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CC Asheville Builds Beyond the Familiar

Tucked Into the Mountains, Cluster Employs IP Audio and Other Innovative Studio Solutions

by Chris Karb

Clear Channel Asheville, N.C., operates six radio stations in the market area. Our studios and business offices were spread between two locations about two miles apart, just enough to make managing a chore for sales, programming and engineering.

GM Ken Salyer had been working to get the staff all in one place for years.

A new building finally was approved in the spring of 2005. We would build on the 61 acre grounds of our legacy AM, WWNC, adjacent to the original transmitter, studio and office building. It was to house the studios, programming and engineering offices and include the main reception area.

Of course, the most favorable location for the building was about 300 feet from the high-power ND tower, carrying 5 kW of 570 KHz.

IP Audio system

Hidden in the North Carolina mountains and mostly off the corporate radar, we could deploy engineering technology and utilize systems and software which were beyond what was generally available at the time. We would be the development mule, as it were, with our staff willing to invest the time and effort to develop those systems fully.

As it turned out, the project was an exciting one and marvelously successful.

A broken leg (don't ask) in the summer of 2005 provided several weeks to research available digital studio systems. The Axia IP Audio system emerged as the

winner. Its ability to route 32,000+ channels in a Cisco 3950, coupled with redundant hot-standby router controllers, seemed to be the direction in which the world would eventually move, and presented a good opportunity for us to get in front of the parade.

McCarroll Construction of Fletcher, N.C., was chosen as the general contractor and ground was broken on Jan 7, 2006.

RF control

To control some of the AM RF, 4-inch copper strap was brazed with bronze rod to the steel roof-support columns, then silver-soldered to strap circling the building and



Operator's position in WKSF's studio.

Luckett and Farley of Louisville, Ky., were chosen as the architects. Veterans of many CC projects, they provided a basic initial layout, which we refined into 8,000 square feet including 10 studios and a news production area, rack room and shop, multimedia conference room and kitchen, programming and engineering offices.

connected to the tower ground radials.

A strap was brought from each studio junction box to the perimeter strap, and insulated from corrosion by the concrete slab with roofing felt. The tower ground radials, all electrical service entrance devices and the metal stud track in the outside wall were grounded every 15 feet with 4-inch strap connected to the perime-

ter strap.

The RF field of 20 volts per meter is reduced to about 1 volt per meter inside the building. No screening or other RF suppression methods were needed.

The technical center contains 12 racks, two of which are accessible from the hallway for access to EAS encoders, ISDN codecs and the like. A distributed UPS system is used, with 2 KW Liebert unit in each rack and individually sized units for each studio and office. AC entry is at the top of the racks, eliminating the usual dusty clutter of AC cables at the bottom.

Fifty satellite channels are used in creating the programming for our two newstalkers, WWNC (conservative) and WPEK (progressive). A few are used by the music FMs, WKSF, WQNS and WQNO. Audio from the satellite channels or other rack-room equipment is wired directly to analog or digital nodes in the rack room. Corresponding GPIO nodes accept contact closures to start breaks or play liners of IDs.

One of our bleeding-edge desires was to eliminate the hardware source switch used with each automation server and digital recorders.



Tech Center Backboard. GPIO cross-connects for satellite receivers are in foreground.

Software Authority's Dan Bays, developer of the Pathfinder software router for Axia, created a software bridge from the Prophet Systems (now RCS) NexGen automation audio servers to the router. The bridge emulates the hardware audio source switch to the server through its standard control port using the server's own comport. The routine then communicates over IP from a second NIC card to



'All the wiring for 11 studios,' Karb said. 'Not much with an Axia system.'

the router.

This allows NexGen to switch sources through the router rather than the usual hardware switch. This is an elegant solution, saving \$10,000 or more in equipment and cabling costs. The switching now takes place in virtual mix busses in each studio's respective mix engine.

Soundcards are eliminated with Axia's IP Audio driver software. A second NIC card in each PC or server is used to create the IP stream and to separate the Axia network completely from the automation and business LANs.

PCs running Adobe Audition are used for editing phone calls and production work in all studios. Those PCs also run a Pathfinder application which uses soft-

ware buttons for emergency control room switching, emergency air chain routing, editing source switching and so forth. Gone are the hard-wired pushbuttons carved into the consoles.

Stacked events

Our treatment of the EAS system is worth mentioning.

Alerts activate an air-chain route change in the router for each station rather than physically switching the audio in a relay box. The changes are configured as stacking events in the Pathfinder router and are triggered whenever the Sage receives an alert.

Audio from the Sage boxes goes directly to air for the duration of the alert. Three separate Sage boxes are used to compliment the counties covered by each of the five stations.

Configurable system logs in the Pathfinder Router allow us to track audio route changes and contact closure activations through the entire plant, which is a tremendous troubleshooting aid. Every router channel has silence and clipping threshold detection. Key channels are configured to export a closure through a GPIO interface to a Viking K-2000 DVA security dialer. This dials the PDs or engineers and plays a specific message for each alarm.

Another desire was to eliminate the usual KVM switches and cabling.

With 43 servers and PCs in the rack

room alone, cabling would just be a mess. We found a software KVM, Kavoom, which allows remote access from any PC through the network with a low-overhead application. Another \$10,000 saved. And the engineering department can access any server or PC through the CC VPN from anywhere there is an Internet connection. Power and network connections are all that hook to each PC or server, making for an extremely un-cluttered view.

In the studios, Mager Kizziah of Mager Systems in Phoenix, Ariz., helped us design a clean and open layout for the studio furniture, with no above-counter rack turrets and only two under-counter cabinets per studio. Since the studios are on the small side, the floating countertops create the illusion of a much larger space.

The cost saving allowed us to use solid-surface counters and still remain within the budget. The open design permitted the usual PCs to be out of heat-confining spaces for ease of troubleshooting, cabling and staying cool. Wires and cables are held to the undersurface of the countertops with strips of Velcro, forming a backbone which holds the wires tightly to the bottom surface. It's a snap to add or replace cables and wires.

Much of the old studio equipment was reused to lessen costs, such as the Telos 1X6 studio phone systems, monitor speakers, amplifiers, microphones and so forth. Old program DAs were reworked for use as headphone amps, and computer speaker sets became cue amps.

A local Asheville provider, ISS Technologies, outfitted us with an NEC Elite IPK system that includes VoIP to allow for expansion into that realm as it is needed. Completely configurable via a Web interface, it's easy to make routine changes like moving salespeople's desks.

Surprisingly, the system cost many thousands of dollars less than the major corporate phone entities. And the local ISS team is knowledgeable and happy to answer the phone.

Card access, intrusion alarm and video

and develop the systems we needed to implement the project, which was done within budget. Jim Hibbard and local engineers Mike Dwinell and Bill Boyd helped complete the wiring and configuration. Mitch Ensley, Ken Ray and Jason Reed of



An open furniture design allows easy PC access and adds spaciousness.

surveillance systems were part of the initial buildout. We added wireless infrared security cameras at each of the four tower houses after a round or two with the local vandals. All of these are accessible remotely on the business LAN.

Key to the success of our project were the excellent cooperation and support from Axia Audio, RCS/NexGen and Software Authority. All went well beyond the norm to assist us in developing our system.

Clear Channel's Regional VPE, Ben Brintzer, allowed us the freedom to design

our engineering and IT staff put in long hours to complete the project.

When we began, we hoped to provide CC Asheville with a versatile and reliable studio system, maybe a bit more. It turned out that we achieved much more than that, and moved CC Asheville to the head of the line in innovative studio system design.

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