IP-Based Enhanced Services — The Next Step

BY DINA FRALE

With the cost of circuit-switched phone calls at an all-time low, many people now feel that Voice over IP's appeal no longer lies purely in the higher margins it provides. Although arbitrage may quickly be losing its allure, many argue that VoIP is far from finished. IP still holds a strong attraction for service providers, especially new entrants and small start-ups, because of the lower infrastructure costs and quick return on investment it promises. Not only is an IP infrastructure cheaper, but these new networks are also more flexible and scalable than their predecessors. With data transport representing an ever-increasing percentage of network traffic, many traditional voice carriers are becoming interested in adding this new source of revenue to their menus.

ALL ROADS LEAD TO CONVERGENCE

Even ISPs are turning to convergence as a way to get ahead. IP's biggest attraction lies in the efficient and unique services it will enable, which promise to be like nothing seen up to this point. And it is through these convenient and unique services, rather than savings alone, that carriers will seek to differentiate themselves. These new services will prove profitable not only for the competitive advantage they offer, but will also ramp up network usage. To have the upper hand, however, carriers — especially new ones hoping to win market share from competitors — will need the ability to roll out innovative services at a moment's notice. Despite all the hype, innovative services that are unique to IP have been slow to materialize. The question on everybody's lips is "where are the services?"

The next generation is coming of age in phases, and progress in services, at least in the beginning, has been made in baby steps. This is partly due to problems inherent in implementing any new technology. The circuit-switched network has been around for a good many years now, and although it may not be as efficient as IP in many ways, we have had the opportunity to perfect its processes and infrastructure. Until IP networks are running with the reliability of the PSTN, the major players in the voice arena will probably continue to show reluctance to becoming fully dependent on the technology.

Some of the more problematic issues that have arisen with the implementation of VoIP have been maintaining an acceptable quality of service despite network congestion, delays, and packet loss and establishing how to bill for services in a network that has many sources of usage information. Billing issues are being addressed through various mediation devices and softswitches that can collect detailed usage and customer information. Quality of service is proving to be a little more complicated, but strides are currently being made in this area. Research into usage patterns accompanied by detailed measurements, service level agreements, which lead to better network management, and QoS technologies such as RSVP and DiffServ are all improving service quality. Networks are also being developed with service quality in mind. Additionally, as with any new technology, it takes a certain amount of time for people to change their mindset to stop looking to the new technology as a replacement for the old, and to start considering it for what it has to offer in its own right. To a large degree, this mentality can explain the delay in the creation and implementation of IP-centric applications.

SERVICE DELIVERY: FRESH FROM THE NET

Perhaps a better approach to the question is to consider what VoIP and, more specifically, convergence have to offer above and beyond traditional services. And even more importantly, instead of asking where the services are, it seems more relevant to ask what it will take to roll out these services. As we move toward a service-driven model of telephony, the focus of our energies will turn to differentiation, customization, and individualization. IP networks, with their open architectures and modular structures, are well-positioned to deliver these services. But not all networks are created equal, especially when it comes to their ability to quickly provide new services and to customize existing ones.

Central to service delivery are softswitches and media servers. Different vendors have different strengths and emphases, but the minimum requirements are that the softswitch be based on an open, distributed architecture and that it be standards-based with open APIs. This provides an efficient structure (gateways can be placed anywhere but call control remains centralized) and allows third-party vendors to write to the softswitch. The open architecture of the softswitch frees carriers from the dependence they once had on traditional switch vendors. Furthermore, it enables them to create applications on their terms and schedule, not the vendor's. The softswitch must provide vendor and protocol interoperability.

The circuit-switched network is not going away in the near future, and softswitches must be able to bridge the networks and offer a path for migration to pure IP. Additionally, they must be able to work with other networks using solutions provided by other vendors or within networks using gateways that may run on different protocols. And if the traditional carriers are to use them, the networks must also deliver five-nines availability.

Finally, and most importantly for rapid application creation and deployment, the services layer of the network must be separate from the underlying infrastructure. This way, when a new service is created, it will only affect the service layer, not the infrastructure below. Some softswitch manufacturers have developed home-grown media servers, while others prefer to rely on outside enhanced services specialists to create best-of-breed solutions.

FLEXIBILITY ISSUES

The ability to integrate with outside components is one of the real assets of a standards-based softswitch with open APIs. Since the kinds of services that convergence will enable are not entirely clear, carriers need a highly flexible media server that will allow them to modify existing applications at any time and to quickly create new ones. For this reason, it is imperative that the platform provide a robust service creation environment, which preferably has a graphical interface. Graphical platforms are ideal because they facilitate development, but they must also be capable of integrating code to allow them to perform unforeseen functions and provide further customization. A good media server should also be able to interface with any standard API and, by extension, any softswitch using a standard API, with all applications being transport-independent.

Finally, the platform should be conceived to scale to any size to serve small and large carriers alike and to ensure that the solution will not be outgrown. These days, some manufacturers are even providing suites of service-ready solutions with a platform to bill for the services as well, to help avoid some of the billing problems facing new networks, and others have already begun incorporating multimedia functionality into their servers to make full use of what convergence has to offer.

THINKING AHEAD: HOLISTIC IP

Right now, it is clear that we have just begun to understand IP's potential for changing and even improving communications, but to say it's not delivering on the next-generation of services is to judge it too harshly. Already unified messaging is being perfected to offer services such as e-mail retrieval by phone, voice portals are starting to appear, call centers have click-to-connect capabilities, and it is just a matter of time before services such as information push, Web-based IVR, user self-provisioning of services, and convergent billing will be completely standard. We are now reaching a stage where technology is allowing the implementation of such converged services. The only challenge that remains will be the corresponding change in mindset that will spark our imaginations to create the services that realize IP's full potential. c

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Level(3) Service Enables Telephone Quality Voice

Introducing (3)Voice Exchange, a new service that enables telephone quality voice communication using personal computers and IP-enabled phones. "The development of (3)Voice Exchange further solidifies Level 3's commitment to making quality communications faster, less expensive and more productive," says Ike Elliot, senior VP, "This new capability means our customers won't have to buy traditional and expensive circuit switches to connect voice traffic to their network."

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Live Contact Service From WebTelecom

Allowing businesses to easily add voice, video, text chat, and co-browsing capabilities to their Web sites, Live Contact Service enables live consumer-to-business contact. Now e-businesses can access the 63 percent of consumers who refuse to buy online until they are assured more human interaction. By combining these media into a one-service solution, WebTelecom offers the tools needed to close the deal.

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Adir Technologies: Net2Phone Talking With Cisco

A new company has formed out of the services of Net2Phone. Adir Technologies was created to develop and market network management software for VoIP and other packet-based multimedia. Cisco Systems has purchased a minor equity interest in Adir, establishing a "strategic relationship" that "demonstrates the limitless possibilities when you bring together a proven IP software solution with (a leader) in networking the Internet," says Cliff Sobel, chairman of Net2Phone.

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VoIP With a Side Order Of Cell

eVoice, a provider of Internet-enabled voice services announced the launch of its Voice Application Service Provider model to leading wireless and wireline carriers nationwide. eVoice can shift voice mail retrieval from the home phone to wireless phones, allowing consumers to receive their messages anytime, anywhere. Looking to set yourself apart from the usual VoIP menu? Check out eVoice.

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AudioCodes Meeting Customer Needs In Voice Over Packet Market

The new Access and Switching Business Center concentrates on providing solutions that enable OEMs to quickly address market opportunities within carrier class wireline and wireless networks. The creation of two business centers will provide concentrated market focus, anticipate opportunities, and meet increasing customer needs in the rapidly expanding market.

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CosmoCom Speaks The Universal Language

Believing that IP will become a universal computing language is one thing, but allying with Onyx Software Corporation to provide businesses the ability to leverage multi-channel customer interactions is another. The alliance pairs CosmoCom's patented contact center platform with Onyx 2000, a customer-centric e-business application that provides seamless relationship management functionality for employees, customers, and partners, allowing live and message-based interaction across any channel and any device.

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iPlanet: Scoped By Comverse

Comverse is integrating messaging software from iPlanet E-Commerce Solutions, a Sun-Netscape alliance, into its expanded IP architecture for unified messaging. Comverse's solution is scalable, flexible, and satisfies the reliability requirements of service providers. Features such as channel architecture for mixed media types and server–side rules for managing resources are integrated into the messaging foundation, powering better time-to-market and flexibility.

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Pagoo And Tiscali Establish Long-Distance Relationship

Pagoo announced its first major VoIP wholesale deal with Tiscali, Europe's third largest ISP. With this partnership,

APEX INTEGRATIONS

In partnership with softswitch manufacturers Nuera Communications (www.nuera.com) and Vsys (www.vsys.com), APEX Voice Communications has overcome some of the obstacles to service creation in next-generation networks. Through different technologies in each case, the APEX Media Server integrates with the softswitch of these partners to offer a complete enhanced services and billing solution for IP networks.

THE MEDIA SERVER

The APEX Media Server is a development, runtime, and management platform for IP-based enhanced services. Its drag-and-drop service creation environment allows easy modification of APEX's service-ready solutions as well as rapid development of customized services. This gives carriers the flexibility they need to constantly evolve their offerings and quickly differentiate themselves. The service creation environment has a "programming hook" with a C/C++ API for the integration of external routines into call flows to provide developers further customization capabilities. APEX's service-ready solutions include prepaid, wireless prepaid, and WAP-enabled unified messaging. APEX's unified messaging integrates messages from various devices into a single store. It is Web-based and utilizes voice-activated dialing and text-to-speech technologies to provide message retrieval anytime, anywhere, using virtually any device. It also enables user self-administration of mailboxes. Other enhanced services available include one-number follow-me, announcers, two-stage dialing, travel card, and wireless e-mail. The APEX Media Server can integrate with any softswitch that uses standard APIs and the APEX Billing System can bill for any call, voice, or data service handled by the softswitch with which it is integrated.

APEX integrates with the Vsys softswitch through their open CORBA API. The Vsys softswitch is based on an open, distributed architecture and runs on a Hewlett-Packard L-class server supporting H.323, MGCP, ISDN, SS7, and soon SIP protocols. Vsys' architecture provides multi-vendor, multi-protocol interoperability that allows for a carrier-grade solution in terms of scalability and reliability. The Vsys softswitch can route calls between endpoints controlled by dissimilar protocols by handling each leg of a call independently. In this particular solution, the APEX Media Server utilizes Dialogic IP cards to answer the calls and play applications. Using the appropriate codec, the Media Server executes the necessary applications and then instructs the softswitch to re-route or terminate the call. Because the application has call redirection capabilities, a call can be redirected without bridging so as to minimize the number of times the call traverses the network. The Vsys softswitch also directly accepts SS7, so there is no need for a signaling server at the application layer with this solution. The softswitch delegates control to the appropriate application on a call-by-call basis to allow media gateway resource sharing. The Vsys/APEX solution has been deployed with Motorola Vanguard gateways to offer a complete call management and billing solution, but can be used with virtually any gateways or in already existing networks.

STANDARDS-BASED FOR NOW AND LATER

Nuera Communications' ORCA SSC softswitch is open and standards-based. It runs on the HP9000 platform and uses Hewlett-Packard OpenCall at its foundation. The SSC supports ISDN, R2, CAS, and SS7 directly. It provides a SIP interface for integration with the APEX Media Server, and the separation of the gateways and softswitch equipment from the services layer creates a highly scalable, efficient network for application development and deployment. Nuera's SSC is deployed with ORCA GX Gateways. The GX forwards the call information to the SSC, which routes the call according to its Least Cost Routing configuration. In the case of IVR or other enhanced applications, the call is routed to the Media Server, which answers the call and streams IP/RTP packets out to the caller, who then responds with DTMF or speech recognition. The IVR then provides services and routes the call to an outbound number or another application. The Media Server may or may not remain in control of the call, depending upon the nature of the service. For prepaid calling, for instance, the Media Server will keep the call control and use "barge" or other techniques. Because the solution allows the Media Server to use DSPs located in the ORCA gateways, there is no need for underlying hardware in the Media Server, which helps to reduce the cost of deploying the network. Nuera can deploy the softswitches in pairs and APEX deploys the Media Server with the Marathon Endurance product, enabling this particular solution to deliver five-nines reliability. Additionally, almost all components can be upgraded and applications implemented without affecting calls.

With both solutions, the softswitch gives the APEX Billing System detailed CDRs and call control capabilities to allow for accurate, usage-based billing and prepaid calling. The APEX Media Server and Billing System integrated with the appropriate softswitch is, therefore, capable of providing a complete enhanced services solution. c

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Tiscali subscribers have access to Pagoo's VoIP services — including its unique Internet Phone Number, allowing users to receive as well as make calls — and Pagoo kicks off its international wholesale strategy to provide VoIP services to Web users around the world.
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HotVoice: Targeting Hotmail and Yahoo Users

With HotVoice, a free service now offered to Yahoo and Hotmail customers, all communications — fax, data, VoIP, and e-mail — arrive in one mailbox, providing unified messaging to subscribers. High-end users and consumers will both benefit from this offering, enabling mobile consumers and small office/home office to improve communications. With offerings such as HotVoice, unified multimedia messaging will soon become the basis of e-communication.
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