Air-Blown Fiber's Super Bowl Moment

Like millions of other football fans, I'll be firmly planted on the couch this Sunday taking in the battle between the New England Patriots and the New York Giants in the Super Bowl.

That's partly why I was attracted to doing a case study looking at the implementation of a fully converged IP network at the University of Phoenix Stadium in Glendale, Ariz., which plays host to the big game.

The stadium is a modern technological marvel, from its turf, which sits on an 18.9 million-pound-tray and can be rolled in and out of the stadium so the grass can bask in the desert sun, through to its translucent roof, which can open up in two sections on fair weather days. But there are many more features packed into the building that fans won't see, such as the fact that every seat in the house has wireless access to the Internet and each of the luxury lofts in the stadium is outfitted with IP-based touchscreen phones that allow you to play fantasy football and place food or drink orders.

I was listening to a Webinar with Arizona Cardinals Vice President of Technology Mark Feller on all the technology packed into the stadium, when I had one of those, "wait a minute" moments. Feller was describing an incident at the stadium in November of 2006, not long after the facility opened, when the Rolling Stones arrived for a concert. Apparently, Mick Jagger took one look at the location of the stage and said no, that wouldn't do. He wanted the stage moved to the opposite end of the stadium.

Normally, this would cause a panic. Aside from the logistics of moving a whole stage, it would have required a major refitting of the utilities and networking cables to support the Stone's show.

Not a problem, said Feller, "we just sucked out the fiber, and re-blew it to the other end of the stadium."

That's where the "wait a minute" moment came in. Feller went on to explain that the entire stadium is outfitted with an air-blown fiber network from Sumitomo Electric Lightwave of Research Triangle Park, N.C., a subsidiary of Sumitomo Industries of Japan. When fiber is needed in a certain corner of the stadium, or if a line needs to be upgraded, fiber bundles can be blown in through tubes. If a fiber bundle needs to be upgraded or replaced, it can be sucked back out.

Apparently, the Sumitomo FutureFlex technology can blow fiber into tubes at speeds of up to 150 feet per minute. Fiber bundles are wrapped in jackets with a rough surface, and by using compressed air or nitrogen, the bundles are zipped along the hollow tubes.

It sounded like an eloquent solution to a common problem faced by many organizations these days. It can be difficult to forecast how much bandwidth you'll need six months down the road, let alone in 5 or 10 years. Putting in place more bandwidth than you may need is an expensive proposition, but the alternative – having to install more fiber at a later date can be even more expensive.

I'd never heard of air-blown fiber before, and I suspect many other people in the IT industry haven't either. It turns out the technology has been around since the 1990s, but hasn't received a lot of attention, according to Kurt Templeman, Sumitomo product manager.

"We certainly haven't been trying to keep it a secret," he laughs when asked about its low profile. Templeman believes that most CIOs haven't delved too deeply into looking at air-blown fiber as an option partly because they tend not to get involved down to the physical layer or in choosing the fiber cable supplier. In addition, when comparing one fiber supplier to another, they tend to focus more on the upfront cost as opposed to the future costs of upgrading or replacing fiber bundles.

Danny Briere, an analyst with TeleChoice, a consulting firm based in Mansfield Center, Conn., agrees with that assessment, but he also thinks air-blown fiber's day may have arrived. Brier says it wasn't until the last few years that CIOs have really felt the crunch for more and more bandwidth. Now, as they need to start laying down additional fiber to support bandwidth-hogging video and IP telephony, the ability to blow-in fiber makes a lot of sense.

Briere says air-blown fiber may be a little more expensive to install upfront – in the range of 10% to 15%, but that isn't always the case. You have to consider, for example, that because you don't need to install enough fiber to last the next 10 years, you may be able to initially blow-in a more cost-effective amount of bandwidth. "And, the first time you need to touch it [remove or upgrade the fiber], you blow through that upfront premium pretty fast," he says.

It may still take some time before air-blown fiber consumes a large percentage of the overall market, but it is gaining some high-profile converts. In addition to the University of Phoenix Stadium, Sumitomo customers include ESPN, CNN, the Pentagon, Mayo Clinic, and several airports. Hospitals in particular, are finding the technology suits their needs as new diagnostic equipment is installed or moved around campuses.

Perhaps air-blown fiber's Super Bowl moment has arrived.

Comments (2)

1. 04-02-2008 11:29

My company is a Sumitomo FutureFlex ABF installer. We've placed ABF in a casino, where the gaming floor is reconfigured weekly; and two hospital campuses, which seem to constantly require changes. Our customers typically do not realize how neat the ABF product is until they need to make their first add or change after the initial installation. Thank you for the article!

Guest

Mike Bennett, RCDD

2. 04-02-2008 13:22

Although I knew what fiber optics were prior, it was 1998 when I was first introduced to ABF and its capabilities. Since that time, 99% of my work has been centered around ABF at the enterprise level. At my location, I am one of a few engineers principally responsible for the design, engineering, and maintenance of an enterprise/campus level ABF infrastructure, and the installation of passive data communications networks. The supporting ABF infrastructure or grid, obviously, was not built over night; however, based on new or changed requirements had to be enhanced and maintained regularly. With the capabilities of ABF, its lifespan, and the ease of installation and maintenance, it is difficult for me to understand why its use has not caught on more quickly. Yes, an initial change from copper or conventional fiber mediums to ABF may appear costly, but the return on investment over time, is/will be significantly higher and more beneficial. I'll ask the readers (rhetorically, of course), would you rather pay for 3-4 technicians to physically pull 1,500-2,000 feet of conventional fiber, crawling through ceilings and vertical risers potentially taking 4-6 hours to complete, (or) 2 technicians to install the same number of fiber strands, the same distance through an ABF infrastructure in less than 1 hour?!

For large scale applications, where future change or enhancements would be/can be expected, ABF is the way to proceed.

Guest

Steven Lyons, Sr. Mbr Tech Sta

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