



# The Service Of Yesterday, Technology Of Tomorrow

By Tom Kampf ■ ADC

**F**TTTH Communications, an integrated service provider to residential developments in the Minneapolis metropolitan area, delivers voice, video and data services to its customers on an all-fiber network. FTTH Communications is a wholly owned subsidiary of Contractor Property Developers Corporation, a leading developer of residential communities, and this unique partnership allows

Communications business plan depends upon a combination of low costs, exceptional service, and leading-edge technology to increase both the number of subscribers and overall subscriber satisfaction. The company's motto—"Technology of Tomorrow, Service of Yesterday"—drives the way they do business every day.

Company managers had seen from other fiber-to-the-home projects

FTTH Communications found that the optimum architecture was a passive optical network (PON) with passive splitters centralized in Fiber Distribution Terminals (FDT).

Splitters were specified 1x32 to mirror port capacity on optical line terminal (OLT) cards in the headend data center. With no splitters at Access Terminals (AT) closer to the homes, FTTH Communications has been able

***"The challenge was to create an infrastructure that maintained capital expenditure as close as possible to revenue generation while, at the same time, offering reduced operating expenses, so that investment in new services is possible."***

FTTH Communications to provide communication services tailored to the residential home user. The FTTH

around the country how varying take-rates can impact profitability and drain capital from more productive uses, such as creation of advanced services. The challenge was to create an infrastructure that maintained capital expenditure as close as possible to revenue generation while, at the same time, offering reduced operating expenses, so that investment in new services is possible.

to maximize port usage on expensive OLT cards.

To illustrate, the company uses four-port OLT cards in the data center. Each port supports 32 homes, each OLT card supporting a total of 128 homes. Each neighborhood is supported by its own FDT, up to 1,152 homes. The first 32 subscribers in the neighborhood are connected to the same 1x32 splitter in the FDT. This splitter is supported by OLT card #1 in the data center. When the 33rd subscriber is added, the next splitter in the FDT is put to use, which then makes use of port two on OLT card #1. Only when the 129th subscriber signs-up for service is there a requirement to purchase and turn-up service on OLT



The ADC OmniReach Fiber Distribution Terminal delivers reliable "Triple Play" services to ultra-connected communities.

## Solution

The solution was based in both architecture and supporting products.

card #2 in the data center.

This architecture of centralized splitters effectively defers capital expense closer to revenue generation. The alternative architecture—placing splitters in both FDTs and ATs—is an expensive proposition. In the above example, 128 subscribers from 1,152 homes are served with one OLT card when splitters are centralized in the FDT. Yet with splitters in both FDTs and ATs, additional OLT cards are required in the data center, resulting in subscribers being spread out across more OLT cards than would be needed for the customer count. In fact, with any take-rate below 100%, there would always be underutilized and stranded ports on expensive OLT cards when splitters are placed in both FDTs and ATs.

The FDT also offers the added benefit of lower costs for service turn-up because connectors, not splices, are

in ATs and FDTs and turned-up service with splices, a deployment strategy that proved costly to implement. “Customer acquisition is never logical. Placing splitters in ATs was wasted capital and made service turn-up a more expensive process,” said Schultz.

From those early lessons, FTTH found that centralizing splitters in FDTs was more cost effective from a capital and operating perspective. Yet while several vendors offered a centralized fiber distribution terminal with 1x32 splitters, unique features of the FDT swayed the purchase decision to the ADC OmniReach portfolio of FTTP solutions.

ADC's FDT offers segregated areas



**ADC's portfolio of OmniReach FTTP solutions feature ample connector access, slack storage for optical fibers, housing for splice trays and splitter modules, and bend-radius protection for all fibers managed in the cabinet.**

for splice and storage of feeder fiber and distribution fiber. In addition, each splitter output port is terminated with a fiber jumper that retains the dust cap on the open connector, which is stored in a protected area of

***“If you construct the outside plant in the right way, you can really drive costs down.”***

used to add subscribers and services. As the business grows, FTTH Communications will realize operational savings because service turn-up can be done faster and with less-skilled, less-expensive technicians.

#### **Implementation**

“There is a problem with distributed splitting,” said John Schultz, General Manager, FTTH Communications, referring to an architecture that places splitters at Access Terminals. “Too much money is spent putting fiber in the ground and there is huge underutilization of electronics at the headend,” he said. With initial builds, FTTH Communications had placed splitters



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## ***“FTTH found that centralizing splitters in FDTs was more cost effective from a capital and operating perspective.”***

the cabinet. Connectorized tailends of distribution cables are also stored in a protected area. Integral cable management throughout the FDT ensures not just proper routing within the cabinet but also proper storage that protects fibers from damage and enables increased density.

In fact, FTTH Communications is in the process of replacing one older cabinet that was configured with splitters with no fiber cable management. “We wanted to eliminate failure points in the network. Housing splitters, distribution cable and feeder cable in a cabinet without fiber management was

just a bad design. We know that proper fiber management means less issues to deal with,” said Schultz.

With this cabinet design, service turn-up now requires mating connectors rather than splicing. Use of connectors in the FDT gives FTTH Communications a build-as-you-grow network. It is a cross-connect solution that allows easy addition of subscribers and installation of headend electronics in parallel with growth.

“It is really bad to put so much money upfront without revenue to cover it. This is the right architecture and the right product to support the

architecture. From a financial, engineering and operational standpoint, we’ve got the best solution available,” said Schultz. Schultz figured that the practical and logical design of the FDT would show returns over the years in terms of speed of service turn-up, reduced costs for service turn-up, and higher reliability of the PON. Yet the value of the FDT became apparent before the first subscriber was put in service.

“Our initial deployment was a very simple installation,” said Schultz. “Splicing was self-explanatory, as was fiber routing and storage. This was one reason we chose ADC—they are leaders in fiber cable management,” he said. Even documentation missing from the first FDT shipped to FTTH Communications caused no issues with installation. “The guys really got it. This was a brand new product for them yet the whole installation went very smoothly,” said Schultz.

### **Conclusion**

FTTH Communications found in ADC a partner with the same goals—drive out costs and push capital expenditure off as far as possible. These were the design objectives of the FDT. Yet the main benefits that accrue to FTTH Communications come from satisfied subscribers, according to Schultz.

“If you construct the outside plant in the right way, you can really drive costs down. This is allowing us to spend capital on new technologies for subscribers, such as video on demand and interactive TV. We spend less on the outside plant so we can spend more on services,” said Schultz. ■

### **About the Author**

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