

## Greater Media Fine-Tunes Its Radio Broadcast Operations

**New Jersey radio stations gain crystal-clear broadcasts, flexible digital recording capabilities for remote on-air talent, and advanced equipment management tools for IT personnel.**

With noticeable humming noises coming from workstations and server hard drives in its on air and broadcast production studios, one of the first things Keith Smeal wanted to do when he arrived at Greater Media's New Jersey operations was to relocate the workstations out of the studios. "We're a radio station and audio is our product. If the studio is noisy, it's not a good thing," says Smeal, who is Director of Technical Operations for Greater Media's six radio stations throughout the state. "Some of the equipment was quite loud. We needed to get the culprits out of the studio, but still be able to access content on these servers from inside the studio in order to do our on-air and production work."

Focused on delivering quality audio and optimal performance, Smeal called on Raritan Inc. He had used other KVM solutions while he worked at Greater Media's Philadelphia stations, and with a little research found that the latest Raritan analog Paragon® KVM (keyboard/video/mouse) switch would satisfy all of the criteria on Greater Media's wish list for the New Jersey operations.

Greater Media selected the Paragon II 832 model that supports eight users and 32 devices. A reliable workhorse used by thousands of data centers, the enterprise-class Paragon connects users to target servers and equipment over a secure, out-of-band network for non-blocked access to servers. As a result, users — multiple simultaneous users — always have access to target servers from a User Station, which shows on the monitor all the connected equipment in a single, consolidated view. Adding a device to the Paragon switch is a simple plug in using CAT5 cable.

"In Philadelphia we were using other vendors' KVM products, and I wanted to find something without the limitations I faced with those," says Smeal. "They were very limiting in the number of paths you could have, and required some heavy planning in order to configure it in a way to minimize single points of failure and provide as much flexibility as possible. Raritan's Paragon, on the other hand, gives me eight unblocked paths and support for 32 servers in one box. I would have had to daisy chain three or four of the other vendors' products to get the same level of flexibility. Paragon's form factor and port density enabled us to pack a lot of equipment in a very small space; we fit the entire server administration area-keyboard, monitor, and redundant Paragon II switches in fewer rack spaces than the other single KVM-only system would have populated. Consequently, the Paragon is more cost effective and contains many more productivity tools."



**Greater Media, Inc.**

### CUSTOMER

Greater Media fills the New Jersey airwaves with programming around the clock. It owns six AM and FM radio station brands — including central Jersey's popular continuous soft rock Magic 98.3 and WCTC 1450 AM The Voice of Central Jersey.

Part of the Greater Media enterprise that encompasses radio, printing, publishing, and telecommunications properties throughout the United States, the New Jersey operations includes four geographically separated broadcast studio complexes, sales offices, and myriad broadcast and IT equipment. From its first radio station in the 1950s, the company has stressed leadership in developing and adapting new technologies and services in order to provide listeners great entertainment and useful and timely information.

### CHALLENGES

To provide continuous, quality programming content for listeners, Greater Media New Jersey focuses on great talent to create content and highly-reliable, state-of-the-art broadcast systems and infrastructure for delivering this content.

The company was looking for new ways to support its radio talent, so that they can record whenever and from wherever. It was also looking for better ways to support high-availability service objectives.

In addition, Greater Media was concerned with superfluous noises generated by some of the equipment inside its studios and its possible impact on broadcast audio quality.

### SOLUTIONS

Raritan Paragon® enterprise-class analog KVM switch. Dominion® KX II KVM-over-IP switch with new digital audio capabilities.

Greater Media was in the process of implementing a server-based audio playback system in the NJ operations, so the timing was good to also deploy Paragon. "During this implementation, we installed the Paragon switch and Paragon user stations inside each studio, and moved the workstations and the servers into newly created rack rooms outside the studios," says Smeal.

From their user stations inside the studio, Greater Media's producers and air talent can easily access their applications and content residing on relocated servers and workstations. The Paragon switch extends the reach of KVM (keyboard, monitor, mouse) signals from servers to the user station; and, delivers high-definition video resolution (as high as 1920 x 1440 — at distances of up to 1,000 feet), so a user has the same experience as if sitting right in front of a server (minus the humming and fan noise). They have access to all their systems to produce and distribute on-air content, including audio editors, telephone-call screening software for talk shows, internet workstations, and the Audiovault™ audio playback system.

Paragon II's implementation also uncluttered the space-constrained studios by not only removing servers from inside the studios, but by also eliminating the need for each server to have a separate monitor, keyboard and mouse. Greater Media also selected Paragon's KVM-over-IP option for additional flexibility and manageability, enabling access to selected servers from just about anywhere over the Internet.

Other Paragon management features that Greater Media has found helpful include: logging and audit trails, Multiple Video feature that enables up to 16 user stations to simultaneously receive the video output from multiple servers, and Video Redirect that provides easy redirection of video signal to any user station within a Paragon II system.

## Redundancy For High Availability

Anyone in 24/7 radio can tell you that the number one business rule is "Stay on the air." Keeping the New Jersey operations running smoothly is a five-person engineering department reporting to Smeal. "Engineering in the radio world encompasses a broad spectrum — pretty much anything that gets plugged into a wall falls under the realm of engineering," says Smeal. "All the facilities, studios, all the computers, all the broadcasting equipment, transmitters — just about everything to keep us on the air falls under engineering."

To deliver as close as possible to 100 percent service levels, Greater Media has created a redundant technology infrastructure for key parts of its operations. "Without a system of redundancy in place, broadcasting can come to a halt if a piece of equipment goes down," says Smeal. Redundancy and increased levels of flexibility were created by installing dual Paragon switches. In the event a switch ever fails, the other will come on line. "In the places where we have Paragon II, I'm running two in parallel using dual CIMs (Computer Interface Modules). If I were to lose a switch, I can bring up everything on the other switch."

There are also redundant access paths from the user station to the server, using dual Paragon CIMs connected to each key production server. In addition, dual user stations were installed inside the studios — the main monitor is on one KVM; the backup monitor is on the other KVM switch.

"We have it setup in such a way that there's a lot of redundancy. So, if the on-air talent doing a show ever sees their screen fail, they can switch over and bring up their computer screen on another monitor in the studio," says Smeal. "Now, if it turns out that that failure was in the computer, such as the computer itself went dark, then they can use the Paragon to go to the backup computer in order to keep programming on the air. Every step of the way we have built redundancy because the 'show must go on.' Using the Paragon for the on-air operation gives us a lot of flexibility and redundancy in order to keep things running smoothly."

According to Smeal, the new Raritan solutions also have made troubleshooting and repair easier for systems engineers because they can now access systems from anywhere. Greater Media's team of engineers can now more efficiently access all the equipment in each location without needing to travel from system to system — eliminating the need for specific tasks to be performed at particular workstations and running from one workstation to another.

## Extending Studios' Reach by Delivering Quality Audio Over KVM-Over-IP

Taking advantage of the first bidirectional digital audio capabilities in a KVM switch, Greater Media plans to use the new technology in the Dominion KX II to help with radio content production. Up until this point, the only option available for superior audio was through traditional analog switches and extenders, which limits where and when you can work. Through the KX II's remote IP connection, users can access high-quality, digital audio applications from anywhere in the world.

Greater Media is using the KX II's new digital audio capability to make content on its Audiovault system accessible from any location. Users are no longer bound to a particular location. They can, instead, be located anywhere and have access to all the resources that they need to create an on-air radio show. Talent and operators can now playback a show's content before it goes on the air without having to drive to one of the studio locations.

With KX's Virtual Media feature, prerecorded on-air content can be loaded to the Audiovault system residing at one of Greater Media's New Jersey radio stations. Using the Dominion KX, the remote talent and other production team members are able to playback what was just recorded, along with all the other components. "They would hear their voice track as it comes into the next element, whether it is a song or a commercial, to see how it all fits and if it all just sounds right," says Smeal.

“Working with the Raritan team, we were able to develop this solution for remote voice tracking, and we are evaluating all the advantages and benefits. To have the audio IP with the KVM solution adds an interesting layer.”

Greater Media is also testing another proof of concept leveraging KX II’s audio feature. “A run of radio commercials purchased by clients are stored in our Audiovault system. There are times where there are questions about the audio that is tied to a specific contract. Now, if it’s a Saturday afternoon and our production director is at home having a barbeque with his family, and an issue comes up, he is now able to remote in, get into the Audiovault system, which we keep behind a protected gateway, and actually play the commercial’s audio through the KVM connection. This will aid in his being able to check on issues and better serve our advertising customers.”

Smeal predicts that with the right compression algorithms and combination of technologies, including those from the Dominion KX II, there are can be many other potential applications, including doing remote broadcast. “Within my group we’re already brainstorming other applications. I could see the potential of having remote access to production workstations used to edit commercial materials, which would give us more flexibility — such as enabling a production director in one market to cover for another one.”

## Remote Equipment Management

In addition to production servers, our offices have business servers supporting a variety of applications, including e-mail, authentication, file storage, and Citrix. “We were looking for a solution that would help simplify IT equipment management, and enable us to be more responsive in the event of problems,” says Smeal. “Raritan’s digital KX II solution enables us to access and manage our equipment anywhere via a web browser, eliminating the need to travel to our various sites and resolve issues quicker.”

For managing these servers, Greater Media New Jersey selected Raritan’s 32-port Dominion KX II switch that enables multiple users to access any remote server no matter where it is located, as well as resolve problems no matter what state a server is in — whether the server is operational, powered off, or experiencing a fault. The KX achieves this by sending encrypted keyboard, video and mouse signals over an IP network.

Greater Media’s engineers are now able to access servers from any location to check the health of servers, perform diagnostics and other maintenance, and, if necessary, reboot a server. With a simple click of an icon on a web-based dashboard, users have secure, BIOS-level access to servers and other IT devices from a single keyboard/video/mouse console.

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“The Dominion supports our business servers and our uptime objectives. If there’s a problem — such as with the e-mail application — at any time, day or night, my IT manager can get in through the Internet and deal with it. They may be working from home in the evening and need access. So, if there’s an issue the IT manager can get in and troubleshoot using the Dominion,” says Smeal.

Other criteria that Greater Media used in its solution selection included ease of set up without interrupting daily operations and ease of use. As a plug-and-play KVM appliance that installs in minutes, Dominion KX II is completely self-contained with all key features preloaded — including internal authentication and web access. Since the KX provides BIOS-level access, servers are accessible even if a server’s operating system is not working or the network interface card has failed. If an Internet connection is unavailable, the KX provides a dedicated modem port for emergency dial-up access.

Dominion provides multiple levels of security, including built-in authentication, compatibility with third-party AAA servers, and SNMP and Syslog event management. It also has dual power and dual Gigabit Ethernet with automatic failover.

Other features that have come in handy are the KX II's Universal Virtual Media™ for remotely installing software to target servers, and Absolute Mouse Synchronizati+n™ that saves time by providing mouse synchronization right out of the box.

“By providing us even more flexibility, the Paragon and Dominion KX II solutions have proven to be very useful in our operations,” says Smeal.

“We believe in leveraging technology. Partnering with Raritan has given us a real opportunity to build flexibility and redundancy into our operations in order to deliver performance. I spend a lot of time thinking about how to create redundancy wherever we can — so that if the main fails, we've got an auxiliary. So no matter what, our radio stations will be on the air. Having such redundancy and flexibility as provided by the Raritan switches help people in my position sleep much better at night.”

## **BENEFITS**

### **Efficiency**

Dominion KX II's dashboard view of all connected devices and ubiquitous remote access to all key systems provide a more efficient way to manage equipment; eliminating cost of time and travel to firm's seven locations.

### **Uptime**

Equipment management configured for redundancy, so access to key production systems is always available. 24/7 remote access to business servers over the Internet.

### **Quality**

Quieter studios. Moved noisy servers and equipment out of the production studios, while providing users inside the studios secure access to servers' content.

Support for voice tracking. Ability for remote talent to review entire show with all the elements in their final order, including talent's recorded content, music and commercials.

### **Flexibility**

Audio production professionals and on-air talent now able to access content on digital audio system from anywhere.

Engineers now have one-click access to their devices from any location, using office desktops, smartphones and tablets.

**Ready to find out more? Contact Raritan today.  
Call 1.800.724.8090 or visit [www.raritan.com](http://www.raritan.com)**

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