Case study: A small job

Recently, a medical website development company we’ll call Quasicom decided to replace all the cables strewn through their hallways with a real network. They contacted a cabling contractor to whom they had been referred. The referring party said the company wouldn’t have to worry about the quality of the contractor’s work. A Quasicom representative asked the contractor to look at the company’s problem and quote a price for installing the network. That contractor took a hands-on approach, so he came down himself to perform the job walk. He talked with Quasicom’s information services (IS) staff to determine the company’s needs and got a written document that detailed where it wanted the network locations and the rack. With such a small network, the contractor didn’t have much calculation to do, so he presented Quasicom with an offer that was accepted.

Two days later, after a contract was signed and exchanged, the contractor dispatched a team of two installers to the job site. Neither installer was a supervisor, but the senior member of the crew had enough experience to see that the job was done right. The contractor gave the plans to the crew at the job site, showing them where to put the rack and to run the cables and the wiring configuration to use when punching down the faceplates. He then left them to do the work (he had another job walk-through to do for a much larger customer). Quasicom’s premises were of typical modern office construction—a removable tile drop ceiling provided an easy way to run the cables from one location to another. (It is easy to drop network cables behind the drywall once you know how.) The crew expected no difficulties in installing the cable.

The two installers set up several boxes of spooled cable in the location where the rack was to be (in this case, it was not in a telecommunications room but in a server room where all the company’s web hosts were hooked up to the Internet). The plan indicated that the biggest run they had was of eight cables to the eight drops in the front office area, so they set up all eight boxes of cable. Quasicom’s IS staff wanted the patch-panel terminations of the wire to be in room-number order, so the installers marked the ends of the cable and the boxes they came in with indelible black marker. The crew then pulled out the requisite number of feet of cable. (Normally, they would measure it, but in this case they just pulled it down the hall to its approximate drop point and made allowance for going up into the wall and down behind the drywall and added some service-loop extra.) They then used their snips to cut the cable off and marked the other end according to which box it came from.

They did the same with four boxes of cable for the quad run back to the back offices. That left two locations, each with a double-jack faceplate, which did not share a run with any other locations. They picked the two boxes that looked like they had just enough cable left in them to pull those runs from, and they drew those cable runs out as well. Now it was time to put the cable up in the ceiling. The crew started by removing a few ceiling tiles so that they had access to the ceiling space. Then they tied the bundle of eight cables to the free end of a ball of twine and tossed the twine through the ceiling to a reasonably central area for all of the front-office drops. They used the twine to pull the cables through and down to that point. They performed the same operation for the other bundles of cables. They had all the cables almost where they needed to be—just 20 ́ shy of the goal. They removed the ceiling tiles directly above the drop locations to determine that there would be no inconvenient obstacles (such as power conduits) and used drywall saws to cut holes in the wall for the faceplates. For each location, one member of the installation team found the corresponding cable and fed it across the ceiling to the other installer. That installer dropped it down the wall for the first installer to pull out of the hole.

Now all the cable was in place and merely needed to be terminated. Although pulling cable is a team process, terminating it is a solitary one. One member of the team began installing the boxes for the faceplates, stripping and punching down the faceplates (leaving enough cable length pushed up in the wall for a service loop), and screwing the faceplates into the box on the wall. The other team member went back to the server room to set up the rack and dress the cable for punching down on the rack. This contractor always has his best installers perform the important job of punching down the racks. A small margin for error exists when terminating cable on a rack because so many cables feed into the same space-constrained location. If someone makes a mistake punching the cable down, he or she has to draw more cable out of the service loop (see the importance of a service loop?) to re-terminate. Doing so messes up the pretty swooping lines of cable tie-strapped to the rack and to the raceways. Installers can’t terminate first and dress the cable later because they would end up with an ugly knot of cable in the ceiling.

That afternoon, the cabling contractor came back with his test equipment, and he and his crew verified that all of the drop locations passed a full Category 5e scan. They used a label gun to identify all of the drops and their corresponding rack locations and then had Quasicom’s IS manager accompany them in a final walk-through. They provided Quasicom’s manager with the documentation (the same plans he’d given them along with a printout of the test results), got his signature on an acceptance document, and it was all over but for the billing.

Job summary: Quasicom

Type of network: Interior Category 5e

Number of drops: 16

Number of telecommunications rooms: 1

Total cable length: 800 feet

Crew required: 2

Duration: 6 hours