



Philadelphia Eagles Use Black Box Emerald KVM for Flexible, User-Friendly Virtual Access to Production Systems



Client	: Philadelphia Eagles
Region	: United States
Industry	: Broadcast
Solution	: 4K and HD KVM over IP
Services	: Consulting and Design
Products	: Emerald SE, Emerald PE, Boxilla

THE CHALLENGE

Just prior to the pandemic, the NFL's Philadelphia Eagles moved forward with replacement of an aging KVM (keyboard, video, mouse) system supporting game-day production systems at their home stadium, Lincoln Financial Field, and TV studios and a control room at NovaCare Complex, home to the Eagles' training facilities.

The challenge for Philadelphia Eagles Senior Broadcast and Media Engineer David Sullivan was to find and implement a new KVM solution that would allow for virtual machine access and flexible remote desktop access while ensuring continued performance and ease of use for engineers, creatives, and others working across all Eagles facilities and production systems.

"More and more of the systems supporting our business and engineering tasks are becoming virtualized," explains Sullivan. "Virtualization is great from an engineering standpoint; you get high redundancy, resiliency, and failover. But on the user side, you

give up tactile control. Obviously, in production, that's not great. Software receivers will only get you so far because you still need to run the software receiver on a computer. The problem we ran into as we grew more into virtualization was that we had a gap between user access and ease of use. We didn't want the engineer to be the only person who could get to those systems, and we didn't want to give up the user experience where the remote system acts just like a regular physical server. That was a tough ask."

In YEAR 2019, when Sullivan began evaluating possible solutions, few vendors offered products capable of supporting virtualization. So, Sullivan faced the additional challenge of finding a proven solution that would deploy easily and perform reliably and as advertised in enabling access to virtual machines.

THE SOLUTION

Sullivan evaluated and then deployed Black Box Emerald SE and PE KVM-over-IP systems, along with the company's Boxilla KVM manager, to support signal transport for everything in the Philadelphia Eagles' television production world.

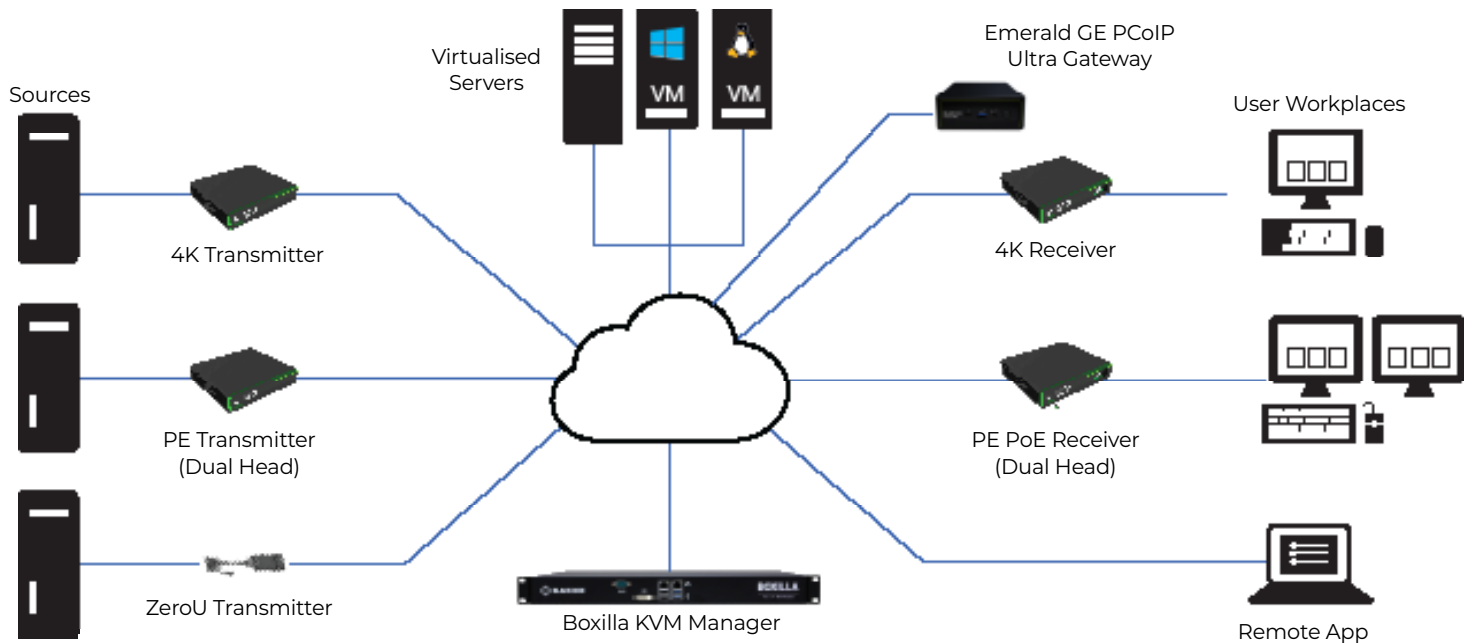
"We were keeping an eye on the market for a new KVM system that could meet our requirements, and Black Box has been a well-known name in the tech industry for a long time," says Sullivan. "And we knew that a PBS Emerald KVM install in Virginia had gone well."

Sullivan started out with the Emerald SE, putting 20 transmitters and 20 receivers on the Eagles network to make sure traffic and performance matched up with his expectations.

"Of the products out there, Emerald checked all the boxes," says Sullivan. "It's standards-based, so there's no proprietary network switching. There's no proprietary central processing. The network traffic is actually friendlier than a lot of the others. It's TCP unicast by default, which is awesome. It's easy to traverse on our giant enterprise network. And in addition to all of those things, the price is attractive. I didn't even quote out another product. I got the Black Box quote, and we were like, 'Let's do it.'"



Emerald KVM over IP - Connectivity Scheme



The Eagles so far have established approximately 100 Emerald endpoints, spread across two TV studios and one control room in the team's practice facility at the NovaCare Complex and also at Lincoln Financial Field to accommodate the scoreboard control room and all of the associated devices there. The Emerald KVM network supports every graphics processor for the scoreboard and for the television studios, which feed social networks, local television partners, and daily press conferences. The KVM system also supports user desktops — including Sullivan's — across the production team. Staff need only a mouse, keyboard, monitor, and Ethernet connection to log in and get to work. As Sullivan puts it, "It's our connection to everything."

While Sullivan started out with the Emerald SE units, he switched to the Emerald PE model to take advantage of its power over Ethernet feature, which significantly reduces cabling and number of devices (and potential points of failure), in turn making for a faster, cleaner install.

"The Emerald PE was a very easy product to deploy, and there were no complex switch configurations required on our network side," adds Sullivan. "Uptime has been great too. We haven't had a single Emerald unit dead on arrival, and we haven't had any failures in the year that we had them deployed."

THE RESULT

Sullivan and the Eagles successfully installed the Black Box Emerald KVM-over-IP system to move toward more flexible signal distribution and extension across multiple sites with full support for virtual machine access, without compromising the performance essential to a seamless user experience. As it turned out, the shift onto the Emerald KVM platform also gave Sullivan and his team much-needed agility as COVID brought about new protocols for distancing and remote work.

As long as there was an Ethernet connection, Sullivan could put a producer or engineer anywhere. With the Black Box Emerald system, it was plug and play. No need to worry about deployment scenarios, locations, or infrastructure.

During the pandemic, studio personnel who normally worked at the NovaCare Complex relocated to the stadium for four months. With

the Emerald KVM network in play, they simply went into work and sat down with a keyboard and a mouse. On their screens they saw the same list of connections that they'd normally see at their desk in the control room.

Team members working from home were able to use the Black Box Emerald Remote App to connect via VPN and work directly within a familiar environment and applications rather than clunky remote access software that requires significant CPU resources.

"The Black Box Emerald system has 100% changed the way we work in our facility," says Sullivan. "Because it is standards-based networking and it's over a one gig infrastructure, I can take a KVM receiver and go to any port in the building, drop it down, and have full access to all of our production systems. During COVID, we spaced people out and put people in buildings that weren't designed to be production studios or control rooms. With the Emerald solution, you just drop an Ethernet connection and log in, and you've got the same access that you did in a different zip code."

Taking advantage of the Emerald network's resilience over WANs, Sullivan sometimes brings an Emerald receiver on the road with him so that he can dial back into any of team's production servers while he's at an away game. While this kind of flexibility is a top priority for Sullivan, ease of use and performance are a close second.

"I think the biggest nod to Black Box is that production folks, graphics designers, and editors have no idea that there's any device between them and the host machine," says Sullivan. "The video performance is exceptional, especially considering the bandwidth that it averages; the Emerald systems are extremely efficient on our network. And from an engineering standpoint, I think I've had to call tech support once, and it was a quick and easy fix. It's so good, we don't talk."

"KVM is a make-or-break scenario, right?" adds Sullivan. "If your KVM doesn't work and if it doesn't work effectively, then none of our creative and production people can access the systems that they need to drive everything. When you put all your eggs in one basket, it's got to be solid, and Emerald is. It's a transparent, efficient KVM product that reliably supports 40 users on a daily basis — and more on a Philadelphia Eagles game day."

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