



Raycom Media Delivers Market-Tailored Programming to Its Television Stations Using Raritan's Remote Access and Power Management Solutions.

Whether it's "Dr. Phil" or "The Dr. Oz Show," operators at Raycom Media focus on delivering market-tailored, around-the-clock television programming content to its television stations throughout the United States. In the fast-paced world of broadcast television, Raycom is always looking for ways to improve how it manages and maintains its broadcast equipment and distributes time-sensitive programming content to its growing roster of television stations – while keeping operations costs down.

As one of the largest broadcasters in the United States, Raycom Media owns and operates 46 television stations in 36 markets – serving more than 12 percent of U.S. television households. Raycom's television station affiliates represent all the major networks – NBC, CBS, ABC and FOX. It is the job of Raycom's operators to control "air enrichment" and create and distribute programming playlists specific to each station's market and network.

Instead of operators based in each station, Raycom pioneered a new approach where operators are based in a central location. Raycom's centralized Network Operations Center (NOC) in Charlotte, NC, remotely controls and manages each of its station's playlists and monitors its on-air programming and commercials 24 hours a day.

"Our Charlotte Network Operations Center is central control for all of our stations," says Mark Willett, Director of Engineering and Design at Raycom Media. "We no longer have an operator sitting at each television station. Instead, one operator here in Charlotte controls multiple stations."

"It's the operator's responsibility to ensure that programs, as well as commercials, air properly," adds Derrick Chresfield, General Manager at Raycom Media's Central Broadcast Center (CBC). "If there is any sort of programming change or local- or network-breaking news, it's our operators' responsibility to put it on the air for the station from this location."

Raycom Media turned to Raritan for an advanced, high-available access-and-control solution that could deliver improved operations in both its Charlotte NOC and remote station locations. The solution needed to support 24/7 operations and all programming formats, as well as meet FCC on-air monitoring requirements.

Customer	<ul style="list-style-type: none">▶ Raycom Media, one of the nation's largest broadcasters
Challenges	<ul style="list-style-type: none">▶ Better way to distribute television programming content to its network of television stations, while streamlining operating costs▶ Simplify control and management of machine room computers and broadcast devices in remote stations
Solutions	<ul style="list-style-type: none">▶ KVM-over-IP remote equipment management – Dominion® KX II-416 and Dominion SX Secure Console Server▶ Web-based remote power management – eight-port Dominion PX™ rack PDUs
Results	<ul style="list-style-type: none">▶ Enables lights-out operations in remote television stations▶ Simplifies station management with secure, out-of-band access to key broadcast equipment▶ Able to resolve issues quickly by enabling operators and engineers to access any machine on the network from their desktops, with capabilities to shut down and start up equipment remotely



Raycom's Innovative Broadcast NOC Serves Remote Television Stations

With an objective to reduce operating costs, while delivering 24/7 support for each of its television stations, Raycom set out to create a hub-and-spoke NOC – in which Raycom's operators would be based in Charlotte at WBTV and serve multiple remote stations throughout the Southeast. The move would help Raycom improve its bottom line and provide a more efficient way to manage and distribute programming.

As one of the first broadcast firms to use this approach, Raycom needed a secure and reliable remote access-and-control solution to manage the content – and the equipment – for each station miles away from the hub.

Mark Willett contacted Joe Barre, Southeast Region Sales Manager for Raritan, who had helped Mark on another project in Atlanta a decade earlier. "We wanted to work with Raritan because of the company's strong track record of delivering innovative remote access technologies," says Willett. "We knew they were the right partner to deliver a solution that could be tailored to meet our requirements for creating more efficient operations through remote access."

One design criterion was that the access-and-control solution needed to support the use of multiple broadcasting technologies, including SD, HD and Ethernet. The solution also needed to provide machine control for a wide range of editing, recording and broadcast equipment and servers.

Raycom selected Raritan's Dominion KX II KVM-over-IP switches that enable multiple users to access remote equipment over a very secure out-of-band network. It achieves this by sending encrypted keyboard, video and mouse signals over an IP network. As a result, operators and engineers can access any piece of equipment from anywhere using a Web-based dashboard. They also can switch from machine to machine. Raycom also chose Raritan's Dominion SX solution that provides secure console access to serially-managed equipment.

Because distributing broadcast programming and monitoring were new applications for the Dominion KX II, the Raycom and Raritan tech teams had to make some minor modifications to the KX II switch, as well as configure the switch to support T1 transmissions.

"One of the reasons why we went with the Raritan switch – versus other vendors' solutions – is that we didn't have to load additional software on our key equipment that could jeopardize performance," adds Willett.

Today the Dominion KX II switches are constantly streaming back information to and from Raycom's NOC, and operators are manipulating that information to keep the remote stations on air. Some examples are the CBC operators' ability to modify station playlists, acknowledge remote station alarms and provide redundant access to streaming CPUs. This information is needed to keep the remote stations on air. "We're using Raritan's Dominion KX II 4-user with 16-port models, and we have those hooked up to our equipment that is streaming back 24/7," says Chresfield. "The KX IIs are never shut down, we run them continuously."

Raycom engineers manage programming content through a browser-based management dashboard – called the KX II Virtual KVM Desktop™. The dashboard provides engineers with a holistic view of system status, and provides a way to manage programming and equipment in the machine room easily.

With a single sign-on, operators can access the entire broadcast infrastructure anytime, anywhere.

A favorite feature among Raycom NOC operators is Dominion's Absolute Mouse Synchronization™, which provides

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perfect mouse synchronization right out of the box. "The KX II synchronization enables us to perform our operations without needing to refresh constantly," says Willett. "Synchronization is a very important feature for us."

For easier dashboard viewing, the Dominion KX II offers high definition – 1920 x 1080 – video resolution and widescreen formats, such as 1680 x 1050.

Virtual Presence

In addition to helping manage and deliver content to local television stations, Dominion KX switches help manage remote equipment. In the past if there was an equipment issue at a station, it usually meant a station technician had a long drive from home to the station.

"We now have a virtual presence at all our stations," says Chesfield. Raycom is able to leverage the expertise of its headquarters-located engineers during off-hour operations across all stations – helping to save the cost of sending someone, as well as eliminating down time.

To support Raycom's operations needs, the Dominion's KX II delivers always-available access by using a redundant out-of-band network, dual power supplies and dual gigabit Ethernet ports with automatic failover. The Dominion KX II also can remotely power cycle connected equipment. If a computer located in one of the television stations has to be turned off, the Dominion KX II could power cycle the computer remotely.

"Some of our devices aren't really computers, so they don't really obey the KX II's keyboard strokes to reboot," says Willett. For its non-computer equipment, Raycom uses Raritan's intelligent rack power distribution units (PDUs) to power cycle remote equipment.

"We have people on call to come in and fix issues, we also have built-in redundancies," says Willett. "If we have a failure or a computer locks up, we have a backup solution with the KX II and the PX – it keeps us going until somebody can get there if needed. The power cycling feature is a very efficient way of handling these situations."

"Particularly at three o'clock in the morning," adds Willett.

Both the Dominion KX II KVM-over-IP switches and the PX power distribution units come with built-in security features, including multifactor authentication. To protect from unauthorized access, they provide 256-bit AES (Advanced Encryption Standard) or 128-bit RC4 encryption. Also standard are strong password support and group-level permissions. Both solutions operate securely in stand-alone mode with local authentication available, and can integrate with external authentication and authorization services, such as RADIUS, LDAP and Active Directory®.

Security was also improved by placing all digital assets in Raycom's centralized machine room in Charlotte. Authorized users are presented with only the equipment they are allowed to control.

High Ratings

From Charlotte, NC, operators today control the air content in Charlotte, Richmond, VA, Charleston and Myrtle Beach, SC. Based on their initial success, plans are to expand the solution to other Raycom television stations. As Raycom upgrades to a new LAN and WAN network, additional stations will be added.

"Raritan's solutions are key backbone technologies that make our centralization and control model work," says Chesfield. "Our current model has given us a competitive advantage and assisted us in reducing costs."

"The Raritan switches are performing very well," adds Willett. "You just log on, do your work. With the potential of one operator managing four stations (eight broadcast channels total), you also free up resources that can focus on other aspects of the business."

The new approach to programming distribution is where the industry is headed. "The payback makes sense for an entity that has more than three or four stations. It seems to be the trend of where things are going," says Chesfield.

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Based in Somerset, NJ, Raritan has 38 offices worldwide, serving 76 countries. For more information, please visit Raritan.com

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