The Nine Network's New Emerald® IP KVM System Delivers Fail-proof Broadcasting

BACKGROUND

The Nine Network is Australia's leading media company. Its brands entertain, inform, and engage millions of people who watch its shows, listen to its radio, or read its publications every day across the country. From big occasions to everyday moments, Nine brings people and communities together by sparking conversations, challenging perspectives, and entertaining its audience via national broadcasts and publications.

CHALLENGE

Nine has a large number of high-powered computer workstations that require stable power and cooling, which is best provided by a data center environment. The computers and workstations need to be used by operators in office areas often separated by several building floors, and these users might need to also access different machines at different times.

To achieve this, Nine has used other KVM extension systems in the past, but was challenged by the reliability of either a switching matrix, connecting fabric, or practical restriction when trying to run specific types of connections between floors or to different endpoints. On occasion, the company had lost KVM connectivity to one or more hosts due to failures in some part of the connecting fabric, whether that was a matrix frame or simply cabling. Even with redundant systems for critical positions, depending on the nature of the failure, it could be more problematic, especially when occurring during active use for a live broadcast.

The shortcomings of these legacy systems forced the company to look for a more appropriate solution for its needs when designing new offices and studios at 1 Denison Street, Sydney.

The media company wanted a system that could transport data over standard IP networks, with redundant connections using physically different paths/networks. The high-performance solution must support 2K and 4K desktop resolutions, power redundancy, and bespoke USB

HID/control peripherals. User and group level access controls, central management (including observation and firmware upgrades), and the ability to operate without physical user intervention where possible rounded out the company's requirements for a reliable and cost-effective system.

Black Box was chosen to meet this company's needs because we provide local sales and support, and have the ability to engage with developers for feature and design issues.
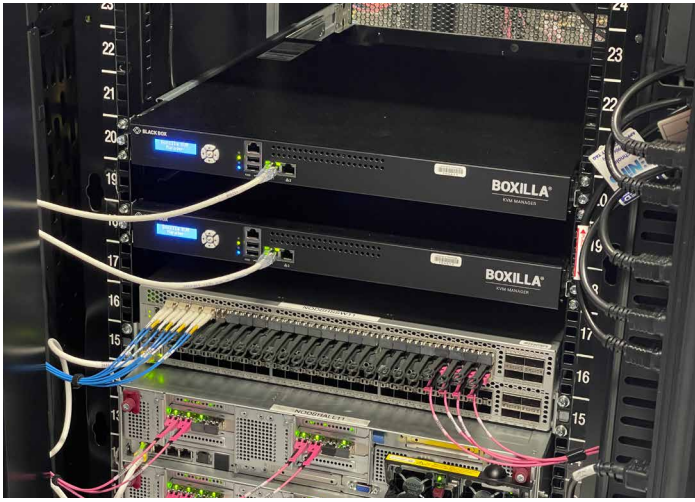
SOLUTION

The Boxilla/Emerald IP KVM solution was the preferred solution for their new facilities over the incumbent and alternative options to replace the KVM extension system. The new system includes Boxilla Manager, and Emerald 2K and 4K transmitters and receivers. The site successfully tested Boxilla Manager with an API integration to LAWO VSM (IP Broadcast Control and Workflow Solution), allowing the company to control the active connections for the Emerald KVM Receivers in the future.

A large number of both dual- and single-head 2K units connect the majority of the positions and systems, though an increasing number of 4K units are required and expected to grow as development and production needs increase.

The business requirements needed to ensure this would be integrated through a proposed Cisco® corporate network infrastructure, which has been achieved with great success.

The KVM system forms an integral part of the broadcast production and studio environment that is used for creating 12-14 hours of live television each day, and producing promotional content, requiring the teams to work with high-definition video and control systems.

The graphics designers, audio engineers, and video editors are able to use high-powered workstations that would otherwise require custom enclosures for cooling and sound isolation in operational suites and have the added flexibility of switching between any necessary host, including

ones from different operating systems or platforms where standard Remote Desktop Protocols (RDPs) were inadequate for the demands of working cross-platform or with high-resolution (and bandwidth) media.

Studio operators use the KVM receivers in key positions of control room environments, allowing them to switch between different host devices, and operate them using the same custom USB devices including X-Keys, StreamDeck, JL Cooper Faders in order to deliver live news bulletins. The operators are able to switch between multiple systems as either a normal procedure, or
quickly swap to backup systems in the event of a failure.

This site rebuild is the first of hopefully a new round of technology and production refresh projects that will be occurring in the company's news production facilities around the country.

Matt Benson, Group Enterprise Architect, Information Technology commented, "The willingness and ability of the Black Box development teams to work with us to resolve issues in the new product and include required features in the lifecycle was very reassuring. The ability for the solution to meet our needs was
then almost ensured through this collaboration."

Smita Gautam, Broadcast Technical Support Manager, said: "Support aspect of Black Box team is remarkable. I have always found them prompt and reliable. Black Box team's willingness to look into our feature request and deliver them on time was quite impressive in our build phase. As has been the case with its other refresh cycles, Nine finds a solution that meets its needs and tries to keep that consistent when redeveloping other sites. 1 Denison Street was the last of a previous round of site refreshes, though was significantly more complicated than the other sites due to its size, and it is not yet finished growing."

Additionally, once NIne inevitably turns to refreshing systems at other sites, its expectation is that the Boxilla and Emerald systems would of course be used there to meet the same business requirements.

RESULTS

Network redundancy was considered a primary requirement for the Nine Network KVM deployment, as was the ability to support bespoke USB peripherals. By the time that the company was ready to launch the site, there were still some issues to sort out, where Black Box worked with Nine Network to ensure they were resolved in a timely fashion.

The key difference with the Emerald KVM system is that thanks to the redundant network connections, the system can tolerate more modes of connectivity failures between the Transmitters and Receivers without causing any interruption to the operators. Doing this over a copper-based IP network was essential since the multi-level high-rise office environment made using optical matrix extension systems impractical.

The lack of user complaints is another benefit, meaning the system is not causing any unwanted friction in the facility. Given that it goes mostly unnoticed, the system is doing the intended job admirably.

The features provided by Boxilla for visibility of network flows, connections, and the ability to manage connections from a third-party system via API has been a standout benefit. The ability to provide the network redundancy, while not unique, has certainly been something the company has stress-tested and were very happy with.

Nine expects to use a similar Emerald IP KVM system when it redevelops other sites as a replacement for aging systems, and also obviously in any on-site growth in Sydney.
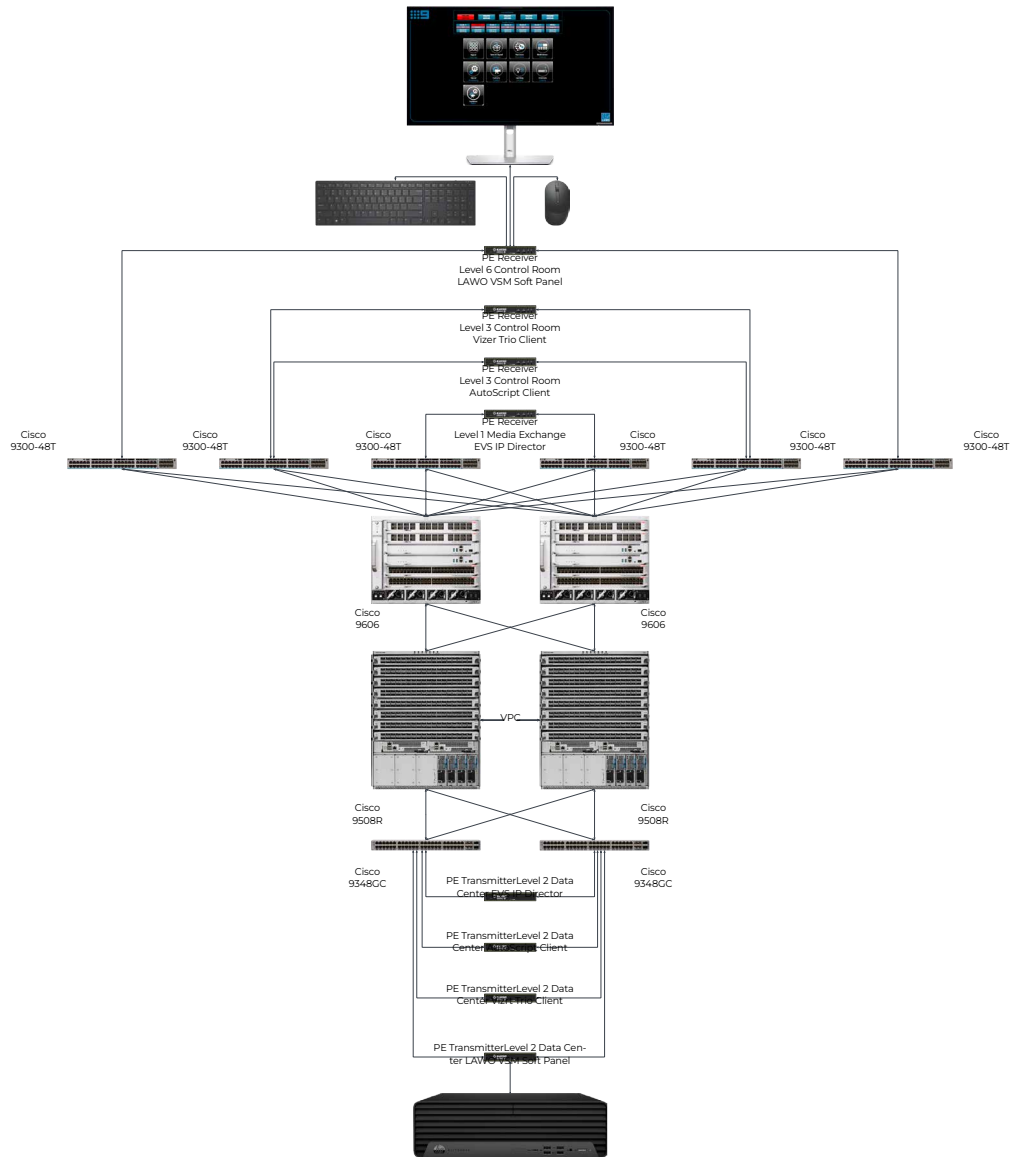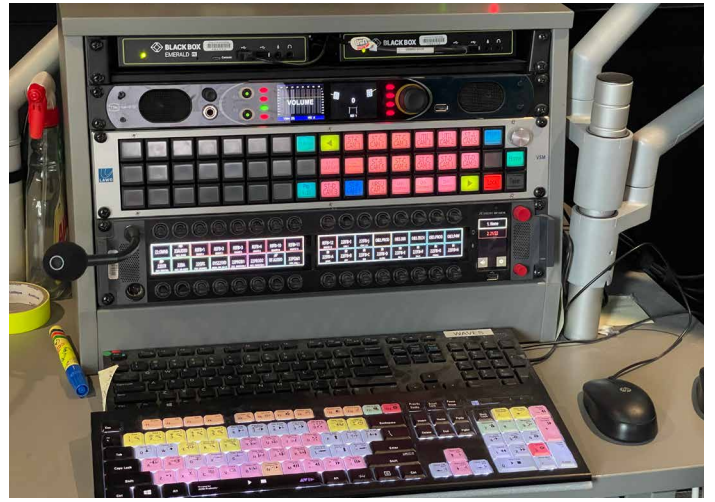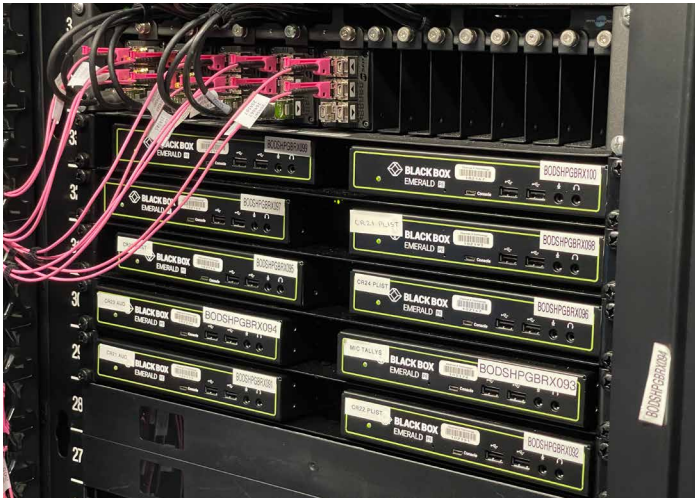
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