



Kirk Harnack

ly take away from traditional broadcast engineers.”

THE VIRTUALIZED BEEB

I also communicated with Kirk Harnack of the Telos Alliance about virtualization.

“The BBC has been virtualizing its BBC Local Radio studio back-end operations since 2015 in a project called ‘ViLoR,’ or Virtualized Local Radio,” wrote Harnack. “Now, nearly all of all BBC Local Radio stations are using their familiar local studios, but the play-out systems, phone hybrid pool, audio codec pool, and even the live console mixing engines are located in redundant data centers. The Telos Alliance and Broadcast Bionics developed and provided all of the virtualized mixing consoles and talk show systems.

“Some users of Axia and other Telos equipment have worked with us on proof-of-concept projects where playout, mixing, and phones are all virtualized in a VMWare environment. Continuing on the success of these proofs and the BBC’s proven ViLoR infrastructure, the Telos Alliance is developing systems specifically for ‘cloudifying’ audio acquisition, transfer, routing, mixing, and audio processing. Users will have options to use these solutions locally, in their own data center, or with publicly-available cloud computing strategies,” Harnack wrote.

While console/router manufacturers are now discussing the virtualization of their systems in the not-too-distant future, at least one playout system manufacturer has a product on the market.

ENCO Systems says that its ENCO1 is a “fault-tolerant, virtualized solution designed around a unique specification for the radio automation environment.” The traditional automation infrastructure places a workstation in each studio, and that physical box connects to a central server, or operates as part of a separate production or on-air cluster that shares a common network.

Virtualization Technology Matures

Is it a science fiction technology or a surprisingly practical practice?

BY DOUG IRWIN

In the first part of this article (which you can read in the previous edition of RW, Nov. 21) we defined virtualization and put it into the context of radio broadcasting; we discussed hypothetical applications, and then followed with a dialog about the benefits and pitfalls of those ideas. Finally we also presented a skeptics viewpoint of the use of virtualization in replacing console and router systems.

In this part we’ll discuss current applications of virtualization in radio broadcasting, and we’ll speculate as to where it will lead us in the not-too-distant future.

Wheatstone Systems Engineer Kelly Parker thinks virtualization technology will be applied in broadcast studio

applications sooner rather than later.

“We’re already putting processing, routing, mixing — all of that — in to the software realm, and cloud-based is the next step. There are a number of obstacles that we as an industry face, like real time monitoring. In the ‘cloud’ environment, there’s more latency. You press an ‘on’ button on a screen or a surface or whatever it might be, and there’s a reaction time that takes place. It takes time for that information to reach the

data center, start the playback or automation, and to get it mixed and then back down to the operator so he can hear what he’s doing. That’s a big challenge. But we’re exploring all kinds of options for the future that will be without hardware. It’s where it’s all going.”

I asked Parker about his thoughts on when this kind of transition will start in our field. “I still think that there’s enough people out there that like that tactile feel of a fader and switch, so I don’t think it’s going to happen right away. I think people will accept it over time, but I don’t think it’s going to happen tomorrow,” he said. “The industry is pushing it — we’re working with clients on — virtualizing more and more of the operation.” When I asked about how this change would affect the day-to-day work of a broadcast engineer, Parker said to expect change, just as our skeptical engineer did.

“Well, it’s going to change the structure of engineering. There may not even be studio guys, of which there are fewer and fewer of these days anyway. It’ll be more IT centric and probably collocated in some data center some place in the country, or several which back up, so I see that being a challenge, getting the people in to manage that. It will certainly



Kelly Parker



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Inside of a single ENCO1 “box” are two redundant sets of components: Each represents a complete server, and the hardware is mirrored between them so that any failure of any single component does not take the system down. The entire environment — all the storage, all the databases, all of the play lists and every bit of the workstation environments are preserved within this box, which is installed in the protected environment of a station’s technical core.

The traditional architecture can also require more maintenance involving the studio workstations because many of these boxes are different from one another, using different motherboards and hard drives that sometimes require replacement. With ENCO1, the remote “workstations” are virtualized in the server itself. In each studio lives a small appliance that is used to connect to the server (via Ethernet). It provides the user with the mouse, keyboard and touchscreen control to operate the software. Up to 40 virtualized workstations can be supported.

OPPORTUNITY

There is certainly plenty of opportunity in the global market to migrate broadcasters to virtualized payout.

“Whether a large network or a small cluster of FM and/or AM stations, most operations have at least several on-air and production studios with dedicated equipment,” said David Turner, executive vice president of ENCO. “This means a collection of space-consuming hardware distributed throughout the facility, often



David Turner of ENCO demonstrates the ENCO1.

operating autonomously.”

In an ENCO1 deployment, the use of the virtualized server and remote clients also frees up valuable rack space all while saving on electricity and the generation of audible noise. The thin clients operate as compact and generic computing devices that boot and run remote sessions, which are displayed on the studio monitor.

“The hardware itself has a component that can phone home and tell the factory if there’s a problem with any

piece of the hardware,” said Turner. “Then the factory can react and send a replacement component out to the station. It’s done in such a way that you don’t require a highly skilled operator or technician to be able to do it. It’s generally a replacement of a hard drive or a module within the system.”

The evolution of technology in broadcast engineering is on-going and inevitable. The trend towards virtualization will, at least eventually, take hold. “Big groups all over the world are

driving this,” said Wheatstone’s Parker. “It’s not just the iHearts of the world — it’s Media Works, it’s Penumbra in Australia, it’s RTÉ in Ireland, and the BBC. Everybody’s pushing to change the way we do things and it’s going to happen.”

Harnack agreed. “It’s absolutely inevitable that broadcast operations will move to a virtualized, “cloudified” paradigm. There will be a few bumps along the way, but in a few years, we’ll wonder how we did it any other way.”



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