White Paper

Reinventing Data Protection Fit for Digital Transformation

Sponsored by: HPE

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October 2016

EXECUTIVE SUMMARY

There is a growing acknowledgement that data is at the heart of digital transformation. IDC believes that by the end of 2016, 65% of large global enterprises will have committed to become information-based companies, accelerating the need to leverage data to make better decisions and optimize operations, products, and services.

Core to a successful digital transformation is an efficient information management, governance, compliance, and availability strategy. Keeping data safe, available, and well managed is of paramount importance for success. Data protection processes are suddenly moving beyond being a mundane IT task and are now at the center of a successful information transformation.

Traditional approaches to data protection and management no longer work because they can't keep up with the explosion in data volumes, the proliferation of devices, and the fragmentation of IT that comes with virtualization and the mainstream adoption of cloud. Consequently, enterprises must rethink their data protection strategies and update them with solutions fit to overcome the data complexities of our time. IDC believes that a modern data protection solution is automated and comprehensive and built with an adaptive approach to backup and recovery that evolves with changing business requirements. The foundation for an adaptive solution is that it leverages insights and operational analytics to optimize backup and recovery operations to create an always-available enterprise IT environment.

IN THIS WHITE PAPER

This paper is aimed at IT managers, storage managers, and those considering how best to optimize storage and data protection to support digital transformation initiatives. It addresses:

- The growing importance of data as an asset for organizations in the age of digital transformation
- The need for a new data protection and management strategy that is fit for purpose
- Hewlett Packard Enterprise's (HPE) Adaptive Backup and Recovery (ABR) suite and the role of an adaptive, analytics-driven approach to backup and recovery

DEFINING THE CHALLENGE

IDC predicts that by 2018, a third of the top 20 market share leaders in most industries will be significantly disrupted by new competitors that use 3rd Platform technologies to create new business models. Companies that do not initiate a digital transformation (DX) initiative will struggle to respond to changing market demands or stay profitable.
Information management is at the heart of digital transformation because it is the enabler for new products, services, and revenue streams. Consequently, managing, analyzing, and protecting enterprise information is of paramount importance to achieving success.

IDC estimates that about 33% of total DX technology spending in 2020 will be on information transformation, compared with 19% in 2015. Organizations' technology investment will be directed toward:

- **Becoming a data-driven organization.** This is critical and businesses will invest in advanced analytics and processing technologies to turn data into insights.
- **Having a unified approach to data protection and analytics.** This will help organizations manage structured and unstructured data within disparate systems securely and facilitate its sharing to build a data-driven business.

**Legacy Data Protection Solutions Are Increasingly Unfit for Purpose**

IDC research shows that many organizations have an information protection process that is overly complex, unreliable, inefficient, and cumbersome to manage.

As the complexity grows, the IT staff may be able to absorb the increased workload, but not solving the root cause will only compound the problem and might lead to an operational meltdown. The problem is that time spent maintaining a necessary but outdated process is time lost from developing new products and services that take the organization forward. Information management challenges in the digital era stem from:

- **The data explosion.** Data is growing to large volumes at an accelerated pace. IDC estimates that by 2018, there will be a fourfold growth in data to reach 24 zettabytes — with that nearly doubling to 40 zettabytes by 2020, averaging 6.75TB per person per day. According to IDC’s 2016 Datacenter Survey, organizations expect their data to grow by 52% in the next 12 months. This data growth is forcing organizations to take a radically more efficient approach to data protection and management.
- **Store-everything practices.** Storing all data is a practice organizations have been adopting on the premise that they cannot tell important data from irrelevant data and that storage is cheap. However, storing multiple copies of every file without knowing what it is, why it needs to be stored, or which rules and regulations apply is a dangerous and expensive strategy — and one that is not fit for the digital era because it leads to exploding storage costs and makes it impossible to comply with emerging regulations like the General Data Protection Regulation (GDPR) in Europe.
- **The fragmentation of IT, data, and applications.** IT is becoming more fragmented, with data stored in physical, virtual, and cloud environments, on a variety of devices and subject to emerging data privacy legislation. Protecting data across the various platforms and applications adds to the operational complexity of data protection tasks.
- **The skyrocketing cost of downtime.** IDC estimates that the mean cost of downtime for one hour for an organization with up to 5,000 employees is about $225,000. The average total cost of unplanned application downtime is $1.25 billion to $2.5 billion per year, and the average hourly cost of an infrastructure failure is $100,000. The average cost of a critical application failure, meanwhile, is $500,000 to $1 million per hour.

IT managers are under pressure to ensure faster recovery, prevent data loss scenarios, and have full visibility of identify bottlenecks before they become operational problems. The continued use of outdated backup tools, however, makes it difficult or impossible to meet these expectations.

Traditional tools were designed for a different, static IT infrastructure design. Optimization for virtual environments, integration with cloud services, and new storage technologies were not widely considered when these tools were developed.
IDC’s 2016 end-user survey highlights the top 6 data management challenges for enterprise IT (see Figure 1).

FIGURE 1

Top Data Management Challenges for 2016 and the Next 12 Months

Q. What are your top challenges with regards to your storage and data management requirements?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need to improve IT staff productivity and skills</td>
<td>30%</td>
</tr>
<tr>
<td>We're running out of capacity</td>
<td>28%</td>
</tr>
<tr>
<td>We're adding new data sources (IoT and machine-generated data, web 2.0 data, etc.)</td>
<td>26%</td>
</tr>
<tr>
<td>We cannot ingest data fast enough</td>
<td>21%</td>
</tr>
<tr>
<td>Our backup window is too short for the backup to complete</td>
<td>20%</td>
</tr>
<tr>
<td>We have too many copies of data</td>
<td>20%</td>
</tr>
</tbody>
</table>

Note: n = 643

Source: IDC, 2016

Storage capacity management, multiple copies of data, inefficient backup functionalities, management of data from new digital-era data sources, and data ingestion are identified as the top pain points by organizations.

Above all, many also want to improve staff productivity, given the amount of time currently spent on manually operating and managing mundane data protection tasks.

What Would Work Better?

IDC believes that with information at the heart of digital transformation, it is important to rethink data protection strategy.

What is needed is a self-tuning, analytics-led approach with a built-in feedback loop. A modern data protection solution should leverage operational analytics and data insight to enable an optimized, tuned backup environment for today’s dynamic and distributed IT environments, and it should use analytical insight into data to tune itself and run optimally at each stage of the data protection cycle.

This would allow organizations to achieve better transparency, availability, management control, and compliance, which in turn enables organizations to make evidence-based business decisions.
With file classification and analysis the first step in data protection, organizations can vastly improve the backup process by identifying and correctly positioning redundant/obsolete/trivial (ROT) data so that only the data that is of value to the business is backed up. In conversations with IDC, many organizations admit they don’t have a clear view of what is ROT and what is not. Backing up all data — including multiple copies — is a waste of storage resources.

Analyzing the data to optimize storage efficiency and other metrics is the first step. The process must also include the underlying data protection infrastructure and, finally, optimization of the backup process so that it can be continuously monitored, optimized for performance and resilience, and rapidly diagnosed in the event of a bottleneck or a failure.

Yesterday’s data protection infrastructure — often a loose set of point products that don’t talk with each other — does not facilitate robust, real-time testing of systems to make data protection effective and optimized.

**Data Protection Technologies Fit for the New Digital Era**

While executing digital transformation initiatives, enterprises see data as an enabling asset. A sophisticated data protection and management framework is one that is defined by automation and policy-based processes, enables zero downtime, is analytics-friendly, and helps IT staff to meet stringent RTO/RPOs. IDC believes that this can be better delivered with a unified approach to data protection with adaptive backup and recovery at the heart of the solution.

IDC believes HPE’s Adaptive Backup and Recovery (ABR) suite addresses the criteria of a modern, self-optimizing solution. The suite is founded on HPE’s vision of helping organizations from the start to
the end of their data protection journey – analyzing and classifying both critical data with high business value that needs to be kept and ROT data that can be archived, then protecting it reliably and optimizing the backup processes and infrastructure in a secure, automated, and cost-efficient way.

Operational efficiency is addressed by Backup Navigator providing predictive analytics that gives operators a deep visual foresight into the process. Trending and forecasting algorithms show future performance and capacity gaps and requirements specific to the data set characteristics, infrastructure capabilities, and organizational requirements.

Root-cause analysis and problem solving is also improved, since Backup Navigator can proactively detect and address potential resource conflicts and systemic issues before they develop into outages and data loss that impact business operations.

IDC believes HPE ABR suite products leverage insight throughout the continuum of the data protection cycle – optimize, protect, and analyze through information insight.

**HPE Adaptive Backup and Recovery Suite**

The suite comprises:

- **HPE Storage Optimizer** – software that can analyze, classify, and manage data based on its value to the business. HPE Storage Optimizer combines file analytics and policy based storage tiering to help IT organizations classify and manage data that is stored in many different repositories. This allows organizations to intelligently reduce the total volume of data storage, shrink the cost and complexity of managing unstructured data, and intelligently distribute information across multiple storage repositories, including the cloud.

- **HPE Data Protector** – the core protection engine which provides centrally managed, comprehensive, and high-performing backup and replication across repositories in physical and virtual environments. It standardizes and consolidates the backup and replication process across physical and virtual machines so that businesses can reduce the cost and complexity of backup operations.

- **HPE Backup Navigator** – a monitoring, analytics, and reporting tool that uses analytics to identify protection gaps, provide rapid root-cause analysis of backup issues, and enable IT teams to plan for future backup resource needs. To optimize the backup and recovery environment, it is important to analyze the backup operation and identify protection gaps, find and resolve backup issues and potential resource conflict, and take the guessing game out of the capacity planning process. Backup Navigator can facilitate retrospective analysis and offer better backup resource utilization rates through deduplication and compression.

These three products together deliver a solution that allows organizations to continuously adapt the data protection process so that it is fine tuned to business needs at all times. With this approach, the data backup process itself captures a great deal of information about the data in the backup set. Leveraging this data knowledge can lead to additional functionality and provide greater value to enterprises.

HPE’s Adaptive Backup and Recovery suite delivers a modern data protection solution with the following capabilities:

- **Data classification.** Identifying and classifying data is the stepping stone to having a sound data protection architecture. HPE’s Storage Optimizer provides visibility into the complete information landscape to determine what data to back up and what data to archive or delete.

- **Automated policy-based approach.** The automation of backup and recovery tasks frees up IT staff and reduces the risk of human error. HPE Data Protector enables businesses to back up data efficiently (dedupe), send to the preferred backup target (disk/tape/cloud), and recover it quickly (instant recovery) with an automated, policy-based approach.
Operational analytics for increased efficiency. HPE Backup Navigator allows IT to run custom and out-of-the-box reports, such as health and status monitoring, capacity and infrastructure planning, root-cause identification, and RPO/RTO analysis.

End-to-end information management capabilities. Unified capabilities remove the complexity from data protection tasks. The HPE suite covers analysis, protection, and continuous optimization, making the data protection infrastructure adaptive, elastic, and agile.

Heterogeneous and flexible. Today's IT architectures are increasingly flexible, interoperable, and agnostic. Modern data protection solutions need to be suitable for heterogeneous data, infrastructure (on-prem, cloud, or hybrid), and applications. HPE's data protection products are complementary and offer end-to-end capabilities that can be easily configured and customized. IDC believes this gives organizations the flexibility to add components over time. The HPE suite supports multiple hypervisors, applications, workloads, and operating models. It also features cloud integration to enable enterprises to send data to cloud services (AWS or Microsoft Azure) natively or via a cloud gateway. We believe that such rich compatibility makes it an attractive option for large enterprises with rapidly changing IT infrastructures.

User interface. In the digital age, simplicity and intuitive user interface are important product evaluation criteria. HPE's integrated graphical user interface (GUI) extensions allow admins to manage their own data backup and recovery requirements directly from the virtual server console, or from the Data Protector console for other applications such as SAP HANA or Exchange. Its analytics and visualization tools provide real-time details of backup environments to identify and fix backup errors, and to optimize the backup environment.

Cost effective. A solution that helps IT free up storage capacity, meet regulations, and provide a secure environment can have a positive impact on the business' bottom line. The HPE Adaptive Backup and Recovery suite gives enterprises the capabilities to save costs.

How the HPE ABR Suite Helps Transform Data Protection Strategy and Create Business Value

Information is becoming siloed across storage repositories and across cloud and on-premise environments, adding complexities to data protection tasks. In our opinion, HPE has correctly identified this issue and its ABR suite has the potential to become strategic to enterprises' IT investments. End-to-end solutions provide standardized data management, reliability, efficiency, and ultimately lower cost of ownership and a secure data protection architecture. Such solutions are designed, tested, delivered, and supported together – providing further cost efficiency.

Built on patented technologies, HPE's ABR suite could help enterprises overcome the following key data protection and availability challenges:

- Missed RTOs and RPOs and soaring backup costs. In an IDC survey, 39% of respondents said they now need to restore critical workloads in minutes and not hours. Meeting this requirement is impossible with outdated data protection methods. HPE's ABR suite supports tiered recovery architecture that enables IT to set the right level of protection to different workloads, enabling IT to meet RTO/RPO demands.

- Shortening of backup windows. IT staff are struggling to meet SLAs due to shrinking backup timeframes. IDC research shows that 38% of IT managers find shortening backup windows as a pressing need this year. HPE's ABR suite automates the orchestration, management, and backup of snapshots for storage arrays to protect and recover large volumes of data in a short time.

- Storing multiple copies of data. Some businesses simply store all their data so that they can restore it in the event of a problem and because they cannot distinguish between important and irrelevant data. This can lead to resource waste, but with HPE's ABR suite, organizations can assess what data is ROT and thereby eliminate this "store everything forever" approach.

- Verified recoverability. Some organizations have limited visibility into their backup environments and face problems if the restore fails. To achieve verified recoverability,
organizations need to monitor, report, and do capacity planning on their backup infrastructure. The end-to-end capabilities of HPE’s ABR suite take the guessing game out of backup and recovery tasks.

- **Management complexity.** In the patchwork of DR, HA, and data protection tools, some IT staff still perform many tasks manually. Automating the processes will free up staff time, ensure higher levels of availability, and enable IT to meet SLAs. The automation capabilities of HPE’s ABR suite enable organizations to take a policy-based approach and reduce dependency on manual efforts.

- **Generalists managing backups.** Data protection is increasingly becoming the responsibility of the application owner, such as the DBA or the virtual environment engineer. With HPE’s ABR suite, non-storage staff can handle backups easily. The suite’s GUI extensions allow administrators to manage and service their own data backup and recovery requirements, reducing the burden on backup administrators.

- **Unplanned downtime.** Downtimes can damage business reputation. IDC research shows that midsize organizations experience an average of 15-18 business hours of network, system, or application downtime per year. HPE’s ABR suite provides advanced recovery features such as Instant Recovery, Virtual Machine Power-On directly from backup, individual object recovery, and Disaster Recovery to help minimize downtime risks.

**Challenges for HPE in the Data Protection Market**

- **The data protection market is mature.** IDC expects it to become more strategic in the wake of evolving regulations, explosive data growth, and DX. IDC estimates that the data protection and recovery software market will grow at a 7.2% CAGR through 2019 with accelerated growth primarily in Asia/Pacific, EMEA, and North America. HPE should continue to provide a cloud data protection and retention strategy that is differentiated in the marketplace to retain its competitive edge. The company is already showing it is moving in this direction as it builds native cloud integration within its suite.

- **It is hard to convince end users to adopt new data protection methods.** Many organizations follow the “do not touch a running system” mantra. IDC’s anecdotal evidence shows that over a quarter of data protection environments have not been modified in the past three years, and within this about a quarter have not been modified for over seven years. By doing nothing, organizations are making it more difficult for themselves to take advantage of new management and automation features, and means they will have to continue to rely on error-prone manual processes. HPE will need to demonstrate how it offers cost efficiency and return on investment, and highlight how the suite is not a single SKU allowing organizations to buy as they grow.

- **It is a challenge to overcome enterprise misconceptions around backup.** Backup awareness needs to change in the digital era. Most enterprises view it as labor-intensive and a costly "insurance policy." But an adaptive approach can help IT optimize backup tasks with analytics and tiering. HPE will need to showcase, through use cases and PoCs, how its adaptive backup and recovery technologies are unique.

In IDC’s opinion, HPE has the vision and the ability to address these key limitations and grow its total addressable market in the data protection area – thanks to its scale, richer ecosystem, industry collaboration, and strong momentum in innovation.

**CONCLUSION: NEW APPROACH TO DATA PROTECTION FOR A COMPETITIVE EDGE**

While reducing costs and improving an organization’s business process and productivity are historically top drivers for IT investments, a new tone is emerging where IT is seen as an opportunity for transformation and innovation. The mandate for success in the digital age is clear – become a data-driven organization to provide services in ways that are insights-driven rather than reactive, and simultaneously have a secure, compliant data strategy. In IDC’s opinion this is achievable only with an adaptive data protection strategy that is fit for Big Data needs.
End users must:

- **Consider a new data protection strategy that is fit for the digital era.** Many organizations have under-invested in backup for many years and are running on legacy solutions that are not designed to fulfill the needs of the digital era because they don't see backup as a business enabler. This results in IT managers struggling to close the gap between business expectations and their ability to deliver the required levels of availability.

- **Evaluate end-to-end data protection technologies.** Purchasing point products and then integrating them can lead to complexity and higher dependency on multiple vendors. Enterprises should evaluate holistic data protection solutions developed for the digital age from established vendors. They will then be able to leverage the vendor’s end-to-end portfolio, appetite to invest in product innovation, industry ecosystem, and patents. Big vendors such as HPE will also be able to accelerate innovation, thanks to their large installed base, to incorporate customer feedback into future product iterations.

- **View data protection through a different lens in the digital era.** Implementing a new data protection strategy that is robust, secure, compliant, and digital transformation-ready can truly be a business game changer.

The IT industry is in a state of transition and data is underpinning the success of digital innovation projects. A successful digital transformation journey is one that is technology- and information-centric. Enterprises with a strong ambition to thrive in the digital era need a new, adaptive approach to backup and recovery to meet Big Data challenges with real-time intelligence and optimization. This is not possible with technologies designed to solve yesterday's (2nd Platform) data management issues. HPE, with its evolving, adaptive data protection technologies, is well positioned to meet the data protection challenges of the digital era and lead a business to success.
About IDC

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