



Extron SME 100 Streaming Media Encoder Brings Accessibility to Dalarna University

“The SME 100 distinguished itself as the best product designed specifically to support encoding requirements for an AV presentation environment.”

Ragnar Olafsson
Dalarna University

With 18,000 students, nine lecture halls for streaming, and two audio video production studios, Dalarna University in Sweden is a nationally recognized pioneer in Web-based learning. More than 67% of Dalarna's students participate in distance learning online. In the Spring of 2012, Dalarna University produced its latest version of a Web-based recording and live streaming system that supports distance learning and on-demand access to course lectures. Students are able to access videos using PCs, tablets, and smartphones. Extron's SME 100 H.264 encoder for pro AV systems was selected as the best streaming media encoder to integrate into this system.

Updated lecture halls feature an Extron SME 100 HD encoder that streams an instructor-selected classroom source. Available classroom sources include two different camera positions, a document camera, DVD/VHS player, VGA computer-video, and a microphone. The SME 100 provides high quality AV encoding to a media server, which delivers video streams that are easily decoded and viewed live or on demand not just within the university, but anywhere in the world.

Challenge

Dalarna University is an international leader in Next Generation Learning, an innovative pedagogical field that stresses the intelligent application of technology to develop inventive learning models and personalized educational pathways. To meet the challenge of minimizing support and administrative costs for instructional technology, a solution was required that made it simple for instructors to Webcast live lectures with student interaction and to produce edited, on-demand recordings. The system needed to support submittal of questions from online viewers via Web chat and manage



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INTERFACING, SWITCHING AND CONTROL



A touchpanel provides control over classroom media, manages questions submitted using chat, and presents a live view of streamed content.

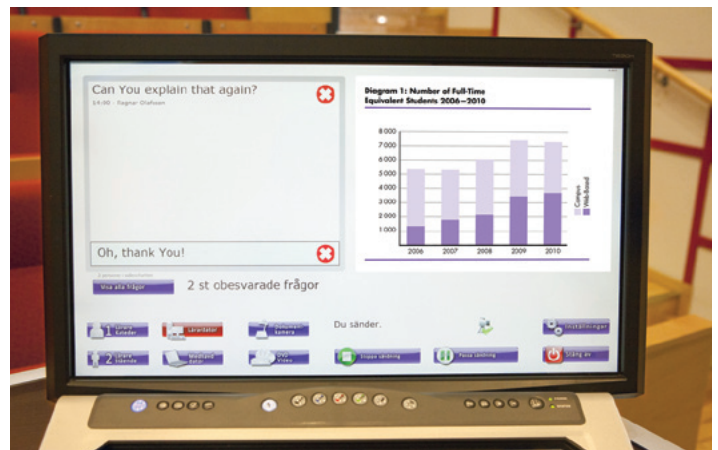
a variety of AV source signals. Most university instructors have little or no knowledge of streaming, recording, or network technology, so this multifaceted system needed to be intuitive and easy to use.

Solution

A variety of streaming encoders were evaluated, and according to Ragnar Olafsson from Dalarna University, Next Generation Learning Centre (NGL-Centre), "The SME 100 distinguished itself as the best product designed specifically to support encoding requirements for an AV presentation environment." The SME 100 supports the wide variety of video and computer signals required in pro AV applications, including DVI, RGB, HDTV, and standard definition sources, and it features integrated switching with loop-through connections for easy integration into AV systems. Additionally, the SME 100 HD features integrated high performance Extron signal processing to scale and optimize video input signals, eliminating the need for additional AV processing equipment.

The SME 100 was integrated with Dalarna University's Wowza Media Server®, which provides transcoding capabilities, delivering streaming protocols that are compatible with PCs, tablet PCs, and smartphones from various manufacturers. The Wowza media server also records content encoded by the SME 100 for on-demand use. This requires

management of a consistent streaming bit rate, which the SME 100 supports. Instructors use a simple touchscreen interface developed using Adobe® Air® to select source inputs, start, stop, pause, and resume streaming and recording, and manage a Web chat interface for student questions. The media server automatically adds metadata, assembles recordings into a complete media file, and forwards files to storage for future access.



The touchpanel interface for AV, streaming, and chat was produced using Adobe® Air®.

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This system was programmed and developed internally by Dalarna University's NGL-C development team. Using SME 100 HD encoders, Dalarna University produces over 1,800 recordings and 3,500 hours of video a year, all of which are available both in real-time and archived online for Dalarna students registered in Web-based distance learning courses.

Conclusion

The SME 100 provided an encoding solution that integrated easily with classroom source inputs and presentation requirements. H.264 encoding and standard streaming protocols made the SME 100 compatible with a media server that supported streaming to a variety of viewing platforms. This modern media technology extended the teaching process by streaming and recording lectures, supporting distance learning, and adding an on-demand element, all with minimal support requirements.

Online recorded lectures give students at Dalarna University access to teaching materials whenever it is convenient for their schedules. They can participate from home



Dalarna University lectures are accessible live or on-demand from smartphones and tablet PCs.

or while travelling or working abroad, watch lectures repeatedly as desired, and work in a collaborative, online, real-time environment. International students can participate, enriching discussions with a more global perspective. Yet, as Andrew Casson, Director

of Education and Research at Dalarna University, is quick to point out, "It's not just about being somewhere else though, really. It's not about distance at all, in fact. It's about closeness; it's about accessibility; it's about flexibility."



SME 100
H.264 Streaming Media Encoder

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