



IMS MAGAZINE™

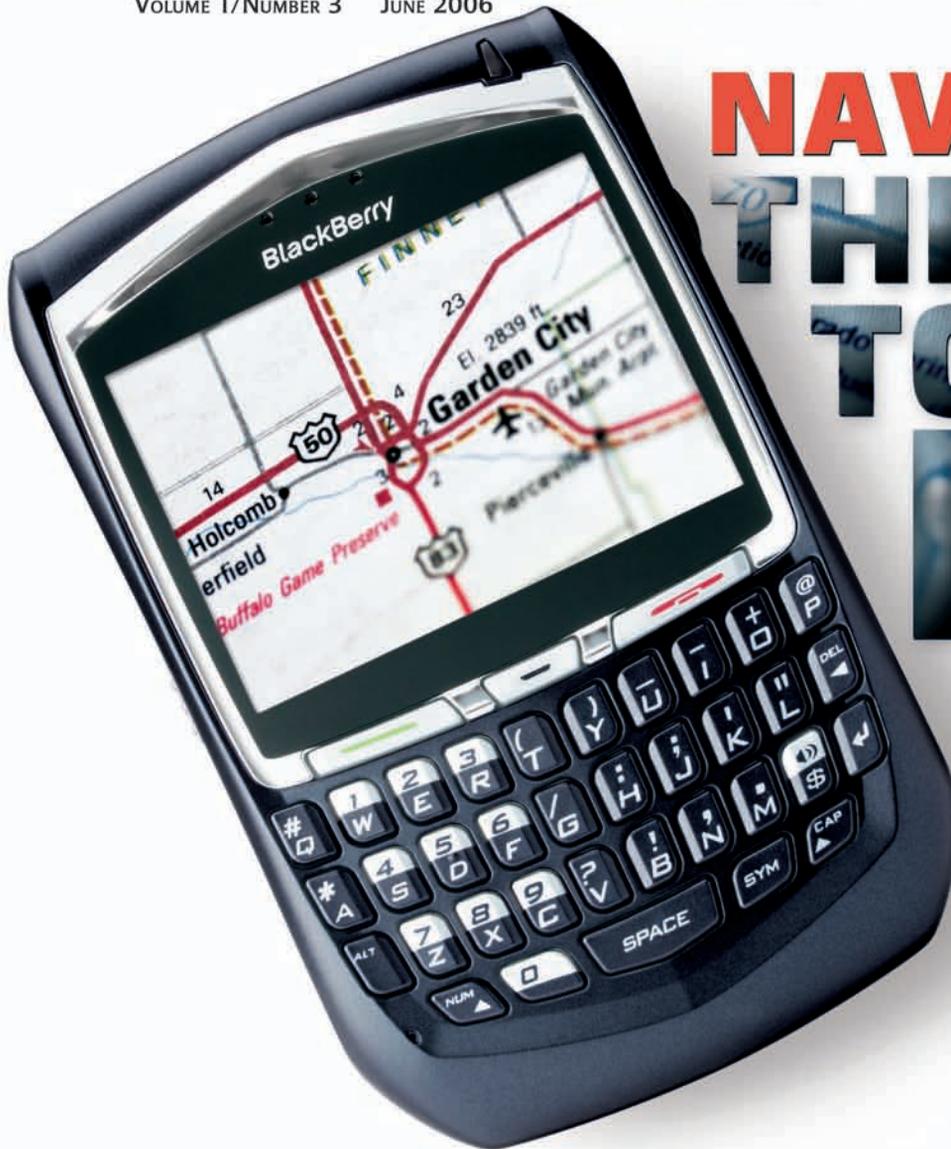
IP MULTIMEDIA SUBSYSTEM

VOLUME 1/NUMBER 3 JUNE 2006

Growing Service Opportunities

IMS, DSS, What a Mess...

TISPAN, UMA, & more



NAVIGATING THE ROAD TO TRUE IMS



IMS EXPO™

October 11-13, 2006
San Diego Convention Center
San Diego, CA • www.imsexpo.com



Are you ready for IMS?

We are! Introducing Hammer® for IMS—solutions for full functional testing, load testing, diagnostics, troubleshooting and device emulation for end-to-end coverage of IMS.

Hammer for IMS, from Empirix, helps organizations move to IMS with confidence.

For more than a decade Empirix has helped Network Equipment Manufacturers, service providers and enterprises successfully transition to new technologies including CTI, TDM/PSTN, VoIP, next-generation networks... and now IMS.

Based on Empirix's patented Hammer technology, Hammer for IMS verifies the two most critical quality dimensions of IMS – device interoperability, and service/network interworking – to help vendors and service providers accelerate rollouts and speed time-to-revenue.

Find out why thousands of organizations worldwide trust Empirix and how you can be IMS-ready.

Learn More About Empirix

To learn more about Empirix, call +1 866.EMPIRIX (+1 781.266.3200 from outside the U.S.), email info@empirix.com or visit www.empirix.com.

FREE WHITEPAPER

Go to www.empirix.com/ims to receive a FREE whitepaper entitled: “Best Practices for Testing IMS Infrastructure and Applications in a Service Provider Network”



Corporate HQ | 20 Crosby Drive | Bedford, MA 01730 | USA | tel: +1 781.266.3200 | fax: +1 781.266.3201 | www.empirix.com

European HQ | Asmec Centre, Eagle House | The Ring, Bracknell, Berkshire RG12 1HB | United Kingdom | tel: +44 (0) 1344 38 2700 | fax: +44 (0) 1344 66 8172

Japan HQ | 1-10-11 Ebisunishi, Fujiwara Building 7F | Shibuya-ku, Tokyo 150-0021 | Japan | tel: +81 (3) 5457 2341 | fax: +81 (3) 5457 0541

editor's note

Defining IMS

by Greg Galitzine

*It was six men of Indostan; To learning much inclined,
Who went to see the Elephant (Though all of them were blind),
That each by observation; Might satisfy his mind.*



So begins the 19th century poem by John Godfrey Saxe. The poem is based on an ancient Indian fable; some claim the tale has its origins in the Jain Dharma, a religion/philosophy dating back to the prehistory of Southeast Asia. Anekantavada is a basic principle of Jainism literally meaning "non-onesidedness." Anekantvada compels us to consider the point of view of others. One should not reject a belief simply because it uses a different perspective.

So it seems, is the case with IMS. Often, when asked to define IMS, experts lean on what IMS isn't to make their point. And while folks may be correct when they declare that "IMS is not a product," or "You can't sell an IMS," or "IMS is simply a ploy cooked up by carriers to wall off their subscribers," they fail to actually define what IMS is.

At its most basic, IMS, or IP *Multimedia* Subsystem, is a roadmap, an architecture for service providers to, well... provide services; multimedia services, over fixed and mobile networks.

Of course that simple definition of IMS can mean many things to many people. IMS is video. IMS is voice. IMS will impact end user devices. IMS is wireless. IMS is fixed/mobile convergence. IMS is the future. IMS is now. IMS... VoIP... IMS... UMA... IMS... TISPAN... Yes! Yes! Yes!!!

Pretty crazy, huh?

Well, the stated goal of this publication is to help you sort through the clutter, and to help educate you on all the various pieces that go into this thing called "IMS." This issue of *IMS Magazine* features a number of perspectives on the technology and the opportunity afforded by IMS.

Resident columnist Ronald Gruia provides his usual brilliant analysis, taking a decidedly technical look at the situation in his Analyst's Corner column. Mike McHugh, in his Industry Perspective column, highlights a number of examples of new, innovative IMS-based services being considered by service providers today. Matt Tooley discusses the challenges faced by operators when selecting a policy management implementation strategy for their IMS networks and demonstrates that a unified policy management strategy is fundamental to the success for these deployments. Steve Shaw weighs in on IMS and UMA and the different roles these technologies play with respect to convergence for mobile operators, as well as for integrated operators that own both fixed and mobile access networks. Paul Scarff discusses the lack of OSS service management functionality and how that threatens to deflate the promise of IMS and turn it into just another silo in carriers' networks. And, Richard Cardone explores the next-generation services arena, from an ETSI TISPAN perspective.

Saxe concludes his poem:

*And so these men of Indostan; Disputed loud and long
Each in his own opinion; Exceeding stiff and strong
Though each was partly in the right; And all were in the wrong!*

Let me start by saying our authors aren't wrong; they are all right. They do however, come at the issue of IMS from different angles, with different points of view.

There are of course differences between IMS and a pachyderm. One has evolved slowly, over thousands of years. The other is a work in progress, albeit at today's incredible pace of technological change. But similarities exist. Both are huge (certainly the potential is there). Both are multifaceted and feature many distinctive elements, and depending on one's viewpoint can mean different things to different people. One thing I think most of us agree on however, is that IMS presents an opportunity. And that opportunity can only be realized if we all keep an open mind and work together towards a common goal. ■



Rich Tehrani, Group Publisher and Editor-In-Chief (rtehрани@tmcnet.com)

EDITORIAL

Greg Galitzine, Editorial Director (ggalitzine@tmcnet.com)
Erik Linask, Associate Editor (elinask@tmcnet.com)

TMC LABS

Tom Keating, Executive Technology Editor/CTO/VP
(tkeating@tmcnet.com)

ART

Lisa D. Morris, Senior Art Director
Alan Urkawich, Art Director
Lisa A. Mellers, Graphic Designer

EXECUTIVE OFFICERS

Nadji Tehrani, Chairman and CEO
Rich Tehrani, President
Dave Rodriguez, VP of Publications, Conferences & Online Media
Kevin J. Noonan, Executive Director, Business Development
Michael Genaro, VP of Marketing

Editorial Offices: 203-852-6800 Customer Service: For all customer service matters, call 203-852-6800.

ADVERTISING SALES

Sales Office Phone: 203-852-6800

Anthony Graffeo, Sr. Advertising Director - Eastern U.S.; Canada; Israel
(agraffeo@tmcnet.com), ext. 174

John Ioli, Advertising Director - Midwest U.S.; Southwest U.S.; International
(jioli@tmcnet.com), ext. 120

Drew Thornley, Business Development Director - Western U.S.
(dthornley@tmcnet.com), (480) 833-8836

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.

Subscriptions

Circulation Director, Shirley Russo, ext. 157 (srusso@tmcnet.com)

IMS Magazine® is published bi-monthly by Technology Marketing Corp. Annual digital subscriptions: Free to qualifying U.S., Canada and foreign subscribers. Annual print subscriptions: Free to qualifying U.S. subscribers; \$24 U.S. nonqualifying, \$34 Canada, \$48 foreign qualifying and nonqualifying. All orders are payable in advance U.S. dollars drawn against a U.S. bank. Connecticut residents add applicable sales tax.

Editorial Advisory Board

Michael Khalilian, *IMS Forum*
Scott Erickson, *Tekordia Technologies*
Mikael Stromquist, *Ericsson*
Ronald Gruia, *Frost & Sullivan*
Mike McHugh, *BEA Systems*
John Marinho, *Lucent Technologies*
Duane Sword, *Empirix*

Reader Input

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.

Identification Statement

IMS Magazine® is published bimonthly by Technology Marketing Corporation, 1 Technology Plaza, Norwalk, CT 06854 U.S.A. Annual digital subscriptions: Free to qualifying U.S., Canada and foreign subscribers. Annual print subscriptions: Free to qualifying U.S. subscribers; \$24 U.S. nonqualifying, \$34 Canada, \$48 foreign qualifying and nonqualifying.

Postmaster: Send address changes to: *IMS Magazine®*, Technology Marketing Corporation, 1 Technology Plaza, Norwalk, CT 06854

IMS Magazine® is a registered trademark of Technology Marketing Corporation. Copyright © 2006 Technology Marketing Corporation. All rights reserved. Reproduction in whole or part without permission of the publisher is prohibited.

Reprints and list rentals

For authorized reprints of articles appearing in *IMS Magazine®*, please contact Reprint Management Services at 1-800-290-5460 • tmc@reprintbuyer.com • www.reprintbuyer.com.

For list rentals, please contact Glenn Freedman at glennf@reprintbuyer.com or call 516-358-5478, ext. 101.



A Technology Marketing Publication,
One Technology Plaza, Norwalk, CT 06854 U.S.A.
Phone: (203) 852-6800 Fax: (203) 853-2845, (203) 838-4070

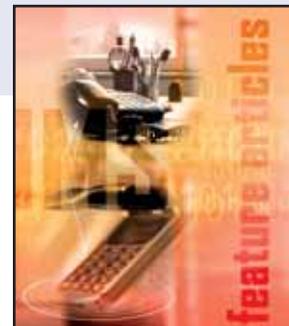
contents

editor's note	1
Defining IMS <i>By Greg Galitzine</i>	
publisher's outlook	4
IMS, Therefore I Am <i>By Rich Tehrani</i>	
industry news	6
columns	16
Analyst's Corner	16
The Impact of IMS on Applications and UIs <i>By Ronald Gruia</i>	
IMS Industry Perspective	20
Growing IMS Service Opportunities <i>By Mike McHugh</i>	
Executive Suite	24
Interview with Frank Plastina, Tekelec <i>By Rich Tehrani</i>	
60 Seconds With	32
<i>By Duane Sword</i>	
From the Desk of Michael Khalilian	58
IMS Telecommunications Architecture Convergence: To Be or Not To Be?	



feature articles

Navigating the Road to True IMS	34
<i>By Andrew Wyatt</i>	
The Evolution to IMS — Slow and Steady or Darwinian Leap?	38
<i>By Russ Freen</i>	
IMS' Lack of OSS Functionality Could Relegate It to Silo Status	42
<i>By Paul Scarff</i>	
TISPAN — Delivering a Quality-Assured Application Experience	46
<i>By Richard Cardone</i>	
UMA and IMS: In Network Evolution	48
<i>By Steve Shaw</i>	
Enhancing Service Delivery Within the IMS Architecture	52
<i>By Greg Pisano</i>	
Unified Policy Management for Uniform Service Delivery in an IMS Network	54
<i>By Matt Tooley</i>	



Service Providers – why rev limit your IP voice services business?



Unleash the economic power of the Pactolus Multi-services suite.

Add new services, new revenues and real differentiation—without redundant infrastructure and operating costs. That's the power of the Pactolus SIPware™ Multi-Services Suite, and RapidFLEX™ Service Delivery Platform with Service Creation Environment. It's the most comprehensive, most flexible, most widely deployed IP voice services suite available.

Pactolus services are handling more than 2 billion minutes a month in more than 50 service provider networks worldwide.

Don't let costly, complex service implementations burn through your profits. Get in the driver's seat with Pactolus.

For information or a demonstration, call 866-722-8658 or visit www.pactolus.com (+1 508-616-0900 outside USA).

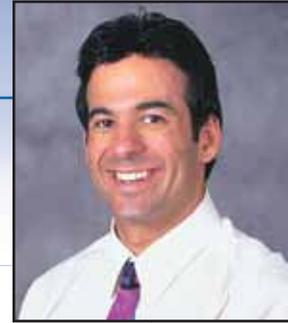
- *Prepaid/Post Paid Calling Card*
- *Residential VoBB*
- *Business VoBB*
- *Reservationless Conferencing*
- *Event Conferencing*
- *Operator Assistance*
- *Voice Mail*



publisher's outlook

IMS, Therefore I Am

by Rich Tehrani



The preceding entry is borrowed from Wikipedia and that smooth-looking European philosopher is responsible for helping define existence.

If we were to update this famous expression to the 21st century, it would surely read *IMS, Therefore I Am*. In this case I am not arguing existence but perhaps more importantly identity. You see in today's electronic world, your electronic identity is your existence. But how do we determine the existence of your identity as you move around the world of disparate networks that intersect with the telco networks and the Internet at various points?

The answer is simple - federated identity management. Recently I had a chance to speak with executives from Lucent about how they are working with carriers to ensure these carriers can use federated identity management in their businesses. There is a great deal of logic to doing this as subscribers are generally identifiable as such and you usually know who they are when they use a phone or Internet connection.

If you need more clearly defined identity management you can simply prompt the user as needed to ensure you know who you are dealing with. For example two people may share a phone or Internet connection. Once you have that out of the way it is on to defining the circle of trust or the companies you can share the user's identity with. Once this is done, you enable rapid transactions without the need to have users remember passwords and user names for each content provider.

For this article, we will turn the conventional terms on their head. As Lucent describes things to me, they consider a service provider as a company that provides a service such as sending stock quotes. The carrier (not to be confused with service provider, mind you) becomes the identity provider or the IDP. I still prefer the term carrier and will stick with that in this column.

In a perfect world the carrier and the service provider would work together and pass data and identities back and forth so that a seamless user experience can be established throughout all transactions within the trusted circle.

All of this talk of federated identity management is utopian and while I applaud companies that try to bring these sorts of solutions to market, I should point out they are tough to pull off. Still, if carriers have critical mass they can likely convince some larger service providers to hop onboard. At that point the smaller players should want to commit as well and may even pay for the privilege of being part of the circle of trust.

Although this is a new and untested concept, it goes without saying that subscribers will be thrilled to have to enter less password information every time they jump from site to site. Besides, they already trust their telecom service provider (at least most probably do) and they

Continued on page 62

"Cogito, ergo sum" (Latin: "I am thinking, therefore I exist", or traditionally "I think, therefore I am") is a philosophical statement by René Descartes, which became a foundational element of Western rationalism. "Cogito ergo sum" is a translation of Descartes' original French statement: "Je pense, donc je suis", which occurs in his *Discourse on Method* (1637).





Got a great IMS idea? Our building blocks enable you to realize it.

As a global leader in the convergence marketplace, Flextronics Software Systems (FSS) offers both licensable technologies and outsourcing services to over 300 customers globally. FSS is driving innovation in the IMS domain through its portfolio of high-performance and interoperable IMS building blocks, such as the SIP Core UA Toolkit, the MicroSIP UA Toolkit, the SIP Phone Toolkit, and the IMS Client Framework.

Our proven, highly reliable, and scalable IMS products and services help you eliminate risks in your IMS strategy, and give you the time-to-market advantage you need. So, when you are ready to develop revolutionary IMS applications, trust us to provide you all the support you need in IMS adoption.

To know more, meet us at GlobalComm, booth # 56080 or call +91-124-2455151.
For more information, visit <http://www.flextronicssoftware.com>



Sonus and NMS to Deliver IMS Apps to Mobile Handsets

By Johanne Torres

Sonus Networks ([news - alert](#)) announced that it joined forces with NMS Communications, ([news - alert](#)) a provider of technologies for mobile applications and infrastructure to streamline the delivery of IMS-based applications and services to mobile handsets. The move will enable wireless and wireline operators to deploy a full suite of IMS-based multimedia services including NMS' Active Phone Book and apps, such as instant messaging (IM), push-to-talk and video sharing on a variety of mobile handsets.

"Today's generation of mobile phone users want more than just voice; they want to leverage a full suite of data and presence-driven tools that bring the communication experience to the next level," said Mike Hluchyj, founder and chief technology officer, Sonus Networks. "By integrating NMS' client-side technology with a most robust IMS-ready network architecture, we're empowering network operators to unleash the potential of IMS and offer consumers a new breed of innovative services and powerful applications."

Sonus' IMS-ready SMARTT Wireless system allows users to migrate to full 3G-network compliance. By enabling interoperability with NMS' IMS Mobile Client network operators, users can rapidly deploy a growing number of multimedia IP communication services on mobile devices spanning 2.5G, EDGE, 3G IMS, WiFi, and Bluetooth wireless networks.

NMS' IMS Mobile Client can be deployed across a range of mobile phone manufacturers' existing handsets and can be customized and re-branded for use within a service provider's network. The NMS IMS Mobile Client is currently available for network equipment and service vendors bringing to market pre-IMS and IMS mobile systems to wireless and fixed/mobile operators worldwide.



<http://www.sonusnet.com>

<http://www.nmss.com>

App Server Vendors Prep for Imminent Combination of IT, Telecom

By Robert Liu

Application server vendors are accelerating their rollout plans to prepare for the imminent blending of information technology with the telecom world, brought on by the influx of IMS-based architecture.

Oracle ([quote - news - alert](#)) has outlined its roadmap to deliver a standards-based Service Delivery Platform (SDP) for the telecommunications industry to transition from current silo-based network investments into a service-oriented architecture (SOA) to help reduce time and costs to deploy next-generation communication IP voice and data services. Oracle SDP plans to extend its Oracle Fusion Middleware platform with technologies obtained through its recent acquisition of HotSip, adding elements like SIP, Presence Server, Proxy Registrar, and Location components.

Oracle's announcement underscores its desire to buy its way into the lucrative telecom market, which is witnessing an economic upswing as standards like IMS and Linux enable the convergence of delivery platforms.

Complicating matters for Oracle is the fact that its SDP won't immediately incorporate key elements of the IMS standard like call control. In addition, the platform has yet to be performance tested in an Advanced Telecom Computing Architecture (AdvancedTCA or ATCA) environment - which is becoming the predominant form factor for modular platforms in the telecom space. The company said that a broader suite of functionality is scheduled to be made available later this year.

<http://www.oracle.com>

ICE Selects Lucent's MPLS and IMS-Ready Solutions

Lucent Technologies ([quote](#) - [news](#) - [alert](#)) announced that Instituto Costarricense de Electricidad (ICE), the sole telecommunications provider in Costa Rica, has awarded Lucent a contract to deploy elements of Lucent's IMS service architecture and a Multiprotocol Label Switching (MPLS) solution to offer next-generation voice and data services.

ICE initially will use the Lucent solutions to provide VoIP calling, pre-paid services and virtual private networks targeting the international segment for both business and residential customers.

In addition to VoIP services, ICE is preparing to offer its customers a comprehensive set of IP-based services, including high-speed Ethernet connectivity, and the Lucent platform will allow it to rapidly develop and launch these new value added services.

Lucent's IMS-ready VoIP solution for ICE includes the Lucent Compact Switch, which provides the media gateway and gateway control functions, the Lucent Feature Server, which is an IMS-compliant server that offers call session control and Class 5 telephony applications and the Lucent Communication Manager, a next generation applications web portal solution, and Lucent Ethernet Routers (formerly of Riverstone Networks).

Lucent's solution for ICE also includes technology from Lucent partners, including Juniper Networks' M320 routers, Acme Packet's Net-Net Session Border Controllers, Dorado Software's RedCell MPLS Manager and VPN Service Center, and BayPackets' Agility Platform. Network security features are based on the Lucent VPN Firewall Brick as well as the Lucent Security Management Server (LSMS).

<http://www.lucent.com>



IntelliNet Technologies Participates in Diameter Interoperability Event

IntelliNet Technologies, ([news](#) - [alert](#)) a provider of convergence technology for wireless, wireline, and IP networks, announced its successful participation in the interoperability testing of the Diameter Protocol with 3GPP-IMS application support. The multi-vendor event was driven by the Internet Engineering Task Force (IETF) AAA-Working Group. IntelliNet tested its recently announced Accelero DIAMETER product interworking with a number of IMS products from the worlds top communications vendors.

The Diameter protocol provides the critical functions of Authentication, Authorization and Accounting (AAA), the framework for applications requiring subscriber access, charging and policy control in 3G IP Multi-Media Subsystem (IMS) networks.

IntelliNets Accelero DIAMETER combines the Diameter base protocol with a rapid application software development platform designed for creating core IMS network elements or seamlessly porting legacy applications over to the IMS architecture. This enhanced version incorporates carrier-grade reliability, fault-tolerant redundancy and interface extensions critical for subscriber access, service roaming and billing functions.

Interoperability testing for Diameter is a significant milestone. Unlike SIP, which has been exposed to various plug-fests and bake-offs, Diameter is only now gaining prominence after the adoption of IMS by 3GPP. The goal of the interoperability testing was to enable vendors supplying solutions based on Diameter to test their products in a standardized environment and to rigorously test the protocol and its applications in a controlled setting.

<http://www.intellinet-tech.com>



Ericsson Powering IMS Development

By Erik Linask

IMS is the next-generation architecture that will enable fixed/mobile convergence and other services in an all-IP environment. It has been defined by 3GPP/3GPP2 as a new core and service 'domain' that enables the convergence of data, speech, and network technology - including high levels of personalization - over an IP-based infrastructure.

Ericsson, ([news - alert](#)) a forerunner in promoting IMS, has launched the IMS ecosystem as part of Ericsson Mobility World's developers program, an initiative is aimed to accelerate the creation of innovative new applications and services, drive user demand for IMS-enabled networks, and create further revenue opportunities for operators.

Through this IMS ecosystem program, Ericsson is expanding its support for the developer community and its drive to develop IMS-based applications. Developers will be able to take advantage of Ericsson's IMS-based solutions, as well as the Ericsson Service Development Studio (SDS), a development and end-to-end testing tool. Naturally, in order for IMS to flourish, end-to-end support in the way of IMS clients and endpoints are critical. Ericsson is set to ensure that support is available to developers.

"The ecosystem for IMS applications will give operators access to a portfolio of IMS-based applications," says Kurt Sillén, VP, Ericsson Mobility World.

<http://www.ericsson.com>



IMS-based Applications Probably Won't Cause Consumer Spending Windfall

By Mae Kowalke

IMS-based applications have lots of potential uses, but chances are, none of them will result in a windfall in consumer spending, according to a new report from high-tech market research firm In-Stat.

In-Stat ([news - alert](#)) said that, instead of major increases in consumer spending, "The main revenue benefits that IMS provides lie in the integration of wireless and wireline services, and the creation of integrated multimedia service bundles for premium content and entertainment services."

In-Stat analyst Keith Nissen cautioned that, "Depending on new consumer spending for revenue growth is a risky proposition. The objective of carrier IMS revenue strategies should be to capture the maximum percentage of household monthly spending on communication and related services."

In the process of performing its research, In-Stat developed the following recommendations for carriers:

- Retain PSTN revenue streams for as long as possible;
- Do not lower pricing and gross margins solely in order to retain non-broadband single-service customers;
- Plan for broadband market share to dictate future subscriber ARPU and revenue potential; and
- Expect that new consumer spending for IMS-enabled applications will be limited by rising content costs and service rate increases.

<http://www.instat.com>

SignalSys®

High quality, Low price VoIP ATA & VoIP Phones

The SP100X
The world's first VoIP ATA
with built-in router
was revealed in VON Fall 2003.



4 FXS port VoIP ATA as low as \$69*
*volume price

Tel: 1.732.516.1888 • www.SignalSys.com • sales@SignalSys.com

100 Menlo Park, Suite 212 • Edison, NJ 08837 • USA



Siemens and BridgePort Networks Sign IMS Reseller Agreement

By Laura Stotler

BridgePort Networks ([news - alert](#)) has announced a global reseller agreement with Siemens Communications ([news - alert](#)) in which its NomadicONE IMS Convergence Server (ICS) will be integrated with Siemens' IP Multimedia Subsystem (IMS). BridgePort product capabilities will now be part of the Siemens IMS/FMC solution for mobile, fixed, and cable network operators through the terms of a global software license agreement.

The Siemens solution integrates packet and circuit-switched telephony networks in addition to a range of wireless and fixed technologies. The integration of BridgePort's ICS enables Siemens to offer operators the ability to support single number phone services based on IMS@dantage. Services can hand over an active voice call between circuit switched cellular and VoIP over WiFi networks by offering in-session switching of calls between networks.

The integrated solution meets technical requirements completed by the 3GPP and 3GPP2 for IMS to circuit-switched seamless voice handover, otherwise known as Voice call Continuity (VCC). The ICS application server sits in the IMS architecture and supports GSM, CDMA, UMTS and WiFi networks and implements the IMS Controlled Model (ICM) method of seamless handover per 3GPP technical requirements.

"As IMS continues to evolve, interoperability efforts in areas such as end-user device links to core infrastructure will represent an important dimension in successful trials and early deployments of fixed/mobile convergence based upon IMS," said Tom Valovic, program director for VOIP Infrastructure at IDC.

<http://www.siemens.com>

<http://www.bridgeport-networks.com>



BT Extends FMC Service to Enterprises in Europe

Communications solutions provider BT ([news - alert](#)) said it plans to start offering converged fixed/mobile services to its large enterprise customers both in and outside the U.K. to enable business users to have one phone for both their mobile and office calls.

The service will also be the first "real" application of the U.K.-based incumbent operator's 21st Century Network (21CN), BT's next-generation network that is being rolled out in the U.K. and now also looks set to be taken to the operator's global markets.

The Enterprise FMC service will be enabled by IP Multimedia Subsystem (IMS) technology and will make use of the 21CN presence system as well as its converged voicemail system and intelligent call routing. The use of IMS will ensure the seamless handover of calls when users move from the WiFi to the GSM network.

The main selling points of the service for the business user will one handset, one bill, and cheaper overall call charges. BT expects the service to be attractive to customers who are concerned about rising mobile costs but who want to provide their employees with more flexibility.

<http://www.BT.com>

Phone Systems and Network Taps Alcatel for VoIP

By Johanne Torres

Phone Systems and Network, an alternative French operator, completed the transformation of its local and long distance network from TDM to VoIP-based on elements of Alcatel's ([news - alert](#)) IP multimedia subsystem (IMS) system.

With the all VoIP-based infrastructure in place, Phone Systems and Network can now deliver a set of enterprise and residential IP services including IP Centrex and local and long distance VoIP services.

The new system is comprised of the Alcatel 5020 Softswitch and the Alcatel 7515 Media Gateways, providing the link between voice and IP data; the Alcatel 8688 Media Resource Function (MRF), providing advanced audio interactions in IP networks; and the Alcatel 1515 Compact Cross Connect, bridging the traditional public telephone network with the IP-based next generation network.

"Phone Systems and Network represents a new generation of competitive operators turning to VoIP technology to reduce their cost of infrastructure and achieve integrated and converged services," said Monika Maurer, president of Alcatel's fixed solutions activities in a statement. "This contract represents a new reference in France for elements of our IMS solution, and reaffirms our leadership in handling complex end-to-end network transformation projects."

<http://www.alcatel.com>

Cedar Point Communications' SAFARI C3 Earns Highest Rating Given by Cable Technology Experts

Cedar Point Communications, ([news - alert](#)) provider of integrated VoIP switching technologies for the cable and telecommunications industries, today announced that its SAFARI C3 Multimedia Switching System earned the highest rating ever given in the Broadband Gear Report Diamond Technology Reviews.

SAFARI C3, the only totally integrated carrier class VoIP switch designed for the cable industry, earned Four and One-Half Diamonds from Broadband Gear Report's panel of industry experts. The rating represents a half-diamond increase over last year's score for SAFARI C3, which was entered in the VoIP Solutions category.

A totally integrated carrier-class VoIP switch that incorporates all of the components that make up the voice switching infrastructure, SAFARI C3 provides seamless evolution to SIP-based features and an IP Multimedia Subsystem (IMS) architecture. SAFARI C3 provides superior performance and reliability, significantly reducing capital expenditures, system integration and operations costs for cable operators offering telephony services while increasing network integrity, security and privacy.



SAFARI C3 is PacketCable-qualified and future-architected to fit within an IMS core network infrastructure, allowing network operators to leverage their initial equipment investment in voice as they introduce such services as video telephony and fixed-mobile applications. New applications can be integrated into SAFARI C3, or can be accessed via third-party application servers.

<http://www.cedarpointcom.com>



Empirix Hammer DEX 2.0 Testing Platform Supports IMS Functions

By Laura Stotler

Empirix ([news - alert](#)) has added a number of features to the latest version of its Hammer Device Emulation of X (DEX) 2.0 platform. The new version features support for SIP registration testing and gateway testing with H.248 and SIGTRAN-IUA, as well as broad emulation and testing support for a range of IMS functions.

Support for IMS functions includes: CSCFs, MRFC, MGCF, BGCF, MGF, IBCF and I-BGF. The DEX also supports next-generation networking devices including MGC emulation for residential gateways. Empirix also plans to add support for DIAMETER this summer, which will enable the DEX to emulate and test application servers, SCIM functions, convergence functions, HSS, SLF, and charging functions.

The Hammer DEX enables network equipment manufacturers and service providers to emulate next-generation networking infrastructure devices as well as IMS functions. This enables a more comprehensive array of testing for interoperability testing as well as for verifying devices and networks. The DEX also allows users to emulate products from other vendors.

The Hammer DEX offers cost and time effectiveness for emulating IMS devices, since one Hammer DEX can emulate up to four IMS functions simultaneously. The DEX also offers out-of-box ability to span both positive and negative test scenarios for SIP and other major IMS control protocols. The product creates a growing awareness through trial and error of the importance of interoperability testing and furthers the global movement toward IMS by wireless, wireline, and cable-service providers.

<http://www.empirix.com>

LongBoard and Stratus Announce OEM Partnership

LongBoard, ([news - alert](#)) a provider of carrier-grade software designed to enable revenue-generating, converged voice and multimedia services, and **Stratus Technologies**, ([news - alert](#)) a provider of open, carrier-grade software, hardware platforms and telecommunications solutions, have entered into an OEM partnership agreement. As part of its Converged Personalized Services initiative, Stratus will now offer LongBoard's SIP standard-based software for seamless handoff of voice calls between cellular networks and 802.11 (WiFi) networks.

LongBoard's IMS-compatible client/server software enables a dual-mode handset to support ubiquitous voice services across WiFi and cellular networks using one telephone number. Stratus further enhances the product's capabilities by providing SS7 and IN connectivity, as well as complete systems integration services. The complete solution is fully 3GPP IMS compliant and is being currently trialed with several operators.



LongBoard's call handover software was the industry's first network-based FMC solution using the SIP standard, which has been embraced by service providers worldwide and is at the heart of the IP Multimedia Subsystem (IMS).

"This partnership will provide carriers with a powerful, unique converged services solution that boosts ARPU and enhances customer relationships," said Hari Haran, LongBoard president and CEO.

<http://www.longboard.com>
<http://www.stratus.com>

SPIRIT DSP
Embedded Voice Experience



200 telecom OEMs and software vendors deployed SPIRIT voice products:



Multi-Point Voice Conferencing Engine

software for enterprise PC and Mobile platforms

- ◆ High-quality wideband voice, complete VoIP feature set
- ◆ Support of different communication scenarios: PC-to-PC calling, PC-to-PSTN calling, conferencing, ad hoc conferencing
- ◆ Protects from echo, noise, network delays, packet loss
- ◆ 10 times more cost-effective than hardware
- ◆ 100 times more scalable than P2P software
- ◆ P2P calling, group calling, conferencing
- ◆ Cross-platform availability – PC, PDA, Mobile
- ◆ Smart application data traffic management
- ◆ Scaled-down version availability for softphone makers
- ◆ Now shipping with Oracle, Adobe (Macromedia) and other collaboration solutions

www.spiritDSP.com





Lucent Technologies Completes Acquisition of Riverstone Networks

Lucent Technologies ([news - alert](#)) announced that it has completed its acquisition of certain net assets related to the business operations of Riverstone Networks, a maker of carrier Ethernet routers for the telecommunications industry.

"We are excited to integrate the Riverstone team into Lucent," said Ken Wirth, president and general manager, Multimedia Networking Solutions, Lucent Technologies. "With this purchase we have created an industry leader in the delivery of end-to-end carrier Ethernet and converged Optical/Ethernet solutions, and we look forward to aggressively pursuing the expanding market for Ethernet-based business services and residential triple-play offerings such as IPTV."

The integration of the Riverstone assets into Lucent's portfolio is expected to result in substantial benefits in other areas of Lucent's business. For instance, Riverstone's carrier Ethernet platforms augment Lucent's IP Multimedia Subsystem (IMS) solution, enabling operators to leverage end-to-end, Ethernet-based architectures that support the delivery of business and residential broadband services at lower cost with superior quality of service, performance and reliability.

<http://www.lucent.com>



Sonus and Verint to Enable Carriers to Comply with CALEA

By Johanne Torres

Sonus Networks ([news - alert](#)) joined forces with Verint Systems ([news - alert](#)) to enable service providers to comply with the communications assistance for law enforcement act (CALEA), as well as interception requirements for emerging VoIP and broadband packet-data services.

Verint, a member of Sonus' Open Services Partner Alliance (OSPA), and Sonus have created a lawful Interception and delivery capability for Sonus' IMS (IP Multimedia Subsystem)-ready architecture with Verint's STAR-GATE Communications Interception Solution.

The bundle is designed to allow service providers to comply with standards established for CALEA in the U.S., and by ETSI (European Telecommunications Standards Institute) in Europe, as well as for other country-specific variants around the world.

<http://www.sonusnet.com>

<http://www.verint.com>

If you are interested in purchasing reprints of this article (in either print or PDF format), please visit Reprint Management Services online at <http://www.reprintbuyer.com> or contact a representative via e-mail at reprints@tmcnet.com or by phone at 800-290-5460.



Visit booths #10043 and #18051
to see our ongoing live AMC demos
at GlobalComm!

**From Prototype
Through Production...**



Optimize Your **IMS** Development Efforts

**SurfRider/AMC™:
Flexible AMC DSP Resource Board
for Future-Proof IMS Media Processing**

Enabling technologies for:

- Audio/Video Media Gateways
- Media Servers
- Packet-to-Packet Applications
- Session Border Controllers

Advantages:

- Patent-pending modular design supporting up to 8 mixed DSPs for exceptional flexibility
- ROHS-compliant
- Pre-integrated with leading ATCA and μ TCA manufacturers' products
- Multiple interface options: AMC.0, AMC.1, AMC.2, AMC.3, AMC.4 and I-TDM

Call today for a free consultation:

(866) 644-3379



The SurfRider/AMC holds up to four SurfDockers™ modular plug-ins carrying mixed types of DSP pairs and supporting a variety of configurations to meet IMS requirements...today and in the years to come! Contact us today to see how Surf can optimize your IMS development efforts, and help bring your media gateway, media server, or CTI application from prototype to production in the fastest, most cost-efficient way.



SURF
Media Processing Powerhouse



WWW.SURF-COM.COM

Market-proven since 1996

The Impact of IMS on Applications and UIs

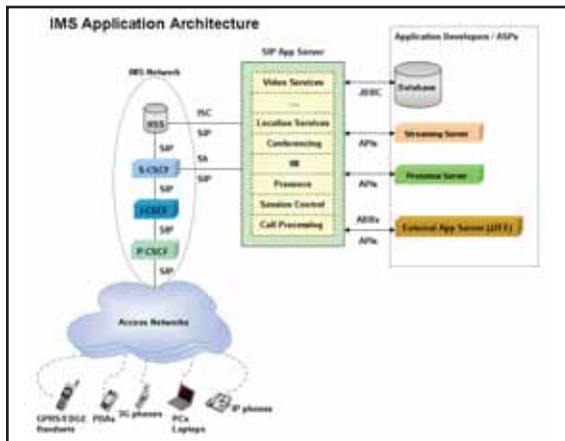


by Ronald Gruia

The Application View

IMS will allow the creation of new “combinational services” by standardizing the interfaces that applications use toward the core network. This will enable these apps to share information such as billing and provisioning data. So this will mean “smarter” applications, with more information being pushed to the end-users. For instance a “find friend” service combining presence and location can send an SMS whenever a friend from a user’s buddy list IM app happens to be close by, within a certain radius (such as a shopping mall).

Figure 1 illustrates the application architecture in the IMS domain. The SIP (define - news - alert) application server (or app server or A/S for short) represents the service creation and execution platform composed of a SIP applet container



that has a variety of ABBs (Application Building Blocks) such as presence, IM, conferencing and location, among other functions. The SIP app server talks to the S-CSCF (Serving Call Session Control Function) for call control functions via the standard ISC (IMS Service Creation) interface. The SIP A/S also communicates with the HSS (Home Subscriber Server, the main centralized database that holds all the end-user information) via the Sh interface in order to perform various user registration functions. (The authentication protocol used by the Sh interface is Diameter, which is an improved version of its predecessor Radius, an earlier authentication protocol). The SIP A/S provides full access to SIP signaling that is used in communication with the S-CSCF

IMS is undoubtedly having a profound impact in the applications and UIs (User Interfaces) being rolled out by service providers embracing the technology. In the past, the typical communications networks had their telephony services inseparably embedded in the core network switch. The AIN (Advanced Intelligent Network) enabled enhanced services to be built externally from the switches, but SS7 (Signaling System 7) still provided the glue that closely tied these services to the core network. But the separation between the transport, control, and application planes was finally achieved with advent of IMS.

and the HSS. Another requirement for the typical SIP A/S is to provide a set of interfaces for third-party application developers (APIs — Application Programming Interfaces and xDBC — Data Base Connectivity, whether it is Open or Java — ODBC, JDBC).

The upshot of all of this architectural discussion is that because the applications share these standard interfaces (which are accessible over a variety of access networks) carriers are able to offer converged services. This is one of the key differentiators of IMS and one that will profoundly impact application design in the future. Instead of pursuing the ultimate killer app, carriers will start rolling out some of these combinational services that can target specific end-user segments. For instance, a gaming app can be combined with an audio conference app, originating a new “game with trash talking” service that can be quite popular within the youth segment.

The User Interface View

The UI represents a fundamental component of the overall solution, as it can be a key determinant of the overall end-user satisfaction and subscriber churn rates. As discussed earlier, IMS will also bring more intelligence to a plethora of endpoints (2.5G / 3G handsets, IP phones, PDAs, PCs, etc.). But how will this added complexity impact the UI for all these devices? The problem is that the existing clients are already far from being ideal. For instance, in the handset world, device complexity leads to the lack of use of some services. In a recent study, Nokia discovered that Asian subscribers only use about 25 percent of the handset functions and that number is even lower in Europe (roughly 10 percent).

Ease of use is a crucial element of a good user interface: without it, applications and/or features are not used as often and subscriber “stickiness” is not as high. So how is it possible to achieve this simplification if it is already so difficult to do so sans IMS? The answer might be within the IMS architecture itself and the richness of the HSS. It is possible that in the future, the ideal IMS UI will be able to present a set of heuristic rules that will greatly simplify the operation of an endpoint device.

This concept, called adaptive interaction, consists of a rules-based engine that essentially adapts to user

preferences. The system changes the way it interacts with a subscriber based on pre-established rules and previous interactions. The key is to personalize the interface to the subscriber, something that operators such as Vodafone ([news - alert](#)) (Vodafone Live!), Sprint (Vision) ([news - alert](#)) and Verizon Wireless (Get It Now) ([news - alert](#)) have been all been moving towards for a long time.

But the difference in this case is an enhanced QoE (Quality of Experience), increased subscriber efficiency (due to less time wasted issuing certain commands), and even greater subscriber loyalty.

Adaptive interaction can bring operators closer to the goal of having 70 percent of all functions reachable via a maximum of two key clicks on the handsets. The technology will achieve this goal by being able to fetch subscriber information from the HSS (such as services that the user subscribes to, preference data, etc.) and correlate that with other data (presence, location, time of day) to determine which set of default rules would

Instead of pursuing the ultimate killer app, carriers will start rolling out combinational services that can target specific end-user segments.

apply to the typical customer. Of course, the more sophisticated users can change some of these settings, but the idea is to keep everything simple, so for the average subscriber, the system might establish some of these rules based on previous behavior. Some of this intelligence would reside on the network, and some of it on the endpoint device itself.

Putting It All Together

The availability of a wide range of handheld devices means that the applications running on these endpoints have to be as portable and flexible as possible. Therefore, a layered architecture is perhaps the most suitable approach for IMS applications. The three layers are the UI, the application engine, and the protocol stack.

The UI is the point of communication between the device and the user; it also is a visual representation of the subscriber data that is stored in the application engine. The UI allows end-users to enter information using various modes, including:

- Physical (push-to-talk button);
- DTMF sounds (handset input);
- Graphical (GUI) such as icons;
- Voice (speech recognition and text-to-speech); and
- WWW (web-based client).

The application layer contains the main engine of the service, including all the logic and algorithms used to implement the service functionality. It also has all the necessary data, offering means to store this data either permanently or on a transient fashion. The adaptive interaction logic can also reside in the app layer, in a separate module that could be reused for various applications. The key is to achieve a complete separation from the UI and application layers, thereby eliminating

any UI dependencies, and this could be done via a set of APIs.

Similarly, the same level of de-coupling is necessary between the app layer and the protocol stack. The

rationale in this case is to use distinct protocol stack implementations from distinct vendors with the same app engine. The central theme in all of this is

code re-use and the elimination of the dependencies between these three layers. While the concept itself is not the most novel one, given the explosion in the end-user devices in the marketplace and the need to develop applications as quickly as possible, this layered approach will be vital in the IMS world.

Conclusions

IMS might eradicate the endless pursuit of the elusive killer app and replace it instead with the search for the best combinational service that will target a specific end-user segment. Carriers will soon realize that new revenue streams will be possible via the creation of new “blended lifestyle services” enabling users to mix and match services (e.g. push-to-talk, video sharing, voice messaging, instant messaging, voice conferencing, and interactive gaming).

Finally, IMS will bring remarkable increases in edge intelligence resulting in the need for SIP-enabled personal agents managing presence, mobility, and preferences. Simplicity will be an imperative, with information being pushed to available end-users so that they could decide in real-time how to handle an incoming event. In some cases, depending on the time of day, location and presence data, a rules based engine will be there to assist the subscriber. ■

Ronald Gruia is Program Leader and Senior Strategic Analyst at Frost & Sullivan covering Emerging Communications Solutions.

IMS might eradicate the endless pursuit of the elusive killer app.

Uniquely competitive OSS

Discover complete network solutions
from Anritsu at GlobalComm 2006
- Chicago, Illinois - Booth #55048



From tomorrow, MasterClaw is loose

Don't let unique new business opportunities slip through your grasp.

Today, operators need a new kind of triple play – one that helps retain current subscribers, attract new ones, and increase service revenues. Meet MasterClaw.

The comprehensive MasterClaw OSS framework provides end-to-end overview of network performance and key services, plus the ability to perform drill-down troubleshooting, which makes it ideal for both service and revenue-assurance applications. What's more, our unique ability to combine passive monitoring with active service testing lets you spot most problems before your customers do. That means higher customer satisfaction, less churn, and greater profits.

Does profitability grab your attention? Then grab the phone and call +45 72 11 22 00 or visit www.anritsu.com.

United States +1 972 644 1777 Europe +44 (0) 1582 433433 Japan +81 46 296 1264

Anritsu

Discover What's Possible™

Growing IMS Service Opportunities



by Mike McHugh

Almost all service providers have indicated that they wish to use their IMS platform to offer voice, video, presence, and location-based applications. Examples of new, innovative IMS services most often considered by services providers are described below.

PoC

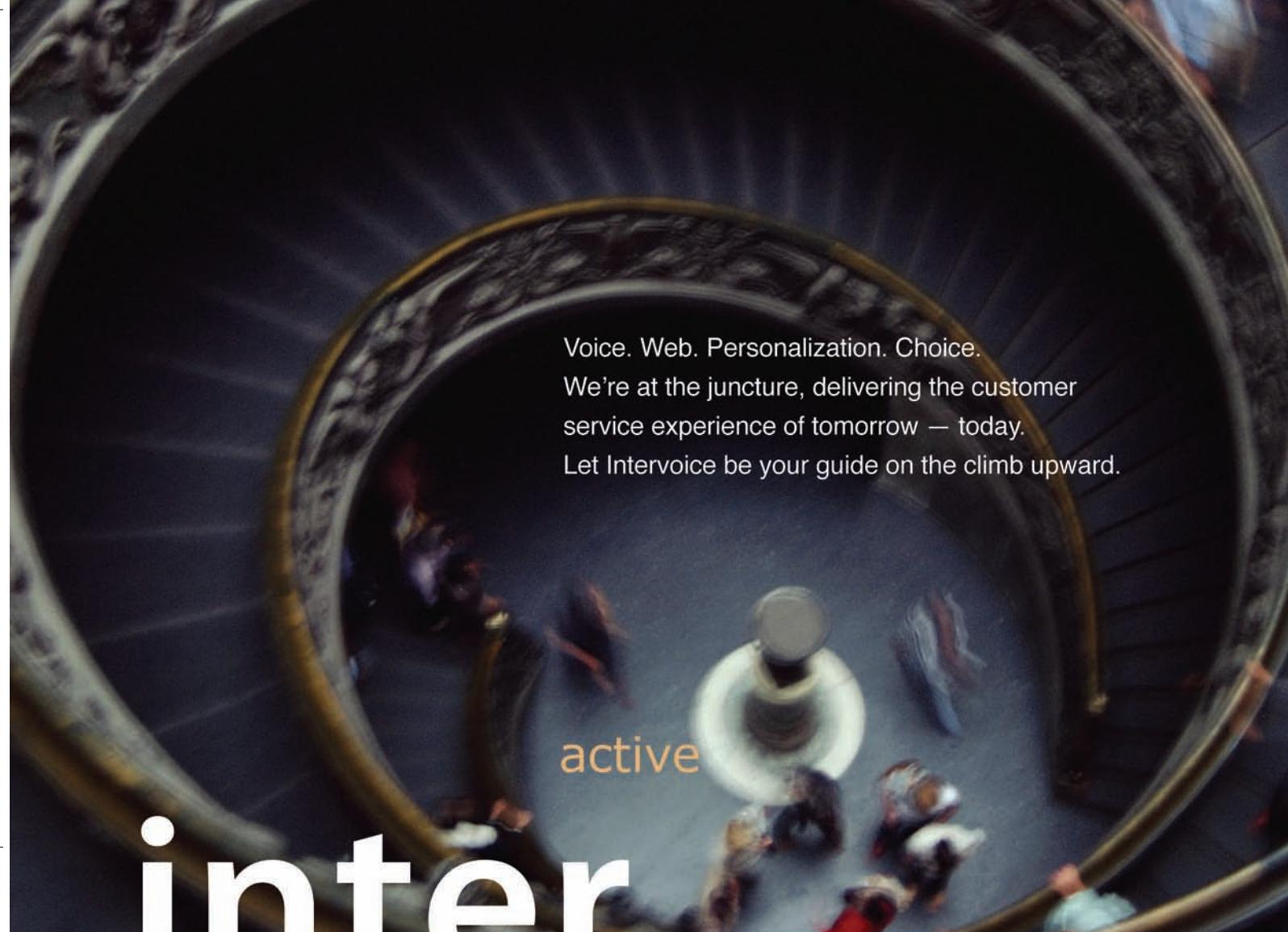
Push-to-talk-over-cellular, or PoC, is a service designed to enable traditional walkie-talkie services to be possible over mobile networks using mobile handsets. Unlike traditional phone calls, PoC calls are initiated when one user pushes down the call button, speaks into their mobile device, and releases the call button when finished speaking. The listening user can respond by pressing their call button. Whereas traditional mobile phone calls are full-duplex, meaning both parties can hear and speak to each other at the same time, PoC calls are half duplex, which means only one party can speak at a time, while the other party, or parties, must listen. PoC is a sticky application due to the immediacy factor of PoC communications. Instead of being conversational, PoC calls tend to be instructional, directional, with immediacy of connection without the delays of call set-up and dialing.

IMS enables PoC services through presence, instant messaging, billing, single sign-on, and central OA&M processes. Operators with IMS networks can readily roll out PoC services by deploying the PoC application on top of an IMS-based SIP application server.

Multimedia Conferencing

Many business users are familiar with voice teleconferencing services, as well as Web-based multimedia conferencing services, such as Webex. With the increasing proliferation of mobile devices with large color displays, faster processors, speakerphones, and Bluetooth, and coupled with increasing deployments of IMS networks that combine interactive multiparty communications with quality of service features, multimedia conferencing is a service that many end-users will now be able to enjoy. Typically, a dedicated, SIP-enabled conferencing server, which can be implemented on top of an IMS-based SIP application server, provides conference reservation and scheduling services. This includes the ability to have the conference be initiated via a dial-in bridge, or be auto-initiated by a presence-enabled conferencing server, whereby the presence status of the key conference participants

With voice revenues trending downward, service providers are counting on data and multimedia applications to increase their revenue and improve margins. Industry consensus indicates that the IP multimedia subsystem (IMS) will provide the means to deliver those applications. But what applications will be delivered on IMS and be able to deliver on the revenue generating solutions that are being promised?



Voice. Web. Personalization. Choice.
We're at the juncture, delivering the customer
service experience of tomorrow — today.
Let Intervice be your guide on the climb upward.

active

inter

Intervice Media Exchange Receives Product of the Year Award

For 23 years Intervice has focused on the quality of the customer experience. We've been rated as a leader in our field for nearly two decades. Now, Intervice Media Exchange has received TMC's Communications Solutions™ 2005 Product of the Year Award.

Media Exchange is a rich and flexible application delivery platform (ADP), designed specifically for mobile and fixed line network operators. It is designed to support numerous ready-to-run applications and provides a powerful application framework designed for large-scale deployments of customer and packaged applications

Enjoy all of the infrastructure management, integration, and content metering capabilities of Media Exchange, and reduce cost and time to market with new, enhanced services. Learn more at www.intervice.com.




intervice

is used to automatically set up the conference call at the appointed time once the key participants are detected to be online.

Streaming Media

Streaming media — the IP transmission of on-demand rich media that gives the user the ability to listen to audio and view video and graphics animation files from the network without first downloading the content — is one of the services considered for information and entertainment. IPTV, for example, makes it possible to move beyond the capabilities of cable's video-on-demand models so as to deliver true interactivity to broadcast audiences.

Voice-Video Messaging

Voice-video messaging is a form of instant messaging, but instead of sending just text, the end-user has the ability to send audio and video files, and instead of just one-to-one, these voice-video messages can be sent one-to-many. This will require an application on the client to record the audio and

video files. Voice-video messaging facilitates faster and spontaneous communications, since recording an audio/video message will be easier than typing in short messages using a small mobile phone keypad. IMS enables voice-video messaging with its standardization on SIP, and the CSCF and MRF elements.

Click-to-Dial

The Click-To-Dial service allows end-users to initiate a multimedia communication session with one or

more parties, by clicking on a SIP-enabled link on a Web browser, Web-enabled desktop or enterprise applications, or an onscreen link on a mobile device. This will trigger the IMS network to automatically negotiate the necessary communication sessions with the designated parties, and establish the requested single-media or multimedia call session. Service providers can use click-to-dial services and capabilities to offer their end-users premium value-added services, whether they are consumers or business users. Combined with SIP/SIMPLE-based presence data, click-to-dial-enabled applications can allow end-users to know in advance whether their intended calling party is available for a conversation. CSPs have the potential to realize new revenue streams by offering click-to-dial-enabled services, thereby increasing

customer loyalty and satisfaction, and thus reducing churn.

Applications running on large service provider networks today have largely been developed by traditional network equipment vendors. IMS will lead to much more development of applications, such as the ones described above, by

third-party application server vendors, and independent software vendors, as well as from the service providers themselves. Over time, this will lead to a large supply of mainstream applications that are available to the end user, thus realizing the ultimate goal of IMS. ■

Mike McHugh is vice president and general manager, BEA WebLogic Communications Platform, at BEA Systems. ([news - alert](#)) For more information, please visit the company online at <http://www.bea.com>.

IMS will lead to development of applications by third-party application server vendors and independent software vendors.



"Remember, eyes straight ahead, lock arms, don't be persuaded by freebies and trinkets and if it all works out, we'll be at the Juniper booth making all our Multiplay problems just melt away."

>> Come Meet Multiplay at GLOBALCOMM 2006. Only Juniper Networks takes you beyond one application at a time, further than IPTV, past the Triple Play. Only Juniper lets you offer more services now, over a scalable platform built for future deployment. Only Juniper gives you opportunities for immediate revenue expansion and new revenue sources, at a lower total cost. Get it all with *multiplay* solutions. IPTV, VoD, voice, gaming, video-telephony, you name it, *multiplay* delivers. Learn more: www.juniper.net/multiplay

See Juniper's Multiplay solution at GLOBALCOMM booth # 42031.

Juniper
your
Net[™]

1.888.JUNIPER

Tekelec 's CEO, Frank Plastina



What is your vision for Tekelec?

We will continue to focus on our ability to provide the session control technology into the network. What I mean by that is the layer that connects the access piece and the applications from the network. That is traditionally what [Tekelec \(news - alert\)](#) has done very well as a company. In the old world in TDM — which continues to hum along and will for quite sometime — that was really SS7 connecting the call and the media carrying the media on the call. What we're doing is evolving the SS7

story, which will be obviously important for a while into SIGTRAN as an interim step, and then eventually a SIP world and, in an IMS context, that's essentially the CSCF or call session control function.

Around this we are building access pieces or applications that make sense using session control as the core competency. This is why we're in softswitching and media gateways. That is why we're now doing a lot of applications off of our traditional Eagle platform and why we're focusing on areas that really require that session control function and knowledge to be competitive.

Have there been any surprises since you joined?

Not from a competitive position. We have a renewed appetite to look towards the future and a lot more willingness to evolve or talk about the evolution of the network. There is a renewed appetite among service providers to look and build towards the future. A few years back people were living day to day.

What do you see as Tekelec's key strengths?

The size of our company is one of our key strengths. We are beyond a startup and have critical mass. We are also not so big that we need so many products in our portfolio to keep us growing. We can focus on what we do well with the emphasis on session control.

What do you see happening to session border control companies?

I want to delineate between session control in an IMS context — session border control is just one aspect of the overall CSCF functionality. What I see is the session border controller functionality being morphed into broader products that do a lot more. Most of these companies will be purchased or fall by the wayside as the opportunity isn't big enough to

Rich Tehrani's Executive Suite is a monthly feature in which leading executives in the VoIP/IP Communications industry discuss their company's latest developments with TMC president Rich Tehrani as well as providing analysis on industry news and trends.

In this issue, Rich speaks with Frank Plastina, the newly minted CEO of Tekelec.

by Rich Tehrani

sustain a lot of independent companies.

Even with growth in service provider market?

The growth is going to come on well beyond session border control as it is defined in those products today. Their ability to do the higher level applications and have those heavy-duty, real-time, low-latency transaction processing engines is difficult for these companies.

The functionality that some of the smaller players have will be built in, such as what we are doing on the Eagle platform.

But it appears that they are trying to go up-market.

This is difficult in the carrier market as it is a key network element and service providers are no longer interested in dealing with very small players. They want someone of sufficient enough size or they won't deal with them at all.

Where is the opportunity for growth?

Across the portfolio, the traditional signaling business offers immediate areas of opportunity such as the evolution to SIGTRAN and the evolution of certain functionality within the Eagle platform. Things like GFLEX that does intelligent routing across the HLR base for a wireless service provider. Those are the types of apps that will keep growing our traditional Eagle base of STPs. Another one that's a natural is local-number portability (LNP) as more and more countries mandate LNP that opens more and more opportunity for us so we can play the natural transformation of those networks just for regulatory reasons.

Networks are evolving to all IP and well beyond traditional TDM functionality.

That is also a very good thing. There are lots of softswitch and media gateway opportunities around the world. Networks are evolving to all IP and well

beyond traditional TDM functionality. However the transition story is important as the vast majority of service providers don't have the luxury of turning off the light switch on TDM and going all IP overnight. They have to handle both forms of traffic for quite some time and our products are very well suited for that.

We are also going up-market on applications that naturally reside on these platforms such as our T6000 hosted PBX ([define](#) - [news](#) - [alert](#)) services software.

One might think Broadsoft or Sylanpro would have an advantage as they focus exclusively on this market? What are your thoughts?

It depends on their go-to-market strategy and product. Most of those companies rely on OEM relationships because they don't have softswitch or media gateway products. That is good and bad. You are really beholden to an OEM strategy and as their customer base consolidates this can be disruptive to their business. They don't necessarily have the end customer relationship and may not know what other applications may make sense.

Is it possible these companies would make good acquisition targets?

It could be. They have done well and obviously have some interesting market share, which could be an attractive target for someone.

We're seeing so many transactions lately.

We will continue to see more and more consolidation.

This is healthy for the industry. Pricing power erodes with more players chasing fewer customers. Portal was a very big player during the boom and had a nice niche play for a bigger software company. There are those opportunities to consolidate if you are a bigger player that wants to beef up part of your portfolio.

What is Tekelec's approach to IMS?

We are focusing on call session control functionality. This part of the network is extremely complicated — when you get to an IMS world. For example, take a basic example of bridging the gap of IN/traditional TDM services and full-blown IP services.

Say, you have a PDA that is currently running a data session, and you are on a Web site, and you want to talk to someone that requires you to call an 800 number. In an IMS context you can't drop the data session and make the 800 call. You need to keep the session going — make the 800 call and talk to that individual while you continue to browse that particular site.

This might appear easy for the user who just clicks and makes the call, but for the network this is quite complex because it taps into the 800 services, which are hosted by an IN platform in a TDM world. It also hits servers on the IP side. It potentially hits other servers if you want to look at an audio file or get into another database. There is lots of networking traffic — essential session control traffic going back and forth — keeping the user going. And let's say that the user is potentially moving, for example, in a train, so there is even more signaling and authentication needed to keep track of that user.

All of this hits the session control function from our Eagle platform perspective.

We will continue to see more and more consolidation. This is healthy for the industry.



EXPERTISE

> MADE SIMPLE

Agents can now access expertise in real time from virtually any employee anywhere, anytime, on any device, thanks to Nortel's Expert Anywhere. Giving customers the answers they're looking for on first contact. Hello, productivity.

> BUSINESS MADE **SIMPLE**

nortel.com

Nortel, the Nortel logo, the Globemark, and Nortel Business Made Simple are trademarks of Nortel Networks.

NORTEL

How does industry consolidation impact Tekelec?

What happens through consolidation is that a lot of bigger players are created. These large players will move to higher level of service to service providers such as systems integration and more service orientation. More than supplying boxes for a network need.

As this evolves we really have a world with specific technology vendors who provide specialized or focused products on a piece of the network. This is where we are. We need to focus on what we do best — which is everything around session control.

We are the leader there now — and it opens up an interesting and profitable opportunity for us.

What are the benefits of IMS?

The benefit is quite clear. Ease of use. Any device, any service that you have today can be done anywhere you are. The fundamental benefit to the end-user is to consolidate the devices they now have and consolidate everything they use the network for — voice mail, e-mail, or anything they tap into.

The fact that this can be brought together and made transparent is very, very attractive. Obviously from a service provider perspective the complexity is maintaining the revenue and providing the services that are providing the revenue today which are largely TDM based in a lot of cases. They have to make sure that revenue is not destructed as you evolve the user to a full-blown IMS vision.

The IMS architecture makes all of these services continue on and remain meaningful as the full-blown evolution to an all IP world occurs.

This will take 10–15 years and is not an overnight process. The larger service providers will be implementing a lot of transitional steps as they move from one world to an all IMS world.

The IMS opportunity seems tremendous.

The opportunity is tremendous but as an industry we have to make sure we don't bury ourselves in the hype — let's look at this methodically and look at every element that needs to be done to make this happen — the end game is augmenting revenue and increasing

service providers' profit first and foremost.

We can't create an endpoint just because it sounds good and is "funky" from a technology perspective... It has to be meaningful for the customer as it makes them more profitable.

There are a number of people who have been loudly complaining about IMS, saying it is terrible and creating walled gardens. What is the truth?

It is a matter of stepping back and seeing what IMS is and isn't. It can be an all encompassing endpoint that does seem like it creates walled gardens in certain aspects.

From a business perspective it is a standardized way to move the current world to the endpoint, which we all know is an all-IP network. We need to do this methodically as an industry or we disrupt too many services and business models that our customers and customer's customers absolutely rely on.

Building that initial standard way to do that is important from an industry perspective.

People who knock it don't understand that if you don't do it this way there will be 50 different flavors of how to evolve a network — and 50 flavors of nightmare interworking issues.

From an end-user perspective, everyone is going to be forced to use one method and won't be able to talk to any other carrier. And, that's not good for end-users.

I always argue if there is a standardized way to do it, even if it involves a transitional step and some destruction in the short term, that is better than not being able to talk between service providers because the technology is different.

RT's Parting Thoughts

Frank is an industry veteran and has good perspective on these issues. One of the more interesting points I have been hearing from many besides Frank is that the opportunity for IMS is going to be 10-15 years long so we do need to be careful as an industry not to overhype the technology today. IMS will not be a multi-trillion dollar market in 2006!

As an industry and as investors, please proceed cautiously. IMS does have tremendous potential but regardless of what market researchers will tell you, a slow and steady approach to rolling out (and investing in) IMS is best.

The larger service providers will be implementing a lot of transitional steps as they move from one world to an all IMS world.





Trade In your
legacy mail systems

Trade Up to

Next Generation IP Communications



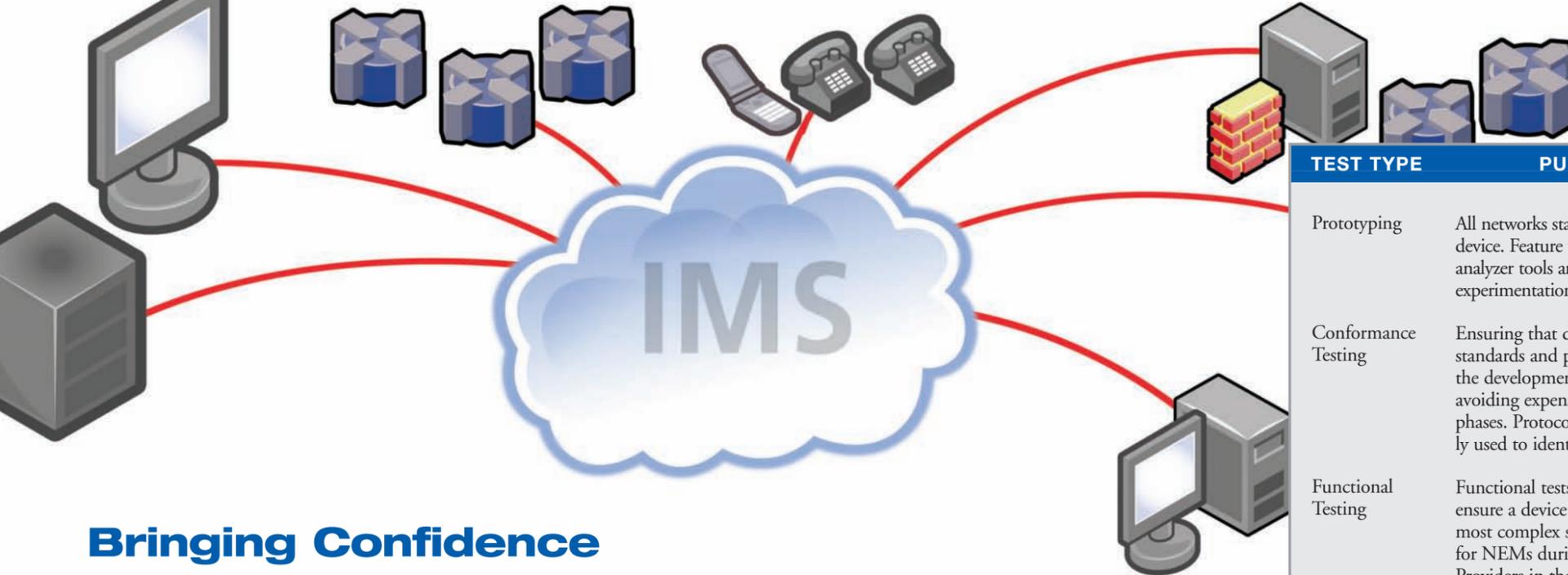
CommuniGate Systems is offering a Trade-In / Trade-Up program for legacy email systems. Stop paying outlandish fees for outdated technology. Trade up your systems to our world record holding, carrier-class technology and five nines uptime with CommuniGate Pro Dynamic Cluster architecture. To learn more about the program call 800.262.4722 or visit:

<http://www.communiGate.com/ads/tradeInTradeUp.html>

How many ways can you CommuniGate?

www.communiGate.com





Bringing Confidence to IMS

IP Multimedia Subsystem (IMS) is a critical initiative for both network equipment manufacturers (NEMs) and service providers. While IMS ultimately aims to simplify the network, migration to IMS is a complicated process prone to problems. To speed the deployment of IMS without compromising Quality of Experience for the end-user, leading vendors and providers are adopting a lifecycle approach to testing their products and networks.

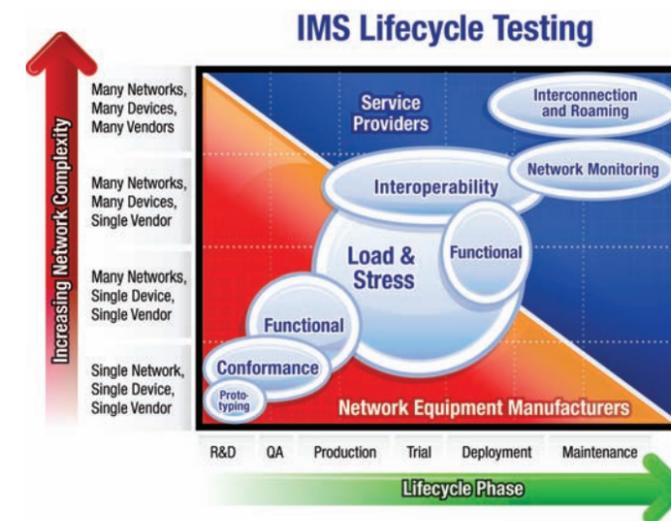
The New World of Telecom

In the old-world telecom model, most core infrastructure equipment was housed in a few physical devices. Service providers typically purchased their entire infrastructure from one vendor. There was one main service – voice. End devices had no intelligence and there were only a few network standards to be supported.

Today's emerging IMS networks are very different. The traditional vertical network architecture has been disaggregated into dozens (and counting) of separate software functions that are implemented in a variety of physical configurations. Service providers require their vendors to support interoperability with other vendors and services must work fluently across other networks. There are many new services, including combinations of voice, video and data. Intelligence devices are everywhere in the network, not just in the core. In addition, dozens of telecom, and now internet, standards must be supported.

The Lifecycle Approach to Ensuring Quality in IMS

Migration to IMS can be daunting. While the network has become exponentially more complex, end users expect the same simple, high quality communications experience. Ensuring this high-level quality of experience can only be achieved by testing at every phase of the IMS development/deployment lifecycle, from R&D prototyping to final network operation and beyond. These test phases include:



TEST TYPE	PURPOSE
Prototyping	All networks start with the development of a single device. Feature testing, device emulation and protocol analyzer tools are often used to do white-box testing and experimentation.
Conformance Testing	Ensuring that devices comply with the dozens of IMS standards and protocols with these standards early in the development process is a critical step for NEMs in avoiding expensive in-the-field recoding during later phases. Protocol and network analyzer tools are typically used to identify and isolate these problems.
Functional Testing	Functional tests simulate real-world scenarios and ensure a device does what it is designed to, even in the most complex scenarios. Functional testing is important for NEMs during R&D and QA and also for Service Providers in their initial proof-of-concept labs.
Load and Stress Testing	Once devices are proven to function properly, the next step is to test how they function under extreme circumstances such as heavy user load. Load generators are used to produce a high volume of calls while network emulation tools are used to simulate network impairments. These ensure infrastructure performs up to spec and demonstrates what to expect when the worst happens.
Interoperability Testing	IMS is an open standard - enabling mixing and matching of best-of-breed IMS infrastructure from multiple vendors. In reality, different interpretations among vendors often result in interoperability problems. Protocol and network analyzer tools are used to examine these issues and determine the most appropriate resolution.
Interconnection and Roaming Tests	Operator relationships and peering arrangements are in a constant state of flux. Interconnection and roaming tests accompanied by diagnostic tools ensure end-user quality and proper functionality in multi-network environments.
Network Monitoring	Even after a network is deployed, new problems can creep up over time as traffic increases. Network monitoring tools help to identify and resolve problems before they affect your users.

IMS Test and Measurement Tools

Effective IMS development and deployment requires a variety of test and measurement tools for each of these lifecycle phases. The most important test gear includes:

- Feature testing –simulating real-world user scenarios;
- Load testing – simulating high-stress environments;
- Network analysis – isolating and diagnosing protocol-level problems;
- Device emulation – simulating other network devices;
- Network emulation – simulating full network environments; and
- Network monitoring – ensuring quality on an on-going basis.

The best tools are flexible and scalable. Since IMS is an evolving standard, they can be easily changed to adjust for different possible signaling and protocol interpretations. They should be able to scale from testing on a single device, to handling hundreds of thousands of calls per minute for high-end tests. The same equipment should also be flexible and scalable enough to operate during multiple lifecycle phases over many generations of products and networks.

Conclusion

IMS is an essential network technology, but one currently approached with skepticism because of the many unique challenges it introduces to both NEMs and Service Providers. Providing a high-quality end-user experience in this new environment can be overwhelming. Fortunately, a variety of test and measurement tools are available. These tools are proven to reduce development costs, speed time-to-market and improve the end-user experience. Applied to each phase of the network lifecycle, these tools can bring confidence to IMS.

About Empirix

Empirix helps Network Equipment Manufacturers (NEMs) and service providers transition to IMS with confidence.

Empirix provides a suite of carrier-class automated testing and monitoring solutions spanning call generation, network and device emulation, Quality of Service evaluation (including voice quality) and protocol analysis for engineers who need to ensure the quality of new devices and services prior to deployment. Our clients gain unrivaled insight into technology performance, enabling them to accelerate time-to-market and improve quality.

FREE WHITEPAPER

Go to www.empirix.com/ims to receive a FREE whitepaper entitled: "Best Practices for Testing IMS Infrastructure and Applications in a Service Provider Network".
Come see us at GlobalComm in Chicago, June 4-8 at Booth 38018.



60 seconds with Duane Sword



Why did Empirix decide to target the IMS market?

Because that is where our customers needed us.

IMS promises to accelerate convergence in many dimensions and make “anything over IP” and “IP over everything” a reality. However, stratification of the transport layer, control/session plane, and applications creates unique challenges from a service quality assurance perspective, which falls squarely into Empirix’s space.

Empirix has deep domain in media-rich, stateful communications, specifically in voice-centric interactions in wireless and wireline environments. Moreover, we were the first to offer SIP and H.323 back in the late 90s and the first to offer integrated real-time signaling and media call session correlation.

Before IMS became the latest catchy acronym that marketers could exploit, Empirix was intimately involved in the labs hands-on with proof-of-concept implementations of 3GPP release 5 functions and devices that laid the foundation for the IMS architecture that seems so obvious today. IMS is all about the applications and quality of services that enterprises and consumers can enjoy. This plays directly to where Empirix can contribute and succeed.

Please define the role that automated testing and monitoring plays in enabling service providers and their customers to reap the rewards of IMS.

Reducing time to market, and time to revenue... with quality, with confidence.

IMS is broad and its promise of “any media anywhere” is fantastic, but such ubiquity of service does imply tremendous complexity in reality. Essentially, whether you are an applications developer, an infrastructure vendor, an integrator, a service provider, or a hosted applications provider, the severe competition drives outstanding technical and commercial demands.

Those that see test and quality assurance as a differentiator prioritize and invest early in test professionals, tools, and test plans. Automation in the feature test, load test, regression, and interoperability domains can assure baselining of quality and test coverage, but also maximize the talent of valuable resources for solving customer problems rather than configuring and interpreting results from traditional test instrumentation manually.

Duane Sword is responsible for the Strategic Marketing, Product Policy, and Outbound Marketing for the suite of Hammer test solutions spanning contact centers, labs, operations and self service applications for Empirix.

Duane spoke to TMC about the evolution to IMS and Empirix’s role in helping make IMS a reality.

What are some of the pitfalls service providers need to be aware of when considering the move to IMS?

IMS is not a standard; it is reference architecture that defines functions within a three-layer architecture consisting of (1) the access/transport/device layer, (2) the control layer, and (3) the applications layer. As much as possible, existing standards, like SIP ([define - news - alert](#)) and Parlay, are incorporated into the architecture, which has resulted in remarkable progress. For an industry that took 12 years to standardize T1 and E1 and 15 years to standardize AIN, getting to the current IMS framework in 5 years is remarkable.

Still, many issues remain and standards have yet to address several key areas. These include defining common security elements and security aspects, such as handling of denial of service, topology hiding, and overload protection. Legal requirements for “lawful intercept” aren’t dealt with yet, nor are the “transcoding” approaches that will be necessary when going between wireline and wireless networks.

It’s already clear that the conformance and interoperability challenges with IMS will be huge. To date, there haven’t been any “interoperability” events or conformance test suites beyond those that existed with the existing protocols IMS adopted. The first such events are coming in mid-2006. As a result, most of the early trials have focused on a single vendor’s product line. But since no vendor covers everything and carriers are pushing for standardization, you should prepare for more interoperability testing.

How does Empirix help its customers make the transition to IMS?

By listening, by delivering, and by continuing to be active in the leading labs and deployed networks on the planet coupled with a very close engagement with the key alliances and forums. We have developed our own state machines, such that we do not rely on a third-party protocol stack, hence enabling us to offer rapid development cycles, which are extensible to vendor variants.

In performing IMS readiness tests in labs and operational networks, we’ve observed two main kinds of problems that delay deployment of IMS-enabled services: device interoperability and service interworking. These aren’t surprising; SIP interoperability alone is a big issue, and service interactions have troubled the telecom industry for decades and IMS brings integration to a whole new level. The

good news is that there is reality to the promise of interoperability.

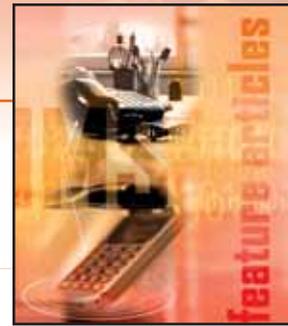
Done right, IMS should enable faster deployment of new, content-rich services for both consumer and enterprise customers. Done wrong, it can prevent NEMs and service providers from launching new products and services on time and wreak havoc on service facets.

The transition from today’s networking architecture to IMS is sure to be bumpy for some. Thorough interoperability, security, and performance testing should be a hallmark of good service rollouts. ■

It’s already clear that the conformance and interoperability challenges with IMS will be huge.

Navigating the Road to True IMS

by Andrew Wyatt



This year's CTIA saw interest in the 'heart' of telecoms — the core network — rival the usual frenzy around the latest wireless applications and gadgets. Walking the floor, it was impossible to avoid IMS when discussing the growth of the Mobile Virtual Network Operator (MVNO) community, the delivery of triple and quadruple play services, and the route to creating a new generation wireless network.

This is of little surprise considering the intoxicating mix of open standards architecture, cost reduction opportunities, and rapid service deployment promised by the technology.

Researching IMS

And it was cost reduction that occupied the minds of telecoms executives responding to an independent new IMS research report titled "*IP Independence*." The study found that one of the most significant factors driving its deployment was its ability to enable carriers to meet ambitious OPEX ([define - news - alert](#)) and CAPEX ([define - news - alert](#)) reduction targets of 10 and five per cent respectively.

Consolidating the IMS views of 57 Chief Technology Officers (CTOs) from global wireless carriers, the research focused in particular on the implementation drivers, industry expectations, perceived challenges, and the approaches to IMS deployment.

Alongside the global enthusiasm shown by 77 percent of respondents planning to deploy IMS, some interesting regional differences were highlighted. Most significantly, when you look at North American operators they are, quite simply, betting big on IMS — with 86 percent considering IMS a key business priority, in contrast to only 66 percent in Europe.

Perception Problem?

However, *IP Independence* also showed that perception does not always match reality in this new generation world. The report uncovered a clear disconnect between those already implementing IMS and those planning to. Of the former, only one in 10 operators expects return on investment (ROI) within two years, whereas those yet to implement IMS assume a much quicker return.

This indicates those already some way down the IMS road are uncovering some unexpected challenges and goes some way to explain why there are no commercial deployments of a true IMS-ready infrastructure — despite claims to the contrary from certain equipment providers.

If IMS should offer an open scalable architecture supporting a vast array of revenue generating, converged services, why have initial deployments turned the platform into a closed, proprietary set of boxed applications?

The research suggests that IMS requires a radical mind-shift and approach in the way operators and equipment manufacturers address the IMS deployment challenge. This takes time and is why operators need to plan at the network level, rather than bolting on vertical applications, which does little to reduce OPEX and CAPEX expenditure or encourage rapid service deployment.

Common Definition

IMS is many things to many people and the challenge for the industry is to operate within a common framework. Essentially, however, it can be described as an IP-based service platform or architecture that delivers all voice and data services — irrespective of the user's entry channel or device — on top of an IP core network.

Fundamental to its effective deployment is the requirement to centralize all subscriber, service, and network data in a single repository at the heart of the network. It is this consolidation that enables subscriber mobility across fixed, mobile, and converged networks.

However, commercial deployment of true IMS is some way off. Evidence suggests that some of the established players in the value chain have been unwilling to wait for the development of an IMS-ready environment before encouraging operators to deploy vertically integrated applications. The latter has little to do with a true IMS architecture, and serves to add to the existing barriers to IMS deployment. According to *IP Independence*, the major hurdle carriers need to overcome is structural and business change (84 percent of operators), with technical change (60 percent) and uncertain ROI (54 percent) close behind.

Today's Legacy Issues

Taking a step back, the need for the architectural benefits of IMS has never been greater than it is today. The vast majority of conventional mobile networks are based on legacy proprietary hardware infrastructure. These networks 'lock up' subscriber information under tons of switches and applications, and makes that information inaccessible, inconsistent, and often duplicated across the network.

Over the past decade, operators have tended to stack additional complex technology onto the network to enable the provisioning and delivery of each new 'in vogue' data service. As a result, their hardware-based legacy systems are inflexible, becoming rapidly outdated and are non-scalable in even a 2.5G environment. The result is slow service deployment time, excessive cost per subscriber, and a high cost to operate, maintain, and update the network.

Even simple service usage data can take between two and four weeks to gather. Add this to the inability of the switch network

to track and analyze data across the different transport layers in a converged scenario, and service assurance becomes a hugely challenging task.

Indeed, 85 percent of carriers agree that a rip and replace of legacy hardware is critical to reducing operational cost.

Yet these problems continue in an IMS world. Like their 2G cousins before, emerging 'pseudo-IMS' offerings continue to lock-up subscriber, service, and network data in the application layer — making it inaccessible without the high-cost assistance of the vendor. Furthermore, these boxes add to the complexity

IMS is many things to many people and the challenge for the industry is to operate within a common framework.

of the network — giving the CTO one more hardware box to integrate with the hundreds of other boxes that have been thrown onto the network during its lifetime.

Industry Support

Of course, while challenges remain, there is clear industry support of IMS, with the research finding 94 percent of carriers considering the architecture to enable more efficient application delivery, with the subsequent ability to reduce customer churn and increase revenue potential.

However, the commercial launch of a true IMS architecture and service portfolio is, at least 12–18 months away. Even this rather conservative estimate is dependent on the ability of the vendor community to deliver open, scalable IP-based solutions into the core mobile network — something an increasing ecosystem of emerging vendors have taken fully to heart.

Three Steps to IMS

The first step is to create an IMS friendly environment at the core, reducing complexity in the network to unlock the data hidden in legacy infrastructure. And through simplifying the network, OPEX and CAPEX can be dramatically reduced by as much as 50 percent, not just the 10 and five percent that global operators in *IP Independence* are looking for.

The second step is to consolidate all subscriber data into a common directory that sits at the heart of the network. This not only provides an ideal platform to enable the mobility function of IMS, but ensures significant 2G subscriber provisioning and service deployment benefits as well.

This consolidation phase is also fundamental in liberating the operator from vendor lock-in. De-siloing the data from multiple applications across the network and holding it in a single repository puts the operator

back in full control of its subscribers and network and freedom from proprietary lock-in.

The final step is more philosophical than practical. It is this need to view IMS deployment not as the roll-out of a set of consumer and business applications, but as the creation of a truly open architecture that delivers the platform to develop an all-IP network.

Enabling IMS

Defining the business and technology case for IMS may be challenging but there is universal agreement that the opportunities are well worth the work. 77 percent of operators in the research believe better subscriber data management will reduce customer churn while 65 percent agree that phasing out proprietary hardware is imperative in order to stay competitive in the next three to five years.

Achieving true IMS requires the industry to move away from trying to predict the next killer application enabled by IMS, and focus on how to create a flexible core network, able to respond to changing customer demand. As in the past, the market will define the next killer application; it is the operator's job to develop an architecture that will service the demand. And this is the central tenet of a successful IMS rollout: Get the platform right, and service creation and deployment become easy.

IMS will create a phenomenally competitive environment with fixed and mobile operators jostling to own the subscriber. The winners will be those operators that can make the fundamental shift in both philosophy and underlying core network architecture over the next twelve months. By stepping back from the application, and focusing on the architecture not the box, true IMS will be a reality. ■

Andrew Wyatt is vice president of global marketing at Apertio. (news - alert) For more information, please visit <http://www.apertio.com>.



The Performance of AdvancedTCA. The Convenience of A/C Power.

Your application demands AdvancedTCA, and you demand convenience and flexibility. You can have it all, with Elma's line of A/C powered ATCA system platforms. These chassis are ideal for prototyping, demos, or any application that requires A/C power. Available in 2U and 5U heights, with a multitude of configurations, Elma has an ATCA system to meet your requirements. And nobody is better than Elma in customizing to your exact specifications. When you're ready to plug into success, give Elma a call.

ELMA
Your Solution Partner

USA Elma Electronic Inc.

Phone: 510.656.3400 Fax: 510.656.3783 Email: sales@elma.com Web: www.elma.com

© 2003 Elma Electronic Inc.



ATCA Chassis

- A/C or D/C versions in 2U, 5U and custom heights
- A/C input option, up to 700W
- Pluggable to a conventional A/C wall outlet
- Pluggable shelf manager options
- D/C versions in 4U, 12U, 13U, 13U ETSI and custom heights

ATCA Backplanes

- 2, 4, 5, 14 & 16 slots
- Dual Star, Mesh or Replicated Mesh
- Compliant to PICMG 3.0 Rev 1.0
- Optimized via signal integrity studies

ATCA Capabilities

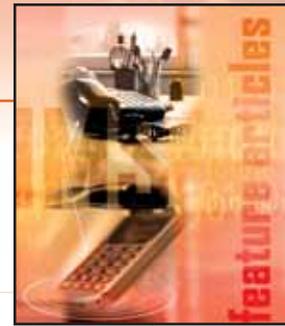
- Simulation
- 3D Solid Modeling
- NEBS Certification
- Manufacturing
- Customization
- Integration

ATCA Accessories

- Front Panels
- Handles
- Shelf Management

The Evolution to IMS — Slow and Steady or Darwinian Leap?

by Russ Freen



To achieve this seamless operation, carriers require a pivotal control and management point in a converged network that is independent of network access method (CDMA, GPRS, WiMax, DSL, cable, etc.), subscriber device (work LAN, home PC or set-top box, wireless handset), or application (voice, e-mail, VPN, ERP, CRM). In the IP Multimedia Subsystem (IMS) vision, this central control and management point is the Home Subscriber Subsystem (HSS).

Before they can take full advantage of the attractive revenue enhancements and cost savings associated with IMS networks, service providers need to decide how to transition their legacy networks to an IMS framework. To do this well, it is important to understand the evolution of the hardware, software, and operational infrastructure involved in creating robust IMS central control and management. Instead of a wholesale transition to IMS, it will likely be better to take an evolutionary approach, migrating small numbers of services at a time rather than wholesale implementations. This “slow and steady” approach will give service providers the opportunity to test out new IMS services and realize new revenue streams while still maintaining the functionality of their legacy network.

Changes Required for IMS

By its very nature, IMS requires a rethinking of the network topology. Its wide-reaching scale necessitates a move from a service-level view to a subscriber-centric view in the network, because making IP applications available over all networks requires a focus on the individual subscriber, rather than on the capabilities of any given network.

Implementing subscriber-centric policy management in this multi-network environment involves the management of millions of individual subscriber profiles, possibly hundreds of service and application profiles, and support for tens of thousands of simultaneous user authentication, service access, and mediation transactions. Subscriber-centric operations require a single view of the data relating to a subscriber and specific mechanisms to carry out per-subscriber service policies — including roaming permissions, quality of service (QoS) settings, time-of-day permissions, and data download thresholds — across multiple networks that are owned and not owned by the provider. It is impossible to perform these tasks with existing wireless and wireline legacy equipment, such as an Authentication,

Networks of the future will be more about users rather than a particular network infrastructure, allowing subscribers to link with any available service regardless of what device or access method they are using. Already, fixed/wireless convergence is a growing trend, and service providers operating intelligent IP networks are seeking a path to deliver seamless access to their applications and content, regardless of the subscriber's location.

Authorization and Accounting (AAA) and/or home location register (HLR). The choice then becomes to upgrade this equipment with basic HSS capabilities or to implement a new robust HSS to create an IP service layer that operates alongside the legacy equipment but operates independently of the underlying networks.

AAA systems have traditionally provided simple access to the network. Now, IMS migration provides the opportunity to collapse all of the legacy AAA functions into the HSS, streamlining operations and further reducing expenses. Depending on their feature set, some legacy AAA network elements could be upgraded to serve the IMS architecture. However, these upgrades could still require the network to query multiple databases in order to get a clear view of network activity and involve customized application programming interfaces (APIs) for each application. This type of approach actually works directly against one of the key benefits of IMS — rapid deployment of new services. It also overlooks the opportunities available to service providers when they centralize all of the subscriber data in a single HSS. In the end, most service providers are not likely to do a wholesale transition to IMS, and upgrading the AAA may risk the functionality of existing network services.

Similar to the AAA upgrade, service providers could elect to upgrade their HLR to perform basic HSS functions. In the planning stages of this type of upgrade, key considerations include the overall capacity (in terms of subscribers), the network connectivity (IP or SS7), and understanding the effect of HLR failure on the HSS function, and vice versa. Without addressing these concerns, the upgrade can put the incumbent voice networks and businesses at

risk. While it may offer lower costs today, service providers choosing the upgrade path should also consider the long-range financial implications. Many service providers may find it prudent to maintain their existing HLR and implement separate HSS functionality for the growing IMS platform, depreciating the HLR equipment and eventually retiring the HLR when the IMS transition is complete.

Most service providers will likely elect to implement a new HSS server for their IMS deployment. This will also be the case for wireline service providers, as they do not use HLRs and it is unlikely that their AAA servers will support wireless devices. Implementing a separate HSS in the network to handle evolving IMS services ensures that the existing network can continue to operate without disruption while new services come online. Over time, as the network evolves more fully to IMS, aging HLRs and AAA servers can be retired.

**By its very nature,
IMS requires a
rethinking of the
network topology.**

Before selecting an HSS server, it is important to recognize that they vary in functionality, capability, and operation. For instance, an HSS server running a robust subscriber-centric policy management program is access agnostic, meaning that the same subscriber profile on an HSS server for a cable

network can be applied to a WiFi, WiMAX, or mobile access in the future. But not all HSS servers have the capability to support a subscriber-centric network.

For instance, it may be tempting to buy a complete product line from a single vendor. While this may seem like a quick solution, it will almost certainly not be the best one. This is because many of the larger network infrastructure providers are focusing on top-

level elements, such as the Call State Control Function (CSCF), and they provide only basic HSS and Policy Decision Functionality (PDF). These types of HSS servers can severely limit a service provider's capability to bring more complex services online. 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.

Role of the HSS

As the central repository for subscriber and application profiles and policies, the HSS is the make or break point in the success of an IMS network. Enabling call and session enablement, service authorization and authentication, the HSS leverages the information in individual subscriber profiles to enforce policy in the network through a logical chain of processes.

As the subscriber registers with the network, the HSS consults the policy database to learn the roaming permissions, account status, and time-of-day permissions. Based on these, the HSS provides the subscriber with the ability to access the IMS framework. The subscriber then accesses an application, which is authorized by the HSS at the point of request. During the authorization process, the HSS consults the policy database once again to learn the application specific permissions and other policies to be applied to this subscriber. The HSS then authorizes access, directing the call processing elements to allow a session to commence.

This single unified view of the subscriber that a robust HSS element can provide in the IMS architecture translates into significant operating

expense savings for the service provider. By acting as the central subscriber database for the network, managing one profile per subscriber, the HSS enables rapid service provisioning and vastly simplifies the addition or deletion of services and subscribers, significantly cutting down on administration time.

For example, since customer data is stored in one centralized database, provisioning time is not dependent on the number of applications effected. The same analysis holds for the case of subscriber deactivation. The savings relating to these operational

expenditures can add up quickly, because whenever a new subscriber is added or deleted, the amount of time required for an operator staff member to enter the data is fixed, instead of being dependent on the number of applications. And, in a subscriber-centric system, once subscribers are activated, they can manage their own service

profiles online, eliminating the need for in-house staff to make ongoing adjustments to provisioning.

In addition, since everything is now stored in one place, the IT staff only has to manage one single platform rather than multiple platforms, freeing up engineering resources. These savings can be significant, since every database server typically requires one person-day per month of IT support. So if a service provider is running five applications with two databases each, the resulting IT cost would be 10 person-days per month, which can be collapsed into one person-day per month for a single database.

Applications Evolution

Moving to an all IP infrastructure allows service providers to rapidly deploy new services, and it can

The HSS is the make or break point in the success of an IMS network.

give them unprecedented abilities to tailor services for individual customers, connecting subscribers with applications on demand or as subscriber profiles change. This subscriber-centric model uses a policy management system that fine-tunes the network resources in real-time, enforces the service provider's policy rules, and tracks the resources each subscriber consumes for billing purposes.

Providers can leverage this information to simplify service definition and provisioning and to accelerate the creation of new services and service bundles. New service tiers can be based on anything that is easily measured and simply controlled, such as monthly consumption, bandwidth, and quality of service

(QoS). In sophisticated systems, it is possible to enable application-specific tiers, such as tiers with and without voice over IP (VoIP) capabilities.

By building IMS applications that take advantage of the individualized nature of subscriber-centric networks and the robust capabilities of the HSS, service providers can gain a competitive advantage and greatly bolster their ability to retain customers while simultaneously increasing average revenue per user. ■

Russ Freen is the co-founder and Chief Technology Officer for Bridgewater Systems. (news - alert) For more information, please visit the company online at <http://www.bridgewater.com>.

www.tmcnet.com

WEBINARS & WEB SUMMITS



Fill Your Sales Pipeline with Targeted Leads!

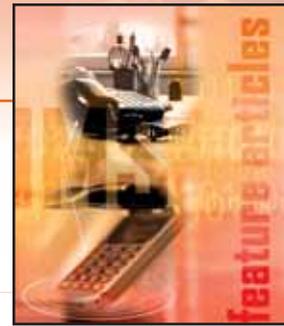
Become a Sponsor of our 2006 Web Summit Series! OR Market Your Company with our Turn-Key Webinars! The choice is yours...the results are the same!

Web Summits are integral to the success of lead generation campaigns. The detailed registration information provides invaluable information on everyone who registers to attend your Web Summit.

IN-DEPTH LEAD GENERATION: The complete contact information provided to you from day one to up to a year from the Web Summit launch date. There is no better way to acquire a constant flow of qualified sales leads.

With a Webinar, your partnership with TMC gives you the edge you need to create an event that will build your reputation as a leader in your market. Webinar benefits:

- Completely interactive – the moderators ask and answer questions and fully engage the attendees.
- Take advantage of TMC & TMCnet's marketing power
- Are complete turn-key events
- Are one-hour long with the topic determined by the sponsor



IMS' Lack of OSS Functionality Could Relegate It to Silo Status

by Paul Scarff

But while determining IMS' role is important, another requirement must not be forgotten: The need to close a critical gap that threatens to deflate the promise of IMS and turn it into just another silo in carriers' networks.

This gap exists because the IMS architecture itself is meant to handle the complexities of creating, authorizing, and delivering disaggregated services across multiple networks and access media; it does not provide the associated OSS service management functionality that is necessary to turn the whole process into a billable service.

Bridging the Gap

The IMS landscape is missing centralized OSS service management systems that will provide IMS elements with needed service oriented rules and business policies as well as links to OSS/BSSs in both the legacy and IMS domains.

From an operations perspective, centralized service management orchestration will provide the necessary "marching orders" to IMS elements for each session, of which many will be highly individualized and tailored to the consumer's preferences and usage history. Centralized management will enable customers to use old and new services and enable operators to create, configure, provision, assure, and bill for those services.

Most service providers will introduce the new domain in phases. As they migrate to IMS, service providers won't scrap legacy platforms for the foreseeable future. Instead, with the proper OSS integration framework between the two domains provided by centralized service management, IMS will enable service providers to add new services to their legacy infrastructures with greater ease. In addition, it will allow them to make legacy services such as voice mail or caller ring-back tones available to IMS sessions.

The addition of an overarching centralized service management system in a pre-IMS environment will enable service providers to support existing silos (legacy services and functions) in legacy networks as service providers phase in their IMS architectures; manage new services supported by their IMS architectures; and, enable necessary service to network technology abstraction between legacy and IMS domains as services are turned up in the IMS domain.

The telecom industry continues to grapple with the complexity of delivery architectures and operational management of IP multimedia subsystems (IMS), leaving service providers and equipment manufacturers with their sights set on the IMS business case as well as determining whether IMS' initial role is to enable fixed/mobile convergence or support next-generation services — or both.

Evolution, Not Revolution

While IMS is very, very new, service providers have accepted that there is a need for IMS, or something like it, in the future. However, no one knows just how long it will take for IMS to blossom or how much of a role it will play during its initial phases.

As a result, service providers are looking for a means of evolving into IMS as it matures and are willing to cap their existing silos and grow their networks in the direction of IMS. The challenge, however, is that they lack the flexibility and the OSS tools that enable them to create a strategy and proceed accordingly.

What they want is the flexibility to do what they want to do when they want to do it. Phased introduction means service providers must rely on their legacy systems to provide revenue-generating services for as long as necessary. Because it ties their existing silos to IMS, the centralized service management system helps service providers continue to provide legacy services and features to customers during the migration process, while keeping IMS from becoming a silo that requires its own management system.

Furthermore, it is a safe bet that some legacy services may never migrate to IMS, so the ability to tie their legacy domains to the IMS domain for the foreseeable future is important to service providers.

Managing IMS

As IMS services are rolled out, a centralized service management system will provide the necessary capability to manage the horizontal network technology layers, including DSL, DOCSIS,

PacketCable, WiFi, WiMax, GSM, and CDMA, within the IMS architecture. While IMS service delivery elements such as HSS, CSCF, SDPs, and Application Servers are capable of setting up and tearing down sessions on-the-fly, they cannot manage themselves.

IMS elements need to be told what limits, preferences, and features are available to the end user who will be billed for their event and on-demand service requests because services are specific to each individual each and every time a session is established.

The centralized service management system provides the necessary interfaces between the IMS elements and the resources including presence and location

servers as well as entitlement servers that contain information relating to that end user.

As sophisticated services that rely on flexible, yet specific, billing capabilities are introduced by services providers, their IMS elements will need access to new levels and layers of billing information as it pertains to each end user. It

will be advantageous to have the ability to update individual end user information on a per session basis. For example, an end user may wish to pay for extra bandwidth for a specific session. Or they may want to update their feature sets, profile, or buddy list going forward.

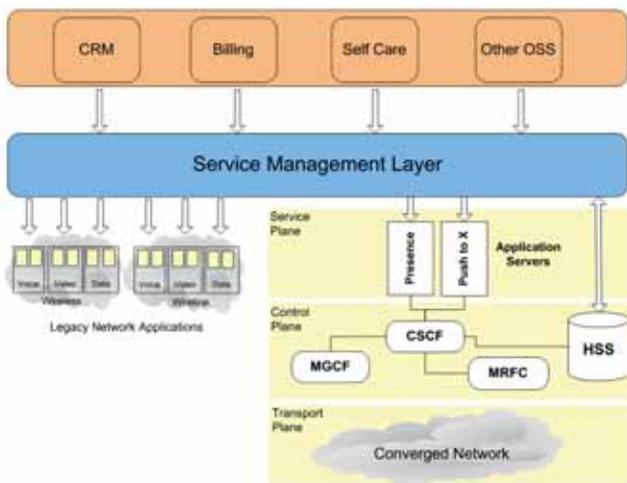
The IMS elements must have a means of accessing this information in order for service providers to squeeze the most profit out of their new services. A centralized service management system provides their IMS elements with the ability to access to static and dynamic information.

IMS will enable service providers to add new services to their legacy infrastructures with greater ease.

Managing the Migration

Most service providers plan to implement a phased migration to IMS, so they need a means of abstracting the network elements, features, and functionality that are being replaced as new IMS elements are added to take their place. Abstraction will also be of use when adding an element (e.g., SDP, application server, etc.) to support a new service, feature, or OSS/BSS capability.

It is highly unlikely that service providers will dismantle legacy their OSS/BSSs, so service providers that do not want to recreate their customer



information databases in the IMS domain will benefit a great deal if the information these systems hold can be accessed by elements or OSS/BSSs created in the IMS domain and vice versa. Because it wraps around legacy silos and the IMS silo, the centralized service management system is critical to providing an open, and federated information model so that an integrated view of the subscriber's profile is managed for all services.

By providing this kind of support, centralized service management system facilitates a better quality of experience (QoE) for a service provider's customers.

Excellent QoE is essential for IMS to succeed. In no way can the end user be weighed down by 'klugey' features and functionality or inaccurate billing. End users do not want to have to reintroduce themselves to the IMS network, or even be aware of it for that matter.

The complexity of the network, especially during migration to IMS, must remain hidden from end users. This is tricky for service providers because the particulars related to each end user will be in play during each session and generally be of more importance than ever before.

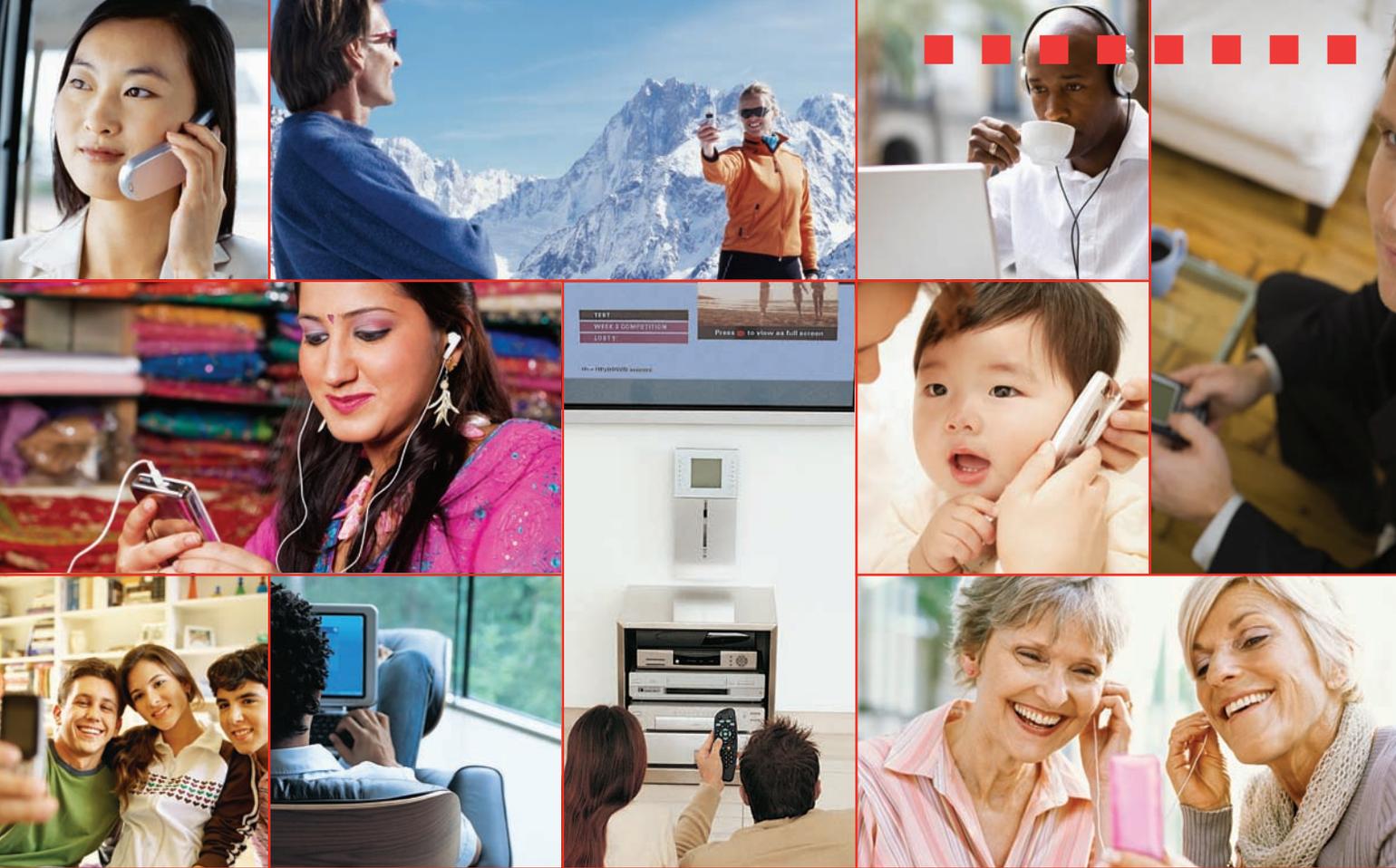
Centralized service management helps keep confusion and complexity hidden because it provides a common subscriber view, integrated view of the service delivery network and interfaces to existing information that service providers would otherwise have to completely recreate in order to begin serving their existing customer base in the IMS domain while they continue offering services in the legacy domain. ■

Paul Scarff is Director of Wireless OSS Solutions at Sigma Systems. (news - alert) For more information, please visit the company online at <http://www.sigma-systems.com>.



DON'T FORGET!

**IMS Expo is coming to the
San Diego Convention Center -
San Diego, CA
October 11-13, 2006**



Is your IP network ready for all this?

Consumers want it all – voice, video, music, games, and constant connections – anywhere, anytime and on every device. And they're willing to pay for instant access, higher quality resolution, and the convenience to roam freely.

Your customers are ready for the next generation of converged services – but what about your IP network? With NexTone's IntelliConnect System™, it will be. The IntelliConnect System provides the smart connections at the network edge that enable you to deliver exciting new services and build customer loyalty.

But we don't stop there. By going beyond session border control, NexTone lets you segment, manage, and price these real-time services by the consumer, location, media type, and quality. IMS ready, the IntelliConnect System bridges fixed and mobile networks – creating revenue opportunities now and in the future.

To learn more about making your network "next-generation ready," visit www.nexttone.com/mosaic. To learn how to make your people "next-generation ready," visit www.nexttone.com/university.

NEXTONE FACT #43

Over 450 carriers and service providers manage their real-time IP network interconnects with NexTone's IntelliConnect System™:

- Session Management
- Session Switching
- Session Border Control

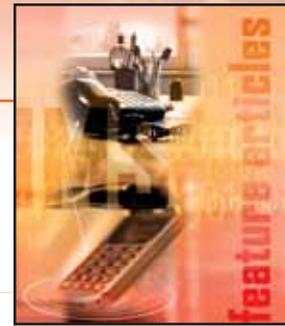
Join the NexTone Community – go to nexttone.com to learn more.

+1.240.912.1335 ■ www.nexttone.com ■ info@nexttone.com

NEXTONE
 ■ Network Without Limits ■

TISPAN — Delivering a Quality-Assured Application Experience

by Richard Cardone



With the transition of rich media services onto a converged IP network, the dynamics of bandwidth consumption and session duration are undergoing significant changes. The subscriber session is evolving from a simple data request/response — such as a Web page request, an instant message chat session, or a file transfer that consumes bandwidth in kilobytes per second and lasts under a minute — to a collaborative, rich-media session that consumes bandwidth in megabytes per second and can last for hours.

Moreover, subscriber expectations around voice and video services are extremely high. Traditional voice services provide a consistent level of quality, unlike today's VoIP (*define - news - alert*) services that have highly unpredictable quality from one call to another. The same can be said for video services. Today's television experience provides consistent quality and, with the introduction of high-definition TV, the viewer's expectation levels continue to rise.

As these traditional applications transition to the IP network, the impact will be tremendous. However, the full impact of these changes will not be realized until the trend toward blended services — voice, video, and data in a unified application — and mobility are factored into the service delivery equation. These two factors are going to force the network to be able to accommodate the transition of real-time transition of session characteristics to accommodate the addition of voice or video to a data session, or from a wireline to a wireless for example.

When you combine the changing subscriber session dynamics with the transition of quality sensitive services and the impending impact of blended services, mobility, and presence, the full scope of the challenge facing service providers becomes clear. To successfully manage rich media subscriber sessions the next-generation network must have inherent subscriber- and application-awareness. This means it must be able to identify the subscriber, his access method, and the device type he uses to access the network, as well as monitor and adjust for transitions in real-time.

The final element propelling the movement from legacy to next-generation is competition. Historically, service providers worried only about other service providers within their own market — wireline, wireless, or cable. Now, not only are providers looking at each others' territories for new service

Next-generation network architectures promise a service-rich world that delivers quality assured IP services across a converged IP network to an increasingly mobile subscriber base. The new architecture promises to allow subscribers to define their own service catalog via self-service portals and enables them to personalize delivery parameters for offerings such as VoIP, VoD, and IPTV. The new services represent a significant growth opportunity for service providers. However, the current network architecture is not designed to support the array of rich media services, or the per session quality demands associated with these next-generation IP services.

opportunities (e.g., cable providers in the VoIP market), but new disruptive entrants are coming into the market are delivering applications that leverage the service providers network to reach the same subscribers, without the encumbrance of network ownership. The new application providers are the true catalyst in accelerating the timelines for service providers, who must create a next-generation network architecture that provides a sustainable advantage in the battle for the next-generation subscriber.

As a result, service providers look to next-generation network standards to provide a roadmap to accelerate the evolution of their networks from today's silos (per service overlay network) to a converged architecture that provides an open framework for the rapid introduction of new services across both wireline and wireless networks. To date, the focus has been on IMS as the primary driver for this next-generation network services environment. However, to successfully deliver the full range of applications, IMS alone is not sufficient.

Since IMS has predominately focused on the delivery of SIP conversational services in a wireless environment, much work needs to be done to

create an environment that can deliver SIP (IMS - voice), non-SIP (VoD, IPTV, etc.), and "over-the-top applications" (those created and delivered by third-party application providers) with assured levels of quality, on a per-session basis, across both wireline and wireless networks.

A key standard assisting in the acceleration of the fixed/mobile convergence market is ETSI TISPAN. The TISPAN wireline standard leverages the IMS application framework and adds multiple subsystems. The subsystems facilitate the wireline subscriber's network attachment, empower applications to dynamically request network resources with well-defined session characteristics, and enable the network to confirm resource availability. Then the subsystems either admit or deny the session based on the subscribers entitlements, the session requirements, and the available network resources.

Two critical subsystems facilitating these capabilities on the wireline network are the Network Attachment Subsystem

(NASS) and the Resource and Admission Control Subsystem (RACS). NASS enables subscriber context (presence — access type, device, status) to be integrated into the session setup process. RACS enables applications to request resource availability and specific levels of quality at the time of session invocation. A crucial element of TISPAN is the ability to apply these capabilities to SIP, non-SIP, and third-party applications.

Within TISPAN, IMS is located in the Services Subsystem, and receives subscriber information from the NASS. It then requests application sessions on behalf of the subscriber via the RACS. This enables the successful delivery of any application created within the IMS application framework across a wireline network without the re-creation of the application.

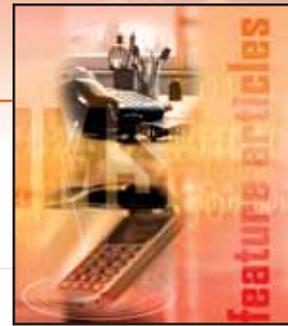
A major focal point for TISPAN is the ability to guarantee resource availability and assure quality on a per session basis. Wireline networks have focused on these aspects of session setup due to an increased focus on video services, since these services consume large amounts of bandwidth per session and their success is greatly impacted by the

subscriber's perception of the quality of the experience. These factors led TISPAN to create a robust, policy-driven control layer that mediates between application requirements and network resource availability.

This real-time resource and bandwidth control capability has led service providers to leverage the TISPAN architecture to create an open, standards-based service delivery environment that embraces IMS, as well as other services subsystems. TISPAN enables service providers to realize their vision of a service-rich world that accelerates the delivery of quality-enabled SIP, non-SIP, and over-the-top applications across a converged IP network. By uniting the IMS and TISPAN architectures, service providers are accelerating their ability to fulfill their subscriber's demands for rich application experience that enables mobility — fixed mobile convergence — and is delivered across a unified IP service delivery platform.

Richard Cardone is director of marketing at TAZZ. (news - alert) For more information, please visit <http://www.tazznetworks.com>.

The final element propelling the movement from legacy to next-generation is competition.



UMA and IMS: In Network Evolution

by Steve Shaw

Today, mobile operators are looking to capitalize on the revenue potential of IMS-based data applications like streaming video, music downloads, interactive gaming, and videoconferencing. At the same time, they are challenged to optimize such next-generation applications in light of limited bandwidth, high latency, and the relatively high cost of cellular radio access networks (RANs). The economics are clear: the faster the network, the better the user experience and the better the user experience, the higher the adoption rate and average revenue per user (ARPU).

UMA is the 3rd-Generation Partnership Project (3GPP) standard for enabling subscriber access to mobile services — including IMS applications — over WiFi and broadband IP networks. UMA turns existing Wireless LANs (WLANs) into seamless extensions of mobile wireless networks, enabling subscribers to automatically roam between the cellular network and a home, office, or public WLAN, with full access to all applications from every location. With UMA, IMS-based applications are available to subscribers wherever they roam.

UMA Design Goals

UMA was designed to leverage existing, standard interfaces to ensure the technology would have minimal impact to operators' core networks already in place. Furthermore, it was designed to provide access layer mobility to circuit services (CS) and packet services (PS) to make WiFi and IP a seamless extension of the operator's network. The UMA network controller is integrated as an element of the operator's existing radio access network (RAN), which provides several important benefits.

First, as an element of the RAN, the UMA system is linked at the physical layer with other RAN elements. Handing a voice or data session between disparate network elements is a difficult proposition; however, by integrating directly with the mobile access network, UMA

Unlicensed Mobile Access (UMA) has become a hot topic for global operators and service providers looking to address the opportunity for Fixed-Mobile Convergence (FMC) and more specifically mobile/WiFi convergence (MWC). This relatively new technology has suddenly found itself compared with IMS, creating confusion in the marketplace where there is little understanding of how the technologies compete, co-exist, or potentially enhance each other's role in the network. This article will clarify the different roles that UMA and IMS technologies play with respect to convergence for mobile operators, as well as for integrated operators that own both fixed and mobile access networks.

is ideally situated to manage the millisecond timing to ensure “seamless mobility.”

Second, integration into the RAN ensures that the switching layer of the mobile network is not impacted by the addition of UMA network elements. The operator’s existing MSC and GSN infrastructure can immediately take advantage of IP and WiFi with no modification or disruption, thus ensuring immediate support for all MSC/GSN layer services such as lawful intercept, emergency services, directory assistance, billing, and customer care.

Finally, as an element of the access network, UMA ensures support for all value-added network-level services. To maintain a consistent experience, operators must provide support for all new and future value-added applications like SMS, MMS, ring tones, PoC, and other advanced applications. As an access layer technology, UMA ensures that today’s applications, as well as tomorrow’s SIP-based services, move seamlessly between networks.

Consistent Mobile Experience

From the beginning, the designers of the UMA specification set out to define a solution to break the cost and performance barriers that have to date limited fixed-to-mobile substitution in the home or office.

To increase mobile service usage indoors, UMA is designed to ensure users have a consistent mobile experience, that operators have minimal network disruption, and that the technology fits within an operator’s long range network plans. Subscribers expect mobile services to work the same in GSM as in WiFi or any other access technology. The user interface on the handset must be common and consistent. If history has taught one thing, it’s that the consumers in the mass market do not want to do anything “special” to receive a service.

To meet these goals, UMA is implemented as an embedded driver within the mobile platform. It is not

a client application that is loaded onto the phone. Rather, as the subscriber moves from the GSM network to the UMA environment, the association and handover occurs in the background and the subscriber does not experience any difference in quality, capabilities, and most importantly, user interface.

IMS and UMA

IMS was originally conceived by mobile operators as a common application platform to speed time to market for new data applications, has suddenly become the unifying force in the telecom industry. As new approaches to mobile/WiFi convergence are developed, service providers need to evaluate technologies against user experience, ease of deployment, and the ability to align with future business and technology goals. The ability for UMA to provide seamless mobility for IMS applications both today and in the future ensures that the UMA and IMS technologies will be deployed side by side for years to come.

Fundamentally, UMA and IMS operate at different levels within the network. UMA is an access level technology, completely agnostic to the packet services or circuit services delivered over it. UMA provides for the convergence of mobile services over WiFi access networks. IMS, on the other hand, is access layer agnostic, meaning that with a secure and reliable IP connection, IMS applications can be delivered over GSM, UMTS, WiFi, UMA, or even DSL/cable.

UMA provides for circuit services (CS) and/or packet services (PS) to be seamlessly passed between the GSM and WiFi networks, which is accomplished through the use of a single UMA network controller. For many operators, the UMA approach to MWC meets the requirements for a dual-mode service.

What About SIP?

One of the most common comments about UMA is that it “doesn’t support SIP.” SIP, of course, is the

preferred protocol for initiating application and service sessions within the IMS domain. As mentioned above, UMA is agnostic to the application/service layer. Conversely, applications and application protocols (like SIP) are essentially agnostic to the underlying access network.

As an access technology, UMA is more akin to the GSM or UMTS radio technologies than to SIP or H.323 signaling/application protocols. The industry understands that SIP runs on top of the UMTS network, yet SIP running over UMA can sometimes seem incomprehensible.

In fact, many operators today are deploying UMA-enabled devices with SIP applications. UMA provides the mobility for the SIP services between the WiFi and GSM networks, and SIP delivers new applications for the consumers.

UMA and VCC

While SIP does not specifically address mobility between radio networks, there is a work item started in the 3GPP to address how mobile/WiFi convergence may be addressed without UMA. The “IMS” approach to providing MWC is actually a new work item in the 3GPP known as Voice Call Continuity (VCC).

VCC is working to define how a SIP/VoIP packet service can be transitioned to the existing GSM circuit services network. Beyond the obvious technical hurdles of transitioning a call context from a packet network to a circuit network, VCC relies on the operator to invest in additional network elements to accomplish the vision.

The first investment is in the VCC network element itself. Touted by nearly every IMS vendor, VCC is a transitional gateway between the existing CS network and the PS VoIP core.

Because it is still quite early in the definition phase, it is unclear if — or how — the VCC network element will support non-voice packet services that rely on session continuity will be supported.

Secondly, a new network access element is required to provide an access interface between the public internet and the operator’s IP core

network. Based on the Inter-worked Wireless LAN (I-WLAN) specification, this network element was originally defined for laptops to gain access to mobile data services.

Lastly, VCC is reliant on the operator having invested in a new IMS voice switching infrastructure, which mobile operators today are not doing. Currently, the investment is in new Release 4 “soft” MSC switches from which the operators are looking to achieve significant operational savings from over the coming years.

Interestingly, the only operators investing in packet voice switching infrastructures today are the fixed line operators. Most fixed operators have parallel VoIP core investments underway to provide fixed-line VoIP services in response to the competitive threat from Skype and others.

The Battle for the Building

Previous to fixed-mobile convergence, subscriber ownership was clear. Mobile minutes of use were billed to the mobile operator, regardless of the location of the call, and calls on the fixed network were billed

Many operators today are deploying UMA-enabled devices with SIP applications.

to the fixed operator. Yet in a converged world, services and service providers are brought together. The fundamental question now is if a mobile phone is receiving service over the fixed-line broadband network, which operator owns the subscriber and bills for the minutes — the fixed operator or the mobile operator?

If the fixed-line operator wishes to own the minutes of use when the subscriber is indoors, VCC is the technology approach of choice. VCC enables the fixed operator to leverage the VoIP switching infrastructure to deliver services when the subscriber is indoors and to transition the packet service to the GSM MSC when the subscriber moves outside range of the WiFi network. Conversely, UMA maintains subscriber ownership with the mobile operator when the mobile device is indoors.

As voice services and revenues continue their relentless migration to mobile devices, this becomes a question of investment in continuing to maintain voice services on the fixed network, or accelerating investment in the migration of voice services to the mobile network.

UMA for IMS Packet Voice Services

As mobile operators invest in IMS for the delivery of value-added packet services, UMA natively provides mobility for those services. Streaming audio, video conferencing, Push-To-Talk, and all other packet services are supported with seamless mobility today in UMA.

The next step comes when mobile operators begin the investment in IMS/SIP for packet voice services. The timing of this investment is predicated on the ability to provide a common user experience between networks. The consumer does not want to receive an “enhanced” SIP-based user interface when on the WiFi network and transition to the traditional circuit services interface when on GSM.

When the operator can provide a common user interface and experience, regardless of network, then investments will be made in new technologies. For the

mobile operator, this means the ability to deliver a SIP-based enhanced user interface on the RAN, as well as on WiFi. As the operator invests in HSDPA/HSUPA and other evolutionary RAN technologies that enable the delivery of packet voice services, then a common user

interface and user experience will be possible between the RAN and WiFi/IP networks.

Ultimately, it is UMA that will provide seamless mobility between the RAN and WiFi for these packet voice services. ■

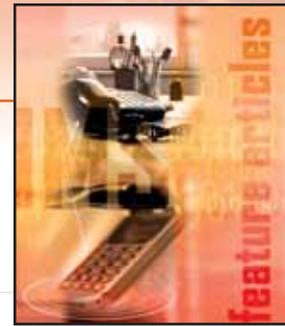
Steve Shaw is director of marketing for Kineto Wireless. (news - alert) For more information, please visit the company online at <http://www.kineto.com>.

Investment is predicated on the ability to provide a common user experience between networks.

Attention Vendors! Send your NEWS and PRODUCT RELEASES via e-mail to itpress@tmcnet.com

Enhancing Service Delivery Within the IMS Architecture

by Greg Pisano



Carriers need to embrace the IMS reference architecture. It's all about meeting subscriber demand for new, advanced multimedia services, and generating increased revenue.

IMS: A Blueprint for Increased Revenue in Carrier-Enhanced Services

In next-generation fixed and mobile networks, SIP is a critical building block for new applications and service delivery, and IMS provides a framework for SIP-based services.

Thanks to SIP's flexibility, IMS allows for converged and blended services such as e-mail, voice/video messaging, conferencing and music. Service providers can add content from separate application servers to any access medium over wireline, cable, or mobile networks — it doesn't matter. These applications are network agnostic, but tailored to the requirements of subscriber endpoint devices such as cell phones, PDAs and desktop access methods.

As IMS gains even more credibility as a single environment for application development, new developers will be motivated to get into the business. Networks will continue to evolve and existing developers will build new SIP-based applications more quickly with much less risk than before. Most exciting of all, new, high-margin applications will be developed, including some killer apps we haven't even thought of yet.

If service providers continue to use proprietary "siloeed" technologies, they will never profit from IMS's increased efficiency. Because IMS uses standards-based technology, providers can develop services quickly and share resources across many different applications. For example, with the scalable IMS model, they can share media server resources, user profile data, and service policies all across multiple applications.

In the IMS Session Layer, they can create a single, comprehensive profile for each user that includes a user's presence information, call forwarding options, and preferences for voice mail and messaging delivery. IMS also empowers streamlined billing by centralizing all authentication, authorization, and accounting, with metering provisions for pre-paid applications. The Session Charging Function (SCF) and Event Collection Function (ECF) make this possible.

SIP and IMS: A Flexible Pair

"Pure" IMS is a granular IP-based architecture, where network elements are distributed into various functions. So, to adhere perfectly to the IMS model, providers would need new equipment. That may be an option for the top-tier carriers, but what about carriers that need to leverage the long-term value in their existing equipment and minimize operating expenditures? Fortunately, IMS is also designed to overlay existing TDM networks, with enough flexibility to accommodate equipment that does not perfectly match the model. Right now, service providers can implement a SIP-based, IMS-like architecture using IMS-compliant equipment. For example, providers can add a SIP-based

Two small acronyms have been making a big impact on the communications industry of late: SIP (Session Initiation Protocol) and IMS (IP Multimedia Subsystem). They are taking center stage in the industry — and for good reason. We have seen the future of carrier-enhanced services, and it is based on SIP. But, what's all the fuss about?

application server and media server, while still using their existing media gateways for TDM connectivity.

Carriers are embracing IMS, and not just because it allows them to offer more services. As price competition heats up, they need to wring every bit of efficiency from their operations by migrating all voice services from TDM to VoIP. IMS provides the way. Users are demanding that next-generation services be blended together and “always on,” and IMS fits the bill. For carriers who adopt IMS, that means lower customer churn — a key to survival in the midst of fierce competition.

History, Challenges, and the Future

Originated by 3GPP/3GPP2 and adopted by other standards organizations as a framework for IP Multimedia applications and services, IMS is a very viable solution. But, it's not without its challenges. H.323 and MGCP will need to interwork with SIP for the foreseeable future, and IP address management will have to become much more secure and reliable. But, the benefits far outweigh the challenges.

The IMS architecture is already beginning to evolve and improve with the help of other industry organizations such as the IMS Forum, which is focused on accelerating the adoption of IMS. To speed up the process, the IMS Forum is creating a community for discussion and resolution of real world implementation and interoperability. True convergence and ubiquitous content delivery are finally becoming possible.

IMS in Action: “Sponsored Call” and Gaming Applications

IMS has inspired a wave of new applications and services. One such application is the “sponsored call” service. A European application developer recently created a new-generation telecommunication service whereby 3G subscribers agree to view a video commercial on a mobile handset from a sponsor. In return, the subscribers receive a discount on their phone charges. Based upon the IMS

architecture, this application took only four weeks to create — from start to trial!

This is one example of how new applications, designed for IMS, benefit all parties involved — sponsors, subscribers, and service providers. Sponsors get a new targeted multimedia channel for advertising, promotions, campaigns, and surveys. Subscribers save money and receive useful promotions. Most importantly, carriers get increased air time and new revenue streams from the sponsors.

Pre-Paid Multiplayer Gaming

Another example of an IMS-inspired application is a multiplayer pre-paid mobile gaming service. Cell phone subscribers can play a pre-paid multi-player arcade game with rich multimedia capabilities, including player presence (availability) information and conferencing. Multi-player

gaming is a very demanding application and that leverages the powerful capabilities of the IMS architecture. It also shows how operators can take steps today to migrate toward IMS

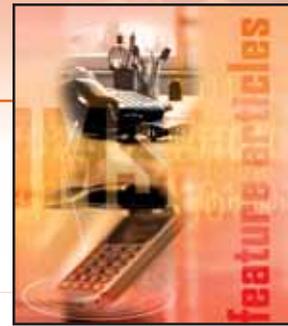
infrastructure. When

they do, they can swiftly develop and deploy innovative pre-paid services that will attract and retain subscribers, enhance brand value, and drive revenue growth.

Carriers need to maintain the momentum they have achieved with wireline and wireless calling services by leveraging the burgeoning demand for lucrative next-generation services. To do that, they should implement IMS quickly and seamlessly. Carriers who adopt the IMS architecture or IMS-compliant components are in the midst of unprecedented opportunity — the future couldn't be brighter. ■

Greg Pisano is the Market Development Director for Carrier Enhanced Services at Cantata Technology. ([news](#) - [alert](#)) For more information, please visit the company online at <http://www.cantata.com>.

Users are demanding that next-generation services be blended together and “always on.”



Unified Policy Management for Uniform Service Delivery in an IMS Network

by Matt Tooley

Originally envisioned as part of the Next Generation Network (NGN) architecture for mobile broadband, due to its adoption in mobile, IMS has crossed over into other broadband access technologies. IMS, or permutations of it, are being developed by nearly all the applicable telecommunication standards bodies for cable, DSL, WiMAX, and 3G to meet service providers' strategy of providing fixed/mobile convergence (FMC) services to their customers.

With IMS' adoption as the architecture of choice for FMC, operators face a unique set of new challenges with regard to policy management: they must ensure that applications and services being deployed in the context of the IMS framework provide a consistent quality of experience across the heterogeneous multi-network infrastructure of FMC. This article discusses the challenges faced by operators when selecting a policy management implementation strategy for their IMS networks and demonstrates that a unified policy management strategy is fundamental to the success for these deployments.

In order to manage and deliver premium value-added services with IMS and FMC, a policy management system is required. Policy management is fundamentally a set of rules (or policies) that describe how subscribers are supposed to receive services on the network. In IMS, two of its key components are the PDF and the Home Subscriber Server (HSS).

The HSS is the server for the network policy database, which is used to determine permissions for accessing different network services and applications, settings for how the applications and services should behave on the network, and who and when they can be used. When subscribers are authorized to use a network service such as voice or a video call, the application makes a request to the network via the PDF to reserve the network resources to deliver this service to the subscriber. The PDF is then responsible for determining, based upon the application request, what underlying network resources need to be reserved (such as network bandwidth), whether the resources are available in the network, and how to instruct the underlying network elements to reserve these resources on behalf of the subscriber using the service.

When IMS was originally envisioned, it was for a homogenous mobile network with SIP at the control layer. The PDF only needed to manage resources for a single kind of access network: GSM. Two things have been happening since the initial release of IMS — the first is FMC, and the

One of the many promises of IP Multimedia Subsystem (IMS) is its ability to offer managed IP services enhanced with premium delivery. The IMS architecture addresses management of quality of service (QoS) for these services through the Policy Decision Function (PDF), which is responsible for dynamically allocating network quality of service (priority, bandwidth, jitter, latency) in order to ensure the network performance of managed services for individual subscribers.

second is that market forces are pushing service operators to offer non-SIP-based services such as video on demand and online gaming.

The introduction of fixed mobile convergence creates a new set of new challenges for services providers and their policy management strategy. As operators build out their FMC networks using IMS, they will be faced with the need to ensure consistent delivery of services across these networks. The FMC network will be a heterogeneous network made up of multiple types of access networks (cable, DSL, WiMAX, 3G), with each access network using a different type of technology for transporting the service. This in turn requires mapping the policies to the underlying network. With FMC comes the introduction of nomadic users moving among the different access networks. Finally, the economics from this “network effect” introduces the need for policy peering between service providers in order to increase the scope of operators’ networks.

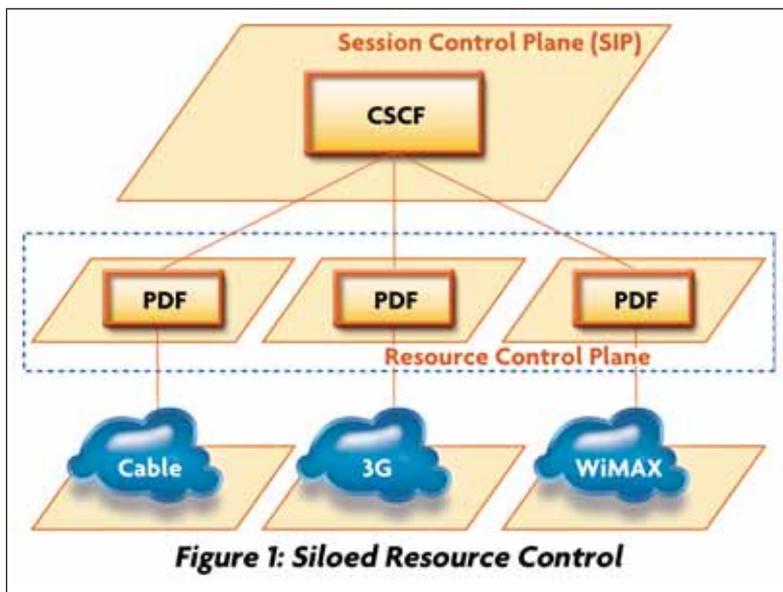
Market forces are pushing operators to offer an increasing menu of services on their networks. IMS was originally designed for telephony-based applications that use a call model (short duration sessions). Call model applications historically employed a centralized stateful server to manage the calls or sessions. In the IMS architecture this is the Call Session Control Function (CSCF). These call model applications lend themselves very well to using SIP for call signaling.

But, with the continued adoption of broadband, a whole new set of applications have begun to appear such as video-on-demand, peer-to-peer applications, and online gaming. These new applications do not always follow the same paradigm as call model applications and therefore do not lend themselves well to using SIP. For example, video on demand sessions have long session times and require mid-session signaling to support the video play control functions such as pause, rewind, and fast-forward. Peer-to-Peer (P2P) applications have no centralized server like the softswitch (CSCF) in the

telephony applications and therefore require that the endpoints to be capable of signaling for resources. While online gaming takes many forms, the multi-player online game is one of the most popular forms where many participants logged in simultaneously play against each other. These games are typically real-time in nature and many-to-many; therefore they do not lend themselves well to SIP. All of this creates the need for a PDF that is decoupled from the SIP control plane to allow non-SIP-based applications gaming to signal for premium delivery across the network alongside the SIP-based applications.

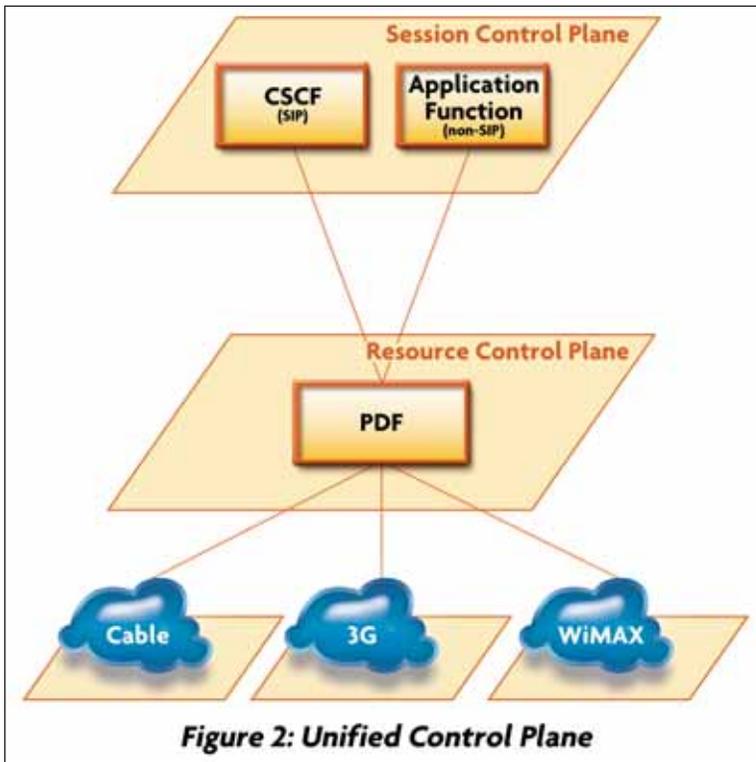
The key to meeting these challenges is a unified resource control plane in the policy management framework. Service providers, as they roll out their IMS networks, can use one of two approaches regarding the resource control plane — the siloed approach or the unified approach.

The siloed approach uses a separate PDF and resource control plane for each of the different networks. As shown in Figure 1, when the service provider migrates from a homogenous network to a heterogeneous network, it adds the corresponding PDF for the respective access network.



With this approach, the session control plane is then responsible for the handover of both the session between networks and the underlying network resources as a subscribers move across networks.

The second approach unifies the resource control plane with PDFs that signal both up and down between the applications and the network, as well as side-to-side, to seamlessly achieve resource handover between the PDFs.



With this approach, the applications only have to manage the sessions as the subscriber moves across networks and signal to the resource control plane that the subscriber has moved. The PDF is then responsible for seamlessly reserving the resources in the network to ensure that the applications get the same level of service regardless of the underlying network. Since the PDF has a unified view of the network resources in the network it can ensure resource availability for applications.

To ensure consistent service delivery the PDF normalizes the resource control policies for each of the networks. This normalization may include the transformation of a session's resource from a parameterized QoS model such as Int-Serv to a prioritized QoS model such as Diff-Serv. And by doing so, an application does not need to be aware

of the underlying network when reserving resources. It only needs to signal to the PDF the type of service it is reserving, and the PDF can determine from its policies how to reserve this for the respective network.

Finally, as operators look to deploy their policy management systems for IMS, they need to ensure that the implementation they have chosen to deploy meets scaling and performance requirements. If IMS and FMC live up to their promise, networks will become infinitely large. The unified policy management approach lends itself very well to a two-tier distributed architecture that scales both horizontally to support network growth and vertically to support network load.

A unified resource control plane for policy management ensures the consistent delivery of services across heterogeneous networks while offering a number of additional benefits to the service operators. Operators can achieve a lower overall operating cost due to fewer elements to manage and provision. At the same time, they can enjoy a faster time to market due to the simplified provisioning of new applications and the decrease in the integration efforts between

applications and the resource control plane.

With a unified policy management system in place for their IMS networks, operators are positioned to begin reaping their investments. Operators can begin offering value-added services that provide a consistent high-quality user experience that stay on their IMS network. ■

Matt Tooley is chief technology officer at CableMatrix Technologies, Inc. (news - alert) For more information, please visit the company online at <http://www.cablematrix.com>.



You'll never miss a communication again. Unless you want to.

Communication is a simple concept. Communication technology is not. It's fragmented, complex, incompatible.

Now, Siemens makes it easy. With our proven IMS@dvantage portfolio, we're delivering Fixed Mobile Convergence today. Connecting to all kinds of applications, independent of networks, devices or locations. At work. At home. And everywhere in between. The result? Improved business, and privacy, when you want it.

www.siemens.com/ims

SIEMENS

From the Desk of Michael Khalilian

New IMS Telecommunications Architecture Convergence: To Be or Not To Be?



With the telecom industry converging to best take advantage of the benefits, efficiencies, and capabilities of IP service creation, the boundaries of wireless, wireline, and cable are narrowing on an almost daily basis.

Most of our colleagues in the telecom industry have embraced this new era of convergence by developing bundled products and applications, and offering them as traditional services — such as phone services over broadband (VoIP and WiFi), and multimedia programming, vis-à-vis TV and movie contents (IPTV). The future of these new age communications — one without traditional boundaries — is here to stay, and the Internet is the vehicle driving it to the next level.

However, as much as consumer demand is driving the need for these innovative new bundled services and applications, there are a number of issues and conflicts already facing IMS deployment. On one hand, challenges such as integration, billing, OSS, network peering, enhanced applications development, and consumer education (is logical for any new technology), with new regulatory challenges, and the burning question as to whether new service delivered and applications utilizing the Internet architecture should be taxed, on the other hand.

History has proved that there are always challenges facing new technology and convergence — such as the transition from black-and-white TV to color, to digital, to HDTV. Today, these same challenges will inevitably affect the new era of telephone and cable services.

Also important to note, is that there are additional obstacles inherent in this transition that have nothing to do with technology. A chief concern: how will the different segments of the telecommunications industry cope with this new group of business challenges which enable everyone to offer what has been considered traditional services, and the plethora of new services as well? As such, wireless companies can offer TV broadcast, wireline companies can offer both cable/IPTV, as well as traditional phone services, and cable, with its high-speed Internet capabilities, can offer both local and long-distance phone services.

As you can clearly see, the traditional boundaries to which our industry is accustomed are disappearing. Some telecom groups may not be ready for this new technology, but the bottom line is that the Internet and broadband have whet consumers' appetite for new and enhanced

IP Multimedia Subsystem (IMS) is the means by which telcos can utilize the power of IP to offer consumers new applications and services that leverage packet communications and the Internet phenomena. Already, wireless mobile groups have initiated the basic architecture for new services utilizing multimedia, which are delivered to consumer handsets, as well as the development of IMS architecture.

**New
from TMC®**
The World's Only VoIP Demo Event

www.voip-demo.com

AUGUST 8-10, 2006 • HYATT REGENCY
SANTA CLARA, CALIFORNIA



Produced by the Team that Brings You INTERNET TELEPHONY®
Conference & Expo...The Largest VoIP Conference in the WORLD!!

TMC VoIP™ DEMO

TMC
**INTERNET
TELEPHONY®**
CONFERENCE & EXPO

Enterprise • Service Providers • VC's • Analysts • Media

Come Watch Leading Vendors “Show & Tell” the Benefits of Today's Most Useful VoIP Solutions

- Spend Two Valuable Days Answering Many of the Product-Focused Questions on Your RFPs
- Condense Months of Research Down Into Two Intense Days of Product Reviews and Vendor Meetings
- Demos Feature Enterprise Solutions and Service Provider Solutions
- Save Time and Money by Investigating Multiple Products, Services and Applications in One Place
- Admission is free for qualified attendees

Sponsored By:

pbxnsip

Aspect™

VOIP YOUR WORLD
SOFTROUTE



To Exhibit or Sponsor Contact Dave Rodriguez
at 203-852-6800 ext.146 or droduiguez@tmcnet.com

applications, which is driving IMS deployment and the financial success on which Wall Street is betting with the current wave of new financing and IPOs.

Time is of the essence both for vendors and service providers to develop and deploy IMS products and services — both for residential and enterprise business applications. There is a new group of non-traditional Next Gen Service Providers coming fast and consumers are embracing them.

What does all this mean? Simply put: 2006 is just the beginning — not the end — of the Internet phenomena. ■

Michael Khalilian is the president and chairman of the IMS Forum.

For membership information, or to participate in IMS Forum working groups, plugfest and membership info please visit <http://www.IMSForum.org> or contact Michael Khalilian MKhalilian@IMSForum.org

advertising index

Anritsu19 http://www.anritsu.com	NexTone45 http://www.nextone.com
CommuniGate29 http://www.communigate.com	Nortel27 http://www.nortel.com
Elma37 http://www.elma.com	Pactulus.....3 http://www.pactulus.com
Empirix.....Cover 2; 30-31 http://www.empirix.com	Siemens.....57 http://www.siemens.com
Ericsson.....64-Cover 3 http://www.ericsson.com	SignalSys9 http://www.signalsys.com
Flextronics5 http://www.flextronics.com	Spirit DSP13 http://www.spiritdsp.com
IMS Expo.....63 http://www.imsexpo.com	Surf Communication Solutions15 http://www.surf-com.com
Internet Telephony Conference & EXPO61 http://www.itexpo.com	TelcordiaCover 4 http://www.telcordia.com
Intervoice21 http://www.intervoice.com	VoIP Demo59 http://www.voip-demo.com
Juniper Networks23 http://www.juniper.net	



14th Global VoIP Convention!

INTERNET TELEPHONY CONFERENCE & EXPO

The VoIP Authority Since 1998

San Diego Convention Center
San Diego, CA

October 10-13, 2006

www.itexpo.com



VOIP 2.0

Join Over 9,000 VoIP Professionals Coming to the Largest VoIP Conference Ever!

Educational Tracks Include:

- Enterprise/Government
- Service Provider Solutions
- Open Source Summit
- SIP Workshop
- IMS
- VoIP Security Summit
- Conferencing/Collaboration
- WiFi Telephony Summit
- VoIP Peering
- IPTV

Diamond Sponsors:

voip supply.com

Platinum Sponsors:

CITRIX

aculab

FORUM

IWATSU VOICE NETWORKS

AGN business class voip

Ditech Networks

AudioCodes

samsay

NORTEL

INTER-TEL

netcentrex

VONEXUS

IMS, Therefore I Am

Continued from page 4

probably don't mind giving their carrier access to other passwords they use.

If all this can be implemented correctly, the people at Lucent tell me there are quite a few models that can be implemented to ensure service providers can increase revenue. They are as follows:

Enabling Targeted Advertising

Carriers have a tremendous amount of personal information pertaining to a customer. Everything, from their age to their location. This information can be used to pass along to partners allowing more accurate targeting of advertising.

Don't laugh. Estimates of 10-30 percent of users have said they will gladly see more ads if there are some additional benefits they can take advantage of along with the increased exposure to ads.

The carriers know information about your preferences for music so Disney may want to flash you an ad for Disneyworld the next time you are in the Florida area. This could be especially true if you've recently downloaded the *It's a Small World After All* ringtone.

Outsourced Authentication

The carrier can provide the authentication services so the service provider doesn't need to deal with this hassle. In addition the carrier can sell a position to the highest bidder on a portal they develop. For example the sports slot can be sold to ESPN.

Simple Data Sharing

Carriers can provide users with customized services such as weather reports that are generated from service providers. The carrier can pass location and device information to the service provider who can use this info to target the information delivery more accurately. Or, a subscriber may be interested in ski reports on their mobile phone and these reports can be customized depending on where the subscriber happens to be.

The genius here is that the carrier knows your presence information as well so they can make sure not to buzz your phone when you are in a meeting with your boss about your promotion.

Churn Reduction

The goal here is to lock customers up so they can't easily leave you. Once they have stored all of their information with you it becomes challenging to consider another carrier. Who would ever want to reenter this data again?

What is exciting about this initiative is that it is actively extending IMS into the Web services layer. IMS is so strong on security tokens and authentication; it makes sense to leverage this strength in the world of the Internet browser and services.

At this point it is worth explaining that these initiatives are part of the Liberty Alliance (projectliberty.org), an organization of 150 members that are working together to build a trusted ecosystem.

In some cases where the carrier deals with the authentication and holding onto your identity, many sites will never have to know who you are. In other words the every day sites such as those providing news may just see an anonymous carrier generated ID.

In the end, the goal is to have the Internet be more personalized in order to serve your needs more efficiently. You should see more targeted ads. When you book plane tickets, your meal preferences should be in the system already. When you rent a car, the agency will know you prefer non-smoking vehicles, etc.

For carriers this application really straddles the world of IMS and the Web in such a way that ARPU and stickiness are increased. Clearly this sort of initiative is perfect allowing service providers to grow nicely into the future and recoup their IMS investments quickly.

So while the proper expression for customers may be *IMS, Therefore I Am*, for the carriers it is surely *IMS, Therefore I Earn*. ■

Don't forget, **IMS Expo** - the world's only IP Multimedia Subsystem EXPO is coming to San Diego this October, 2006. We are excited to bring this event to you and if you like the magazine you will love its live incarnation, which takes place October 11-13 in the San Diego Convention Center.



IMS EXPO™

NEW!



October 11-13, 2006
San Diego Convention Center, San Diego, CA

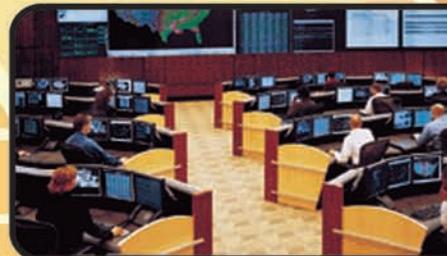
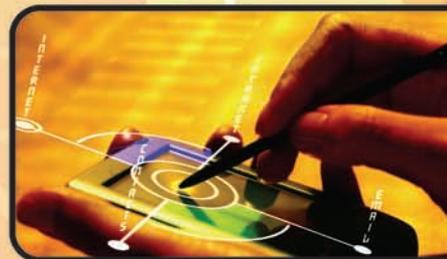
Co-located with the 14th INTERNET TELEPHONY Conference & EXPO West, which is expected to draw 9,000 attendees.

The Premier Global Event on IP Multimedia Subsystems

Attention Service Providers!

Learn How to Profit from IMS! Conferences, Networking, Exhibits

- Wireless Service Providers
- ILECs
- Cable Providers
- CLECs
- ISPs
- PTTs
- VoIP Service Providers
- Developers



Produced by TMC, the most trusted name in VoIP and IP Telephony. TMC is the publisher of *SIP Magazine* and *IMS Magazine*; has published *INTERNET TELEPHONY Magazine* since 1998; and is the host of *INTERNET TELEPHONY Conference & EXPO* since 1999.

www.imsexpo.com

**SAY THIS
IS ONE
OF YOUR
CUSTOMERS**

**TODAY'S
COMMUNICATIONS
CAN BRING THEM
THIS CLOSE
TO OTHERS**

**WE HAVE
THE MEANS
TO TAKE THEIR
INTERACTION
TO ANOTHER
LEVEL**

People want to do more than talk on their phones. They want to connect with the person at the other end of the line. To see them, to touch them, to feel closer to them. So let's do more than talk. Ericsson continuously researches the market, observing behavior and trends globally. It helps us to anticipate consumer wants, and prepare for them. From these insights, through technology to realization, we can help you provide a richer world of interaction. A world designed to bring people together. Keep them together and they'll stick close to you too.

ericsson.com/forward



Any service, any network, any device.
Convergence that rocks!

Maestro[™] IMS Portfolio

Introducing our Maestro portfolio of IMS-ready products, services, and applications that will change the way you look at convergence. Now you can develop and launch converged services with Service Delivery Platforms that simplify the process, accelerate speed-to-market, and ultimately increase revenues. IMS is the next big thing. With our Maestro portfolio, you can lead the movement. Ready to rock?

www.telcordia.com/maestro

 **Telcordia**[®]

© 2006 Telcordia Technologies, Inc. All rights reserved.