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Rich Tehrani Speaks With Sonus Networks CEO Hassan Ahmed

IMS MAGAZINE™

IP MULTIMEDIA SUBSYSTEM

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PREMIERE ISSUE!

IMS: Secrets To Success

When Will The Hype Become Reality?

A SIP Of The IMS Kool-Aid

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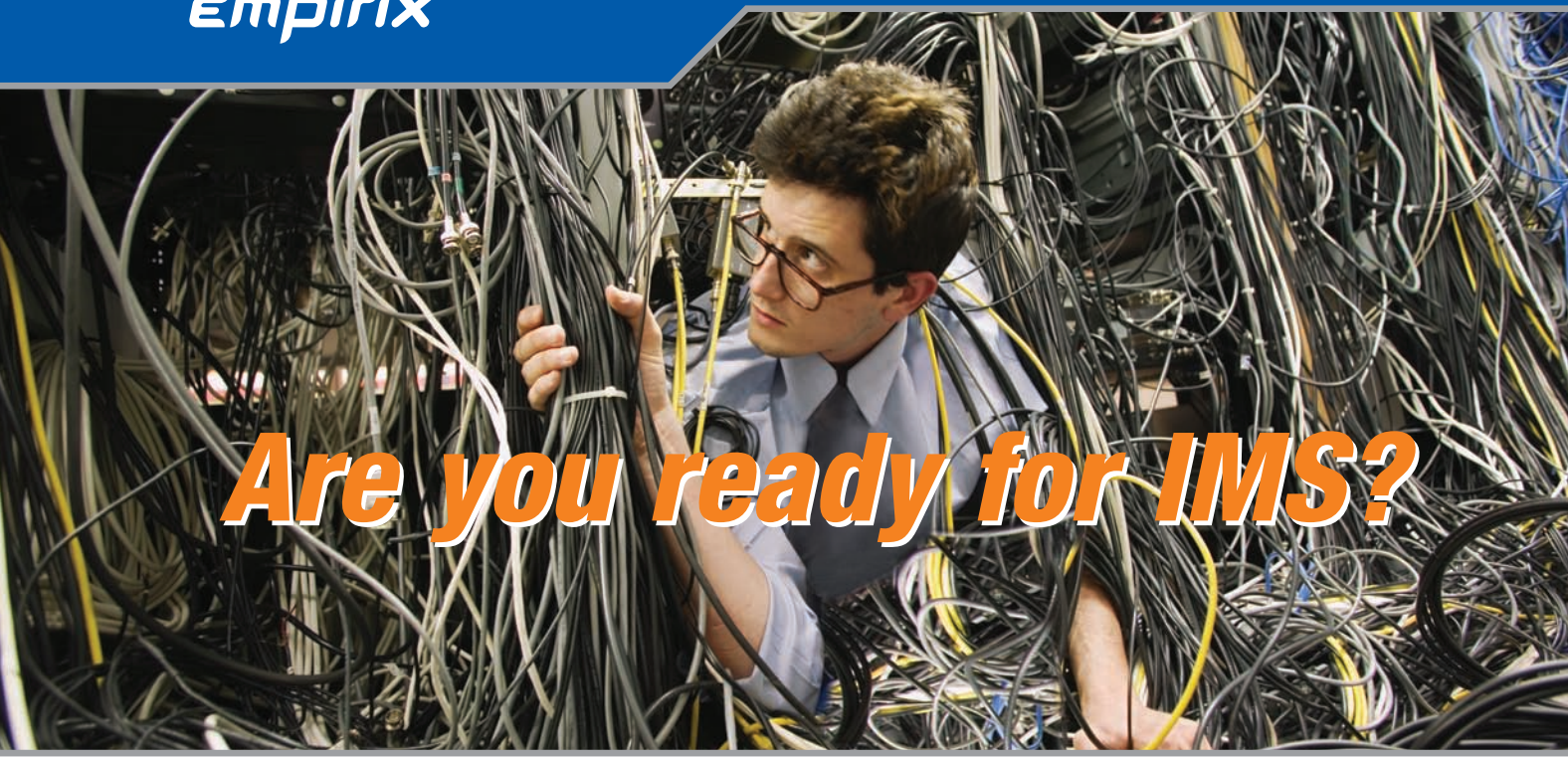

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editor's note

Welcome to IMS

by Greg Galitzine

IMS (define - news - alert) has arrived. IMS is all hype. IMS is the single biggest carrier opportunity in the past 20 years. IMS will never happen.

IMS is here.

With people taking such varied positions regarding IMS, it's no wonder there's so much confusion. That's where *IMS Magazine* comes in. *IMS Magazine* is launching this month with one goal: to serve as the industry resource for carriers, application developers, and equipment manufacturers who need to stay on top of all the developments in this new era of telecommunications.

What is IMS? IMS stands for IP Multimedia Subsystem, which at its very simplest is a roadmap, a standardized architecture for fixed and mobile operators to provide multimedia services. IMS strives to be the glue that binds together services, security, billing, interoperability, access, transport… all the elements that will make the next generation of telecommunication services more accessible for end users, and more profitable for carriers. Based on a 3GPP standardized implementation of SIP, IMS is designed to reduce time-to-market deployment and cost for new service creation, thus allowing a multitude of new services to be tested, validated, and launched into the market.

Will this happen overnight? Not likely. IBM's (quote - news - alert) Joseph Ziskin draws a timeline for IMS in his article *Delivering on the Promise of IMS through Service Creation*, which appears on page 42. He positions our industry at Phase 1 (2005–2007) today, with carriers seeking first-mover advantage. During Phase 2 (2006–2009) we'll see increasing evidence of key benefits demonstrated, and in Phase 3 (2010 and beyond) Ziskin says,"…we can expect to see the broad interconnection and availability of IMS services across all fixed and mobile networks for voice and data."

Telcordia's Grant Lenahan, in his excellent article *IMS: When Will The Hype Become Reality?* (page 50) lays out the case for IMS and points out that IMS is a journey; a journey "to deliver converged voice services, add content-based services more uniformly, and simplify their operations and cut down on systems integration and maintenance costs."

I invite you to join me on this journey. We have enlisted the services of a number of industry experts who comprise this publication's editorial advisory board. I'd like to take a moment to thank them and to introduce them to you:

- Michael Khalilian, President & Chairman, IMS Forum
- Scott Erickson, President, IMS Service Delivery Solutions, Telcordia
- Ronald Gruia, Program Leader & Senior Strategic Analyst, Frost & Sullivan
- John Marinho, Corporate Strategic Marketing Vice President, Lucent Technologies
- Mike McHugh, V.P. & General Manager, BEA WebLogic Communications Platform, BEA Systems
- Mikael Stromquist, E.V.P., Strategic Planning, Ericsson North America

Together with their insight and guidance, *IMS Magazine* hopes to serve you, our readers, and help you make the right decisions by providing the information you need regarding the technology and the companies that make up this promising market. Welcome to IMS.

IMS MAGAZINE™
IP MULTIMEDIA SUBSYSTEM

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About IMS Magazine®
IMS Magazine™ is devoted to teaching the service provider community about the massive opportunities afforded them in the move to IP Multimedia Subsystem-based architectures. Each issue of *IMS Magazine*™ will focus on the important news and events happening in the rapidly growing IMS space while focusing on case studies and deployments in the real world. In addition, it is our goal to make the editorial environment of this publication the source for targeted editorial enabling key executives to make better purchasing decisions.

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IMS Magazine® encourages readers to contact us with their questions, comments, and suggestions. Send e-mail (addresses above), or send ordinary mail. We reserve the right to edit letters for clarity and brevity. All submissions will be considered eligible for publication unless otherwise specified by the author.

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publisher's outlook

Telecom Utopia

by Rich Tehrani

I have joked when I've keynoted various conferences that the last time so many people agreed on something so rapidly was OS/2. Surprisingly, as I am one of the few who have made potentially negative public comments on IMS, I have also decided to launch the first IMS publication in the world. Why?

The reason is that IMS holds tremendous promise for service providers and customers. It unifies what is now disparate. It ties together what is now uncoupled. It has the potential to solve many telecom problems and increase flexibility and connectivity.

These goals are utopian, but technologies like VoIP and SIP have allowed us to have a platform on which we can make the leap to IMS. Telecom utopia is what we, as an industry, should strive for. Of course, customers are willing to pay for utopia... We have a bright future as a telecom industry; we will have customers spending more to get more.

But how do we get our customers in larger numbers? How do we get new customers to convert to your IMS systems? And what solutions should you be purchasing and deploying?

These questions are what you will find answered in each issue of *IMS Magazine*. This publication will be the world's resource on how service providers will make the next billion dollars plus. As the industry publication, we are the cheerleaders of IMS as well as the evangelists. At the same time, we promise to detail the drawbacks and pitfalls that need to be solved, allowing this new telecom opportunity to take off and generate happier customers and tremendous amounts of new sales.

> Never before in my history in the telecom space have so many agreed on something so quickly. IMS is supposed to take over the world. It will unify wireless, wireline, and all other communications like never before. It will allow small developers to deploy applications to networks with millions of subscribers overnight. It will allow companies to make their workers more productive, give central control of telephony, and allow communications to be based on contacting a person, not an army of disparate devices and phone numbers.

As we embark on this new and exciting adventure, I thought a good place to start would be with some of the people that are most involved with IMS — and, therefore, should also have a good sense of its direction. Here is what those eight industry insiders had to say about IMS, its potential benefits, and its impact. This is only the beginning.

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Please describe IMS

Grant Henderson, Executive Vice President of Marketing and Strategy, Convedia — (news - alert) IMS is the most recent refinement of an IP-based enhanced services architecture. The 3GPP, by embracing proven technologies from early wireline VoIP service architectures, and then adding important IP-based mobility service features, have defined an enhanced services architecture with universal industry relevance and appeal.

Paul Longhenry, VP Business Development, Sonim Technologies — (news - alert) IMS is a standardized application delivery framework designed to provide a common switching element that wireless, wireline, and cable carriers can use to rapidly deploy, integrate, and manage all SIP-based services.

Kevin McCracken, Director of Product Management, NewStep Networks — (news - alert) IMS is a core network framework that is intended to enable the development and delivery of new services that can be delivered across any type of access network to any type of device. IMS capitalizes on IP and SIP to break free of proprietary, vertically integrated, core network platforms that restricted what services could be deployed, and how. IMS invites innovation by providing open interfaces to application servers that can leverage common capabilities, like session management, presence, and subscriber profiles.

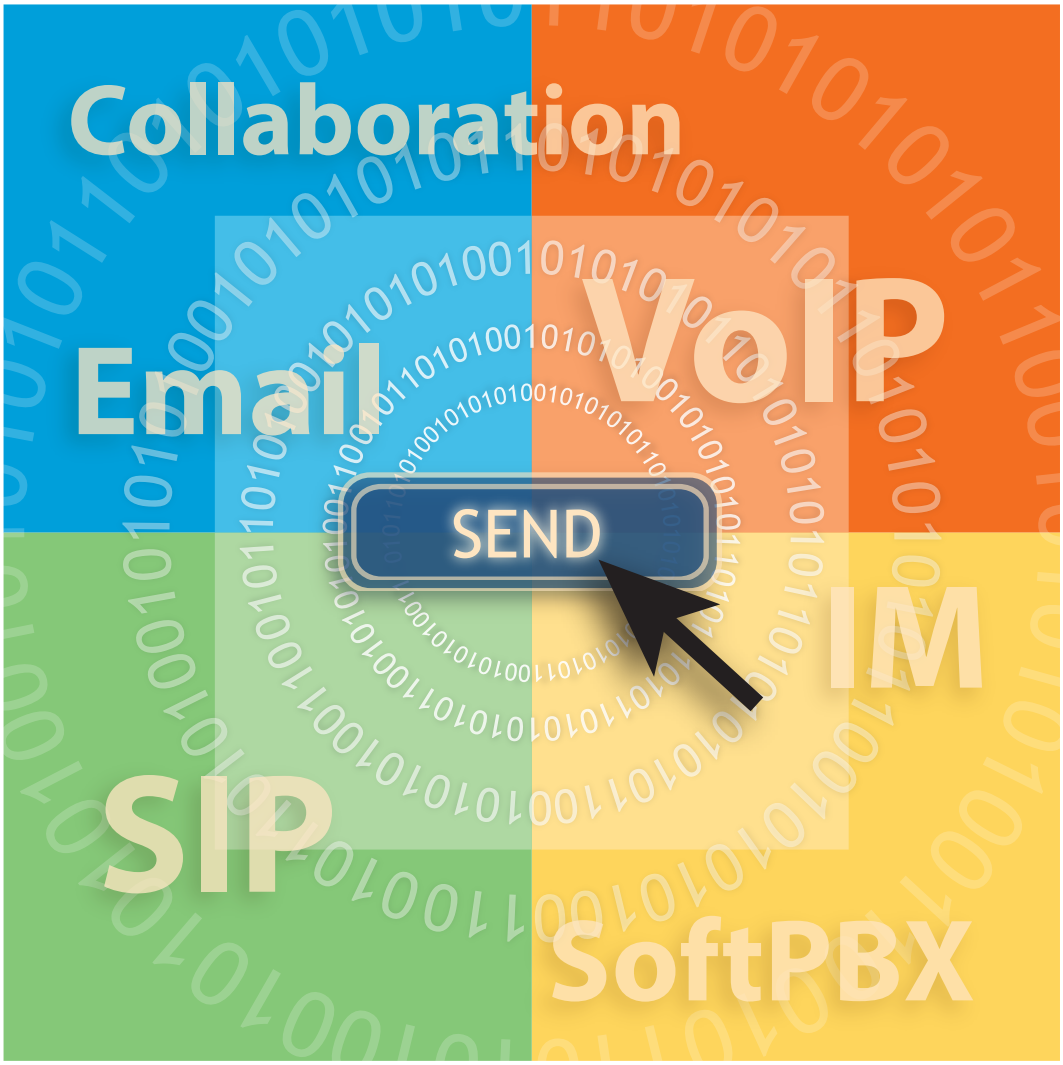
Mike Hluchyj, Founder and Chief Technology Officer, Sonus Networks — (news - alert) IMS is an architecture based on distributed intelligence principles and protocols that will enable network operators to deliver converged services over a single network infrastructure. These common applications deliver a consistent subscriber experience, regardless of whether the network is accessed via wireless or wireline technology.

Eric Burger, VP, Chief Technology Officer, Excel Switching (news - alert) *and Brooktrout Technology* — (news - alert) The key technology behind IMS is SIP, which serves as the control protocol for IMS network elements. The IMS reference architecture provides a layered approach with defined service, control, and transport planes to create a flexible and scalable application development and deployment environment.

Scott Erickson, President, IMS Service Delivery Solutions, Telcordia — (news - alert) IMS is an emerging set of standards that enables any service over any network to any device. The development of IMS is an inflection point for the most fundamental transformation that the communications industry has undertaken for the creation and delivery of interactive, compelling multimedia services. IMS moves the true value of the network away from the infrastructure and to the service layer where the applications reside, enabling carriers to quickly deploy and offer more revenue generating services.

John Marinho, Corporate Strategic Marketing Vice President, Lucent Technologies — (quote - news - alert) IMS is a next generation service delivery architecture that enables carriers to offer end users personalized services that meet their lifestyles and can be used anytime, anywhere, regardless of access device or network. IMS brings the IT and telecom worlds together by enabling the inter-working and delivery of voice, video, data, and multimedia applications across previous barriers.

Gary Gray, Senior Director of Corporate Marketing, Ubiquity Software — (news - alert) IMS represents a revolution in the communications industry, providing a common architecture for wireline and wireless networks. It is a technology that enables a new generation of multimedia services for a rich user experience with applications such as instant messaging (IM), push-to-talk, conferencing, presence, and multimedia content sharing.



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How would you describe its potential?

Henderson — IMS, with its universal appeal to both wireline and wireless carriers, will form the basis for achieving the ultimate goal of telecommunication carrier operations: a single enhanced services architecture for delivering any service, using any media, to reach any customer, regardless of how they connect to the network.

Longhenry — It is very likely that IMS will be deployed, in some fashion, by most major carriers over the next five years. It is the only standards-based method of addressing the fundamental challenge with which carriers struggle when considering application roadmaps. Which is, how to minimize the cost of new application deployments so that they can profitably address the opportunities available in micro-segments of their subscriber base.

McCracken — The potential for IMS is one of simplification for the service provider and end customer. For the service provider, simplification comes from the fact that IMS will establish a horizontal set of capabilities that can be applied to all the networks they run and to all the services they want to deploy. For well established service providers, reaching this potential will not happen overnight, because it may not make business sense to migrate existing services to IMS. But IMS will help new services tremendously. Customers will enjoy a simplified communications experience because they will have a single profile to manage and they will enjoy the same services across any network and device, so they can focus on the task at hand, as opposed to figuring out the technology.

Hluchyj — The potential for IMS is enormous, as it fundamentally changes the communications paradigm. Voice, data, and video can all be converged in an IMS landscape. From a service provider perspective, the delivery model is far more efficient and dynamic. From a subscriber perspective, they have access to an experience that is simply not available with today's legacy technology.

Burger — IP will continue to be a disruptive technology to traditional telecom operators for years to come and help to transform operator business models from voice-driven to service-driven businesses. Operators require more applications to meet competitive threats and will need a better environment for creating and deploying high value multimedia services. IMS addresses this need.

Scott Erickson, President, IMS Service Delivery Solutions, Telcordia — IMS has the potential to change communications as we know it. Carriers now have the opportunity to cast themselves free of the costly underlying network hardware and exert direct and flexible control over their services through software. IP-based communications provide carriers with the flexibility and openness to quickly offer new revenue generating services, while enabling them to lower their total cost of doing business, increase their revenue potential, realize higher productivity and reduce churn.

Marinho — Lucent's primary market research indicated a pent up demand for the type of blended lifestyle services that IMS can enable. For example, U.S. service providers have a potential market for converged services worth an estimated $10 billon dollars, with that figure being potentially reached five years after such services are introduced to the consumer and enterprise markets.

Gray —IMS will have significant potential because of the enhanced services it will enable. It has potential to enrich the personal lives of consumers and potential to enrich the productivity of business and enterprise users, changing the world of communications as we know it. This change has the potential to drive new economic growth in our industry.

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What are some potential "killer apps" that IMS might enable?

Henderson — IMS will facilitate new multimedia services, accelerate the migration of legacy TDM services to IP, and make any telecom service more seamless and ubiquitous using any type of access device. Services involving multimedia, presence, and follow-me features will no longer have the technical barriers between access networks that previously existed.

Longhenry — There are no true "killer apps" for IMS, as any application that can be delivered over IMS can also be delivered via a stand alone proprietary application server. Rather, the "killer ROI case" is that IMS can enable carriers to deploy ten applications from a common standardized (i.e., cost competitive) platform, instead of from ten distinct platforms requiring ten separate integration efforts.

McCracken — Some of the most compelling applications will be ones that capitalize on the ability of IMS networks to bring voice, video, and data streams together to deliver so called "rich media services" across multiple access networks and devices. These services will bring these traditionally separate capabilities together and enable more compelling person-to-person communications than were ever possible on separate networks. IMS provides a common framework that can be leveraged across all the access methods and devices that people want to use for their personal and business communications. It breaks down the proprietary "service silos" that have existed for years.

Hluchyj — It doesn't really matter what the next "killer app" is — that is something that is always going to change. What's great about IMS is that it employs a distributed model where application creation mirrors Web application development. In the old telecom world, introducing new services was expensive and risky. In an IMS world, the cost of experimentation is driven down considerably. When the cost of experimentation is lowered, the opportunity for innovation expands exponentially. The next killer app will always be right around the corner.

Burger — IMS is all about SIP-based applications. Potential applications include audio and video conferencing, video messaging, hosted services, multi-player gaming, and ubiquitous services/personalized content. By providing a standard communications infrastructure based on IP, IMS allows multimedia application convergence

Scott Erickson, President, IMS Service Delivery Solutions, Telcordia — For carriers, the real 'killer app' is the ability to provide a myriad of exciting IP-enabled next generation services quickly, such as push-to-video, mobile TV, multi-party gaming, presence and location-based services, TV Caller ID, and converged VPNs. IMS provides carriers with the agility, flexibility, and speed-to-delivery that is critical for them to drive increased revenue from these new offers and secure their future growth and viability.

Marinho — The search for the "killer app" may not be applicable to a broad market, as we traditionally might think. The key is identifying the "right" combination of services that addresses demand in specific market segments. IMS-based services, for example, can enable friends to plan a night out in real-time, including discussing the possibilities, viewing a movie trailer and purchasing tickets, picking a restaurant and making the reservation, and receiving custom directions to the restaurant.

Gray — IMS not only enables the killer app, but it enables the "Killer Capability," meaning that multiple applications or blended applications are enabled by IMS. We expect "Instant Multimedia Sharing" applications, such as music, video, and voice, being widely adopted.

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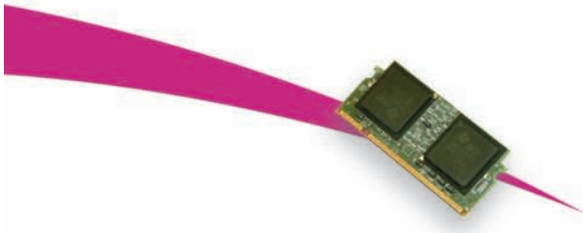

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Who stands to benefit the most from IMS? Carriers? Equipment manufacturers? End users?

Henderson — IMS is a positive for the entire telecommunications industry. Carriers and, eventually, enterprises, will benefit from unified service architecture. Equipment manufacturers will become more efficient, focusing resources on a single IMS product line, rather then different products for different markets. End users, particularly business users, will benefit from seamless services, regardless of access or device.

Longhenry — End users will ultimately benefit most from IMS, as they will gain access to exponentially more applications could be commercially viable in a non-IMS world. The best analogy is probably the user experience available from DoCoMo and iMode, as third party applications can be quickly developed, integrated, and delivered to a fad-oriented subscriber base. IMS enables this in a standardized fashion.

McCracken — The ones who will benefit most are the service providers and the end customers. Service providers will have a core network that finally separates session control from the bearer path and the services. This creates an architecture more suited to bringing new applications to market more quickly and reduces a lot of traditional duplication. End users will benefit because they will have simplified communications that will be personalized across any network and device. They will be able to enjoy a much richer multimedia communications experience that will no longer be dependent on a specified access method tied to a specific device. Equipment manufacturers will face greater competition as proprietary architectures are broken apart with IMS, opening up new opportunities for nimble companies to shine with innovative services.

Hluchyj — The benefits really extend across the industry. By standardizing the different network components, service providers can pick the pieces they want and manufacturers can focus on their core competency areas. The result is lower cost infrastructure and a much greater variety of services that can be rapidly deployed, which benefits the consumers.

Burger — If everyone can agree to standardize on IMS, then the whole industry benefits. Carriers will be able take advantage of all of the benefits of open systems equipment, such as improved ROI, faster time to deployment, and best of breed solutions. End users will benefit from new and innovative personalized services, accessible anytime and anywhere. Equipment manufacturers will benefit from supplying products that enable the deployment of new services

Scott Erickson, President, IMS Service Delivery Solutions, Telcordia — Carriers. Wireless carriers will speed new services to market. Wireline carriers will be able to increase customer satisfaction through bundled offers. MVNOs will launch themselves more rapidly into niche markets while simplifying service creation. MSOs will evolve by using IMS to compete with both wireline and wireless carriers. All will benefit from the added revenue from new services and increased customer satisfaction.

Marinho — End users benefit from an improved communications experience geared to their personal needs and requirements. Carriers benefit from the pent up demand, market opportunity, and "stickiness" of IMS services. Manufacturers benefit from the adoption of the technology and increased network capacity demand that is driven by IMS-based services.

Gray — Many stakeholders will benefit from IMS. First and foremost, end users will benefit by having new services, more services, and more choices. Moreover, end users will benefit by the personal and

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What is the timeline for real commercial deployments of IMS?

Henderson — Carriers are already purchasing IMS-compatible components and systems, and realizing early benefits from IMS architecture principles in small pilot deployments and specific services. However, fully interoperating, standards-based, multi-vendor IMS solutions are probably still a few years out.

Longhenry — IMS deployments would be happening across the telecommunications environment today if IMS client architecture was on par with IMS server infrastructure. Unfortunately, the concept of an IMS client has not yet gained sufficient momentum in the standardization process and, therefore, advanced client-server IMS applications cannot yet be seamlessly delivered to subscribers. As this is addressed in the next 24 months, IMS deployments will rapidly accelerate.

McCracken — Technically, there are commercial deployments today for some initial IMS components, like a barebones CSCF (Call Session Control Function) in support of push-to-talk services, but these deployments are only starting to whet the appetite for what's to come later in 2006 and into 2007. Once SIP-based session control is used for more than PTT, other elements, like a Home Subscriber Server (HSS), will start to show value. IMS will co-exist with today's networks for many years to come and services will be migrated as the business evolves. Ironically, IMS may see quicker deployment by fixed service providers because they can leverage their broadband access networks and more powerful devices to deliver some of the multimedia capabilities sooner than wireless providers.

Hluchyj — Some solutions are IMS-ready today, and network operators are already laying the groundwork of their IMS deployments. That said, we anticipate that the delivery of enhanced applications built on IMS will be a 2007/2008 event.

Burger — Early commercial deployments are actually happening now. Brooktrout/Excel worked with TMN, the largest provider in Portugal, to deliver one of the first live 3G video messaging services. The goal was to deliver real-time video services in time for the European soccer championships. For TMN, this was an opportunity for a new revenue-generating service, since voice is rapidly becoming a commodity.

Scott Erickson, President, IMS Service Delivery Solutions, Telcordia — IMS is already seeing significant global momentum. Some carriers have already begun to make inroads in IMS-ready deployments. The beauty of IMS is that carriers can proceed at the pace that is right for them, their business, and their customers, based on their existing network investments and customers' needs.

Marinho — We expect to see commercial services based on IMS solutions begin to roll out later this year, and the momentum will pick up in 2007.

Gray — Based on evaluations and lab trials, we would expect to see real deployments in the next 12 – 24 months. Ubiquity is involved now in helping carriers plan, develop and deploy new services, even pre-IMS, to realize revenues and services today that will be IMS-ready when IMS networks are deployed, regardless of the timeframe.

IMS Forum

The Voice of IP Convergence

www.imsforum.org

The IMS Forum is a global, non-profit industry association dedicated to IP Multimedia Subsystem (IMS) services and solutions. Our mission is to accelerate the adoption of IMS by providing an environment for discussion and resolution of real-world implementation issues relating to interoperability, best practices, and standards-based architectures in the application layer.

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Convergin Enables First Cellular / WiFi Handoff Without Service Level Changes

Convergin, (news - alert) a provider of fixed/mobile convergence and service interaction solutions, announced the first core network support to enable standards-based Cellular/WiFi handoffs without requiring an operator to make changes in the service level. Unlike other approaches, Convergin's core Wireless Convergence Server (WCS) now enables operators to commercially deploy Cellular/WiFi handoff for dual mode devices without compromising the level of service or requiring comprehensive changes on their service delivery platforms and Intelligent Network (IN) Service Control Points (SCPs).

Convergin's Wireless Convergence Server is the first FMC Service Capability Interaction Management (SCIM) solution that allows real network Voice Call Continuity (VCC) deployments that orchestrate the execution of existing and next generation services over hybrid Cellular and WiFi networks without service interruption. Acting as the SCIM, the Wireless Convergence Server orchestrates the network service platforms such that service continuity is preserved across the legacy cellular and SIP/IMS domains even when VCC is deployed. This SCIM-based control is a vital step towards deploying Cellular /WiFi standards-based handoff solutions.

Until now IMS-based solutions suffered from being intrusive for the service layer. However, now, with a core solution for convergence, Convergin shows a strong service interaction level solution that allows the operators the merits of IMS with the service transparency of access solutions such as UMA.

http://www.convergin.com

UTStarcom to Launch End-to-End FMC Solution

UTStarcom, Inc., (news - alert) a global leader in IP-based, end-to-end networking solutions and services, announced its end-to-end Continuity solution for the fixed-mobile convergence (FMC) market.

The Continuity FMC solution is designed to increase network efficiency and coverage. It can also enable end users to access a rich set of services and features that, in the past, were available through either wireline or wireless networks. The Continuity FMC solution allows users to communicate with anyone from virtually anywhere while using a communication device of their choice. This allows for a simple, cost-effective solution for both wireline and wireless carriers and generally eliminates the need for a major overhaul of existing infrastructure.

The Continuity solution includes an FMC Feature Server (FMC-FS) based on the company's mSwitch IP softswitch platform and a dual-mode WiFi/GSM handset. With Continuity, fixed and mobile service providers can deliver a unified service over both wireline and wireless networks. End users can interconnect to the fixed-line or cellular network transparently and roam across them seamlessly regardless of their location, communication device, or network access method.

"UTStarcom's Continuity solution has the flexibility and power to enable all types of carriers to enhance their services," said Brian Caskey, vice president of worldwide marketing at UTStarcom. "We believe FMC is the first step for streaming media, and ultimately, we expect the Continuity solution can even support IPTV over the mobile device."

http://www.utstar.com

TECORE IMS Strategy: Unmatched Features Bring Convergence to the Edge

TECORE (news - alert) Wireless Systems unveiled its IP Multimedia Subsystem (IMS) strategy with the introduction of its product line of IMS network elements. The TECORE IMS leverages the company's patented multi-technology platform allowing convergent operation across the full spectrum of wireless technologies including cellular and wireless LAN. The combined functionality strategically positions the TECORE IMS for ubiquitous access at the edge of the network and centralized control of services.

The TECORE IMS, based on TECORE's SoftMSC platform, employs a Java client-server architecture, allowing consistent management across the various nodes of the network, while utilizing carrier grade, high availability Linux processing nodes. The TECORE IMS also provides the backbone for voice communications and interoperability between the different wireless technologies including GSM, CDMA, 3G, WiMAX, and WiFi giving wireless operators the ability to migrate to fully converged networks for voice, data, and multimedia applications.

TECORE provides an end-to-end IMS network solution powered by Session Initiation Protocol (SIP) technology and built to 3rd Generation Partnership Program (3GPP) standards. The product line supports scalability ranging from a highly available, distributed deployment controlled from a centralized site down to enterprise IMS. The complete network including the access, transport, control, and service are implemented as components of the IMS solution. The system supports both Pre-IMS and IMS network services such as Push-to-Talk over Cellular (PoC) and Prepaid.

http://www.tecore.com

Additional IMS Applications for Telcordia's Maestro Portfolio

(news - alert) Building on its significant global momentum in IP Multimedia Subsystem (IMS), Telcordia launched Telcordia Ringback Tones and Telcordia Location-Based Services as additional components of the Telcordia Converged Applications Suite. Designed to be integrated into all wireless and wireline networks, the new applications run on the Telcordia Converged Application Server, supporting PSTN as well as IMS-based protocols such as SIP.

With customer deployments in all regions of the world, the new Telcordia IMS capabilities will ensure operators can offer subscribers added value through differentiated and personalized services. The Converged Applications Suite is a set of applications that enable operators to rapidly launch pre-built services, speeding their time-to-market.

"The addition of these new applications to our Maestro portfolio underlines Telcordia's commitment to IMS and to helping operators derive value from all their networks through our Converged Applications Suite," said Scott Erickson, President, IMS Service Delivery Solutions. "Telcordia is reducing the complexity of rolling out new revenue-generating services and offering operators rapid time to revenue for high-value services. The first two in a series of expanded applications in the Maestro portfolio will provide operators with an extra level of advanced subscriber offerings to help them gain a competitive advantage."

Location-based services enable operators to create and launch new consumer and business offerings using the ability to determine a user's location, with full user privacy and network security.

http://www.telcordia.com

Lucent and IBM to Deliver Integrated IMS Solutions to Carriers

Lucent Technologies (quote - news - alert) announced an agreement with IBM to deliver leading next generation solutions that enable service providers to more rapidly introduce new Internet Protocol (IP)-based services while managing expenses.

Together, Lucent and IBM will develop, market, and deliver joint solutions based on IMS that will accelerate the introduction of new blended services for wireless and wireline carriers. The two companies are aligning their technology assets to deliver a complete IMS solution to enable rapid deployment and faster time to market for next-generation IMS composite or blended services. This joint architecture can reduce service providers' capital and operating expenses as well as enable them to deliver new revenue producing services.

The two companies have developed a reference architecture to support operations and billing solutions that leverage IBM's WebSphere, Rational and Tivoli software, Lucent's VitalSuite® products, and/or third-party independent software vendors and services from each party.

"In this competitive market, carriers are looking to bring next generation services to their customers quickly and at a reduced cost," said Sandy Aitken, Global IMS Solutions Owner, IBM Communications Sector. "Together IBM and Lucent will provide the capabilities and technology necessary to deliver a complete IMS solution for rapid deployment of composite and blended services."

http://www.lucent.com

Apertio Proves IMS Interoperability with Leapstone

Apertio (news - alert) and Leapstone Systems (news - alert) announced the completion of a comprehensive interoperability test (IOT) between the Apertio One-HSS (Home Subscriber Server) and Leapstone's Communications Convergence Engine (CCE).
The successful completion of this HSS / SCIM integration project verifies the maturity of these IMS elements and promises to accelerate the deployment of IMS applications within core communications networks.

By proving complete interoperability against defined IMS standards, the partnership offers operators greater performance, choice, and flexibility in their IMS strategies and dramatically reduces integration costs and testing time in real-world deployments.

"With IMS a clear focus for both fixed and mobile operators, the creation of a fully interoperable ecosystem of independent technology providers is a significant market enabler," said Wallace Ascham, Co-founder and Partnership Director of Apertio. "Today's IOT announcement between Apertio and Leapstone further extends this chain of exciting new vendors and allows carriers to choose best of breed solutions that address the specific demands of their infrastructure and customer base."

"IMS is a vital component of our business strategy and the successful completion of this IOT marks an important milestone in bringing this new technology to operators," said Rick Orriss, President & CEO of Leapstone Systems. "Interoperability is one of the main advantages of deploying a standards-based IMS architecture, and we're pleased to be working closely with Apertio to ensure that our combined solutions meet the rigorous IMS standards."

http://www.apertio.com
http://www.leapstone.com

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NMS Communications and LogicaCMG Launch Hosted Ringback Tones

NMS Communications (news - alert) and LogicaCMG (news - alert) announced the launch of the hosted ringback tone service for Finnish telecom operator Elisa, a partner operator of the Vodafone Group.

Elisa's Tunnari ringback tone service is based on NMS's MyCaller personalized mobile entertainment platform and LogicaCMG's global delivery, systems integration, and support capabilities. The combined solution by LogicaCMG and NMS is hosted using LogicaCMG's own data centers, enabling Elisa to reduce the cost and time-to-market for ringback tone services, while gaining the ability to quickly scale the service to meet growing demand.

Ringback tones complement other popular mobile applications such as ringtones and wallpapers, which let users personalize their mobile experience. Ringback tone services allow mobile users to replace the usual "ring" that callers normally hear with music and other audio clips chosen by the subscriber. Industry analyst firm Ovum estimates the worldwide market for ringback tones will reach $2.7 billion by 2009.

"Mobile subscribers today are looking for services that are not only entertaining but that let them express their personalities," said Mikko Uosukainen, project manager at Elisa.

http://www.logicacmg.com
http://www.nmscommunications.com

Brasil Telecom Gets IMS Elements for VoIP From Lucent

Lucent Technologies (quote - news - alert) announced that it has signed a contract with Brasil Telecom (BrT), (news - alert) one of the largest broadband service providers in Latin America, to deploy new multimedia elements in the operator's networks in Curitiba, Sao Paulo, and Brasilia regions. The agreement covers equipment and software on Lucent's MiLife services platform, which includes multiple elements in Lucent's IP Multimedia Subsystem (IMS) solution, that enables new applications over BrT's Internet Protocol (IP) communications network.

With this contract, Lucent expands its participation as next generation network and Voice over IP supplier to Brasil Telecom.

"Using Lucent VoIP solutions, we are able to offer profitable and differentiated applications, with quality, mobility, security and the cost-effectiveness that our end-users demand," highlights Marcelo Nobre Frasson, Network Planning Director for Brasil Telecom.

The transition to a voice over IP network is expected to reduce operating and network maintenance expenses. Additionally, the new network elements will enable BrT to deploy advanced services that can generate additional revenue.

http://www.brasiltelecom.com.br
http://www.lucent.com

West Corporation Selects Sonus Solution as Component of Next-Gen IVR Network

Sonus Networks, Inc., (news - alert) a leading supplier of service provider voice over IP (VoIP) infrastructure solutions, and West Corporation, (news - alert) a premier provider of outsourced communication solutions, announced that West Interactive Corporation, a wholly owned subsidiary of West Corporation, has selected the Sonus IP Multimedia Subsystems (IMS)-ready architecture as a component of its next generation voice network. West Interactive, which specializes in interactive voice response (IVR) services, is deploying a new VoIP network to cost-effectively increase network capacity and support the development of new revenue-generating services.

The Sonus solution will support incoming voice and data traffic for West Interactive's IVR services using the Sonus GSX9000 Open Services Switch, PSX Call Routing Server, and the Sonus Insight Management System. The solution will also enable West Interactive to migrate onto a single IP infrastructure that will allow the company to deliver a host of enhanced services to individual customers and enterprises.

"Our clients depend on reliable communications services. As a result, we require a network that offers carrier-class call quality and network reliability," said Craig Webster, senior vice president of systems development, West Interactive Corporation. "We evaluated a number of technology solutions, but Sonus' solutions and their track record for delivering top of the line technology made Sonus the clear choice."

http://www.west.com
http://www.sonusnet.com

EMPIRIX HITS THE ROAD TO DEMYSTIFY IMS

Empirix Inc., (news - alert) which helps organizations adopt complex communications solutions with confidence, is on the road with its 'Demystifying IMS Roadshow.' Empirix's series of seminars offers service providers, infrastructure vendors, and application developers pragmatic knowledge of IP Multimedia Subsystem (IMS) deployment and network and service readiness.

The emerging IMS network architecture gives fixed and mobile operators a common Session Initiation Protocol (SIP)-based application and switching infrastructure. It will be used to deliver a host of enhanced multimedia and traditional services across any access technology.

"The promise of IMS has been well publicized, but practical IMS expertise is hard to come by," said Duane Sword, Vice President of Product Management at Empirix. "Our extensive experience in helping service providers deploy new technologies in the access, control and application layers of their networks means we are well placed to offer impartial advice on IMS roadmap planning, implementation, and successful technology transition.

"We are seeing tremendous interest in this topic, and have fielded numerous requests for advice on IMS readiness," added Sword. "Clearly our ability to help customers share best practices for preparing for IMS has struck a chord in the market."

The Empirix Demystifying IMS Roadshow covers: the state of IMS adoption; deployment examples; what IMS means to service providers; and proven testing strategies for IMS readiness.

http://www.empirix.com

IMS: Why Talk Isn't Good Enough Anymore

by Mikael Stromquist

Listen to critics and you might believe IMS remains in the embryonic stage or at least that IMS is far from generating the kind of revenue that will justify the capital investment. Certainly, the mere creation of this magazine dedicated to covering the evolution of IMS is proof that momentum is building for commercial development and maturity. This level of attention and a growing commitment by industry players represents proof that IMS is moving from "slideware" and lab trial deployments into a phase of commercial deployment.

IMS is being embraced by suppliers, wireline, cable/cable labs and mobile operators worldwide as the baseline, standard architecture that promises to help these carriers capture incremental revenue from new value-added services across any type of access technology. With SIP (define - news - alert) and IP serving as the basis for all services, there is the ability to launch a host of new applications and services, such as simultaneous voice and data, voice and video, multimedia conferencing, Cellular/WiFi dual mode handsets that can deliver with seamless mobility, multi-player gaming, and; presence, capable of offering an active phonebook/buddy list with presence and the launching point for these services. .

> Few initiatives in the telecommunications industry today offer more potential and opportunity than IP multimedia subsystem (IMS). Yet, while the global telecom market is poised for a transformation over the next year, there still remains a lack of clarity and agreement among vendors and operators as to the timing and degree of impact that IMS will make.

A Groundswell for IMS

Major technology shifts in access are fueling IMS to become the communications vehicle of the future, especially since it is agnostic of access, protocol, and devices, thus enabling true convergence.

Today, fixed telecom operators are taking advantage of traditional fiber facilities and the Quality of Service (QoS) enabled DSL2+ with high-definition video, while cable operators are moving rapidly to shift to IMS for primary line VoIP and then for multimedia enhancements. Voice over IP (VoIP) over fixed broadband is already commercially deployed for consumers and enterprise applications in Europe and Asia, but the main focus in North America is moving to IMS-based VoIP, extending broadband VoIP to the mobile space and with new must have capabilities such as video content delivery, location-based services, among others in 2006.

Mobile variants of EV-DO and HSDPA methods are now gathering steam in mass markets as mobile operators move beyond voice. Mobile operators will take advantage of IMS capabilities to offer extensions of mobile services into the fixed broadband arena, as well as add enhanced video content delivery, video sharing, push to talk, push to watch, and other

"The secret of

success

is to know something
nobody else knows."

—Aristotle Onassis

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applications to their current offerings.

Going Beyond Talk

Beyond the market's progress with IMS over the last year, talk alone won't propel IMS to the next stage. Slide presentations in a conference room charting the future and standards are important, but IMS is ready for prime time. And Cchange will not come about if the industry focuses on collaboration andng on exploring new applications and services that users can use.

To truly drive IMS forward, more concentration is required to uncover the value for enterprise and consumer end users with new emerging multimedia services that we all know will come. 2006 is the year in which operators will launch targeted applications into the fixed broadband markets, based on IMS. The use of IMS will also enable these services to work on a wide variety of fixed and mobile devices, from multiple vendors and with multiple clients.

IMS in 2006

The next phase of IMS is already underway, and 2006 will mark a transition from the strategic trial phase of limited revenue-generating services to commercial deployment of tested services that subscribers will truly demand. It is doubtful that operators will generate significant revenue from these initial commercial IMS deployments this year. However, if the industry can achieve a multi-vendor, multi-operator initiative, the industry can begin to focus on driving volume of IMS-based services next year.

Each month, this "converged view" will continue to explore the progress being made in IMS and will navigate the hype to provide perspective. The intent of this column is to evaluate these advancements, provide insight and go beyond talk to interpret the realities of IMS today.

Mikael Stromquist is executive vice president, Strategy, for Ericsson North America. For more information, please visit the company online at http://www.ericsson.com. (quote - news - alert)

> With VoIP proliferation continuing at a very aggressive rate, it has become quite clear that we are going through a major transition toward IP multimedia convergence and are witnessing the dawn of a new era of communications driven by bundled services, applications, multimedia content delivery, and telecommunications convergence.
>
> — *Michael Khalilian, chairman and president, IMS Forum*
> *http://www.imsforum.org*

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www.imsexpo.com

What is IMS, Really?

by Grant F. Lenahan

Mobile operators see IMS as a path to 3G services, although few have yet emerged. Broadband operators see IMS as a path to VoIP and Fixed-Mobile Convergence (just look at who's driving the 3GPP's Voice Call Continuity standards — it's not the GSM community). Stalwart switch vendors see it as the enabler for softswitches and VoIP, (define - news - alert) while IT and data vendors see it as the enabler of Service Delivery Platforms (SDPs).
It seems to me that they are all correct to a degree, but none of these views capture the essence of what IMS is, and certainly not what it needs to be for our industry to prosper over the next few decades.

So what is IMS? One thing is for certain: IMS is not just about the movement from circuit-switched voice to SIP-based VoIP, although it surely will, and must, accomplish that. It also must be more than a technology to provide convergence in its many forms; although it's also great for that too. And it cannot be only a path to multimedia and IP service, although that is, in many ways, getting closer.

IMS (along with its permutations — NGN, MMD, and PacketCable Multimedia) is approaching that stage where it is becoming the ubiquitous topic of our industry, yet it's also "amorphous" — many still aren't sure exactly what it is, or should be, while others have widely diverging opinions. This is the dangerous stage at which IMS could easily move on to be a "hype bubble" — or it could be the long-term roadmap for our industry's business and technical future. Some choice!

Let's begin with the essence of IMS, and do that by dissecting its name: the IP Multimedia Subsystem. That name says a lot:

First, it is intended for networks using the Internet Protocol (IP). The IP network of today — the Internet — is clearly "business model challenged," and traditional fixed and mobile vendors are struggling to make an economic model work for them.

Next, it is Multimedia, allowing the delivery of voice, messaging, video, and other data services both concurrently and "blended together." This is pretty special, since, in theory, it would break down both technological and service-specific "silos" or "stovepipes" that have long hampered service innovation and driven up systems integration costs.

Finally, it is a Subsystem. Say what? Well, the real point is that IMS is not a network per se, but a set of network-enhancing resources.

Let's back up to the root problem, which is also the industry's root opportunity: IP. IP is wonderfully flexible and interoperable. In fact, it's so flexible and interoperable that service

innovation has moved out from the core to endpoints — PC clients, third-party service providers (think: Vonage (news - alert), Google (quote - news - alert), Skype (news - alert), Yahoo (quote - news - alert)). This decentralized innovation has resulted in a cornucopia of new services, but has also resulted in problems for both operators (who feel dis-intermediated, and thus are struggling for a business model) and for end-users (who must deal with poor security, non-interoperable services, multiple passwords, chaotic billing, and inconsistent QoS, among many other problems).

It's also clear that aside from a very few notable stars, no one has figured out how to make money using the traditional Internet model.

IMS aims to fix that. It offers some very basic tools to move the Internet to its next level, and to enable operators to profit from IP networks. IMS (along with the OMA, ETSI, and Cable Labs) defines:

A SIP-based session model so that associations, "calls," and other services can be identified and controlled. It is interesting to note that a similar model can be applied to non-SIP services as such, greatly extending IMS' reach and usefulness.

Along with work in the OMA, a set of shared, re-usable "enablers" that should speed service development, allow operators to offer value-adds to third parties that want them, and enhance a consumer's overall on-line experiences.

A charging (billing) infrastructure with the ability to recognize sessions of many kinds, and to operate in real-time to support a wide range of commercial models, including those collaborative with innovative third parties.

A set of mappings (in progress) to support a range of networks, including DSL, Cable/HSD, 3G, FTTx, broadband wireless WANs and LANs, as well as interoperability with cellular and fixed voice and IN networks.

So there you have it. IMS supports IP networks. It supports service innovation. It supports flexible charging. It supports core network intelligence. And it supports these — in theory — across a wide range of broadband and legacy networks. And therein lies the real magic of IMS. It's not associated with one vendor, one technology, one service. It's the "lingua franca" that lets service innovation take place, yet enables operators and other service providers to offer value-adds that augment a consumer's and enterprise's experience by adding simplicity, security, and personalization.

IMS is the "lingua franca" that lets service innovation take place.

Or, as I see it, it leaves the genius of IP networks mostly alone, while patching the holes that stymied attempts to offer common, easy-to-use, secure services.

Grant Lenahan is vice president and strategist, IMS Service Delivery Solutions at Telcordia Technologies, Inc. For more information, visit http://www.telcordia.com. (news - alert)

A Sip of the IMS Kool-Aid

by Ronald Gruia

IMS Defined

Anyone attending events such as 3GSM, CTIA, and Internet Telephony must have surely noticed all the headlines that IMS has been getting recently. In fact, "IMS" has been one of the buzzwords most often mentioned at telecom industry tradeshows, with almost all equipment vendors mentioning their IMS offerings and compliance, application developers delivering "IMS-ready" offerings, and even service providers joining the fray by announcing IMS services. Early adopter service providers embracing IMS include Tier-1 carriers in both the U.S. and Europe, including players such as AT&T, BellSouth, Cingular, KPN, Telecom Italia and Telefonica, among others.

But what is exactly IMS? IMS, or IP Multimedia Subsystem, is a next-generation core network specification designed to allow wireline, wireless, and cable operators to offer a new generation of rich multimedia services across both legacy circuit-switched and new packet-switched networking infrastructures. IMS will enable the rapid creation and deployment of enhanced multimedia services such as video IP telephony, interactive gaming, IP Centrex, push-to-talk/video and instant multimedia messaging, among others.

Originally born in the mobile world as a 3GPP (define - news - alert) standard, IMS has become much more than just a wireless spec, with the IETF and now even Cable Labs using it as a blueprint for an IP multimedia and telephony core network system consisting of logical functions such as session control, connection control, and applications or services that can deliver voice and data services. IMS is a framework of logical (not physical) entities that defines a three-layered approach to services: access/transport, core/control, and application/services. Vendors may opt to implement these functional blocks on existing next-generation core network elements, such as softswitches and media gateways, or on new server-based platforms.

The IMS architecture is standards-based, using packet technologies for underlying transport and relying on SIP for call signaling between the entities. One of the central ideas of IMS is the concept of reusing common functions (e.g., location, presence) and then integrating them horizontally. These modules can be reutilized for many different applications, as shown in Figure 1.

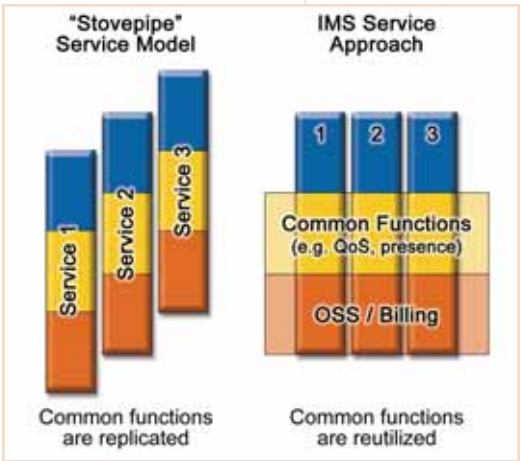

figure 1

Why Are Carriers Interested in IMS?

Service providers will adopt IMS for various reasons depending on factors such as their competitive landscape and market dynamics.

Wireline Carriers

Approximately 17 percent of global wireline usage in 2005 was lost due to wireless erosion. Moreover, fixed carriers have also been facing a margin squeeze from new VoIP providers, whose low-cost model is enabling them to be more aggressive against the ILECs. Therefore, for the incumbent fixed line carriers, an IMS FMC (fixed/mobile convergence) solution represents an ideal strategy to stop the loss of telephone traffic and revenues to wireless operators and to deliver the best service bundle to their subscribers.

In addition, an FMC offering can enhance the uptake of broadband and VoIP applications, thereby lowering the pace of revenue loss and softening margin squeeze. Hence, it is not surprising to see operators such as AT&T, Telecom Italia, and Verizon seeking to converge their disparate networks and service portfolios and instead offer services that are access and location agnostic.

Mobile Operators

As they evolve to 3G, the mobile carriers have been searching for the simplest and most cost effective way to implement a new breed of value-added multimedia applications. Furthermore, wireless operators are also faced with near-saturation levels in some regions such as Europe, margin erosion from VoIP, and the introduction of WiFi as a replacement for some wireless calls.

They also need to offer something new, since commoditized voice and simple data services are not substantial enough to offset the ARPU decline and the increase in subscriber churn. Hence, the most crucial aspect of their operation is how to increase ARPU with compelling next-gen "killer applications." IMS can be a great way to deliver these new services, or to help operators to quickly create and identify some of these killer apps that can cater to specific subscriber segments.

MSOs/New VoIP Service Providers

Finally, even the new entrants (cable and standalone VoIP operators) will require a few extra capabilities once they reach a more critical mass in order to fight the competitive threat of new bundle offerings from the incumbent carriers. Cost arbitrage alone will not be enough in order for them to win their battle against the wireline service providers, as they will also need to offer more value-added applications to entice new subscribers.

A Promising End-User Experience

One of the fundamental value propositions of IMS is its access agnostic nature. In other words, IMS subscribers should be able to access and utilize services regardless of their underlying access, device, or location. For instance, an IMS user might initiate a voice call from his home landline, seamlessly hand the call off to his cell phone as he begins his journey to work, and then seamlessly roam on to his office WLAN.

Another key IMS benefit is that carriers are able to introduce new "blended lifestyle services" that can be policy driven, target specific subscriber segments, or even be combined with other applications. The ability to achieve a quick service setup and teardown allows carriers to experiment with new offerings and to reduce the cost of introducing a "lukewarm" service.

IMS Adoption Timeframe

The IMS framework still represents a work in progress, so the time frame for full-blown deployment is likely to span a few years. If 2005 was the "year of the trial," 2006 will be the year in which some of the early adopters begin deploying IMS, albeit the size

and scope of many of these contracts are still unknown. The initial commercial IMS deployments are expected to begin in late 2006 and early 2007, with the latter representing the first year of meaningful revenues for vendors in this space.

Despite that, IMS has a great potential, since it is a key enabler of FMC and can potentially be a catalyst to a next-generation of "killer apps." One of the promises of IMS is that open-based programming models (SIP, XML/VXML, etc.) (define - news - alert) are well known to most developers, and in case they are not, it would not take them more than three to six months to become savvy programmers. By contrast, the proprietary languages of traditional intelligent networking
(IN) would take a lot longer time commitment (at least 12 to 18 months until a developer would become fully proficient).

A Few Words of Caution

IMS represents another instance of the "IT-ification" of the telecom industry. This means that in the future, applications and services will represent growing opportunities, while the hardware will figure less prominently in a vendor's revenue equation. More importantly, the implication is that the business model will also change from the big, single monolithic investment, to a software-centric, subscription-based type model.

In order for IMS to really deliver all its benefits, it is sine-qua-non for carriers to flatten their organizational structures, creating horizontal groups focused in specific areas rather than the current status-quo vertical silos. This shift represents a profound change in strategic management, and might require some time for service providers to implement. Moreover, it is yet another manifestation of the disruptive nature of IMS, a technology that undoubtedly will cause the redefinition of industries and business models.

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IMS and the Future of Telecommunications

by Mike McHugh

While service providers consider these challenging questions, they are seeing the convergence of network infrastructures whereby the line between fixed and mobile broadband service providers is blurring. In conjunction with this phenomenon, there is a convergence of telecommunications and IP-based technologies, which facilitates the creation and delivery of new services on top of these converging networks. Because of the increasing need for flexibility, the traditional approach to "network architecture," in which functional decomposition of the network is facilitated by the standardization of protocols, is giving way to a new "software architecture" for service delivery.

Arguably the telecommunications industry is going through another transformation that bridges telecom and IT technologies. The IT model is slowly making its way into the telecom market through the use of well known programming models as well as the integration of telecom and IT services onto the desktop and mobile devices. This transformation poses a challenge to traditional equipment providers who have to combat margin erosion by delivering new applications and services. IMS represents just another instance of the "IT-ification" of the telecom industry. This means that in the future, applications and services will represent growing opportunities.

Service providers continue to face increasing market pressures in the global telecom market, forcing them to contemplate new ways to conduct business. How should they manage their evolving network infrastructure? How can they increase average revenue per user (ARPU)? How can they receive continued loyalty from their existing subscriber base by adding new, value-added services? How can they continue to reduce their ongoing expenditures in the face of smaller margins while achieving a faster service deployment model?

The IP Multimedia Subsystem (IMS) is an attempt to address these points. The IMS architecture provides for real-time service delivery over a packet network, thus allowing for the creation and deployment of IP-based voice and multimedia services, while integrating with legacy networks for integration with existing services. The advent of IMS brings many intriguing possibilities to all service providers. While IMS technology is still in the early stages of market development, it is enabling a new wave of carrier spend geared towards offering new voice, video, and data services.

However, the acceptance of the IMS architecture creates new challenges for application and service infrastructure. The convergence of networks offering data, voice, and multimedia services requires a flexible and robust, standards-based software solution. Cost-effective, value-added network services require applications to provide a high degree of availability,

seamless interoperability and high performance. The IMS promise of lowering costs for service providers while providing an expanded range of value added services cannot be realized unless the service and application infrastructure accurately reflect the requirements of a real, operational network. The role of the IMS application server in this architecture is more central and critical to service provider success than ever before.

The IMS application server must also significantly reduce the time-to-market for the launch of new services. Developers must be able to write applications much quicker by relying on open protocols such as Java, SIP, and XML, instead of being faced with having to master older, proprietary languages. One can imagine the millions of capable Java programmers in the world today. A new service delivery platform and a wealth of programmers will lead to a shorter time-to-market as a new service can be introduced in just a few months instead of years. Now service providers can easily experiment with new services as well as combinations of new services, quickly making them available in new combinations or removing them altogether from the applications portfolio if the uptake is not there. The end result is this reduces the service providers' "cost of being wrong" and service providers will have more time to discover the illusive "killer app" or to launch a suite of applications that provide value in combination, which ultimately increases their ARPU without increasing their costs.

In conclusion, an IP-based network architecture based on IMS will be the core element of future, next-generation networks. A key factor for service providers with IMS networks to realize maximum revenue potential from their investments is the strategic decision on which IMS application services platform to deploy, with an IMS-compliant SIP application server at its core. This critical decision will determine how rapidly service providers can begin to monetize their IMS network investments through the delivery of a new generation of multimedia services. Over the next few issues we'll take a deeper look at the IMS application services platform, including the support systems (provisioning, policy definition and distribution, customer self-care, digital rights management, and so forth) that allow service providers to rapidly monetize their IMS networks.

IMS is enabling a new wave of carrier spend geared towards offering new voice, video, and data services.

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Hassan Ahmed, CEO of Sonus Networks

by Rich Tehrani

I recently had the real pleasure of interviewing Hassan Ahmed, CEO of Sonus Networks. (news - alert) The company was around from the beginning and has been a true pioneer in VoIP. There are many companies today competing head to head with Sonus who downplayed VoIP and the products Sonus sold in the late nineties, yet now Sonus is a benchmark that many other companies aim for.

Sonus was a Wall Street darling with a valuation well over $10 billion at its peak; it also crashed to lows that put it in line with most other VoIP companies in the 2001-2004 downturn. During that downturn, many industry publications and analysts suggested that people won't buy from Sonus, that they will only buy from large telecom equipment manufacturers — the incumbents, if you will. If you believed the word on the street, you would have assumed that Sonus was doomed. Much to the contrary, Sonus was one of the few that weathered the storm and, just like the VoIP industry in general, bounced back like a SuperBall off concrete, surprising everyone at once.

Here is my long overdue interview with Hassan Ahmed.

Each month, Rich Tehrani's Executive Suite brings you thoughts from heads of companies leading the IP communications industry now and helping to shape its future. Recently, Rich spoke with Sonus Networks' CEO Hassan Ahmed about developments in IP communications, in general, and, more specifically, surrounding IMS.

What can you tell me about the down years? 2001-2003.

Ahmed mentioned that Sonus was one of the last companies into the meltdown and the first out. The company's big focus at the time was how to keep from succumbing to the downturn — his specific words were,"Powerful downdraft." He went on to say that the company earned its stripes on the way down; he is most proud of his team and the company, since many others didn't make it through. They saw the bottom with a 20-cent stock. They also thought the end of '02 was going to mark the end of the downturn.

At a certain point, they realized their growth would come at expense of something else, that the overall pot was not going to increase. They had to be able to demonstrate short-term value and focused their products on that. They had to make sure that, for service providers, it was worth taking money from legacy projects and applying it to new ones.

Sonus realized it was not a field of dreams, where you tried every new technology. Furthermore, they realized that VoIP (define - news - alert) was becoming global and all carriers were moving to VoIP. More specifically, they zeroed in on Europe and Japan. The company decided to focus on a distributed architecture and, according to Ahmed, they didn't make naive bets.

The company had decisions to make regarding its target audience. Ultimately, the decision was a focus on supplying large public infrastructure. They didn't want small "mom and pops" and CLECS: They wanted the large service providers.

This focus, of course, led Sonus to focus on scale and reliability, as they realized these weren't things they could bolt on later. This customer-focused decision helped reinforce the decision to build distributed systems and related architectures.

These decisions subsequently drove large performance increases. For example, Sonus' softswitch could handle six million busy-hour call attempts while others were in the few hundred thousand range.

Hassan continued to note that the industry is now coalescing around IMS. "It's all about SIP and distributed networks. These were bets Sonus made early on, and they were bets that paid off nicely. We have been hardening and developing this technology for eight years. For us it is just software upgrades."

What about industry comments about service providers only buying from incumbent providers?

Hassan started by telling me that popular thinking was that the class 5 market would be bigger than the class 4. Many companies decided to focus on class 5 replacements. They thought that that incumbent circuit switched providers have thousands of class 5 switches and these would grow packet interfaces. Migrating these old switches to VoIP was going to be the right answer, as this is where the money was.

"There was no question class 5 was bigger in ports, but the world doesn't change overnight." Ahmed said. "You have to ask what the right way to do it is. The core has to evolve before the edge. Sonus embarked on a path focusing on dominating the core first," he continued.

They also bet that class 4/5 divide will have different switches, since the ones on the edge terminate in copper pairs. In the IP world the connection to the network can be disaggregated from the delivery of service, Ahmed said. You wouldn't just morph the switches in the network. The difference was software, not hardware.

The fact that you have thousands of circuit switches is not an advantage — that is not where you deploy the switches in the IP world. Also, look at the wireline world: lines were declining. Morphing circuit switches didn't make sense

How does SIP play into your plans?

SIP is, in their view, a very important protocol from a variety of perspectives. It is a protocol they have honed and field-hardened for 15 billion minutes a month. It is used for Peering IP networks at VoIP level. Sonus used Sip-T early on to allow two networks to communicate with each other.

Sonus felt one of the big values of SIP was that it could open up the service model that once was closed — you used to have to go to a switch vendor for custom programming. They further provided the Open Services Partner Alliance or OSPA.

"This has enabled a lot of creative companies to develop really interesting applications," according to Ahmed.

Sonus feels the IMS architecture is built on technology they pioneered and the choices they made early on; the rest of the industry has now coalesced around. In the beginning, the industry was all about cost savings, not separate networks. Now, cost is table stakes. The wireless and wireline opportunities are now about service and service convergence, according to the company.

Hassan was very passionate when he said, "The goal is to empower next gen consumers with the way they want to communicate." He looks at his children to see the next generation of consumer. In them, he sees lots of IM sessions that lead to VoIP as well as lots

of collaboration.

Consumers want to get services once they have subscribed, regardless of how they connect. The common service model needs to be agnostic in terms of how you join the network. That is what IMS is all about.

Creating services and driving innovation is a big part of Sonus' focus. The IMS platform is about taking open service architecture to the next level. In weeks you can build brand-new applications.

Ahmed continued, "In the wireless arena, VoIP is now being adopted by operators. When wireless operators have broadband wireless access, the last mile becomes IP. The way you build wireless networks is IP instead of circuit-based MSCs."

"IMS plays a prominent role in the future as we see it," Ahmed exclaimed.

Where is the growth in the world?

VoIP started in the United States. Sonus then invested in Europe, Japan, and other parts of Asia. Their Japan investment was very good, for it became the second strongest Sonus market. Customers tell them they are the de facto VoIP standard in Japan. They work with wireline operators (Softbank, NTT, Softbank, JCOM) and now wireless providers.

Europe is a different story. There have been a few false starts and, early on, there were few decisions being made. After the slow start, however, Europe is now growing nicely and Sonus recognized better performance there in the last quarter. Ahmed thinks availability of licenses is what will keep a ceiling on growth in this area.

What about China and Huawei?

They haven't seen Huawei outside Asia — not in the VoIP market, anyway. Rather, they have seen the large incumbent circuit switch providers.

What about the competitive environment?

From a competitive standpoint, Sonus sees Lucent and Nortel in the U.S. and Alcatel, Ericsson, and Siemens in Europe. Finally, Cisco is not as focused in the VoIP carrier space as the other players.

Can you stay independent and compete with all these players?

Ahmed replied:

"We are five years in and this is a 15-year opportunity. Innovation counts. All operators are coalescing on a common approach that is increasingly friendly towards technology we pioneered.

Sonus is a bonafide provider to large networks. Our focus is on building our company and we don't worry too much about others and if they need to be part of them. We are a leader and can continue to build on that leadership."

What is biggest impediment to your growth?

The company's growth is a function of development of the global market. It's not about early adopters anymore — All providers have embarked on VoIP. Different opportunities arise at different times and, as the market develops, so will Sonus.

Ahmed points out that anyone can become a service provider, which has enabled a set of operators like Yahoo! and Google to become providers

He went on to say these are interesting times and these developments enable more competition, as you don't need to own the last mile.

It was an honor to have this long overdue interview and it is exciting to see one of the early adopters in our space doing so well. As the IMS market matures, Sonus will no doubt continue its position as an industry leader and continue to supply the next-generation of converged communications solutions.

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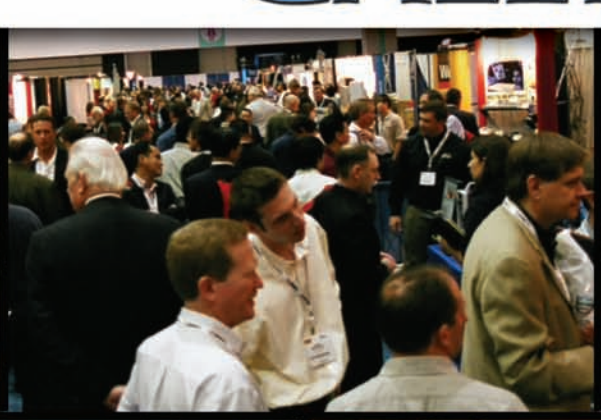




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special focus

Secrets to Success When Implementing IMS in a Voice Network

by Russ Freen

A Service Provider's Checklist for Successful IMS Deployment

Ensure appropriate load on the customer database

Too much load on the Home Subscriber Service (HSS) can lead to degraded network service. In the planning stages of a new network or an upgrade of a legacy home location register (HLR) to an HSS for IMS capabilities, it is important to select the right HSS.

Key considerations include:

- The overall capacity of the HSS with the HLR in terms of subscribers
- The network connectivity in terms of IP or SS7
- Does failure of the HSS function affect the HLR function, etc.

Without addressing these concerns, the upgrade can put the incumbent voice network and business at risk.

Avoid the temptation of one-stop shopping

Buying a complete product line from a single vendor may seem like a quick solution, but it will almost certainly not be the best one. This is because many of the larger providers are only focusing on top-level elements, such as the Call State Control Function (CSCF), and providing only basic HSS and Policy Decision Functionality (PDF). Unfortunately, this approach will severely limit your capability to bring more complex services online at a later date because not all vendors are experts at all parts of the IMS network. Instead, the better approach is to use best-of-breed vendors for specific elements, and then ask the major vendor to coordinate with the smaller ones.

Provide a competitive offering

One of the advantages of IMS is that it enables rapid launching of new services. However,

Rushing to implement IP multimedia subsystem (IMS) in a voice network can put existing voice and data services at risk. For service providers looking to implement IMS and take advantage of all of its potential revenue-generating benefits, the road to IMS implementation should be taken with comprehensive planning, careful selection of equipment, and thorough analysis of existing infrastructure as well as customer needs and expectations. Without a detailed plan, you are sure to hit some potholes on the IMS highway, but avoiding them can make the difference between a successful implementation and a world of regrets.

having a "go to market" strategy with only one or two services, which are not significantly different from existing services will not drive usage. For instance, providing a standard Push-to-Talk (PTT) service will not attract customers. It has to have compelling features, such as fast access, video capability, etc. To ensure customer retention, you will also need a comprehensive line up of other services queued up for later launch.

Don't underestimate the impact on back office systems

It may sound obvious, but you need to be able to bill for services that are ordered and used. Billing records need to be collected, collated, and matched against network usage records. Then they need to be rated and fed in to the billing system. Without careful planning and an adequate HSS, all services will have to be subscription-based, which limits revenue potential. Choosing a robust HSS will enable a billing system that can track and match subscriber's individual services and usage in real time, allowing for a per-use billing scheme that encourages subscribers to try new services.

It may sound obvious, but you need to be able to bill for services.

Keep the User Interface Simple

People will not use what they do not understand. Think about how many people have the features of three-way calling and call forwarding on their phones and never use them. IMS offers the potential for a call to start with voice, proceed to file sharing, and end in video. Without an intuitive, easy user interface, subscribers will quickly abandon or never even try the new functionality.

Plan, train, and provide ample customer service

Unfortunately, many customer care agents do not understand how to support today's basic IP services, let alone how to support complex SIP applications enabled by IMS. Imagine a poorly trained customer care agent trying to determine why a call did not correctly switch from voice to video, or why the video was jittery and the sound was broken. It is crucial to have properly trained agents who are ready at or before launch. Remember, a bad customer service experience can turn a customer off for life.

Provide enough bandwidth

It can be a challenge to predict need and ensure that the network has sufficient bandwidth to support the new IMS-enabled services. From a customer perspective, if you cannot get an IP connection to send an e-mail or browse the Web it is frustrating, but probably not critical. However, imagine being a utility worker up a pole in a dangerous situation, needing help, and you cannot get an IP connection to use the PTT service. This can have catastrophic results. The network planning teams must pay careful attention to bandwidth and quality of service (QoS) provisioning in order to avoid this type of situation.

All in all, the potential is great for service providers to quickly launch exciting new services using IMS, and the good news is that the necessary tools to do it successfully are already available. The secret is to have a comprehensive plan, select the best infrastructure and methods, and adequately prepare for launch. Then, the road to IMS can be smoothly paved with revenue-generating opportunities.

Russ Freen co-founded Bridgewater Systems and is responsible for product planning and architectural design for the firm. For more information, please visit http://www.bridgewater.com. (news - alert)

Delivering on the Promise of IMS Through Service Creation

by Joseph Ziskin

The move to IP platforms will allow service providers to achieve continued cost reduction and new revenue protection and growth. Aggressive competition and increasing consumer choice make time-to-revenue a critical competitive differentiator and Telecoms are quickly turning to IP-based or next-generation networks (NGN) in order to deliver an improved user experience with services like Voice over IP and IPTV. Service delivery platforms to support new multimedia/ convergent service delivery are being driven by the 3GPP's Internet Protocol Multimedia Subsystems (IMS). The industry at large is encouraged by the potential of IMS-based platforms to deliver new applications that combine voice and data and facilitate continued fixed-mobile convergence (FMC), while also reducing telecom service provider opex and capex.

In the next decade, there are several key market dynamics that will continue to reshape the telecommunications industry. Intense competition is driving voice prices down. Consumer spending on broadband is expected to rise significantly. Music and gaming content is exploding as consumer spend in these areas is anticipated to continue to rise exponentially. Meanwhile, device and Internet protocol (IP) network proliferation continues, and new points of high-speed Internet access are rapidly emerging. Together these factors are driving the convergence of telecommunications with other industries and creating unprecedented change and growth potential for telecom providers as "traditional product" markets decline and new service opportunities arise. This growth in supply and demand for new technologies and services will be facilitated by the continued industry move to IP technology platforms.

IMS TIMELINE

The industry seems to be in general agreement that the promise of IMS will not be fully achieved until 2010, but they already see real movement towards adoption and acceptance as well as achievement of desired business results.

The full development of IMS will occur in three phases. Phase one, or the emerging phase, spans from 2005–2007 and is comprised of service providers seeking first mover advantage. During this time we will continue to see some proofs of concept and initial mobile deployments, but services will be limited in subscriber reach. The initial technology supplier

directions and partnerships will be enterprise-focused because the simplest IMS services are of more value to businesses.

Phase two spans from 2006–2009 and it is in this phase that we expect to see IMS become "real." While still considered early in the IMS lifecycle, there will be evidence of key benefits demonstrated. This timeframe will be marked by service providers collaborating with significant IMS-capable service deployments, and a broader range of agreements spanning fixed and mobile network operators. Billing, customer care, and user information will be dealt with consistently during this phase.

The third and final phase covers 2010 and beyond. This phase is characterized by the full realization of IMS benefits. We expect to see the broad interconnection and availability of IMS services across all fixed and mobile networks for voice and data, and mobile VoIP will bring all services into the IP domain. This will be possible because the mobile VoIP QoS issues will have been resolved by this point. There will also be two distinct "horizontal" propositions in both fixed and mobile: one based on services, the other on access.

We expect to see the broad interconnection and availability of IMS services across all fixed and mobile networks

SUCCESS WITH IMS

Composite Services and Service Creation Environments are key to achieving success in implementing IMS. Undoubtedly, the transition to Next Generation Networks is happening in a cost constrained environment, so it is imperative for service providers to be able to reuse existing applications and infrastructures in creative ways for new service creation. Services enablers are deployed as common elements across multiple services ensuring commonality between services and cost reduction through reuse.

Composite Services are built from one or more "foundation" services which will include different media types. A "foundation" service is a simple basic service that can be sold in its own right (e.g., Push2 X, instant conferencing, or streaming video). Composite Services are composed by combining two or more foundation services into an integrated service package as needed to meet specific customer segment requirements. Service providers can create Composite Services to continuously refresh and expand their suite of offered services while continuing to use a mix of existing and new applications. Composite Services therefore allow for a few services to be configured in a multitude of ways.

When moving to IP-based networks it is also necessary to establish a comprehensive, scalable service creation environment (SCE) that is built on, and supports, open standards-based interfaces. A complete, carrier-grade SCE should provide a formalized, well-documented, and commercially-available process model with an integrated set of life cycle tools.

A common platform for executing both HTTP- and SIP-based applications is necessary to deliver composite services in an economically viable way. What happens if one application component in the service goes down? How is failover managed for the entire service?

For most telecommunications companies today, it would not be possible to respond in an automated way because of the lack of integration between the HTTP and SIP environments. The result? An inconsistent quality of service to the end user.

To deliver a high-performance execution environment for converged services, a truly converged HTTP/SIP application platform must be in place to enable the delivery of a high quality of service by leveraging features such as handling failover seamlessly, session management, edge routing, and load balancing for converged services to, ultimately, drive high-quality customer experiences and substantial revenues.

Take the example of an interactive gaming offering, in which users use one device both for gaming and for "trash talking" with voice communications. This offering could rely on a gaming application created by one party, a conferencing application created by another party, and existing presence or location information in the network environment. Exchanging information about these components and synchronizing development efforts among the various parties can be laborious. If an organization does not manage these processes effectively, it may lack flexibility. For example, recombining the conferencing application and the presence or location information with a different gaming application is likely to take as much time and resources as it would be starting from scratch. Managing updates to any component application would also create major headaches.

In order to avoid such issues and maximize flexibility and speed when bringing new services to market, it will be important to manage the entire life cycle of the service — from requirements definition to development to testing to deployment to later updates — in a common, standards-based environment, with tools tailored to various users' skill levels.

Integrating various applications and service components can be time consuming and complex — becoming more and more so as the sources and number of components making up a composite service grow. Telecom service providers must work to assemble service application components into rich composite services and efficiently connect them with business and operating support systems — and thereby facilitate quick and easy deployment.

In summary, telecoms are trying to proactively understand customers' desires and quickly create and deliver the new services that will stave off competitors, while also protecting and growing their businesses.

Faced with continually mounting competitive pressures and customer demands, telecom service providers will have to be fast and creative. The challenge is trying to rapidly design new services that span legacy mobile, fixed-line, and data networks and then manage the interactions between these telecommunications networks and the complex IT systems that support them. If these challenges are addressed properly, the proliferation of IP technology and the corresponding movement towards IT-style telecommunications infrastructures will create the opportunity to deliver enhanced services to customers rapidly and cut the costs of developing and managing services. The combination of service creation, delivery, and management of IP and composite IP services will enable the telecom industry to achieve the maximum return on investment and to realize the promise of IMS.

Joseph Ziskin is vice president of strategy, IBM Telecommunications Industry. For more information, please visit the company online at http://www.ibm.com. (news - alert)

Service Delivery Infrastructures - A Matter of Common Sense

by David Croslin

Sins of the Past

Since computers came on the scene, every application has stood on its own. In fact, most applications were developed and managed by completely different teams of developers. With no single interface, such as a workstation, available to provide an integrated portal concept, there was little justification for considering the integration of multiple applications. In fact, the sheer complexity of creating applications in legacy languages on bulk processing platforms with cumbersome interfaces made it difficult to envision an overriding architecture or strategy for developing all applications.

As the interfaces to computers and services have improved, the desire to offer a single control portal has evolved. Why should a user have to log off, then back on to access multiple applications and multiple services?

At first, the trend was toward developing a standalone portal that acted as the integration point for all applications. Thus, the applications stayed independent with little or no architectural vision and the portal acted as the glue.

The standards-based service delivery infrastructures being implemented today appear to create complexity with difficult-to-define short term benefit. Long-term benefit is easier to quantify, but does the need to migrate from existing silo architectures really exist?

But, with applications still externally integrated, the problem of having applications as independent silos was only aggravated by an integration portal. If the applications changed, then the portal had to change. The delivery schedules of all applications and services became wrapped around a single integration axle with hub-and-spoke dependencies.

Common Sense

The desire to have rules governing the development and integration of applications has been around as long as computers. It doesn't take an epiphany to determine you don't want to do things twice. The problem is most of the initial concepts involved simplifying the developer's job, not the user's tasks.

So there are two parallel, but uneven, evolutionary paths that have occurred in computer applications. The first evolutionary path is the development environment. Common sense dictated developers should reuse code whenever possible. Programming languages, linkers, execution environments, system support utilities, and device interfaces have all evolved to simplify the programmer's task and to foster reuse.

The second evolutionary path is the user interface. This evolution has been slower than the development path since the evolution of devices and the way users utilize them comes more in bursts than in an ongoing evolution. There were initially switches to program memory

locations followed by paper tape, cards, magnetic drums, magnetic tapes, dumb terminals, and finally, PCs. This is in addition to all the other devices with their ever-evolving operating systems that enhance the user experience.

Unfortunately, the development environment evolution only requires positive changes, not enhancements, to existing applications. Essentially, code could be evolved into new programming paradigms over time with no absolute requirement that it be evolved at all. Thus, the cost of evolving could be spread over many years and absorbed as the application was enhanced.

The interface evolution, on the other hand, requires a negative change to existing applications. To take advantage of new, more powerful devices often requires a deconstruction of legacy application systems. And interface standards must be strictly enforced to allow integration.

Pay Me Now or Perish

User access devices have now evolved into easy-to-use keyboards front-ending powerful operating systems, which allow full control and integration capabilities. The development environments have evolved to the point that a small team can create unique applications in a very short period of time. This results in a highly volatile situation for legacy applications in an environment where new competition arises very quickly.

Legacy applications must evolve immediately in order to compete with cheaply developed applications from third parties. This legacy application evolution requires a full understanding of the business logic within the applications so that same business logic can be deconstructed and reconstructed without harming the current user community while providing the desired enhancement.

There is no choice any longer. Legacy applications must evolve or be replaced. It is no longer possible to take the short term position of slapping up another silo application and trying to integrate later. Competition dictates that old development methods mean extinction.

Naysayer Beware

Many developers are still stuck in the standalone silo development world. The majority of these developers are pure technicians and have little knowledge of meeting customers' overall business requirements.

Short term cost is no longer the issue — survival is the issue. If the cost is higher to do it right, then the higher cost must be absorbed in the short term.

Yes, structured development with enterprise architecture guiding architectural principles and interface guidelines is more expensive in the short term compared to standalone application development. But in the long term, it is significantly cheaper to maintain, enhance, and integrate architecture from the beginning because short term solutions are not competitive. There is no "pay me later."

Unmanageable Complexity?

There are some that worry the complexity and the very rate of change allowed by standard architectures will create an unmanageable evolution. While the possibility of creating a Frankenstein is always present when evolving and integrating disparate

parts, the key factor to managing the complexity is the definition of and control of the interface points between the components.

In reality, standard architectures with full interface architectural control will allow a drastic acceleration of delivery of new services and capabilities. The life cycle management will actually be simplified because the schedule dependencies of a hub-and-spoke application structure are removed. If one component is completed ahead of other components it should not present a problem since each component stands alone.

Testing will actually be simplified since testing is done only to ensure compliance with the interface standard and the individual functions offered by the component. As long as the component fully complies with and supports the interface, the component can be tested independently.

Three Conceptual Layers

When considering the deconstruction of the applications within a service provider, there are three conceptual architectural layers: back office, device management, and service delivery. Each of these requires a controlling enterprise architecture with interface definitions both within and among them.

Back office systems can be decomposed and integrated with a Service Oriented Architecture (SOA) and an Enterprise Bus. At this layer, the applications themselves are the users or consumers; applications share and demand information from other applications. While there is some human interface, the major advantage of a standardized architecture within the back office is the ability to reuse major back office systems such as billing, rating, inventory management, and order management.

In back office architectures the most important factor is the enterprise bus. How do applications communicate among themselves? As long as communication is standardized, it is easy to plug-and-play applications, add enhanced features, or modify business processes. The key is management of the interfaces.

Device management can be decomposed into access and provisioning functions. Each device has its own idiosyncrasies, but virtually all devices are performing the same basic set of functions for back office integration and performance of services. There should be multiple layers within device management to separate order integration from physical provisioning, but one should be transparent to the other. Again, the key is management of the interfaces.

Service delivery can be decomposed and integrated using standard architectures such as the IP Multimedia Subsystem (IMS) for IP services or a standard software delivery platform with OSS integration. Once more, the key is management of the interfaces.

Break It All Down

Once the three conceptual layers are known, each layer needs to have the integration points identified and interface standards defined. Strict compliance is critical. It would be unacceptable for one development team to violate the standards in order to "meet a schedule." Development groups can bite the bullet now and absorb the cost of conforming to a standard integration strategy or the same groups can continue down the silo path and take the bullet between the eyes. The competition is definitely heading toward an integration strategy path. The choice is clear.

To succeed, a service provider must follow a logical deconstruction process that is manageable and allows maximum use of development resources. One such process involves the definition of an Integration Strategy. An Integration Strategy initially focuses on the integration points between highly level functional areas such as provisioning, billing, service delivery, and routing. Once the integration points are defined and the interfaces for each integration point fully architected, the legacy applications can be

decomposed to fit the Integration Strategy model.

The existing applications are divided into distinct categories of function within the Integration Strategy. Using this division of function and the previously documented interface definitions, the developers can focus on reengineering each specific functional category without concern for the other categories. Following this approach, the provisioning functions can be developed independent of the billing functions and the service delivery functions can be developed independent of the core routing functions.

Benefits to Service Providers

Short term cost is no longer the issue — survival is the issue. If the cost is higher to do it right, then the higher cost must be absorbed in the short term.

The benefits to service providers of following standardized, enterprise-level integration architectures are immense:

- Ability to compete with new competitors offering fully integrated services
- Shorter time to market
- Reduced development times
- Application reuse
- Platform for delivering services not yet visualized
- Easy third-party service integration
- Plug-and-play at all levels
- Custom service offerings on a per customer basis with little customization cost

Benefits to Customers

The benefits to customers are similar to those for service providers, but key ones include:

- Movement from one service provider to another with little or no change to existing services
- Transparent integration of diverse services from diverse service providers to a single management structure
- Ability to plug-and-play service providers, not just services
- Evolutionary path into new device capabilities without losing past investment.

Conclusion

Using standardized architectures, such as SOA and IMS, is common sense. Evolution of legacy applications into these architectures is more expensive than continuing silo-based development. The market implies silo development will lead to the extinction of the service provider.

Any time a standard is violated, the cost increases drastically. The key to implementing enterprise level, standardized architectures is management of the interfaces by defining and enforcing an integration strategy. Strict enforcement is critical.

Standardized architectures do not increase the complexity of required management and support activities if the architectures are implemented correctly. In reality, these architectures allow segmentation of responsibilities and the ability to escape from the hub-and-spoke application dependency of the past.

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IMS: When Will the Hype Become Reality?

by Grant F. Lenahan

Let's start by looking at history a bit more fairly. Most technological and economic development is, in fact, a series of hyped bubbles followed by sober re-examination and, more often than not, success. For example, speculation around railroads was far ahead of its ability to deliver real services and profits but, ultimately, the industry boomed, crashed, consolidated, and then enjoyed an era of dominance until it, too, was dethroned by the next generation of transportation — namely, automobiles and then airplanes.

Our own communications industry has experienced a series of similar hype cycles around broadband, the Internet, dot coms, NGNs, and 3G, leading many to question the next buzzword, IMS. But several factors indicate that the time is right for next-generation IP networks to mature and become the foundation of communications infrastructure for decades to come. Critical broadband technologies are more mature. Service capabilities are in place and being proven in the market and the industry is investing again. Together, all this says that our industry needs to transform exciting — but incomplete — IP technologies into a viable platform for commercial success, which where IMS comes in — and that's why the time is right.

In the 1990s the industry hyped "broadband," "the Internet," and "next-generation networks." Around 2000, we hyped 3G. Now it's time to hype IMS, the 3GPP's IP Multimedia Subsystem. So, is this just more hype, or is IMS real? What will it take for IMS to succeed?

The first thing to keep in mind is that no single technology — IP, NGNs, IMS, dot coms, broadband, and 3G — is sufficient enough on its own to deliver commercial value. Rather, each is a necessary component in a larger economic ecosystem and value chain that delivers services to customers. A delivery network without services or vice versa offers little value. Architectures like NGN or IMS are effectively the network middleware to bring services, transport capability, customers, billing, and ease of use together in a standardized, user-centric, commercially viable manner. Therefore, IMS may be the capstone that holds together the technologies and services that have been developed over the years, as well as the solution that makes them economically viable.

We are now seeing, for the first time, maturity in services, access networks, IP technology, and NGN/IMS specifications. Broadband access is becoming commonplace, reliable, and affordable. IP-based content is becoming rich (although hard to access, charge for, and personalize). Core IP network architectures are maturing. It is worth pointing out that, while IMS is the industry buzzword, it really is a catch phrase for at least three similar, yet distinct, architectures: 3GPP has IMS, 3GPP2 has MMD, and Cable Labs has PacketCable 2.0 MultiMedia. Each of these is slightly different, reflecting the unique transport technology, legacy, and market needs of the constituent network operators that support them. Yet 3GPP, 3GPP2, and Cable Labs are all working to harmonize them so they

interwork and support similar services. This truly is a breakthrough.

So why is IMS — in its broadest sense — ready for commercial success in the near future? And why IMS, rather than some future standard? Quite simply, the business drivers exist to support it, and practical reality has made IMS the de facto selection in addition to being the technology du jour.

The business drivers are in place

IP networks, based on widespread dial-up and broadband Internet connectivity, have demonstrated their viability. Everything from music to blogs to VoIP to chat to news is delivered and consumed via the Internet today — most voraciously by younger generations who will become the adult majority very soon. Broadband IP networks have also demonstrated that they can deliver a mix of news, voice, chat, e-mail, video, music — anything, really — at a very minimal incremental cost per additional service. This means that IP networks, combined with a rich set of services, are essential for any operator to compete effectively in the future. Economists refer to these as economies of scale, and they provide an insurmountable competitive advantage to any operator who can offer them. Thus, economics demands that operators move to multi-service, broadband IP networks. The only questions are: Who provides the networks and Who offers the services?

IMS specifications are largely complete and ready for prime time

While much of the communications industry was in turmoil during the early part of this decade, the mobile industry — 3GPP, in particular — plowed ahead with its own NGN standards called IMS. IMS was not conceptually different from earlier NGN efforts: It uses accepted IETF protocols, like SIP, RADIUS, and Diameter and largely adopts the IT

IMS Security

By Nathan Franzmeier

At their most basic level, networks interconnect people and machines and provide for the free and secure flow of information between them. In a perfect world, simple designs based on homogenous access and consistent infrastructure accomplish this. For simple networks in a benign world, there would be no need for security. Unfortunately the real world is not simple and it is by no means benign. Today's networks have evolved from the simple network of Watson and Bell to a very complex web that spans the world. Using these networks, voice, video, and data are exchanged over a variety of competing access technologies and carried to their destinations using a variety of infrastructure technologies. As technology has allowed these networks to continue to evolve and expand, the opportunity to utilize these networks in ever more innovative ways to provide better communications has expanded. As opportunity expands, the temptation to intercept, interrupt, and redirect this communication for a variety of reasons continues to grow with it. This is why network security must exist.

Much of the technology used for security in IMS is the result of what has been learned from the creation and implementation of previous networks. IMS security is implemented at multiple levels. Security is maintained at the access level and at the network infrastructure level for both the signaling sessions and any resulting bearer sessions.

philosophy of service oriented architectures. So, in many ways, it adopts the underlying approaches that both network and IT experts have been advocating for years. What makes IMS unique is that 3GPP, fueled by rapid mobile growth, sufficient money and enthusiasm, and the impending deployment of IP-based 3G, largely completed their task. Thus, the world had a ready-made, well thought through set of standards. It is also clear that many operators see the benefit of a next-generation standard that supports cable, broadband, and wireless access at the same time. IMS is ready, and it offers the additional benefits of a consolidated network architecture (not more technology-specific stovepipes) and support for convergence across those networks. It is attractive to service providers and developers alike.

Still, some will ask, do we need core network intelligence at all? The Internet vision is one of distributed, peer-to-peer and edge-based services, largely without any in-network intelligence. Many believe that "the Internet" operates sufficiently well today without any sort of centralized intelligence, control, or registries. But does it really?

Significant improvements can be made in how well IP networks deliver services, support various business models, and make users' lives easier. IMS offers the components to do just that. The biggest problems facing Internet-based services today are: lack of security, difficulty of use, minimal interoperability, and almost no uniform charging models.

Simple examples include inconsistent passwords scattered across non-trusted parties, weak authentication of users and devices, "islands" of users and directories without inter-domain routing, and charging that mimics retail credit card use — with all the associated baggage. The biggest internal problem facing operators today, however, is their inability to innovate and introduce new services

Borrowing from and expanding on what was learned during VoIP deployment in the wireline network, the P-CSCF, I-CSCF and S-CSCF elements provide services for both the access level and the network level. These CSCF elements share a large degree of functionality with the session border controllers in today's VoIP networks and, indeed, many companies are leveraging this to build the CSCF elements for the IMS networks as fixed-mobile convergence begins to become a reality.

The role of these elements is to provide a standards-based mechanism for controlled access to the mobile network, to provide for roaming, and to interface with applications. This includes providing various security functions, such as interfacing to existing HSS systems for authorization, preventing denial of service attacks, providing firewall and spam protection services, as well as providing mechanisms for legal interception while preventing unauthorized interception. Since IMS is an overlay technology, it does not rely on on the underlying IP transport technologies for security. IMS uses SIP for both access and infrastructure signaling, and the security work for IMS parallels the continuing work for SIP security, in general. Unlike existing VoIP networks, which are evolving to require security, the IMS network architecture specifies it at the outset. This "designing in" of security overcomes many of the problems that are beginning to appear in VoIP networks. These issues include unauthorized eavesdropping, theft of service, spoofing of network elements, and, in some cases, purposeful service disruption with the intent of damaging the competition.

As the world moves towards ubiquitous service offerings over converged networks, the technology powering the networks will continue to become more complex. As the complexity increases, the security mechanisms must also continue to evolve to ensure

quickly, largely because networks are a series of service-specific, proprietary stovepipes that do not adhere to any sort of SOA conventions, like shared user data or shared charging practices.

In fact, the current telecom business environment may be the most powerful driver for deploying IMS now. Many forces are conspiring to increase competition across segments (cable, voice and data). While cable companies are exerting pressure on voice prices and market share, an even larger threat exists: the "dumb pipe" scenario. A simple IP network is conceived to connect edge users to edge services and, consequently, encourages the hollowing out of the value added by telecom providers of all kinds, as VoIP and information services providers fill that space.

IMS is an excellent tool to help solve both sets of problems. It provides modular value-adding capabilities that can improve the usability of almost any service, whether it is provided entirely by an operator, or by a third party (such as a BYOB VoIP company, a news service, a music publisher, or a gaming company). IMS specifically offers a rich set of capabilities to provide open, shared data; to provide flexible real-time charging and rating; to authenticate users and devices; to share those credentials, thus reducing password proliferation and increasing security. It also provides the basis of a rapid service delivery environment, both for the development of in-network services and to bond the network to IT-based services and third-party services. In essence, it allows for a more uniform user experience, more flexible charging and economic models, better security, and greater interoperability.

All of this indicates that it is time for IMS to become real. The business drivers are there. The services — and demand for them — are there. The desire for convergence is there. Unlike previous NGN standards, IMS is sufficiently developed for most in the industry to see the value in adopting it intact, rather than re-inventing the wheel.

If the industry implements IMS as a technology — as a way of moving from SS7-based voice to SIP-based voice, then it will fail. But, if the industry sees IMS as a way to add value to a wide range of existing and latent IP-based services, and if the industry sees itself as collaborating with the innovative firms on the Internet (rather than shutting them out), it will usher in a cornucopia of new services and new revenues.

Finally, IMS is a journey. Successful technologies are deployed based on business needs. IMS will not materialize instantly, fully deployed. Nor will it be implemented at a record pace, becoming fully deployed in a year or two. Rather, it will be deployed function by function, as operators use IMS to deliver converged voice services (e.g., WiFi-Cellular roaming), add content-based services more uniformly, and simplify their operations and cut down on systems integration and maintenance costs. Indeed, this sounds less like hype, and more like a solid business rationale.

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reliability and inspire confidence in the end users. The IMS architecture and the corresponding security mechanisms will ensure that this happens, which will lead to increased opportunities for everyone.

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glossary

3GPP: 3rd Generation Partnership Project
AS: Application Server
BGCF: Breakout Gateway Control Function
CCF: Charging Collector Function
CDMA: Code Division Multiple Access
CDR: Charging Data Record
CSCF: Call/Session Control Function
DSL: Digital Subscriber Line
ETSI: European Telecommunications Standards Institute
FMC: Fixed Mobile Convergence
GPRS: General Packet Radio Service
GSM: Global System for Mobile Communications
HSS: Home Subscriber Server
ICID: IMS Charging Identity
I-CSCF: Interrogating Call/Session Control Function
IETF: Internet Engineering Task Force
IM-SSF: IP Multimedia Service Switching Function
IMS: IP Multimedia Subsystem
ITU: International Telecommunication Union
IMS-MGW: IP Multimedia Subsystem - Media Gateway Function
LAN: Local-Area Network
MGCF: Media Gateway Control Function
MRF: Multimedia Resource Function
MRFC: Multimedia Resource Function Controller
MRFP: Multimedia Resource Function Processor
MVNO: Mobile Virtual Network Operator
NGN: Next Generation Network
OMA: Open Mobile Alliance
OSA: Open Service Architecture
OSA-SCS: Open Service Access-Service Capability Server
P-CSCF: Proxy Call/Session Control Function
PSTN: Public Switched Telephone Network
S-CSCF: Serving Call/Session Control Function
SGF: Signaling Gateway Function
SIP: Session Initiation Protocol
SLF: Subscriber Location Function
UMTS: Universal Mobile Telecommunications System
VoIP: Voice over IP
WCDMA: Wideband Code Division Multiple Access
WLAN: Wireless Local-Area Network

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