Media servers for the mainstream: Providing a smooth transition from today to tomorrow

By David Asher

A momentous transformation is taking place in the development of enhanced telephony services – a shift from vertically integrated embedded systems to distributed Internet architectures. Telephony applications based on CompactPCI and AdvancedTCA will continue to be valued in the central office, but the effects will be far-reaching as more modular equipment emerges into the marketplace. Chief among these modular components will be the new category of "mainstream" media servers, that is, a media server that addresses any network – not just IP, along with more familiar offerings like media gateways and application platforms.

Voice over IP (VoIP) is a significant factor in this transformation, but many other forces are also at work, including business model shifts away from platform investment in order to concentrate resources on software development and services delivery. As developers focus more on applications and move away from in-house development, they need open, commercially available technology on which to develop and deploy their multimedia applications.

Multimedia applications require significant media processing to deliver integrated, high-performance services that meet the expectations of demanding subscribers. While initial deployments of rich media services often used dedicated media processing platforms within vertically embedded systems to execute each application or service, developers are now turning toward media servers. Media servers, fundamental components of next generation networks, facilitate the sharing of media processing resources within the network among many different services, enabling significant cost savings for service providers and vendors alike.

A new breed of media server is emerging based on key principles that are highly distinguished from other commercial media servers and focused on providing complete solutions for rapid application development and deployment.

Adopting Internet technologies

The telecom world is discovering the enormous productivity gains and risk reduction that adopting Internet software technologies can achieve. Innovations, such as the rise of network distributed processing using Internet protocols and the move from compiled code development to scripting and markup languages, are shrinking software development cycles significantly.

By building computing resources from a distributed network of processors and accessing them via Internet protocols, developers no longer need to create special purpose processors. They can now build applications on a variety of network servers, most based on general purpose computing platforms. Multimedia applications, with their tremendous appetite for processing power, make a natural fit for this distributed computing environment, and media servers deliver this modular capability.

With markup languages like VoiceXML and CCXML developers can render the interactive voice user interface and implement complex network signaling much faster than with compiled languages. This dramatically reduces the number of software cycles required during an application's development, test, trial, and deployment processes. And complementing these languages are the Session Initiation Protocol (SIP) and other network protocols, which simplify traditional telecom functions that normally require highly specialized programming skills.

Media servers: The key to rapid deployment

Media servers manage the telephony user interface under remote control from an application and provide powerful media processing capabilities such as Interactive Voice Response (IVR), messaging, conferencing, transcoding, video, and fax. Using Internet-based control protocols, applications can remotely control the media server over a network. Because the protocols use industry standards like SIP and XML, developers can use any language or rapid development environment, such as Java and C#, to build applications. A new class of SIP application platforms has evolved to serve as the foundation for rapid development of communications services.

Control protocols also enable scalable applications to be developed for high service availability, with minimal effort, by exploiting the properties of SIP to provide service discovery, load balancing, server failover, and other features that are well established for building distributed Internet applications. There are several approaches to implementing the control protocol:

- Megaco
  - A control protocol derived from media gateways and standardized by the IETF. (H.248 under the ITU standards)
- Newer protocols based on SIP include: Netann; MSML; MOML; MSCML; and MSCP

These newer protocols are proposed standards but fit more closely to the Internet style of distributed service architecture.

Media servers for the mainstream

A new breed of media server is emerging based on key principles that are highly distinguished from other commercial media servers and focused on providing complete solutions for rapid application development and deployment. A media server that can truly address the mainstream market and is not exclusive to IP will:

- Own and manage the bearer channels (VoIP, ISDN, or ISUP), with responsibility for network signaling
- Perform dense and complex media processing such as IVR functions, messaging, transcoding, media streaming, conferencing, fax, and video stream processing
- Be controlled by applications through a network protocol, enabling multiple applications to be distributed on the network
- Feature a layered architecture that is configurable, adaptable, and supports open standards
- Redefine the media server as an *open development platform* so that legacy features or unique capabilities can be accommodated
- Offer a range of interoperable server products that address a variety of application needs

A mainstream media server for today's networks should be ready to deploy in a wide range of applications such as network announcements, messaging, prepaid card processing, conferencing, self-service, voice portals, call centers, IP and mobile Centrex, and more. By using a media server built for the mainstream, developers of all networks – not just IP – will be able to select the perfect cost, performance, and feature profile for each deployment, bringing their applications to market faster than ever before.

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