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OPPORTUNITIES REMAIN UNCLEAR – BUT BIG DATA WILL BE A BIG ISSUE FOR CSPs

Big data is approaching the peak of its hype cycle in the IT world. The evidence is plain to see; big data is emblazoned in big letters on taxis in London, in airports across the world and even in television advertising. But what does it mean for CSPs? Surely they've been handling big data for decades?

Well, yes they have, in the sense that they store, analyse and react to millions of call detail records and have done for decades. But no, in the sense that they're new to analysing unstructured data. The more complex data surrounding communications sessions and in particular mobile data transactions is unfamiliar, and they're learning how to extract intelligence from the vast and valuable data they collect and store.

In addition, they're wrestling with understanding the business case for big data investments and it is now clear that two stage approach will happen. To start with CSPs will use big data internally to improve their efficiency and the experience they provide to their customers. That's hard to define in cold, hard cash terms, although some have been brave enough to present an estimate: low single digit percentage revenue increases are expected from these types of initiative. Remember, that represents a huge amount of money in the CSP sector.

Later things will get more interesting – and more complex. CSPs will use the data they collect and analyse to sell on to others. Their data is of evident use but there are substantial hurdles for them to overcome in order to do this in ways that have a positive outcome. There are two main barriers here: CSPs do not want to do anything that will alienate their subscribers. If data is sold on in a heavy-handed way to non-relevant companies, users will be angry and the attempt to gain revenue could have the opposite effect as they leave. The second barrier is in what operators are legally allowed to do with this data. In Europe in particular, CSPs are heavily regulated and data protection initiatives are expected to increase this burden rather than lessen.

Even though few have concrete ideas about what big data will achieve for CSPs, it's clear from the content of this VanillaPlus Spotlight that there is enough to justify investing in big data technologies and expertise right now. Latecomers may miss the boat when the wider revenue opportunities become apparent.

We hope you find the Spotlight informative

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DOES BIG DATA MEAN BIG MONEY?

Big data is being marketed on the promise that the insights it can provide will enable operators to generate both hard and soft revenues. They'll be able to reduce churn and improve the customer experience fairly easily but cashing in on selling data to third parties presents more of a challenge, finds George Malim.

It's easy to get carried away amid the hype surrounding big data but in the end it only has value to CSPs if it creates revenue for them. There's certainly a groundswell of belief that this will be the case but few are brave enough to put forward what effective usage of big data could mean for CSPs' finances.

One of the few prepared to venture a view is Ran Achituv, head of the CTO office, product business at **Amdocs**, who estimates that big data and analytics could generate an incremental 3 to 5% increase in revenue over the next five years. Achituv thinks the strongest returns on big data investment will be in customer experience management. He highlights the opportunities that will come from real-time decision making to optimise care operations and deliver return on investment in terms of deflecting and reducing call volumes.

"Although it's right to pull out the need to put a business case together because investment is needed here, it's hard to give a generic figure," acknowledges, Adrian Simpson, CIO at **SAP** UK and Ireland. "Big data is faster but so what? The value comes from what you couldn't do before and what new things that exist that didn't previously."

"There's lots of data and people are scrambling to take advantage," says Igor Sarenac, vice president of customer management at **Convergys**. "There are clearly areas where you can go. People get excited ▶

about there being lots of data in CSPs but in reality, there was always lots available – not as much or as quickly as there is now. People have changed and now are aiming at the right target but they have to figure out how to do segmentation and how success is measured here."

Martin Wachutka, group director of operations at **Telekom Austria Group**, also thinks those soft revenue benefits are the immediate big data opportunity for operators. "There are two main requirements that have to be fulfilled before you can use big data within CSPs," he explains. "The first involves the whole ecosystem you have within the company to use and gain this data. Lots of data is available but the linkage of the different bits and pieces is key and the knowhow for that is rarely available. The second aspect is the mindset, the challenge of how we prepare the ground to gain hard money. Big data in the past has been just for internal purposes – we had no clue how to make money out of it. To do so you have to think about your business model."

The first opportunity is relatively straightforward: "We can gain a lot internally with big data," he adds. "Money is coming from not losing customers so you save on customer retention and activation costs but selling off data [to third parties] is not really a big case yet – internal use for improving the customer experience is the case."

Monica Ricci, director of product marketing at **CSG International**, agrees: "It is primarily about getting a better understanding of customer behaviours but also your own operational behaviours and areas where you can generate efficiencies," she says. "A lot of those generate soft returns but the hard returns come down to an opportunity to better optimise your offers. They will be more about the package of offers you can provide. Users will see the value in there being one player in the entire ecosystem that understands the sum of the package. This is where CSPs have the best chance to get real and hard revenues from big data by finding a way to be that provider."

The hard case, of reselling insights from big data, hasn't really emerged or crystallised yet. "I see the opportunities but I don't think the market is mature enough," adds Sarenac. "I see handset makers and MVNOs being interested but I don't consider it the mainstream of [big data] revenue."

Wachutka points out that operators are limited by the regulatory and legal situation in regard to their data. They also won't want to alienate their customers. "CSPs are really heavily regulated unlike OTTs which are rarely regulated," he says. "OTTs can do almost anything without fear but we won't get any relief on the legal aspect as Europe, in particular, moves even more towards data protection. The legal situation will become more intensive and restrictive towards us than it has in the past and that is destroying the case for selling data. On the other hand, we're used to this – not mis-using data is in the genes of CSPs."

Others think that as CSPs do more in M2M, smart cities and cloud services, big data requirements become unavoidable and opportunities to monetise emerge. "M2M, smart cities and cloud are three very important opportunities for us and they are almost indistinguishable in terms of how they overlap with big data," says Gareth, head of new business strategy at **NEC Europe**. "There is a primary and secondary market for data, the end step is the secondary market which involves identifying organisations that are really interested in the data."

Ken King, director of telco and media convergence at **SAS**, identifies the hard and soft revenue opportunities. "Primarily it's the better satisfaction of the digital consumer as their needs change and become specific to the individual user," he says. "There are spreadsheets being developed within CSPs where the soft revenue is being identified but a leap of faith needs to be taken that the consumer will respond positively to initiatives in this area by a quantifiable amount. The new business opportunites are on the other side of the ledger where operators are trying to find new business models to compensate for the loss of traditional revenues."

Sarenac thinks there's a case for big data and operators don't need to leap blindly into developing their capabilities. "Today CSPs already spend heavily on improvements to a system without knowing what that impact will be – that can be counter-productive," he says. "Big data can provide much more value."

Ricci agrees that the case exists but thinks it needs time to mature: "Overall the investment in the piece parts that go into big data is potentially larger so I'm leaning towards thinking the immediate revenue opportunity will not be that large," she says. "It will be more about the soft opportunities than the hard ones. The benefits are real but it may not result in a large step change."

The hard case, of reselling insights from big data, hasn't really emerged or crystallised yet

EXPERT OPINION

WHO'S AFRAID OF THAT BIG, BAD DATA?

When CSPs think of big data their first thoughts are of the network and the challenges associated with managing it. However, big data isn't just about CSPs' network management issues, it provides an opportunity to redefine how they interact with customers, partners and across internal departments. Here, Monica Ricci argues that CSPs should lose their fear and embrace the potential of big data.

Monica Ricci: Volumes, velocity and variety are the three Vs at the heart of big data

Big data is the natural consequence of the exponential growth in communications-enabled devices interconnecting across ever-more powerful and ubiquitous data networks. With Ericsson and other network equipment manufacturers predicting many billions devices of devices connecting with the network over coming years, generating more frequent and more complex interactions, the number of anticipated data transactions is truly staggering.

It is only natural that when Communications Service Providers (CSPs) think about big data, their first thoughts, stemming from a traditionally network-centric viewpoint, are of the network. They see a need to manage extreme growth in subscriber data usage, carefully manage investments in capacity, and process network records more efficiently to ensure that revenue leaks are plugged and profits maximised.

But it's not all about threats and challenges, and it's not all about network management. Big data is a topic that applies to many industries, including manufacturing, utilities, retail and healthcare; verticals that are seeing great opportunity in the increasing capability to share data across advanced networks.

Industry analysts, trade and general media have made big data a topic of the day, and not without cause; CSPs are facing strategic decisions concerning the management both of data volumes and of the opportunities and insights that may derive from advanced data analysis.

How big is big data?

To get a feel for the ballooning growth of big data challenges – and solutions – it may be helpful to try to put some definitions and metrics around the phenomenon.

Starting with what big actually means, the framework used by many analysts, including Forrester and Frost & Sullivan, seems to work well. This describes data as big if it demonstrates exceptional growth in dimensions referred to as the 'Three Vs' of big data – data record volumes must be growing rapidly, they need to be collected and processed with increasing speed (or velocity), and they often represent a rapidly growing number (variety) of transaction types.

In reality, most big data scenarios are large in more than one dimension. So broadly, big data is about managing rapidly growing volumes of increasingly complex transactions at accelerating speeds. And while there is no specific benchmark that determines whether data should be considered big, it seems to be widely accepted that big data sets are those that are growing at a rate of at least 40-60% annually.

Taking a more general view, McKinsey Global Institute described big data in mid-2011 as "anything that is outside of the operating parameters of the typical dataset".

Think about any data sets or operational processes that are well managed in your business today. Project your data volumes doubling year on year, and complexity increasing substantially due to additional service information, location data or customer parameters. Imagine processes need to be executed in half the time, just to get through the volumes of transactions. If this vision of the future highlights a point where your systems, your operations or your ability to use customer data starts to buckle, then you've identified a big data challenge.

Importantly for the software industry, and another indicator of growth in interest, IDC predicts that the market for big data solutions – which includes servers, storage, systems and services – across all global industries is growing at almost 40% annually. They forecast this market to reach nearly US$17 billion in spend by the year 2015, at a growth rate seven times that of the overall IT industry. ▶

How big are the benefits?

We know that big data is a processing challenge, but CSPs can gain encouragement from the way that transmission and analysis of large amounts of service and customer data has greatly benefited other industries.

In the healthcare industry, the term big data is associated with the growing digitisation of medical records, x-rays and scans that can now be easily transported and shared among networks of providers, practitioners, insurance carriers and patients. The end result everywhere is faster and better-informed decisions about treatment, resulting in better quality healthcare for the individual at lower cost.

In utilities, big data is largely associated with the rollout of smart grid infrastructure that enables detailed meter data to be constantly polled, providing insight into energy utilisation, and enhanced monitoring and control, ultimately down to the appliance level.

CSPs across the globe have long been grappling with burgeoning network traffic, and the issues and implications are well understood, if not necessarily well managed. But the opportunities that extend from big data reach well beyond efficient management of network traffic. Analysys Mason recently commented that mobile operators stand to gain particular advantage from the size of their subscriber base, the amount of data that they hold about their subscribers and the diversity of that data, including usage records, financial history, payment options and preferences, mobile commerce activity, and location-based data from their movements throughout the network.

Service providers can derive considerable actionable intelligence from these sources. In particular, aggregating raw data into comprehensive customer records, and applying sophisticated analytical tools, will empower CSPs to tailor content and services much more closely to customer preferences and improve their overall service experience.

What's big for the CSP?

Within a CSP environment, there are numerous processes that are both critical to, and derive benefit from, better data analysis. Improved understanding of operational processes related to customer service and financial management – including aged debt and churn – help the CSP to further automate and drive efficiencies out of common tasks. But big data is also about better understanding how and when a customer uses which services, enabling the CSP to better serve the customer and gain greater value from an ecosystem where more and more content and services are coming from third parties. Customer records, usage records and billing records are now used not only by the CSP, but are often by external parties and partners – generally in aggregate fashion. Data-driven insights can lead to value-based price plans, high-performing advertising models, an enhanced customer experience, and data-driven decisions that improve operations across the board in a CSP environment.

Just as we struggle to quantify how big is big, the potential benefits of deploying a big data strategy are not always easy to define. To take one example, however, McKinsey Global Institute, in that same 2011 report, estimates that the application of location-based data alone will generate US$100bn of value to CSPs in the next ten years. Such location data-driven services already exist today, of course, but will greatly improve in the future as the data that fuels them is better processed, better analysed and better understood.

Head in the right big direction

The good news is that CSPs are already moving. Judging by the increasing frequency and urgency of planning sessions and project launches by our CSP customers, CSG has observed big data strategies becoming a greater priority for every service provider. But don't feel alone if you don't think your organisation has taken steps to manage big, or even growing, data; many discussions are exploratory, looking for best practice examples from industry peers and vendors – these still feel like early days.

Ultimately, while processing and management of very large volumes of data is a technical challenge, the insights that stand to be derived from that data offer great potential to increase a CSP's knowledge of its business, enabling the CSP to better direct its network investment, improve the efficiency and lower the cost of operational processes, deepen its knowledge of customers' behaviours and needs and enhance the customer experience, increasing both loyalty and lifetime value.

The author, Monica Ricci, is director of product marketing at CSG International

CSPs across the globe have long been grappling with burgeoning network traffic, and the issues and implications are well understood, if not necessarily well managed

csg INTERNATIONAL

WELCOME TO THE ERA OF BIG DATA

Concepts of big data have evolved as what constitutes big has developed. Big data is applicable to many industries but mobile CSPs could have the greatest opportunity, explains Carlos Pinto a manager with analyst firm Analysys Mason.

Carlos Pinto: Enormous potential to increase revenue and margins

Picture the scene: It's 1956 and a 5MB hard drive is being loaded onto a plane – with a forklift truck. This was the year that Doris Day was in the music charts with her famous song 'Que Sera, Sera (Whatever Will Be, Will Be)'. At that time, Doris Day did not have to worry about digitalised songs being distributed illegally: you would have needed an entire cargo plane full of hard drives to transport the digital version of just one of her albums, and a dozen men working for the whole day just to copy it. Today, it only costs US$600 to buy a device capable of storing all the music albums in the world, and you can easily copy anything on it with the click of a mouse.

This massive advance in device storage capacity and computing technology benefits many more people other than just the music pirates. The large-scale utilisation of internal data is becoming critical to successfully competing in many industries: the era of big data has begun. We believe that, of all industries, mobile telecoms has the most to gain from this evolution, because of three assets: 1) the quantity of customers it has access to 2) the amount of data available and 3) the diversity of that data.

Firstly, the mobile market has very high levels of penetration, even emerging economies have penetration rates of around 100%. Further, mobile is an oligopolistic industry, with typically just three or four mobile operators in each country. This means that most operators have access to data from a large number of customers, and multinational operator groups have access to customers' data from several countries.

Secondly, mobile operators have access to a large amount of data per customer. Data is generated every time a customer makes a call, navigates the web or acquires a product using their phone. Simply by having the phone connected to the operator's network data is being generated, such as location, speed of movement and even biometric data.

Lastly, the diversity of data availability allows mobile operators to achieve a depth of customer profiling beyond that of other industries. Operators have the potential to know a customer's whereabouts, their network of contacts, content preferences, wealth and product preferences.

In the not-so-distant future, mobile operators will also be able to generate revenues from the packaging and selling of this data. With traditional revenues such as voice and SMS under pressure from web-based services and over-the-top (OTT) providers, and with mobile broadband now reaching its peak of profitability in developed economies, we expect big data to be the next source of enhanced profitability. But in order to move on to this stage, operators need to set up the basic processes, frameworks and technical infrastructures needed to capture and manipulate big data.

Before considering big data sales as a source of revenue, operators could use their data access to enhance internal processes, such as knowing customers' value, what type of content they prefer and the type of device they carry. Similarly, decisions on the rolling out of networks and sales channels should consider the location and demographic data of potential customers. Customer care departments should use data to predict when a customer is at risk of churn and act upon it. Customer data will also allow operators to reduce their losses from customer or dealer commission fraud.

Large European operators, such as Orange, Vodafone and Telefónica have, for several years, used the power of data analysis to improve their management decisions. In general, Middle East and African operators are still in the early stages of these processes. There is therefore enormous potential to increase revenues and margins by enhancing the customer experience using data analysis to improve internal processes.

The capacity for data capture, storage and analysis has increased significantly in the last decade, and the mobile industry has a significant opportunity to evolve processes and methodologies to take advantage. 'Whatever will be, will be' might have been an approach in 1956, but we now have the data and technology to plan and impact customer value with much more direction.

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EXPERT OPINION

TIME FOR CSPs TO TAKE OWNERSHIP OF BIG DATA

Although much of their data has been structured and gathered retrospectively, CSPs' transactional data has now been supplemented with real-time data fed from a variety of sources such as the social networks, location based services, device applications and even unmanned devices. The constant influx of rich, real-time data means that they are uniquely positioned to learn more than ever about how their customers use their services, writes Jonathan Shmukler.

Jonathan Shmukler, Product marketing director in Amdocs revenue management

Take a look at any statistic today in the communication industry and you'll soon find yourself swamped by some really big numbers. IDC predicts that worldwide smartphone sales will total over 680 million units in 2012. Cisco reported that global mobile data traffic grew 2.3-fold in 2011, more than doubling for the fourth year in a row at 597 petabytes a month. In addition, average smartphone usage nearly tripled in 2011 while mobile video traffic exceeded 50% of total traffic for the first time. And it's not just traditional communication players that are reporting such numbers. Skype reported that 300 million minutes of Skype video calls are made every day while WhatsApp recently reported a new daily record of 10 billion messages.

Our ability to consume services shows no sign of slowing down and the services offered by communication companies have never been in higher demand. This immense growth means dealing with unprecedented quantities and types of data, whether a call, text message or data session. On the one hand, this data needs to be processed, monetised and managed in the most cost efficient way possible. Large service providers are already persisting several billion usage records per day making it the most expensive component in the storage and database domain. On the other hand, big data represents a great opportunity for service providers to learn more than ever about the ways their customers use their devices and services, and put this knowledge to work creating personalised, differentiated services.

Big data, big opportunities

With the exponential growth of smart connected devices, ubiquitous broadband and advanced applications, it's not just the quantity of data that has changed but also the nature of the data. Most if not all usage data in the telecoms industry has traditionally been structured, transactional data. This type of data is also not necessarily real-time and could be hours, weeks or in some cases months old. Today's transactional data has been supplemented with real-time data fed from a variety of sources such as the social networks, location based services, device applications and even unmanned devices.

The constant influx of rich, real-time data means that service providers are uniquely positioned to learn more than ever about how, when and why customers use network services. Over the top (OTT) players like Amazon, Facebook and Google have long understood the power of consumer data and have used it to introduce contextualised, personalised services into the market place. Service providers are now also realizing the power of big data to transform their customer experiences and the need to manage, analyse and act on data in real-time. More focused, contextualised offers will allow service providers to combat churn, drive satisfaction and potentially slow the erosion of core network services to non-traditional players.

But big data comes at a price. Service providers face a growing challenge in cost-efficiently scaling up IT infrastructure and operations to cope with big data. Despite falling IT infrastructure costs, the sheer pace of today's growth is threatening to push costs higher and margins lower, creating an ever widening gap between the two. Service providers also need a more efficient and scalable reference architecture that makes it simpler, quicker and less expensive to scale their capacity to meet demand. ▶

Big data, big implications

Dealing with big data has several significant implications for service providers.
One of the most pressing issues is the massive increase in event inflow which is being driven by increased data service usage as well the move to real-time charging across all customer types – prepaid and postpaid. Service providers must find ways to cost efficiently rate, store and manage the billions of network events that they receive on a daily basis.

While traditional approaches to IT infrastructure scalability are making inroads into reducing costs and operational efficiencies, the sheer pace of growth is creating an ever widening gap threatening to push costs higher and margins lower. The near exponential growth means that service providers need to adopt new technologies as well as a more efficient and scalable reference architecture that makes it simpler, quicker and less expensive to scale capacity to meet demand.

The communication industry is actively researching and adopting several new solutions that enable a paradigm shift in scalability such as the use of open source databases running on small, commodity servers with directly attached storage capable of almost unlimited scalability. Examples include the use of HBase and the Apache Hadoop Big Data Platform.

In addition, service providers must look towards lean operations that do not increase with system footprint. Many of the new technologies that aim to address scalability and hardware/software cost reduction are built on virtualised machine architecture. It is crucial to have an operational layer that is agnostic to the number of machines - zero or marginal increase in operations when the number of machines grows. As such, the operational layer requires tools, processes and automation to handle any number of hosts efficiently and, from a central administrative viewpoint, with little or no increase in spending when adding additional hosts.

The second implication is how service providers use big data in order to create a new generation of products, services and customer interactions. According to Gartner, big data requires “new forms of processing to enable enhanced decision making, insight discovery and process optimisation." CSPs are realizing that they still have a lot to learn about managing, analysing and acting on an ever growing set of structured and unstructured data.

In terms of truly owning big data, service providers need to take a holistic approach to business intelligence and analytics moving all the way from description to prescription. In other words, when processing data service providers should be striving to answer four key questions:

- What happened on the network?
- Why did it happen?
- What is likely to happen next?
- What should we do about it?

Providing these answers will require a combination of next generation analytic and decision making capabilities coupled with expertise and business processes. Rather than shying away from the complexities of big data, service providers need to embrace the wealth of new information that has become available and learn how to act on it – in real-time. By combining transactional, historical information with real-time unstructured data service providers can look to deliver instant, contextualised offers and services across devices and networks.

Take for example the ability to suggest a specific service to a customer based on their location and propensity to use a specific service. Perhaps a user is looking up information on a music concerts in their area and they regularly listen to a specific jazz radio station online. A service provider could then alert them to the fact that a jazz band is performing in the area and offer them a preview of the bands music in addition to the ability to purchase tickets.

Another example could be advising a user who uses data intensive applications such as Instagram or Pandora to switch to Wi-Fi to avoid data overage charges. The notification could be sent if the user is in the vicinity of an available Wi-Fi connection or if their data plan is about to expire, or a combination of both. While big data still presents several challenges it is clear that the potential value to service providers is enormous. By adopting a holistic strategy to big data technology as well as next generation intelligence and analytics tools service providers can become more proactive in addressing their customers’ needs as well as guaranteeing the highest levels of network service.

DATA IS BIG AND IT CAN BE CLEVER

Gordon Rawling: Big data needs algorithms to optimise supply and demand

CSPs have always had silos of information on their customers and their assets – some might think it's a shame they never did anything with it. Big data provides that opportunity but it will only work if CSPs simplify their objectives, writes Nick Booth.

Compare today's CSPs with the airline industry, where competition for customers and the cost of infrastructure have both been so high that every unit of capacity is catered for. That's why no two airline customers ever seem to pay the same price and empty seats are minimised. They have used data to evolve flexible pricing schemes and created an elasticity of supply that manipulates a demand response for every plane seat.

To be fair, CSPs have never really had to bother. The incentive to mine data in order to fine tune service was never there. There was a vast addressable market of subscribers who pretty ▶

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EXPERT OPINION
VISUALISE YOUR BIG DATA TO INNOVATE AND DIFFERENTIATE

Big data is going through a hype cycle in which many definitions and opinions have emerged regarding what it constitutes. Here, Rani Goel defines big data and explains the business drivers it presents for CSPs

What is big data? There are many definitions and opinions, but most agree that it has three main characteristics, namely volume, velocity and variety. A recently published Gartner research report offers the following definition: Big data is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making".

Communication service providers (CSPs) have all three attributes in plenty, and they've been investing in managing, safeguarding, and storing this data. The opportunity, however, lies in getting this data in the hands of the users who can analyse it easily and make better-informed decisions. While a day old summarised data in a warehouse may be efficient and acceptable for managed reporting on routine information, it's not suitable for fast-changing and unanticipated management information needs.

We are seeing a fundamental shift in a new analytics infrastructure paradigm that enables real-time visual discovery of large amounts of data enabling business users to find critical information in a timely manner.

Three business drivers for change in CSPs

1) Real-time information access.
CSP traditional revenues are declining, they are looking to fill this gap with new sources of revenue. Leading providers are moving to a model to: Create thousands of offers for very targeted market segments, Analyse data in hours, and Innovate and increase campaign yield by making changes to the offers quickly and effectively.

2) Ability to analyse large amounts of data.
CSPs generate massive amounts of data every day

Now, with machine-to-machine (M2M) communications, this volume is ready to grow exponentially. CSPs need to analyse this big data quickly and effectively and are turning to the new analytics infrastructure with in-memory computing to crunch the data in seconds rather than days. As a result, they can do what-if? analysis, model data and run sophisticated data mining and forecasting algorithms.

Hear directly from T-Mobile how analysing very large amounts of data in near real time enables them to innovate quickly and develop entirely new business models.

3) Business-user access to data.
Research by Aberdeen Group into Business Intelligence (BI) found that 65% of business decision makers face a shrinking decision window, making it imperative that business users have self-service access to the data they need to make decisions.

If a picture is worth a thousand words, then why not make data discovery visual? Visualisation provides rapid access to data in a format that's easy for business users to digest and use. According to Aberdeen's research, managers that make use of visual discovery tools are 10% more likely than their peers to access information they need in time to impact decision making.

The value for CSPs lies not in big data itself but the insights they can get about their subscribers, operations and partners with the right visualisation and data discovery tools that allow decision makers to make fact-based decisions. The ability to analyse very large amounts of data at line item detail, quickly and effectively is driving innovation in terms of business models not possible before and that's why there is so much excitement surrounding big data.

The author, **Rani Goel** is global senior director of telecoms industry marketing for business analytics at SAP.

Adrian Simpson: Customers will turn to their platform of choice

Bob Machin: Industry has an aversion to open cast data mining

much took what was offered to them. Why spend money on systems you don't need? That's all changing now, says Bob Machin, director of product marketing at **CSG International,** but it's taking time for the CSPs to get used to. "This industry is still getting accustomed to the idea of saturated markets, downward pressure on revenues and margins and the other unpleasant facts of life in a mature industry," says Machin.

The new market conditions have really concentrated the mind on revenue maximisation, he argues. The onset of 4G and the change it will catalyse in supply and demand, will only make it more imperative to emulate the airlines's skills in capacity management.

As CSPs launch their mobile IP networks, these 4G offerings will only spoil subscribers. Instead of being grateful for all the bandwidth and the raft of new services, they are likely to get greedy and demand even more. Pretty soon they'll be complaining about the lack of coverage and the slow speeds and threatening to jump ship for the competition. Big data could be used to help CSPs compete – if not on pricing, on the allocation of resources.

"Capacity will always be a chasing game in terms of demand," says Gordon Rawling, **Oracle Communications**' marketing director. "CSPs can't tie up capital in advance, until they know the patterns of usage, so big data needs algorithms that can optimise the supply and demand of capacity and automatically fine tune the network."

In theory, big data can act as a sort of automated traffic manager, the better to maximise the quality of network service. If, say, an end user brings a particularly popular cell to a standstill, by downloading a film onto his iPad, the network can respond with a surprisingly subtle piece of customer relations management. The machinery of the network will send a message, acknowledging that the subscriber is downloading a film, and strike a bargain with them: get a higher quality version of the film, if they download at a quieter time.

That is the theory, but whether CSPs can pull this off is another matter. The problem with working with big data – as in unstructured information that comes in the form of social media, images, messaging and video – is that it is vast and vague. Analysing sentiment, in real time, is incredibly ambitious, and probably too much to ask of an algorithm writer at this time.

"For data to have meaning, it is vital to find relevance and make sense of it," says Mike Foster, senior director of infrastructure services at **QlikView**. "CSPs don't have the platforms or technology to analyse it, so they ignore it." But, he argues, partners can offer flexible, associative, self-service analysis at the speed-of-thought. Well he would.

Social media plays an increasingly important role in a CSP's complex big data sets, insists Adrian Simpson, chief innovation officer at **SAP**. "Customers turn to their platform of choice to share information about themselves and opinions of products and services. Sentiment analysis makes vendors respond to customers quickly," says Simpson.

Big data seems to offer so many possibilities and there's such a myriad of technologies, it could be one of those technologies that promises everything and delivers nothing. Unless its users are very focused, argues CSG International's Machin. What insights are we missing out on? "The truth is we don't really know. We've been here before with data mining and warehousing techniques," he says.

The lesson is to reign in your ambition and make the most of what's already available. "We've been detecting an aversion to open cast data mining," adds Machin. Trawling trillions of gigs of data for non-specific patterns leading to possible competitive advantage hasn't worked in the past.

There's more interest among CSPs in applied analytics – taking existing business functions and asking the question 'what more could the operational data tell us?'

So, initially, big data service suppliers can run mediation principally to feed billing and revenue capture. That's a start. Building on that, given what those transactions represent, CSPs could learn more about customers' patterns of usage.

It's a long learning curve.

MAKING SENSE – AND CENTS – OUT OF SESSIONS

Mobile operators are suffocating under a wave of big data created by smartphone traffic and chatty applications. But new real-time technology can provide just the oxygen they need to thrive in this environment.

Historically, Call Detail Records (CDRs) were used in the offline environment as a source for analytics. Most CDRs contained information about one subscriber calling another with basic information such as A number, B number, length of call, and so forth. CDRs were stored in a data warehouse where analysis could be done to generate models about network traffic and subscriber usage patterns.

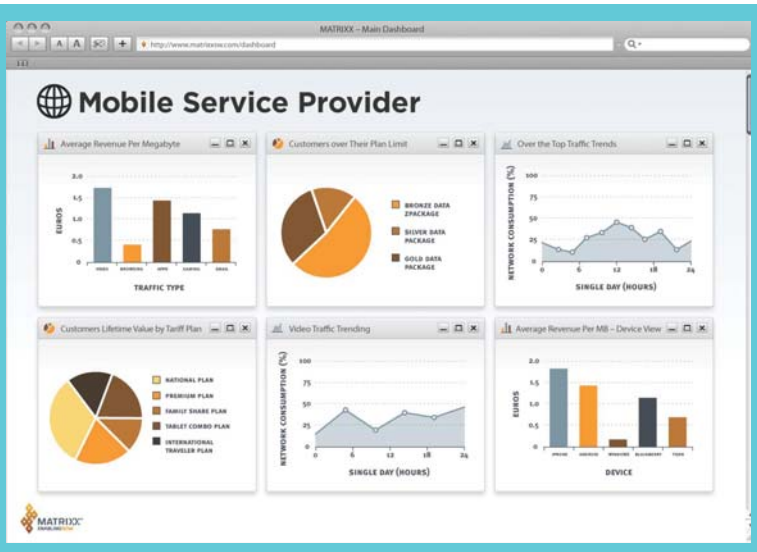
Today, with smartphones and tablets, subscribers spend the majority of their time using data services – not voice. The amount of event detail records (EDRs) this produces not only far exceeds CDRs, but the characteristics of data sessions and the information contained within them has also changed dramatically. This creates a new set of challenges for operators to pull meaningful insight and analytics out of traditional data warehouses.

Smart devices are creating a vast amount of small data sessions, in fact more than half of all data sessions are less than 1 MB. There is a tremendous amount of value locked up in this data which is not being realized. But with the right tools in place, operators can get insight into network usage data before the EDRs even hit the data warehouse.

MATRIXX Insight provides real-time event processing together with an Algebraic Decision Engine to process all network traffic while tracking and aggregating session information. Examples include understanding how much network capacity is consumed by specific OTT traffic, application usage trends by device type, average data consumed per tariff plan, or dropped sessions per region.

The concept is simple. Meter and track any type of information available from EDRs or network probes, and aggregate this data instantly as it comes off the network. Organise, evaluate, aggregate and transform data into a manageable set of information in real-time. Track information in configurable slices of time and by configurable parameters such as subscriber segment.

Combining this ability with high performance, efficient real-time processing allows operators to turn raw network event data into meaningful, aggregated information as soon as it happens. Parallel-MATRIXX Technology provides the most efficient real-time processing available, processing billions of events a day on a small set of commodity blade servers.



Quickly gaining this type of insight about how the network is being used gives CSPs more leverage with OTT players to negotiate partnerships. CSPs can also optimise network operations by understanding subscriber usage trends and proactively planning for them. Most importantly, CSPs can create new pricing strategies by understanding subscriber usage patterns. The drive to capitalise on big data will be achieved by the use of real-time technology which is scalable enough to handle exploding session data, aggregate it and add intelligence in a cost-efficient manner. MATRIXX Software reduces the traditional cost barrier for CSPs to manage all this data in real-time, making the analysis of big data affordable, implementable and profitable.

What operators will see using MATRIXX Software's approach to operator balances

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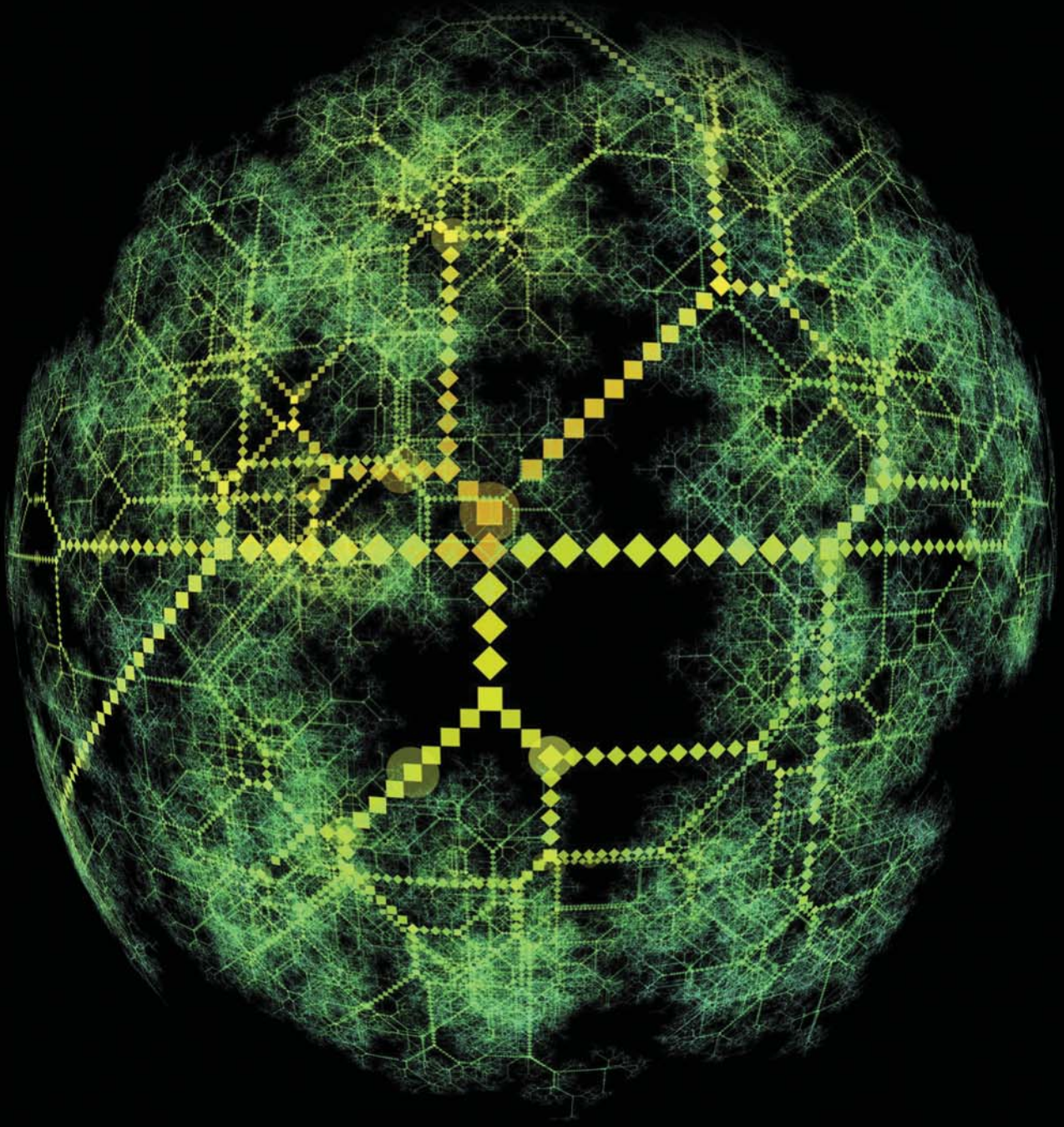

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