



RedNet takes Gothenburg dance into 3D

RedNet is being used for an increasing number of innovative audio applications where something special in terms of quality or performance is required. RedNet couples Focusrite's legendary conversion expertise – along with superbly transparent mic preamps and other studio-quality audio capabilities – with the tried and tested Dante Ethernet-based audio networking protocol to record, distribute and play back audio over IP.

Most recently RedNet solved a problem for Andreas Renhorn, chief sound engineer at the GöteborgsOperan in Gothenburg, Sweden, when he was tasked with playing back 32 channels of high-quality audio including feeding a custom 27.2 audio system in the Opera's modern riverside performance complex.

The production *The World To Darkness And To Me* is a new dance work by New York-based choreographer Richard Siegal, with electroacoustic music composed by Lorenzo Bianchi Hoesch of IRCAM in Paris. Hoesch's abstract, percussive electronic/sampled music directly

complements Siegal's 'If/Then' dance method, which combines written choreography with options for the dancers to co-create in an almost game-like environment where they pick up and improvise around each others' moves.

Hoesch's music, which was created with visual music programming language Max, required enormous dynamic range to convey a great deal of light and shade, and was designed to be played back in three dimensions via a special 27.2 loudspeaker array installed for the production. Using MSP audio extensions and 3D spatialisation plug-ins, he was able to achieve extremely powerful manipulation of the audio.

Hoesch used Ambisonic's surround-sound system, which can seamlessly recreate a three-dimensional sound field where sounds can be placed anywhere in space completely unrelated to the loudspeaker positions.

About RedNet

Launched in 2012, Focusrite's RedNet range was one of the first to adopt the Dante audio-over-IP network as the infrastructure for a new and versatile range of products.

Since then, RedNet has become increasingly popular for a diverse range of audio applications, from theme parks to opera, from studio to major live events.





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GÖRAN BLOMGREN,
AV-1

Focusrite RedNet Gotenburg

To replay this remarkable music in this advanced way, in this unique environment, was Renhorn’s primary challenge - “I needed to find equipment that was able to achieve the highest possible quality of digital conversion.” He also needed to get 32 channels of audio easily from one place to another.

Renhorn soon found that Focusrite’s RedNet 2 A/D – D/A units offered the perfect solution. With 16 channels of studio-quality line-level A/D - D/A conversion per unit, a pair of RedNet 2s provided exactly the right number of channels for the main system plus auxiliaries, as well as making it easy to get the audio where it was needed thanks to the plug-and-play Dante Ethernet-based networking.

For the performances, audio was sent from a MacBook Pro running QLab, a cue-based multimedia playback software system designed for theatre and live work. Using the Dante Virtual Sound Card (DVS) driver - which is provided free of charge with any RedNet unit - the MacBook Pro’s internal Ethernet port was used to carry digital audio to the RedNet units via a standard NetGear GS716T switch, which sits between the RedNet units and the computer. The analogue outputs of the RedNet 2s were fed into the 29-channel d&b-based replay system via DB25 cables, with two additional channels for stage foldback and one more for voice.

AV-1 handled the supply and installation of the RedNet components as well as the playback system. AV-1’s Göran Blomgren describes, “This was one of the fastest and smoothest installations ever. Supplementing the Opera’s existing front speakers, we installed 22 additional loudspeakers on the balconies plus five mounted 25 metres up in the ceiling – yet including the loudspeaker and Ethernet cabling, it was completed in under six hours.” He concludes, “I look forward to our next RedNet installation!”

Focusrite RedNet Gotenburg

The Ethernet-based functionality of RedNet had some other unexpected benefits. Renhorn explains, “Hoesch was impressed at how easy it was to set up his laptop at the centre of the auditorium on a 50-metre Cat6 cable so he could fine-tune the feeds to the playback array. And how easy it was to hook up a second laptop to the same network for recording by simply connecting an Ethernet cable between the laptop and the switch.”

The result was an amazing multimedia experience. Sound elements, often derived from samples of the Opera’s musicians, tumbled around, across and up and down the 1300-seat auditorium, in sync with the dancers in large and small groups and dazzling lighting effects. For similar performances in the future, Renhorn plans to use a RedNet PCIe card in a Thunderbolt PCIe chassis for even better performance and minimum latency.

Also available in the RedNet range of Dante Ethernet-networked audio interfaces are RedNet 1, an 8-channel A/D – D/A unit; RedNet 3, a 32-channel digital I/O unit; RedNet 4, an 8-channel remote-controllable microphone preamp; RedNet 5, a 32-Channel bridge between any Dante network and Pro Tools|HD; RedNet 6, a 64-channel bridge between any Dante network and MADI system and the RedNet PCIe card, which provides 128 I/O for Mac or PC computers at less than 3ms latency.

To learn more about RedNet, head to www.focusrite.com/rednet

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