



Workspace Telecommunications Enclosures

Scott D. Thompson
President,
Oberon, Inc.



We manufacture ceiling and wall mounted Telecommunications Enclosures (TEs) for wireless LAN access points and other networking components



Wireless AP enclosure



Workspace TE

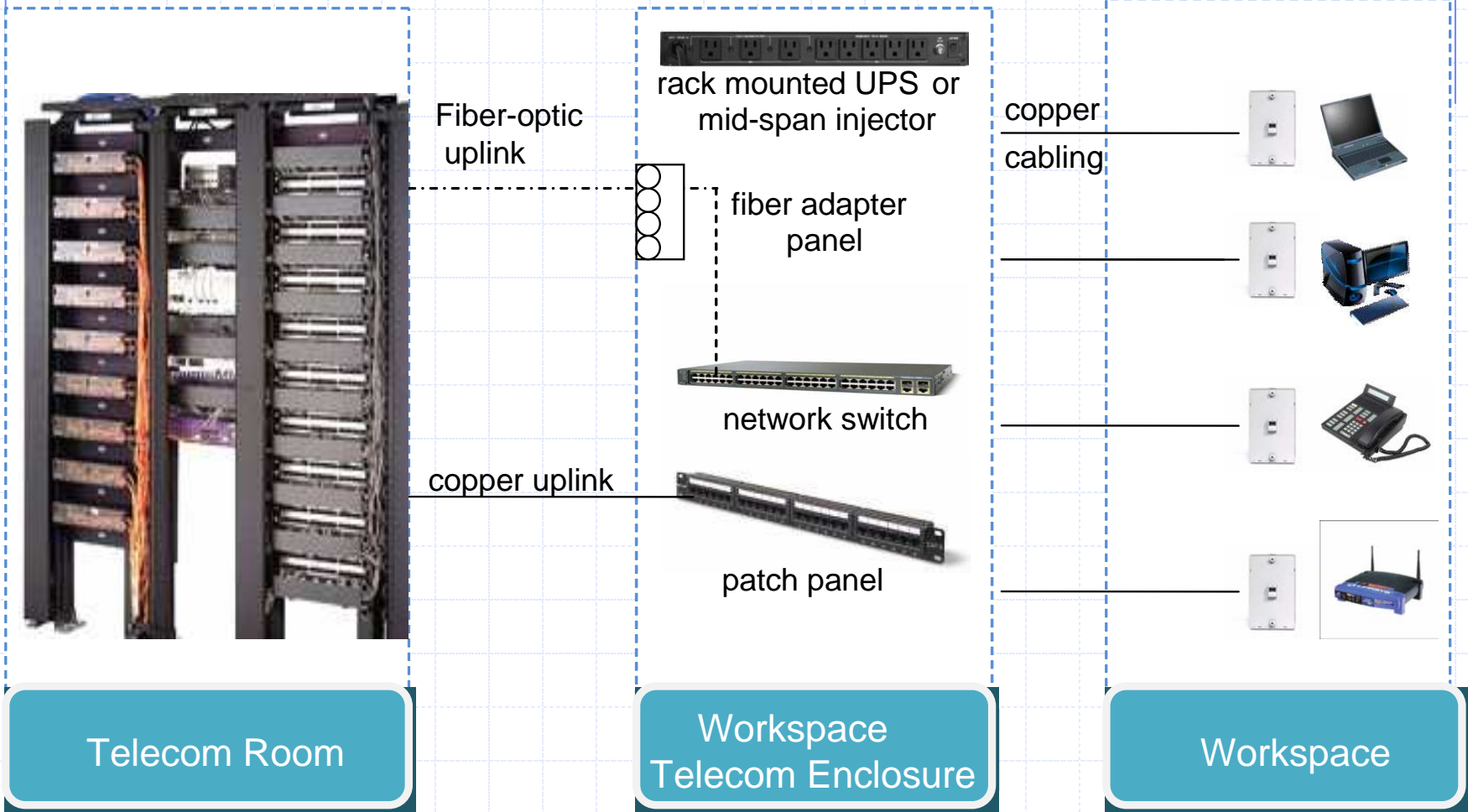
Structured Cabling: Distributed Architecture



By placing the access switch closer to the workplace:

- Reduce telecom room (TR) crowding and heating
- Reduces cabling costs, and reduces cabling load in pathways
- Eliminate long home runs from the workstation to the ER/TR
- Reduce power loss in cable in PoE implementations (both mid-span and end-span).
- Simplify workspace cabling test
- Facilitate moves, adds and changes

Fiber to the Enclosure (FTTE)



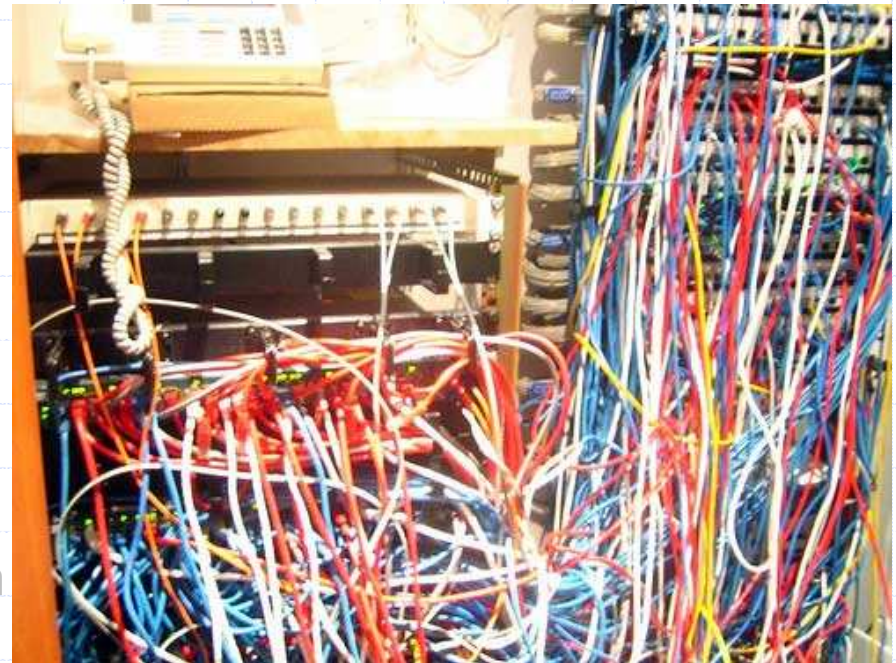
Fiber to the Enclosure (FTTE)



- Pushes the high bandwidth portion of the network closer to the end user.
- Reduces the amount of building floor space dedicated to the information transportation system.
- The optical fiber cable distance advantage allows a single ER/TR to serve a larger facility.
- Takes advantage of the fact that many access switches have a high bandwidth uplink port.
- High bandwidth copper can be used in place of fiber.

Workspace Telecommunications Enclosures (WTE) Objectives

- Address crowded or inadequate telecommunication rooms and facilities- especially in older buildings or where pathways are at a premium
- Facilitate Fiber to the Enclosure (FttE) deployments (or CuttE)
- Protect networking gear in workspace
- Compliance with TIA 569B (Pathways & Spaces) for TEs
- Quiet, fan-less operation
- Compliance with NEC for air-handling space installation



Model 1070-00 WTE



- Deep enough for (2) 1U standard rack mounted components



Enclosure is 24"x24" x
5" deep

Model 1070-00 TE



- Mounting location for 1U patch panel and fiber optic panel

Also includes: AC
junction box & cover,
interior work light,
pick resistant lock



TIA 569 B Telecommunications Pathways and Spaces



Per TIA 569B:

- A Telecommunications Enclosure (TE) may augment a Telecommunications Room (TR) on each floor of a building
- The TE may serve an area up to 3,600 sq. ft. and may replace a TR in office spaces less than 5,000 sq. ft.
- The TE shall be placed as close as practicable to the center of the area served.
- The TE shall facilitate access for maintenance and MACs, and control unauthorized access.
- The TE shall provide lighting for maintenance and adequate power and ventilation for equipment contained therein.

Temperature Rise in the Model 1070-00 WTE

Temperature rise test conducted with a Cisco 3560G-48ps catalyst switch with 48 ports active, 15 of which sourced PoE.

- Estimated power consumption 328W and dissipation of 474 BTU

Thermocouple "A" placed directly above switch inside TE.
Thermocouple "B" placed 2" above TE exterior.

-Average temperature difference between inside and outside of enclosure is 12.3° F. (Difference between A and B)

-Highly perforated door allows enough air to mix to avoid large thermal buildup.

Temperature Rise in the Model 1070-00 WTE



INSTALLING IN THE “PLENUM” vs. THE AIR HANDLING SPACE



ICRA? **UL Listed?**
NEC?
OSHPD?

- Ideal location for networking gear is in the ceiling, but.....

National Electric Code (NEC) regarding the plenum used for environmental air.....

- Article 300.22(b) *“Equipment and devices shall be permitted within such ducts or plenum chambers only if necessary for their direct action upon, or sensing of, the contained air”*
- NEC Article 100 defines plenum as *“A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system”*.
- NEC article 300.22(c) *“The space over a hung ceiling used for environmental air-handling purposes is an example of the type of other space to which this section applies”*, (Air-handling space as opposed to a plenum space)

N.E.C. COMPLIANCE



NEC article 300.22(C)(2) *“Electrical equipment with a metal enclosure, (or otherwise listed) shall be permitted to be installed in this other space (air-handling space) unless prohibited elsewhere in this Code”.*



NEC article 300.23 *“cables, raceways and equipment installed behind panels, including suspended ceiling tiles, shall be arranged and secured so as to allow removal of panels and access to the equipment.”*

What is “Plenum Rated”



- Equipment is sometimes said to be “Plenum rated” if it is UL2043 listed
- UL2043 “is a fire test method for determining the fire performance response of discrete products (including, but not limited to electrical equipment) intended to be installed in air handling spaces, such as above suspended ceilings or below floors.....”
- Equipment not UL2043 listed should be in a metal enclosure (per NEC article 300.22(C)(2)).

Power Over Ethernet (PoE and PoE+)



PoE+ (IEEE802.3at) recently ratified- Delivers 25W to the device

TIA TSB-184 : Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling

- DC Loop resistance and balance
- End-span and Mid-span configurations
- Tables of temperature rise within cable bundles
- References to safety standards

Use the Workspace Telecommunications Enclosure (WTE) to improve power delivery to PoE devices.

WTE designed for standards



- UL50 listed
- Designed to satisfy NEC 300-22 and 300-23 for use in air-handling space
- OSHPD approved installation methods
- Designed to satisfy TIA 569B requirements for TEs



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