



Hewlett Packard
Enterprise

Business white paper

Intelligence Changes Everything

Reimagine how data is delivered, managed, and analyzed.





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Data helps enterprises discover new ways to be more competitive, more profitable, and more innovative, but only when it is available at the right place and the right time. Exploding data volumes and IT complexity—especially when overlaid on modern hybrid cloud environments—prevent businesses from gaining data’s full value. The Intelligent Data Platform from HPE is AI-driven, built for the cloud, and delivered as a Service. It reimagines how data is delivered, managed, and analyzed—in the cloud, within the data center, and at the edge.

Executive summary

The massive amounts of data being created and actioned within enterprises promise businesses stronger customer relationships, more efficient operations, and increased competitiveness. Data fuels innovation and directs agility. But to achieve the promises data offers, it must be at the right place at the right time.

Data is created, stored, and applied anywhere across hybrid cloud environments comprising private, on-premises clouds, public cloud services, traditional data center systems, and edge locations. But data and the systems that move, store, and process it exist in silos arising from organizational and systems inertia. IT—charged with making data available and secure—is challenged by unthinkable complexity, inflexible systems, and outdated skills.

Fortunately, the same technologies that let businesses mine gold from business data—AI, predictive analytics, and automation—offer IT a way to extract IT gold from infrastructure data. The Intelligent Data Platform from HPE doesn’t just store data. It reimagines how data is managed, delivered, and analyzed. It uses the power of AI and the insight available in IT infrastructure information to assure data is available at the place and time needed, to drive down operations costs, and to enable more agile service delivery.

It’s built for cloud to help IT deliver the agility the business expects from cloud computing. And it delivers an as-a-Service experience with automated, self-service infrastructure and flexible pay-per-use consumption models. The Intelligent Data Platform from HPE gives birth to the intelligent enterprise—an enterprise that is always on, always fast, always agile, and built for innovation.

Intelligent Data Platform makes IT proactive and lets you focus on value creation rather than firefighting. HPE intelligent solutions:

- Precisely understands workload needs
- Adapts and self-adjusts in real time
- Moves data where it needs to be
- Optimizes data throughout its lifecycle
- Eliminates potential security threats
- Aligns costs to business usage
- Enables financial flexibility during storage migrations

Data—opportunity for business, challenge for IT

The Economist says, “Data are to this century what oil was to the last one: a driver of growth and change.”¹ But while oil is a limited and declining resource, the data available to businesses is surging day by day. Technology suppliers are stepping up to the challenge. The latest computing systems offer storage with vastly increased capacity and servers that multiply IO throughput by a thousand-fold or more compared to those of just a few years ago. Open source programs make analytics and machine learning software available to all. IT is applying it to process exploding volumes of data and extract the insight businesses seek. And cloud providers now offer services to store and process virtually unlimited volumes of data.

Data is no longer confined to data centers but can exist anywhere in the hybrid clouds that are becoming the new norm. Increasingly, it is created and used at the edge of the network—from the Web, social media, mobile devices, sensors, smart factories and cities, vehicles, and connected products. It must be moved to where it’s needed for processing and for access by users or applications armed with analytics tools and questions to answer.

But existing storage systems and usage models weren’t designed for this hybrid cloud world. Administrators lack visibility into how data is accessed and used, so they lack the information needed to position it for best effect. They must collect information about their infrastructure and the data it holds, organize it, and manually identify inefficiencies and opportunities to reposition data for better, more efficient access.

Current storage systems magnify complexity rather than simplify operations and management. When outages or performance degradation occur, complexity makes it difficult for administrators to isolate and resolve the problem. So downtime or periods of performance degradation are extended, and administrators spend their time firefighting rather than planning how to make data access more efficient and effective.

Running out of capacity costs the business opportunity. So traditional usage models require large capital outlays to deliver storage where it might—or might not—be needed, just in case. More important, traditional, siloed capacity inhibits agility.

When data volumes mushroom, IT struggles under the scale and complexity of these systems and the data they contain. Infrastructure management consumes IT resources and budgets. Hybrid cloud computing environments offer new options for data storage and processing, but more options mean more silos and even more complexity. Hybrid environments enable a vast data landscape but leave administrators to figure out behind which bush each application’s data is best stored and accessed. And finally, gaining the insights the business demands requires making data available to the people that need it, when they need it and where they need it.

For IT, it means inefficient operations and escalating costs. For the business, it means lost opportunity—the opportunity promised by the data itself and expected to be delivered by IT.

“To onboard large cloud customers in very short timeframes, we must keep deployments fast, simple, and cost-effective. HPE Nimble arrays are easy for our storage administrators to install and configure—in a matter of minutes, they can have a new array online.”

– Darren Quinn, Cloud Architect, iland

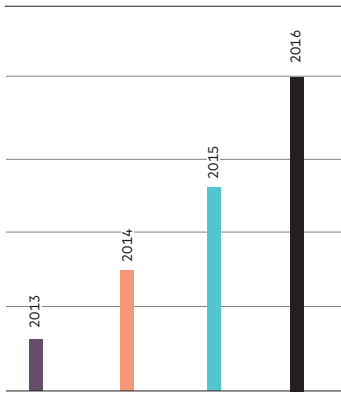


Figure 1
Number of predictive health signatures

Intelligence changes everything

The problems we face—and the opportunities before us—are similar to the problems and opportunities driving the big data phenomenon in the first place. Massive amounts of information are available in storage devices, servers, software, and networks. This information details how and where data is created, stored, moved, and accessed. It includes detailed configuration and performance information about storage devices, servers, and the entire virtualized infrastructure. And it contains clues that point to impending failures, degradation, or inefficiencies. Collecting this data and applying advanced analytics and machine learning provide the insight needed to optimize data placement, deliver better services, and increase IT efficiency.

Manage infrastructure efficiently

Data storage is but one element of a complex, integrated stack of hardware and software that delivers data to applications and business value to users. Data derived from HPE systems shows that more than half of problems that cause application delays or disruptions occur above the storage layer—in networks, servers, or virtualization software. Sifting through error logs and configurations to correlate hundreds of variables spanning an array of devices across multiple technologies extends outages, drives up costs, and leads to finger pointing.

The Intelligent Data Platform overcomes complexity humans cannot. Using machine learning, applied not just to the infrastructure data in your data center but to the entire installed base of HPE systems, it can identify and even resolve infrastructure problems quickly to reduce downtime and keep administrators focused on improving services rather than firefighting.

Overcome hybrid complexity

Hybrid computing environments offer many options for positioning data and workloads across hundreds of systems in multiple data centers and clouds. Assessing the efficiency and effectiveness of each one and identifying possible interactions among workloads requires data collection and analysis best suited to intelligent systems.

The Intelligent Data Platform tames hybrid complexity. It shows administrators where data is created and used, and it provides the information needed to make data and workload placement decisions that produce the best outcomes for IT and for the business.

Manage data throughout its lifecycle

Silos of systems, tools, and data have created barriers to data lifecycle management. They prevent IT from effectively managing data from its inception, through processing and analysis, to eventual archiving and disposal. This results in duplication that fosters waste, inefficiency, and inconsistency.

The Intelligent Data Platform breaks down barriers and enables visibility of data wherever it lives. It can assure data protection while eliminating duplication and inconsistency.

Extract value from the data explosion

The promise of big data is only achievable when the data has been captured, moved to the best location, consolidated, and accessed by analysts, data scientists, and applications. As the Internet of Things (IoT) finds new applications in almost every industry, and as data volumes escalate into the zettabytes, the task of getting the right data to the right place at the right time becomes both more essential and more difficult.

The Intelligent Data Platform is the enabler that helps IT fulfill the promise of big data. AI and advanced analytics, when applied to the problem of managing data, give IT the tools to deliver what the business expects—from data and from IT.

The Dawn of the Intelligence Era

The HPE Intelligent Data Platform leverages the power of intelligence to address today's challenges of inefficient infrastructure management, hybrid cloud uncertainty, and lack of responsive infrastructure. The Intelligent Data Platform delivers an always-on, always-fast experience. It enables faster application development and deployment while creating more agile service delivery of your critical workloads.

Intelligent Data Platform is a portfolio of workload-optimized storage systems and cloud data services surmounted by HPE InfoSight. InfoSight collects data from your IT environment, applies AI to manage it, and delivers built-in automation that enables self-service delivery of key workloads for your developers, cloud admins, VM admins and data scientists. This can all be delivered in a pay-per-use consumption model through HPE GreenLake Flex Capacity and HPE Pointnext consulting and support services. The Intelligent Data Platform removes barriers and puts powerful technology at the fingertips of your innovators to unleash innovation.

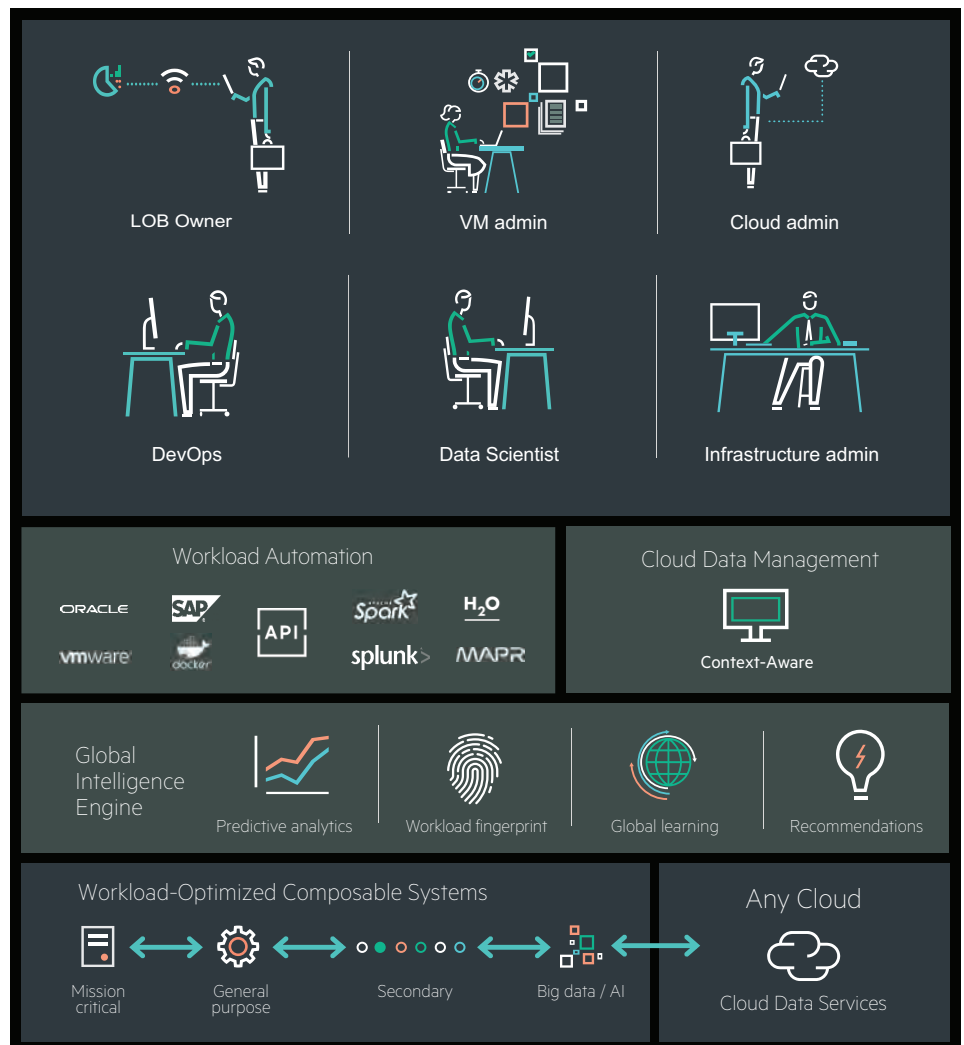


Figure 2: Intelligent Data Platform turns data challenges into business opportunities. It addresses today's challenges of inefficient infrastructure management, hybrid cloud uncertainty, and lack of responsive infrastructure by leveraging the power of intelligence. The Intelligent Data Platform delivers faster application development and innovation while creating more agile service delivery of your critical workloads.

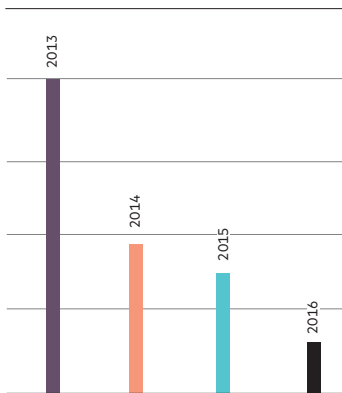


Figure 3
Incidents requiring customer intervention

AI-driven

Intelligent Data Platform uses a global intelligence engine to monitor telemetry from storage and other elements—servers, virtualization software, and network elements—across the entire installed base of HPE storage systems.

Using advanced analytics and machine learning, it learns what's right so it can spot what's wrong. It monitors your infrastructure data for patterns and events matching signatures that identify developing problems or opportunities for improvement, and it automatically resolves more than 86% of issues before they impact service. That eliminates firefighting and reduces time managing infrastructure by up to 85% while assuring 99.9999% measured and guaranteed uptime. When problems require intervention, an analysis and recommendation engine provides automated guidance so you understand exactly what the problem is, where it lies, and what you should do to resolve it—even if the problem is outside of storage.

An AI-driven experience helps you accelerate innovation because your teams spend less time managing the underlying infrastructure. The power of AI manages risk out of your environment because the infrastructure gets smarter every minute to reduce the likelihood of disruptions. Your environment remains always on and always fast.

Using AI to unlock insights is no longer a niche for specialized industries or universities. Every business will need to quickly gain insight from its data to stay ahead of the competition. The Intelligent Data Platform helps deliver those critical workloads in a seamless, as-a-Service experience.

Built for cloud

The Intelligent Data Platform works seamlessly with public and private clouds and can evolve with your cloud strategy. In conjunction with HPE Cloud Volumes, it provides native cloud integration with AWS and Microsoft® Azure to enable a seamless multi-cloud experience that simplifies management, orchestration, and automation. It lets you easily run any workload anywhere, from your own data centers to your cloud of choice. Built-in cloud and container automation let developers move faster, so the business moves faster. And HPE Cloud Technology Partners can help you achieve the promise of cloud while optimizing cost, security, and compliance.

The Intelligent Data Platform makes hybrid IT and multi-cloud deployments easy by allowing you to move data between on-premises and public clouds. You can move any workload from production databases, secondary data, or backup data to the cloud. Integration with other cloud automation and DevOps ecosystem players like Kubernetes, Docker, and Mesosphere make managing data and apps in a hybrid cloud world much easier by supporting the needs of lines of business and developers.

Software-defined composable infrastructure solutions from HPE provide the foundation for cloud-like agility on-prem. Ideal for VM or container farms, HPE composable systems can be managed from the virtualization interface, allowing for simple setup, configuration, and day-to-day operations.

“Flexible Capacity is like having the features of cloud but on premises. We run some services in the cloud, but we also need that same flexibility for our data centers. It’s a big part of our hybrid strategy.”

– Yamandu Correa, Global Network and Data Center Manager, YNAP

Delivers an as-a-Service experience

To enhance flexibility and agility, Intelligent Data Platform from HPE is available as a consumption-based, pay-per-use solution under HPE GreenLake Flex Capacity. This outcome-based consumption model provides elastic, ready-to-use storage provisioned on your premises or at a co-location site and can reduce storage infrastructure costs by up to 30%. It enables transparent costs you can align to business processes. And whether operated by you or by your IT partner, it simplifies IT operations to free up staff to do what matters most to the business.

The Intelligent Data Platform enables you to be your own service provider within your data center. You can do even more with AI by creating container-based analytics pipelines in minutes and consuming them as a service. Built-in automation lets developers provision resources in a self-service manner, enabling app development to proceed far faster than having to wait for IT. Flexible consumption models for all HPE infrastructure allow you to pay only for what you use and more quickly and easily deploy additional infrastructure, reducing time to market compared to traditional procurement models.

Finally, if you do capitalize your infrastructure, we create a timeless experience through a seamless upgrade path with predictable costs.

Intelligent Data Platform in action

Intelligent Data Platform from HPE removes the barriers that prevent you from seeing, managing, and placing data in the right place at the right time.

HPE Intelligent Data Platform powered by HPE Storage streamlines operations and saves money.

79%
lower storage
operational expenses⁷

Reduces cloud storage
and transfer costs⁵
20X

30%
savings in infrastructure
costs to free up capital⁴

Reduce business risk

Artificial intelligence detects changes like increased demand, seasonal spikes, hardware and software changes, and security threats, so you can take action before it's needed. On-premises, consumption-based storage lets you provide capacity ahead of demand, so you're always ready to meet the next business challenge.

Recover data

Intelligent Data Platform provides efficient source-side deduplication that reduces backup footprint and cost twenty-fold, and it enables fast, automated, zero-impact data access for recovery, analytics, and application development.

Move data between clouds

Easily extract data from operational data stores and move it between on-premises data centers and the cloud. AI-driven recommendations show you where to place data for best efficiency and ease of access.

Manage performance

Bottlenecks and performance degradation can occur anywhere in the stack. HPE Storage uses machine learning to identify and pinpoint performance hotspots wherever they reside.

Manage unpredictable growth

Consumption-based storage with active capacity management lets you provide capacity ahead of demand while paying only for what you use. Avoiding overprovisioning reduces infrastructure costs while ensuring you can respond to any business need.

It works

Here's what Intelligent Data Platform from HPE is doing for our customers:

- It identifies and predicts 90% of problems, and automatically resolves 86% of problems before IT knows there's an issue.²
- It isolates 54% of problems to non-storage factors such as misconfigurations, hosts, networks, or VMs.³
- It assures measured availability greater than six nines (99.9999%) across thousands of customers—an average impact for each customer of less than 25 seconds per year.²
- It reduces time spent resolving storage-related trouble tickets by 85%.³
- It lowers storage-related operating expenses by 79%.⁶
- It enables 75% performance improvement and 40% reduction in power consumption.⁷
- It can double product development productivity.⁸
- It has reduced deployment time from hours to minutes.⁸

An intelligent business decision

The efficiency improvements and cost reductions don't tell the whole story. When you spend 85% less time resolving storage-related problems and 79% less in storage-related OPEX, you spend more time and money proactively managing data to better achieve the results the business seeks. You can move it to where it's most effective—and Intelligent Data Platform shows you where that is. You can shift spending from storage maintenance to data innovation.

Reimagine how data is delivered, managed, and analyzed. HPE Intelligent Data Platform removes barriers and puts powerful technology at the fingertips of innovators, so you can deliver on the promises big data makes to the business.

Learn what intelligent storage from HPE could do for your business at hpe.com/intelligentdata

¹ The Economist, "Data is giving rise to a new economy," May 6, 2017

² HPE, "Redefining the standard for system availability," August 2017

³ Internal study of the HPE Nimble Storage installed base, August 2017

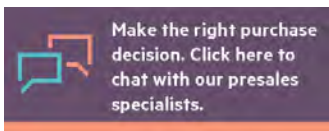
⁴ Forrester Consulting, "The Total Economic Impact of HPE GreenLake Flex Capacity," May 2018, commissioned by HPE

⁵ Illustrates potential savings based on customer surveys. HPE does not provide financial advice

⁶ Enterprise Strategy Group, "Assessing the Financial Impact of HPE InfoSight Predictive Analytics: A Quantitative Analysis of HPE Customers," Adam DeMattia, Sept 2017

⁷ HPE, "HPE Nimble Storage delivers competitive edge and cloud data protection for Stupp Bros," June 2018

⁸ HPE, "YNAP powers online retail stores with HPE 3PAR Storage and HPE GreenLake Flex Capacity," March 2018



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