

Brochure

Transform IT for Big Data

With HP Big Data Infrastructure Consulting



Build your Big Data infrastructure

Big Data is emerging as a significant source of business advantage for those organizations that can successfully corral it. With our help you can prepare your infrastructure to take advantage of whatever the datasphere offers. And, help to make sure you have the IT horsepower to handle it.

Dealing with Big Data

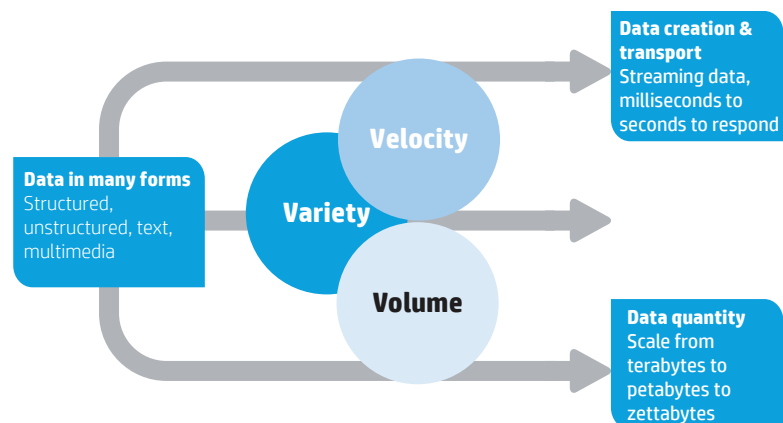
Every day, the world generates 2.5 quintillion bytes of information. Customer data, sales figures, and stock transactions flood the data coffers. Email, social network links, and instant messages spew from a billion personal devices. Text, photos, music, and video divide and multiply in constant digital mitosis. That's Big Data.

Big Data, big upside—and big problems

Not surprisingly, businesses are eager to extract useful nuggets from this treasure trove of information. Visionaries in business analysis, marketing, sales, manufacturing, education, and government realize the enormous potential of the analytics they can derive from Big Data. And they want to start analysis *now*. But they're running into roadblocks. For one thing, there's just so much data. And the processing and analysis needed to extract value can double or triple the size of the original data set.

What's more, in contrast to the usual transactional data the business has been using, perhaps 90 percent of the data available today is unstructured—it hasn't been shoehorned into a standard file structure or format. That makes meaningful access difficult, and adds to the processing needed. Where data analysis has always focused on extracting information from a relatively known volume of data, the unstructured element now introduces other data parameters, such as *variety*, *velocity*, and *volume*.

Big Data comes in multiple dimensions



The analysis-IT disconnect

Line-of-business users are scrambling to derive value from this treasure trove. Often, they're plunging ahead with or without IT's help. They're seeking to extract, manage, and analyze data in all of its dimensions and richness, regardless of whether their queries can strain the capabilities of even enterprise-level IT systems. In fact, it's not unusual for lines of business to look beyond their organization's borders, perhaps to "shadow IT," for solutions.

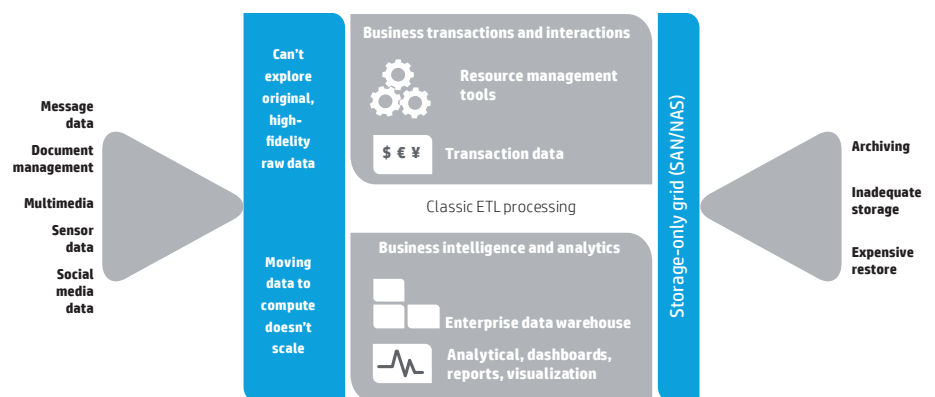
CIOs have been slower to realize the implications of Big Data. Protective of budgets and wary of embracing what could turn out to be a flash-in-the-pan, IT departments have been resistant to change. The thinking is, will the demands and complexity of handling Big Data live up to the hype (and be worth the cost)? Or is it simply like handling regular data, except there's just more of it? So there's a dichotomy of mutual risk: businesses run the risk of becoming irrelevant if they can only act on information comparatively slowly, at the same speed as their competition. And IT risks becoming irrelevant if it can't deliver information at the accelerated rate of the business need.

Gaps in today's architecture

The architectures and data management practices of today are often ill-suited to the Big Data era. Think about these issues that can arise:

- **High fidelity raw data is lost**—Collection of data is limited by technologies and costs. As a result, any data that's considered less important is deleted or transformed. That eliminates any possibility of future explorations of the original raw source data to discover potential new value.
- **Moving data to compute doesn't scale**—As data volumes and sources proliferate, IT organizations are seeking new flexibility for running their data warehousing and BI environments. Relational data warehouse architectures have served enterprises well; but organizations in the Big Data era want more flexibility to meet their changing needs, while retaining the ability to leverage the tools, skill sets, and practices they've already established.
- **Archived data equals unusable data**—To mitigate the impact of storage costs and overcome performance problems, companies today archive data on cheap storage, including magnetic tape. For analytics on a Big Data scale, this archiving translates into unusable data, much too expensive to retrieve, restore, and analyze. Managing Big Data requires a completely different approach.

Big Data means rethinking standard architectures and practices



“When we talk to the IT infrastructure team about big data, most of them say, ‘It’s not really a focus for us.’ When we speak to the business team, they say, ‘Oh, big data is huge.’ So there is kind of a disconnect.”

— Simon Robinson (451 Research), interview in MIT Sloan Management Review, June 7, 2012

Not business as usual

The truth is that dealing with the opportunities and challenges of Big Data call for nothing less than a transformation of the conventional IT infrastructure. You’ll need changes that go far beyond simply adding processing power and more capacious storage systems—because the *volume* and *variety* of data have a significant impact on your storage hardware volumes, and the *velocity* affects processing requirements at the server level.

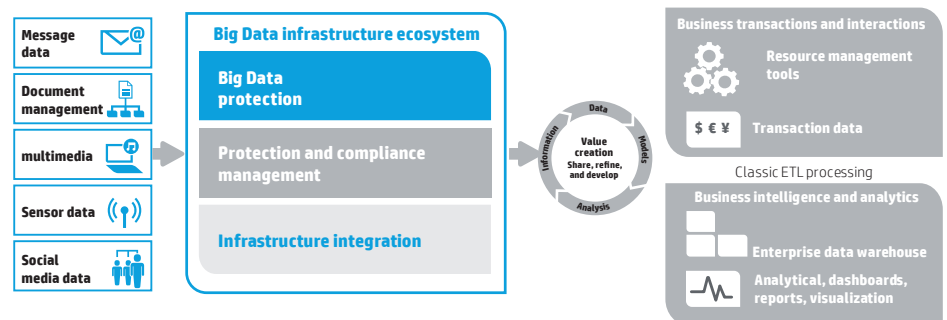
Big Data crosses traditional organizational and departmental budget structures, which may be one of the reasons for the tepid reaction to Big Data from the IT department. But the days have passed when IT could provide business value through managing servers, storage and networks; logging, resolving and closing incidents; and developing, deploying, and managing applications. Today, your IT department needs to react to the Big Data phenomenon, and transform the information technology infrastructure in support of a Big Data ecosystem.

Several areas of your IT infrastructure are prime targets for a Big Data upgrade:

- **Processing**—How do you deal with data volumes that are scaling faster than compute resources, while CPU speeds remain fairly static?
- **Cloud computing**—Big Data generates highly variable workloads that can gobble a lot of CPUs, storage, and bandwidth. That makes it a good fit for the cloud. But how do you maintain service levels and ensure security and compliance for data that may wind up on public or hybrid clouds? Which portions of data can be safely ported to the public cloud and which will need to remain in-house?
- **Storage subsystems**—How can you amp up storage when dependence on large-scale RAID increases costs while reducing performance? How can you take advantage of newer storage technologies like solid-state drives?
- **Networking**—Are your pipes fat enough to handle gigabyte-size files? Terabyte-size files?
- **Flexibility**—How can you run heterogeneous workloads on a single infrastructure, one that is flexible enough to handle them all? How can you design a system architecture that runs these different workloads efficiently?
- **Budget**—And most important, how can you deliver all this while keeping the accountants happy?

Those are your challenges. Failure to address them could render your carefully crafted and controlled IT structure irrelevant to the needs of the organization’s marketers and analysts.

The Big Data ecosystem

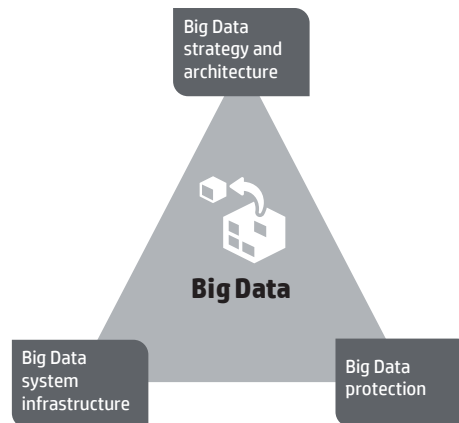


How to transform IT for Big Data

Transforming your IT infrastructure for Big Data isn't trivial, but it can be done. Many successful organizations enlist outside experts to help. The company may lack the necessary expertise in-house, or perhaps doesn't want to consume internal resources that might be better applied to advancing its business goals. Hiring outside experts with a focus on a specific technology is also a good way to reduce risk around that technology.

That's where HP comes in. Our experienced consultants can help reshape your IT infrastructure for Big Data while keeping your budget under control. These consulting service offerings integrate all HP Big Data solutions.

HP Technology Consulting services help you with Big Data architecture, infrastructure, and security



Start with HP Big Data Strategy & Architecture Services

Formulating an overall strategy is a good place to begin. Many organizations try—and fail—to repurpose infrastructure for Big Data. HP Big Data IT Strategy & Architecture Services can help point you toward success by defining the functionalities and capabilities you'll need to align IT with your Big Data initiatives. You can choose from transformation workshops and roadmap services, all delivered by Big Data experts. You'll benefit from strategy and planning for IT that supports the capture, consolidation, management, and protection of business-aligned information, including structured, semi-structured, and unstructured data.

HP Strategy & Architecture Services help you craft a plan for Big Data. You'll be able to deal efficiently with big data's volume, velocity, and variety. And you'll learn how to realize business value from the information technology related to your Big Data initiatives. Look at these service examples:

HP Big Data Infrastructure Transformation Experience Workshop

Big Data is not about a single technology; it requires a new approach that can address the entire IT ecosystem and transform it to provide processing and analytical use cases. The HP Big Data Infrastructure Transformation Experience Workshop helps you to take a multifunctional IT approach that spans IT infrastructure, security, management, operations, software platforms, and standards. The workshop delivers a combination of short-term results and long-term consistency, and aligns with your service delivery strategy. This workshop is a highly interactive, one-day, panel-based exercise, bolstered by added reporting, that shows the relevance of IT in providing value to business when it comes to Big Data decisions.

HP Roadmap Service for Hadoop

This service can help you develop a common vision based on a Hadoop strategy for Big Data. Tailored to your specific needs and objectives, the service establishes primary stakeholder requirements, with defined business challenges, identified risks, and mitigation strategies. Using a four-step approach, the Roadmap Service offers recommendations for moving your Hadoop project from the consideration phase to production. We conduct assessments and identify key business drivers for your business, helping you plan an effective Hadoop design for your organization. We discover ways to align your Hadoop implementation with best practices and determine which next steps to take to prepare for deployment. After identifying risks and conducting a gap analysis, we suggest design and configuration recommendations for the implementation of Hadoop based on the HP reference architecture, assessments, and best practices.

Why use a consultant?

Using expert consultants for complex transformations like converting an IT infrastructure for Big Data brings a lot of advantages to your organization.

1. You get expert skills:

- Tap the knowledge and expertise of Big Data professionals.
- Take advantage of HP's extraordinary hands-on design and implementation proficiency.

2. You get a focused solution:

- Gain short-term Big Data expertise you don't have in-house.
- Shorten timelines with proven reference architectures.
- Make the transformation more efficient.

3. You continue your core activities:

- Maintain or improve customer service during the transformation.
- Prevent valuable staff resources from being sidetracked.
- Free up CIO and IT staff time to focus on critical business endeavors.



Build with HP Big Data System Infrastructure Services

To deal with the changes needed in your system infrastructure for collection, storage, and processing of Big Data, engage our HP Big Data System Infrastructure Services, and gain the services of knowledgeable HP consultants. These experts know what's required to implement a high-performance, integrated platform that supports a strategic architecture for Big Data.

Your Hadoop environment can be complex to design and deploy, which makes the HP Hadoop AppSystem or the HP Reference Architecture for Hadoop attractive options. But if you need additional help, or want to use your own architecture, HP System Infrastructure Services address the barriers you may face, including a lack of skills, resources, or time. With these services, you can depend on HP for your Hadoop design, as well as implementation and benchmarking of the solution. Here are some of the services available:

HP Enterprise Design Service for Hadoop

Where configuration options or choices exist, or aren't clear, you can take advantage of HP Enterprise Design for Hadoop to design the environment according to your goals and needs. The resulting design incorporates integration into your existing operation and management functions. The design includes layout, size, configuration, and number of management and data nodes.

HP Reference Architecture Implementation Service for Hadoop

This service delivers a comprehensive implementation of the HP Reference Architecture for Hadoop, based on the Cloudera distribution platform. The service defines all important details for implementation, such as naming, network, authentication, high availability, and disaster recovery.

HP Implementation Service for Hadoop

Perhaps you want to implement Hadoop on your own existing infrastructure, or use something other than the Cloudera distribution. The HP Implementation Service for Hadoop supplies all the details you'll need: naming, hardware, network, software, administration, backup, disaster recovery, and operating procedures. It also includes an acceptance test to validate and prove that the system is working.

Include HP Big Data Protection Services

To address the risk issues associated with Big Data's expanded protection and compliance requirements, let our Big Data Protection Services identify your risk profile in order to manage and ensure privacy and protection of the Big Data ecosystem.

HP Big Data Protection & Compliance Analysis

This service identifies security issues and helps ensure your compliance to government and industry data security requirements. This analysis is a thorough vetting of the Big Data security for your infrastructure. It supplies you with:

- An articulated attack surface showing credible threat vectors
- A comprehensive risk profile of your Big Data environment
- An itemized list of legal and regulatory data privacy requirements
- An assessment of current-state and recommend future-state controls
- A recommended roadmap to address noted gaps

The HP Big Data Protection & Compliance Analysis is the linchpin for your Big Data protection strategy.

HP Technology Services Consulting, a perfect fit for Big Data

For more information

Want more information about data center convergence with HP Big Data Infrastructure Consulting services? See the links below:

hp.com/services/bigdata

HP Big Data Infrastructure Transformation Experience Workshop solution brief

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-6733ENW.pdf>

HP Implementation Service for Hadoop solution brief

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-6738ENW.pdf>

HP Reference Architecture for Hadoop solution brief

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-6735ENW.pdf>

HP Enterprise Design for Hadoop solution brief

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-6740ENW.pdf>

HP IT Protection and Compliance for Big Data solution brief

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-6741ENW.pdf>

We help IT departments increase their relevance to business by giving them the infrastructure to extract maximum value from Big Data. Our Technology Services arm comprises a hub of highly qualified and experienced consultants who can bring a comprehensive transformation to a converged infrastructure for Big Data. The service offerings integrate all HP Big Data solutions from strategy, design, and implementation, to protection and compliance.

HP is uniquely qualified to help your IT infrastructure get the most value from all your data. Our consultant teams include experts who can help you craft a comprehensive Big Data strategy. And our field-proven, integrated approach is the perfect answer to transforming your IT infrastructure for Big Data, from servers and clusters to storage and networking. Our security expertise is second to none.

HP consultants can take the lead or offer coaching, doing whatever it takes to make your Big Data initiative a success. That might mean conducting assessments and stakeholder interviews, or holding facilitated workshops to uncover your vision, goals, needs, and requirements. Or it might mean leveraging best practices, including field-proven HP reference architectures and experience. We can make design and configuration recommendations, identify risks, and propose a roadmap that gets you to your goal.

With the expertise of our worldwide army of consultants on tap, you're assured of a comprehensive and consistent Big Data implementation—on any scale.

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