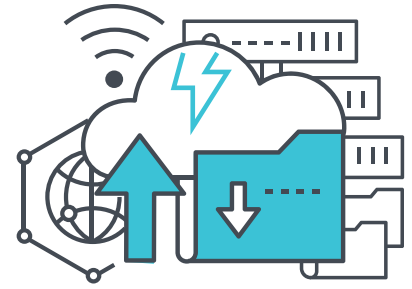
When calculating desired RPO metrics, one of the most important considerations is understanding the potential loss of data. Data loss can include the corruption of stored or in transit files as well as not capturing business data that would have been produced during a downtime event. Lost sales records, customer contact information, and employee production all have real business value. Intelligent tools are now available that can simulate different disaster or outage scenarios and predict how and what types of data would be lost in a downtime event. Proactive testing helps businesses uncover gaps between strategy/ goals and implementation/solutions. Having this knowledge allows IT to conduct an intelligent, business metric-based conversation on what RPO goals to set.

Some features and functions you should look for to help you set and meet your RPO Goals:

CAPABILITY TO LOOK FOR	DESCRIPTION
Automatic ransomware detection	Your recovery solutions should use machine learning, change rate prediction, data entropy and randomness of data creation as an infection. Once an infection is identified, notifications should be automatically sent to administrators to take action and stop more files from being encrypted, thus speeding recovery.
Data loss prediction	Utilize intelligent tools that can simulate different disaster or outage scenarios and predict how and what types of data would be lost in a downtime event to set the right RPO.
Application downtime prediction	Tools can now identify, simulate, and test the many steps and time required to recover complex applications This lets you know if your RPO is achievable.

Keep Cloud DR from Becoming its Own Disaster

Cutting edge enterprises as well as organizations doing business at a single location are increasingly using the cloud as their disaster recovery location. Regularly scheduled backups are replicated and stored in the cloud at low cost and isolated from accidental deletion or ransomware attacks. These cloud-based backup files should serve two purposes – first they are preserved to meet data compliance mandates, but they should also be able to be used for disaster recovery.



Cloud Disaster Recovery-as-a-Service

Disaster Recovery-as-a-Service (DRaaS) allows organizations to spin up their applications in the cloud if their datacenter goes down for any reason. Pay for premium DRaaS protection only for the apps you determine to be important. You should be able to add an optional 1-hour SLA (Service Level Agreement) for your most mission critical applications to ensure you have your cloud provider's undivided attention. Look for a vendor that offers other levels of DRaaS performance such as 24 hour or bulk SLAs to better match costs to application importance. Be sure and inquire about the amount of time you have to restore your failed data center before incurring additional cloud charges. Some vendors can offer up to 30 days of cloud operations at no additional charge.

The level of support offered by DRaaS providers varies greatly. Some vendors, particularly offering public cloud-based DRaaS require you to do all the setup, testing maintenance and failover tasks requiring you to become a DRaaS expert. At the other end of the spectrum there are vendors that offer White Glove Services that take on the tasks and responsibility for your DRaaS. Ask about the process for initiating a failover – if it requires internet access, you may not be able to manage it yourself as loss of a data center can mean you lost your state. Leading DRaaS vendors can initiate a failover with a single phone call to their service center. Charges for DRaaS can vary widely across cloud vendors so be sure to ask about all fees for both storage as well as recovery services.

Long-term Cloud Retention

The cloud can provide safe, trustworthy and easily-recoverable storage. Different types of data require different retention schedules – 1 year, 3 years, 7 years or infinite. Look for tiered retention pricing so you don't pay for more than you need. You should be able to select the exact volume of storage, the number of years that data must be retained with cloud pricing to match. Remove the burden of retention management and operating spending as remote cloud storage may be cheaper than managing your own physical backup media.

SaaS – Recover Your Applications Running in the Cloud

More enterprises are deploying office productivity applications such as Microsoft Office 365, G-Suite and Salesforce.com. While they do come with very basic backup and recovery capabilities, they do not allow you to recover anything at any time. Deleted emails, files, folders and contacts will be permanently deleted if not caught in time. There are services available with both admin and end user self-service recovery. For cloud-based applications you can do cloud-to-cloud backups with virtual appliances that completely free you from burden of backup and storage management.

CAPABILITY TO LOOK FOR	DESCRIPTION
Disaster Recovery-as-a-a-Service	Pay for DRaaS protection for the apps you determine to be important and add optional 1-hour SLAs for your most mission critical applications.
Protect SaaS applications	Protect O365, G-Suite and Salesforce applications running in the cloud.
1 Hour SLA	Premium DRaaS service for mission critical VMs.
Purpose-built cloud	A backup cloud provider can provide better performance by designing services specifically for the backup needs of the customers.
Support for hyperscale clouds	Allow easy integration with hyperscale clouds such as AWS and Azure.
Long-term Cloud Retention	An integrated cloud solution can provide safe, trustworthy and easily-recoverable storage for different retention schedules – 1 year, 3 years, 7 years or infinite.
Tiered retention pricing	Pay only for the storage volumes and timer periods you require. Long term data retention is not one-size-fits-all.
Cloud seeding services	Sending large amounts of data to the cloud via a WAN can take weeks. Your DRaaS provider should be able to accept hard-copy media to establish your library and create media to quickly repopulate your local files after a disaster.



Checklist: Finding the Best Backup & Recovery Cloud

CAPABILITY	DESCRIPTION
<input type="checkbox"/> Disaster Recovery-as-a-Service	Pay for DRaaS protection for the apps you determine to be important and add optional 1-hour, 24-hour or bulk SLAs for your most mission critical applications.
<input type="checkbox"/> Protect SaaS applications	Protect O365, G-Suite and Salesforce applications running in the cloud.
<input type="checkbox"/> 1 Hour SLA	Premium DRaaS service for mission critical VMs.
<input type="checkbox"/> Purpose-built cloud	A backup cloud provider can provide better performance by designing services specifically for the backup needs of the customers.
<input type="checkbox"/> Support for hyperscale clouds	Allow easy integration with hyperscale clouds such as AWS and Azure.
<input type="checkbox"/> Long-term Cloud Retention	An integrated cloud solution can provide safe, trustworthy and easily-recoverable storage for different retention schedules - 1 year, 3 years, 7 years or infinite.
<input type="checkbox"/> Tiered retention pricing	Pay only for the storage volumes and time periods you require. Long term data retention is not one-size-fits-all.
<input type="checkbox"/> Cloud seeding services	Sending large amounts of data to the cloud via a WAN can take weeks. Your DRaaS provider should be able to accept over-nighted hard-copy media to establish your library and create media to quickly repopulate your local files after a disaster.

Gain Confidence and Productivity

Now that you have set your RPO and RTO goals you need to be confident that they can be met. You also need to prove to others, including senior management, auditors and regulatory agencies, that you have verifiable plans in place to execute your recovery program. You need confidence that your programs will work in an emergency and reports that back you up. This is the confidence that only regular, automated testing can produce.



Test, Test and Test Again

The only way to know if you can recover in an emergency is to test regularly and each time you make a change to your infrastructure. New, intelligent tools are available that can greatly ease your concerns by automatically testing to ensure all components are in place and capable of recovering your applications or telling you what is broken so it can be fixed. Additionally, you get an easy to read, formal report certifying that your disaster recovery solutions have been tested and showing the results. These tools automate testing so you know exactly how fast and to what point your data and applications are protected without requiring manual work on your part.

Test and Dev Environments

Using advanced automated provisioning tools, you can test beyond just application recovery. Organizations need to know that new software versions and patches will not cause performance interruptions by testing them prior to deployment on production servers. Automated provisioning tools can now spin up and create test sand boxes that are exactly the same as your production environment because they are created from your most recent backups. If problems are found, they can be pinpointed and solved. Once all testing is finished the entire test environment can easily be torn down.

Customer Support

Since disaster can strike at any time, you need to have your backup and recovery solution supported by a team available by phone, chat, and email—24 hours a day, 7 days a week, 365 days a year. Ideally the support engineers should be located at the same site as development and quality control engineers in the US to ensure easy access for advanced questions. Ask your vendor to document their satisfaction rating to see how satisfied their existing customers are with their support.

Hardware Failure Predictions

Solution providers should proactively monitor their systems to predict hardware and software malfunctions before they happen. Predictive analytic technology enables customer support to understand what is inside the range of each component's normal performance. With remote monitoring, slight performance anomalies can predict future issues. Solution vendors should fix issues before you even know there is a problem.



Checklist: Confidence and Productivity

CAPABILITY	DESCRIPTION
<input type="checkbox"/> Automated Testing	Utilize automatic testing so you know exactly how fast and to what point your data and applications are protected without requiring manual work on your part.
<input type="checkbox"/> Spin up test / dev environments	Ensure that you can automatically spin up test and dev sand boxes from your backups that are exactly the same as your production environment.
<input type="checkbox"/> Highly rated customer support	Ask your prospective vendor to document their customer satisfaction rating to see how satisfied their existing customers are with their support.
<input type="checkbox"/> Failure predictive analysis	Can the vendor identify and fix hardware and software issues before you even know there is a problem.
<input type="checkbox"/> Compliance Reporting	Ensure that your testing tools will automatically generate reports that IT can use to satisfy auditors and senior management that recovery can take place in mandated times.
<input type="checkbox"/> Near zero Downtime	Supports P2V, V2V, V2P.

Utilizing these technologies and services should give you, and your organization confidence that you will recover as planned should the worst happen:

CAPABILITY TO LOOK FOR	DESCRIPTION
Automated Testing	Utilize automatic testing so you know exactly how fast and to what point your data and applications are protected without requiring manual work on your part.
Spin up test / dev environments	Ensure that you can automatically spin up test and dev sand boxes from your backups that are exactly the same as your production environment.
Highly rated customer support	Ask your prospective vendor to document their customer satisfaction rating to see how satisfied their existing customers are with their support.
Failure predictive analysis	Can the vendor identify and fix hardware and software issues before you even know there is a problem.
Compliance Reporting	Ensure that your testing tools will automatically generate reports that IT can use to satisfy auditors and senior management that recovery can take place in mandated times.

Conclusion

We have outlined the features and functions that leading backup and business continuity solutions offer to protect your company's computing assets. These will protect you from all sorts of downtime events, malicious attacks, employee sabotage, accidental deletions and other now unforeseen potentially destructive events. Use our product checklist to ensure your data protection solution delivers the best cutting-edge features:

- ✓ FULLY INTEGRATED WITH CLOUD STORAGE AND DRAAS
- ✓ LINUX APPLIANCE HARDENED AGAINST RANSOMWARE
- ✓ ALL-IN-ONE SOLUTION WITH OPTIMIZED OS AND SW
- ✓ INTEGRATED, AUTOMATED TESTING TOOLS
- ✓ PREDICT HARDWARE FAILURES
- ✓ PREMIUM DRAAS 1 HOUR SLA

Now that you know what to look for in a Backup and DRaaS solution, examine Unitrends' advantages yourself.

ABOUT UNITRENDS

Unitrends makes efficient, reliable backup and recovery as effortless and hassle-free as possible. We combine deep expertise gained over thirty years of focusing on backup and recovery with next generation backup appliances and cloud purpose-built to make data protection simpler, more automated and more resilient than any other solution in the industry.

Learn more by visiting unitrends.com or follow us on LinkedIn and Twitter @Unitrends.

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