



DIGITAL IDENTITY & DATA ANALYTICS

Are users' digital identities at the heart of monetising CSP data?

- **ANALYST REPORT**
Stratcast | Frost & Sullivan explains how CSPs will stop drowning in data and start waving
- **TALKING HEADS**
UXP Systems' Gemini Waghmare argues that CSPs need to empower every user with a digital identity
- **POLICY**
IoT becomes the Internet of Everything and then just how things are



PLUS: Neural Technologies acquires Entereast ■ MDS buys LavaStorm Spend Analyzer and Bunney joins as new CEO ■ Cerillion survey finds two-thirds of businesses unhappy with pricing and payment processes ■ Viavi unveils Velocity partner programme ■ Comptel launches FWD data revenue maximisation product ■ NEC combines services with big data tools for new CEM proposition ■ DigitalRoute scores LG U+ mediation deal ■ Accedian Networks wins Telefónica global network quality partnership ■ Telarix to provide unified routing to PLDT ■ Amdocs lists deals bonanza ■ Griess becomes CSG International chief as Kanan retires ■ Read the latest news, opinion, blogs and features now at www.vanillaplus.com



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Our VanillaPlus Digital Identity & Data Analytics report starts here with 32 pages exploring how big data analytics is becoming an important future revenue stream for CSPs.

The Insight contains a VanillaPlus-commissioned report from analyst firm Stratcast | Frost & Sullivan and includes features and interviews to help you gain a wider understanding into the big data opportunities and pitfalls CSPs face

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Can CSPs beat the GAFAs when it comes to big data?

Conventional wisdom has it that CSPs (communications service providers) have spent most of this millennium napping and have ceded mobile content and cloud services to the giant web companies. George Malim doesn't think they'll miss out on big data analytics

The GAFAs – Google, Amazon, Facebook and Apple – used their web-savviness at the start of the internet revolution to build massive businesses that redefined the global economy. Google has grown to dominate search and advertising, Amazon has revolutionised retail, Facebook has invented a new platform for social interaction and Apple has made communications devices cool. While the GAFAs were building their businesses, CSPs were distracted by the massive investments required in 3G and 4G and fibre networks.

These traditional infrastructure businesses weren't suited to working at web speed in largely unregulated environments and consequently CSP attempts to join the party failed. They looked half-hearted and a little bit like a dad dancing at a teenage disco.

All the GAFAs businesses are now founded on the data they have about their consumers. Google knows what you search for, Amazon knows what you buy, Facebook knows who your friends are and what you're interested in, Apple knows what content you buy and now enables you to pay for items. However, it is the CSPs that have richer data.

CSPs know where you are, what you do on your phone, how much you spend and, because they're old infrastructure businesses, they have a

relationship of greater trust with their customers. Yes, we moan about CSP customer service but compared to a GAFAs, CSP customer service is excellent. Most CSPs have shops, call centres and web self-care. Most GAFAs can only be contacted via automated web query forms and actively shun customer interactions.

CSPs then have richer data, better customer care capabilities and they have a billing relationship with their customers. As more and more traditional businesses from other industries enter the digital services value chain, the data CSPs have and their support capabilities start to become a portfolio of immense attraction. With the need now to federate contextually relevant data insights among all the players in the digital value chain, CSPs could be the providers of the enabling hub that links data from multiple sources together in ways that all businesses can utilise to the benefit of customers.

If CSPs pull this off, they'll become the gaffers – an informal English term for the boss – of the digital services value chain, not the GAFAs.

Enjoy the magazine!

George Malim



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Stephen Sui: Deal will increase big data capabilities

Neural Technologies acquires Enterest to enhance risk and business assurance platform

Neural Technologies has acquired platform software company Enterest. Enterest's EDR Workbench platform will increase the big data capabilities of Neural's Minotaur suite.

Founded in 2003, Enterest customers include NTT and Softbank. Neural's acquisition will mean that its Optimus foundation platform is now able to process

real-time data, dealing with hundreds of billions of events per day and enhancing the capabilities of its risk and business assurance, and many other complementary OSS/BSS applications.

Stephen Sui, the chief executive of Neural Technologies, said: "This is a bold and strategic move for Neural Technologies and we are very pleased to bring Enterest, its customers, partners and team into the NT family. Enterest has a high-quality and qualified team, which produces excellent software, has

a great work ethic and will be a tremendous addition to Neural's existing experts."

He continued: "Incorporating Enterest into the Neural brand will provide additional support to our mediation team, benefiting new and existing customers alike. It will also allow us to invest further in the EDR Workbench platform, which already powers our Optimus solution, allowing both Neural and Enterest customers seamless access to a range of applications and processing high volume data in real time." 

MDS buys Spend Analyzer technology from Lavastorm Analytics, appoints new chief executive

MDS has announced the acquisition of Spend Analyzer technology from Lavastorm Analytics. The product will become MDS Spend Analyzer, an enterprise and SME e-billing and analytics tool that enables business customers of communications service providers (CSPs) to view and control their business telecoms costs. Efficient for both customer-facing and business management functions, MDS Spend Analyzer enables DSPs to present an integrated online view of products and services to business customers, thereby delivering increasing levels of value and control while simultaneously reducing billing complexity and minimising cost to serve.

Spend Analyzer's online customer-centric view presents businesses with a clear and consistent view of all their services, providing them with insights into company-wide usage and expenditure. A range of standard reports is augmented

by custom reporting, enabling them to analyse the detail of their business usage, along with automatic report generation and distribution. Proactive budget monitoring is measured against a range of custom criteria, with issues flagged to the user, providing real-time control and helping to prevent bill shock.

Upon completion of the acquisition in November, the Lavastorm Spend Analyzer team, product, customers, and technical assets will transfer to MDS.

The company has also announced that Gary Bunney has been appointed as chief executive. Bunney will immediately focus on building on its customer portfolio and driving the international expansion of the business.

Bunney brings with him almost 20 years of experience of sales, operations and development, leading real-time revenue management businesses, such as Intec

Telecom Systems and myriad group, transforming them from small companies to £100m turnover organisations. He has also worked with major operators, including BT, Vodafone Group and Telefónica O2.

"MDS will continue to partner with its market leading customers to help them solve their real-time and customer management solutions, while being at the forefront of innovation in the BSS industry," Bunney said. "I'm excited by the great opportunity we have to expand on the excellent work MDS has already done in helping its customers win in an increasingly competitive market."

Previous CEO, Mark Edwards, had been in the role since October 2013. A company spokesperson told VanillaPlus that US-based Edwards has left because he no longer wishes to travel so regularly between his home and the company's UK headquarters. 

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Cerillion survey finds two-thirds of businesses unhappy with current pricing and payment processes

A new survey by Cerillion Technologies, polling the views of more than 200 senior decision-makers in organisations across EMEA, has found widespread unhappiness among businesses with their existing pricing and payment processes.

67% of respondents said there were drawbacks with their current approach, an alarming finding with many businesses adopting subscriptions and therefore, crying out for agile systems and processes to help support their strategic shift.

"It's just one blot on an otherwise positive subscriptions landscape painted by the survey," said Louis Hall, the chief executive of Cerillion Technologies, "but it is a significant one. Over the long term, the subscription revolution will depend on the success businesses have in implementing flexible pricing and payment strategies. For many businesses, delivering a greater range of choice is the key differentiator as they fight to win new customers, retain

existing ones and build competitive edge."

The urgency of this need is underlined by the steady growth in subscriptions that the survey highlights, as businesses strive for predictable recurring revenue streams to drive customer engagement. According to the findings, 69% of organisations are already generating some subscription revenue, with this figure set to reach 75% in three years' time.

The subscription revolution is primarily being fuelled by mid-sized organisations. Indeed, the survey reveals much greater adoption of subscriptions in companies with €11-50 million (87%) and €51-200 million (86%) in annual revenues, compared with 68% of companies with revenue over €200 million and only 55% of companies with revenue less than €2 million.

The direction of travel among all sizes of business, however, is clearly towards subscriptions. Underlining this, the survey

shows a positive shift in the proportion of revenue generated through subscriptions with those earning more than half of their revenues in this way set to rise from 17% today to 35% three years from now.

This has led to a raft of new pricing strategies including bundling, usage-based pricing and pre-pay, as well as a growing trend for organisations to implement more flexible payment models both in terms of type and frequency of payment terms offered to customers. Already today, 74% of organisations offer more than one payment method, and 38% use four or more, showing that offering a choice of payment methods is crucial for many businesses, both in terms of addressing more customer segments and streamlining the flow of money into the business.



Louis Hall: The subscription revolution will depend on the success businesses have in implementing flexible pricing

Alcatel-Lucent joins the ONOS project partnership

ON.Lab has announced that Alcatel-Lucent has joined the ONOS project, the Open source SDN Network Operating System (ONOS) for service providers and mission critical networks and a Linux Foundation Collaborative Project.

ONOS is a carrier-grade SDN network operating system architected to provide high availability, scalability, performance, and rich northbound and southbound

abstractions. Alcatel-Lucent will join service providers, vendors, collaborators and individual contributors to accelerate SDN/NFV adoption and drive open innovation.

"Open source object models are becoming the new baseline for multi-vendor interoperability. ONOS provides a carrier-centric forum where these models can be defined and implemented at an accelerated pace to stay ahead of the monumental shift

towards SDN and virtualisation," said Steve Vogelsang, the CTO for Alcatel-Lucent's IP Routing and Transport business. "By committing engineering resources and becoming an active participant of ONOS, we will be in a much better position to contribute our carrier SDN knowledge and experience to open source initiatives, and will benefit from collaboration across the broader network vendor and service provider communities."

NEWS IN BRIEF

Mobile operators unprepared for A2P monetisation

Market research by mobilesquared and sponsored by tyntec, has uncovered that 75% of mobile operators do not have the measures in place to control and monetise Application-to-Person (A2P) SMS traffic that traverses their network. Although the majority of surveyed MNOs indicated their year-on-year A2P SMS traffic grew between 6% and 36%, less than 25% of mobile operators have actually deployed or updated an SMS firewall since 2012.

Firewalls that were installed before 2012 are unable to provide the message visibility needed to detect and control grey routes and other security threats. Therefore, having

a properly managed next-generation firewall in place is a prerequisite for mobile operators to be able to block security threats, and identify legitimate traffic which can be monetised. The potential of this overlooked revenue opportunity is apparent considering that 56% of survey respondents have experienced A2P messaging traffic growth in the last 12 months, compared to 49% over the prior 12 months.

Viavi Solutions unveils Velocity partner programme

Viavi Solutions has unveiled its new global channel partner programme, called Velocity, to deliver increased value to its solution partners, resellers and distributors.

Velocity builds upon foundational elements of the platform built last year and features a series of enhancements designed to empower existing partners and new recruits to grow their business with Viavi's instruments, software, services and systems for both enterprises and service providers.

With the Velocity programme, Viavi aims to grow its footprint of sales derived from channel engagements and, as a new brand following the separation of Lumentum from JDSU in August, Viavi is expanding its presence in the enterprise-facing market. Velocity introduces several new ways to empower and simplify the sales process, improve marketing resources and ultimately grow mutual business between Viavi and its partners.



Juhani Hintikka:
FWD is designed to eliminate user confusion

Comptel launches FWD data revenue maximisation product

Comptel has unveiled a new system to simplify how consumers purchase mobile data and give CSPs the power to maximise mobile data revenues. In addition, it enables CSPs to capitalise on the significant business potential the next two billion internet users present.

The company's new FWD solution consists of a native application, which lets users buy mobile data packets directly from their Android smartphones whenever they want. Rather than purchasing an inflexible plan based on megabytes or gigabytes,

consumers can select a simple, time-based data option, ranging from as short as a minute to as long as a month, and enjoy full use of the internet.

For example, as soon as a consumer opens up Twitter, or any other app requiring an internet connection, on their mobile device, they get a list of available mobile data offers. The consumer selects their desired option, and FWD connects them to the internet within seconds. Now, they can browse their Twitter feed and explore the internet without boundaries. They can also check her mobile connection status and extend it at any time.

"Mobile users today are often left confused

about how much data they are paying for and consuming when browsing the internet or using their favourite apps," said Juhani Hintikka, the chief executive of Comptel. "FWD is designed to eliminate this – our solution makes using mobile data as easy as making a phone call. Consumers can now understand what they are getting from their operator and consume mobile data in a way that is effortless, contextual, convenient and personal."

The launch of FWD for Android prepaid users is the first step in making FWD a complete digital sales and marketing channel for mobile operators to easily address all internet users.

NEC combines professional services with big data tools in new customer experience proposition

NEC Europe has announced a new offering to help communication service providers (CSPs) improve customer experience. NEC provides a single, unified solution across the network, service and customer layers, designed to reduce cost and churn, and to increase ARPU and differentiation. Taking a holistic approach, NEC combines its professional services and IT and network experience with its automated big data analytics tools. This enables it to deliver a predictive and preventative solution, rather than a standalone network optimisation

service that is commonly offered to CSPs today.

Traditional variables such as voice and video quality, coverage, SMS reliability, data throughput and responsiveness are combined with innovation from NEC Labs to provide a service that can be aligned directly to the subscriber experience, and therefore to the CSP's business.

"Many different factors affect customer experience, and only end-to-end analytics

can provide reliable, proactive problem avoidance," said Ian Ashford, the general manager and head of Carrier Solution Sales at NEC Europe. "NEC's new solution and services provide the comprehensive view and proven analytics expertise that operators need to improve customer experience. Where customer experience is improved, this means that end users subscribe to additional services and are less likely to churn, and the CSP increases its profitability."

NEWS IN BRIEF

Guavus introduces new customer experience analytics suite

Guavus has announced the launch of a new suite of applications to enable the next generation of contextual customer experience analytics that fully illustrate the customer journey across networks and services.

The new application suite enables communications service providers (CSPs) to correlate and fuse petabytes of streaming and operational data with customer data in real-time, transforming the customer experience management (CEM) and marketing functions towards real-time, contextual customer care and proactive business processes. The Customer Experience Analytics suite uses the same

data framework as Guavus' Service Reflex application, which provides insights into service operations, thus providing customers with a complete end-to-end view of the operating environment.

App Annie unveils usage intelligence for CSPs

App Annie has announced the expansion of its usage intelligence product to offer data and insights to benefit CSPs and original equipment manufacturers (OEMs).

The launch of usage intelligence for CSPs and OEM's equips providers and device manufacturers with the right tools to identify and form strong partnerships, understand

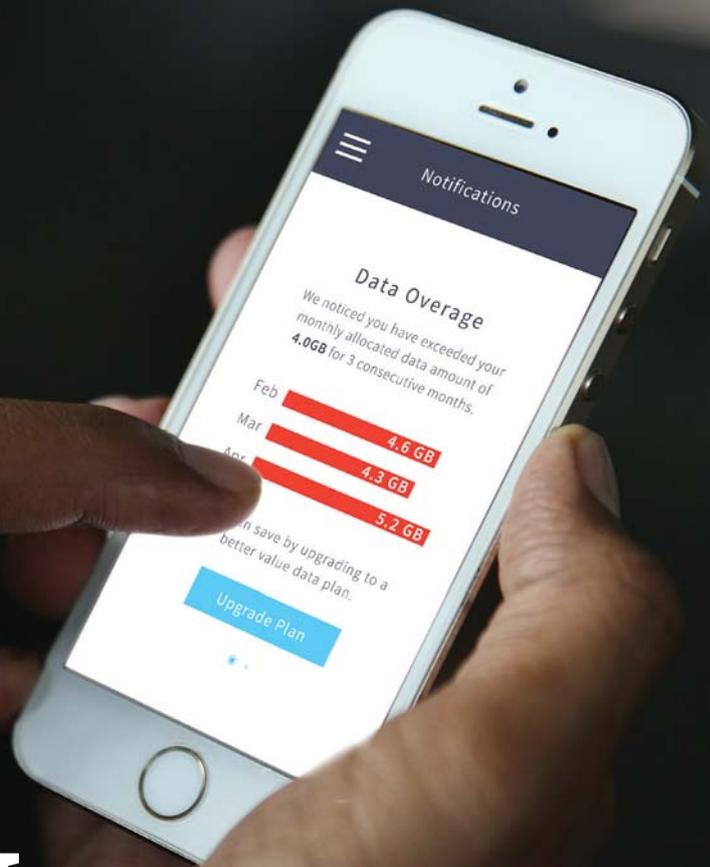
the competitive landscape and diversify their revenue streams.

App Annie aggregates, anonymises and analyses billions of data points producing accurate and granular market data for mobile apps, and now, for devices and networks. At launch, data will be available for 60 countries, across both Android and iOS. "With the evolution of smartphones and explosion in mobile app usage, visibility into how consumers are using their devices becomes even more critical to ensure we are providing the best service for our customers," said Javier Arizaleta, group pricing director at Telefónica, "App Annie's Usage Intelligence gives us unprecedented insight into key behaviour to help drive our business decisions."

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Johan Bergh: MediationZone can be the foundation of important IT transformation projects

LG U+ selects DigitalRoute for billing mediation

LG U+, a CSP formed by the merger of three companies, LG Telecom, LG Dacom and LG Powercom in South Korea, has selected DigitalRoute to replace the mediation components of its BSS infrastructure. In the process, LG U+ will utilise DigitalRoute's Usage Management

extension. The CSP expects to both reduce its IT operating costs and increase the efficiency and effectiveness of its BSS by using DigitalRoute's technology. LG U+'s decision to upgrade its legacy mediation system was driven in part by its need to address real-time rating challenges.

The initial phase of the LG U+ project will see DigitalRoute replace all legacy mediation assets at LG U+ and implement Usage Management for Bill Shock prevention and real-time quality of service control. The second phase of the project, due to commence next year, will include online mediation and the replacement of LG U+'s fixed-line systems.

Johan Bergh, the chief executive of DigitalRoute, said: "We are delighted to add LG U+ to the DigitalRoute customer family and also to extend our footprint in the APAC region, a geography in which we are now making rapid advances. The value that MediationZone brings to CSPs is, as LG U+ has identified, the foundation of important IT transformation projects, and

its impact on both costs and performance is considerable."

DigitalRoute's MediationZone technology, which was selected after a review of a number of alternative approaches, is already the standard for mediation within Korea. LG U+ was quickly able to conclude after a Proof of Concept that its Usage Management offering would add value and meet the company's specific aim of achieving a lean rating approach.

To deliver the LG U+ solution, DigitalRoute partnered with Forelink, an in-region professional company dedicated to software development and IT services, and LG CNS, a subsidiary of LG Corporation that provides IT services.

Accedian signs global network quality agreement at Telefónica

Telefónica has selected Accedian's network performance assurance to deliver a new level of customer experience to its mobile subscribers, business and residential customers across Telefónica's global footprint. Accedian will provide ubiquitous, real-time network performance visibility to deliver the best possible quality of service (QoS) and reliability, building on solutions used by 18 of the world's top 20 mobile operators, and supported by more than 35 international patents.

The Accedian solution unifies QoS visibility over Telefónica's multi-vendor metro and backhaul networks using a standards-based approach. It assures transport network performance for a full range of LTE applications including mobile broadband, VoLTE, video streaming, voice and text messaging, Internet of Things (IoT) connectivity, and value-added roaming services for partner CSPs.

"Thanks to this partnership with Accedian,

Telefónica's customers will be able to take advantage of the improvement in end-to-end network performance assurance. We feel confident of our ability to deliver the highest possible levels of quality of experience (QoE) at all locations we serve, which is translated into transformative opportunities for our customers. We view Accedian as a key partner in this strategic project," said Enrique Blanco, the chief technology officer of Telefónica Global.

NEWS IN BRIEF

Telefónica Germany deploys Comarch OSS

Comarch has completed deployment of a network inventory management consolidation and unification project at Telefónica Germany. Comarch OSS are being used to help Telefónica Germany build a central technology data hub and provide a comprehensive view of the network, which will be used both inside and outside of the company.

Comarch was originally selected by Telefónica Germany to carry out a network merger project arising from Telefónica's acquisition of E-Plus in 2014. As part of that project, Comarch delivered the full OSS service fulfilment environment to Telefónica Germany, including Comarch Network Inventory Management, Comarch Next Generation Network Planning, Comarch Auto Discovery & Reconciliation and Comarch OSS Process Management. The system was developed in close cooperation with Telefónica Germany's network

engineers and completed in less than six months as a fully managed solution, speeding up the network consolidation process significantly.

Following the successful implementation of the system, Telefónica Germany appointed Comarch to help consolidate the legacy OSS in the service fulfilment domain. The main goal of this project, launched in March 2015, is to manage the consolidation and unification of Inventory Management for all technologies: RAN (radio access network), transport, core and fixed access network, within the new company.

Telarix to provide unified routing for PLDT

PLDT Group has chosen Telarix to automate and bring together PLDT and its mobile subsidiaries, Sun Cellular and Smart Communications, into a unified call routing platform to attain advanced levels of

operational efficiencies and service quality.

PLDT, a CSP and digital services company in the Philippines, will be utilising Telarix's iXTools to create a single unified platform for the routing and trading of voice traffic of its various companies. They will also implement Telarix's iXLink, a business-to-business exchange platform with a user community of over 4,000 CSPs, to automate PLDT's fixed and mobile price lists and invoices, and to pre-test routes and ensure quality.

"By bringing its entities together under a shared unified platform, the PLDT group will have a better understanding of all its network components, enabling the entities to work more effectively together in using strategic partnerships and opportunities," said John Tolton, the vice president for sales for Telarix in the Asia Pacific region. "It will also allow PLDT to choose the most cost effective service for sending traffic, be it voice, SMS, wholesale, retail, fixed or mobile."

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**VanillaPlus Hot List: December/January 2016**

The Hot List below shows the companies informing us of recent contract wins or product deployments. If your contract is not listed here email the details to us now marked "Hot List" <editorial@vanillaplus.com>

Vendor(s)	Client Country	Product/Service	Awarded
Accedian Networks	Telefónica, global	Network performance assurance deal agreed across entire Telefónica footprint	11.15
Adaptive Mobile	MTN, Africa	Adaptive Mobile selected to provide grey route controls system across Africa	11.15
Amdocs	M1, Singapore	Deployment of Amdocs Convergent Billing to provide enhanced customer experience	11.15
Amdocs	Bell Canada, Canada	Extension of existing supplier relationship for five more years	11.15
Amdocs	Rogers Communications, Canada	Three-year services agreement reached with Canadian CSP	11.15
Amdocs	Singtel Group, Singapore and Australia	Amdocs selected to support digital transformation programmes	11.15
Amdocs	Telefónica, Argentina	Amdocs Big Data Solution chosen to optimise data management	11.15
Amdocs	Oi, Brazil	Upgrade of Amdocs Business Support Solution, based on Comverse, to deliver new services	11.15
Comarch	Telefónica, Germany	Comarch to support CSP with consolidation and unification of network inventory management	11.15
CSG International	Angola Telecom, Angola	CSG partner Satec to deploy CSG Revenue Management solutions	11.15
DigitalRoute	LGU+, South Korea	DigitalRoute selected to replace mediation components of CSP's billing infrastructure	11.15
Ericsson	Frontier Communications, USA	Ericsson selected to provide and integrate a next generation OSS architecture for CSP	11.15
Fortumo	Viettel, Vietnam	Partnership agreed under which Fortumo will bring direct carrier billing to Viettel subscribers	11.15
Openet	Algar Telecom, Brazil	Deployment of Openet Policy Manager to help deliver next generation network capabilities	11.15
Qwilt	Telecom Italia, Italy	Qwilt deployed to optimise over the top video content for improved customer quality of experience	11.15
Sigma Systems	Tiscali, Italy	CSP chooses Sigma Quote-to-Fulfilment for public administration services	11.15
Spirent	Tele2, Austria	Spirent MobileThink device guides selected to support CSP's SME mobile business strategy	11.15
Tektronix Communications	Cable & Wireless Communications, Caribbean	Roll-out of Tektronix TrueCall RAN geanalytics platform across Caribbean and Latin American networks	11.15
Telarix	Roke Telkom, Uganda	Telarix iXLink price list automation system selected	11.15
Telarix	Encore, Canada	Deployment of Telarix iXLink price list automation system	11.15
Telarix	PLDT, The Philippines	PLDT and subsidiaries to deploy Telarix call routing platform	11.15
Telesign	Swisscom, Switzerland	Agreement to develop and deliver new identity services to enable greater account security	11.15
Teoco	IHS Towers, EMEA	Teoco Asset network planning tool selected by tower company	11.15

Amdocs sees wins in Singapore, Australia and Canada

Singaporean CSP M1 has successfully deployed a convergent billing solution based on the Comverse technology acquired by Amdocs, which will now support M1 as a new Amdocs customer.

The system, now in service, provides M1's postpaid billing with a wide range of capabilities, including improved flexibility in tariff and contract configuration and batch payment processing. At the same time, the solution has seen a twofold improvement in M1's rating and billing cycle time, a key metric that translates into faster, more efficient operations.

"We are seeing improved call rating and billing performance as a result of our new system, and that means increased productivity," said Alan Goh, the chief information officer at M1.

"Amdocs has worked closely with M1 to

roll out the solution smoothly and we welcome M1 as a new Amdocs customer, along with the opportunity to work with them to deliver exciting new services while accelerating business value," added Eric Updyke, the group president of Systems Integration and Operations at Amdocs.

Amdocs is also extending its managed services and related professional services relationship with Bell Canada to deliver, enhance and maintain its business support systems across the organisation for an additional five years through to 2022.

The company has announced a services agreement with Rogers Communications, also in Canada through to 2018. The new agreement will simplify operations and increase efficiencies across multiple lines of business including cable, mobile, wireline, broadband internet and future services.

"Rogers and Amdocs have successfully collaborated on many projects and we welcome the opportunity to continue our partnership by assuming responsibility for select business support systems," said Updyke.

Finally, under a multi-year services agreement, Amdocs is to deliver a single platform for online customer care and commerce, helping Singtel to offer customers an improved and differentiated digital service experience.

Amdocs is to replace various legacy and third-party systems with a new, online, self-service and commerce platform that will enable Singtel to offer an improved and differentiated digital service experience to customers in its key markets of Singapore and Australia. 



Bret Griess to lead CSG International as Kalan retires

Peter Kalan, the chief executive officer of **CSG International**, has announced his plans to retire at the end of the year, following 19 years of service with the company. CSG veteran **Bret Griess**, the current president and chief operating officer, has been named to succeed Kalan as president and chief executive of the company, effective 1 January 2016. In addition, Griess will be appointed to the Board on the same date.

Griess, 47, has served in various senior and executive management roles with CSG for more than 19 years. In his current capacity, he oversees the company's global sales, operations and delivery, client relationships, product development and management. Prior to this role, he held a variety of positions in operations and information technology, including chief operating officer.

Kalan, 56, has served as CSG's chief executive officer and president since December 2007. Prior to his appointment as CEO, Kalan served in a variety of roles including corporate development and chief financial officer.

"On behalf of the CSG Board of Directors, I am extremely grateful to Peter for his outstanding leadership," said Don Reed, the chairman of CSG's Board of Directors. "Under Peter's leadership, CSG has become the leading business support solutions provider in the North American cable and satellite markets, expanded our presence internationally, invested in next generation solutions aimed at the changing video landscape and groomed the next generation of CSG leaders to build upon this legacy. Bret's appointment as chief executive officer by the board is the result of a robust succession planning process and the confidence that we have in this management team to continue to drive long-term shareholder value as has been done under Peter's leadership."

Kalan added: "I am honoured to have worked with such a committed and dedicated group of employees. Over the years, I'm very proud of the work that we

have done to enable our clients to compete in an extremely challenging and dynamic environment. This could not have been accomplished without an active and engaged board of directors and a highly qualified and talented executive team. Bret and his teams have played an integral role towards transforming our company into a trusted partner to the world's leading communications providers. I am leaving the company in good hands with Bret and this broad and deep bench of experienced leaders within the company."



Markus Borchert
Will drive the merged companies' European operations

Borchert to lead Europe for Nokia Alcatel-Lucent if merger completes

Nokia has announced that **Markus Borchert** will become its head of Europe as part of the planned combination of Nokia and **Alcatel-**

Lucent, if the merger of the two companies goes ahead.

Borchert would oversee the combined company's customer operations across Europe, driving the execution of strategy and ensuring superior customer service, underpinned by a strong focus on innovation and quality. He is currently senior vice president of Market Europe at Nokia Networks. He served as president for the Greater China Region from 2012 to 2015 and before that was head of Customer Operations of the Greater China Region.

Borchert would report to **Ashish Chowdhary**, Nokia Networks' chief customer operations officer, who said: "We are delighted to announce the appointment of Markus Borchert as designated head of Europe. He brings valuable regional experience and expertise, and would be a great asset to the management team. I look forward to working with him as we continue to innovate on behalf of our customers, delivering leading products and services and positioning Nokia as the foundation of seamless connectivity for people and things, wherever they are."

Open-Xchange appoints Neil Cook as chief security architect

Open-Xchange, has announced the appointment of **Neil Cook** to the position of chief security architect. Cook will be responsible for security, privacy and encryption features and implementations across all products in the **OX group**.

Cook's initial focus will be continuing momentum around the Trusted Email Service (TES) initiative and working with ISPs and CSPs worldwide in incorporating the principles into their customer offerings. In the long-term, he will also serve to broaden the OX group with particular attention on cross-product security-enhancing features and services, including anti-abuse and anti-spam.

Over the course of his 20-year career, Cook has held a variety of executive and leadership positions with market-leading service providers to build secure, scalable messaging solutions. Prior to joining Open-Xchange, he was chief technology officer of **Cloudmark**, where he also built and led the pre-sales team in EMEA eventually expanding this role worldwide. He was also at **Openwave** for seven years, joining through the acquisition of **Software.com**.

"Simply put, Open-Xchange is leading the charge for navigating today's online world at a time when our fundamental right to privacy is being continually eroded and challenged at a previously unimaginable scale," said Cook. "OX's proposition and philosophy is something completely unique to the market. With 2016 set to be a transformative year for the company, I can't think of a more exciting time to join the leading organisation in this space and I look forward to the great strides and achievements we'll be making together."

"I am confident that Neil's blend of experience and skills will serve OX well as we establish a key leadership position in the growing open-source and security markets," said **Rafael Laguna**, the chief executive of Open-Xchange. "We're quickly gathering momentum and Neil's appointment is a key stepping-stone on the journey ahead of us."



The most frequent point of communication between CSPs and their customers is the monthly bill. On average customers spend 14.7 minutes a month looking at bills

The power of conversation

I love my phone, I look at it 70-80 times a day, according to a survey I recently read, writes Alan Coleman. But when it comes to my network? The best emotion I can muster is indifference



The author, **Alan Coleman**, is the chief executive of Brite:Bill

I lost my phone recently and I lost my ability to know the time, my diary and any form of communication. If I have a problem with my network it impacts the thing I love, my phone, and then I really do not like my communications service provider (CSP).

And yet is that fair? Why do I have such a sense of entitlement? Shouldn't I be thankful and appreciative that 99% of the time I have no such problems? Shouldn't I appreciate the ever increasing speeds my data can fly around the world? The fact that I am connected to my family in every country I travel to? Shouldn't at least some of the credit given to Samsung, Apple, HTC and other be also given to our CSPs?

CSPs have a brand problem. They do wonderful things and are the basis for the revolution in communication I have seen in my lifetime and yet they are seen increasingly as a utility. Someone who repeatedly wants money from me for a service that enables the device I love but I don't give them credit, I just expect them to do their job and let me enjoy my phone.

Apathy and indifference

The problem with this situation is that apathy is not the emotional basis you want your customers to have while you are trying to sell them more services; yet that

is exactly what CSPs are trying to do.

CSPs are not really helping themselves. They should view every interaction as an opportunity to sell themselves, sell the value of their service and seek the emotional buy in of their customer. If I can paraphrase an old adage: Sell them the value, give them the value and then tell them the value you have given them. I have not seen many CSPs doing a great job of this.

The most frequent point of communication between CSPs and their customers is the monthly bill. On average customers spend 14.7 minutes a month looking at bills. This should be a monthly opportunity to communicate properly, build a relationship, continue to point out the value each customer is getting.

Instead we see many CSPs who offer nothing more than confusing, generic invoices that confuse customers and result in frustration. CSPs frequently cite their billing relationship as their most strategic asset. This billing relationship is the basis for their growth strategy. Where CSPs can sell more services to their existing customers.

In a recent survey by Ernst & Young, customers were asked what the most attractive attribute of any new digital service offered by their service provider might be. The answer was that it should be 'free of ▶



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charge'. On one level that may be unsurprising but when the respondents were pushed further on why 'free' was so important it became apparent that the reason was to do with a lack of trust and transparency in relation to the existing tariffs and charges. Customers are so confused and mistrusting of their existing billing relationship that they would only consider new services with their provider if the service was free. This points to the imperative to develop communications that build trust with your existing customers. Only when you have established this foundation will those customers be receptive to new services and new fees.

My observation would be that the emphasis currently is on billing, not on the relationship. A relationship is something you nurture with coordinated, personalised communication. Think of your own relationships. You choose the frequency of your interactions. You have goals for each relationship such as friendship, gain, love or action. You choose your words, your tone, what to say and when to say it. This is the standard of communication required to foster and maintain a relationship and unfortunately CSPs do not do a very good job. To build two-way conversations with customers, you need to understand them, that involves listening to customers, knowing what is interesting to them and understanding their wants and needs.

Redefining customer communications

It is not only bills that are unclear; there is evidence of an uncoordinated communication strategy in many cases. Each letter, bill, email, SMS is sent by a different system and have little or no regard for each other. There is no joined up thinking or evidence that they

know who you are as a customer. OTT players have no such inhibitors and as a result, their communications are thoughtful, engaging and personal. Every communication builds on the relationship.

CSPs have the desire to improve their customer communications. However, many have been held back by an IT infrastructure that was never designed to achieve these levels of personalisation. Today's digital customers have come to expect it and CSPs need to invest in technology that enables personalised customer communications with meaning and memory. If we go back to the comparison with your own relationships: no-one likes a conversation where the other person forgets what you've already told them and asks you the same questions that you've already answered. This applies to conversations with your customers. CSPs need to remember what they've said, what the answer was and what the next logical thing to say to this person would be. This is how meaningful conversations happen and how the relationship is nurtured and maintained. Otherwise you will cause frustration or worse, apathy.

CSPs need to move away from talking at their customers, saying the wrong thing at the wrong time and instead look to strategies to engage their customers on a one-to-one basis with timely, relevant, meaningful communications. They need to choose clear language, say what they mean and be concise. For example, if they make a mistake on the bill, acknowledge that mistake and give a genuine apology, like you would do in your every day life and relationships. This level of transparency enables them to earn the respect and trust and, ultimately, more share of wallet. 

CSPs have the desire to improve their customer communications. However, many have been held back by an IT infrastructure that was never designed to achieve these levels of personalisation

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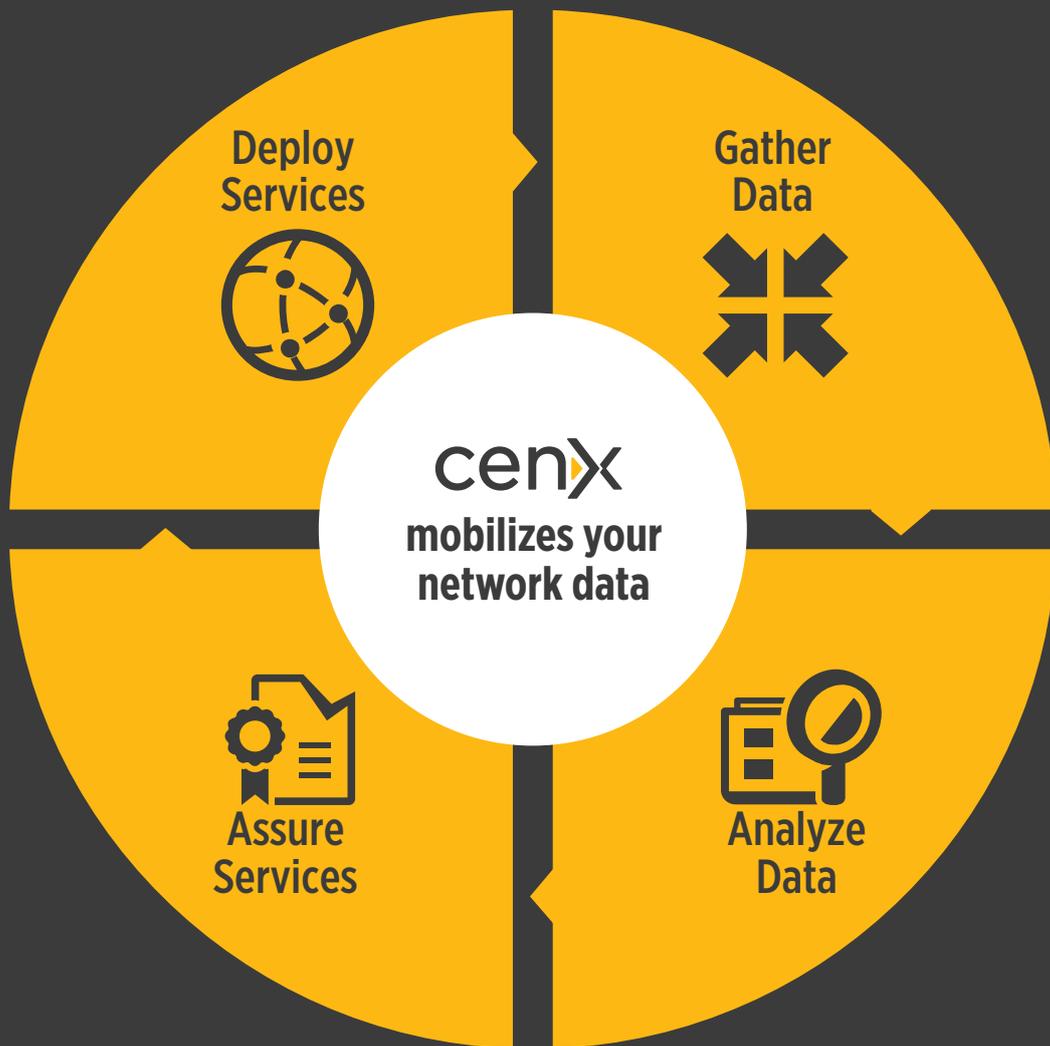


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Gemini Waghmare: The challenge for CSPs is that they have vectored all their existing systems around the notion of a customer rather than a user

CSPs need to empower every user with a digital identity and enable a fully digital user lifecycle

Gemini Waghmare is the founder and chief executive of UXP Systems. Here he tells George Malim that for communications service providers (CSPs) to survive and thrive in the digital services market, they need to position themselves as the broker of users' digital identities. Doing so puts them at the heart of the digital services value chain and enables them to tap into indirect sources of revenue such as advertising and direct revenues from supplying data insights and added value to partners and customers. Their trusted relationships with customers, their physical infrastructure and their ability to handle complexity at great scale positions them well to achieve the transformation from CSPs to digital service providers (DSPs)

VanillaPlus: CSPs used to focus on serving traditional customers that they knew only by billing account details or a specific device. How, as they enable digital users in multiple locations and using different devices, are they bringing users' digital identities together with their traditional processes?

Gemini Waghmare: From our point of view every service is digital. In television, for example, CSPs, for years and years, simply shipped set top boxes that users would plug into their rooms and watch TV at a specific time. Now you can watch anything, at any time, on all sorts of devices – a fixed service has become digital; accessed by a digital ID. ►



The need to manage the user lifecycle and what the user lifecycle has meant has been rudimentary so far



When you think about the lifecycle of digital user, you have to think about digital identity (ID). If you want to offer digital services, you have to offer a digital ID - you can't even have a relationship with Apple, for example without one.

The challenge for CSPs is that they have vectored all their existing systems around the notion of a customer rather than a user. A customer is a billing address, a bill payer and a SIM card but, to be a digital services provider, a CSP has to deconstruct that paradigm. A user might be my children or my wife or a guest using services at my home. CSPs need to support all the users associated with an account and without moving on from the traditional concept of a customer, they can't become a digital service provider. I'm not only talking about next generation services here, this affects all services.

VP: Is this transformation as simple as CSPs asking customers to establish digital IDs?

GW: It's certainly not simple. CSPs have a lot more to worry about than just a name and password and they have much more than just a digital identity of their customers. That could turn out to be valuable but it is complicated by customers having multiple IDs within their CSP such as phone number, set top box, SIM card and billing ID.

For example, on a CSP website I might use a username and password but on a mobile device I shouldn't need to because I can be identified by the unique SIM card in my device.

Further complexity is added because of the existing sources of truth and identifiers by which CSPs already know you. They need to federate these while maintaining the individual identities associated with each existing system. There are only two approaches to achieving that. One is to make it really difficult and customise and redefine all their existing systems. The other is to overlay their existing systems with the notion of a digital ID and begin to federate all their existing users and create a new user lifecycle.

VP: You've mentioned the need to manage the user lifecycle. What is the importance of that?

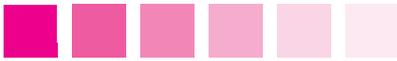
GW: The need to manage the user lifecycle and what the user lifecycle has meant has been rudimentary so far. CSPs have required user ID for something as simple as viewing their bill and that's it. Recently, ID usage has become a little more robust and CSPs are using digital IDs to enable users to log into services such as TV anywhere. Beyond that sort of service there hasn't been much need to go beyond having one ID per household.

Now CSPs are starting to offer more digital services such as cloud, fitness or health services and need a digital ID for every member of a household. The provider now has to identify who you are, whether you exist, what mobile device you have, whether you have an entertainment service and then they can onboard you to the service you want to use.

Most CSPs can't onboard you to a service without having a billing relationship with you but digital service providers will do that. Netflix or Box will let you come on board without you having a billing relationship with them. They allow the notion of groups and profiles and those ultimately enable monetisation of each user.

VP: This will be complex and costly for CSPs to achieve. What's the business case and how will they achieve a return on investment?

GW: There are three facets to the business case. The first is addressing the original argument that CSPs will become only dumb pipes. All the digital service providers at the moment are non-CSPs so all the CSP is needed for is providing the pipe. If CSPs want to play in the value-added services market they must manage the digital relationship and have a digital services platform to bring all of these services together. If they don't they will not have a role to play in digital services beyond selling capacity on their pipes. ▶



User lifecycle management, which is our business, is what customer relationship management (CRM) was 20 years ago



The CSP owns the network so they will always play a role and, unlike a company such as Apple, they can't be cut out of the mix. They will always play a role. There are typically one, two or three providers bringing fibre or LTE to users so why wouldn't a consumer want to use their broadband provider as a hub for all their activities?

Another advantage is the trusted relationship that CSPs have with their customers. We trust our CSPs because they have the billing relationship with us and they are local. In addition, there is more inherent trust in them about the data we give them. That trust presents a lot of value for the end user and the CSP.

A final observation is that CSPs are regulated and legislated in the market a user resides in. Companies such as Google are far less regulated and, as privacy concerns increase, users are looking to the attributes that CSPs already have to secure their data.

The second business case is the monetisation of new services. If you look at how CSPs have invested in fibre, the connected home and the digital life there is an amazing opportunity for them. You currently need about ten digital IDs to access all your services but if you brought all those together there's a value-added opportunity for CSPs to become the digital ID provider. The great thing about that approach is that CSPs would place themselves at the heart of the value chain.

Finally, being at the heart of the digital value chain would mean that digital interactions all happen within a CSP's environment and they would gather valuable user data from that. Google makes no secret that by having a relationship with a digital user it is collecting all sorts of data about them. If CSPs were to do the same it would open up a huge amount of user data insight and enable indirect monetisation models such as advertising as well as direct monetisation opportunities for the CSPs of the future.

CSPs understand this opportunity and at the moment are gathering themselves and regrouping to take advantage of it.

VP: Do you see CSPs becoming a hub that federates data from all the different digital services providers and other organisations in traditional sectors? Could they turn this into a significant revenue stream?

GW: I hope so – we've bet our business on it. and we think that there's good reasons why:

VP: CSPs' huge volumes of data, their trusted relationships with users and their status as infrastructure owners seem to be coming together to give them good prospects of becoming successful digital service providers. What will UXP Systems' role in that be and how do you see the company developing?

GW: User lifecycle management, which is our business, is what customer relationship management (CRM) was 20 years ago. At some point CSPs will look back and say to themselves can you really believe all we had was the relationship with the bill payer and the device, not everyone in the house?

Internet players have forced the user lifecycle to be very robust so you interact completely digitally with them but that will help CSPs to initiate digital relationships across all users. It's one thing to enable a single digital user relationship but it's quite another to say here's a platform to make it easy to plug into an ecosystem of connected cars, smart homes, entertainment, IT services and many other digital offerings.

CSPs can do that and will serve as a hub for data with monetisation models attached. We're already supporting customers such as Cable & Wireless, Rogers, Telus and CenturyLink to enable digital IDs. The CSP of the future will integrate and interact with apps like Nest to control their home or Fitbit and many, many others. CSPs can monetise a lot of this and act as the broker. We believe this is what the value chain of the future looks like but without digital ID it isn't going to happen.



The authors are, **Karl Whitelock**, the director of Global Strategy (left) and **Troy Morley**, a strategy analyst (right) for Operations, Orchestration, Data Analysis & Monetization (ODAM) at Stratecast | Frost & Sullivan

Introduction

Like an old song on the radio, offering voice, text and data services has become so familiar to mobile and fixed-line customers that they take network connectivity for granted. They view getting connected and staying connected with equal footing to an electrical outlet, modern plumbing, the air we breathe and even the food we eat. For them, network connectivity is an essential part of life. Just ask anyone about the importance of social media, especially those between the ages of 12-30

Yet, when it comes to a digital lifestyle on the grand scale delivered by communications service providers (CSPs) even with the most advanced versions of LTE, the industry remains stuck in the past. Innovative proficiency has not kept pace.

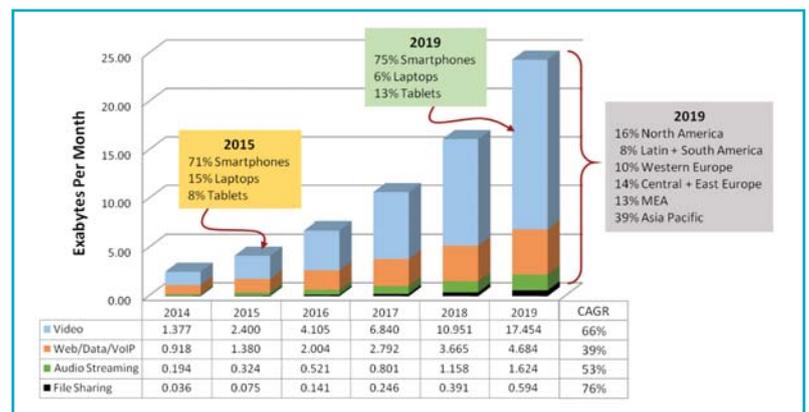
Technology will continue to evolve and bring us more, much more in the coming months. The challenge lies in our ability – as a collective industry – to manage the data that will come from these services in a cost-effective manner. Network usage insights must also be used in a way that brings value to suppliers, business customers and consumers, while honouring all data privacy concerns.

The CSP data conundrum

The engine creating new business opportunities and driving service innovation, as shown in **Figure 1**, is indeed data. Lots and lots of data. It should be no surprise that the digital economy is about data – constant streams of it to and from customers across global networks, combined with the details that identify one customer from the next. Presently,

CSPs, businesses and individuals are drowning in data as they struggle with how to make the most sense from it. The communications industry has yet to really move beyond just data and into a world where information derived from data can make a difference; the true information age. But, times are changing.

Figure 1: Projected global mobile data traffic 2014 - 2019



Source: Cisco VNI Global Mobile Data Traffic Forecast Update 2014-2019, Stratecast

Many CSPs regard the vast volumes of data traversing their networks from two perspectives: the cost of carrying capacity and the competitive insight that can be gained from data usage analysis.

The unceasing growth in data volumes represents a cost – something that must be dealt with for CSPs to remain in business. Networks must continually scale up to handle more traffic. Additional spectrum is required to meet advancing customer needs. And, the business management and operations systems must address these larger data volumes, often in real-time.

Analysing network usage data to derive information about customers, products, services and the business itself, is strategic for any organisation – CSP or otherwise. Gaining insight from this information yields the real pathway to business success: intelligence. Delivering the business analysis that data contains, to the right place, at the right time, defines relevance. All are core competencies of the data-driven operations, orchestration, and monetisation functions that will keep a CSP's business viable for years to come.

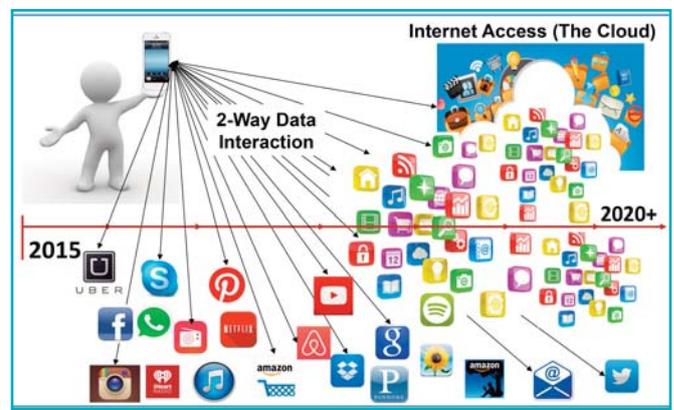
Supporting the transport of large data volumes, and analysing customer network usage, is not an either-or situation. As data volumes rise, the cost increases; yet, so does the potential for greater intelligence and better business results. While it has been said that data ownership is the newest currency of business, and the gateway to long-term success, applying the results from CSP data analysis is the key to opening the door to smoother operations, more satisfied customers, and hopefully increased revenue.

There's an app for that and lots of data to go with it

From a customer's perspective, everything is an app today, as shown by **Figure 2**.

Data movement across a network can be substantial for some app types – streaming movies, self-made video, or gaming entertainment. It can also be minimal – a simple information search or a weather check. Over the next two to four years, an increased outpouring of data from new customer apps and

Figure 2: Today it is all about data and the mobile app



Source: Stratcast

services involving virtualised networks, virtual or augmented reality, 3D and 4D printing, and 5G networks, will be commonplace. These core capabilities are the basis for smart cities, smart cars, smart government services, and smart health/wellness care, to name a few.

Extracting the most benefit from network and customer sources is both challenging and overwhelming for network operators and the businesses now delivering value within the global connected marketplace. Understanding what data to tag as useful, poses an equally concerning dilemma. As one can appreciate, such data volume increases place a heavy burden on all previously installed business and operations systems.

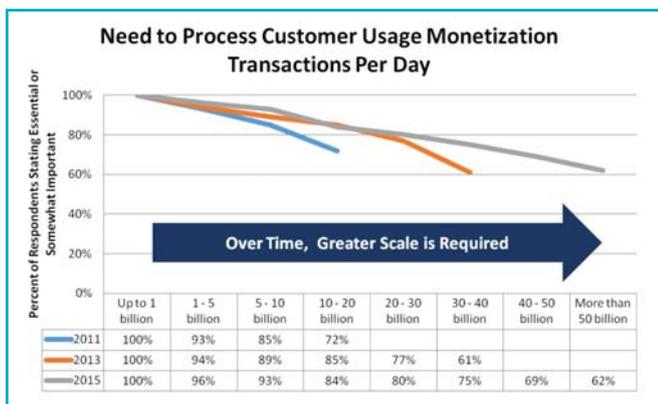
Billing data collection and processing: a hard reality check

Results from Stratcast's now annual – previously biennial – survey of global billing solution suppliers, concerning the key requirements their service provider customers place on them, is shown in **Figure 3**. Most of the 2015 respondents indicate that the number of usage transactions requiring collection and processing for billing purposes is much greater than 20 billion per day, which was an unheard of amount in 2011 when Stratcast first conducted this survey.

In 2015, more than half (62%) of the monetisation solution suppliers in the survey noted that scaling or developing systems with processing capacity to address 50 billion or more

transactions per day is a realistic planning objective. They believe that such processing volume will satisfy CSP business needs for the next three years, as 4G LTE networks become the dominant access medium.

Figure 3: Usage transaction processing volume per day



Source: Stratecast 2015 Biannual Billing Requirements Global Market Supplier Survey

Stratecast believes that an objective of 50 billion transactions per day is realistic, however it could prove inadequate in the near future. Why? The continued deployment of LTE and evolution to LTE-A, the growth rate of user apps, and increasing consumer acceptance of mCommerce as a more secure way to make personal payments, will likely create a higher level of transaction volumes than what each category individually projects. In addition, the longer-term quest for 5G networks capable of handling 1000x greater throughput volumes and 10x–100x faster data rates, will push demand for systems to process ever higher daily transaction volumes.

Presently, Stratecast is aware of two network operators that are approaching 20 billion usage transactions per day, for monetisation purposes; and at least three additional CSPs processing more than 100 billion transactions per day, for network operations needs. While equal in importance and throughput capacity requirements, transaction volumes for the monetisation and operations processes are different. Network operations teams need to see every transaction from every part of the network – hence the 100+ billion level. The monetisation processes are concerned with transactions that relate to measurable, accountable, and chargeable usage, which often means the aggregation of multiple records, and thus a lower

number of transactions to process. In both cases, transaction volumes are significant.

The expanding role of purpose-built analytics for communications

Before the term big data reached the peak of its industry hype a couple of years ago, CSP business management and network operations insight analysis had already delivered many solutions designed to address day-to-day customer, service, and network management concerns. These purpose-built data analysis and management functions take on many names, which are still relevant, and in fact have gained importance in certain circles inside and outside CSP operations and customer management centres.

In the past, installed operations and business support systems focused on internal network and operations needs according to a specific design purpose. These included, for example, network fault monitoring, billing mediation, customer experience management, and revenue assurance. These systems each involve a data collection and analysis function. However, little or no effort was made back then to deploy a common data collection and analysis model that could be shared among multiple systems and processes. Even today, a network fault management solution monitors for operational issues tied to network elements, network nodes, and network databases. It is completely self-contained. It does not look at the performance management or service management functions – so closely related to fault management – because a fault management system does not collect the type of data needed to support performance or service management.

Integrated network fault, network performance, and customer device monitoring solutions are now available, but only from a select number of suppliers, some of which combine network and customer data to deliver customer-centric insight. A concerted effort is underway among service assurance and test and measurement suppliers to combine these capabilities and bridge the gaps between network management, service management and analytics.

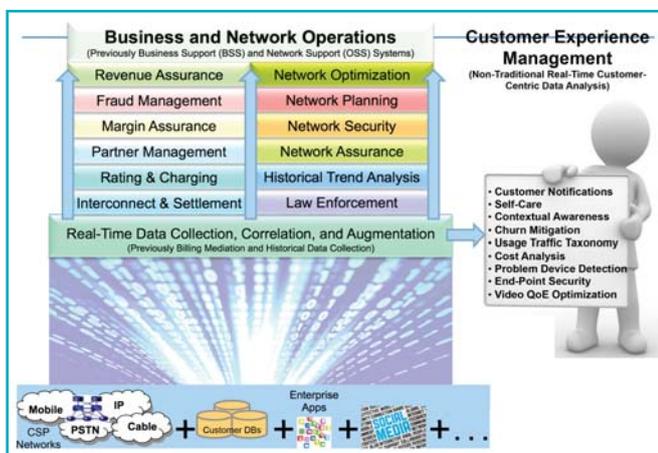
As another example, billing mediation was originally designed to address the data collection, aggregation, and correlation needs



of the billing process and nothing else. Then, approximately four years ago when the common data analysis story was first voiced, the idea of using billing data for multiple business purposes started to gain traction. Some CSPs have recognised the importance of multi-function solutions as a means to reduce operating costs, improve data integrity, and to form the foundation upon which advanced customer services can be supported.

In yet a third example, working with network usage data and customer details to understand the customer experience, while not a new topic for Stratecast, has been labeled by some as the network-facing part of customer experience management, also known as customer service assurance (CSA). CSA covers a broad range of customer, network, and business management functions. CSA is a growing aspect of new technology trials, management of existing services, and in the validation of key operational parameters tied to new service offerings. CSA measurements can take on many forms and address multiple business needs. For example, CSA is becoming a major factor in the determination of quality of service (QoS) levels with certain customer-sensitive offerings.

Figure 4: CSP business, operations, and customer experience data analysis processes



Source: Stratecast

Regardless of what CSP network operations, billing, or customer experience management functions are called today, as shown in **Figure 4**, there is growing evidence that the CSP

data analysis processes can best benefit from using a common data collection and analysis approach. Using a single platform, for example, rather than separate solution silos, can minimise operating costs, and deliver an enhanced customer experience by bringing cross-functional awareness to CSP work processes.

Bringing the business, network operations and customer experience processes together is not a new requirement. However, the number of use cases today that are tied to integrated use of network and customer data is rapidly climbing, and quickly becoming the de facto approach to end-to-end customer management. Responding to customer solution offering updates and relaying service change needs to partners, must be addressed at market speed. CSPs are rapidly realizing the value of real-time purpose-built data analytics and its importance to business success.

Data analysis brings new business models: prepaid time-based data access

Customers look for an easier way whenever challenged by pricing or usage complexity. For example, prepaid customers in the Asia Pacific, Eastern Europe, and African regions continue to seek out alternatives to the megabyte mobile data plans now provided by network operators in these markets. In addition, international travellers are fixated on the high price of data usage while roaming. Many of them, if not most, turn off their data services to avoid paying inflated roaming charges.

While there are numerous externally-facing partner and customer management needs as just described, there are also countless internal business processes CSPs must not overlook. Many of these challenges, especially those involving the use of data to generate new revenue opportunities, can be addressed with purpose-built analytical tools and out-of-the-box thinking. For example, why is everybody so concerned with the technology-driven and data-focused perspective of today's digital society? One of the answers lies with data-intensive service affordability.

While customers in mature markets may be engaged with postpaid, multi-gigabyte mobile data plans that often exceed US\$150 per month, there are billions of people in many global

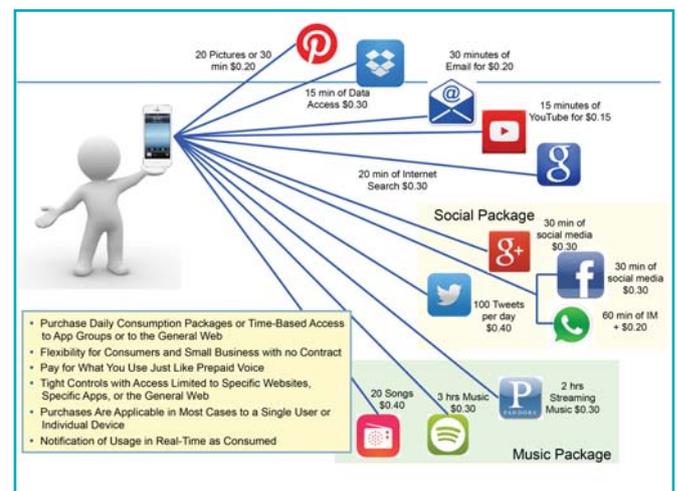
markets that cannot afford such levels of spend. In the Philippines, which is a market with more than 90% prepaid customers, mobile data is not mainstream because customers have a small amount of disposable income, and always look for free Wi-Fi before turning on their mobile data. Customers in other geographies – and not just in emerging markets or while roaming – reach for Wi-Fi first, as a way to minimise their chance of overshooting their allowable data plan limits. Several questions come to mind with this observed customer behaviour, namely:

- How will customers globally benefit from data-bloated new technologies such as 3D printing and virtual reality that are becoming mainstream for some businesses?
- How will business customers pay for the new service offerings that are sure to come with these expansive technologies?
- Will consumers pay for the bandwidth needed to make personal usage of 3D printed materials a viable option, especially if their only means of internet access is a mobile device?
- If 5G makes as big a difference in the way data passes across the radio access network (RAN), as 4G did within the 3G world, how will such an increase in data volume be accounted for and billed so as to not overpower the budgets of even the most significant postpaid data users?
- Will prepaid users be taken out of the data monetization and service experience equation altogether?

The answers to these questions and others are what will power new innovation amongst data monetisation suppliers and define business models yet to make a mark by CSPs the world over.

As a way to address the mobile data access affordability problem, consider for a moment the concept of time-based mobile data access. Time-based mobile data involves a business approach that customers have been trained to understand for years: pay for minutes of use. Shown in **Figure 5**, time-based mobile data means that a customer can purchase app-specific, Website-specific, group bundles, or full internet access in measures of time rather than megabytes or gigabytes to be consumed. Payments are prepaid, and usage is continuously metered to show the customer how much time is remaining for each data-access package followed by the use of policy to administer usage constraints.

Figure 5: Hypothetical example of time-based mobile broadband access



Source: Strategast

Is time-based mobile data a good strategy and positive revenue-generating approach for the small number of CSPs that have engaged in it already? Only time will tell, however, when this approach was first executed in the Philippines more than a year ago, 3G mobile data traffic went from a trickle to more than 10 million users in less than 12 months. To be successful with time-based data access service plans, an organisation must apply a good amount of effort towards network data usage analysis to understand the cost in traffic carrying capacity verses the revenue needed to justify these costs. Once pricing definitions are determined, CSPs need to be aware that what works in one market or region, may or may not be profitable in another.

Policy-enabled real-time charging, and insights from CSP network data traffic, can now be combined to create a new level of personalised experience, based on mobile data consumption pricing. This is much different, and requires a lot more usage analysis than traditional megabyte/gigabyte pricing strategies. While not the answer in all markets and for all customers, providing mobile data in terms that are more easily understandable by customers makes good business sense, if the new pricing plans meet reasonably-defined CSP profitability requirements.



Data analysis and unlocking the value of customer behaviour

Data analysis is playing a larger role with some CSPs, as they grasp the significance of real-time customer interaction. But, there is still a long way to go. Customers today are used to dealing with problem resolution and decision making at internet speed, propelled by the omni-channel marketing push of the retail industry. With this mindset, CSPs are in various stages of rising to customer demand mostly through self-care service options. But, when it comes to technology issues or service concerns, customers want action and immediate problem resolution. For example, how do each of the following real-world use cases play out from a customer's usage and billing perspective?

- What do customers do if they experience network compatibility trouble with a recently purchased device?
- What if a customer has problems with a device OS upgrade?
- What about a customer that is suddenly unable to access the internet or a certain app that previously worked?
- If the network detects a malware intrusion from a potentially infected customer device and locks out the customer account or just the device, how is the customer notified and what steps can the customer take to resolve such issues?
- Most importantly, how are customers informed about data usage compared with postpaid usage plan caps or prepaid authorisation limits?

Without real-time notification of usage, for example, postpaid customers can easily exceed a data plan limit. Some CSPs still allow the customer to continue usage when this condition happens, but at a premium rate with no notification. In other situations, mobile roaming activates premium charges per data volume consumed. In both cases, the result is bill shock and customer complaints.

What if a postpaid customer runs out of data usage quota before the start of his or her next billing cycle? For CSPs in many parts of the world, postpaid customers are rare. A prepaid SIM is the norm rather than the exception. So, when a postpaid customer in these regions meets or exceeds a data plan limit before the billing cycle is up, many CSPs extend additional data volume by automatically bumping up the

customer to the next usage tier, and then sending a notification of both the data usage limit increase and corresponding additional charges that now apply. But, this practice is not universal, especially in markets where the majority of mobile customers are postpaid users; and, until very recently, the previously described bill shock situation in these regions has been the norm rather than the exception.

A business critical and potentially revenue-generating opportunity for CSPs globally lies with immediate and actionable impact analysis, to understand and predict customer behaviour based on network usage or billing record data. Then, with that insight, deliver an enticement to only the affected customers as a token of added value and perceived concern about them individually.

Recently, a network operator using a purpose-built data analysis toolset enabled its marketing-level analysts, rather than IT or data science specialists, to look for demographic-specific customer usage changes in network access and service usage. Through a series of steps, this organisation identified approximately 15,000 customers out of more than 30 million that were voluntarily curtailing the use of mobile data services the last three days prior to the automatic renewal of their monthly postpaid billing cycle. These customers were more concerned about data overage charges – when they exceeded the contract limits of their monthly data volume allotment – than with an always connected lifestyle. These customers had decided that paying a higher data usage amount to stay connected was not equitable enough for continuous access of a popular social media application. Most of them reverted to the free Wi-Fi route.

The remedy to this situation was early CSP detection of such behaviour and then a personalised offer to top-up their data plan for access only to the social media app of most importance until the billing cycle refreshed. This action resulted in a new avenue of revenue for the CSP with an almost 20% take rate by the customers who received the top-up offer. This new service offering, as an added benefit for the CSP, significantly improved the experience of the affected customers.



Conclusion

Network operators have been collecting, sorting, aggregating and correlating customer usage data to address several internal business operations and monetisation needs for years. All of them have recently come to an understanding of the power of gaining insight into their customer base, and in delivering the right level of anonymised customer awareness for their partners. Customers are the beneficiaries of this process as mobile digital content, mobile cloud-based apps, and even advertising becomes more individually focused around the things that matter most to them. Indeed, the era of personalisation is not just about mobile devices, connected wearables, or even smarter daily services associated with where a person lives and how they travel. The era of personal data collection by trusted parties is making life a better experience, but it also comes with a challenge and a price.

Central to the world of personalisation is real-time data analysis and usage awareness. Real-time has one meaning if applied to the connected car, where low latency and high-volume data exchange is critical. Real-time has a different meaning when making an individualised pricing plan offer available for anyone using a particular application, and whose mobile tiered data plan is about to exceed a usage limit. Both real-time situations are important to those involved. Delivering the right data at the right time is the challenge, as contextual awareness now plays a solid role in data usage analysis.

The reward is significant to CSPs that use customer insight analysis to create competitive advantage through delivery of service capabilities with high customer appeal. Harnessing customer data in a proper and secure manner is the key to business success, customer satisfaction, and a means for curbing unnecessary regulation. The price for managing customer data requires CSPs to transform their business processes to a real-time operating environment. The price includes higher standards for keeping data secure, so as to keep customer trust high. The price also means that real-time customer usage data collection and analysis must be tied to a real-time charging and billing solution, to get the added benefit that customers hope for and CSPs dream about.

A new era of customer insight analysis and monetisation strategy is now unfolding. The challenge comes to those organisations that can get the real-time customer data collection, charging, and billing process right. Right for the customer, with enticing contextual service offers while keeping their data secure; and right for the CSP, with increasing revenue from an ongoing supply of new service offerings. Some organisations are moving swiftly, while many others are still waiting to engage with the right supplier that can make real-time data collection, analysis, and charging a reality. The real question is: what side of the fence is your organisation on, both now and a few months from now? Straddling the fence is no longer an option, as competitive opportunities that only last for hours, or possibly minutes, are becoming the norm rather than the exception. 

Stratecast

F R O S T  S U L L I V A N

About Stratecast

Stratecast collaborates with its clients to reach smart business decisions in the rapidly evolving and hyper-competitive Information and Communications Technology markets. Using a mix of action-oriented subscription research and customised consulting engagements, Stratecast delivers knowledge and perspective that is only

attainable through years of real-world experience in an industry where customers are collaborators; today's partners are tomorrow's competitors; and agility and innovation are essential elements for success. Contact your Stratecast account executive to engage our experience to assist you in attaining your growth objectives.

www.stratecast.com



Company summary

Founded	1993
HQ	Beijing, China
Employees	Over 14,000
Revenue	Undisclosed
Customers	China Mobile, China Telecom, China Unicom, AIS (Thailand), Zong (Pakistan), U Mobile, Nepal Telecom, Hello Nepal, the Telenor group and more.
Partnerships	Member of TM Forum and the NGMN Alliance.
Financial Status	Privately held

BSS products with integrated analytics

Veris

The company's BSS solution suite, Veris, includes the core products of billing, customer relationship management (CRM) and business intelligence (BI).

- **Veris Billing** – The modular system provides end-to-end billing capabilities including mediation, real-time rating and charging, policy management, interconnect and settlement, and partner management, multiple levels of convergence such as network, service, payment, and integrated purpose-built analytics capabilities. Its real-time self service capabilities enable innovative concepts like transferring resources to friends, transforming spare resources into others, and customising monthly plans.
- **Veris CRM** – This system supports omni-channel interaction with customers – in store, online, over the phone, via email, via social media, or through a CSP-branded self-help app. AsialInfo's SVT (Single Version of the Truth) architecture means all channels share the same workflow and data, to allow customers to start in one channel and finish in another seamlessly.
- **Veris BI** – A suite of business intelligence software products for the telecoms industry, it provides real-time operational and strategic insights, and is built to support big data initiatives. Veris BI processes disparate structured and unstructured data, to produce actionable intelligence. According to AsialInfo, the insights gained from Veris BI enable CSPs to improve customer experience, boost revenue, and cut costs.

Key differentiation and competitive pressures

Using some of the world's largest CSPs in China as a proving ground, AsialInfo has found success with its Veris suite of BSS in other parts of Asia, and more recently, in Europe as well. What sets apart this suite from other solution offerings is the tight integration that Veris BI has with the rest of the suite, particularly with Veris Billing. Numerous functionality modules from the Veris BI suite can be plugged together to allow real-time analysis of customer usage behaviour, allowing CSPs to understand their customers' context better, increase customer satisfaction and revenue and reduce costs.

Company summary

Founded	1985
HQ	Quebec City, Quebec, Canada
Employees	Approximately 1,500
Revenue	US\$222 million
Customers	Global customer base includes Tier 1 and 2 wireline CSPs, wireless operators, cable MSOs, network solution vendors, enterprise LAN/WAN, education and research, and government, aerospace and defence.
Partnerships	MEF, CENGN, Ciena Blue Orbit Ecosystem, HPE OPEN NFV Ecosystem, ALU Cloudband Ecosystem
Financial Status	Public

Telecoms test and service assurance solutions

Test and measurement With myriad field and lab instruments designed for fixed and mobile networks, EXFO streamlines test and monitoring cycles and makes the transition to new technologies both simpler and faster.

Optical – A wide, range of fibre test and characterisation solutions: from connector inspection kits, OTDRs and iOLM, up to dispersion and optical spectrum analysers.

Transport and Datacom – Solutions covering SONET/SDH, OTN, Ethernet and converged multiservice networks up to 100G.

Access – Solutions for deploying high-speed, triple-play services in the last mile: wideband copper, xDSL, VDSL2 bonding and vectoring, VoIP, data and IPTV.

Performance Analysis – 4G/LTE network simulators, dedicated benchtops and modular platforms for lab optical, transport and datacom testing.

Service assurance and analytics Service, subscriber and network analytics; active probing; passive probing and device agents. EXFO provides an end-to-end view into the subscriber experience (E2E SX) based on the level of experience measured, analysed and reported from subscriber, service and network perspectives. Key solutions include EXFO Xtract open real-time analytics platform.

Key differentiation and competitive pressures

EXFO empowers CSPs and network solution vendors to improve the performance of their networks, and the service experience of their subscribers, by designing intelligent, automated and cloud-based test and monitoring solutions. EXFO also delivers contextually relevant analytics. EXFO couples these capabilities with an end-to-end view of the service experience.

EXFO's inherent expertise, acquired over 30 years, encompasses recent technologies such as voice over LTE (VoLTE) and network functions virtualisation (NFV). This experience enables the company to transform data into actionable intelligence for improving the end-to-end service experience.

EXFO's approach is to design: data collectors, intelligent applications that make collection simple for CSPs, and the analytics to bring it all together. EXFO moves CSPs forward with solutions to cover the entire loop from service turn-up to the subscriber's device and back.



Profile by VanillaPlus

Company summary

Founded	1997
HQ	Warrington, United Kingdom
Employees	Undisclosed
Revenue	Undisclosed
Customers	Customer base includes CSPs, DSPs and MVNOs in Europe. Key customers include: ACN, BT, Dixons Carphone, eir, iD Mobile, Telefónica UK and TalkTalk.
Partnerships	Technology partners include: Brightstar, Bottomline Technologies, Equifax, Getronics, IBM, MasterCard, MATRIXX, 20:20 Mobile, Oracle, Red Hat and Tech Mahindra.
Financial Status	Privately held

Revenue management products with associated analytics

MDS Customer Management Platform (CMP)

MDS CMP is a cloud-based, real-time convergent billing and customer management solution that features rating and charging and policy, fulfillment capabilities, integrated analytics, and self-care. CMP addresses both the enterprise and consumer market.

Convergent across networks, services, and payment methods, CMP allows service providers to combine all their billing needs on a single platform. Multi-dimensional rating capabilities support custom price plans, flexible bundles, and discounts.

CMP's customer management capabilities provide a full view of customers and their services, improving customer care and the customer experience.

Integrated business analytics provide a deeper understanding of customers ensuring a better experience, while reducing costs. Embedded analytics within CMP helps to anticipate and deliver the services that customers want most.

CMP features multi-tenancy to support multiple MVNOs or to allow a provider to launch its existing brands into new verticals.

Key differentiation and competitive pressures

MDS CMP is entirely cloud-based, designed for enterprises and MVNOs and to be complementary to a CSP's existing infrastructure. This gives the carrier an ability to transform into a digital service provider with reduced risk. The solution allows CSPs to enter new markets rapidly, try out new business models, and offer new products and services, quickly, without upfront costs for infrastructure and lengthy implementation cycles. The company's managed services combined with its size and geographic focus has created an enviable reputation for successful delivery of projects. The company's strategy for focusing on MVNOs and the B2B market accelerating CSPs to move into the digital services, appears to be paying off.

Company summary

Founded	1983
HQ	Stockholm, Sweden
Employees	170
Revenue	Undisclosed
Customers	More than 110 CSP customers in more than 50 countries for CEM, service assurance and network monitoring. Selected customers include: TeliaSonera, Telenor, Tele2, Singtel, Telefónica, Belgacom, T-Mobile, Bell and Three.
Financial status	Privately held

Data analytics credentials and products

Polystar helps CSPs to unlock the value of big data and monetise assets more effectively through extracting valuable analytics data points and insights from the vast volumes of user and network data that CSPs generate and store.

The company delivers solutions that link network analytics with the user experience at CSPs. The company's systems include real-time network monitoring, as well as subscriber and marketing analytics solutions. Polystar's tools help CSPs to understand their networks and customers better or help marketing teams to design personalised, targeted offers in order to deliver the best possible customer experience.

Polystar offers flexible deployment models and its solutions can be rolled out as standalone analytics systems with their own interface or integrated into big data systems from other providers. Either approach enables Polystar to deliver rich insights into customer and network behaviour.

Network Insight Real-time network analytics enables CSPs to prevent churn, retain high-value and strategic customers and improve overall customer satisfaction by delivering the best customer experience through outstanding network performance and quality.

Customer Insight Customer Insight solutions help CSPs to deliver a superior service experience, understand their customers better, reduce churn, and improve operational performance.

Key differentiation

Polystar's primary differentiation is that, uniquely, it offers support for all network technologies in a single solution, from 2G to 4G and VoLTE, which enables streamlined usage across network types. The company's solutions for network and customer insights are integrated, so a seamless drill-down can be performed.



Company summary

Founded	1996
HQ	Vienna, Virginia, United States
Employees	160
Revenue	Undisclosed
Customers	Global customer base includes Tier 1 CSPs and OTT providers in Asia, Europe, North America and South America. Key customers are: América Móvil, AT&T, Deutsche Telecom, Twilio, Sprint, Switchco, Telefónica and Verizon
Partnerships	The Telarix Technology Alliance Partner Programme includes: Amdocs, Arptel, Ascom, IceHook, NxtGn, PurgeFraud and XConnect
Financial Status	Privately held

Revenue management solutions with purpose-built analytics

Telarix iXTools	The company's solutions focus on wholesale revenue management. iXTools covers all areas of interconnect business including: <ul style="list-style-type: none"> • Billing, routing and provisioning • Trading, settlement and dispute management • Traffic and quality management • Bilateral and carrier agreement management • A comprehensive fraud defense suite • In-depth business intelligence and analytics
Telarix iXLink	iXLink is an information exchange platform that enables CSPs to automate the exchange of business documents for the interconnect processes and to electronically share documents, such as pricing quotes, rate and dial code changes, numbering plans, invoices, and declarations. iXLink has over 4,000 members with 40 million transactions monthly.

Key differentiation and competitive pressures

Telarix addresses what it calls Interconnect Business Optimisation, which aims for more efficient carrier-to-carrier relationships through its portfolio of wholesale solutions and associated analytics capabilities. iXTools can be a pre-integrated suite or delivered as standalone modules. The iXLink exchange service allows members to apply business rules that are specific to each partner and/or service to validate transactions, meet internal business objectives, and capture errors so that the sender can be notified immediately. Telarix is a market leader within the wholesale revenue management domain, though it continues to face competitive pressure from other suppliers and clearinghouses.

Company summary

Founded	2011
HQ	Toronto, Ontario, Canada
Employees	90+
Revenue	Undisclosed
Customers	Customer base includes CSPs in North America, EMEA and Latin America. Key customers include: Telus, Rogers Communications, CenturyLink, Cable & Wireless Communications and Cable Bahamas.
Partnerships	Extensive partner ecosystem with 40+ vendors including: Ericsson, Cisco, ThinkAnalytics, Nokia, Genband, Nest, Fitbit and Aria Systems.
Financial Status	Privately held

Identity driven service enablement platform

MINT Digital Experience Engine	The MINT Digital Experience Engine works with existing billing, customer care, and identify management systems. It is an overlay for managing customer relationships beyond the billing account. MINT enables the creation of user hierarchies that provide users delegated access to manage their specific set of individual, shared, or cloud-based services. MINT enables CSPs to manage the digital lifecycle of every user consuming services – not just the account holder responsible for the bill. By overlaying existing legacy systems, the solution expands the possibilities of service offerings and business models; adding user-centric business processes to simplify user access journeys, unify services around users, and individually personalise the service experience. Usage data is powerful for CSPs, however most activity is logged at the household or device level. With MINT usage data is logged at the individual user level. This user data can then feed personalisation and recommendation engines, targeted advertising, analytics and campaign management systems to deliver fully personalised user experiences while maximising the monetisation of a service. MINT also automates the onboarding and registration of devices by using similar processes, including automated device association and username-driven registration processes, largely eliminating manual legacy processes and complex account numbers or unique device identifiers.
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Key differentiation and competitive pressures

UXP Systems, and its MINT Digital Experience Engine, allows CSPs to move beyond the limitations of their legacy systems and the billing relationship, to provide individual-user-centric service personalisation. User-specific usage data provides more value to CSPs; by deepening CSP understanding of individual users when multiple users share an account. The company has created a new software category, so competition is limited at this point; making UXP Systems a company to watch in the months ahead.

The Question for operators

How do I deliver digital service experiences for all users, across all services when my back-end systems are anything but digital?

The Answer

Identity-driven digital service enablement through the

mINT Digital Experience Engine



UXP Systems' **m**INT Digital Experience Engine eases the transition to digital service delivery for operators with an identity-centric approach:

- 1 Enabling new and comprehensive user journeys via User Lifecycle Management (ULM), enriching legacy systems to digitally serve every individual user, seamlessly
- 2 Federating disparate usernames and credentials into one single digital ID; allowing one ID to access operator self-care, apps, and third party services
- 3 Supporting flexible role management for household members and the delegation of access to services by entitled members to other digital users
- 4 Mapping users to mobile devices for device-based login; supporting standards including the GSMA's Mobile Connect™, SAML and OpenID
- 5 Providing seamless and immersive integration to third party over-the-top, connected life and cloud services via an identity driven Service Gateway
- 6 Capturing interaction data from any service or screen at the digital user level to personalize, enrich and monetize the experience

The **m**INT Digital Experience Engine is designed to work above legacy BSS/OSS systems to create a digital transformation layer that delivers next generation digital service experiences for users and opens a new world of cloud and OTT possibilities for operators.



Customer insights turn into business benefits for CSPs

Data analytics is a powerful weapon but it must be laser guided or you will waste a lot of time, money and manpower, writes Nick Booth



Justin van der Lande: In technical terms CSPs still have a long way to go

One of the dilemmas facing the modern communications service provider (CSP) is that they haven't exploited their subscriber base as ruthlessly as their counterparts in other industries. Perhaps in the long term, that might be a good thing, because the higher levels of trust customers have in CSPs might eventually be a bonus when we all start using our smartphones as a payment mechanism.

In the meantime it appears that CSPs have much to learn from Facebook and Amazon's ability to find out what their customers want and sell it to them. When telecoms software company **AsialInfo** commissioned research into this, it discovered that European CSPs think they're two years behind the so-called GAFAs – Google, Amazon, Facebook and Apple – when it comes to exploiting personal information.

"In technical terms CSPs still have a long way to go," says analyst Justin van der Lande at **Analysys Mason** who led the research for AsialInfo. Whether CSPs should be investing in more technology or more

techniques is a moot point. It is clear they are both not getting the right insights and also failing to act on those they do get. The study ranked CSPs into four groups, according to their competence in customer analytics. The biggest category – dubbed The Unbelievers – comprised a majority of CSPs that had no vision of what they wanted and no tools.

Should CSPs become like the content providers? Arguably no, because then they'd be trusted about as much as Facebook. "Customer privacy is taken very seriously," says Dr Andy Tiller, the vice president of product marketing at AsialInfo, "but it's within the CSPs' control to use data sensibly in a way which provides value to their customers."

A priority would be to change some of the established business processes because the data that needs to be analysed is stuck in different silos and difficult to share within the company.

Throwing money at the problem doesn't help, says Kevin Stanfield, analytics product manager at **MDS**. If ►



The problem for smaller CSPs is that they neither have the budget nor the in-house expertise to exploit the opportunities that data analytics could present

the wrong people are asking the questions, the money you invested in their analytics systems will have been wasted. It's important to realise that data analytics, like all IT projects, must have tangible business cases. Being able to analyse huge amounts of data quickly is not enough.

CSS should choose their data analytics battles carefully so they understand the business and can target it and measure it. "Knowing something about your customers is not the same as being able to take positive actions," says Stanfield. All too commonly, Stanfield says, the only reaction data insights evoke is 'so what'.

The problem for smaller CSPs is that they neither have the budget nor the in-house expertise to exploit the opportunities that data analytics could present. Avoiding the arms race for bigger and faster data analytics can be an advantage. Smaller CSPs can benefit by being much more focused and only concentrating on what's important. The use cases around network performance and quality are most compelling, says Stanfield. When this data can be overlaid with customer data such as lifetime value, contract status or profitability, the value of that information multiplies.

CSPs who can combine OSS and BSS data can make much more advantageous decisions but, without due consideration to the data model that underpins the analytics, it's all a waste, Stanfield says.

Amazingly some CSPs still try to upsell to customers who are complaining – because analytics told them to.

The most instant gratification a CSP could enjoy from data analysis would be looking at BSS and OSS data for unusual usage patterns. "Much can be gleaned from calling patterns. Mitigating abuse or fraud through identifying an inappropriate pattern would work," says Vic Bozzo, the vice president of sales and marketing at **Telarix**.

One small significant tweak that CSPs could make would be to add a layer of context to all the BSS and OSS information they already have, according to Jim MacDonald, the vice president of global marketing at **UXP Systems**. The way that some CSPs manage video on demand exemplifies this. The business and operational data tells you the account that is ordering the video services, but not the actual user. By getting more detail and creating user profiles on a video on demand service a CSP can start issuing user-specific recommendations. The head of the household isn't the one that falls for those tempting offers, so the kids should be targeted.

One CSP found that the purchase rate for households where specific user profiles were created within their accounts was 81% higher than when they hadn't. Data analytics has to be locked onto a target like a laser. "A return on investment in data analytics can never be assured," says MacDonald.



Dr Andy Tiller: It's within the CSPs' control to use data sensibly in a way which provides value to their customers



Vic Bozzo: Mitigating abuse or fraud through identifying an inappropriate pattern would work



Network data collection and analytics provides the insights needed for a smooth transition

New networks and new services mean we're now entering a different industry to traditional telecoms. What's needed are data collection and analytics capabilities so communications service providers (CSPs) can assess their performance, monitor their progress and take proactive action. Here, Claudio Mazzuca, the vice president of the Transport & Service Assurance Division at EXFO, tells VanillaPlus how he sees CSPs overcoming the challenges they face by utilising data analytics internally, to ensure the smooth running of their businesses and networks



Claudio Mazzuca: Agility and efficiency in turning-up new services while assuring excellent user experience will be what sets one provider apart from the others

Claudio Mazzuca: The speed in which CSP networks will evolve over the next decade will be staggering, and for good reason. Today's networks are struggling to deal with the growing pressure consumer demand is putting on all facets of the network. CSPs are looking to deal with this through the transformation to more agile, software-defined networks which at their core will require more automation in both service delivery and end-to-end (E2E) Quality of Experience (QoE) assurance. This new network will require CSPs to adapt their internal processes and systems, while requiring them to rethink how they build real-time visibility into the E2E performance of each service, as

this will form the basis for their competitive advantage moving forward.

VP: What impact do you see the network evolution to virtualisation with NFV, software defined networking (SDN) and self-optimising networks (SON) having on data analytics?

CM: NFV, SDN and SON are major technological disruptions that will require new approaches to the management of networks and subscriber experience. Network, service and application performance instrumentation coupled with E2E real-time analytics capability will be fundamental to the CSP's ►

IN ASSOCIATION WITH EXFO



transformation to this next-generation agile network. In addition, this network will be very intelligent and dynamic; therefore visibility into the performance of all processes and systems, both virtual and physical that are involved in the service chain will also be an important dimension to analyse. This correlated view will provide a full view of the service performance, and will ensure proactive resolution of issues.

At EXFO we understand this paradigm very well and, over the years, we have been very active in embedding our knowledge and experience in our solutions to enable CSPs to undertake the transformation to virtualisation and cloud based service delivery without losing sight of network and service performance and user QoE.

VP: So, what role do you see EXFO having in helping CSP through this transformation and beyond into the new era of digital services?

CM: As mentioned earlier, it's important to take into account that the new telecommunications environment is going to be very flexible and dynamic. Static network architectures, technologies and rigid OSS/BSS platforms of the past are being incrementally replaced with networks, services and OSS/BSS platforms that can adapt to requirements of new services that are more prone to peaks in bandwidth demand and user QoE, such as video and VoLTE.

EXFO is at the forefront by actively participating in the work of standardisation bodies and forums such as ETSI, BBF, TM Forum, MEF, and developing new solutions in close co-operation with CSPs.

Our work is focused on two things.

First, from an end to end (E2E) service perspective, enabling right level of instrumentation to network, service and the applications participating in the service delivery – along the service chain and across the networking layers (Layer 0 to Layer 7).

Second, real-time contextual analytics with embedded heuristics applied to the data ingested from diverse instrumented sources – probes, user devices, geolocation, network elements, application servers, routers, switches and storage right from user to the data centre traversing RAN/fixed access, IMS, metro and core and covering technologies like optical, 3G/LTE, xDSL, ethernet, IP, voice, video and rich communication services.

EXFO enables CSPs to continually and proactively improve the overall performance of their networks and ultimately improve the service experience for their subscribers.

Expanding on its 30 years of testing and service assurance heritage, EXFO has now transitioned into the E2E QoE market for mobile and fixed network operators, and their ecosystem of equipment manufacturers.

VP: Many companies seem to have similar claims, how is your solution unique?

CM: What makes EXFO unique is our 30 years of deep expertise in understanding of what it takes to deliver high QoS and user QoE from an E2E perspective. This expertise spans across three vectors: Along the service delivery path (physical/virtual); Along the network layers from the physical layer to the application layer (Layer 0-Layer7); and finally, along the understanding of CSP methods and procedures going all the way from the field turn-up and maintenance to network operations.

We couple cloud-enabled, intelligent test and monitoring solutions with a comprehensive real-time analytics platform, which delivers E2E view of service experience.

This rich analytics is a key to CSP stakeholders such as marketing, customer care, network operations, planning and engineering.

By utilising our field-portable solutions, performance monitoring solutions, interfaces to third party data sources and real-time analytics capabilities with embedded heuristics, our customers are provided with precise and actionable intelligence about the subscriber experience. I don't think any other vendor can do that as well as EXFO.

VP: Which areas do you believe will benefit from end-to-end service experience analytics?

CM: Multiple CSP service areas will benefit from this end-to-end service experience view, however the most immediate CSP drivers are in the QoE assurance of mobile based service, such as VoLTE, VoWiFi and video (OTT) services. Ensuring the high-quality delivery of these services requires a multi-layered view of the E2E physical infrastructure, IP transport, signalling and media performance of the network. EXFO has partnered with its CSP customers to deliver E2E analytics solution that are deployed and delivering this real-time E2E service experience view. 

We couple cloud-enabled, intelligent test and monitoring solutions with a comprehensive real-time analytics platform, which delivers E2E view of service experience

www.exfo.com



Data monetisation will enable an entire new digital ecosystem as it matures

As communications service providers (CSPs) grapple with monetising user and network data, there's a danger of being overwhelmed by the barriers and losing out on the tremendous opportunity that is shaping up on the horizon

When it comes to harnessing the analytical insights that exist in the network and customer data, CSPs might have started later than other industries. Yet, the nature of the data generated and held by the CSPs, gives them a significant advantage. It's highly granular, has real depth and brings together the user's location, their usage habits, their payment capabilities and many other attributes. CSPs have started to use this information to improve the performance of their own businesses and the experiences they provide their customers. However, a wider opportunity exists in transparently exchanging these insights with third party partners in a format that delivers a higher value proposition to the end subscribers – whether they belong to the operator or the partner.

"It's clear that CSPs are motivated to monetise their real-time data in the same way as large web players do," says Akil Chomoko, a senior product marketing analyst at AsialInfo, "but from our recent research most CSPs feel they're about two years behind the large internet players in the monetisation of customer insights."

The research conducted by AnalysysMason, uncovered that when it came to monetising data, 62% of operator respondents believe they are more than two years behind the internet players. The research, which polled 50 CSPs globally, found that, while CSPs are used to mass marketing campaigns, only 26% of those surveyed currently have the ability to target a segment size of 1,000 subscribers or fewer. In addition, only 8% of CSPs can personalise messages to an individual subscriber.

However, monetising customer insights isn't only about delivering targeted marketing messages. The breadth and variety of applications and use-cases is immense. CSPs in different markets take very different approaches. Some operators use the insights

internally to improve customer experience or to deliver marketing campaigns for their own business. Some others share anonymised insights with third party businesses from various verticals, who lack analytical capabilities of their own.

Chomoko thinks it's about defining a context and making relevant propositions based on that. "For example, let's suppose Operator X and music streaming service, Spotify, jointly launch an exclusive Spotify Premium product for young female music fans attending the Glastonbury Music Festival. This offer is specifically designed to target users of competitor streaming services, such as Napster, with an attractive real-time Spotify promotion," he explains. "Advanced technology is available today for Operator X and Spotify to trigger targeted campaign messages when the female music fan accesses the music app on her smartphone, at defined points during the Glastonbury music festival."

Chomoko gives another example of innovative use cases shaping up in the market. "CSPs can provide customers with real-time insight into their data usage trends. This enables them to dynamically tune their monthly packages for specific type of content, quality of service / speed or usage needs – whilst still maintaining a budget," he says. "This starts to empower subscribers to make qualified decisions."

These examples barely scratch the surface and Chomoko says one European operator has more than 80 use cases for data monetisation under development. There's clearly an appetite among CSPs but they face complexities in ensuring they comply with regional and local legislation, something highlighted by the research which found that although other problems exist, the greatest barrier to data monetisation globally is perceived to be regulatory constraints.

Particularly in Europe, with its multi-layered European



Akil Chomoko: As long as you have business alignment with technical levers, you can get past the challenges

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Union directives and national legislation, regulation is the major barrier. Almost 60% of CSPs said it was the most significant impediment to rolling out services and propositions that monetise their data. "In Asia Pacific there is less concern about usage of customer data whereas in Europe there is more guarded concern about privacy and a more cautious approach to using data," adds Chomoko. "There are more regulatory hurdles involved in getting a proposition approved. In fact, at one operator in EMEA where we presented our capabilities, the operator found multiple use cases but we then had to work on every use case to show that opt in/opt out technologies supporting local laws were in place."

Chomoko therefore finds it essential that CSPs ensure they have the correct systems in place to demonstrate and ensure compliance. "As long as you have the business alignments and technical levers you need to be able to comply, you can get past the challenges," he says. "You need to demonstrate security, encryption and data policies to address the rules correctly."

In contrast, CSPs in the Americas and Middle East, considered technical constraints to be the most important barrier to wider data monetisation adoption. Yet Chomoko is happy that the technical systems required to monetise data, are available today.

It is clear that CSPs will move into a wider ecosystem in which traditional boundaries blur and intermingle. "My view is that, in the long term, we could buy our network communications via lifestyle and multiple high level brands," he says. "There's no reason why you

wouldn't buy communications via Jaguar Land Rover or Amazon, for example, because they will provide connections in the car or devices via their marketplace. It is partners like these that will need access to a lot of real-time data for supporting the digital ecosystem, including enterprises and Internet of Things."

"Our recent research has focused on promotions, upsell and cross-sell but in the partnering world it goes beyond marketing and promotions," he adds. "It encompasses high-velocity data, customer experience, security, order management, settlement, fraud prevention, payments, and many other aspects. I see these as further dimensions to the data monetisation opportunity." 

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It is clear that CSPs will move into a wider ecosystem in which traditional boundaries blur and intermingle



Can CSPs cash in on their user and network data?

Data analytics is providing new insights across every industry, from archaeology to agriculture, public transportation to utility supply but it's CSP's network data that sets them apart and gives them unparalleled insights into what their customers are doing, writes Jonny Evans

Most communications service providers (CSPs) use at least some form of analytics internally, measuring and improving customer experiences and network operations. This means they already are “milking [the] huge piles of network, social and CRM data available to them, so contextual analytics is key,” says Amit Kumar, the principal solution architect at **Tech Mahindra**.

However, the insights and information CSPs are accumulating are also of use elsewhere, such as in “banking, communications, commerce, health, education and transport,” says Raphaël Glatt, the head of Signaling Product Management at **BICS**.

To meet this demand “CSPs are starting to mine, model, aggregate and anonymise the data sets to create powerful statistics that can be of significant value to other businesses,” explains Vijay Raja, the telecoms solutions manager at **Cloudera**.

There's a huge opportunity to be tapped. Joe Hogan, the CTO of **Openet** cites a recent survey of 87 operators in which respondents indicated that they could increase data revenues by 15% if they could deliver real-time contextual offers.

Jarkko Multanen, the CEO of **Accanto Systems** provides a couple of examples of how these insights can deliver real value to businesses outside the carrier service core. “They can capture location information from the network – and people’s mobile devices – and sell it to navigation companies like TomTom,” he says. “Based on the information received ▶

EXPERT OPINION

NETWORK



LOADING 100%

Bigger and faster isn't necessarily better when it comes to data analytics

Data analytics and big data remains big business, of that there's little doubt, writes Kevin Stanfield who warns that communications service providers (CSPs) should avoid being drawn into a data analytics arms race

Big data analytics in telecoms has a market value in the billions of dollars and continues to grow at a healthy rate. In spite of the investments that many CSPs are making, churn, ARPU and customer satisfaction remain just as much of a challenge today as they have always been. Rarely are CSPs held in high esteem by their customers or seen as paragons of customer service virtue.

Investing in data analytics

In terms of investment and returns from data analytics, there's a real danger that CSPs and MVNOs will be drawn into an arms race of bigger and faster data analytics. It may be that those organisations with the deepest pockets could have the most impressive arsenals. Yet it's important to realise that data analytics, like any other IT project, must have real and tangible business cases; just being able to analyse huge amounts of data quickly is not enough.

CSPs and MVNOs will increasingly have to choose their data analytics battlegrounds carefully to ensure that business value is understood, measurable, targeted and monitored. Choosing when, where and how to deploy data analytics is as big, if not a bigger, challenge as developing the capability and platforms to perform analytics. Knowing something about your customers is not the same as being able to take positive actions. This often results in a so what scenario.

It's a given that the nature and cost of deploying data analytics will result in challenges for smaller CSPs/MVNOs. They have neither the budget nor the in-house expertise to exploit the opportunities that data analytics could present. Increasingly, they will need to turn to an outsourced model, perhaps utilising BSS vendors who have recognised the need to meet data analytics challenges on behalf of their customers and are responding with their own integrated solutions.

The sum of the data whole

There are some compelling use cases, particularly around network performance and quality. When this data can be combined with customer details such as lifetime value, contract status, profitability and other segmentation information, then the data whole is worth more than the sum of the data parts. Where both OSS and BSS data can be brought together to enrich decision-making, there will be a clear competitive advantage. For those CSPs able to realize one complete view of the customer, far richer and more effective analytics data analytics are possible. However CSPs/MVNOs risk putting the cart before the horse, if adequate consideration isn't given to the data model that underpins the analytics.

Ultimately, the end game is to turn data analytics into actions and outcomes that can demonstrably add value. It is critical to be able to appreciate the context of the customer at any given point in an analytics lifecycle. This is to avoid wasted effort, inappropriate offers or at worst, alienate the very customers the analytics is aimed at delighting, monetising and building emotional connections with.

Do the basics well

What we mustn't lose sight of in a world awash with data is that analytics isn't a substitute for doing the basics well. Any CSP or MVNO worth its salt must have a fully-assured customer journey that eliminates the need for retrospective corrective actions; prevention being better than cure. Ensuring the network is performing, provisioning is precise and billing timely and accurate, eliminates many of the analytics use cases. It also provides a more stable, satisfied customer base upon which to let the analytics perform their magic. 



The author **Kevin Stanfield**, is analytics product manager at MDS

CSPs and MVNOs will increasingly have to choose their data analytics battlegrounds carefully to ensure that business value is understood, measurable, targeted and monitored

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Joe Hogan: Streaming analytics is being used on real-time data so that it can provide a real-time trigger



Jarkko Multanen: Based on network data, a CSP can tell a mapping provider how fast motorway traffic is moving



Jennifer Kyriakakis: CSPs need a real-time digital infrastructure that extends from the network to all of the customer touch points

from drivers' mobile phones, the CSP can tell TomTom how fast motorway traffic is moving so that, in turn, they can inform the driver of delays to their journey or to avoid certain routes."

Another example is that of banks asking users for their mobile number for ID purposes. Banks also use location data to "verify a credit card user is who they say they are by associating the location of their mobile phone signal with the location of the card they are using to avoid fraud," adds Multanen.

Raja at Cloudera cites other examples. "Similarly the location information coupled with subscriber density maps in real-time can be a huge advantage for the public service domain specifically for assisting with city planning, traffic optimisation and enabling law enforcement," he says.

CSPs are stretching their muscles to unlock new opportunities in new markets. "We see service providers expanding from their traditional domains and introducing new services that were usually associated with third parties, such as mobile financial services," says Shahar Dumai, the product marketing manager for Big Data & Analytics at Amdocs. "Data definitely can help service providers enter such new areas as it enables a better understanding of the customer and is instrumental in delivering a better service."

For Gabriele di Piazza, the senior vice president for products and marketing at **Guavus** adds: "CSPs are

able to monitor subscriber activity across their network and they can pass the insights generated from analysis of this data onto third parties to help them create more accurate profiles of their customers. New high-volume data streams, coupled with advanced customer analytics and personalisation algorithms means 360-degree profiles will be dramatically improved."

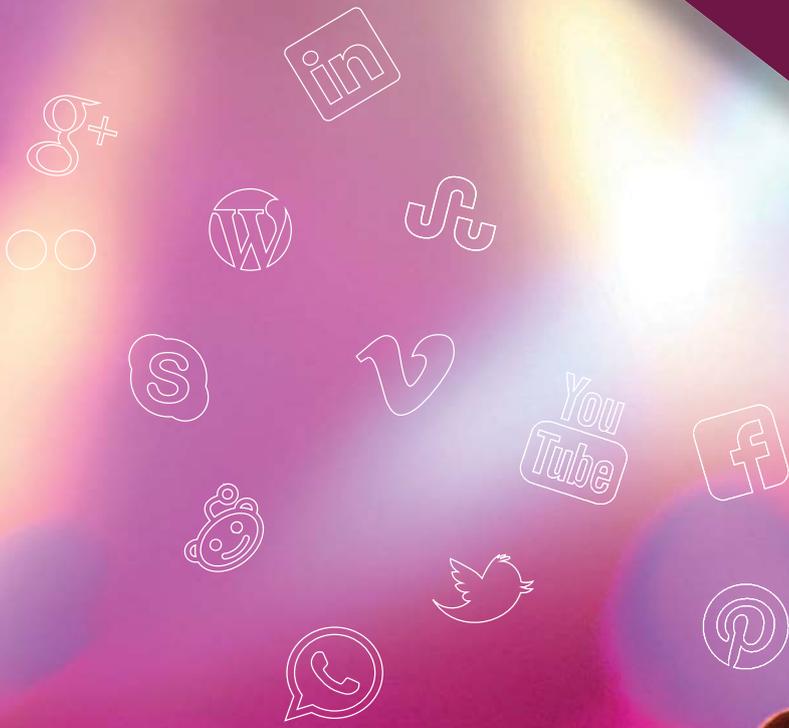
The capacity to use the information to gather 360-degree profiles of customers delivers multiple potential benefits, benefits to which CSPs hold the key. "CSPs have a deep insight into the customers' profiles, while OTTs provide a crowning view of the customers actively using social networking and e-commerce websites. The mix of the two gives a full, detailed view of customers' behaviours of great interest to the verticals to segment their customer base and offer relevant services," Glatt explains.

The reality is that as BSS moves towards real-time so does the opportunity to use that data for deeper analytics and personalised customer offers. Until now this information languished in data warehouses for use in historical analysis, but more sophisticated real-time analytics changes things. "This why streaming analytics is being used on real-time data so that it can also be used to provide a real-time trigger, along with the historical customer business intelligence, to activate contextual aware offers," explains Hogan.

The biggest obstacles are technical, internal and regulatory. "CSPs need to have technology and processes in place to ensure customer engagement and provisioning are considered when capturing data. CSPs also need to extend analytics and engagement capabilities to third parties to monetise the data while still respecting customer privacy. For this to happen, they need a real-time digital infrastructure that extends from the network to all of the customer touch points," explains Jennifer Kyriakakis, the founder and vice president of marketing **MATRIX Software**.

Digital transformation is a big opportunity, with alliances likely to drive the initial charge "What's more likely in the short term is the strengthening of partnerships between CSPs and OTT content providers, based on a mutual value from real-time data and an ability to action it and rapidly build offers from it," adds Kyriakakis. 

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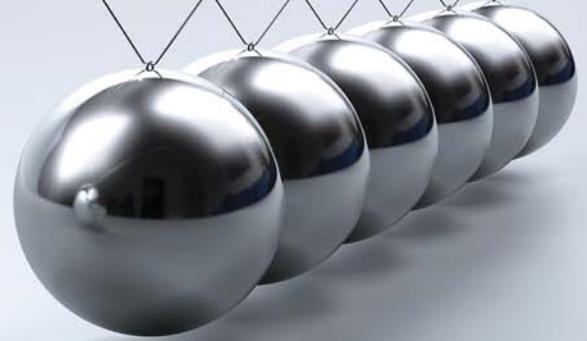
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EXPERT OPINION



Big impact with big data analytics – seven principles to ensure quantifiable impact to the bottom line

With all the hype around big data, it is no wonder that often we forget to ask what exactly does this mean for our customers' bread-and-butter business as providers of communications service providers, writes Shoma Chakravarty

There is no denying that new technologies have made it possible to affordably process vast amounts of diverse and changing data. At the core of obtaining value from big data, are the fundamental requirements that:

- The right questions are asked
- The answers are accurately surmised
- They can be translated into action

One might argue that generating value from every analytics use-case – be it finding genomic correlations with illness for pre-emptive healthcare, or detecting telecoms fraud, or increasing profitability, follows a similar three-step approach.

Measurable impact to shape your business performance

While it may be easy to philosophise about big data analysis, it is a tricky challenge for software to actually bring it to life, with clear and measurable impact. This is the challenge that Telarix has taken on as a provider of software automation for a dynamic customer base, with new entrants, an ever-emerging suite of services, competitive pricing pressures and a diverse regulatory landscape. As we made the leap to a big data platform enabling analytics-as-a-service, we focused on seven core principles to ensure the new technology provides our customers with quantifiable business value:

1. A system meant to provide value-generating insight, must first understand the end-to-end business process. This includes who the players are, what their role and responsibility is, how they interact with the data, and how their actions feed the lifecycle of the business.

2. The system has clearly defined the scope of use-cases for analytics, with quantifiable relevance to the business.
3. The system must allow for data exploration; allowing to ask pre-defined and ad hoc questions and exploring answers.
4. The system must provide an ability to control the data ingestion pipeline.
5. History is an old friend. The system must have the ability to utilise historical data for analytics.
6. The system must support action, based on the insight derived.
7. The system must be able to monitor, measure and report on its own performance.

The motivation for big data analysis must always be to facilitate meaningful insights while enabling fast decision-making with clear KPIs. Examples include: operational optimisations that increase margins or improve performance, insight about new opportunities for increasing revenues, or actions that rapidly arrest and mitigate revenue leakage due to abuse or fraudulent behaviour.

Beware the hype-appeal of a big data analytics platform that crunches data meaninglessly, burning CPU cycles and setting new records for IOPS (Input/Output Operations Per Second). In a disruption-prone market, where volumes are key to maximising profitability, and future services dictate an increasing demand on capacity and quality-of-service, we believe that having an analytics capability based upon the above principles will provide key and quantifiable differentiation to our customers.



The author **Shoma Chakravarty**, is the chief technology officer of Telarix

While it may be easy to philosophise about big data analysis, it is a tricky challenge for software to actually bring it to life, with clear and measurable impact

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EXPERT OPINION



Seeing the wood for the trees – how subscriber analytics makes big data useful and relevant



The author, **Inna Ott**, is the director of marketing at Polystar

Big data holds considerable promise but utilisation of the insights it can reveal has been held back by several factors, writes Inna Ott

One reason for the delay in utilising data insights is that there is such a large volume of data, identifying what matters can be difficult. While everyone knows that big data offers huge potential, the issue has been, where to start? With so much data available, it's hard to see the wood for the trees. It can also seem dauntingly complex, intelligible only to data scientists and other specialists.

This has changed. Today, communications service providers (CSPs) are showing signs that big data strategies and plans have reached maturity by accelerating deployment of solutions that enable them to begin to capitalise on this rich resource. The difference driving this gathering momentum is that there are now clearly identifiable targets that enable a step-by-step approach to the implementation of big data strategies.

Many CSPs, for example, have chosen to focus on subscriber analytics as the first step in their big data strategies. This is because subscriber analytics is believed to offer the greatest potential to deliver rapid returns, enabling them to build better relationships with subscribers, among other benefits.

There's a simple reason for this: a deep understanding

of customer behaviour, while fundamental to business success, has traditionally been an expensive and imprecise discipline. Imprecise, because extrapolation from the few to the many is no guarantee of accuracy; and expensive, because efforts to obtain statistically significant data from which more accurate conclusions can be drawn, can be exceedingly costly.

While isolated data sets can deliver insight, conclusions that can be drawn may not be sufficiently representative. For CSPs, the ability to obtain accurate, timely insight into what customers actually do from a sufficiently broad sample base provides an unparalleled opportunity to not only deliver better service and support, but also to reduce the costs of customer research. Big data provides the constant flood of real-time, objective information about customer behaviour that makes this possible. The difficulty has been to make this information available to the many, not just data scientists.

Happily, there are now solutions that address this issue. A class of advanced processing engines is available that sorts information collected from the network and filters it so that it can be made relevant to different users. This pre-processing removes the pain from big data analysis and delivers the right information in an accessible manner to people within ►

IN ASSOCIATION WITH POLYSTAR



the organisation. Smart solutions provide different views, so that, for example marketing teams can see the information they need, while customer services obtain a different view – and can interrogate the data with different queries and questions.

Putting this into action yields measurable results. The provision of detailed, timely and relevant information makes it possible to implement a transformation in the delivery of customer care, enabling rapid problem resolution and delivering dramatic cost reductions.

For example, when customer care teams are contacted with a problem, it is crucial that the right information is available across multiple channels, such as contact centres, social media and self-service portals. By giving customer care agents detailed insight into the specific services and networks subscribers use and the quality delivered, technical issues will be promptly identified. This, in turn, means that more problems will be solved directly and more quickly by frontline support teams, reducing escalation to more expensive second line agents, saving time and money.

A fully functional Polystar Subscriber Analytics solution delivers insight into voice, messaging, data consumption and performance, among other metrics. Recent deployments have demonstrated that Subscriber Analytics can quantifiably improve overall customer satisfaction and help to reduce churn through improved service in customer care. This ensures a better customer experience while efficiently monetising CSPs' services and reducing costs.

In one recent deployment, frontline customer care agents have been able to access relevant information from within existing CRM systems, thanks to the integration of data analytics information directly from pre-filtering systems, while second line teams capitalise from a unique analytical user interface, giving access to advanced dashboards, reports and drilldown capabilities. As a result, customer care

agents benefit from richer information and more effective tools to address more complex problems.

In this example, the overall cost per call rate has been reduced dramatically. It also facilitated a significant cost reduction by decreasing the time taken to resolve issues in troubleshooting activities and hence the duration of support calls by at least 50%, which corresponds to a saving of US\$2-6 per call.

Finally, in the same case, the solution reduced churn rates by 40% due to early identification and resolution of customer issues. Such results indicate the promise of widespread deployment of the solution and the positive benefits that will accrue by selecting customer care as the first part of implementing an enhanced CEM transformation programme.

Polystar's Subscriber Analytics solution is the brains behind this approach. It is the foundation of a comprehensive programme for implementing effective customer care. The solution enables CSPs to target efforts towards the areas that will generate the most immediate returns, at the same time building a long-term approach to CEM. In practice, this means choosing the most appropriate area in which to focus efforts. For some, that will be customer care, for others, marketing, and so on. Once a platform is in place, that can be used to focus efforts, relevant data can be identified, extracted and delivered to where it is needed most. Moreover, the core platform can be utilised as the foundation for spreading the use of big data throughout the organisation.

This simplification of data analytics is critical. It democratises data and, for the first time, enables its potential to be realised. Data analytics is no longer a specialist discipline. Now, not only can anyone ask the right questions, but we can ensure the right people are able to discover the answers. Finally, we can start to see the wood for the trees and, step by step, begin to unlock the potential insights available from the intelligent utilisation of big data. 

The provision of detailed, timely and relevant information makes it possible to implement a transformation in the delivery of customer care, enabling rapid problem resolution and delivering dramatic cost reductions

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The Adele Hello Effect – Using real-time analytics to dynamically assure network services

What do a Grammy award-winning musician's newest music video and a home security system have in common? When one explodes in popularity, the other might suffer outages, delays and technical faults, writes Chris Purdy



The author, **Chris Purdy** is chief technology officer of CENX

The first music video for Adele's upcoming album, 25, was released on Friday, 23 October 2015 – and the song, called Hello, was watched 69,034,918 times on YouTube in its first three days. The first 24 hours alone saw 27.7 million views, making it the most-viewed music video ever. Hello was watched in homes, in offices, on Wi-Fi, and on mobile devices using cellular data.

Call it the Adele Hello Effect: Unlike scheduled events like World Cup football, the huge swell in traffic was unexpected, and could easily have overloaded some cellular access points, cloud providers, and even backhauls, creating packet drops, connection drops, jitter, delay and, well, a big mess.

Consider what this Adele Hello effect might have on a hypothetical customer who relies upon value-added home video monitoring services provided by his internet service provider, over DSL, cable, or even over-the-air 4G or LTE. Video captures from cameras could be delayed; connections could time out; buffers could overflow; video resolution could be stepped down on the delivery of real-time streams. In other words, service delivery could suffer on account of issues from the last mile to the network core and everything in-between.

Note that services aren't failing, either for the overloaded delivery of Adele's music video or other traffic such as the home video security system. This isn't a cable cut. If there's a red light/green light dashboard, the light would stay green. Rather, the

services are degrading due to a lack of adequate resources over a short period of time, with service degradation not triggered by a single lack of service delivery at one customer location, but rather by a large number of events distributed across some larger part of the network. Such errors are hard to spot, and even when noticed, it's difficult to isolate the cause and determine exactly what to fix. Sure, the network operator may need to add more resources ... but which resources, how many, and where?

Unlike with classic red-light fault identification and remediation, these more subtle errors require a different approach, focusing on data gathering across the network, enabled by NFV (network functions virtualisation) over an SDN (software defined networking) network, and then big data analytics to discover in real-time, what's going wrong. The goal is to assure reliable service delivery by instrumenting the network using NFV, and gathering a lot of data. Big data analysis not only alerts the service provider of real-time problems with actionable intelligence, but then enables the network operations staff to make instant decisions about the proper reaction across a service path that includes both physical and virtual network functions.

This isn't pie-in-the-sky theory. Technology providers are working today on pilot implementations with service providers around the globe, implementing data gathering, big data analytics and actionable intelligence on the production networks. These projects meet service providers' operational and technical goals of migrating to NFV for many network

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A large, close-up portrait of Robert Machin, a middle-aged man with grey hair, smiling. He is wearing a dark blue suit jacket over a light blue button-down shirt. The background is a blurred green and yellow foliage, suggesting an outdoor setting near a window.

INTERNET OF THINGS

Exclusive interview with Robert Machin, the director of product marketing at CSG International, on how the capabilities of CSP O/BSS can be extended and adapted to support CSP initiatives in the Internet of Everything

PLUS: Why we can't talk machine-to-machine with current business support systems ■ How monetising the Internet of Things is a completely different game to making money from traditional CSP services ■ What service assurance and security functions should be built into IoT from day one



CSPs can use O/BSS expertise to seize wider opportunities in the IoT

The Internet of Things (IoT) is set to become pervasive and routine with tens of billions of devices deployed from your washing machine to defence, healthcare, city planning and critical infrastructure. All will be connected by a network but does that mean communication service providers (CSPs) can be more than the providers of IoT connectivity? Robert Machin, the director of product marketing at CSG International, believes so, and points to the capabilities already inherent in CSP O/BSS that can be extended and adapted to support CSP initiatives in the Internet of Everything

VanillaPlus: As a global vendor to several hundred communications service providers, how does CSG International see the IoT developing?

Robert Machin: Fast! We see IoT as the most significant as well as the fastest-growing evolution in communications and IT over the coming ten to twenty years, and something that will be fundamental to future business and technology. We think it likely that in ten years or so, it will be pervasive to the extent that it will simply be 'how things are', and we won't talk about 'IoT' at all. It will have a massive influence on consumer and enterprise business models and on human behaviour patterns, supporting a move away from owning to renting assets on the consumer side, and from selling products to offering services for a great many producers. ▶

Robert Machin, the director of product marketing at CSG International



We believe the playing field is still wide open. Obviously there is an opportunity for CSPs to take a big piece of the purely communications pie

VP: For example?

RM: Well, automotive for one. It seems likely that in 10-15 years, very few people will see the need to own vehicles – particularly in urban environments where they might only be used occasionally and for short journeys. Instead, if they need a vehicle, they'll rent one appropriate to their needs at any given time, whether that's a city smart car or a pickup, and will pay for usage and insurance based on miles, behaviour, track record and so on. IoT will enable that model, which will substantially change the automotive industry as well as human attitudes to transport. More widely, the data collected will help with road and urban planning and with vehicle design. Resources and raw materials will be used more exhaustively. It's not hard to see the same principle being extended to other consumer and enterprise activities, leading to less waste and a greener, more optimised way of living.

VP: What part will CSPs play as IoT becomes simply 'how things are'?

RM: We believe the playing field is still wide open. Obviously there is an opportunity for CSPs to take a big piece of the purely communications pie. Whether IoT applications utilise the conventional communications infrastructure or low power wide area (LPWA) networks dedicated to IoT that we see CSPs like Orange starting to invest in, CSPs' networks will be fundamental to the capability and success of IoT. If CSPs are willing to involve themselves more deeply than simply carrying transactions from machine to machine, however, we believe there is a much greater opportunity which, given that there is likely to be very little direct revenue from the carriage of data, it will be very important for CSPs to seize.

VP: Such as?

RM: As ever, it's all about adding value, and many CSP capabilities will add real value to IoT initiatives. At

the front end of the process, for example, CSPs have needed strong capabilities in resource lifecycle management, inventory management, activation and performance, and these functions will be highly relevant to the enablement of many IoT use cases. Sensors installed in smart city parking spaces, for example, won't deploy and maintain themselves any more than base stations or modems would. At the analytical end, the mediation, validation, correlation, and processing of what could in many instances be very high volumes of raw data into what could equally be very small amounts of actionable intelligence will be vital to the efficiency of the IoT – picking out the exception transactions from routine monitoring of medical devices, for example. Elsewhere, CSPs' background in network operations and fraud detection leaves them well-equipped to handle real-time alarms and critical data, and the reporting and analysis of data traffic. IoT initiatives will often be bi-directional – notifying a hospital that a medical refrigerator has become unacceptably warm, for example – so notifications come into play. And given that many IoT applications will be based on collaboration between several parties, some form of financial analysis, revenue sharing and settlement is certain to be required in many IoT scenarios.

All of these are foundational skills for many CSPs, and would represent money left on the table if all that CSPs did was offer data carriage from A to B.

VP: That sounds quite a lot like conventional CSP processing. Are the demands of IoT fundamentally different?

RM: Yes and no. At a high level, the functionality is similar, so many BSS vendors have a credible proposition to make based on their CSP track record. However, the application of this functionality will be highly variable – much more so than in the conventional CSP environment, where calls, texts and data packets were fairly common currency across all CSPs. ▶



Depending on how many initiatives are underway, a CSP could be supporting dozens or hundreds of different scenarios at any one time - but they won't want to deploy and operate different systems for each

In IoT the playing field is much more open, and there will be different games going on all over it. In sectors such as health, transport and logistics, factors like data volumes, required pre-processing and acceptable latency will differ widely depending on the application being provided or supported. It's obvious, for example, that a sensor occasionally reporting on stock levels in a vending machine requires a different level of performance and service than a system monitoring stress factors in an aircraft engine. From business-critical to life-critical, there will be many different quality and assurance issues to be taken into account.

Depending on how many initiatives are underway, a CSP could be supporting dozens or hundreds of different scenarios at any one time – but they won't want to deploy and operate different systems for each, particularly as margins for services may be thin. Flexibility of application and the ability to partition systems between different use cases will therefore be vital.

VP: Does that mean that supporting IoT services should be seen as just another extension of CSPs' existing platforms?

RM: Not at all, not least because IoT will be a very different part of the CSP business.

IoT is likely to be addressed by the 'digital solutions division' – or whatever name is given to the part of the organisation dealing with new digital ventures. Here, CSPs will tend to act less as service vendors, more as partners or collaborators with other enterprises to develop propositions for end customers. In addition, many IoT propositions will be tailored for industry verticals rather than generic market segments (such as consumer, enterprise or SME) so there will be a very different business model from that of the conventional communications business.

VP: What propositions for IoT can a BSS vendor like CSG make?

RM: A lot of what we can offer falls within the

functions that we've discussed. We provide powerful mediation, correlation and analysis, even in real-time, all of which are fundamental to the successful and effective operation of IoT services. In addition, our capabilities such as multi-party transactional distribution, financial calculations and settlement, messaging and notifications and alarms handling will be required in at least some part by IoT services.

Conventional business functions like charging and revenue sharing will also have relevance if these fit into the IoT service scenario. Our solutions can be partitioned too, to support multiple IoT scenarios from a single platform. That means they make the much more fluid IoT business supportable without requiring a different instance per IoT scenario.

VP: CSG appears to have a strong software proposition for the support of IoT services. Do you believe that's what CSPs are looking for?

RM: We think they're looking for more than that – we believe many CSPs want a strong IT and services partner that can bring innovation and powerful software within the framework of a managed solution, de-risking these new and unproven ventures and making them less capital-intensive. They want a partner that will work with them to provide this back-office support and that has the experience and firepower to deal with some fairly demanding and – we have to assume – as yet unknown scenarios.

For that reason, a partner that will share not just the risks, but the CSP's desire to break new ground and develop new revenues will be attractive. Any CSP going down the IoT route will have some pretty clear business outcomes in mind and will be looking for a partner that shares their vision and is willing to be measured by business success, not just by technical metrics. We believe that shared focus on business outcomes is essential and it's built into our managed service business model. It probably won't hurt that we can bring in some good ideas about dealing with legacy business too, in a way that frees up some innovation space for the operator to focus on the future. 

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CAN WE TALK MACHINE TO MACHINE? Not with the current business support systems

Whether CSPs take an active or passive role in the Internet of Things (IoT) they're going to need to update their support systems, writes Nick Booth

When it comes to the IoT there is a straight choice for communications service providers (CSPs), says Michelle Nowak, the vice president of product management at **CSG International**.

You can let it run over the top (OTT) of your network, or you can manage it as a service. Given the dumb pipe versus OTT debate, it's a reasonable assumption that many CSPs will wish to play a very active role in managing machine to machine (M2M) conversations.

Either way, the BSS/OSS systems of the CSP will face a stern examination. If CSPs want to give the basic service, then billing will be straightforward with subscriptions and data charging the main activities, according to Nowak. But in the IoT these activities will be disproportionately high with the added complication of millions of connections billed to a single account.

On the other hand, the CSP that runs the whole system for their client will make much higher margins – presumably because there will be much higher risk – but the value they will provide is the ability to achieve something that few people are able to do.

“The success for any IoT business scenario will involve a network of partners,” says Nowak, “it calls for instant cohesion between wholesale and retail components.”

The CSP supporting the IoT needs billing systems that can rate and charge appropriately for all the parties that need the collected data. That's a challenge because it involves complex revenue sharing involving multiple entities.

Since retail is a key market for IoT, many clients will be retailers almost equal in size and complexity ▶

Since retail is a key market for IoT, many clients will be retailers almost equal in size and complexity to the CSP

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In order to cope with the increase of IoT traffic, operators have a number of options. Overhauling their BSS/OSS systems is likely to be necessary



Johan den Haan:

The only way to stay competitive will be to develop smart apps that analyse data from connected devices and sensors

to the CSP. To support these large enterprises, the CSP's billing systems must handle large device hierarchies and complex rating algorithms, with millions of devices associated with a single customer. In order to bill for IoT services, the billing platform must support simultaneous B2B and B2C transactions and multiple partner revenue sharing schemes that typify IoT business. As IoT retail billing becomes more varied it'll include tiered rating plans, pay-as-you-go offers, periodic subscriptions and machine-level lifetime plans. And there's more to come, says Nowak. "Then the impact on partner settlement complexity will continue to grow," she says.

Though all these different billing requirements are generally supported today, they're almost always in disparate systems with no relationships between them. That's the first major BSS/OSS hurdle that needs to be overcome, according to Nowak.

Another challenge the BSS/OSS vendors and managers must address is IoT traffic will be very different, warns Gavin Hayhurst, **Teoco's** product marketing manager. In contrast to the more regular patterns of today's voice calls, data sessions, messages and updates, IoT traffic will be flooded with constant 'I am here' pings from legions of devices or the regular reporting of small amounts of data on a schedule. Though IoT data might not be high – it'll be 4% of network traffic by 2024 according to figures quoted by Hayhurst – the signalling overhead will be substantial.

The mass playing of the Angry Birds game on mobiles overloaded networks through signaling traffic, not data. Another BSS/OSS crisis stems from localisation as IoT traffic is likely to be focused

in specific areas. While connected cars and wearables might be predictable, in agriculture whole herds of IoT-monitored cattle might suddenly appear on a previously deserted cell.

In order to cope with the increase of IoT traffic, operators have a number of options. "Overhauling their BSS/OSS systems is likely to be necessary. As IoT traffic is likely to create more substantial peaks and troughs in specific areas, managing resources at the cell level will become more challenging and much more important," says Hayhurst. CSPs will need to use a multi-faceted approach to network management to cope with the varying demands of different device types, including dynamic network management and RAN optimisation.

In the next ten years in some cells up to two-thirds of connections might be to IoT devices. CSPs will need planning tools that reflect this new reality and perform advanced forecasting, capacity planning and modelling that take IoT signaling and data traffic into account.

According to **Mendix** CTO Johan den Haan, BSS/OSS will have to take on a form of artificial intelligence of its own in order to cope. It's not humanly possible to interpret all of the data being generated by the new sensors and connected devices coming online this year, so machine learning will become commonplace. This will lead to the rise of smart apps that combine contextual awareness of, say, sensors, geofencing, beacons and all the other IoT variables. "The only way to stay competitive will be to develop smart apps that analyse data from connected devices and sensors," says den Haan. 



Michelle Nowak:

IoT calls for instant cohesion between wholesale and retail components

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Enabling Global IoT



IoT apps and services require sophisticated, highly scalable monetisation capabilities

Chris Newton-Smith is the chief marketing officer of Redknee. Here, he tells George Malim that monetising the Internet of Things (IoT) is a completely different game to monetising communications service provider (CSP) services. As IoT matures, the correlation between network capacity and application value will continue to erode and systems integrators, app developers and large enterprise IT departments will create new services and apps that will require app-specific monetisation tools

VanillaPlus: How is the monetisation approach to IoT applications different to that of traditional CSP services?

Chris Newton-Smith: If you look at the IoT applications we're monetising today, it is clear that not all IoT applications have a CSP focus. Our idea is that as the applications and services of IoT evolve over time, the monetisation requirements and business models will get more interesting and more complex and the companies that build the apps won't want to build the monetisation capabilities themselves. It will be like the consumer apps marketplace in which app

developers don't build everything themselves – they look at the situation and identify their requirements and then deploy the best-in-class software others have built.

Redknee is good at monetisation, customer management and other adjacent capabilities and we are turning those into a software toolset that anyone can use. That could be CSPs but it could be lots of other types of organisations. For example, we have partnered with Elster, a smart meter company being acquired by Honeywell, to provide a prepaid energy as a service offering that is integrated with their smart meter solutions. ▶





VP: The IoT seems to be at an early stage where organisations haven't settled down to defined roles in the value chain. What opportunities does that provide Redknee?

CN-S: In terms of the adoption of IoT, it is an early stage market and systems integrators are taking a significant role. For example, we're engaged in use cases with systems integrators such as our work to provide the monetisation piece for BMW's Connected Drive offering, which is integrated by T-Systems.

Systems integrators are building new solutions but, as the market develops and becomes more standardised, some companies will build their own apps. If a large enterprise wants to offer a portfolio of services it won't necessarily need to hire a large systems integrator to build it. Instead they'll buy a series of best of breed capabilities from providers such as Redknee. At the moment this is an approach that we're developing.

VP: What about CSPs, what role do you see them playing in the development of IoT?

CN-S: CSPs clearly have a role in delivering the connectivity and they could also provide applications, integration and IoT platforms. In the future, our customers will be broader than the CSP market. Most CSPs are certainly interested in IoT, some see themselves as the systems integrators or platform providers, and others want to bundle IoT services for sale to enterprises.

VP: Is the monetisation approach the same for CSP and IoT services?

CN-S: Not necessarily. The CSP monetisation required right now in some IoT apps is basic. It's essentially counting the data going back and forth across the network. The value proposition remains the connection – the bits and bytes over the wireless network.

That connection piece is important but the correlation between bits and bytes and the value of the application is very different. That correlation will further break down as IoT applications mature and the value they offer separates further from network capacity. The value of an application is very different to the value of the network capacity. For us, it's about monetising the application, not just the network.

VP: Given the emerging differences in monetisation approaches and the different nature of the IoT market compared to telecoms, how do you see Redknee changing to address new opportunities?

CN-S: In our telecoms work we mainly engage directly with CSPs from a sales perspective. Our approach in IoT is very different because there are so many opportunities and it's about partnering with the experts in each vertical in which we can provide monetisation systems. For instance, we have partnered with Elster to address prepaid energy, combining our monetisation product capabilities with their industry knowledge and end-to-end smart metering solution.

It's mainly a systems integrator-led market on the business-to-business side now. That's because people are getting familiar with new technology and using systems integrators' capabilities to learn about the new landscape.

On the consumer side, especially with the start-up culture, there are a lot of companies trying to build new apps. They're raising money, developing apps and taking them to market and, although many will fail, some will succeed.

The consumer market and the business market require two different approaches. Large enterprises are risk averse and are unclear how it is all going to come together so they will bring in a systems integrator to help them. A few might do it as an internal IT department project where they have the resources, but they are probably in the minority.

VP: Do you see systems integrators, apps stores or internal IT teams as the key channels for Redknee's IoT monetisation offerings?

CN-S: Selling through app stores and directly to IT departments is a more distant prospect given the immaturity of the market so our approach is to focus on systems integrators and expert partners such as smart meter manufacturers. We're partner-led in this market today.

I agree with Gartner's assessment that we're still in the hype phase of IoT – we're certainly not in the widespread adoption phase. That means there are requirements roles for systems integrators and other companies. As we move forward, you'll see many more people building applications using software building blocks from other companies.

For us, it's important to recognise our market is not the whole market. Our systems address applications that need to be highly scalable and applications and services that have sophisticated monetisation needs. There are many options for companies looking to bill monthly for IoT applications as the barriers to entry are relatively low. We are targeting the areas where Redknee can help to solve unique monetisation problems that organisations face in bringing IoT applications to market.

VP: How will you address those areas and demonstrate the functionality Redknee offers?

CN-S: Our approach is first to find the right partners. Our aim isn't to work with everyone but to find players with a similar view of the market. We're working with two or three systems integrators at the moment.

We're also keeping open in terms of the verticals and applications we're engaging in. I spoke earlier about our work with BMW in connected cars and our prepaid energy monetisation capabilities. We are working in several different application areas at the moment, with people who have approached us about monetising their applications and services. 



Chris Newton-Smith: Redknee is providing the monetisation piece for BMW's Connected Drive offering

CSPs clearly have a role in delivering the connectivity and they could also provide applications, integration, and IoT platforms

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IoT service assurance must be built into the network

Everyone's excited about the Internet of Things (IoT) and it undoubtedly creates great opportunities for consumers and many different types of organisations but the IoT has to be considered from two perspectives – the IoT provider and the IoT user

When it comes to IoT users I have heard the term the Internet of Me used to describe the coming of the IoT age. In this future we are dealing with an internet connected world of devices that share everything from the critical to the banal. In the category of useful we will have the ability for rooms to be tailored to our personal preferences including lighting, temperature, music, art, TV and window shades. With a wave of a hand people will have control of their environment up until the time they do not and that leads us to the provider perspective.

The providers of IoT solutions are very much focused on their own network of devices. They are thinking about the temperature in each room of the house, and just that house, and just that user. They are not necessarily thinking about how this affects your personal Internet of Me and your lighting scene and they may not be thinking of what the entire network behaves like and where there may be weak links. When one link in the IoT network is broken there may be a sequential series of failures resulting in your Internet of Me being self-absorbed and unresponsive.

Vendors will need to think about the big picture and how they will fit together with other IoT networks, and what should happen if something should go wrong. Most importantly we do not want to find ourselves in a dark unlit room because our media player, thermostat and light switch were not getting along.

Lastly, we need to be careful not to demand that IoT users become programmers. IFTTT - If This Then That – is a programming model used to link together a multitude of little events. Currently it is how home automation enthusiasts link their lighting scene to their media player and their Jacuzzi heater to their physical

location. It will take some time for a smart vendor to get all of these things to work the way that a butler would handle it.

There are therefore a series of challenges to consider when thinking about IoT. Aside from all of the typical everyday challenges we will have in a possibly over-automated environment, there are always ways to abuse IoT devices and networks. For example, a few months ago, Arbor Networks, the security division of NETSCOUT, received its first Denial of Service attack from a household appliance.

It seemed that an overzealous refrigerator continually hit the home server to inform it that the owner was out of milk. The repeated ping was due to an error but it happened just the same and did not cease. Imagine what would happen if every fridge, thermostat and door lock in the country were controlled to launch a scheduled DDoS attack. This would not be a good thing. IoT vendors need to think about not just their one-to-one relationship between device and server; they need to think about the entire network as well as the network of networks. To do this well they need to build service assurance into the network from day one.

One other aspect we should think about is that we are not just talking about teapots, light switches and dog doors. We are also talking about robots. In particular 4,000 pound robots that drive at 75mph. It is imperative that our automakers, our future robotic creators, incorporate robotic rules including human ethics into every vehicle they build.

It's a tough question whether a service provider should be responsible. Where a service provider is a conduit for information I think the rules of today apply. Keep the bits moving, meet your service level agreement ►



The author, **Jim McNeil**, is the global chief marketing officer of NETSCOUT

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and continually expand the bandwidth, reliability and security of the network.

When the service provider becomes more of a direct operator of the IoT network, as in the AT&T connected car initiative, then I think there is a whole higher level of responsibility and accountability. Hacking into an auto network and allowing a criminal to control an occupied car is not something that can happen. This should be the shared responsibility of the network provider and the car manufacturer.

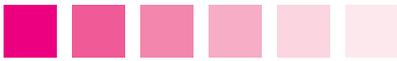
IoT is all about the conversation. When you are a teacher on a school recess field and you are able to listen to all of the conversations, you can quickly surmise where the trouble is going to start. NETSCOUT is that teacher, the observer. We have the ability to monitor all of the conversations, in aggregate, for the target network and a network of networks. We are able to trap the critical conversations in real-time to help communications service providers (CSPs) get in front of problems before they become problems.

In the connected world we are building and living in and depending on, it is incumbent on those who provide services to guarantee or guard those services. The stakes are getting higher in the age of ubiquitous connectivity and IoT, and only the vendors who deliver quality, safe and reliable services will be granted access to every corner of this emerging 200 billion device market.

IoT is happening now and it will be with us forever. Intel says we will have 200 billion connected devices by 2020 – who knows. What we do know is it is happening all around us. It is happening on the factory floor, in the hospital, on the sports field and in the home. There will be great and amazing uses for IoT technology and there will be billions wasted on fads and trends that will never survive. One thing we do know is that vendors will drive for automation and connectivity wherever they think it will move the market. There is no predicting what the IoT killer app will be, we just know it will happen and when it does, expect the amount of data we are moving through the network today to be mere child's play. 

IoT is all about the conversation. When you are a teacher on a school recess field and you are able to listen to all of the conversations, you can quickly surmise where the trouble is going to start

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What's Hot on VanillaPlus.com this month



Dr John Naylor: NFV and SDN could produce €39 billion in savings for European CSPs

How NFV can unlock backhaul capacity and drive new revenues

With mobile penetration seemingly reaching saturation in many markets, communications service providers (CSPs) are confronted with the prospect of slowing revenues and declining margins; according to Ovum, more than one-third of the 67 countries they track will experience some margin decline by 2019. This means that forward thinking CSPs are looking to alternative business models to create new, monetisable services, writes Dr John Naylor, the founder chief technology officer of CBNL.

Search keyword: **CBNL**

Executive snapshot

From Morgan Stanley to sickness on longhaul flights, Alan Coleman, the founder and chief executive of Brite:Bill shares his experiences in our latest executive snapshot.

Search keyword: **Brite:Bill**

Is Amdocs buying cVidya? If not... what

Alex Leslie reports on rumours that revenue assurance company cVidya may be a target for Amdocs. Leslie explains why such a move could make sense for both companies.

Search keyword: **cVidya**

UK quad play operator TalkTalk trips up in response to being hit by 'sustained' cyber attack on 4m users

Jeremy Cowan reports on UK CSP TalkTalk's cyber attack woes. Just because the means of attack was old fashioned and the culprit was a teenager doesn't mean customers will forgive or forget CSPs with inadequate security, he finds.

Search keyword: **TalkTalk**



EE chief executive **Olaf Swantee** has said EE has launched a strategic review

As UK operator EE considers blocking mobile ads how will advertisers react? asks 451 Research

UK mobile operator EE has been looking into introducing technology that will give customers the power to restrict the advertising they see on their mobile devices, writes Declan Lonergan the vice president of 451 Research.

Search keyword: **451 Research**

New addition to VanillaPlus Editorial Advisory Board



Chris Newton-Smith has spearheaded Redknee's growth in the EMEA region

Chris Newton-Smith, the chief marketing officer of **Redknee** has agreed to join the VanillaPlus Editorial Advisory Board as it continues to add new members and bolster its membership from the communications service provider sector.

Newton-Smith comes fresh from Redknee's acquisition out of bankruptcy of **Orga Systems**, which has added further European presence and a global customer base as well as enhanced Internet of Things capabilities to the Redknee portfolio.

At Redknee, Newton-Smith is responsible for developing Redknee's market strategy and enabling its global partnerships. In this function, he has responsibility for product management,

corporate and product marketing, and the development of Redknee's portfolio of patents.

He has broad experience in the telecoms industry. In his most recent role at Redknee, Chris was the general manager of Redknee's EMEA sales and operations organisation, where he spearheaded the successful growth of Redknee's presence in the region. Prior to joining Redknee, he was responsible for business development and product marketing for the Application & Content Services (ACS) business unit of **LogicaCMG** Telecoms, later Acision. He has held positions in sales, marketing, product management, software development, and technology evaluation at Redknee, **BlackBerry**, **Encana** and **UBS**.

Newton-Smith has a Bachelor of Engineering and Management degree from McMaster University in Canada. He is also a member of the IEEE.



Upcoming events

Customer Experience Management in Telecoms 2016 25-27 January, 2016

London, UK
Organiser: IQPC
www.customerexperienceevent.com

Customer Insights & Analytics Exchange
27-28 January, 2016
London, UK
Organiser: IQPC
www.customerinsightexchange.com



Mobile World Congress
22-25 February, 2016
Barcelona, Spain
Organiser: GSMA
www.mobileworldcongress.com



TM Forum Live! 9-12 May, 2016

Nice, France
Organiser: TM Forum
www.tmforumlive.org

CTIA Super Mobility 2016
7-9 September, 2016
Las Vegas, USA
Organiser: CTIA
www.ctiasupermobility2016.com





Mobile World Congress 2016 – 30 years of innovation in mobile

The GSMA's annual mobile industry event, Mobile World Congress will open its doors once more at Fira Gran Via in Barcelona next year between 22-25 February 2016. Here, we provide a brief preview

The event, which will also celebrate its 30th anniversary, has the theme Mobile is Everything, and is expected to welcome more than 95,000 visitors from across the world. In addition to the traditional keynotes, the conference will include in-depth sessions examining topics such as big data, connecting the unconnected, devices, digital commerce, emerging markets, enterprise mobility, financial services, the Internet of Things (IoT), mobile identity and privacy, network evolution and security, among others. There will also be a range of seminars designed to provide insights and updates on key GSMA and industry initiatives including Connected Living, Connected Women, Digital Commerce, Digital Inclusion, Disaster Response, Mobile Money, mYouth, Network 2020, Personal Data/Mobile Connect and Spectrum.

The GSMA Innovation City will again be a highlight of the Mobile World Congress exhibition, with confirmed partners including AT&T, Jasper, KT Corporation and Sierra Wireless. Covering nearly 1,900 square metres, this unique space will enable attendees to experience technology in context and see how mobile-connected products and services can improve the daily lives of citizens and businesses, in industrial applications as well as home, automotive, health, agriculture and others. Mobile World Congress will also feature leading products, services and technologies from over 2,000 companies that are shaping the future of mobile, from handsets and devices to network infrastructure, software and

services. The show floor will also include a number of exhibits focusing on specific technology areas, including the Graphene Pavilion, Green Pavilion, IoT Pavilion, Mobile Money Pavilion and Wearables Pavilion. It will also include App Planet that connects the developer community and the broader mobile ecosystem as well as Four Years From Now (4YFN) which brings leading mobile start-ups together with entrepreneurs, investors, accelerators, incubators and large corporations from both the digital and non-digital worlds.

Mobile World Congress 2016 will include the GSMA Ministerial Programme that convenes governments, regulators and industry leaders to discuss and debate the critical issues shaping the development of mobile around the world. In addition to the exclusive Mobile World Summit, the Ministerial Programme will include focused leadership sessions addressing key topics such as digital inclusion, mobile identity, the Internet of Things and future regulatory paradigms, as well as regional sessions exploring the unique issues of markets including Asia Pacific, Latin America, the Middle East and North Africa, and Sub-Saharan Africa. The 2016 Ministerial Programme, which is sponsored by Intel, will host more than 1,500 attendees over the four days of Mobile World Congress.

For more information on the 2016 Mobile World Congress including how to attend, exhibit or sponsor, visit www.mobileworldcongress.com. 



Here's a big data insight – customers hate disruption and so should you

In researching an article on data analytics, some feedback had to be left out because it didn't quite enter the spirit of the concept, writes Nick Booth



The author, **Nick Booth**, is a contributor to VanillaPlus and a technology journalist

Mobile operators are never going to be loved, they'll always suffer from defections and the best way to inspire loyalty would be to offer a good basic service, said some of my interviewees. I sometimes suspect that if anyone needs an expensive analytics machine to understand what customers want, they're probably in the wrong job.

Big data analysis has massive potential for good but only if you employ the right people to ask the right questions. A good example of the chasm between data analysts and the customers is their interpretation of new trends.

Marketing people are in love with the concept of disruptive technology. But that phrase only conjures up terrible images of computer systems not working and companies grinding to a halt while disputes break out. It's not just in the dictionary that disruption is close to dismay.

It's time we stopped burdening big data with so much negative emotional baggage, according to Frederic Pivetta, the managing partner of data for good, at Real Impact Analytics (RIA). The company actually uses telecoms big data in a positive way, to alleviate poverty, pestilence and disease.

Before RIA got involved, The World Food Program (WFP) worked to prevent food crises by collecting field surveys in target geographies. It still does, but RIA's use of big data made it much quicker and more efficient.

By getting CSPs to continuously share anonymised BSS/OSS data, it somehow built models that illustrated how disease is spread and how the variables that affect the food supply can lead to famine. That big data from the CSPs actually saved lives.

The various silos of data owned by CSPs tell all sorts of stories. They can give a pattern of mass movement, for example, to show how the people of northern Zambia mass together and whether they socialise in a different way from their counterparts in the south of the country. This information, for example, can help the World Health Organisation to understand how disease outbreaks are spread. Viruses, such as Ebola, HIV and Malaria, all have distinct methods of being passed on. So the communications records of a nation can tell the story of how disease is passed on. Malaria, for example is spread by night biting mosquitos, while Ebola comes from direct physical contact. By examining patterns of behaviour – as indicated by the geo-positioning of crowds, the physical proximity and activity – analysts can get ideas about how diseases are most likely to be spread and, as a consequence, develop strategies to combat this. The data, in short, tells them whether a mass investment in mosquito nets, or a programme of health education, is likely to save more lives. By looking at the mobility patterns of a population and understanding connection between towns, telecoms data can also help to determine where these activities will have the most impact.

A study on behalf of the World Food Program (WFP) is preventing food crises by collecting field surveys in target geographies. With the support of WFP and UN Global Pulse, RIA researched other means to effectively identify areas at risk of extreme hunger.

Analysis compared the measures extracted from call detail records and airtime credit purchases to the results of a nationwide household survey conducted at the same time. It found a high correlation between voucher purchase patterns and several food security variables such as the expenditure on food and vegetable consumption.

Working with CSPs to continuously share this anonymous data, RIA can give WFP a regular feed of systematic proxies for food security.

Big data, in this context, is about guiding policy makers by providing a superior alternative to the traditional time consuming and inaccurate methods of manual surveys. In this case mobile telecoms technology is creating vital intelligence for the humanitarian organisations so they can decide where and when help is most needed.

The only people the CSPs seem to be disrupting are the Four Horsemen of the Apocalypse. There must be a lesson we can learn from this. 

It's time we stopped burdening big data with so much negative emotional baggage, according to Frederic Pivetta, the managing partner of data for good, at Real Impact Analytics (RIA)

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