

technology

The telecommunications industry, as you may have noticed, is in a period of great change, mainly as a result of the migration of carriers from a circuit-switched to an IP network architecture.

From a customer's perspective, these changes herald a significant increase in the choice of services available. For the carrier, these changes open up a new world of revenue opportunities, as customers move on up from POTS (Plain Old Telecommunications Services) to the delights of IP voice and video calling movie and TV downloads, and a variety of other content services as well.

So much for the front office, but what about the carrier's back office systems? Creating a back office environment capable of supporting an IP network infrastructure is a quantum leap from supporting circuit switched options. The CRM (Customer Relationship Management) systems have to be significantly updated for starters, and that's before the billing systems are revamped to accommodate all manner of voice and video calls, as well as several types of content from downloadable ring tones through to entire movies.

Amongst the IP telcos, only Skype has so far ventured into downloadable ring tones, but it looks likely the rest of the telecoms world will follow Skype's lead, given the healthy potential profit margins involved. But moving from simple call logging to a CDR (Call Detail Record) transaction-based accounting system is a significant move for almost any telecoms carrier, no matter how large or small.



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denial of service, must all be supported in as close to real time as



On the C

Telcos' TV and video-on-demand offerings will bring new complexity to billing. Are carriers ready for the impending communications revolution, and is this their chance to hit the front in unified billing? Steve Gold investigates.

possible if the CRM environment is to be effectively supported.

As the industry moves to an all-IP network infrastructure, so CDR standards have evolved, the latest of which is the IP Data Record or IPDR for short. IPDR records contain a variety of information related to a customer's IP-based communications session. This data usually includes information on the user of the service, the type of service used, the quantity (time or data) used and, of course, the date and time the transactions started and finished. But there's more. Effective CRM is about managing quality of service, which means that a modern IPDR billing system must also include details of the quality of service for a given call transaction. And just to make life really interesting, the IPDR data must be bundled in a standardised way - known as an EMR (Exchange Message Record) - for data import and export to other applications.

SHAPE UP. So how are the carriers shaping up as regards the



creation of effective IP billing systems? The use of 'carriers' as opposed to 'telcos' is with good reason: modern telecoms carriers must bridge the wired/wireless divide and, because of this, the 'telco' term is now outdated. This evolution is clearly illustrated when you look at the cluster of billing software companies that have evolved to service the outsourcing needs of the carriers.

One company, Portal Software, is a

classic example of industry evolution, having been born out of the Internet Service Provider (ISP) world - as opposed to the telecoms industry - around 15 years ago. Today, Portal is one of the key players in the IP billing systems industry, and offers a variety of solutions to carriers, allowing them to get on with their core process of service provision. Portal's strategy with its billing systems software has been to embrace open standards and APIs (Application Program Interfaces) wherever possible, to allow close integration with third-party software from the likes of Oracle and SAP.

According to Graham Carey, Portal's EMEA marketing director with responsibility for billing and content services, the need for integration with third-party software has never been greater in the telecoms industry. Unified billing, he says, has finally come of age, with users accessing a variety of telecommunications services, together with video-on-demand and even TV services, all from the same carrier. "Today's billing software has to be capable of handling a lot more than simple telecoms. There's TV and the Internet to consider. And all these technologies are converging on IP."

REAL TIME. Carey says that the fact that Portal has grown from its ISP billing provision origins 15 years ago, rather than from a telecoms billing background, has helped the company immensely. "We realised very early on that there was a need for real time transaction processing. We were successful in the ISP space with this approach and have now moved into the telecoms space," he explained. Carey does not see Portal as limiting itself to the wired telecoms space. If anything,

his firm's software bridges the shrinking gap between the wired and wireless worlds. "When 3G/UMTS technology started to get rolling in the late 1990s, we recognised the need for real-time billing in the wireless space, and developed our billing software to meet that need."

The ability of Portal's software to handle billing and allied functions across the wired/wireless divide is something that Carey says was the reason France Telecom has just contracted the company for its billing services across the whole of Europe. The contract was landed as France Télécom announced in late February that all of its consumer operations, both wireline and wireless, are to be branded as Orange from later in 2006 onwards.

BACK OFFICE. At the 3GSM show in Barcelona in mid-February, Portal took the wraps off its Digital Media Framework technology which, the company claims, leverages the Portal 7 platform-based approach and open APIs to provide a defined roadmap for carriers. This is important, says the company, as carriers need back office systems support, as they start delivering the entire range of digital media, including video, music, games and ring tones, as well as Internet and telephony-based services.

One of the most important aspects of being able to support a carrier's ability to deliver the digital media revolution, says Carey, is to offer the customer a choice in the way they pay for their new services. Whilst some customers prefer the convenience of a regular monthly bill, others are looking for the budgetary control that comes with pre-pay services. "Then there's the situation of a customer wanting a regular monthly bill for their basic services, but also wanting the ability to pay for content as they go," he said, adding that offering customers the ability to 'top up' their regular monthly billing is an important feature of customer service.

This flexibility in customer interactions, says Carey, also extends to the back office functions. "We've just announced the ability of our software to interoperate with SAP. This reflects the need to work with third party software," he said. According to Carey, the ability to bridge multiple wireless environments is also assuming high levels of importance in carrier's back office billing and CRM systems. "Nokia unveiled its first cellular and WiFi-enabled handsets at 3GSM recently, so you can see the need for carriers to offer unified billing on multiple systems and services," he said.

SIMPLE SET. As well as offering a unified approach to the customer, Carey says that a billing and CRM system must also be robust and secure, as well as offering a relatively simple set of data. "Customers don't want to see lots and lots of transactions on their bill. They want to see a simple set of data telling what calls, content and services they've used," he said.

Does this mean that customers are looking for a flat-rate billing approach to their converged carrier services? Not necessarily, says Carey, pointing to the requirement of some consumers who want a regular flat-rate bill for their basic telecommunications service, but who also want to top up their accounts for content services. "The new generation customers are looking for a credit bill, but with the option to pay for extra services on their credit or debit card, or even establish an extra pre-pay account element to their service. It's important that carriers can allow their customers a high degree of flexibility in their ways to pay for various services," he said.

So where does Carey see the IP telecoms marketplace heading over the next 12 to 18 months? Although he predicts there will be more of the same when it comes to multiple carrier services, he sees



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By using a combination approach of credit and pre-pay you can do this," he said.

ATLANTIC CROSSING. According to Jennifer Kyriakakis, Portal's marketing director for North America and Carey's counterpart on the other side of the Atlantic, offering an open API to the billing systems and software is crucially important in a modern carrier environment. "All of the functionality is exposed by the APIs within our software," she said, adding that this is particularly important as far as Portal's US carrier customers are concerned.

This is because the US carriers, specially those in the wireless marketplace, are now starting to outsource many of their customer back office functions, so being able to tie billing and CRM software systems in with third-party applications is fast becoming a standard requirement.

Not all wireless providers are outsourcing their billing systems, she went on to say. A classic case of this, she said, is Verizon wireless, which is building its own billing systems. "Triple play is becoming very big here in the US," she said, adding the telecoms market's convergence has meant that many carriers are extracting maximum value from their billing software by tying multiple system together under one software umbrella.

NEW ENTRANT. At the other end of the telecoms scale, meanwhile, there are the growing band of VNOs that are springing up, most notably in the cellular industry. One billing systems company that is now servicing the VNO industry directly is Intec, which describes itself as a business and operations support software vendor. Earlier this year, the company launched a software offering for mobile VNOs and new operators in the cellular industry.

The essence of the software, says Intec, is that it is capable of evolving from simple voice and messaging services through to fully converged, circuit-switched and IP-based next-generation mobile services. According to Intec, whilst a number of attempts have been made by various vendors to launch pre-packaged solutions in this

the emergence of virtual network operators (VNOs) in the IP and telecoms fields to service the needs of certain groups of customers. These IP telecoms VNOs will mirror the development of mobile VNOs in the cellular segment, such as Virgin Mobile and a growing band of mobile VNOs arriving across Europe and the Asia-Pacific. Even though the market is changing at a rapid pace, Carey makes the point that carriers will still need to be vigilant to prevent any bad debt accruing on customer accounts. "This is why a high degree of flexibility in customer payments needs to be there. You've got to try and stop the situation of a customer getting an unexpectedly large bill landing on their doormat at the end of the month.

segment of the market, the solutions have been too prescriptive. Because of this, the company claims, the software seen to date has limited the flexibility and service growth potential for the operator concerned.

Intec says that its Mobile Business Solution gives operators access to a modular architecture based on proven technology. Andrew Rodaway, Intec's director of marketing, sees offerings such as this as meeting the rapidly-changing telecoms world, especially now that the move to IP infrastructure is almost complete amongst many carriers. "The evolution to IP has been quite rapid. We started life as a traditional telecoms billing company, but moved into the retail space, as we like to call it, about 18 months ago," he said.

CONFIDENCE TRICK. According to Rodaway, billing for services isn't a major technology issue for most carriers, but there is still a need for carriers to install an integrated system if they are to meet the needs of their customers in the modern telecoms world. Rodaway argues that without an effective billing system in place, most carriers will lose money. But they also stand the risk of losing something else, he says: customer confidence.

"If I'm used to seeing a bill of £60 a month for my telecoms service and suddenly get a bill for, say, £250 due to the carrier's billing system hitting problems, I'm not going to be pleased," he said. "When you realise that the bill is often the only contact that a customer has with their telecoms carrier, you begin to realise the importance of getting the billing right. It can mean the difference between a customer staying with their carrier for a long period or their moving on at the end of a given contract period," he explained.

Because of such issues, Rodaway says that carriers of all types do not like to mess around with their billing systems. "Today's telcos are often conglomerates - an amalgam of smaller companies that have been brought together under one company umbrella, and, as a result, their IT systems are usually a mixture of different technologies," he said. To solve the billing infrastructure issues associated with legacy and multiple platforms, Rodaway says that a number of carriers install an overlay system that draws together data from the different systems and generates a single, standard format bill to the customer.

"This means that that, as new services are launched, no matter how they are implemented, the customer sees a unified bill," he said.

CENTRAL STATION. Rodaway dismisses the suggestion that carrier billing systems are centralised. "Not in my experience. Using an overlay approach in billing can solve a number of problems and



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comes to the customer. "Most carriers have to deal with a lot of parties involved in a telecoms transaction. They might be dealing with a large third-party company that supplies services to their customers. And they might also be dealing with someone working from their back bedroom that supplies ring tones to their customers," he said. "Whatever the size of the third-party company that a carrier is dealing with for content and other services they offer to their customers, the transaction processing has to be accurate. For this to happen, you need good software systems and good levels of contact with the third party company concerned," he added.

INTEGRATED APPROACH. The move to an IP infrastructure and IPTV in particular, has resulted in carriers having to make significant changes to their CRM and billing systems but, according to Convergy's, carriers still need to take an integrated approach to their back office systems. Convergy's claims its approach to the issue of carrier back office systems has been to develop and integrate CRM and business support systems for carrier customers. The company has just upgraded its Infinys software to integrate the customer care and billing services with the human resource function.

Although at first glance this seems an incongruous mix, Convergy's claims that its Infinys offering is now the industry's first modular, convergent billing solution that links the CRM and business support system environments. Fiona Fulton, Convergy's marketing strategy manager, says that the modular approach is essential to the development of an effective CRM and billing system for the current crop of carriers in the marketplace. "This is why our customers are amongst the majors in the industry, including BT and Verizon," she said, adding that the

it's a solution that works," he said. But does the overlay approach work in the current carrier world, one where carriers are transitioning their networks from a circuit-switched to an IP-centric topology?

According to Rodaway, the answer is yes, especially now that convergence is really happening in the carrier world. This, he says, is despite the fact that IP was never considered to be a service that carriers would want to bill for. "Because of this, IP billing always tends to be an overlay system. It's a complex technological issue, but one that can be solved by an overlay system. The customer then receives a relatively simple bill, which is what most customers are really looking for," he said.

Aside from the migration of carrier networks to IP infrastructure, Rodaway is at pains to stress the need for billing systems to be accurate, and not just when it

migration to IP means that effective billing is now a central function as far as carriers are concerned.

Because of the diversity of IT systems that most carriers have these days, Convergy's has taken a modular approach to its software, developing a range of core applications - each with their own identity and release management lifecycle - programmed in the C++ programming language. The interface to the company screens, meanwhile, are normally programmed in Java, says Fulton, which allows Convergy's to install a customised software system for even the largest of carriers.

CUSTOMER MATCH.

"We're fairly lucky that our product is platform and systems agnostic, so we can develop a CRM and billing system for a customer that matches their requirements, wherever they are on the migration path to IP," she said. Integrated systems are all very well, but what about the need for content management in the world of IPTV and ring tones - and all points in between?

According to Fulton, whilst Convergy's doesn't supply a digital rights management

to carriers, its systems provide the glue that holds the CRM and billing systems together. The telecoms industry, she says, is currently in a quiet period as a number of carriers are waiting to see what the industry majors, such as BT, do as regards the launch of a full range of IP services. "Once the majors announce their plans, I think you'll see a period of intense activity in the industry as everyone moves to launch their own new range of services," she said. And when this happens, she adds, carriers will need an effective CRM and billing system to support the new services.

