

## EXECUTIVE BRIEF

# Big Data and the Cloud

### Challenge

Big data is rapidly becoming “table stakes” in every industry — but it makes challenging demands on IT teams and infrastructure.

### At Stake

Companies able to execute big data better, faster, or both will gain competitive advantage.

### Solution

Cloud-based managed services enable companies to speed big data solution deployment, reduce technology risk, and more quickly deliver business value.

## A Match Made In Heaven

Today, companies are flooded with big data from an ever-growing variety of sources, including social media, e-commerce systems, and sensors embedded in products ranging from smartphones to cars.

Analyzing this ocean of data can yield critical insights — and has rapidly become a business imperative. Most companies face growing pressure to build big data solutions quickly, to help them gain insights into changing customer behavior and market dynamics, or risk losing out to rivals that are doing so.

Whether your organization has experience with big data technology or not, cloud-oriented services can accelerate your time-to-insight by speeding deployment of scalable, secure big data solutions. As Ernst & Young puts it, big data analytics “is among the complex, hard-to-manage applications that lend themselves to [cloud] solutions because most organizations struggle with the necessary infrastructure to analyze such large data sets — a challenge they can now outsource to cloud service providers. One analyst even called ‘big data’ analytics and cloud computing ‘a match made in heaven.’”<sup>1</sup>

## Big Data Analytics Goes Mainstream

Until recently, the most well-known examples of companies leveraging big data for competitive advantage came from an elite club of high-profile online businesses with deep technical expertise, such as Facebook, Google, and Netflix. But now, big data analytics is going mainstream. Established companies in sectors as diverse as agriculture, industrial services, and consumer packaged goods are harnessing big data to grow their traditional businesses and achieve competitive advantage.

“The ability to analyze big data — massive quantities of data — is important,” says Filippo Passerini, CIO and President of Global Business Services at packaged-goods giant Procter & Gamble. “I believe, in our industry, the differentiator will be the ability to predict what is going to happen in the business. It is very possible to detect those key indicators early on, or roll out a predictive model that will allow us to be more accurate in the way we go to market with a new product.”<sup>2</sup>

## Scaling From Pilot to Production: Get Skills or Get Schooled

More and more businesses are identifying clear use cases for big data and completing pilot projects that demonstrate the potential of harnessing real-time big data. Now, there is growing urgency to scale those pilots into full-fledged production systems so that the business can reap the benefits.

Companies trying to implement big data production systems, however, often realize that the projects require resources they lack in house, such as highly scalable infrastructure and specialized big data skills (for example, rapid deployment of Hadoop clusters).

“The transition from proof-of-concept (POC) to production-ready big data systems can be a struggle for organizations, because successful big data solutions need to scale quite quickly. That places heavy, unforeseen demands on infrastructure,” says John Martin, Chief Architect, Big Data Strategy, at CenturyLink. “Organizations often come up against obstacles such as a lack of data center capacity, scalable computing resources, and skills.”

For many use cases (or workloads), managed or cloud-based services provide the solutions to these challenges, enabling organizations to accelerate deployment of big data solutions. Companies no longer need to build their own expensive infrastructure for big data applications, or develop the expertise to deploy and maintain key technologies such as Hadoop. Instead, they can simply acquire and scale the services they need, as they need them.

### Accelerate Big Data Solutions, Layer by Layer

Martin says scalable, secure big data implementations require several layers of capabilities. Each can be delivered as a managed or cloud service, faster than in-house deployment. Layers include:

- A foundational infrastructure layer of scalable compute, storage, and networking capacity capable of hosting big data technology. This should include reliable, high-bandwidth networking that can handle the huge volumes of data generated from internal and external sources.
- A data layer that includes data-management software such as Hadoop, which has rapidly matured into an industry-standard platform capable of handling a wide variety of production applications. The data layer should also include big data skills, processes, and management tools. Any new big data solution should be able to integrate with existing internal and external data sources.

## Big Companies Rely on Big Data Analytics

Large companies that rely heavily on big data analysis include consumer packaged goods giant Procter & Gamble, which accumulates big data from a multitude of sources worldwide such as retail locations, online ads, and ERP systems. P&G also analyzes customer sentiment in social media for each of its brands — in real time. P&G analytics systems look for exceptions and trends in the data, and provide forward-looking projections and scenarios; the company’s executives and managers access the information in visual decision-support systems on desktops and in immersive environments within specialized “**Business Sphere**” executive decision rooms.

United Parcel Service of America has built its business on big data — managing millions of package transactions and movements. Now, UPS is also gathering data from sensors in over 46,000 delivery trucks, including speed, direction, braking, and drivetrain performance. **The company is using the data** not only to monitor daily performance, but also to increase efficiency through a major redesign of UPS drivers’ route structures, including the planned future ability to reconfigure drivers’ pickups and drop-offs in real time.

- An insight layer of analytic applications that enables companies to derive the actionable insights they can use to develop new products and respond to changes in customer behavior and sentiment.

### Secure Each Layer

Martin emphasizes that big data solutions need strong security capabilities spanning all three layers to ensure protection of vital corporate data, as well as monitoring, management, and orchestration.

With so much depending on big data projects, the right security measures are essential. The implications of not having effective security are far-reaching, from regulatory to privacy to customer loyalty. If security is breached and sensitive information falls into the wrong hands, the impact on brand standing and customer retention can be catastrophic.

Yet according to IDC, only about half of the information in the digital universe that needs protection has protection. IDC estimates that a third of all data should be protected, but only about 15% to 20% actually gets protected. Further, the firm predicts that the amount of data requiring protection will grow faster than the digital universe itself, and by 2020 will be about 40% of all data. But it expects the proportion that gets protection to remain about the same, or improve only slightly.

To ensure your data is protected and can't be accessed by unauthorized users, there must be strict security at the infrastructure (including physical data center security and network security), data (including governance), and insight layers.

### Making a Heavenly Big Data Match

As the pace of business change accelerates, the ability to gain insights quickly from big data has become critical. But that accelerating business change demands agility: the ability to scale up, rapidly, as POCs go to production, and to scale down, instantly, when a potentially innovative big data experiment gets relegated to the dust bin. And it also demands security, at all levels of the big data stack, to keep corporate and customer data safe and to keep intruders out of your insights.

For all these reasons, cloud computing and big data have been called a match made in heaven. Big data projects based in the cloud or on managed services enable companies to accelerate time-to-insight by rapidly acquiring and scaling big data infrastructure that previously had to be built from scratch. This empowers companies to speed big data solution deployment, reduce technology risk, and more quickly deliver business value.

## 6 Reasons Why Big Data & The Cloud are a Match Made in Heaven

1

Growing pressure to accelerate enterprise time-to-insight using data analytics

4

Less capital-intensive — and often less expensive overall — than in-house solutions

2

Need for agility to adapt to rapidly changing business demands — and skyrocketing data sources

5

Strong security protects vital customer and corporate data

3

Transition from pilot to production apps has unpredictable infrastructure scaling demands

6

The right cloud partner can provide end-to-end solutions, from planning to optimization, propelling time-to-successful-implementation

## About Big Data Services from CenturyLink

CenturyLink Big Data Foundation Services combine CenturyLink's enterprise-grade global infrastructure and network connectivity with proven big data software in a fully hosted and managed service. Our big data solutions allow your organization to realize game-changing insights, operate with unprecedented speed and agility, and gain a true competitive edge. A longtime leader in managed hosting, CenturyLink stores and manages critical data for a wide range of enterprise clients, including five of the top 14 securities firms.

## About CenturyLink Business

CenturyLink Business delivers innovative managed services for global businesses on virtual, dedicated and colocation platforms. It is a global leader in cloud infrastructure and hosted IT solutions for enterprise customers. Parent company CenturyLink, Inc. is the third largest telecommunications company in the United States, and empowers CenturyLink Business with its high-quality advanced fiber optic network. Headquartered in Monroe, LA, CenturyLink is an S&P 500 company and is included among the Fortune 500 list of America's largest corporations.

For more information visit [www.centurylink.com/technology](http://www.centurylink.com/technology).

<sup>1</sup> Global technology M&A update, October–December 2011 and year in review, Ernst & Young, © 2012 EYGM Limited.

<sup>2</sup> "P&G CIO Filippo Passerini Discusses Big Data," CIO Journal, May 7, 2012, © 2012 Dow Jones & Company, Inc. <http://blogs.wsj.com/cio/2012/05/07/pg-cio-filippo-passerini-discusses-big-data/>

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