

High-Density CO Optical Distribution

Telect's Flexible Tray-Based System Provides the Optimal Blend of Density, Accessibility, Protection and Flexibility — All in a Standard Footprint

When a Canadian communications service provider set out to deploy new central office sites in five major cities across the nation, distributing and managing fiber optic traffic was a key concern.

Because of the amount of data — and therefore, revenue — streaming through the provider's optical network, deploying the most efficient and effective central distribution point for fiber optics took on great significance.

The Situation

In this case, the service provider targeted five metropolitan locations for new telephony-focused central offices. In each site, standards called for a minimum of 1,400 optical terminations per frame, in a standard footprint. As in most central offices, the goal was to not only manage the traffic, but also to maximize available space with the highest density solution possible.

The Solution: Telect Tray-Based ODFs

Telect provided a high-density optical distribution frame (ODF) featuring a tray-based distribution platform (see figure 3 on page 2 for a detailed configuration drawing). Each frame houses 720 patches and 720 splices, for a total termination capacity of 1,440, all in a standard 19-inch equipment rack.

Based on capacity requirements of each location, the service provider installed either two or four frames.

The multifunctional (patch and splice) design enabled the provider to scale ODF deployment



Figure 2: Telect N-Series 24-port patch tray. In this configuration, cable enters at the left rear of the tray and exits at the right front.



Figure 1: A standard 4 RU/6-tray panel. With 24 ports per tray, total panel capacity is 144 terminations.

as required; a single frame, for example, could serve a smaller application area and still maintain full patch and splice functionality in a single repeatable solution.

Several additional product-specific features made the Telect N-Series ODF the ideal choice.

Key Features and Considerations

Engineered for scalability in locations ranging from high-density central offices to smaller limitations, Telect tray-based ODFs provide numerous application-specific advantages. Here's how they fit in this specific example:

- **Density:** Service providers seldom, if ever, face the problem of having *too much* space. On the contrary, a typical application is a challenge to reasonably fit as much capacity in as little space as possible. Telect N-Series ODFs fit up to 1,440 terminations in a standard frame.

In this case, the provider chose to combine 720 patches and 720 splices. However, virtually any combination is available, based on the configuration of trays. Patch-only or splice-only frames can total up to 1,440 terminations as well

The key here is the tray. In this central office installation, the provider utilized 24-port trays. Each 4 RU chassis holds six trays, for a total of 144 terminations per high-density chassis.

- **Cable management:** High density is only useful if the fiber optic cable is well managed. Otherwise, a cabling mess can

essentially render the ODF useless. Telect's tray system incorporates patented link chains within each tray, along with entry and exit arcs to effectively manage and protect cable throughout the frame. Storage trays are also available to house excess cable as needed.

- **Circuit accessibility:** Similarly, for a high-density ODF to be functionally sound, users must be able to access individual circuits for adds, drops or maintenance. Telect trays feature a "pop-up" design that enable simple access to ports without impacting signal quality or traffic on other ports. It's a simple feature that can prove to be highly significant throughout the life of the ODF.
- **Standard rack size:** As mentioned above, in this application the service provider specified a minimum termination capacity of 1,400 per frame. Although there are higher density solutions on the market, these systems typically utilize a proprietary frame in a non-standard footprint.

The Telect N-Series ODF incorporates a standard 19-inch frame for seamless integration into new and existing builds. Furthermore, the standard open frame

design enables the routing of outside plant cable into the rear side of the frame, with patching to network elements out through the front. This was a key requirement of the customer in this case, and generally is a standard cabling practice.

- **Configurable to various standards:** In the application described in this paper, the service provider standardized on a patch/splice combination ODF. However, a chassis or frame can be configured to fit any variety of standards, simply based on the types of chassis and trays selected.

Chassis include 4 RU (6-tray capacity), 3 RU (4-tray capacity) and 1 RU (1-tray capacity) units. Patch, splice and storage trays are available, all of which fit in any chassis. Tray capacities include 12 and 24 terminations.

In addition, tray options are available for a variety of cabling practices. These include total rear access for cable entry and exit; rear entry and front exit; or front entry and rear exit. In effect, a Telect tray-based system is available to fit virtually any central office environment, and all fit in industry-standard equipment racks.

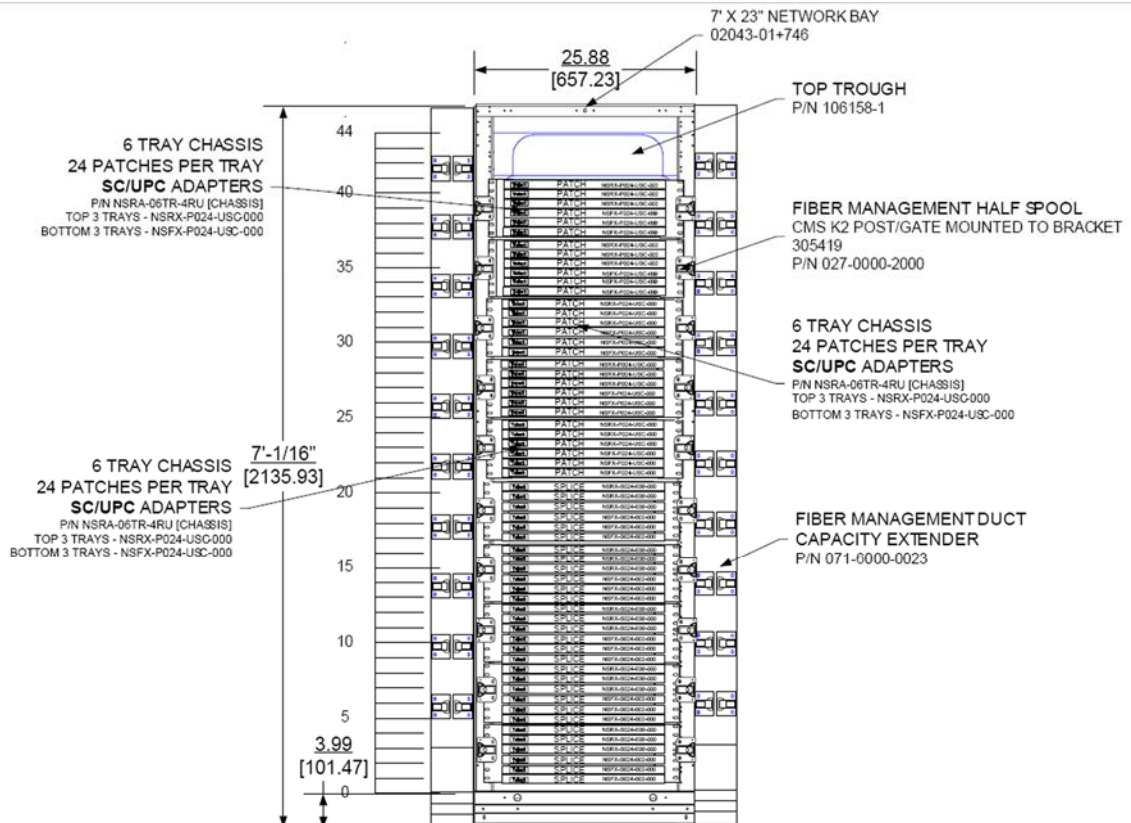


Figure 3: Telect N-Series ODF configuration. Patch chassis populate the top half of the frame; splicing is on the lower half.

- *Globally compatible:* Fiber optics are part of networks worldwide. To this end, Telect offers systems that fit the wide variety of standards found around the globe.

Conclusion

Fiber optic network engineers have a wealth of options to consider when deploying a central office ODF. When circuit density, accessibility, cable management and a standard footprint are key concerns, a tray-based system can provide the optimal solution.

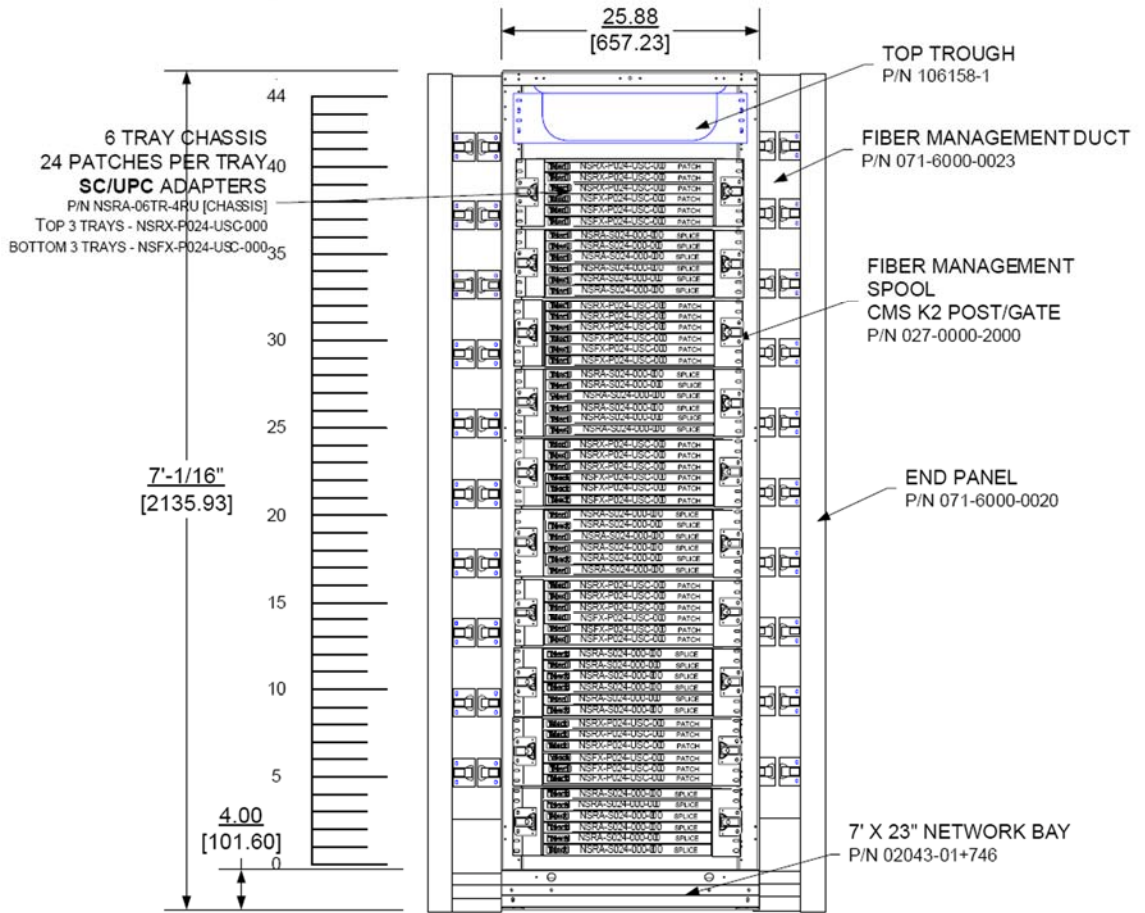


Figure 4. Telect tray-based ODF configuration drawing. In this example, patch and splice chassis are alternated from the top to the bottom of the frame.