Technical Validation

Optimizing Business Resilience using In-depth IT Analytics

Veritas NetBackup IT Analytics Platform

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Introduction

This ESG Lab Report documents hands-on validation of the Veritas NetBackup IT Analytics solution. ESG performed analysis and auditing of major NetBackup IT Analytics operational and process elements, and even provided estimates and validation of economic benefits from NetBackup IT Analytics resources optimization capabilities. This Technical Validation report focuses on the NetBackup IT Analytics capabilities related to business resilience and data protection optimization.

Background

Because IT is now woven into the very fabric of modern business, IT downtime has effects that ripple far beyond just the IT department. The astronomical costs of IT downtime, whether due to a successful cyberattack or the result of various IT system failures, are well publicized—often, resulting in millions of dollars lost per incident. But less well documented are the particular ways that loss of mission-critical IT operations affects organizations.

ESG market research reveals that modern organizations view IT downtime from at least two different perspectives—time and business factors such as lost revenue or productivity. From the time perspective, the duration of an IT outage has critical consequences for business. In fact, for the majority of organizations, one hour of downtime can be a very long time. More than one in six ESG research survey respondents stated that their organizations can tolerate essentially no downtime for their mission-critical applications—*ever.* And more than half (57%) reported that they cannot tolerate loss of crucial applications for a full hour.[1]

In terms of the business factor, IT downtime affects organizations in a number of ways. Figure 1 shows the impacts that organizations believe can result from application downtime or lost data. At first glance, it might seem surprising that loss of employee productivity was a much more common response than loss of business revenue or damage to brand integrity. But remember that enterprises around the globe include organizations such as hospitals, utilities, and a wide range of service industries where salaries continue and costs accrue, even when the staff is idle. In fact, staff members are so important to many organizations that loss of employee confidence was a more commonly cited response than loss of revenue.[2]

Figure 1. Top Five Impacts of Downtime or Lost Data

Which of the following impacts to your organization could result from application downtime or lost data? (Percent of respondents, N=378)

Loss of employee productivity	46%
Diversion of IT resources from long-term or business critical projects	45%
Loss of customer confidence	35%
Loss of employee confidence	34%
Loss of revenue	32%

Source: ESG, a division of TechTarget, Inc.

[1] Source: ESG Research Report, *Real-world SLAs and Availability Requirements*, October 2020.
[2] ibid

Organizations understand IT downtime is inevitable, and considerable resources, preparations, and industry innovation are invested in what happens after an IT system failure. This is the domain of *business resilience*, which refers to the preparation organizations make to deal with threats and vulnerabilities, the defenses that have been developed, and the resources available for mitigating IT failures after the fact.

Comprehensive, in-depth IT analytics have many obvious uses and benefits, such as helping to lower costs, improve system efficiency, and predict future requirements. What might not be as readily apparent is that IT analytics can be a major tool for improving business resilience. Knowing which backups completed (and which didn't), what servers or systems remain unprotected, how effective and well-tested failover procedures are, and where the most recent valid copies of data and applications reside can spell the difference between tolerable IT downtime and a disastrous business failure.

Veritas NetBackup IT Analytics

Veritas Technologies is a global leader in enterprise data management. The Veritas NetBackup IT Analytics solution provides unified insights for all major storage, backup, and virtual infrastructures through a single pane of glass in both on-premises and hybrid-cloud environments. NetBackup IT Analytics comes in three offerings: NetBackup IT Analytics Complete Suite (Storage and Data Protection), NetBackup IT Analytics Storage Management Suite (Capacity, Fabric and Virtualization) and NetBackup IT Analytics Protection Suite (Virtualization and Backup). The Storage Management Suite, for example, helps administrators gain insight into actual consumption of resources so they can reclaim unused storage, reduce consumption, and increase resource utilization. With NetBackup IT Analytics Protection Suite, on the other hand, administrators can view all attempted backups and gain insight to solve backup problems such as "false positives" by identifying partial or failed backups that report as successful by the backup software. It reduces the exposure of unprotected data by automatically identifying clients and data sets that aren't protected under any backup policy. As illustrated in Figure 2, NetBackup IT Analytics provides complete visibility of an organization's IT structure. WithNetBackup IT Analytics, IT decision-makers have the power to enact meaningful, cost-effective, risk-reducing practices tailored specifically to their IT infrastructures.

Figure 2. NetBackup IT Analytics Overview
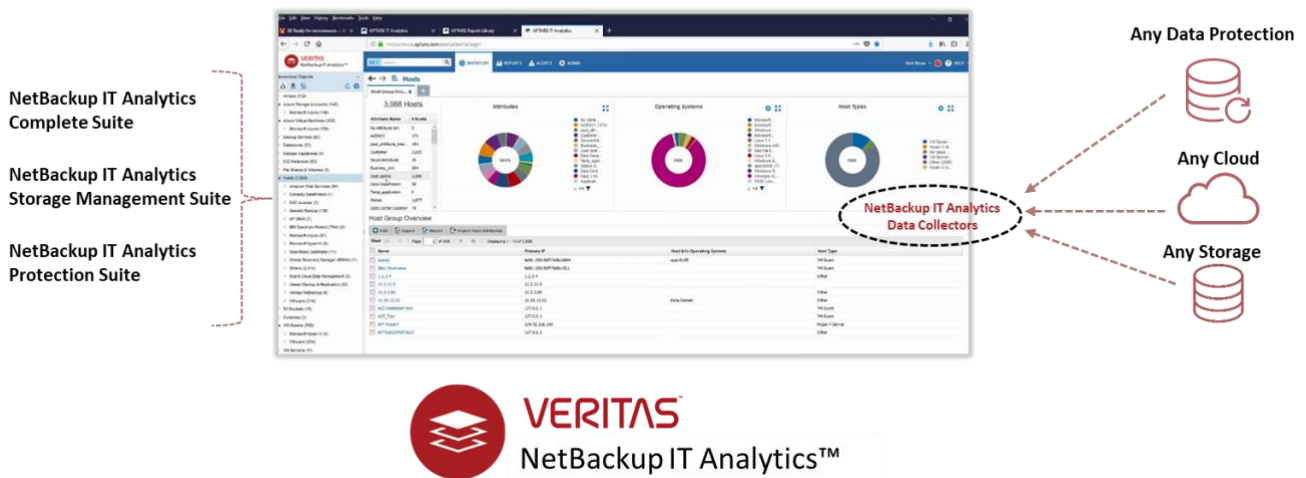
Source: ESG, a division of TechTarget, Inc.

Key capabilities and features include:

- *Single pane of glass*: Organizations can manage all multi-cloud and on-premises storage, compute, and data protection assets from the dynamic, intuitive NetBackup IT Analytics user interface.

- *Massive scalability*: Agentless data collection and the central analytics engine enable scale that has been field-tested with Fortune 10 companies.

- *Customization*: Hundreds of predefined reports, built-in report designer, and drag-and-drop dashboard creation make customization easy.

- *Flexibility*: The solution offers vendor-agnostic support for a comprehensive set of storage arrays and vendors, backup applications and software, cloud vendors, and SAN devices.

- *Multi-tenancy*: The NetBackup IT Analytics engine and database were designed to support multiple tenants.

- *Extensibility*: IT teams and vendors can leverage NetBackup IT Analytics SDK capabilities to onboard unique subsystems.

- *Multiple personas*: NetBackup IT Analytics was designed to support multiple user profiles, including accounts for executives, operations, department-level, and even individual asset-level views.

Meeting backup compliance and corporate SLAs requires accurate and actionable insights to streamline the auditing process and ensure system recoverability. NetBackup IT Analytics provides insights that reduce data protection complexity and mitigate policy conflicts and human error. It automatically collects backup and data protection events, allowing access by internal and external auditors whenever required.

The NetBackup IT Analytics platform is based on a mature relational database that sits across the entire product line, pooling management data in a central location. The scalability of the database ensures accurate and reliable data collection and ensures that virtually any type of management information can be collected, analyzed, and shared. The user interface is built on open internet standards and web 2.0 technologies. Features such as drag and drop reports, tabbed browsing, and floating dialog boxes provide easy access to reports and customization of how needed information is viewed, organized, and shared.

ESG Technical Validation

Veritas provided full access to the NetBackup IT Analytics platform, enabling ESG to perform comprehensive testing and validation. ESG exercised, investigated, and validated all major elements of the NetBackup IT Analytics solution, including Inventory, Reports, Alerts, and Administration features and capabilities.

Backup Optimization

NetBackup IT Analytics offers a wide range of modules and dashboards with features targeting specific data center infrastructure domains such as storage, networking, virtualization, and data replication. To provide more opportunity for in-depth product analysis within this Technical Validation, ESG focused on the business resilience functionality of NetBackup IT Analytics.

NetBackup IT Analytics can be set up in a few minutes to immediately provide reporting and alerting about on-premises and cloud-based resources. The solution is a powerful tool for lowering IT downtime risk and increasing IT environment resilience by collecting detailed data and providing in-depth analytics about tasks such as data and application backups. Figure 3 provides a screen shot of a Data Protection Dashboard. Using various out-of-the-box templates, admins can configure the dashboard to show items such as backup status, protected/unprotected hosts, protection status over a specified time period, and even protection status by infrastructure element vendor. Each report offers drill-down capabilities—click on an element of any pie chart and details about that element appear. Additional reporting options

related to data protection include Risk Mitigation Analysis, Sources with Consecutive Failures, Sources with No Recent Backups, and Backup Failures by Application.

Figure 3. NetBackup IT Analytics Data Protection Dashboard
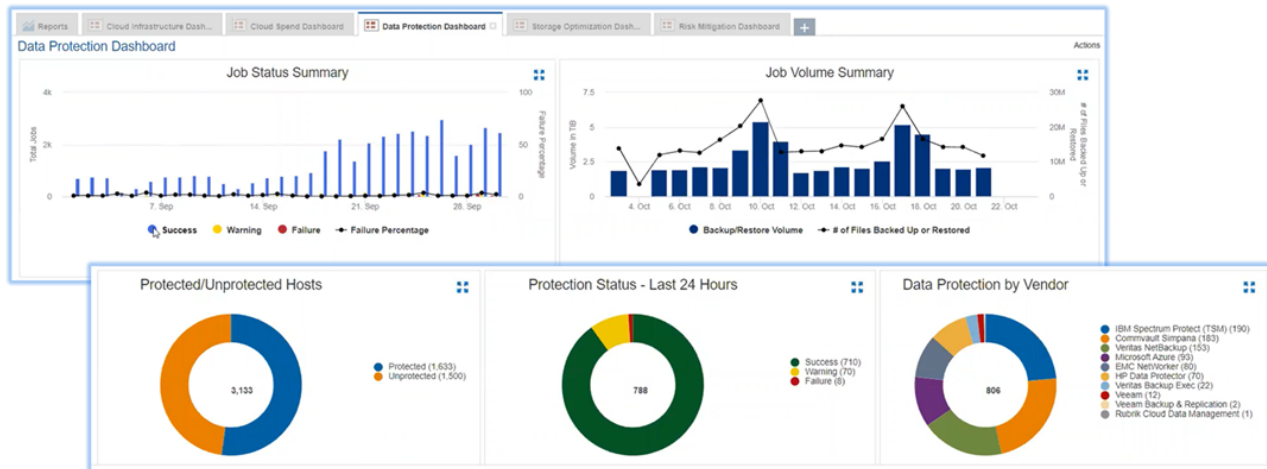
Source: ESG, a division of TechTarget, Inc.

When downtime occurs for whatever reason—malicious agents such as ransomware or simple IT systems failure—important questions must quickly be answered: Are good backups available? How do you know? Backup solutions have become very powerful, but they may still provide "false positives" about backups. There can be hosts that the backup solution hasn't discovered. Plus, most organizations have multiple elements that comprise their overall data protection solution on-premises and in the cloud; to know if a backup is successful or not, every data protection element must be queried. NetBackup IT Analytics helps optimize backup resources by addressing each of these challenges.

First, the solution creates a baseline of known successful backups and compares future backups to the discovered baseline. The analytics engine automatically spots false positives such as job duration variations, image size variations, and policy/configuration changes. NetBackup IT Analytics then displays these anomalies in high-level summary graphs to help admins assess the extent of risk, or provides more detailed, actionable tables to help with environment cleanup and optimization. Plus, trouble or service tickets can be automatically created. NetBackup IT Analytics supports integration with ticketing and management tools such as ServiceNow to accelerate this process.

Backup software can't find failures for hosts or VMs that aren't configured. NetBackup IT Analytics discovers all hosts within the infrastructure and automatically compares all discovered hosts with the hosts known by the backup software. It flags hosts that are completely missing from the backup solution(s) as potential risks. It can also show any hosts with no recent backups. In both scenarios, NetBackup IT Analytics can interrogate CMDB systems like ServiceNow and provide similar results.

It's also important to be able to classify backups by application and importance to the organization. Admins need to know every host and database supporting each application. With NetBackup IT Analytics, organizations can build dashboards to view the restorability of every element in the IT environment.

> ## ⓘ **Why This Matters**
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> Effectively backing up mission-critical data and applications is a foundational element of business resilience. Especially when organizations are hit by successful ransomware attacks, finding and confirming uncorrupted copies is critical to recovery efforts.
>
> ESG research reveals that many organizations have only a few minutes—if any time at all—to begin recovery efforts. This is when having detailed, accurate information about the status of all systems, data, applications, and data protection solutions in your IT environment matters to everyone, from the IT tech to the CEO.

Risk Mitigation

Risk identification and mitigation are key components of business resilience. From maintaining SLAs and meeting compliance regulations to ensuring security is up to standards, risk mitigation is a multifaceted effort that requires a multifaceted approach. NetBackup IT Analytics is the type of solution that offers the depth, breadth, and accuracy required to reduce risk across modern multi-cloud IT environments. Figure 4 shows the NetBackup IT Analytics Risk Mitigation dashboard. It can be configured to provide risk analysis and trends, among many other risk elements.

Figure 4. NetBackup IT Analytics Risk Mitigation Dashboard
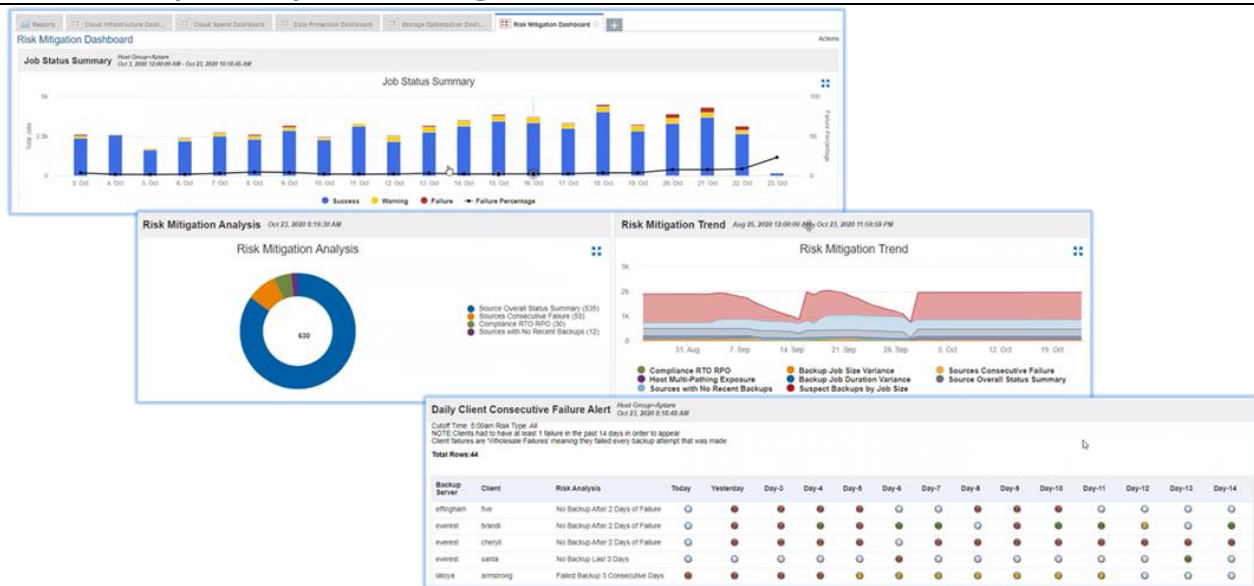
Source: ESG, a division of TechTarget, Inc.

NetBackup IT Analytics is a mature platform that provides the visibility needed to identify risks without constant manual monitoring and human intervention. It helps address the most common high-level IT risk and expense drivers, such as

- Technology rollouts that add both complexity and higher costs.

- SLA maintenance and regulation compliance.

- Security vulnerabilities.

- Small but pervasive inefficiencies hidden due to a lack of visibility.

New technology provides ample benefits to efficiency and performance, but often at the expense of visibility. With less visibility into IT processes, plus more moving parts, risk increases. Most IT organizations are operationally diversified across core, edge, and hybrid cloud environments. The adoption of multi-cloud architectures presents growing monitoring and analytics challenges because hybrid and private clouds require the ability to operate IT as a service.

As IT infrastructure complexity continues to grow, the need for advanced analytics capabilities increases significantly. NetBackup IT Analytics acts as the aggregation point, collecting data, extending visualization capabilities, and applying correlation and machine learning to multiple sources of data. With this type of analytics solution, visibility is no longer a factor in managing diversified resources and rolling out new technologies.

Meeting SLAs and compliance requirements is another area where tools such as NetBackup IT Analytics provide substantial risk mitigation benefits. As the complexity of IT environments increases, the challenge of regularly reporting provable metrics that demonstrate regulatory compliance also increases. In addition, compliance regulations and SLA targets are growing more comprehensive, making the process more difficult and time-consuming. NetBackup IT Analytics provides detailed reporting, with 300 out-of-the-box reports (NetBackup IT Analytics Report Library (veritas.com), as well as customizable reports ready for configuration. These reports provide the visibility needed to address areas of risk within your environment, then prove to stakeholders that issues have been resolved.

Data security issues are perhaps the most glaring example of how mismanagement of risk can cause problems for an organization. Unfortunately, ransomware and other security risks can be difficult to prepare for, especially when all resources aren't easily accessible by IT personnel. Organizations can address data protection, a significant part of any risk mitigation strategy, using the comprehensive visibility NetBackup IT Analytics provides. Reporting features can be set to trigger when an event occurs to ensure proper and timely backups are happening across the IT environment.

Automated reporting can be especially valuable in the case of a ransomware attack. If an attack occurs, a critical part of achieving swift resolution is accessing the most recent complete backup. With NetBackup IT Analytics, admins can easily view the full backup history, preparing even the largest and most complex environment for ransomware attacks. Once the attack has been isolated to a specific data center or vCenter, NetBackup IT Analytics offers the visibility needed to identify which hosts and applications were impacted by the attack. By addressing many of the issues causing protection gaps prior to an attack, NetBackup IT Analytics leaves less surface exposed.

As vitally important as risk mitigation is to the IT organization, cost-effectiveness remains a significant factor in business resilience. One of the best aspects of the comprehensive visibility afforded by NetBackup IT Analytics is that it doesn't just reveal areas of risk, it uncovers areas of overprotection and, consequently, overspending. NetBackup IT Analytics pinpoints where redundant data copies reside, allowing IT admins to reallocate resources and even reduce resource expenditures. Plus, under-protected areas can be identified to better insulate budgets against future issues. NetBackup IT Analytics also provides the insight needed to assess risk in cost-saving measures. For example, IT decision makers can predict storage growth and capacity needs to help prevent outages caused by running out of disk space. If you want to implement public or private cloud storage, you can see all performance and cost impacts to the organization before actually deploying. NetBackup IT Analytics enables you to right-size your infrastructure as you move workloads to the cloud, optimize the use of existing Cloud infrastructure, and consolidate billing of cloud infrastructure usage. You can also view automated reports tracking disk performance.

> ## (i) Why This Matters
>
> Identifying, managing, and mitigating risk is an age-old pursuit of business. In the digital age, business risk has transformed from the threat of a broken storefront window into the threat of cyberattack and mission-critical application downtime—but risk is just as real as ever.
>
> Knowledge is the number one antidote for risk. What you know about you can prepare for. This is why comprehensive, in-depth IT analytics are so powerful for business, and why tools such as NetBackup IT Analytics become so valuable to both IT and business decision makers. Armed with good information about how business systems are performing—and how fast they can recover from failures—leaders become more confident to make investments, support innovation, and take calculated business chances because known risks are less of a threat.

Ongoing IT Optimization and Resilience

Comprehensive, in-depth IT analytics help IT teams find clean, secure copies after a downtime incident, and lower the risks of such events happening again. But business resilience isn't an occasional crisis; it's a constant pursuit. The value of IT analytics to an organization only increases over time. As part of the overall technical evaluation, ESG analyzed the ongoing benefits offered by NetBackup IT Analytics. These benefits became especially apparent when focusing on backup optimization and risk mitigation. Figure 5 illustrates some of the metrics of ongoing IT optimization and its effects on business resilience.

Figure 5. NetBackup IT Analytics Key Optimization Metrics Visibility
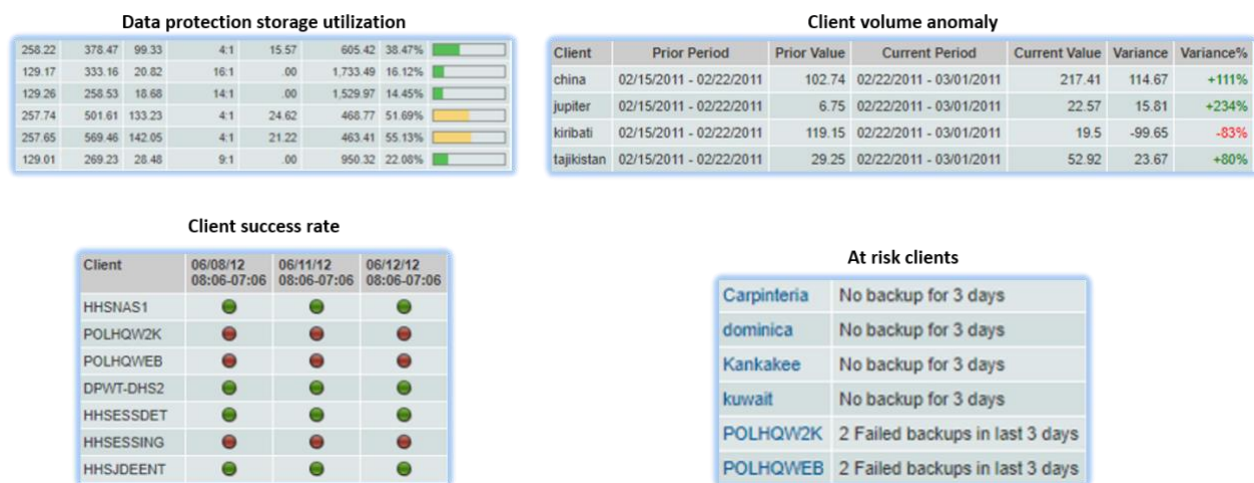
Source: ESG, a division of TechTarget, Inc.

The NetBackup IT Analytics Protection suite offers a number of relevant examples in areas such as:

Compliance – NetBackup IT Analytics not only provides current status of tasks such as the most recent backups and success or failure to meet established SLAs across the environment, it also keeps detailed histories that can be used for trend analysis and for demonstration of ongoing compliance with regulations and standards.

Risk Mitigation – NetBackup IT Analytics continues to automatically spot backup anomalies, provide metrics such as size and time, and mine histories for trends that can guide risk mitigation strategies. The solution also compares all hosts in the environment to the lists from backup systems of protected hosts, highlighting unprotected hosts and ongoing areas of vulnerability. It uses machine learning to uncover anomalies that may suggest successful cyberattacks. Recovery strategies

can be developed from this information, but just as importantly, NetBackup IT Analytics supports simplified testing of recovery methods to increase confidence and lower downtime risks.

Cost Reduction – The backup metrics and histories provided by NetBackup IT Analytics can help admins right-size data retention and backup policies, saving storage capacity, and thus lowering ongoing costs. This information is also used to improve capacity planning. In a related area, by exposing actual capacity usage, NetBackup IT Analytics can show the effectiveness of various data deduplication and compression utilities. And when troubleshooting is faster and more accurate, less staff time is involved, which means more focus on revenue-generating innovation and development.

ℹ️ Why This Matters

As IT environments extend out across multiple cloud resources and grow in complexity, keeping tabs on everything becomes a bigger challenge. The chances that something is missed—an asset that represents a vulnerability to the organization, for instance—increase. Also, change is constant. The configuration data that was correct yesterday, or the storage usage for any particular array, may not be the same today.

These are some of the reasons why constant monitoring is a necessity, not a luxury. And building up histories of items such as failed backups or capacity usage trends can be extremely valuable for planning and risk mitigation. Add these to the compounding benefits of ongoing system optimization, and it becomes clear that good IT analytics are a foundation of good business, today and tomorrow.

The Bigger Truth

As in so many facets of life, when it comes to business resilience, knowledge is power.

ESG research confirms that modern organizations are super-sensitive to the availability of their IT systems; so sensitive, in fact, that 15% cannot tolerate even a moment of IT downtime for their mission-critical applications.[3] It has become clear that when developing and implementing strategies to bolster business resilience, as well as to strengthen failure prevention and detection, knowledge is a crucial ingredient.

But what IT and business decision makers are learning is that knowledge is also the great economizer. When comprehensive, in-depth IT analytics are leveraged to learn about and then optimize business resilience elements, efficiency increases, and expenses fall. This may, in fact, prove to be the more powerful lesson. Most of the conversation around business resilience is focused on technical aspects such as tracking and confirming backups, identifying cyber incidents, reducing risks, or analyzing trends. But every IT solution involves some level of cost tradeoff, and all too often, it's these tradeoffs that can significantly influence the quality of business resilience because no viable organization will implement what they can't afford.

These points explain the attention paid to solutions and technologies that offer comprehensive environment-wide IT data collection, monitoring, and analytics. NetBackup IT Analytics strengthens threat-prevention measures, it improves recovery and resilience strategies, and, while doing these valuable chores, it also helps lower costs. It's powerful stuff. ESG feels these are more than enough reasons for smart organizations to carefully consider tools such as NetBackup IT Analytics from Veritas—because they make smart organizations smarter and more powerful.

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[3] Source: ESG Research Report, *Real-world SLAs and Availability Requirements*, October 2020.

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