
Conferencing deployment based on Aculab

The client is a pioneer in the reservation-less telephone conferencing business and is currently one of the largest conferencing service providers worldwide. To ensure continuous business growth in this highly competitive environment, maintain market share and increase operational profits, the client is constantly evolving its service delivery platform.

The challenge

Supplying reservation-less conferencing services across several key vertical markets, which include financial services, healthcare, legal, and higher education, the client discovered the need to enhance their service with a wideband voice conferencing feature. Based on the newest voice compression technology – the transmission of double the bandwidth of the audio spectrum, compared to traditional analog, digital and IP telephony – the superior voice quality of wideband conferencing is truly noticeable to the human ear.

Academic research shows that the improved voice quality of a telephony conference leads to a better user experience and, as a result, to increased service usage. This fact fits well with the agenda of many businesses, which are looking to reduce their travel expenditure, and the costs associated with the time lost as a result of business travel, while maintaining or even improving the total organisational productivity. In the era of ever growing road traffic congestion and the continuous difficulties related to air travel, the increased use of telephony conferencing services is seen by many as a sensible substitution for the face-to-face way of doing business.

As a leader in the 'free' conferencing market segment, processing tens of millions of call minutes each month, the client was looking to design a new generation platform that should be able to deliver a very large scale wideband conferencing service.

The requirements

Seeking to establish a strategic relationship with an enabling technology supplier, the client presented Aculab with significant engineering challenges. Essential criteria for vendor selection included broader functionality integration possibilities than were possible with the third party media server alternative, simplified deployment, and of course, higher scalability, load balancing, fault tolerance, redundancy and service reliability.

The major technical requirement, unavailable at the point of the customer engagement, was the development of a new conferencing algorithm to operate on a set of Aculab's media processing platforms. This algorithm should be able to provide a wideband matrix conferencing facility with an unlimited number of participants in a single voice conference.

In addition, the requirements included the ability to seamlessly mix voice streams originating from both wideband and narrowband endpoints. Moreover, a full set of essential conferencing features had to be supported in a wideband variant, including: the selective mixing of the loudest or active speakers; independent volume and gain control for each participant; active speaker detection; active speaker notification via the CSRC field of the RTP media stream; and DTMF events suppression.

The requirements also included an additional set of generic media processing functions, such as: compressed voice recording and playback; transcoding amongst a set of low bit rate codecs (G.723.1, G.729, iLBC); support for the encrypted version of the RTP stream (SecureRTP); DTMF detection and generation; DTMF tones relay and user indications via

the IETF RFC 2833; and the ability to provide integration with a 3rd party speech engine (ASR, TTS) utilizing the standard MRCP interface.

An additional major requirement included integration of a new wideband speech codec, iSAC, initially developed by a 3rd party. While Aculab had a wealth of experience in integration of numerous VoIP and mobile voice codecs, the work on optimising iSAC performance required a special expertise and deep knowledge of the DSP technology. As a wideband codec with a variable and adjustable bit rate, the integration work required reengineering of the packet processing sequencer.

The solution

This was the perfect time for Aculab to be presented with these requirements as the new Prosody X architecture with its comprehensive base feature set had recently been introduced. Being designed as a media processing platform for IP applications, with high density narrowband conferencing functionality as a standard option, meant the Prosody X platform was the ideal choice.

Cooperatively, Aculab was ready to do more and prepared for the next challenge. Indeed, Prosody X had been designed to allow Aculab to quickly react to a dynamic market and the client, a long term partner, was ideally placed to fine tune its feature development.

The essential options were already in place to enable high density, feature rich narrowband conferencing with over 1000 channels per media processing board, totalling an astonishing 18 000 conferencing parties per single CompactPCI chassis. This was also the case with the essential media processing functionality used to provide the service. Aculab's relationship with the client was further endorsed when it made a commitment to develop and perfect the extended functionality requirements for the wideband voice conferencing platform.

Following initial delivery, Aculab was actively involved in supporting the client to develop and integrate its service platform application with Aculab's software and APIs. This was based on a partnership approach where success became based on leveraging each organisation's expertise to provide a best-of-breed communications solution.

The final solution is providing the client with industry leading conferencing capabilities. A scalable, redundant, high density solution, with over 225 wideband iSAC encoded streams mixed per single board and over 4000 per CompactPCI chassis, ensuring the client's ability to provide a top-grade conferencing service with minimal operational cost.

Conclusion

It is clear that a responsive commitment to tailored software development and technical support sets Aculab apart as a key supplier of specialist, DSP-based media processing and signalling protocols. In an increasingly complicated business environment, strong partnerships are obviously of critical import and Aculab stands ready to invest time and resource into developing innovative services that will add value and give its customers an opportunity to deliver on the promises of wideband conferencing.