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In this Issue: 2008 IMS Leadership Awards

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IMS MAGAZINE™

IP MULTIMEDIA SUBSYSTEM

VOLUME 3/NUMBER 5 OCTOBER/NOVEMBER 2008

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editor's note

by Richard "Zippy" Grigonis

Getting the Word Out

Marketing something successfully can often be more an art than a science. Take IMS, for example. Publicity for something like IMS is difficult, since the "customer" is a network operator, carrier, service provider, etc. The average person isn't going to be impressed with a new communications infrastructure, just the exciting, inexpensive services that result. Service providers' ears should perk up when you tell them that IMS will provide a way to create an open, standards-based network architecture that delivers new integrated multimedia services to increase revenue, while also reducing network CapEx and OpEx. But that's not always the case, particularly in an era of economic turmoil.

One way to boost the reputation of something is to associate it or piggyback its name onto something prestigious. For example, one of the world's most prestigious events is the Olympics, and Ericsson (News - Alert) got some mileage for both itself and IMS by providing an IMS platform for the 2008 Olympics in conjunction with Beijing Netcom, a branch of China Netcom.

Another way is to show everyone how a currently hot and sexy (not to mention revenue-generating) application can be delivered via an IMS service architecture-related product, and to produce a satisfied customer. Video in all its forms continues its rapid rise in popularity, and Radvision (News - Alert) recently announced that its IMS Video Share Application — which is used to seamlessly integrate IMS video sharing services for Windows Mobile and other operating systems — is now being adopted by Quanta Computer (News - Alert), which will be deploying it as the first IMS service to run on Quanta's Windows Mobile 6 smartphones.

In other cases, however, a large, formal, across-the-board effort works best.

NEC (News - Alert) Corporation of America (www.nec.com), the huge technology provider of network, IT and identity management solutions, has organized a major promotional effort, hatching global NGN/IMS initiatives and forging close collaborative relationships with major companies to demonstrate proof of interoperability of its NGN and IMS-based solutions, in particular NEC's portfolio of NGN and IMS-based IPTV (News - Alert) related software, including the NC5000 Series, NC7000 Series (including a Video-On-Demand server), and NC9000 Series.

Recently NEC announced the appointment of Dr. Veli Sahin, Senior Director, Business Development, NEC Corporation of America, Carrier Solutions to the Board of Directors of the MultiService Forum (News - Alert) (MSF), the international organization that works on advancing NGN standards, open architecture and multiservice switching systems. Sahin will help develop implementation agreements, promote the worldwide interoperability of NGN network elements, and encourage input to appropriate national and international standards bodies.

Earlier in 2008, NEC launched its Service Convergence Integrated Platform (SCI-P), also amusingly known as "Light IMS," a converged multimedia and Session Initiation Protocol (News - Alert) (SIP)-based solution that enables a fast, simple software-based migration path to a full IMS-based NGN. As is the case with anything IMS-related, NEC's SCI-P brings an open standardized approach to service creation, thus allowing service vendors and operators to implement and deploy new services in shorter cycles and with less investment.

NEC is also in the process of setting up a global interoperability lab in the U.S., where they'll trial IMS and IPTV-centered multimedia services and devices that, thanks to IMS, will work in both fixed-line and mobile communications environments.

Presumably, everyone by now should have heard that the IMS architecture, originally designed for third-generation mobile phones, can project applications over everything from WiFi (News - Alert) to cellular to fixed line communications. No one really argues that it's a bad idea to build an access-independent platform for service delivery, it's just a matter of getting the operators to commit and move forward (or perhaps move forward faster).

NEC's efforts should help catalyze and accelerate the ongoing IMS adoption process.

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

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Alcatel·Lucent

publisher's outlook

by Rich Tehrani

WiMAX World 2008 Update

WiMAX has gone through an overhype stage and now, like so many other technologies — VoIP included — is at a stage where the markets are trying to figure out where the opportunities lie. Indeed, trying to determine what is real and what is hype is difficult to do and to cut through the FUD (Fear, Uncertainty and Doubt) I spent time at WiMAX World in Chicago to learn more from the movers and shakers in the space.

I came armed with questions about deployments and the threat of LTE (News - Alert)— the evolutionary technology theoretically enabling 2-3G operators to ignore WiMAX. In the last six months many articles and technical white papers have appeared questioning whether WiMAX is necessary.

To cut to the chase, I spoke with VP Chair, Marketing Working Group of the WiMAX Forum, Dr. Mo Shakouri (News - Alert), who explained that the transition to LTE involves more than a simple software upgrade, as carriers need to go from CDMA to OFDM — which obviously requires new hardware. They believe there is a strong marketing campaign being waged by mobile operators and some hardware providers who want to sow FUD in the WiMAX market.

To combat the LTE threat, the WiMAX (News - Alert) Forum is feverishly working with companies to develop lower-cost CPE devices, since carrier profitability is tied to device cost. In fact, the cost of such devices should soon be in the $20-$30 range. Shakouri acknowledges that the increased FUD has slowed investment in the market but at the same time he explains that worldwide, governments are pushing WiMAX as they realize mobile wireless broadband is crucial to the success of their nations. As a result they are allocating frequencies to make WiMAX a reality in their parts of the world.

From Shakouri's perspective, just about every carrier will have to overlay WiMAX on their networks to provide mobile broadband access at speeds sufficient for future applications. He explains this is happening in many countries today and in a few cases, major operators are resisting this trend. I should mention that in the cases where operators spread FUD, the carriers coin-

rollout of WiMAX themselves.

This sounds to me exactly like what the major carriers and equipment providers did when IP telephony first started to become popular. They downplayed the new technology for years while secretly working on IP communications solutions themselves.

Shakouri also reminds us that WiMAX has a huge head start over LTE and laptops and other devices will soon be equipped with WiMAX radios, meaning LTE will be at a disadvantage.

I interviewed a number of people at WiMAX World and they concurred with most of what Shakouri told me. Motorola (News - Alert) was a notable exception. I spent a good amount of time picking the brains of Sudhakar Ramakrishna (Corporate VP and GM), Tom Gruba (Senior Director) and Kathi Haas (External Communications). Their take? It is possible for carriers to skip WiMAX and many are doing so. Indeed they agree that some say WiMAX has a three-year head start over LTE but they are actively engaged in providing LTE networks for their customers today. I pressed for an ETA but couldn't get one.

Motorola is truly agnostic in the LTE vs. WiMAX war and they will tell you they just want to do what is best for customers. Sometimes, as discussed earlier, this has to do with available frequencies. Motorola also feels they're well-positioned in the wireless space, owing to their ability to leverage their wireline expertise and help carriers deploy their connected home visions.

My take is that WiMAX is happening today and has proven itself quite well. I have spoken with operators making money providing WiMAX service and they are happy with the price points – and I look forward to these going lower. LTE does have a tremendous advantage of a massive installed base of devices which will be upgraded by wireless carriers over time. In the end, there may be a winner but for the foreseeable future expect peaceful and in some cases, not so peaceful coexistence.

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www.tmcnet.com/2442.1

Ericsson and Sonaecom Team on IMS-Integrated IPTV Middleware Trial

In collaboration with Portuguese triple play operator Sonaecom, Ericsson will provide and integrate its open, standards-based, end-to-end IPTV solution. The Prime Integrator agreement includes Ericsson's new IMS-based IPTV middleware and enables the operator to deliver personalized and interactive TV experiences to its subscribers. The deployment and trial has already begun.

Ericsson will upgrade Sonaecom's IPTV system by delivering and integrating a next-generation, end-to-end IPTV solution comprising Ericsson's new IMS-based IPTV middleware and network infrastructure, as well as TANDBERG Television's high-definition and standard-definition video processing platform. The collaboration will enable the Portuguese triple-play operator to provide an individual entertainment and communication package for consumers that includes interactive and mobile functionality.

Based on open standards, the Ericsson IPTV ecosystem is designed to comply with the Open IPTV Forum specifications.

www.ericsson.com

www.tmcnet.com/2443.1

Brasil Telecom Deploys mSwitch System for Fixed Mobile Convergence Service

UTStarcom, Inc. announced that Brasil Telecom has deployed the company's mSwitch solution to power its fixed mobile convergence (FMC) network. This convergence network solution would enable fixed-line connectivity with GSM platforms for call continuity between the two networks using a single wireless device. The FMC solution is designed to also help Brasil Telecom extend its current cellular coverage area using the new Voice Continuity Call (VCC) handover between cellular and WiFi networks.

The deployment reportedly makes Brasil Telecom the first mobile operator to implement UTStarcom's mSwitch solution and also the first to have fixed mobile convergence networks in the world.

www.utstar.com

www.tmcnet.com/2445.1

NEC Accelerates Path to NGN Standards and Interoperability

In an effort to advance the development of Next Generation Network (NGN) standards and interoperability in a multi-vendor environment, NEC Corporation of America (NEC), is leading several global NGN initiatives and establishing close collaborative relationships to demonstrate proof of interoperability of its NGN and IP Multimedia Subsystem-based (IMS) solutions.

Recently, NEC announced the appointment of Dr. Veli Sahin, senior director, Business Development, NEC Corporation of America, Carrier Solutions to the Board of Directors of the MultiService Forum MSF. Dr. Sahin's appointment comes as NEC prepares for the October GMI 2008 (Global MSF Interoperability) event, where NEC will assist in generating recommendations for interface specifications as well as test scenarios necessary to promote the continued growth of NGN. GMI 2008 will use "real-world" global network scenarios to highlight the compatibility of NEC's portfolio of NGN and IMS-based IPTV related software.

www.necam.com

www.tmcnet.com/2446.1

Nanoradio's Always On WiFi Introduced Inside 3G UMA Phone

Nanoradio has announced that its Always On WiFi solution has been commercially launched inside the world's first unlicensed mobile access (3G UMA) phone. The P270 is reportedly the first device that combines UMA and 3G network technology. UMA extends mobile services voice, data and IP multimedia subsystem/session initiation protocol (IMS/SIP) applications over IP access networks. The UMA phone requires the WiFi to be active all time in order to receive an incoming or making an outgoing UMA call.

A NRX700/2 WiFi chipset, the Always On WiFi solution from Nanoradio offers fully tested 802.11b/g functionality. The functionality features ultra-low power consumption enabling UMA standby time and UMA talk time.

www.nanoradio.com

www.tmcnet.com/2447.1

Alcatel-Lucent and Neo-Sky to test WiMAX Rev-e Capabilities in Spain

Alcatel-Lucent today announced that it has been selected by Neo-Sky to deploy a turnkey WiMAX 802.16e-2005 (Rev-e) network in Madrid, enabling the Spanish broadband operator to test and accelerate the deployment of WiMAX services in Spain. The network is designed to enable services such as Voice over IP (VoIP), high-speed Internet access and advanced multimedia broadband services for nomadic users, fully supported by computer-embedded end user devices.

In the framework of this field trial, Alcatel-Lucent will provide Neo-Sky with a complete WiMAX Rev-e solution, including base stations and WiMAX access controllers, and IP Multimedia Subsystem (IMS) core networking equipment, software and application platforms and end-user terminals. The IMS architecture enables the delivery of advanced and personalized telephony and multimedia services from fixed and mobile access. Alcatel-Lucent also will provide design and planning for end-to-end integration of Neo-Sky's network along with maintenance and provisioning services.

www.alcatel-lucent.com

www.neo-sky.com

www.tmcnet.com/2444.1

3 Italia Selects Alcatel-Lucent to Expand its DVB-H Mobile TV Network

3 Italia, a 3G mobile operator in Italy and a DVB-H Mobile TV operator, has selected Alcatel-Lucent to expand and optimize its broadcast Mobile TV network throughout Italy. Alcatel-Lucent's solution for 3 Italia is based on its DVB-H terrestrial transmitters, its remote monitoring system and includes network integration services. The solution will enable 3 Italia to increase the indoor and outdoor coverage of its broadcast Mobile TV network, while optimizing network efficiency for enhanced Mobile TV service delivery. As a result, 3 Italia's subscribers will be able to enjoy television programming — such as football matches, movies, music and reality shows — with improved mobility and service continuity.

www.alcatel-lucent.com

www.tmcnet.com/2448.1

Catapult Communications Delivers Comprehensive Femtocell Testing

Catapult Communications has announced extensive femtocell test capability on the DCT2000 test system, enabling customers to verify femtocells on LTE, UMTS, CDMA2000 and WiMAX networks over IP, SS7 and ATM transports.

A femtocell extends the reach of the cellular network into homes and small offices providing users higher quality voice and data coverage. Network equipment manufacturers and service providers can verify femtocell access points and gateways, also known as the Home Node B (HNB) and the Home Node B Gateway (HNB-GW), by using the DCT2000 to simulate core networks and generate voice, video and data traffic. The DCT2000 supports the TR-069 CPE WAN Management Protocol for testing the management interface to femtocell access points. The Femto Forum recently announced its members have agreed to implement this key femtocell management protocol.

www.catapult.com

www.tmcnet.com/2449.1

Informa Report Bodes Well for Femtocells

According to a new report from Informa Telecoms & Media "Mobile Broadband Access at Home: The Business Case for Femtocells, UMA and IMS/VCC Dual Mode Solutions", mobile traffic generated in the home environment was estimated at 40% in 2007. By 2013 it is expected to reach an overwhelming 58%. The Analyst firm expects that deployment of femtocells should help operators offload up to 8% of total mobile traffic to fixed networks via end-user broadband lines.

The report finds that mobile voice minutes of use (MoU) in the home environment will approach 42% of total mobile voice traffic by the end of 2008. As the price gap between fixed and mobile calls narrows mobile voice usage at home will gradually increase to reach 49% by 2013. The office environment will come in second position with a 30% market share, while only 9% of calls will be initiated on the move - when walking, driving, or on the train or bus - and the remaining 21% of calls will be generated from other public environments.

Mobile data usage is also expected to increase over the coming years.

www.informatm.com

by Ronald Gruia

A Survey of the Key IMS Challenges

In its current form, IMS is very much a work in progress: despite functioning as a fairly well-defined reference architecture, there are still many issues to be resolved vis-à-vis certain functionality, architecture elements, processes and business cases.

On that backdrop, we periodically survey various vendors, operators and system integrators to get an up-to-date view of the major issues faced by the IMS industry. Our most recent discussions revealed a few interesting challenges related to technology, operation and business considerations.

Technological Challenges

IMS core maturity issues: While some operators have SIP App Servers up and running and ready to be commercially deployed, there are quite a few that believe there are some critical issues that are still lingering with the underlying IMS cores, which thwarts them from going live with the deployments. These concerns include various bugs, configuration issues, standards interpretation and others.

Centralized database issues: one of the cornerstones of the IMS specification is the HSS (Home Subscriber Server), which is a centralized database that makes user-oriented data (such as user profiles, device parameters, account data and usage data) available throughout the network. The issue has been that even those operators deploying IMS apps have chosen to put only the subscriber data for new services on their HSS, while the old data is still residing on HLRs and other legacy databases. This collocation approach is being chosen because it is in fact quite a difficult task to migrate all subscriber data to a single database. This issue is only going to get more complex over time. Moving all customer profiles residing in different places to a single real-time database is a challenge. The tuning of databases will be a hot issue in the future, making indexing an imperative. However, some service provider lab tests revealed that a database with roughly 3 million records entails a 45 minute period for updating the index (on a machine running Solaris 10 and MYSQL and nothing else).

IMS is not quite as "access agnostic" as it seems: despite the fact that the IMS framework is presented as being access agnostic, in practice, it is still more heavily oriented towards cellular networks. This is evident from several different points of view, one of them being security. For instance, plain http-digest is viewed as the only realistic option for non-cellular networks, having been acknowledged as less than optimal or even downright unsecure (it provides only some replay protection and one-way authentication with no mutual authentication, confidentiality, or integrity). The HSS is another noteworthy example of the wireless tilt of the IMS specification. While MSOs are gradually evolving their infrastructure to Packet Cable 2.0, and that architecture has the IMS blueprint, there are also a few differences between the two frameworks, in addition to other MSO specific issues that are not addressed by IMS. Items such as the provisioning of data and devices, packet cable multimedia, and state management transferability questions, among others need to be resolved. The OSS/BSS issues related to the HSS are major, since the subscriber data will have to be migrated to a new schema (HSS) and be centrally stored. Therefore, cable companies will evolve very gradually to an HSS type of architecture, opting instead to keep their legacy back office servers containing their subscribers' database info.

Migration strategies: While next-gen SPs can readily embrace NGN architectures such as IMS, it is harder for existing operators to do so, as they have made a substantial investment in existing networks and applications. The key issue is how to gradually migrate the already existing services and what kind of investment needs to be made to rewrite some of those applications (such as VPN, pre-paid, etc.). Some operators are exploring various strategies to help them bridge the gap towards the NGN, including using service mediation appliances and/or new components such as application session controllers.

Security: While IMS is an attempt to simplify the network core design, it has made the management and monitoring of that network more complex than in the past. IMS infrastructure will lead to traffic requiring *de facto* a "real-time" security monitoring. As a result, there are a lot of information security considerations that need to be taken into account in an IMS network, including the usual suspects (identity theft, caller ID spoofing, potential SS7 network breaches, security and integrity of the data streams, DoS/DDoS attacks, convert channels and SPAM/SPIM/SPIT, among others). The key concern for most carriers that we talked to is how to ensure identity, integrity and enforcement of strong authentication on a SIP-based session coming from a terminal that is not trusted outside the wireless domain. Most SIP devices are not currently equipped with a strong security mechanism such as the SIM card on a mobile handset.

Clients: IMS is bringing noteworthy increase in edge intelligence. This will help fuel the need for SIP-enabled personal agents managing presence, mobility, and preferences. Simplicity will be an imperative, with information being pushed to available end-users so that they could decide in real-time how to handle an incoming event. In addition, here is a need to get IMS clients closer to the mobile phone and connect IMS to GGSN. Unless

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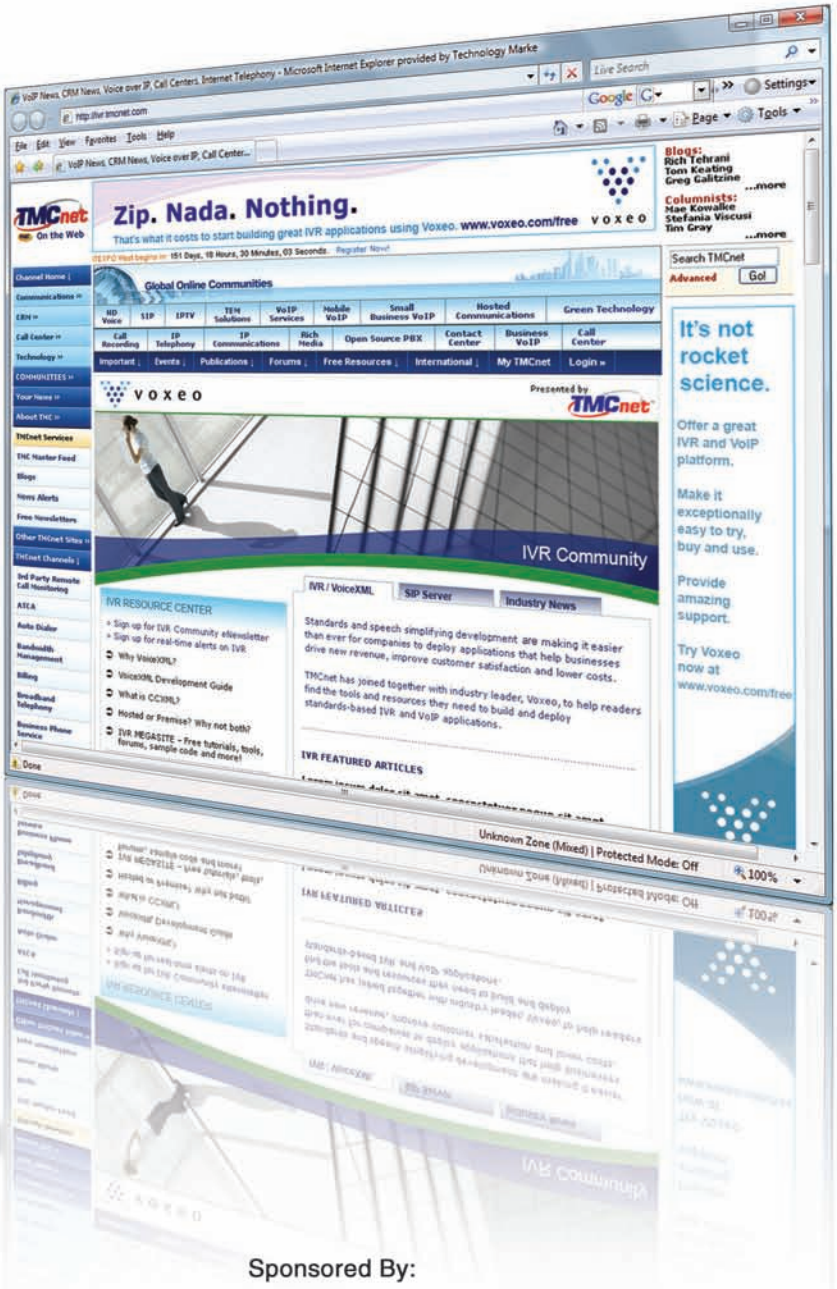

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by Ronald Gruia

that happens, some pundits warn that there is no bright future for the IMS. There have been some notable developments in this space as previously mentioned in this column (i.e. the OMA IMS PoC specification and the RCS initiative).

SCP/AS integration: Some service providers are also wondering about the integration of the SCP (Service Control Point) and AS (Application Server) with the rest of the world. In other words, the SCP/AS need to be integrated with the consumer's home for applications such as web, IPTV (News - Alert), etc. In addition, for security purposes it might become necessary to integrate the HLR/AUC with all other vendors and to implement some sort of a centralized control.

Signaling delay: While some vendors are pointing to increases in signaling traffic, operators are also becoming increasingly concerned with the signaling delay, as call setup time, handover time, etc. are increasing as there is a lot of extra interaction given the extra network elements involved. Furthermore, there is more latency involved in the IP network compared to the rugged SS7 network, so service providers believe the latency is a key area on which to focus on their testing. This latency is also raising new issues which these operators never faced in the TDM world, including RTP streams coming from multiple resources for an endpoint, which creates garbled voice.

Operational Challenges

Application platform uncertainty: Given the complexity of IMS and the fact that there are other competing technologies and different voices even within the carrier organizations articulating different viewpoints, it is tough to determine the best "future proof" way to go forward. The central issue is where to spend the extra budgets. Moreover, carriers need better tools in the early stage of the IMS app server deployments, including sniffers, easy-to-use network monitors and other similar equipment.

Operation and management issues: Another issue brought up quite often in our discussions with carriers relates to operation and management of the NGN, including the associated processes for fulfillment, activation, billing (FAB) — in other words, questions related to the integration of BSS systems into the IMS network infrastructure.

Resource management: Some operators pointed out that there is currently no centralized entity defined for IMS policy and resource management. This is extremely crucial in order to take advantage of some of the efficiency potential within the architecture — shared resources.

QoS: QoS becomes a major concern for operators when calls are routed through other service provider networks, where they cannot really control the QoS. On an all-IP world, carriers cannot clearly define or evaluate QoS data (traffic measurement of calls or Erlangs, etc.) the way they can in the circuit switched TDM world. This introduces unnecessary delay in transcoding in the network. The voice quality and the KPIs must be improved (compared to the circuit, dramatically). The upshot of this could be complaints for poor voice quality, one way RTP, CODEC negotiations and dropped calls.

Business Challenges

Business case justification: It's certainly been hard for technical staff to justify an investment in a non-silo based architectural approach, which represents a paradigm shift from the current status quo (i.e. stovepipe implementations). We have brought this issue several times in the past but the one key area that operators would like to see a refinement in the business case is a better quantification of a better *service velocity*, or the ability to introduce new services faster than before. Another one is how elements from a service which eventually fails can be leveraged for the creation of a newer service.

Organizational convergence: IMS flattens the traditional network architecture by defining a common service control layer across any and all types of access networks, supporting any and all types of multi-media services. However, since most operators' organizational processes are not prepared for this change, these benefits can hardly materialize. For instance, budget allocations are currently done per each existing organizational unit (mobile, access, etc.). This means that when an IMS solution is being pitched to a service provider, the vendor gets into discussions about who will be responsible for which parts of IMS, and more importantly, which organization pays for what. Everyone has to be a willing participant in the IMS negotiations, and it takes time to reach such a consensus. Another complicating factor is that the benefits have something of a "visionary" element in them (faster rollout of new services, lower incremental cost to roll out new services, etc.). From a pragmatic standpoint, the scale benefits and new services both depend on take rates which are unpredictable. Consequently, IMS is still being thought of as "high risk" type of NGN approach.

The Final Word

IMS gives operators a more open architecture that can not only enable innovative Web/Telco 2.0 offerings but also tie their legacy infrastructure into these new services. However, IMS still is a relatively new specification (with ongoing issues remaining to be addressed) that entails a significant upfront investment. The above-mentioned issues will be eventually resolved, but that will require good partnerships between vendors and service providers. Buying off-the-shelf gear will not solve these challenges; instead it will be necessary to go through the IMS growing pains.

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By Eric Ericsson

IMS MMTel – the Standardized Way Forward

Decreasing revenues from their traditional fixed services and increasing competition from Internet players mean fixed and mobile telecom operators have one real option, and that is the new standardized service set called 3GPP/NGN MMTel, based on the IMS architecture.

Imagine this: Two friends on their way home from work start chatting on their mobile phones. They switch to a voice call. Another friend calls in, and is added to the conversation. All three switch to video mode (video conferencing). One participant leaves the conversation; the others exchange some photos and videos. During all this, one of the friends makes it home, seamlessly changes device from his phone to the TV, and continues the conversation from his couch.

This is an example of what MMTel (News - Alert)— Multimedia Telephony — can do. MMTel is the first real step towards an end-to-end, real-time, all-IP solution for operators. At the end of 2008, it will be introduced commercially over wireline broadband access networks, and in mid-2009 rolled out in High-Speed Packet Access (HSPA) mobile networks.

Using MMTel, two or more telecom users can communicate in real time — using real-time speech, real-time video (perhaps synchronized with speech) and real-time text. They don't have to stop and restart when adding or removing different types of media during a session. A single session also has benefits for conferencing — in particular lip synchronization, a complex issue when the voice component is carried over a circuit-switched service and the video is packet-switched.

Standardization is Key in a Changing Telecom World

Operator revenues are leaking from fixed services to mobile services. And operators are losing revenues to Internet players such as Skype, Google T (News - Alert) alk and Microsoft's Messenger. It is true that Internet players have not generally entered the mobile space so far, apart from providing some messaging solutions. However, their technologies are improving continuously, and they are set to move into mobile soon. To compete, operators need to launch a compelling, fixed-mobile, converged service offering. MMTel, based on IP Multimedia Subsystem (News - Alert) (IMS), is the natural option here. It combines traditional telephony's quality and reliability with the Internet community's rich, flexible services.

It is important to note that the telecom industry has agreed on the IMS standard as the basis for its future evolution. IMS — the architecture for controlling and delivering multimedia services — is now paving the way for a gradual migration to all-IP networks and a mix of services.

But IMS is simply a standardized architecture. It makes this all-IP world possible. Unlike standards such as GSM and UMTS, it does not encompass standardized services. (In GSM, for example, the service set cannot be removed from the architecture.)

To provide a comparable offering, IMS has to be combined with something else. And this is where MMTel comes into play.

MMTel is the next step, a standardized solution for offering multimedia services over a converged fixed-mobile, real-time IMS network, replacing current circuit-switched networks. The standard is a joint project by the telecom industry's standardization body for 3G mobile systems, 3GPP, and the European Telecommunications Standards Institute's (ETSI) (News - Alert) working group for fixed access and next-generation networks, TISPAN. And the standard is backwards-compatible, meaning that MMTel services can work with current fixed and mobile standards. It also supports supplementary services such as call-forwarding, caller-identification and so on. All these well-known services create a familiar telephone-type experience for the end user.

There are some key factors to be considered if MMTel is to be made into a volume product or service for the mass market. First and foremost is the matter of interoperability, which is why two important components of MMTel are the Network-to-Network Interface (NNI) and the User-to-Network Interface (UNI). UNI ensures the development of a broader offering of devices. NNI will enable operators to interconnect with each other for all multimedia features, not just voice and text-messaging. In this way, an end user belonging to one operator can have multimedia communications with an end user from any other operator.

As a standard that industry players — from telecom providers to operators — have agreed upon, MMTel creates the potential for truly global, mass-market acceptance and profitability.

In summary, operators should deploy MMTel because:

- The fixed and mobile services are, for the first time, exactly the same. There is no difference in the services available, regardless of whether someone is using a mobile or fixed device, or even a TV.
- This solution can replace an operator's current fixed and mobile solutions so it can consolidate its networks.
- Coming access technologies, such as Long-Term Evolution (LTE) and WiMAX, will allow services to be delivered only over packet-switched networks.

Eric Ericsson is responsible for Ericsson's fixed and mobile broadband IP telephony solutions. He has more than 20 years of experience from the IT and communications industry. He has been part of the team, from Ericsson, initiating the 3GPP work item for IMS multimedia telephony.He joined the Ericsson group in 1998. He has held a number of executive management positions, including head of Ericsson IP PBX product management.

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by Grant F. Lenahan

Learning from History — or Not.

George Santayana, philosopher, poet and critic, opined that, "those who cannot learn from history are doomed to repeat it". So, to now quote John Connor, from *The Terminator*, "Are we learning yet?"

Let me take us back a few years. In the 1980s telcos more or less ignored the Internet. ISPs provided RADIUS access over dial-up telephone lines, took the money, and left telcos with $8 per month lines that had 3000 minutes of use on them. Worse, the ISPs more or less gave away the even bigger money, the value-added applications that resided, by and large, on web pages. Remember that today's ISPs are usually telcos of some form, whether wireless, cable or traditional fixed broadband.

The mobile world began to learn. But their initial solution was to have "walled Gardens". Since consumers found this unattractive, this strategy didn't work very well either. Subsequently, most mobile operators have begun to open up their 3G networks to traditional ISP service, and are at least raking in more data revenue. But they remain, if not dumb pipes, slow learning pipes.

So now the question is — will Network Operators ever truly become Service Providers?

I believe that in order to succeed, telcos, if I may use this word for all the communications providers, need to rethink what they are good at, and focus on adding value by developing these core competencies into widely used, and useful, service enablers. So what are these enablers? It may be easiest to begin with what they are not. Telcos are not media companies — they don't create nor own music, films or information. They are neither banks nor retailers. So the value accrued by music, tools, and financial transactions themselves are largely off limits.

But, on the other hand, telcos *can* add a lot of value to those services. They can ensure that transactions are secure. They can bill on behalf of others. They can provide protection for minors from adult materials, and help merchants find consumers in their geographic vicinity. Similarly, telcos have ID, address and routing information that can make true multimedia more seamless, and session control capabilities that can support advertisements, offers, controls, etc. All of these are capabilities that are intrinsic in the network. Telcos can do these better than websites can. For example, a telco could provide proxy authentication and authorization for all sites and merchants, significantly reducing the security risks, and improving the user experience (no more passwords to remember, no more credit cards to change in 35 different sites ...). Priced right, these are natural value-adds for telcos, and natural outsource functions for information, content and entertainment companies.

This is a simple value chain, and on the surface looks easy. But it is a different model for tradition-bound companies. So it may be harder than it looks. Not only must they evolve such models, but they must migrate famously inflexible supporting operations processes to support these new models.

Some parts of the industry already know this and are working toward solutions. For example, the TMForum has a series of initiatives, from its Service Delivery *Framework* (SDF) which seeks to improve the processes and management of SDPs, to efforts to define *3rd party APIs* and the web-based operational processes that must surround them; to the *Content Encounter*, which prototypes this very same value chain.

So the pendulum has swung both ways — from totally open but dumb networks, to nearly closed networks, and now seems to be settling in the middle, where service providers concentrate on functionality for which they have real economic and technical advantages — areas like charging, authentication, authorization, location, presence, mobility, identity, session control and (broadly) policy.

The opportunity to make the consumer's experience better, safer, more secure and more convenient is large. Content, information and online transactions are huge growth areas. And if we know what we do well, *versus* what we don't, traditional service providers can move up the value chain — but this time as partners.

Let's make it a success this time.

Grant F. Lenahan is Vice President and Strategist, IMS Service Delivery Solutions at Telcordia Technologies, Inc. (www.telcordia.com).

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by Andy Huckridge

Software Quality is an Effective Marketing Tool

The Chrome browser from Google has been on everyone's lips recently. But what does it tell us from a testing perspective? In short, it tells us that software quality is now a key marketing tool. In a highly contended marketplace, where everyone knows what bad quality means, a product that simply works as promised can change the landscape over-night — whether or not Google Chrome will actually succeed.

Have you had your browser die on you while filling up various questionnaires and other overly complex web content? Have you felt the sluggishness of the software when trying to multitask across several different sites? Still, everyone knows the web, and its problems, and maybe even take them for granted. But have you had bad experiences with other consumer products? VoIP, 3G, IMS, Digital Television? Most of you probably have.

Consumers Work Like a Herd

Testing has many faces, and if one of those aspects is missed, the end-result will not be accepted by the marketplace. Consumers are more and more informed on the quality of products, and user experiences are shared openly through the Internet. For example, before buying a car, people first search the Internet for common failures in the brand, and study carefully the opinions of other people. Not about the features, but past problems or lack of problems. Such brand-loss is difficult to rebuild, as the Internet never forgets a thing.

User Experience

People buy products with solid brands, and advertise those products openly. Critique is usually open as well. But the selection criteria change over time. The IMS quality assurance market is still caught up in legacy criteria such as quality of service and performance, which might have been the top criteria for carriers and service providers. Consumers see the same issues with different eyes. The main selection criteria are almost always brand and reputation, and those are built from usability and reliability. In short: the overall quality of the product.

Test More with Less

But how do you keep up with the increasing demands of the consumers? How do you keep the brand untarnished? The solution is test automation.

Unit testing today is mostly automated. Almost every testing professional is also a programmer, fluently writing test scripts with a wide range of scripting languages. Test automation frameworks bind them together, and automate the early testing steps.

Also, the user interfaces are automatically explored to try various test cases, including recording and reproducing common use cases. Think of them as cheap test engineers – teach them once and they will automatically do the same thing over and over again.

A recent addition to most professional test automation frameworks is fuzzing, a negative testing approach that will explore the unexpected inputs to the software to find and eliminate security issues in the software. In their marketing material, Google (News - Alert) described the tests done by fuzzing tools to be like monkey testing, random inputs to various APIs and network interfaces.

Collaborate

The testing at telecom companies has been dominated by large testing vendors that do it all in a piece of test equipment. Today those companies still dominate the carrier tests. But when testing the consumer products, the field is completely different. It feels like client-side testing is so much ahead of the core network testing in the area of test automation.

Due to availability of test automation tools, testing today is simpler and faster. But the area of test automation often involves a number of different tools and test tool vendors. Collaboration between those vendors is key for good quality products. Various user environments and communication technologies require different tools. Very rarely you find one vendor that can offer everything by themselves. But that just enables us testing experts to pick and choose the best products, ones that fit our own special needs.

Andy Huckridge is Vice President, Marketing, Codenomicon. Andy has worked in the Silicon Valley telecommunications industry for more than a decade and has a broad background in defining and marketing products for the semiconductor, VoIP and IMS/NGN space. Andy is active in various Forums including the Multi-Service Forum, where he is chairperson of the Interoperability Working Group & NGN Certification Committee. Andy is a VoIP patent holder, an IETF RFC co-author and inaugural member of the "Top 100 Voices of IP Communications" list. He holds Bachelor's and Master's degrees in Telecommunication Engineering from the University of Surrey, England. Reach him at andy@huckridge.com

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2008 IMS Leadership Awards

The Annual IMS Leadership Awards were established last year to recognize products or services, which made outstanding achievements in the growing IMS market. The companies that were recognized made major contributions in the advancement of the IMS industry.

This year's crop of winners is no different. These companies have all shown their dedication to market and to realizing a vision of redefining the next generation network, and enabling innovative applications and services. IMS has been a moving target since the acronym was first uttered, and over the past year it has continued to evolve. Industry experts agree on one thing, and that is that IMS will eventually take a form that will be somewhat different than the nice, neat, top-down schematic formulated at the outset of its journey.

You will find in this list of award recipients a variety of vendors, from different corners of the industry, each of whom represents a puzzle piece, each of whom plays a role in the evolution of IMS.

These vendors are all onboard, helping IMS to "cross the chasm" to adoption and deployment on much larger scale.

IMS magazine columnist and analyst Ron Gruia wrote several months ago that "we are getting closer to the tipping point in which IMS will become a more widely adopted blueprint for the NGN evolution."

The award winners that we recognize here are together building a bridge to that point.

The editors and staff of IMS magazine congratulate the winners and wish them continued success on the road to IMS.

Company	Web Address	Product
AppTrigger	www.apptrigger.com	Ignite Application Session Controller
Atreus Systems	www.atreus-systems.com	Atreus IMS Provisioning Solution
BroadSoft	www.broadsoft.com	BroadWorks with MMTel
Codenomicon	www.codenomicon.com	Codenomicon DEFENSICS
Comneon GmbH	www.comneon.com	Comneon IMS Device Framework
Comverse	www.comverse.com	MyCall Converged Communications
Covergence	www.covergence.com	Covergence CVA-50
Empirix Inc.	www.empirix.com	Hammer G5
Iperia	www.iperia.com	IperiaVX
Mavenir Systems	www.mavenir.com	mOne
MetaSwitch	www.metaswitch.com	MetaSphere Service Delivery Platform and Application Suite
Navtel Communication Inc.	www.navtelcom.com	SIPFLEX
NEI	www.nei.com	A-13000 13U ATCA System
NextPoint Networks	www.nextpointnetworks.com	IP Multimedia Exchange (IMX)
RadiSys Corp.	www.radisys.com	RadiSys Convedia Software Media Server
Radware, Inc.	www.radware.com	SIP Director
Sonus Networks	www.sonusnet.com	Sonus IP Multimedia Subsystem
SPIRIT DSP	www.spiritdsp.com	TeamSpirit 3.0 Voice&Video Engine PC
Sylantro Systems	www.sylantro.com	Synergy
uReach Technologies	www.ureachtech.com	Converged Services Framework
Veraz Networks	www.veraznet.com	Veraz Networks ControlSwitch User Services Core Applications

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By Richard "Zippy" Grigonis

Operations Support Systems and IMS

We all know that the IMS architecture enables carriers and service providers to quickly and inexpensively bring forth new and exciting revenue-generating services for their customers. Still, while it's terrific to be able to 'de-silo' applications, there's the whole matter of what Operations Support Systems (OSS)/billing and Service Development Platforms (SDPs) actually play well with IMS.

One company that has long focused on the OSS challenge is Clarity International, a global OSS business process automation company that provides a pre-integrated product and database that streamlines the elements of OSS into a single suite. Inventory, Fulfillment and Assurance applications link to a single SID based database, enabling real-time executive visibility of the network's impact on revenues and customer experience. Clarity manages over 120 million subscribers globally in Tier 1 incumbent and next-generation telcos. Clarity's products are network and service neutral, driven by configurable templates and workflows, which help telcos cut time-to-market for new services by two-thirds.

Tony Kalcina, Clarity's CEO, says, "The vision of Clarity International as an OSS company is based on our belief that the old 'silo' method of developing and deploying services was too restrictive. Providers spend too much time, effort and money. So we determined that we could solve this in a unified manner. We deliver to the market a modular yet unified capability that allows for the automation of the processes of fulfillment and assurance. To some extent our vision was pretty much matching the vision of what IMS and related forums wanted to do with OSS. Our thinking in moving forward is that we believe the ultimate end game is the empowerment and simplification of the complexity of the network to the subscriber — the end-customer. So we feel that the ultimate endgame is to give the subscriber the ability to self-manage his or her own telecom infrastructure in terms of what was ordered and how they tread their own telecom environment."

"As a company, we've told our customers, mostly in emerging markets, to automate their fulfillment and assurance with a unified database and unified real-time engine that can work with various modules of functionality," says Kalcina. "We're moving closer to the ideal, to the point where we're creating self-service infrastructures that basically drive the fulfillment and assurance engine. So we see the whole thing as a sort of service delivery factory, and we see the implementation, whether it be with one unified product or a compliant suite of building blocks, to evolve toward that level of subscriber empowerment. That alone has a lot of implications in terms of how we dovetail legacy technologies with the latest technologies. In the process we encounter a lot of hype but we can achieve an average sum total improvement in the industry, and I see companies heading toward adopting more unified, automated, self-service infrastructure."

Jon Wells, an OSS Consultant at Clarity, says, "One angle is the simplification that the OSS approach brings generally to the table, and another angle looks at what IMS actually means for OSS simplification more specifically. One thing we see is that the elements of our product share the rhetoric around IMS. It will actually simplify service delivery to the extent that the VOSS becomes a very thin layer. So you have IMS suggesting a general simplification. When you look at what IMS is today, you can see already relatively simple services that are almost trying to emulate some of the legacy services such as voice and also emulate some of the NGN services, such as IPTV (News - Alert). In those types of scenarios, the role for the OSS is a bit simplified. But when you look at IMS in its widest sense, it can do things such as link together multiple service components and deliver them in flexible and innovative ways. In such situations the pressure point will come back onto the OSS, because it no longer becomes just a case of provisioning the IMS service in the HSS [Home Subscriber Server], the subscriber repository for IMS. There will appear the need to actually provision many other technology components to deliver these potentially more complicated services."

"The same is also true for the assurance side," says Wells. "Instead of just having to do some simple monitoring at the IMS layer, it's also going to be important to do monitoring and such things at the applications server layer and also the network layer, in order to bring back a kind of consolidated view of what's happening with the IMS services. One of the ambitions of IMS is thus to simplify the OSS. What we at Clarity believe is that as IMS starts to develop and delivers what it really can do, then it will take a unified OSS to make sense of many of the complexities that will be exposed in the course of provisioning and assurance."

The Oracle of OSS

Many think of Oracle (News - Alert) in terms of their powerful database products, but over the years Oracle also has built up an Oracle Communications division that offers packaged

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software solutions for the communications industry. They deliver end-to-end support for everything from service creation, offer management, and order orchestration, through provisioning and service delivery, to billing, revenue assurance, and reporting. Indeed, Oracle has a surprising array of enterprise and carrier-grade software applications, middleware, database technology, and decision-support tools for the communications industry. It can leverage the technologies of PeopleSoft, Siebel, Portal Software, MetaSolv (News - Alert), TimesTen, and others. Providers armed with Oracle's portfolio can rapidly create, market, sell, fulfill, deliver, and bill for next-generation services and content, increase customer satisfaction and loyalty, slash operating costs in both the business and the network, and improve management reporting and control.

Oracle Communications' Leonard Sheahan, Senior Director of Product Marketing, says, "My background is in the OSS space. IMS has undergone very slow adoption in the telecom industry. I've observed that a number of operators have taken migratory steps toward the IMS service architecture. They have deployed some of the benefits of IMS, such as a Session Initiation Protocol (News - Alert)-based network. So they get some of the benefits of the packet-based infrastructure on the all-IP core network. However, they haven't gone 'whole hog' if you will, to make the capital investment to deploy a full IMS network in many cases."

"I'd also say that the operators that have actually moved into the IMS world have done so in a sort of hybrid approach," says Sheahan, "where they have an existing network. Take one large incumbent carrier in North America we know of that has an existing IP-based network, over which they provide SIP signaling. They also have a number of application servers. So, they're getting some of the benefits of IMS in terms of rapid application development and applications availability to their customers, but they have not transitioned as yet to a full IMS infrastructure. They have plans to do so and they also have plans to converge their fixed and mobile onto the same network, which is part of the boon for this particular large operator, which also owns a mobile arm and two or three different incumbent 'LEC' divisions, if you will. They also have a large IPTV deployment going on. For such companies, IMS offers the convergence they're looking for, to help do their consolidation internally as well. Therefore, the company is really migrating toward IMS on a gradual basis, initially installing the 'biggest bang for the buck' components, and then at some point in time they'll get around to doing the full cutover. But it's really a large undertaking."

"Another example from Europe is a very significant mobile operator that has deployed GSM, GPRS and UMTS services," says Sheahan. "In early 2007 they started deploying IMS components in their network. They're looking to transition customers gradually from their existing UMTS over onto the IMS segment. But it's a very small proportion of their customers. In time, they will begin to transition customers across in larger numbers. Right now, however, they haven't fully deployed the full IMS network to cover the entire geographic region, and so forth."

"Much has been written about IMS and the hype has been out there for quite a while," says Sheahan. "We've seen a few proper, bona fide deployments, such as Korea Telecom (News - Alert), but most of the other operators are only edging their way toward IMS."

When the world finally moves to IMS, Oracle Communications will be ready. Recently they announced availability of their Oracle Communications Converged Application Server 4.0 (formerly called BEA (News - Alert) WebLogic SIP Server), a key component of the recently released Oracle Communications Service Delivery product portfolio. It's a converged web/communications application development and deployment platform, designed so that network operators, Network Equipment Providers (NEP), systems integrators and Independent Software Vendors (ISVs) can develop, deliver and operate real-time, multimedia communications services. The Communications Converged Application Server combines Internet and communications capabilities with the kind of carrier-grade high availability, performance, scalability and reliability needed for service creation and execution environments involving next-gen service delivery platforms.

Oracle had a leading role in the development of the latest SIP Servlet 1.1 specification, Java Specification Request (JSR) 289, through the Java Community Process (JCP). JSR 289 introduces a new application router so that app developers can quickly devise money-making services that converge familiar web-based, real-time communications applications into specific, end-user services, spanning existing business and operations support systems (BSS/OSS). Indeed, the Oracle Communications Converged Application Server is said to be the first commercial SIP/IMS application compliant with the JSR 289 standard.

IMS may not be taking off quite as quickly as many would like, but vendors are ready to supply network operators and providers with advanced OSS and Billing platforms.

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

Companies Mentioned in this Article:

Clarity International *www.clarity.com*	Oracle *www.oracle.com*

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by Richard "Zippy" Grigonis

Hybrid IMS/TDM Networks

The initialism "IMS" means "IP-based Multimedia Subsystem", but the world's long, piecemeal migration to this grand, common service architecture for wireless and wireline communications means that traditional TDM (Time Division Multiplexed) networks will be very much a part of the picture for many years to come. This shouldn't be surprising, since IP communications itself was an "outsider" for nearly a decade, a small fish in a large sea of legacy circuit-switched equipment, both at the network operator level as well as in the enterprise. Operators deploying IMS technology gradually over time must support signaling and session control in both NGN and IMS domains while providing connections to Signaling System 7 (SS7) signaling in the PSTN — but the whole idea of a "hybrid" network is actually more complicated than just a "patchwork quilt" of TDM, NGN and IMS, as we shall see.

It was, after all, the appearance of VoIP technology that resulted in the reengineering of Mobile Switching Centers (MSCs) so that they could handle both packet-switched voice traffic along with existing circuit switched traffic, a process that led to the disaggregation of legacy network switches into a control component (the softswitch) that uses a protocol such as the Media Gateway (News - Alert) Control Protocol (MGCP) to manage the other major component, the media gateway. The media gateway can handle both packet and circuit switched traffic and it can convert one form to the other under the control of the softswitch. this is why 2.5G networks are able to carry both circuit-switched and packet-switched traffic.

One might wonder how applications and services can function in such a complex environment. Fortunately, vendors have risen to the occasion. Take the Cisco (News - Alert) Mobile Office solution, for example, designed so that service providers can offer seamless mobility to enterprise and Small and Medium-sized Business (SMB) customers by integrating mobile and enterprise voice and messaging networks into a single communications environment. For enterprise and SMB customers, operator services based on Cisco Mobile Office integrate existing TDM PBXs and IP PBXs with wireless networks including WiFi, WiMAX (News - Alert), and mobile networks. Providers can now deliver to their customers fixed-mobile convergence (FMC) communications services, accessible from any device over any kind of network, and self-managed by subscribers through a friendly web-based interface. A business customer's collection of communication devices are now be treated by the service provider as a single entity having access to the converged communication services and call routing capabilities, independent of the underlying infrastructures. Indeed Cisco Mobile Office services can be offered simultaneously on a broad range of network architectures including Signaling System 7 (SS7), VoIP and of course IMS.

In the world of IMS itself, provision has been made for PSTN ingress and egress functions that allow interworking with the PSTN. The physical conversion between TDM and IP for media is done via media gateways, and signaling gateways perform translation at the transport layer between SS7 on MTP (TDM networks) and SS7 on SCTP (IP networks). The Breakout Gateway Control Function (BGCF) determines whether PSTN "breakout" will happen in the current network — in which case the signaling is passed to a Media Gateway Controller (MGC) which allocates a media gateway port — or else the SIP-I (ISUP over SIP) is sent to another IP network where breakout actually occurs (the signaling passes across the IBCF, or Interconnect Border Control Function, to another BGCF in the breakout network).

Service intelligence interworking is generally done from the signaling control plane, by leveraging Signaling System 7 control with Session Initiation Protocol (News - Alert) (SIP) control and then extending the signaling service framework from the intelligent network (IN) to both the NGN and IMS domains. In terms of transitioning networks to IMS while maximizing existing architecture investments, the incremental migration of the control layer of SS7 to IP includes deploying SIGTRAN (SS7 over IP) and/or eventually deploying an independent SIP signaling control plane in the NGN. Once a SIP Signaling Router (SSR) for session routing (an idea first championed by Tekelec a few years ago) and a whole unified signaling layer is put in place to unite various signaling and control procedures across multiple network types, hybrid media processing platforms are then brought online to enable uniform media delivery across the many existing access technologies. Another step involves linking the application layer to the control layer by implementing SCIM (Service Capability Interaction Manager) functions to assist in bridging the transition from TDM to NGN, and eventually IMS.

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TISPAN (Telecoms & Internet converged Services & Protocols for Advanced Networks), situated in the ETSI standards body, has long worked at standardizing converged networks around the IMS core architecture. This means re-jiggering fixed network access so that it interfaces to IMS and, although the original main thrust of the work was to figure out a way to move existing PSTN functionality onto an IP core, it was soon joined by the matters of interworking, PSTN emulation and producing PSTN equivalence services (malicious call trace, lawful intercept, etc.) service.

All this eventually leads us to the matter of service mediation, which enables new IMS subscribers to immediately leverage existing services, since operators no longer need to replicate their services in the IMS domain, thus allowing them to minimize costs while providing both pre-IMS and IMS services. Here again, a well-designed SCIM can not only orchestrate applications, but also mediates multiple services across various technologies, and allows for seamless service blends that can be offered to any subscriber at any location.

Realizing that an instant cutover to an IMS-based network is usually impractical and that service providers must continue to engage their NGN and TDM networks during the migration process, Tekelec (News - Alert) (a developer of high-performance network applications for next-gen fixed, mobile and packet networks) and HP in 2007 combined their expertise in SS7 Signal Transfer Points (STPs) and Home Location Register (HLR) platforms to form an "Open IMS" vision, to help network operators migrate to IMS. Their joint Open IMS solution supports the Call Session Control Function (CSCF), Media Resource Function (MRF) and HSS functionality, plus multiple application capability, on a single, standards-based platform. It delivers service enablers such as MRF, presence server, electronic numbering (ENUM), group list management and voice call continuity (VCC).

Around the same time, Tekelec unveiled SIP Signaling Router functionality on their TekCore Session Manager product. TekCore SSR enables operators to expand their NGNs, at the same time maintaining a seamless migration path to the IMS. The Tekelec SSR provides centralized session routing for softswitches and enables core signaling capabilities that inter-work between TDM, NGN and future IMS domains. Subscribers can take advantage of all these capabilities, enjoying existing, next-gen and future IMS-based services regardless of access type; thus, consistent service delivery over hybrid networks is assured as they migrate to all-IP environments.

The non-trivial process of incrementally converging disparate networks and providing multi-protocol support to maintain seamless connectivity between TDM, VoIP and IMS has also been taken up by Veraz Networks, whose ControlSwitch User Services Core (CS-USC) is an IP softswitch built to smooth the migration path to IMS. With the CS-USC, providers can deliver multimedia services via any mix of traditional and IP-based voice networks. The platform is based on a sophisticated, modular, programmable, distributed, scalable, high-availability architecture with open interfaces to media devices, application servers and backoffice systems. CS-USC is consistent with 3GPP IMS, TISPAN and MSF standards. The CS-USC supports web – IMS integrated services via Veraz Portal Connect, and linkages to nomadic/mobile users and devices are maintained in conjunction with the multi-service and multi-access IMS core. The Veraz CS-USC also has programmatic interfaces including TL1 and SOAP/XML for integration into the service provider's existing OSS/BSS, thus streamlining business operations.

Veraz Networks (News - Alert) has had some of its new equipment in trials for about a year and is rapidly becoming a major global provider (50+ countries) of IP softswitches, media gateways and digital compression products that enable voice, video and other multimedia services. As the IMS service architecture slowly percolates throughout the world, service providers have found that products such as those from Veraz allow them to quickly and efficiently migrate from traditional voice networks to all-IP, fixed-mobile and multimedia networks consistent with the emerging IMS standards.

Operators Saddled with Saddles

The hybrid network will be with us for at least 15 more years, during which time network operators must deliver seamless services and support service mediation and interaction between legacy, mobile, VoIP and IMS networks, delivering older "siloed" or "stovepipe" services alongside newer IMS-based applications. As we've seen, technologies exist to help them. At some point, however, the dawn will come, and the final build-out to IMS (or whatever we call it then) will occur.

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

Companies Mentioned in this Article:

Cisco *www.cisco.com*	Tekelec *www.tekelec.com*
Hewlett-Packard *www.hp.com*	Veraz Networks *www.veraznetworks.com*

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by Richard "Zippy" Grigonis

Session Border Control and IMS — Best of Friends?

Once upon a time telecom experts wondered if SBCs would play any role in a complete IMS architecture. Obviously, they do. When it was first formulated years ago, IMS reflected the centrally-managed telecom infrastructure of the time. Now in a world of open networks, SOA, Web Services and legacy TDM, a multiplicity of network boundaries cry out for session border control to provide interworking, transcoding, monitoring and security.

One name that shows up on any list of SBC solutions vendors is Acme Packet (News - Alert), which recent introduced its Net-Net 4500, a new member of the Net-Net 4000 series that increases performance and capacity by 100 percent or more in SBC, Multiservice Security Gateway (News - Alert) (MSG) and Session Routing Proxy (SRP) product configurations. Positioned between the Net-Net 4250 and Net-Net 9200 in terms of price, performance and capacity, the Net-Net 4500 targets service provider, large enterprise and contact centers and can be situated at either network access or interconnect border points.

This is all part of Acme Packet's recent deployment of its Open Session Routing (OSR) architecture and products, and its ecosystem of companies, for delivering SIP-based interactive communications within and between mobile, fixed-line and transit networks. Acme Packet's Net-Net Session Router and its OSR ecosystem members' products and services operate in several tier-1 service provider networks around the world. In contrast with traditional session-stateful approaches, these solutions are designed to simplify core and inter-network session routing and reduce capital and operational expenditures as service providers transition to and further evolve their next-gen networks.

Acme Packet's OSR architecture relies on Acme's Net-Net Session Router (SR), a session routing proxy, working in conjunction with routing database products and services from Acme Packet OSR ecosystem members, which offer centralized routing databases and database provisioning tools for dynamic route selection. Acme Packet's Net-Net SR, as well as the Net-Net Session Director SBC, queries the members' databases using standard ENUM, SIP and DNS protocols. The Net-Net SR's local route tables may also be provisioned by these members' products or the Acme Packet Net-Net EMS using XML. Using these databases, dynamic routing decisions within the core IP network and to the PSTN and other IP networks may be made using a wide selection of parameters.

Seamus Hourihan (News - Alert), Vice President of Marketing and Product Management at Acme Packet, says, "We recently conducted an analysis of our own business relative to our role in IMS deployment. We probably have more experience than any other vendor on the planet. We have over 90 projects that are in various stages of progress. A good 50 percent of those are in Europe, as you might expect, followed by Asia PAC. In some cases projects are running in parallel with IMS services. For example while BT(News - Alert) has the 21C program, it doesn't mean that all of their voice services will run under than umbrella. In fact, they've got many projects that are not really under the 21C umbrella, but are services like their BT Broadband (News - Alert) Talk that continue to generate revenue for the company. [BT Broadband Talk uses your broadband connection in the manner of an extra phone line. You plug a conventional phone into your home hub or router and dial as usual, and BT Total Broadband customers pay no extra rental.]"

Acme Packet's Jonathan Zarkower, Director, Product Marketing, says, "If you take a look at these deployments in terms of full wireline access versus wireless access, about 50 percent are wireline-focused. That means that the wireline vendors are looking to IMS for several reasons, such as to reduce costs as much as possible, but also hopefully set them up for new services deployment."

"One of the new trends in the industry is driven by the service providers themselves who are looking to drive standards around the use of IMS infrastructure for IPTV," says Zarkower. "Today IPTV standards are somewhat proprietary; Cisco (News - Alert), Alcatel-Lucent, Microsoft and others also have their standards or modified standards for IPTV delivery. The use of IMS — more specifically the SIP protocol — enables service providers to use a session control protocol to do such things as determine whether sufficient bandwidth exists in the network."

"Currently, in wireless networks, in terms of the service delivery infrastructure elements, we're still using TDM — circuit-switched voice over wireless — for the main part of it," says Zarkower. "Some wireless providers are looking to IMS to offer additional applications such as video sharing or push-to-talk using SIP, but they're in the minority at this time. When we finally evolve to IP-based 4G networks, there will be much greater interest in the use of at least pragmatic IMS architectures."

"Our products' focus in the architecture is pretty much still on the scenario of service providers offering services to their subscribers," says Zarkower. "We don't focus as much on the 'inner-connector' peering side of the architecture."

The Big Mix

Covergence was founded in 2003, to tackle the limitations that were preventing organizations from fully exploiting the abilities of real-time communications and collaboration. The Covergence Session Manager (CSM) extends functionality of the traditional SBC by enabling organizations to define, enforce, and audit fine-grained security, control, routing, monitoring, and interoperability policies on VoIP, video, IM, presence, and other real-time services. CSM's policy enforcement and auditing assures the security, reliability and quality as VoIP and real-time collaboration supplant legacy communications in enterprise and service provider networks.

Ken Kuenzel (News - Alert), Covergence's CTO, says, "We see SBCs as obviously as part of an IMS architecture. I guess what we see is that IMS, in concept and in principle, is finally starting to take off with regard to telcos and carriers. As is the case with early versions of protocols and architectures, IMS is not exactly what everybody thought it was going to be. But more and more we see both our service provider and enterprise partners embracing IMS and formulating applications and moving into the telco cloud. We certainly do IMS-style interfaces but we also made considerable investments in Web Service-style interfaces too, which are increasingly becoming part of telco and enterprise architectures, as we all move from traditional computing models to Web 2.0 models, Web Services interfaces and IMS-style policy control over applications."

"The 'big picture' of IMS is getting and controlling applications, and applying policy," says Kuenzel. "You can argue about an interface here and there, or what belongs in an SBC or this network element or that element. You can pick the IMS nomenclature out of alphabet soup. But I think the 'right' piece of IMS is the application architecture and that's really a distributed model. It maps onto the way the whole industry is moving. Look, in the case of anything that's five or six years old, nobody's got it right. No one is smart enough to come up with an endgame architecture for everything, but I think if you look at things stylistically, you see what's getting built out, and as you drill down into the underlying technologies of what companies are doing and how they're doing it, we find that they're more interested in SOA [Service-Oriented Architecture]-style Web Services interfaces on the other side. Yes, there's DIAMETER running up in the carrier clouds, and many things are SIP-based, but the infrastructure that's often controlling things is a more traditional application infrastructure as opposed to the IMS-style DIAMETER infrastructure, although that's still there and gaining ground. But when you look at things such as Microsoft's (News - Alert) Connected Framework in the telco space, or pair a BT interface and something like the Parlay standard interface [which allows Web Services to be "telecom-enabled"] you see Web Services becoming more and more part of the whole picture, and yet it overlays the IMS architecture and becomes part of it. So I think these advanced concepts will be embraced as we move forward."

"The 'big picture' of IMS is getting and controlling applications, and applying policy," says Kuenzel.

"The good thing is that those applications are becoming IMS-style applications and the infrastructure that's used to build it out is still a little bit 'mushy' and still is subject to some debate," says Kuenzel. "But they're building it."

"We see that some of the overall principles of the IMS architecture model, particularly the aspect of calling out a separate control plane for real-time applications, are being adopted even by large enterprises as they move to reengineer voice," says Kuenzel. "So there's a merging of these concepts and ideas – IMS and now concepts of cloud computing, Web 2.0, Web Services and these more common interfaces. They're all part of the mix. This 'fusion' is providing both a model and set of pragmatic approaches for customers to be able to reengineer their voice networks."

"Large telcos are very sensitive to the workings of large enterprises, as they should be, since they're big cash cows," says Kuenzel. "Still, the whole model is moving toward the IMS distributed application, or 'application in the cloud' type of model. You will have to debate what goes into it and what the protocols are, but that computational style is finally beginning to take off. It's all jelling together. I think you'll see over the next two or three years a sort of a 'honing in' regarding how all of the architectural pieces will collaborate. Where both Covergence and SBCs fit into all this is that we can support whatever comes along. We support enterprise-style policy interfaces and we also support IMS-style policy interfaces, such as DIAMETER up in the cloud, along with standard SIP methodology."

To P-CSCF or Not to P-CSCF, that is the Question

Another company known for their SBCs was NexTone Communications of Gaithersburg, Maryland. This merged with Reef Point Systems in December 2007 to form NextPoint Networks, which in turn has recently been acquired by Plano, Texas-based

GenBand, which also makes SBCs used to set up calls in VoIP networks. GenBand's acquisition of NextPoint (News - Alert) gives it a greater ability to compete directly with SBC makers such as Acme Packet and Starent Networks (News - Alert).

Just prior to GenBand's acquisition of NextPoint, Yours Truly spoke with Aaron Sipper, Senior Director, Partner Sales, who said, "There's clearly a need for SBCs in the network. They're not going away. It could be that we provide the Proxy-CSCF [P-CSCF], a SIP proxy that's the first point of contact for the IMS terminal, or the BGF [Border Gateway Functions], or we work with a partner and we're sitting in front of their P-CSCF and our device is doing interworking. Our equipment is really positioned to work in both places, depending on what a service provider needs or what one of our partners need. The interworking between IMS and the NGN networks is still a paramount driver for us right now. We're doing trials involving services based on voice, video, presence, IM, and so forth. One of the big debates when describing SBCs has centered on the question, 'Is your equipment a P-CSCF?'. As it turns out, look at TISPAN, which logically broke down the SBC into the interconnect and the access SBC parts. In fact, the P-CSCF actually resolves to the broad functionality that an SBC would provide anyway."

Mark Neider, Senior Partner and Sales Director, at NextPoint (now Genband), said, "Because we're cost-based and COTS [Commercial Off-the-Shelf] hardware-based, we can leverage Intel processors, such as boards in an AdvancedTCA (News - Alert) [ATCA] form factor, or devices that will fit inside of a regular server. Thus, we can offer a server or an ATCA form factor device. Sometimes one of our partners will use that concept in multiple ways. They can take a blade and drop the SBC into their ATCA chassis, or perhaps they're providing a P-CSCF function and we're providing a pre-P-CSCF with some additional security to that platform. NextPoint is really very flexible in how we deploy or help our partners deploy that functionality. That's a great advantage for NextPoint."

"In terms of differences, it's predominantly a software interoperability issue," said Neider. "It's about adding the right message

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sets and specific features that enable us to do IMS-to-NGN interworking and things like that. It's not so much a hardware question, although I will say that, in working with service providers, when you look at the SBC landscape, as more features are required, be it interworking or DTMF translation or things like that, you end up having to demand more processing performance from the platform to achieve the same basic calls per second. Our solution allows operators to deliver high performance without degradation caused by the addition of features. As we deploy, our scaling abilities have become of more pronounced interest, whether it involves companies deploying straight VoIP or NGN style technology, or whether they're looking into IMS."

SBCs in the Saddle

One reason session border controllers remain viable is that there is no cookie-cutter set of standard SBC functions. Like IMS itself, SBCs continue to evolve to handle Quality of Service (QoS), security, interoperability and other intricacies relating to voice and multimedia services when they stream through an IP infrastructure, be it under the provenance of the service provider or enterprise.

Richard Grigonis is Executive Editor of TMC's IP Communications Group.

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From the Desk of Michael Khalilian

IMS/NGN Forum Announces Launch of the Industry's First SDP Study Group

The IMS/NGN Forum takes the lead, as the focus shifts to monetizing IMS architecture using Service Delivery Platform (SDP) and composite applications. The SDP enables integrating and exploiting the IP network capability in rendering value-added services to the consumer and enterprise customers.

SDP complements IMS network architecture by enabling rapid development and deployment of new converged multimedia services, from basic phone services to M-play (mobility and multimedia) applications.

Since SDP is not yet standardized, the IMS/NGN Forum initiated the Industry's first SDP study group with the mission to develop best practice for the implementation of SDP services and interoperability test and certification plans to include the following:

- Interoperability of the various components in the Service Layer, Session Layer and the Client on the end-device/Customer Premise Equipment (CPE)
- Policy and business process management
- Integration of other service components such as Service Creation Environment (SCE) and Service Oriented Architecture (SOA) middleware's, Web 2.0 and Enterprise 2.0 which use a restricted Web services model

The IMS SDP Working Group will be officially launched at the Informa (News - Alert) IMS/SDP Summit in November 2008. This new working group allows both member companies and individual contributors to work together toward the creation, testing, and integration of SDP and IMS/NGN architecture.

For registering with this newly-formed working group, please send an email to techchair@imsforum.org.

The IMS Forum SDP group, which is also supported by the over 2,000 members of our Technical IMS open community, is inviting service providers, system integrators, equipment and solutions vendors to join the technical, business and best practices development as part of this SDP Working Group.

For membership information, or to participate in IMS Forum working groups, plugfest and membership information, please visit www.IMSForum.org or contact Michael Khalilian (News - Alert) at MKhalilian@IMSForum.org.

Michael Khalilian is Chairman and President of the IMS/NGN Forum (www.IMSForum.org, www.NGNForum.org, info@IMSForum.org).

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