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WHITE PAPER

Business and Revenue Challenges of Big Data in the Telecommunications Environment

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Business and Revenue Challenges of Big Data in the Telecommunications Environment

Service providers of all types are grappling with operational challenges of managing massive amounts of data. This data, both unstructured and structured, is being generated by increasing expectations of their always-connected customer base. Such data takes on many different formats, including image, voice, message and Web traffic. Moreover, machine-to-machine-generated data multiplies the network traffic that telcos must handle. This complicates management of network bandwidth as well as overall data management.

To add to the problem, the increasing use of content and media-rich services is combining with a challenging business environment: Service providers need to make use of the vast amounts of data being produced by, and passing through, their networks. Increasingly, customer data is being analyzed with the objective of getting business intelligence to improve customer experience and control costs, and thus generate revenue. The IT landscape is also changing with the increasing use of long-term evolution (LTE) networks, social networking, and video watching from mobile devices. All are driving the need for content storage.

Data Growth and Challenges

A recent report by Ericsson¹ states that there will be 50 billion Internet-connected devices by 2020, with the fastest growing telecommunications industry being in the Asia-Pacific and Africa regions. According to TM Forum Report², data has grown at a compound annual growth rate (CAGR) of 29% over the past 5 years, and is likely to grow at double-digit rates in the future. Today, there are nearly 6 billion phones in operation, and over 2.5 billion of them are in Asia.

This data growth is increasing due to the transition of 2G networks to 3G and beyond, combined with the continued reduction in price points for smart phones and tablets. By the end of 2013, in most of the countries in Asia Pacific, many smart phones will be sold for less than US\$100, which alone will accelerate the transition to 3G and also bump network traffic. This trend of democratization will lead to increased adoption of mobile devices and significantly higher data usage. The number of 2G connections will peak in 2013, according to Analysys Mason³, at 2.3 billion subscribers; then, it will decline, as 3G subscriptions grow, rising to 1.5 billion by 2016, or 41% of SIMS, up from just 1% in 2008. All of those new 3G users have bought the proposition of instant, real-time anywhere access to their data and content, from any device. And as services grow, and network traffic rises, 3 things will become mandatory to handle all this big data:

- (1) Network analytics to address the degraded application performance due to increased network traffic in limited bandwidths.
- (2) Better tiered storage data management and automated data migration strategies, to lower the cost of handling all the data.
- (3) Better metadata lifecycle management, to handle the machine-to-machine, application-generated, and human-input metadata due to the increased applications and data files.

This data growth presents multiple operational challenges to the service providers. To successfully exploit this data, service providers need to put cohesive strategies in place to be able to capture, control and understand the data. This data must be archived (to meet privacy regulations, for example) in expensive storage mediums, which create economics that simply do not make business sense. While it is true the per gigabyte storage cost is declining, the

¹ Ericsson Discussion Paper, Towards 50 billion connected devices, http://www.ericsson.com/au/res/region_RASO/docs/2010/ericsson_50_billion_paper.pdf, November 2010

² TM Forum Report, Big data: Big volumes, big payback and big challenge, September 2012

³ Analysys Mason, The Emerging Asia-Pacific Telecoms Market: Trends and Forecasts 2011–2016, October 2012

increase in data is rising more than the decrease per unit storage cost. Thus, service providers must spend increasing amounts of money to store, back up and manage the data. As a result, many service providers are starting to focus on providing storage infrastructures and solutions that facilitate efficient management and use of big data. They use this approach to better address the operational challenges presented by this deluge of network- and user-generated data.

Creating and implementing a strategy that manages the operational challenges of big data in the telecommunications environment is just one requirement service providers must address. They are also under increasing competitive pressure to leverage their vast big data assets to add value to their customers, as well as to use the data to drive revenue opportunities.

Service Provider Opportunities

Effective use and monetization of big data is about creating a holistic, end-to-end approach that includes storing, capturing, searching and analyzing data. Service providers currently collect (albeit in multiple silos) and store the data. However, the end-to-end organization of this data and the required analytics across the entire data set are not up to the same level, at least in many service providers. In other words, they have yet to evolve from a storage provider to a solution provider.

For the service provider, the combination of big data analytics and business or operations support systems (BSS or OSS) is evolving toward customer experience management (CEM) and subscriber data management (SDM). CEM and SDM provide the analytics applications that take the massive amounts of data generated by the network and subscriber and provide business-focused solutions. CEM uses big data, such as service subscription records and customer complaints, and analytics to monitor, track and improve customer satisfaction at every touch point, and within the network.

The market dynamics recognize these facts. The Analysys Mason report notes that:

- CEM has risen to near the top of the priority lists of communications service providers.
- CEM has become a central focus as competition increases and things like churn, retention and loyalty take center stage.
- Service providers need to provide differentiated value based on something other than offering a commoditized service or product at a more attractive price.

Service providers are taking positive steps to improve their CEM and move to big-data-aware architectures, including:

- Transforming CEM and BSS or OSS systems and processes in order to take advantage of big data and advanced analytics.
- Utilizing data mining and advanced techniques to analyze the increasingly large amounts of unstructured data from social networks and other user-generated content.
- Leveraging the underlying data to gain valuable insights into customer behavior, allowing for the creation of differentiated service plans to improve revenue and increase customer retention, or, in other words, reduce churn.
- Monitor the entire customer experience from network edge or device through the network and including call center and all its interactions to increase retention; provide upsell and cross-sell opportunities at all customer touch points.

Create a Big-Data-Capable Infrastructure

To overcome various operational challenges, and unlock the business value, service providers will need to improve their IT infrastructure, storage management knowhow, and business models. With Hitachi Data Systems (HDS) proven infrastructure and solutions, they can rest assured that they will meet the operational challenges of big data in their networks.

HDS IT infrastructure solutions can help a service provider:

- Monetize content with management and analysis tools.
- Deliver more services faster with common management for all data and platforms, contributing to a simple, more reliable operating environment.
- Improve the economics of big data infrastructures by reducing the costs, and improving efficiency of data archiving, backup and consolidation.

For the service provider facing major operational challenges from its big data, HDS can provide the infrastructure to get more value from content and deliver more services in a cost-effective manner.

With the exponential growth of the telecommunications market worldwide, the challenge of big data can only become more prominent. However, by leveraging the big-data-aware architecture capability of advanced analytics, service providers are better positioned to achieve improved revenue from the boom in content-rich communications.

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