The world of communications has come a very long way in the last decade, with PSTN voice calls migrating from a circuit-switched to a packet-switched environment and good old analogue modem dial-up data calls migrating to a wholly-digital broadband platform. Add in the 2G to 3G evolutionary changes on cellular, along with the explosive growth in mobile broadband, plus additional services in the shape of Voice over IP - and even voice over mobile IP - and you begin to understand why the words 'telco' and 'cellco' are rapidly being consigned to history.

Today's communication service providers (CSPs) can offer a very wide variety of services - all of the above, as well as public access WiFi, IPTV and a number of evolving hybrid broadcast/communications facilities such as on-network catch-up TV plus mobile TV in all its forms. And with Skype claiming to account for around 12% of international voice traffic as at the start of 2010, it's clear that the CSP marketplace is continuing to evolve.

But the 'technology glue' that binds all these various platforms together is also evolving, as CSPs quickly realise that the administrative costs associated with offering triple and quad-play (and beyond) services can eat into their overall profit margins very quickly indeed. It's against this backdrop that a number of specialist firms are now offering business support services (BSS) and operations support systems (OSS) software to assist service providers in their billing services, as well as creating a single customer service centre computer system to enhance the customer experience.

CSP SERVICES.

How hard can managing a diverse set of CSP services be? Let's look at the range of services being offered by O2 in the UK. After being spun off from the BT group in 2001 and renamed from BT Cellnet to O2, the cellco was acquired in 2006 by the Telefónica group. In the UK, the cellco acquired broadband service provider Be Broadband some two and a half years ago, since when it has launched its O2 branded broadband service and an O2 mobile broadband service running alongside its 3G voice cellular platform. And later this summer O2 will be offering pure-play landline services using BT's wholesale unbundled facilities, thanks to installing its own kit - and that of a fellow service provider - in BT's local switches.

This means that O2 has made the transition from being a pure-play cellco to an almost fully-fledged CSP - great news for customers looking for - and getting - multi-service discounts. But even now, customers are still getting separate bills for their different services, although O2 has started the long process of integrating its various billing and customer service platforms.

This process is perhaps best described as convergence and will - over time - see O2 issuing a single bill for a multiplicity of services and the creating of a single support platform held together by BSS/OSS technology. Whilst there are obvious financial advantages that CSPs can derive from a single integrated communications platform held together by good BSS/OSS software, there is also the customer experience to consider.

COMMS LEXICON.
According to Olivier Suard, marketing director with OSS specialist Comptel, convergence is not a new word in the communications lexicon, and that we were talking about convergence back in the 1990s, when some customers started receiving integrated bills and had the luxury of a single number to call for support on multiple services.

He suggests that it's only in the last five years that the industry has seen the real benefits of convergence come to the fore, and CSPs able to offer a truly integrated range of services to their customers, cross-selling in several markets. Coming from a company that has been in the business since 1986, and has clients as diverse as Bharti Airtel, China Telecom, T-Mobile and Vodafone, this is revealing. But, says Suard, if it weren't for convergence in the telecoms industry, we wouldn't have seen newer offerings such as the Apple iPhone in the marketplace. "The arrival of the iPhone has only been made possible because of convergence," he says, adding that, whilst CSPs are now developing common platforms behind the scenes, so saving on operating costs, the customer experience is also improving.

The customer experience, in fact, he says, is now the key driver in the BSS/OSS stakes as far as CSPs are concerned, although the financial imperative is not far behind. "Today's service providers are producing a lot of bills and it does cost money to produce them. The problem is how to get all these new services on to one bill with one customer service interface," he notes.

BANDWIDTH ISSUES.
The financial imperative is also looming for those CSPs providing broadband services, for the simple reason that broadband capacity is now a

THE SERVICE PROVIDER WORLD IS CHANGING RAPIDLY, BUT WHAT ABOUT THE SOFTWARE GLUE THAT BINDS OPERATORS SERVICES TOGETHER? STEVE GOLD SPOKE TO SOME OF TODAY'S MOVERS AND SHAKERS IN THE MARKETPLACE TO WORK OUT HOW THIS IMPORTANT SEGMENT IS EVOLVING TO MEET THE DIVERSE NEEDS OF MULTI-SERVICE SERVICE PROVIDERS.

Supporting multi-servic

> "You can't simply mash your systems together. You have to converge your billing and customer support platforms."
>
> **ALICE BARTRAM, COMVERSE**

ce operators

costly issue for all service providers. "CSPs have a clear choice ahead - they can either shape their bandwidth, causing potential customer complaints, or they can trim their costs by going down the BSS/OSS route," he warns. And in the medium term, he adds, operators have another choice to make - whether to increase revenue - which some are doing by expanding their customer base and/or selling new services - or reduce their costs. And, he says, reducing costs is the relatively easy path - supermarkets, he observes, are past masters at this. They offer a 'market of one' to their customers, he explains. "If you reduce costs - using good BSS/OSS software - you can improve your profits, giving you the money to invest in future growth. This can be achieved, and without too much effort," he says.

Over at Comverse, Alice Bartram, the company's assistant VP of marketing, also notes that convergence has been a topic of discussion since the late 1990s, but says that it's only in the last few years that the communications industry has been able to see true convergence amongst carriers. With a client base of more than 450 CSPs in over 125 countries, Bartram says that a growing number of providers are now reaching the stage where their older multiple billing platforms are being replaced, because of technology and cost issues. As with

Comptel's Suard, Bartram also believes that customer service is the key differentiator between CSPs and has become of paramount importance. And this, she argues, is why CSPs are making the migration to integrated customer support and billing platforms, tapping into the benefits of good BSS/OSS software along the way.

"The bottom line is that, no matter how large a service provider you are, you can't simply mash your systems together. You have to converge your billing and customer support platforms. Yes, it will save you money in the longer term, but the key short-term benefit is the vastly improved experience for customers," she says. Comverse's approach is to offer CSPs a single data model and then adapt it to meet their differing needs.

TAILOR-MADE. "This may mean that, although they have an integrated data platform, they might still have different services such as pre-pay and post-pay cellular, as well as self-service and full service customers," she explains, adding that because Comverse does a lot more than supply BSS/OSS software, it can tailor its services to better meet the needs of its service provider customers. "We are a portfolio services company. We have Comverse Hub and NetCentrex for, respectively, value-added services and IP communications, as well as Comverse One, for billing and active customer management," she says.

Last October, Comverse unveiled an upgraded edition of its Comverse One platform, which is billed as strengthening the ties between telecom carriers and their subscribers. Whilst preparing for the upgrade, Comverse sponsored Forrester Consulting to carry out research into what CSPs are looking for and discovered that operators' customer management/customer relationship management (CRM) capabilities were not enabling them to meet their key business goals. According to Comverse, which has more than 25 years in the communications marketplace, the capability gaps span multiple systems and functions: customer management, BSS/OSS and sales and marketing. Even though these areas have interdependencies, the research found that they have 'grown up' separately, and even with integration, discrete applications speak different languages. The report - *Delivering*

the Next-Generation Subscriber Experience – noted that, in order to bridge the capability gaps, it is essential to extend a convergent BSS approach upstream to encompass sales and marketing.

In July 2009, Comverse announced a strategic partnership with Infor to integrate three key CRM features - sales force automation, campaign management and interaction management - into Comverse's flagship convergent BSS offering. According to the company, this offering has allowed Comverse to deliver a consistent customer experience across the Web, sales force, call centre, point-of-sale and all device touchpoints. By combining network intelligence and profile analytics with real-time functionality, the firm argues that its platform can transform an operator's BSS into a strategic asset.

MIX AND MATCH. Today, Bartram says that Comverse has ten service providers on its Comverse One platform, which, as well as creating a single billing and customer support platform, also allows the carriers to evolve new services on a 'mix and match' basis over time. "Let's take the example of South America, which is a radically different market to that seen in Europe. In the South American market you need real-time credit control, as it's a very fast-moving industry," she says. "And as a result, you have to be both flexible and agile in the way you evolve new services and react to the market. A single system can support today's and tomorrow's customers," she adds. The Bottom Line? Bartram says that service convergence - driven by good BSS/OSS systems and allied software - has to happen. It just takes time, she notes.

Suard and Bartram's viewpoint that the customer service experience is a bigger driver than the cost imperative is not

> "If you can access and manipulate your data more effectively, you can improve your business efficiency and your bottom line."
> **GORDON RAWLING, ORACLE**

supported by Gordon Rawling, senior marketing director with Oracle's communications business unit. Rawling, formerly with Amdocs, says that the cost imperative is the main driver in the BSS/OSS stakes for the simple reason it avoids duplication of services and reduces their business inefficiencies. "A lot of companies in the communications industry have been using Oracle's database software at the heart of their systems for a long time," he says, adding that it's for this reason that Oracle made the decision some years back to move into the business communications space.

"We've added BSS/OSS specific functions on top of our database software, as well as developing a number of telco-specific applications, which allows us to cover all bases from the database itself right up to the billing and customer support side of things," he explains. According to Rawling, Oracle has acquired a number of other players in the BSS/OSS space in the last three to four years, allowing it to become a one-stop shop for software for many operators. "It all comes down to the database access side of things. If you can access and manipulate your data more effectively, you can improve your business

efficiency and your bottom line," he says.

MULTIPLE SERVICES. And, he notes that even though the telecoms industry has changed significantly in the last decade, the change is continuing. "Telcos are moving back into retail again, as the profits are clearly better than in simply offering communications services, even across multiple platforms. A service provider can then sell those multiple services as a bundle to the customer in the store," he says. It's because of this constantly evolving market that Rawling says price is a major driver. "I've never known a time when price was not an important factor in the software stakes. It's why we keep a constant eye on what our competitors are up to in the BSS/OSS stakes and adapt our pricing strategy accordingly," he says.

Rawling has an ally in the 'price is key' mindset in the shape of Rikke Helms, managing director with Antenna Software, who says that an integrated software approach allows service providers to mobilise their various services more cost-effectively. According to Helms, one of Antenna's major customers, Virgin Media, has harnessed the power of an integrated data set to allow its customer service staff access to all relevant information on the customer's facilities at all times. This access, she says, even extends to mobile staff in the field, who can access customer data in real-time wherever they may be.

Virgin Media's in-house management system - ICOMS - is the gateway to numerous back office systems including those holding customer data and job scheduling. Virgin developed its own bespoke field service application to carry out this task based on the Antenna Mobility Platform (AMP), which allows customer data to be accessible across a range of services, from dial-up to broadband and 2G or 3G communications, to engineering and support staff. Put simply, says Helms, if a customer call centre operative amends a piece of customer data, then that revised data set is immediately updated to the mobile field staff member, allowing

them to avoid any duplication of effort. According to Helms, mobilising its field service agents has provided Virgin Media with the ability to manage the customer experience on site, guaranteeing successful first-time installations.

COST IMPERATIVE. This has not only improved customer satisfaction levels but has also reduced the number of site revisits and associated costs. In addition, Virgin's management now have instantaneous access to field personnel, an insight into the status of tasks, and the ability to issue scheduling updates plus job notifications direct to the staff concerned. "Price is always going to be an issue in the multi-service marketplace, the price of mobility has come down - telecom companies are also expecting the cost of managing their customers to come down as well," she says. As a result of this cost imperative, Helms says that service providers are having to update their billing and customer service platforms. "The problem that CSPs face is that the larger companies tend to have older server technology and systems. They are then faced with a choice - continue with the legacy systems at a higher operating cost or invest in new systems and reduce their operating expenses in the longer term," she says.

Over at Elitecore Technologies, Nikhil Jain, the telecom service software specialist's chief operating officer, says that a positive customer service experience and lower costs have their place in the BSS/OSS spectrum,

but points out that CSPs should not lose sight of the need to sell new services to customers. "By providing a good service to the customer and offering them the latest new services, it can stop them churning to the competition, which often happens in our competitive industry," he says.

The telecoms

marketplace, he says, is changing very rapidly and, as a result, customers now expect much more than just plain vanilla voice services from their respective service providers. "This has resulted in the evolution of the telecoms industry towards convergence of telecom and media. Unlike the early days of our industry, the entire telecoms sector has evolved into an ecosystem based on a partnership wherein the telecom service providers are tying up with various vendors such as platform providers, content providers, and application providers, who are all specialists in their respective areas," he says. "This has allowed the CSPs to provide more and more services to their customers. And the model has evolved because it gives a significant cost advantage to the service providers, as well as helping them increase customer satisfaction levels," he added. According to Jain, whose company provides a diverse range of billing, policy and device software systems for its service provider clients, the major issues that arise from this arrangement include a distinct need for interoperability between different
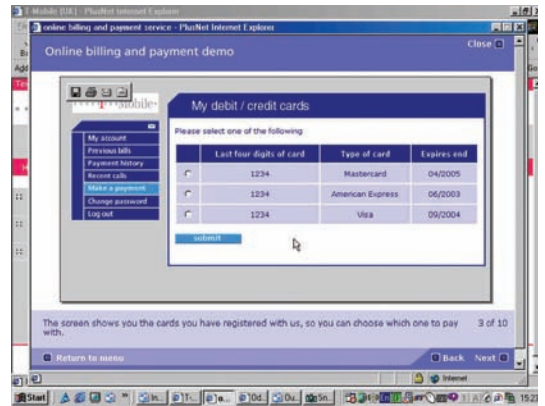
applications and network elements, as well as the billing of these service bundles.

MULTI-PLATFORM. "But with the growth of the industry, these issues have also been addressed by various products which provide seamless support in a multi-vendor environment," he says. It's against this backdrop that Jain has observed the new generation of multi-platform service operators looking for software solutions that help them reduce the time - and cost - associated with integrating their different systems. Operators, he says, want these new solutions to be able to integrate with their existing legacy systems, rather than simply replacing them outright. "Service providers are looking for solutions that are scalable in both the horizontal as well as the vertical market directions," he says, adding that modern CSPs are also coming to expect a customised software module-based solution, rather than the entire product suite.

The nett result of this, he explains, is that service providers now want their software systems - from multiple suppliers where appropriate - to be loosely coupled, which in turn helps them to work under a multi-vendor environment. So which CSPs are embracing this loose coupled multi-vendor software strategy?

Jain says that his customers range from Tier 1 telcos, all the way down to Tier 3 suppliers, including Indosat M2 and Hutchison Telecom. Evolving an effective software servicing system allows a service provider to respond quickly to new services as they are introduced, and quickly roll out the new services to its customers on a cost-effective, as well as a rapid basis. Elitecore is using this strategy to roll outs its range of BSS/OSS software solutions into emerging markets such as India where, in March of this year, the company's technology helped MTNL roll out a prepaid broadband service.

ON-DEMAND. According to Jain, MTNL has deployed Elitecore's Crestel and EliteAAA platforms for its billing, revenue management and core network plus session control systems. By creating a flexible and responsive platform, Elitecore says that MTNL - which provides a range of fixed and wireless services across India - can roll out a range of on-demand services and upgrade customer bandwidth in real time. And using Elitecore's technologies will allow MTNL to roll out the new next-generation network (NGN) services in the future - such as IPTV and Voice over IP - using a single IT platform,

which Jain says helps to reduce capital expenditure, as well as ongoing operating costs.

So what's going to happen in the telecoms world over the next 12 months and how are the CSPs going to adapt to the fast-changing brave new world of telecoms? According to Jain, the biggest issue for multi-service operators in the coming 12 months will be content and how to handle it. "The problem is that most service providers have not been able to develop one single killer application in their portfolio of services," he says. He suggests that almost all service providers are already facing heavy pressure on their revenues due to decreasing ARPUs (average revenue per user) and lower levels of partnering with other telcos for multiple services. "It's for this reason that we see

service providers developing their own content that is relevant to their customer and create a compelling reason for a customer to stay with them, rather than churn to another provider," he explains.

Another challenge facing operators - especially in the emerging markets such as India and Asia - he says, will be to launch new services by integrating their legacy systems with new network elements. "Regardless of the fact that a number of software vendors are offering a complete

range of software solutions for service providers, the reality is that the telcos will have investments in their existing IT systems that they will need to integrate with new systems for new services as they arrive in the marketplace," he says.

OUTSOURCING. Vivian Hudson, VP and GM of service assurance at Canadian-headquartered Exfo, which provides a range of communications test and assurance solutions to service providers around the world, suggests that that the problem for many CSPs is that it takes a relatively long time to roll out new single platform services to customers. "It's all about billing and customer service at the moment," she says, adding that IMS (IP multimedia subsystems) is likely to form a key component of CSP strategies in the years ahead. "A growing number of service providers are choosing to outsource elements of their various services and this is going to continue, but the CSPs must have a good set of SLAs (service level agreements) in place if they are to go down this path," she says.

> "The problem that CSPs face is that the larger companies tend to have older server technology and systems."
> **RIKKE HELMS, ANTENNA SOFTWARE**

"If you look at Verizon in the US, they have good SLAs in place with their partners and, as a result, have a very high quality of service for their customers, no matter what services they use," she adds. According to Hudson, effectively managing the services that a CSP supplies to its customers is a key issue, and to this end, she says that service providers are starting to create service portals for management to monitor what is happening on their network in real time. "Quality of service is going to be very important in the near future, as most cellular operators are experiencing the problem that they need to invest in better network backhaul to cope with the surge in data volumes their users are generating," she says.

"Carriers are starting to discover that all those T1 and E1 circuits they put in the 1990s are no longer sufficient to handle the increase in data traffic on their networks at peak times. As a result, the mobile operators are looking for excellent SLAs from their suppliers," she added, also noting that through the use of active monitoring of their networks, wireless carriers can check on whether their networks are holding up under the onslaught of increased data usage from more and more smartphones plus mobile broadband users. And, if they are not, then they can tell their partners that they are failing to meet the terms of their SLAs and get them to remediate the situation as quickly as possible.

SERVICE QUALITY. Hudson, whose company has more than 1,200 staff around the world, says that price is not the imperative it once was in the service provider marketplace. "Is price a major issue? Not as great an issue as it used to be. Service providers are now focusing on service quality to their customers and are working to improve the customer experience," she says. And by taking this approach, she concludes, customers remain more loyal to the service provider and more amenable to being offered new services as they become available.

It's clear from discussing the current state of the BSS/OSS arena with vendors and allied companies worldwide, that the rapid pace of change in the CSP marketplace is pushing a growing number of service providers into reducing their operating expenses. How they reduce their opex, of course, is a strategy that differs between CSPs but, according to Sanjay Mewada, VP of NetCracker, the evolution is now so rapid that service providers are having to change their software systems to adapt to the change. "For the last 50 years the service providers lifeblood has been their network. But now that is changing - in a very short space of time, for example, we've seen 3G arrive in the cellular marketplace, with the result that customers

are now looking for content as well," he says.

"What has changed is that the perceived value of

the network has declined. The source of differentiation between service providers has changed with today's CSPs differentiating themselves by their levels of customer service and support, as well as their ability to follow up on customer demands with new services," he observes. According to Mewada, provided service providers continue to give their customers what they want, they can continue to make a profit. If they fail at this task, he says, they will fail to make the profits needed to invest in future services.

CORE COMPETENCIES. The market, he argues, is changing very rapidly. You only have to look at Google's rise to prominence in several sectors, and the fact that Skype's business model can make money for its owners, he says. And, he adds, it's now all about outsourcing, with service providers concentrating - wherever possible - on their core competencies. "It's clear from our discussions that service providers are moving to a more agile business model as a result of the changes in the marketplace," he says. "The industry is changing rapidly. Just look at the service providers of 20 years ago and compare this to the list of major players around today," he notes.

And, he says, there is even more change to come. But does this mean that service providers need to diversify even more? "Most certainly not. Take the example of TV over IP - if it takes off, as many expect it will, does this mean that CSPs have to start building TVs? No, they will rely on third-party companies to continue to do this and concentrate on their core competencies," he says.

It's against this backdrop that Mewada believes - as do many of the executives contacted - that outsourcing is the key to the continuing diversity occurring in our industry.