UBM Tech

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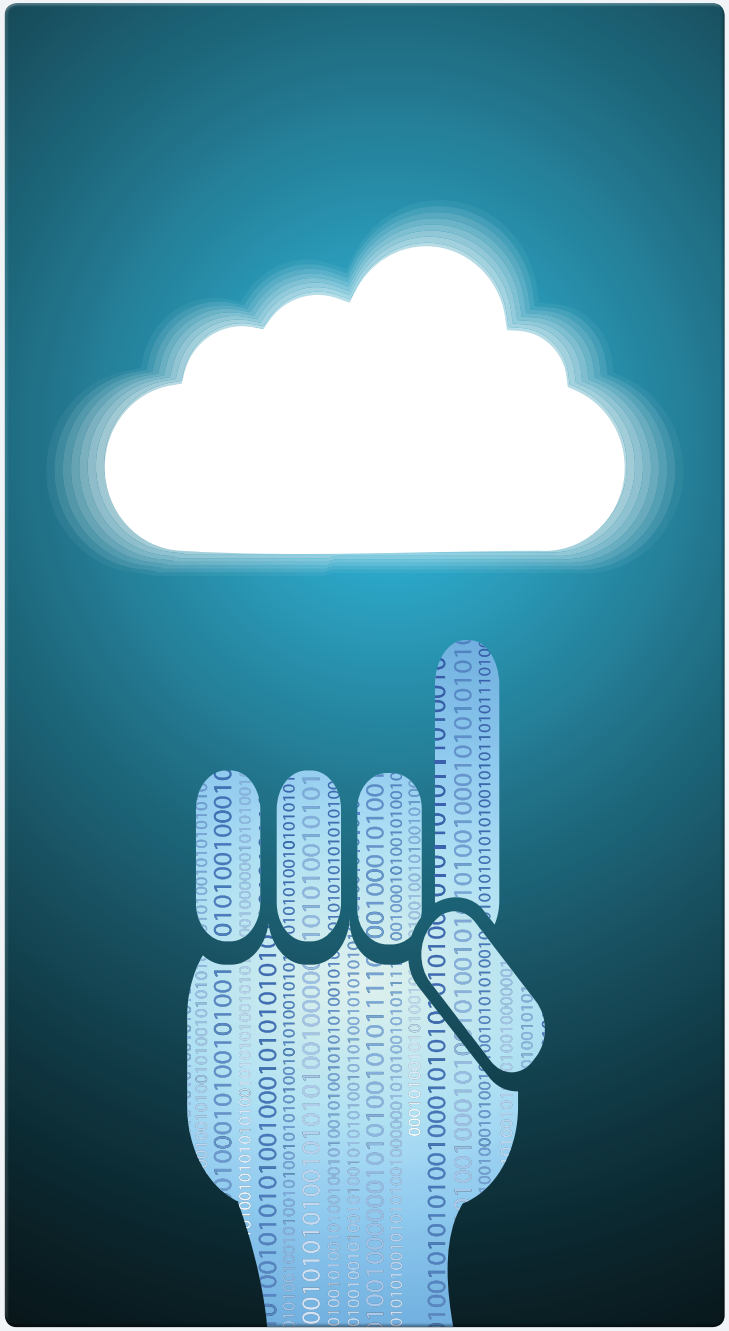
# Big Data & the Cloud: The Sum Is Greater Than the Parts

Learn how to accelerate your move to the cloud and use big data to discover new hidden value for your business and your users.



VIAcode

## Modern Enterprise IT

Today's enterprises face unique challenges. In the past, the requirement was to upgrade, be it a move from mainframes to PCs, command-line based to graphical interfaces, or from standalone to web-based applications. Today, it's about building an integrated strategy that involves multiple technologies both existing and new. For example, there's more diversity in database technology than ever before (SQL vs. NoSQL, in-memory vs. elaborate cache management), server technology (physical and virtual, Intel vs. ARM), and data center infrastructure (private, public, and hybrid clouds), to name a few. At the moment, none of these technologies are replacing the others; instead, they need to be integrated.

Users are also demanding greater value from a wider range of application types, such as those running on the corporate intranet, in the cloud, and increasingly on mobile devices. They expect consistency across all platforms and equal access to data and functionality. The level of integration required presents challenges, but it also offers new opportunities if you know where and how to look.

## Big Data's Promises and Challenges

Mining data for hidden value is the territory of big data, where large-scale, diverse data sets are collected and deeply analyzed. Tools are available to analyze potentially huge data sets to help you learn more about your market, your customers, and essentially your own business. Big data analytics combined with business intelligence (BI) tools can help you take the volumes of unstructured data at your fingertips (e.g., customer, marketing, CRM, and technical data) and reveal both new business opportunities and areas that you need to optimize inside your business. For example, analytics and BI can deliver a deeper understanding of your market, identify internal process inefficiencies, and surface the unspoken needs of your customers, possibly before they even know they have these needs. This is where the predictive nature of big data analytics helps to tailor your products to better suit markets and customers and create new products for newly discovered opportunities.

**Business prowess plus analytical skills = Chief Data Officer**

Of course, to leverage big data, enterprises need to overcome some major challenges. Enterprises need to decide who leads their big data initiatives. For example, should marketing or IT lead a customer data initiative and who should own the data and analysis?

Enterprises also need to resist being blinded by the sheer volume of data available and steer clear of coercing analytics tools to deliver an expected, but not necessarily correct, answer. A core tenet of big data is that you absolutely need to ensure you uncover the truth in what your data is telling you. As a result, some companies have created a new role, the chief data officer—a position that combines both business prowess with the mathematical and deep analytical skills—to ensure that big data is done right from beginning to end.

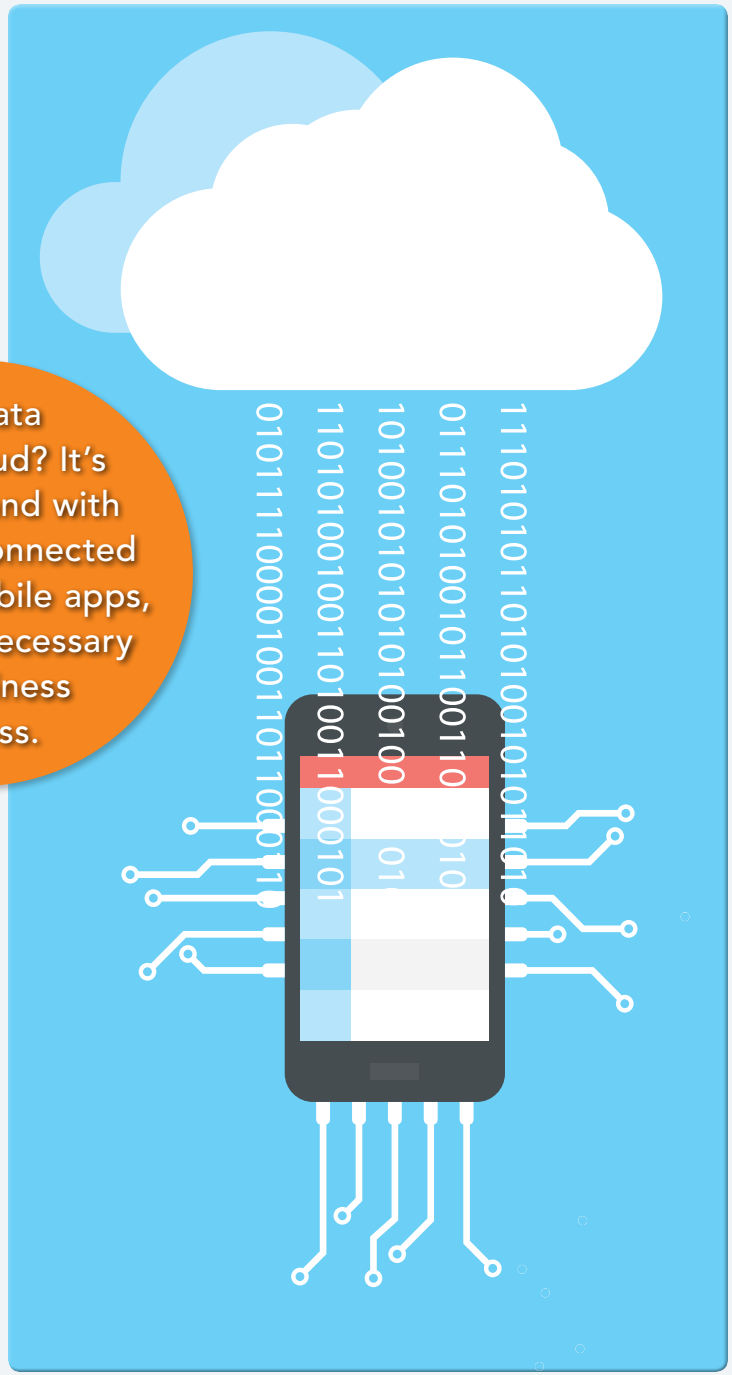
The remaining challenges are technical, including tackling the processing power, storage capacity, and bandwidth needed, and defining the analytics themselves to find the true value in your data.

## Keep Your Head in the Clouds

The cloud, much like a data center, provides enterprises with a shared set of services, including compute power, storage capacity, and connectivity. By leveraging virtualization for server, storage, and network infrastructure, cloud applications benefit not only from the scale this architecture provides, but also from its elasticity, or the ability to scale up and down in real time to meet fluctuations in demand. The cloud provides this through its built-in deployment features, allowing users to easily deploy new services, but also for those services to be automatically deployed on demand.

While data centers were traditionally rigid in nature, with dedicated hardware for individual applications, the cloud is a shared and elastic pool of resources where both the cost and the benefits are spread across them. This has opened the door to public cloud providers, where almost all of the past enterprise data center requirements and activities can now be outsourced. Given the economy of scale, these providers typically offer cloud hosting (with all its added benefits) to enterprises at lower cost.

Big data in the cloud? It's possible, and with the hyperconnected world of mobile apps, it may be necessary for business success.



## Strategies for Big Data in the Cloud

The question remains: How do you accelerate your business learning from big data analytics while data sets, application platforms, and user expectations continually grow? The answer requires you to combine big data processing and the cloud, and harness this power to offer new customer value. Initial thinking was that security concerns and the processing demands that large data sets place on a virtualized infrastructure would make performing big data analytics in the cloud unfeasible. However, over the last 24 months, all aspects of the cloud have evolved dramatically. Advances in cloud infrastructure, analytics tools, and

security approaches now make the cloud a preferred destination for big data analytics.

Through the use of a *hybrid* cloud, which leverages aspects of both a public and private cloud rollout, data security issues can be addressed. Cloud infrastructure is available to help you deploy your applications seamlessly within a hybrid cloud, keeping your data safe while still offering the same cloud benefits.

Other specific solutions are available to help enable big data processing in a cloud environment. This includes running Hadoop map-reduce processes on virtualized infrastructure while still leveraging bare-metal server resources under the covers. Running Hadoop-based analytics in the cloud provides automatic deployment support, along with valuable elasticity, and most importantly it allows for a separation of concerns. This means that your big data and analytics teams can focus on building out improved analytics on newer, larger data sets while IT can handle the demands of a hybrid cloud infrastructure.

In the end, your big data scaling challenges are answered with the cloud, data security is maintained, and your business agility is increased. These strategies reveal the importance of aligning enterprise, web, and mobile strategies.

## The Result: Hyperconnected Big Data

Big data analytics doesn't stop with your own data. We live in an age of hyperconnectivity, where users expect to access their data and gain critical business knowledge no matter where they are, or what computing devices they have on hand. This includes not only desktops and laptops, but also the web and now mobile devices.

Companies that provide seamless integration between all three worlds (desktop, web, and mobile) will be able to compete more effectively. This requires your applications to enable shared workflow between those accessing data via the web and those using a mobile device. It also requires you to integrate your application with other areas of mobile computing, such as social media.

## Mining Social Media

Your customers post a lot of data to social media sites, about themselves, their experiences with your company and products, and perhaps your competition. Analyzing this data gives you deeper insight into their lives, and the more you understand them on a personal level, the better you can serve them. This data also provides insight to understand cross-selling opportunities and to more accurately predict new product features you hadn't considered before.

Social media provides other critical data, such as whether a customer may switch to a competitive product, a valuable employee is considering leaving your company, or new technology trends (based on others' posted successes) that may offer a competitive advantage. Some industries, such as finance and banking, even analyze their customers' public social media (and other) data to uncover fraud, or get a heads-up to other life events, positive and negative, such as a pending marriage or job loss. All of these events may affect the way a bank interacts and deals with its customers, provide new selling opportunity, and help calculate risk more accurately.

## The Internet of Things

Another modern source of data is what the industry refers to as the Internet of Things (IoT), where embedded devices and sensors

provide constant streams of valuable real-world data. When combined with big data analytics, IoT data can give you very precise, accurate insight into what customers are doing in real time at retail locations, on the road while driving, within the enterprise, and even in their own homes.

All of this data not only equates to more valuable and accurate analytics with increased business opportunities along the way; it can stress your existing IT infrastructure and staff, and lead to unforeseen challenges. The key is to partner with the right technology vendors to turn these challenges into business strengths, adding value to your enterprise, new benefits to your customers, and new ways to connect with and interact with them.

## VIAcode: Your Partner for Hyperconnected Big Data

The VIAcode team can work with you to turn your existing data, including market, sales, CRM, and technical data, into information assets you can take action on right away. Whether you need to add big data analytics to an existing application or build your own big data application, VIAcode will help you leverage the right technologies and tools to build just what you need.

The right big data solutions depend on deep knowledge about a range of technologies, from mainstays such as CRM, relational databases, mainframes, and legacy reporting systems, to modern application servers and emerging technology, such as Hadoop map-reduce clusters, distributed file systems, and NoSQL databases. All of this can uncover the "breaking news" in your data, discover the potential direction changes in your market, and predict customer needs.

When it comes to building, deploying, and running big data applications in the cloud, VIAcode can show you the way. We can help you get up and running quickly by building you big data applications that combine the best commercial tools with proprietary software that gives you just the answers you need. In addition, VIAcode can help you make the right cloud deployment decisions, such as when to choose a platform-as-a-service provider vs. an infrastructure-as-a-service provider. We also work hard to ensure rigorous user and data security and maximum elasticity in cloud-based deployments.

Regardless of your technology choices (e.g., Java vs. .Net), or the cloud vendor you may already have a relationship with (Amazon Web Services, Google, or Microsoft Azure), VIAcode has had experience with each of them. And, with a deep understanding of what it takes to capitalize on big data in the cloud, with emerging trends such as social media data mining and the Internet of Things, VIAcode will help you build a platform that will not only help you today, but position you for the future.

**About VIAcode:** VIAcode builds and delivers commercial and internal software products that make a difference for its customers. The company radically enhances technical capabilities of our clients by deploying world-class technologists throughout the software development life cycle to deliver high quality software products on time and on budget. Viacode's clients include large software product companies, technology start-ups, and Fortune 1000 companies. VIAcode is an Amazon Web Services Partner, a Microsoft Gold Partner, and a member of the Microsoft System Center Alliance. To learn more, visit **www.viacode.com**.