

AUDIO
CONFERENCING

MEDIA SERVER SOLUTIONS

AUDIO CONFERENCING: UNTAPPED OPPORTUNITIES

RAY ADENSAMER

REVIEWS THE GROWTH OPPORTUNITIES IN AUDIO CONFERENCING, AND DESCRIBES A FLEXIBLE, ECONOMICAL, NEXT-GENERATION ARCHITECTURE FOR HOSTED AUDIO CONFERENCING SERVICES.

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RIGHT NOW, WE TRACK approximately 120 facilities-based collaboration service providers throughout the world and nearly every one has seen tremendous growth in audio and web conferencing volume. Additionally, revenue growth has been very strong despite price erosion, specifically for unattended or reservationless conferencing services, resulting in a \$4.9 billion market in 2007.

MARC BEATTIE—

Partner and Conferencing Service Provider (CSP) Practice Manager, Wainhouse Research



Today's global economy is driving businesses to bridge geographic boundaries between colleagues, partners, suppliers and customers. In many cases, face-to-face collaboration can be expensive and untimely, leading companies to use audio conferencing as an alternative. The demand for audio conferencing, which is growing at a 28 percent compound annual growth rate (CAGR), will soon surpass 50 billion minutes of use annually, as shown in Figure 1.

It's notable that almost 70 percent of the audio conferencing revenues are generated in the United States, raising questions about the possibility of unmet demand in Asia and Europe. What will it take to grow non-US revenue share beyond 30 percent? "Audio conferencing is now experiencing above-average growth rates in Europe and Asia as audio and web conferencing service adoption become more commonplace," said Beattie. Asian and European CSPs who offer easy-to-use, differentiated, and economical conferencing services are well-positioned in these under-served markets.

AUDIO CONFERENCING

SERVICE PROVIDER CHALLENGES

The growth in audio conferencing revenues is drawing new players to the market, resulting in a downward trend in pricing. While this increased competition is great for the consumer and hence driving the growth in conferencing volumes, this downward trend in pricing is putting margin and profitability pressures on CSPs who continue to offer conferencing services using traditional circuit based time division multiplexing (TDM) conferencing infrastructure.

With so many new entrants in the market, another challenge for the service providers is the increasing commoditization of basic audio conferencing services. The closed, proprietary characteristics of TDM conferencing equipment make it extremely difficult, if not prohibitively expensive, to introduce new conferencing capabilities.

To compete in this market environment, CSPs must accelerate their adoption of next-generation conferencing solutions that not only lower their costs to improve their operating margins on commodity conferencing services, but also position them to offer unique and differentiated conferencing services in the future.

OPEN STANDARDS LEAD TO LOWER COSTS

Many legacy conference bridges are relatively expensive, single-purpose TDM-based solutions, whereas next-generation conferencing solutions are based on open systems and Internet Protocol (IP) technology standards. Compared to TDM-based solutions, open IP-based systems often cost less, save space, consume less power, and require less maintenance.

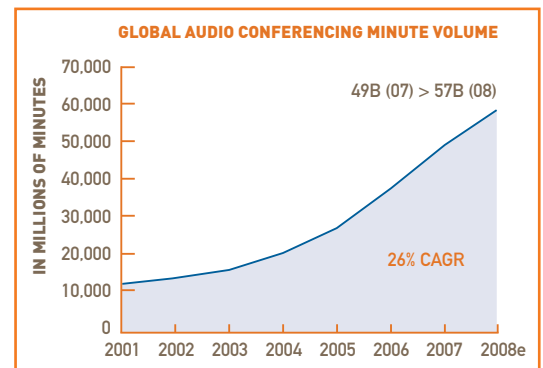


Figure 1. Audio Conferencing Annual Minutes of Use
Source: Wainhouse Research

Take for example an IP media server, which performs real-time processing of media streams in a next-generation VoIP architecture. It can reduce the cost per conferencing port by a factor of four and cut physical space down to one-tenth of TDM-based conference bridge solutions. But it is more than just IP-based equipment that is driving down costs. Next-generation VoIP architectures, including the latest IP Multimedia Subsystem (IMS) standards, are based on a decomposed architecture that breaks down the various functions found in monolithic TDM-based proprietary systems into separate, specialized functional components. The interconnection of these specialized functional components is also based on broadly accepted interface standards, including:

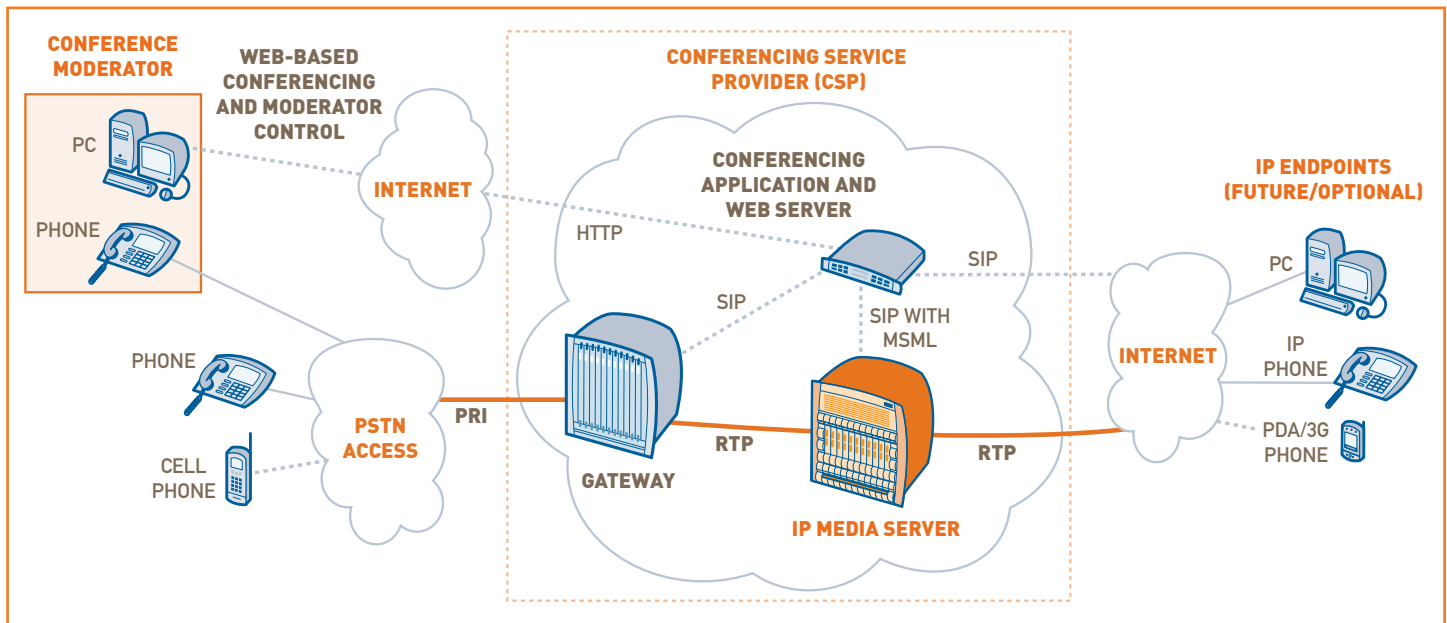


Figure 2. Next-Generation VoIP Conferencing Architecture

- **SIP:** Session Initiation Protocol, a signaling protocol (VoIP call control) used for establishing sessions in an IP network.
- **RTP:** Real-Time Transport Protocol, which carries encoded audio information as IP data packets.
- **MSML:** Media Server Markup Language, an extensible SIP-based control interface specifically designed for feature-rich IP media server control.

Broad acceptance of open architectures, along with open interconnection standards, has created an ecosystem of multiple vendors who can interoperate together, while at the same time competing in similar equipment categories. If you don't like any one vendor, then open interconnection standards allow the CSP to swap out an architectural component from one vendor and bring in another. It is this competition and innovation between multiple vendors that is also driving down equipment costs for next-generation conferencing platforms.

NEXT-GENERATION ARCHITECTURE

Leading CSPs today have more choices for procuring open standards-based next-generation VoIP systems that are driving down their cost structures, while positioning them to introduce new, unique and differentiated conferencing capabilities. "Large audio conferencing providers are increasingly turning to VoIP technology to drive service innovation and improved network economics, while still adhering to the highest levels of network reliability and scalability," said Beattie.

As mentioned earlier, a significant difference between traditional TDM-based and newer IP-based systems is the way they are partitioned. TDM-based systems tend to be closed, proprietary solutions with few scalability options. IP-based systems typically separate functions like application/signal processing from media processing,

resulting in open architectures built upon scalable "best-of-breed" components that are interconnected using open standards-based interfaces. For example, the VoIP conferencing architecture illustrated in Figure 2 employs a gateway, media server, and a conferencing application web server that work together using the open standards introduced earlier, including SIP for signaling, MSML for media server control, and RTP for the audio media packets.

OPEN, STANDARDS-BASED platforms represent the future of telecom. With the market currently experiencing fierce competition and low single digit revenue growth, vendors and service providers alike must move beyond proprietary platforms to provide the latest VoIP and the conferencing applications to their customers.

STÉPHANE TÉRAL—
Principal Analyst, Infonetics Research, Inc.

In a next-generation architecture, the application server is where the conferencing and web applications run, including call control logic and end-to-end signaling, along with integrated interfaces into order entry and back-end billing systems. The application server also controls the IP media server to perform the media processing. More specifically, the IP media server terminates the inbound RTP media streams, completes the audio conference mix and sends the mixed audio as RTP streams back to the participants—all done in real-time thousands of times a second. This separation of call control and media processing makes it easier to scale the components independently, while allowing multiple applications to share the same IP media server. This architecture also benefits service introduction, as new service capabilities are often isolated to changes or additions to the application server.

UNTAPPED OPPORTUNITIES

But what about the majority of the conferencing subscriber base that still uses traditional phones or mobile devices connected to the PSTN? A media gateway is used to terminate these subscribers, convert the TDM circuit within a PRI (Primary Rate Interface) trunk to IP packets, and then separate the packets into SIP call control signals for the application server and RTP media streams terminated on the IP media server.

This architecture is not the future—it's now. Many CSPs are already operating cost-efficient IP data centers with application servers, media servers, and media gateways to economically deliver conferencing services to their PSTN subscriber base.

OUR MIGRATION to an IP-based conferencing infrastructure is well underway. We have essentially capped our investment in TDM conference bridge technology for our automated conferencing services, and responded to new growth using VoIP. Our plan is to eventually run all our conferencing services using a common IP-based infrastructure. We're already experiencing the operational benefits of this new infrastructure, while introducing new capabilities that weren't technically feasible using older technology.

GRAHAM CLAYTOR —
Marketing Director, Conferencing and Collaboration, Premiere Global Services, Inc.

WHY A MEDIA SERVER?

Media servers create economic and time-to-market advantages for CSPs deploying new audio conferencing infrastructure. Right from the start, they help lower cost per port and are the foundation for an agile platform that offers flexibility and multi-purpose capabilities. Media servers can also ease the transition from legacy to IP-based devices, allowing CSPs to preserve their installed base, while adding new customers and capabilities. Leading IP media server products offer a number of features specifically beneficial to conferencing applications including:

- **Active Speaker Notification:** Reports changes in the active speakers in a conference mix.
- **Cascaded Conferences:** Saves bandwidth cost for geographically dispersed conference calls.
- **N-Loudest Mixing:** Improves audio clarity and intelligibility by dynamically choosing and mixing the loudest N speakers, while muting out non-speaking participants and background noises.
- **Gain Control:** Provides both application-level control for individual call legs, or automatic gain control features.
- **Personalized Mixing:** "Who hears from whom" is configurable, which facilitates "whispering," coaching, facilitating a sub-conference in mid-call, and security.



As audio conferencing demand continues to grow, it's likely that more subscribers will insist on carrier-grade availability and service level agreements. Therefore, leading media server vendors must also offer sophisticated redundancy and failover capabilities, so instead of losing a call, there are only a couple seconds of silence in the event of an IP media server component failure.

WHAT'S POSSIBLE?

In the old days, all conference calls were controlled through a keypad. Since the audio conference is now done in the IP world, it is easier to integrate web and audio conferencing into an integrated collaboration environment. In an IP-based environment, the call may be controlled with a web-based GUI that displays participants by name and helps manage audio quality and voice strength. Conference moderators can mute certain participants, or create side-bar conferences.

During a web conference, a list of people can be displayed in an integrated webpage differentiating web/audio and audio-only participants, while dynamically changing an indication of the current speaker. When there are twenty people on a call, it's useful to have an application that lets everyone know whose talking.

But supporting conferencing and collaboration services is just part of the story. Leading IP media server products are specifically designed to support a broad range of services including video, unified communications, messaging, speech-enabled services or ring back tones. With a next-generation architecture in place to reduce their cost structures for conferencing services, CSPs can now look to expand their service portfolio by offering new, differentiated capabilities that will grow new revenue streams. As more media is shared between applications, new services will emerge and further increase the value of a next-generation architecture.

Another exciting trend is a movement by innovative service providers to expose their next-generation service delivery platforms so third-party web developers can integrate and "consume" network-based telecommunication services. For example, people in the near future, using web-based social networks to keep up with acquaintances and share photos (e.g., Facebook*), may soon be able to "click to conference" for a live, real-time discussion among their friends. When network-based audio services are tightly coupled with the worldwide web, additional opportunities will arise for innovation in the areas of collaboration and richer interaction, while pulling even higher levels of consumption and demand for network-based conferencing capabilities.

UNTAPPED OPPORTUNITIES

Business decisions regularly require collaboration among people throughout the world. In the US, audio conferencing revenues continue to grow as companies expand the use of conferencing as a collaboration tool. The trend is expected to accelerate in Europe and Asia, creating new opportunities for equipment manufacturers and conferencing service providers. However, as new competitors enter the market to service this growing demand, established CSPs will continue to feel price pressures if they continue to deliver increasingly commoditized basic conferencing services using traditional TDM conference bridge technology.

MEDIA SERVERS ENABLE CSPs to improve profitability on basic audio conferencing services, while positioning the CSP to offer new, differentiated IP collaboration services to their residential and business customers.

ANTHONY AMBROSE —
Vice President and General Manager of Communications, RadiSys Corporation

Innovative CSPs are responding to these challenges by deploying next-generation VoIP architectures based on open standards. These new systems not only lower their costs, but are also supporting new service opportunities such as integrated voice/web conferencing features and “click to conference” capabilities. With growing market opportunities and technology advances in service delivery platforms, leading CSPs are well positioned to improve the scalability and economics of their audio conferencing infrastructure, while delivering increased value to their customers.

ABOUT THE AUTHOR



Ray Adensamer is Senior Product Marketing Manager at RadiSys, a leading provider of advanced solutions for the communications networking and commercial systems markets. Ray has over 20 years of achievements in the data and telecommunications industries in the areas of product marketing and business development with Convedia, Redback Networks and Nortel, along with OSS consulting experience while working with Deloitte Consulting and Accenture.

Ray has been a past speaker at many leading industry conferences including SuperComm, VON, IT Expo, Western Communications Forum, OSS Comforum, and the Network Operations Management Symposium.

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