Research Center Makes Easy Network Moves, Adds and Changes—Without the Cable Mess

CASE STUDY

Fred Hutchinson Cancer Research Center in Seattle, WA was founded in 1975 by Dr. William Hutchinson in honor of his brother, Fred, a major league baseball player and manager who died of lung cancer at the age of 45. Currently comprising about a dozen buildings, most of which were constructed between 1988 and 2004, the non-profit Hutchinson Center is situated on a 14-acre urban campus along South Lake Union just north of downtown Seattle. At any given time, about 2,700 scientists and support personnel work within the Center's 1.3 million square feet of office, laboratory, clinical and meeting space.

The Hutchinson Center brings together four scientific divisions—Basic Sciences, Human Biology, Clinical Research and Public Health Sciences. The Center's mission is to eliminate cancer and related diseases as causes of human suffering and death. The Center and its clinical and research partners, University of Washington, Seattle Children's and the Seattle Cancer Care Alliance, make up the Fred Hutchinson/University of Washington Cancer Consortium. The National Cancer Institute has designated the Consortium one of 40 comprehensive cancer centers in the United States.

ADC®

Moving People and Labs Around Means Moving Network Connections Around, Too

From a telecommunications perspective, the numerous buildings that constitute the Center are linked in a massive local area network (LAN), with connections to the Internet and peer-groups for research and medical facilities. The fully-redundant, active-Ethernet network provides high-speed (Gigabit-Ethernet) data access at the desktop, and the Center currently is migrating its telephone communications to a voice-over-IP (VoIP) system. There are eight data centers located throughout the campus, and the Center operates a co-location center in Tukwila, a Seattle suburb.

As a campus designed and built in phases and as a research facility that attracts scientists from all over the world, the Center is an environment that is constantly changing. That means its network-cabling infrastructure is constantly changing, too. Jim Chorey, a supervisor in the Center's Voice and Data Operations Group, explains that in the world of research grants, "a primary investigator may adjust the size and location of his lab based upon grants and research requirements. A lab and office space may grow or move or be swapped with other colleagues. There are a lot of changes to wall locations, floor space, telecommunication outlet needs, etc".

Obviously, that translates into a lot of corresponding changes in the location of network connections which, if a facility is using traditional 8-pin modular patch panels and line cords, too often translates into a tangled mess of patch cords and an expensive operational nightmare. As Chorey describes it, "people solve a problem quickly, and then they solve another problem quickly, and pretty soon they've solved 20 or 30 problems quickly, and the cabling is now a mess.

"Well, much of the equipment is now mission-critical, and you don't want to touch it. The patch cords are too long or too short or routed weirdly, so you have this big mixed bag of cable," he says. "We just don't want to deal with that."

Ron Hood, manager of IT Security and Architecture, says he and his staff had used a 110 cabling design that "patched data connections and punched voice" for the buildings in the first phase of campus construction. However, for the Phase II building that was completed in 1997 and all phases thereafter, Hood wanted a cabling design that would be "all patch or all punch, and my leaning was toward patching everything."

Patch by Exception Solves the Problem

After evaluating alternative cabling designs, he and his team decided that punching all connections with a patch-by-exception (PBE) design for cabling, featuring ADC's Ultim8 termination blocks, was the way to go. The ADC PBE design basically allows someone to use a patch cord to override an existing connection, that is, to patch by exception. It also allows an authorized technician to conduct active testing without taking the circuit down or inhibiting performance. To return the circuit to its original status, the technician simply removes the patch cord; if the change is to remain permanent, then a technician can re-wire it at any time. The end result is a neat, orderly and easy-to maintain telecommunications closet.

ADC's Ultim8 blocks provide a cross-connection system with greater density, front-side termination and fewer patch cords than traditional patch-panel solutions. A wall-mount option conserves valuable real estate. The Ultim8 blocks also feature a unique center port which serves as a test port to provide "look-both-ways" testing capability without the need to remove any wire, and allows simple circuit monitoring through use of a test cord.

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Benefits that Keep Pace with Change

"The ADC system allows us to use the backboard with the Cat 6 Ultim8 termination blocks to terminate all of our horizontal cabling there," Chorey explains, "so it's easy to make adds, moves and changes. We terminate switches in another similar type of arrangement with Ultim8 and then do a cross-connect. It's always nice and clean, the cross connects are always the exact length, and they're always neatly placed so when you want to make a change, it's easy to rip out the one you want."

"We keep a handful of ADC patch cords, and we allow trusted people to go into a closet and make a temporary patch, a PBE connection," he says. "Then during the week, when it's convenient for us, we go in and clean up the closet."

Chorey adds that the ADC PBE design also makes life much more convenient for both Center personnel and IT staff members. "One of the unique challenges for us was [to find a way] to quickly give someone an easy way to get connectivity without having to involve a big trouble ticket. Also, we like the ability to go in there and test. So if someone is having trouble with connectivity, we can quickly do a test on the channel and determine whether the cabling is good or has a problem."

In addition, he says the wall-mounting option of the ADC PBE design saves the Center "a lot of real estate." It's much easier to make a room eight inches wider, Chorey says, "and not have to add five or six cabinets, plus all the cabling in between. We just have a little bit of wall space that we use, and we can accommodate an awful lot of cabling. It's just so clean."

Finally but equally important is the fact that the ADC PBE design is cost-effective for the Center, in terms of installation and system maintenance. "In my previous life [as a consultant], I used the traditional patch panels and then 110 blocks on the wall. I found several situations in which the ADC design is less expensive and a better solution," Chorey says.

"You have to spend a little bit of money upfront to cable all of your switches," he says, "but once you've built those two distinct areas on your backboard, putting together a system like this is easy. It's clean and easy to maintain--and it stays that way."

Challenge and Solution

Challenge: Make moves, adds and changes in network connectivity to keep up with personnel and laboratory/ office locations that keep changing-- without accumulating an expensive, tangled mess of patch cords.

Solution: Choose a cabling solution with patch-by-exception (PBE) design.

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