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Excellence in KVM and Video

Singapore's Star PAC achieves flexible computer access and signal routing with Draco tera enterprise matrix switch

The Customer

The iconic venue *The Star Performing Arts Center* constitutes nine of the fifteen level development of *The Star*, an integrated hub that offers prestigious civic and cultural entertainment facilities and an extensive shopping mall to residents and visitors of Singapore. Officially opened in November 2013, this stunning building is the worthy recipient of an A'Design Award in the world's largest design competition.

Taking four years to build, the US$400 million venue boasts a 5000-seat theatre, function hall and several other event spaces, including a rooftop reception area. Every element within the complex is built and installed with the latest equipment and technology to provide guests with exceptional experiences in live entertainment performances and corporate functions.

Central to the operation is a highly flexible and capable broadcast facility based around the latest Sony HD fixed and robotics cameras, Sony 4ME switcher, Geevs servers, Final Cut Pro post-production workstations and Miranda router supported by a 128-channel audio recording studio. These facilities allow the venue to offer broadcast services that meet every requirement, from in-house transmission around the digital signage system, webcasting and DVD recording to full broadcast of concerts to terrestrial TV channels.

The Challenge

To fully realize the potential of the broadcast video infrastructure, and extend its flexibility and ability to meet all eventualities, the integrator, *Broadcast Engineering Services (BES)* envisaged a system that would enable operators to easily access the equipment located in a Central Equipment Room (CER) from their workstation in the broadcast control suite, recording studio or edit suite. The requirement was to allow operators full and transparent control with no visual, audible or data flow restrictions.

With several banks of high speed video servers, video recorders, digital signage servers and various other supporting devices, this meant that interconnection between them had to have a wide bandwidth, provide artefact-free connectivity and support instant switching. Anything less would be visible to users of the systems and would not be acceptable.

The Solution

BES chose the IHSE Draco tera enterprise KVM matrix switch to provide the desired level of switching capability between the numerous source devices in the CER and user terminals located throughout the building. The requirement for uncorrupted, artefact-free video connectivity, together with the wide range of source formats in use: single- and dual-head video, audio and the need for USB interaction ruled out the use of IP-based solutions.

An 80-port Draco tera switch currently supports 37 audiovisual inputs from the range of servers and computers employed within the broadcast center of the venue. These signals are distributed to 20 workstations and video processing devices. Each port can be configured as an input or output using the inherent Flex-Port dynamic configuration technology, thus allowing for future expansion of the system as the broadcasting tasks of the company expand and grow.

From their workstations in the broadcast control room operators can instantly switch to any server, view its output and control the video and audio content that is streamed around the building, or onto the web or distributed on the play-out system for live broadcast. Video editors in the edit room are able to access post production and edit computers located hundreds of meters away as though they were physically situated in the same room.

The sheer size of the complex – covering 38,000 m^2 and 9 floors – means that some data has to travel in excess of the normal maximum distance for HD video signals on copper cables of around 140 meters. BES took advantage of the ability of the Draco tera system to mix fiber outputs alongside Cat X copper, allowing connection to be made to workstations up to 1 km away from the switch using multi-mode fiber.


The Star: gallery

The Star: theater hall

The Benefit

An installation of this type and size could not have been completed to deliver the utmost in flexibility and adaptability required by the broadcast center teams without the use of a high speed KVM switch of the type offered by the Draco tera. Its functionality, efficiency and flexibility delivers the highest level of performance that is demanded by the broadcast professionals using it, with requirements that often change at extremely short notice.

The Star Performing Arts Center is destined to become one of the premier performance and event venues in the APAC region. The ability of the Draco tera KVM switch to be upgraded and extended as new broadcast formats need to be accommodated will not only simplify and save investment in the future, but will ensure that the center continues to remain at the forefront of technology and offer prestige service to broadcasters, performers, sound recordists and audiences alike.
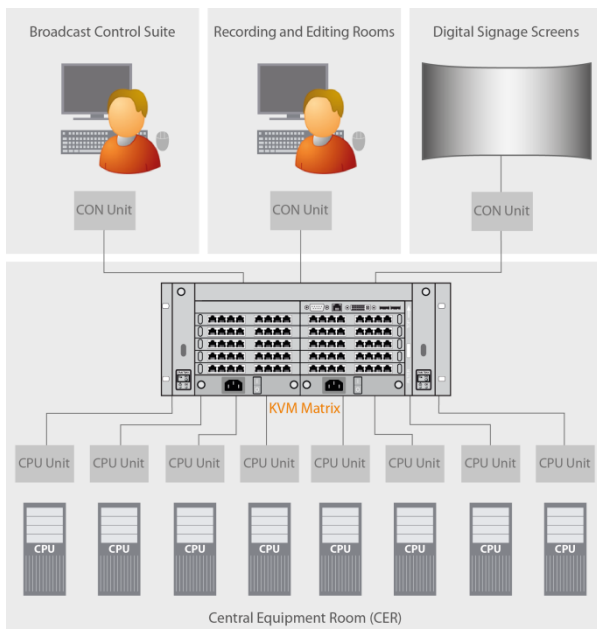
Functional Diagram

KVM products in use:

- **Draco tera enterprise** matrix switch
- **Draco vario** extenders