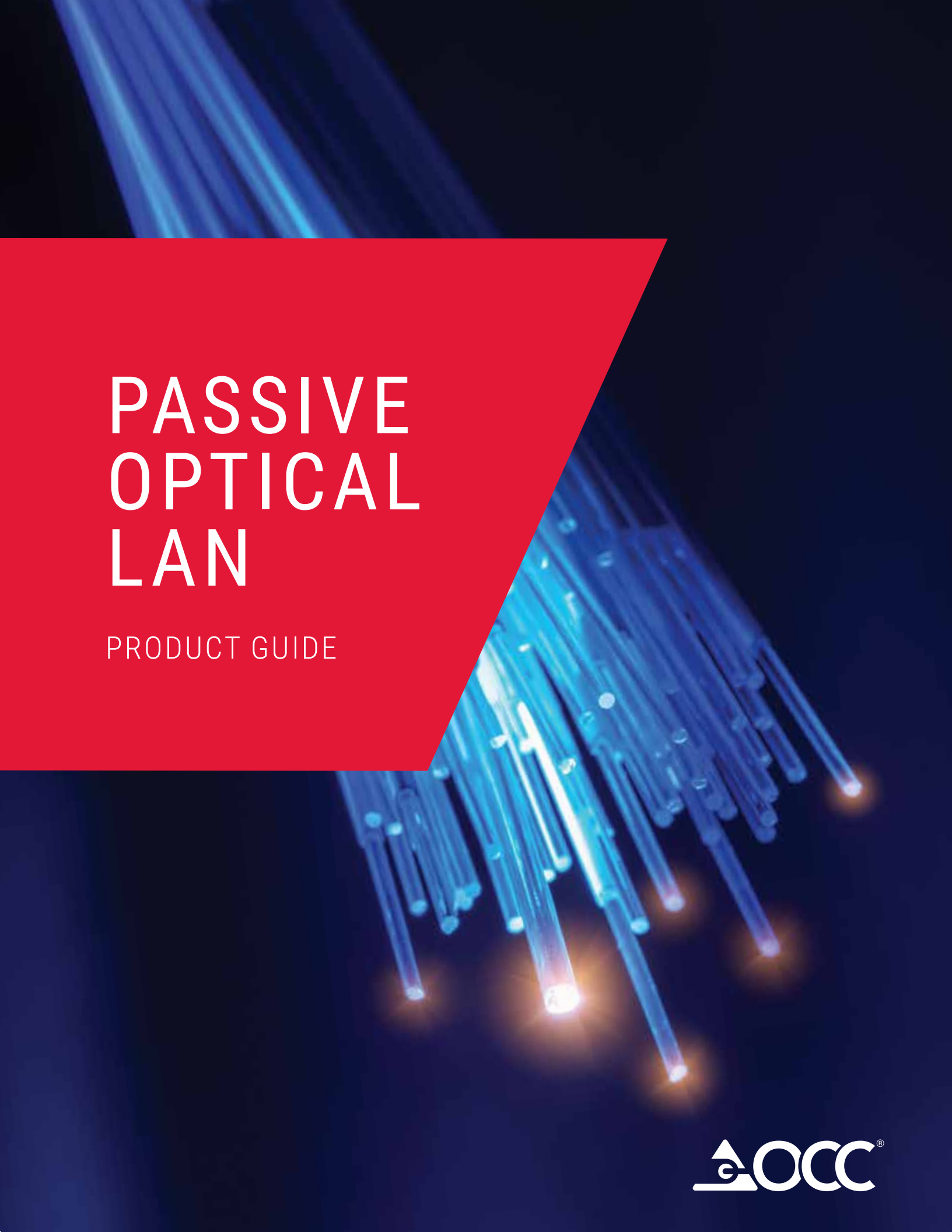
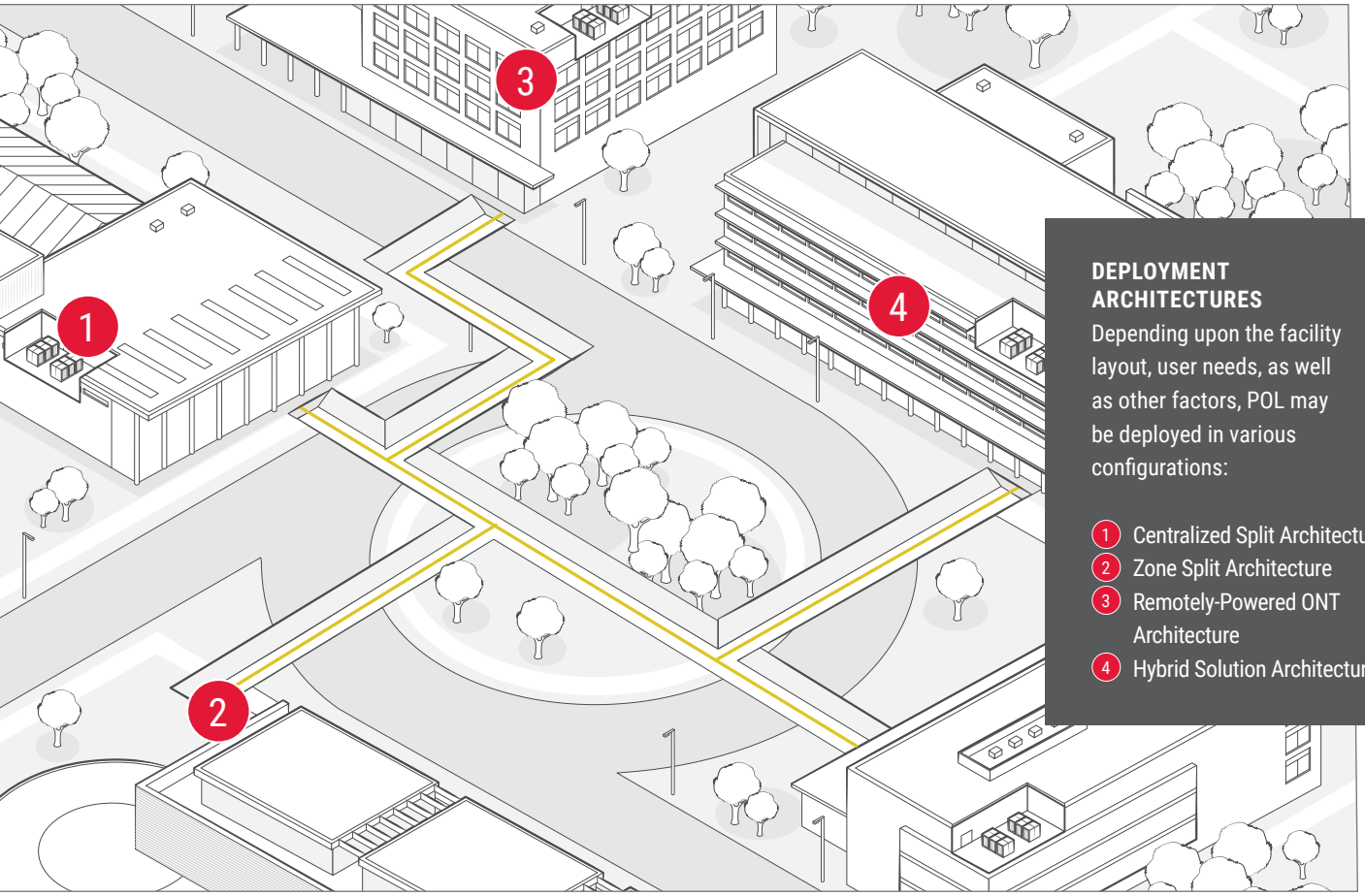


PASSIVE OPTICAL LAN

PRODUCT GUIDE

OCC®

NOT JUST PRODUCTS. **ANSWERS.**



DEPLOYMENT ARCHITECTURES

Depending upon the facility layout, user needs, as well as other factors, POL may be deployed in various configurations:

1. Centralized Split Architecture
2. Zone Split Architecture
3. Remotely-Powered ONT Architecture
4. Hybrid Solution Architecture

THE OCC TEAM GETS IT. The more complex your network becomes, the more challenging it is to know which products to use, how to integrate them, how to budget for them, and how to ensure your network runs with minimal downtime. In addition to providing an extensive Passive Optical LAN (POL) product set, **OCC experts can assist you in building the ideal solution for your specific POL challenge.**

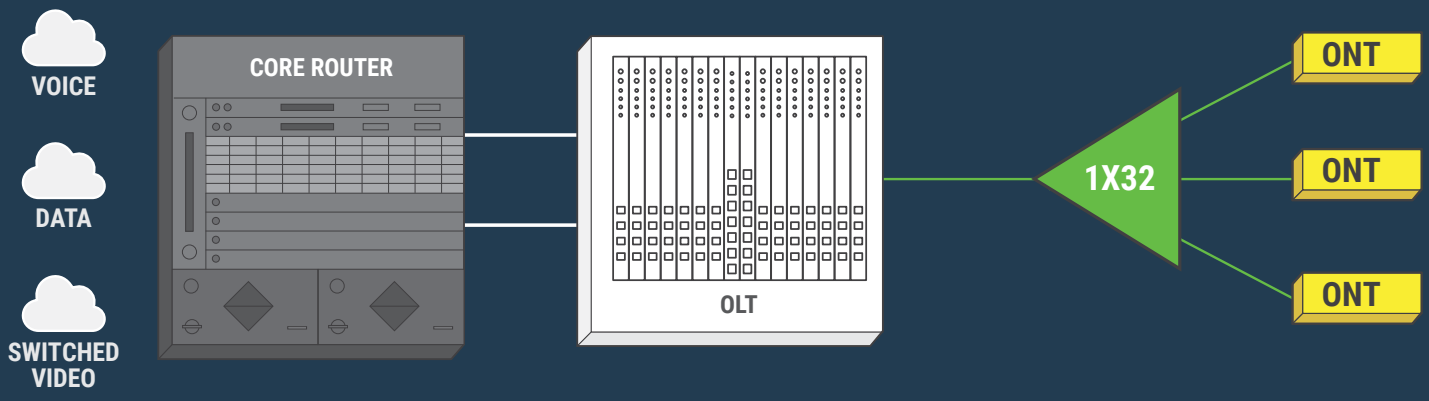
OCC's customers rely on us for more than just products. Our customers count on OCC's design-build expertise and broad portfolio of end-to-end solutions for the seamless integration and optimum reliability of the network.

TABLE OF CONTENTS

WHAT IS PASSIVE OPTICAL LAN?

Passive Optical LAN technology is a point-to-multi-point architecture that provides the capability to securely deliver voice, data, and IP video and/or broadband video over a single strand of optical fiber. This architecture is based upon carrier-grade passive optical network technology that has been reliably utilized in fiber-to-the-home deployments for many years, as well as hospitality, residential, and commerical applications.

POL is comprised of two key network electronic components: 1) Optical Line Terminal (OLT) and 2) the Optical Network Terminal (ONT). The OLT is normally located in the equipment room. It aggregates optical traffic and provides the interface to edge IP network switches and routers. The ONT is normally located at the user's work station or zone enclosure and de-multiplexes the fiber optic signal into its component parts (i.e., voice/data/video) and outputs these signals on copper ports (i.e., RJ45).

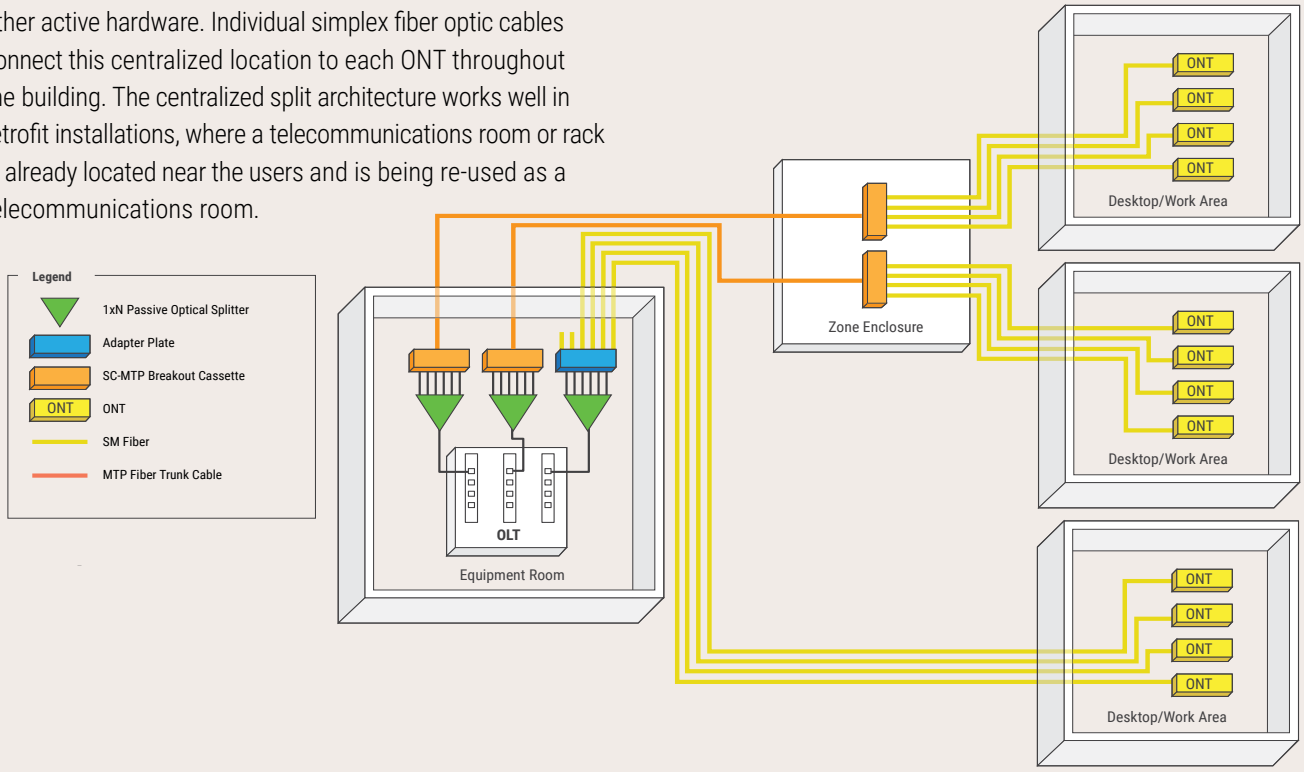


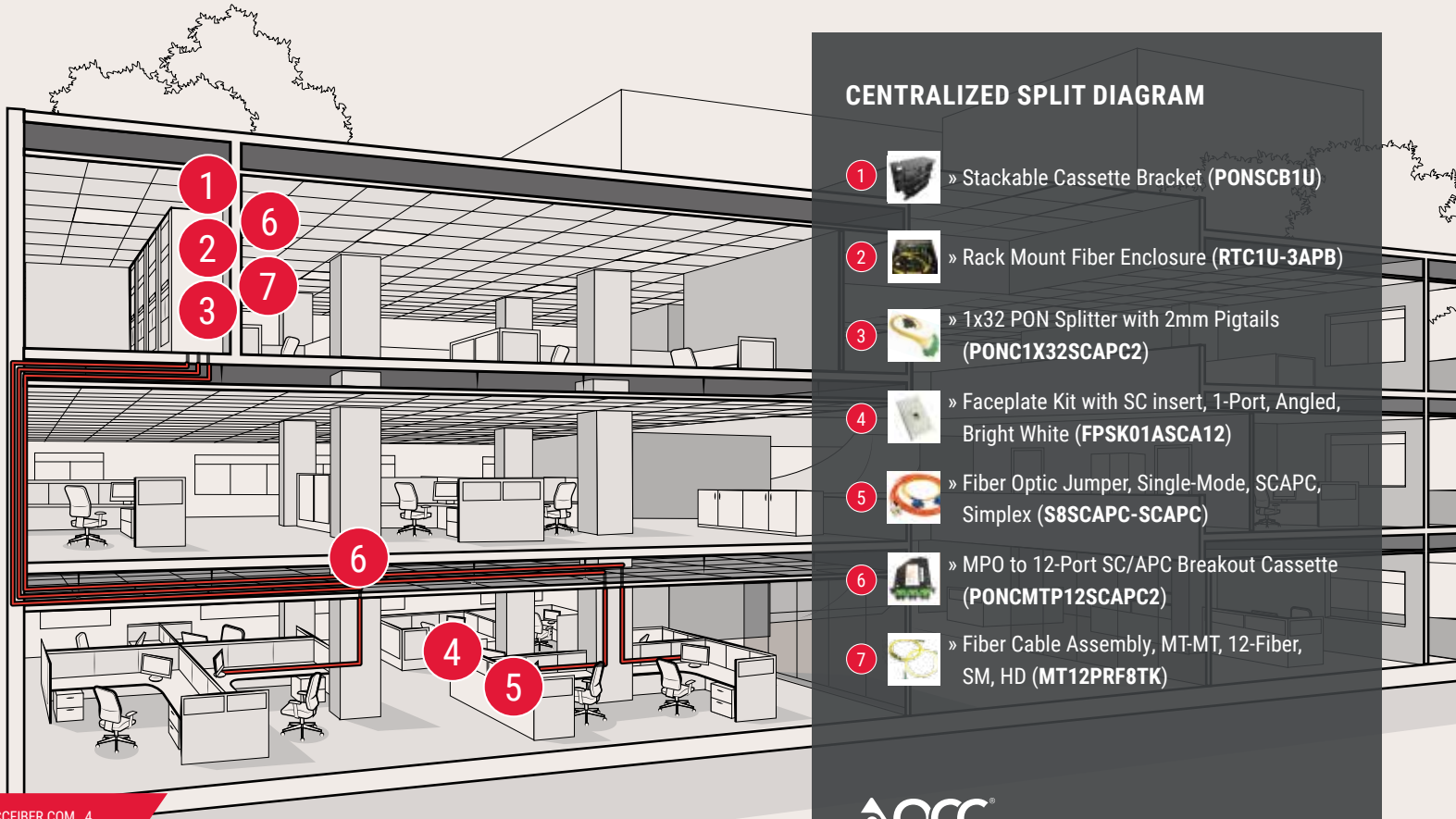
The OCC POL Solution ensures network traffic is transported between these devices over a passive optical fiber infrastructure that generally consists of the following components:

- Pre-terminated single-mode optical fiber cable
- Passive optical splitters
- Fiber adapter plates and cassette modules
- Fiber enclosures (rack/wall/ceiling mount)
- Faceplates/surface mount enclosures/pass-through couplers

CENTRALIZED SPLIT ARCHITECTURE

In this architecture, the splitters are located near the OLT or other active hardware. Individual simplex fiber optic cables connect this centralized location to each ONT throughout the building. The centralized split architecture works well in retrofit installations, where a telecommunications room or rack is already located near the users and is being re-used as a telecommunications room.

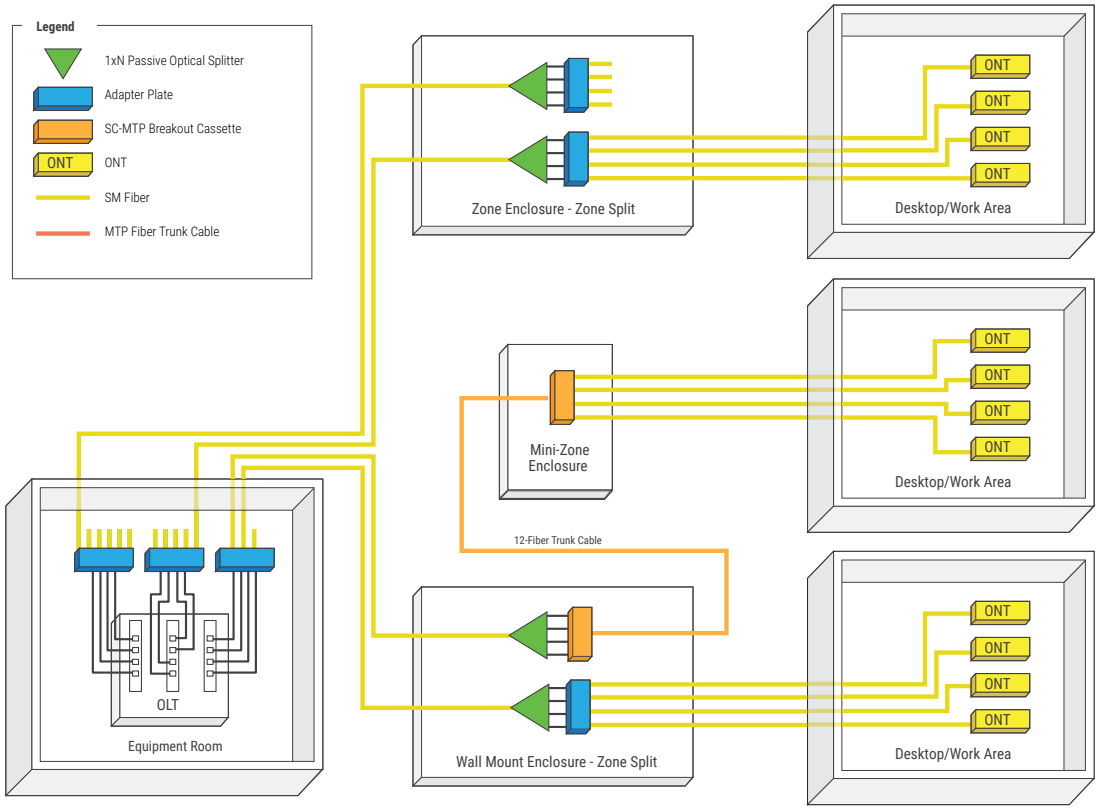




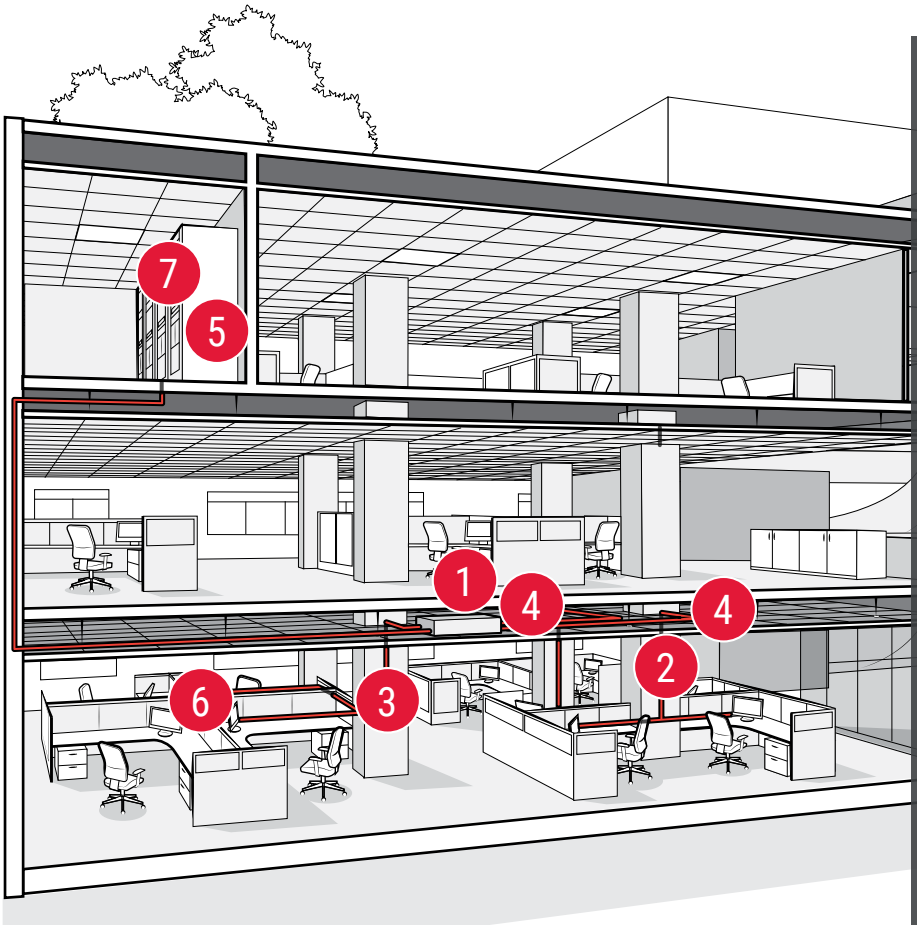
CENTRALIZED SPLIT DIAGRAM

1. » Stackable Cassette Bracket (**PONSCB1U**)
2. » Rack Mount Fiber Enclosure (**RTC1U-3APB**)
3. » 1x32 PON Splitter with 2mm Pigtails (**PONC1X32SCAPC2**)
4. » Faceplate Kit with SC insert, 1-Port, Angled, Bright White (**FPSK01ASCA12**)
5. » Fiber Optic Jumper, Single-Mode, SCAPC, Simplex (**S8SCAPC-SCAPC**)
6. » MPO to 12-Port SC/APC Breakout Cassette (**PONCMTP12SCAPC2**)
7. » Fiber Cable Assembly, MT-MT, 12-Fiber, SM, HD (**MT12PRF8TK**)

ZONE SPLIT ARCHITECTURE



In this architecture, the splitters may be located in the ceiling or in a rack near the workspace that contains the ONTs. In a multistory office building, each floor may have its own zone or have multiple zones, feeding back to an OLT located in a single telecommunications room. On a campus installation, each zone may be as large as an entire building, with the OLT being in another building elsewhere on campus.



ZONE SPLIT DIAGRAM

1.  » Ceiling Mount Enclosure (**ZED12AP**)
2.  » Wall Mount Enclosure (**WTC6APBD**)
3.  » Mini Zone Distribution Enclosure (**ZDMBC1AP**)
4.  » 1x32 PON Splitter with 2mm Pigtails (**PONC1X32SCAPC2**)
5.  » SC/APC 600-Series Adapter Plates (**6112SMDSCAPC**)
6.  » Fiber Service Outlet Box (**SMEK2FSO12**)
7.  » Rack Mount Fiber Enclosure (**RTC1U-3APB**)

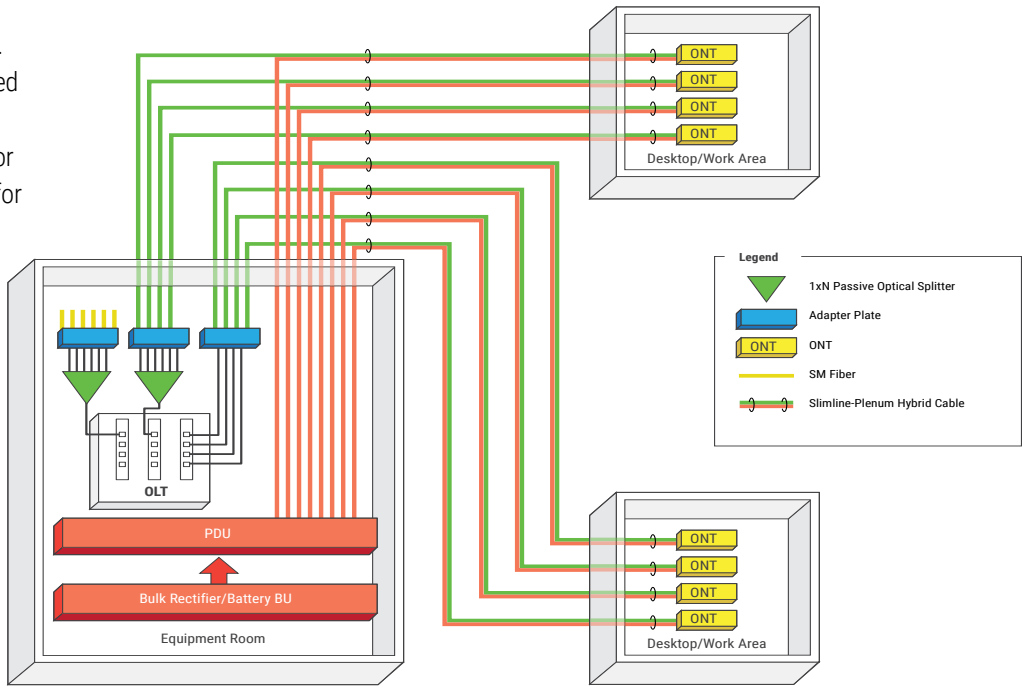
REMOTE POWERED ONT ARCHITECTURE

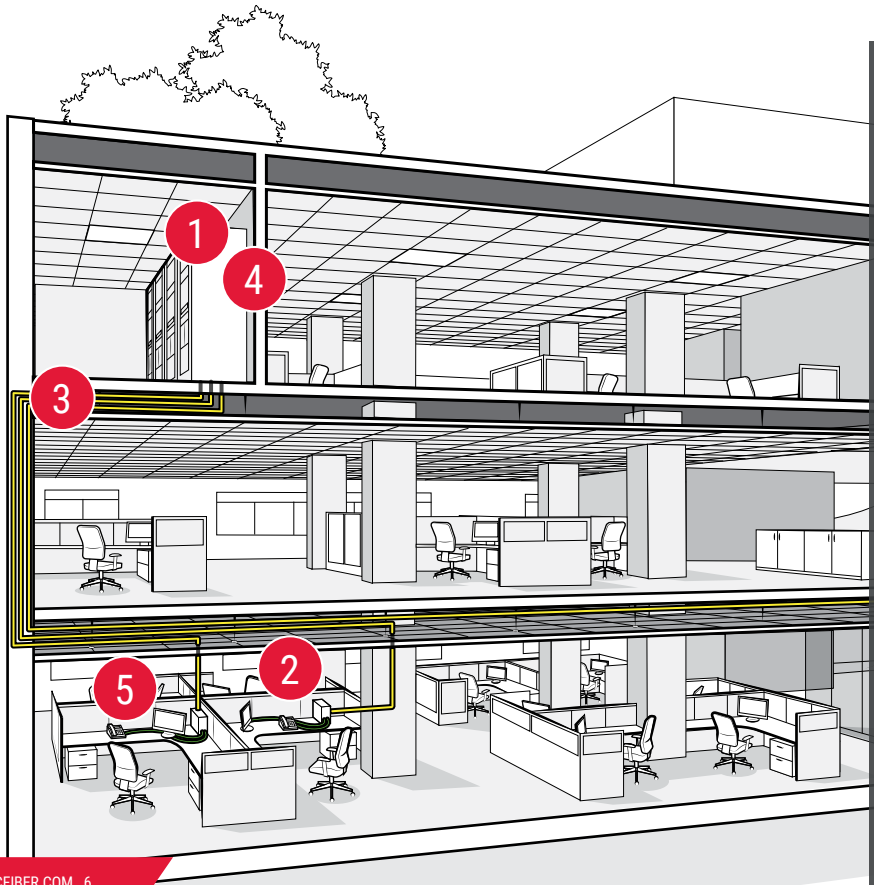
This architecture is a method for providing remote DC power from a central power supply to the ONT utilizing a hybrid cable. Remote power delivery eliminates the need for local AC power outlets at each ONT. A centralized power supply with generator or battery backup also eliminates the need for battery backup for each individual ONT.

REMOTE POWER DISTANCE BY CONDUCTOR SIZE

AWG	MAX DISTANCE (FT)
12	1606
14	1028
16	643
18	408
20	254
22	160

*Values based on 1.75 Amps @48VDC nominal input voltage to powered device from 57VDC power source.

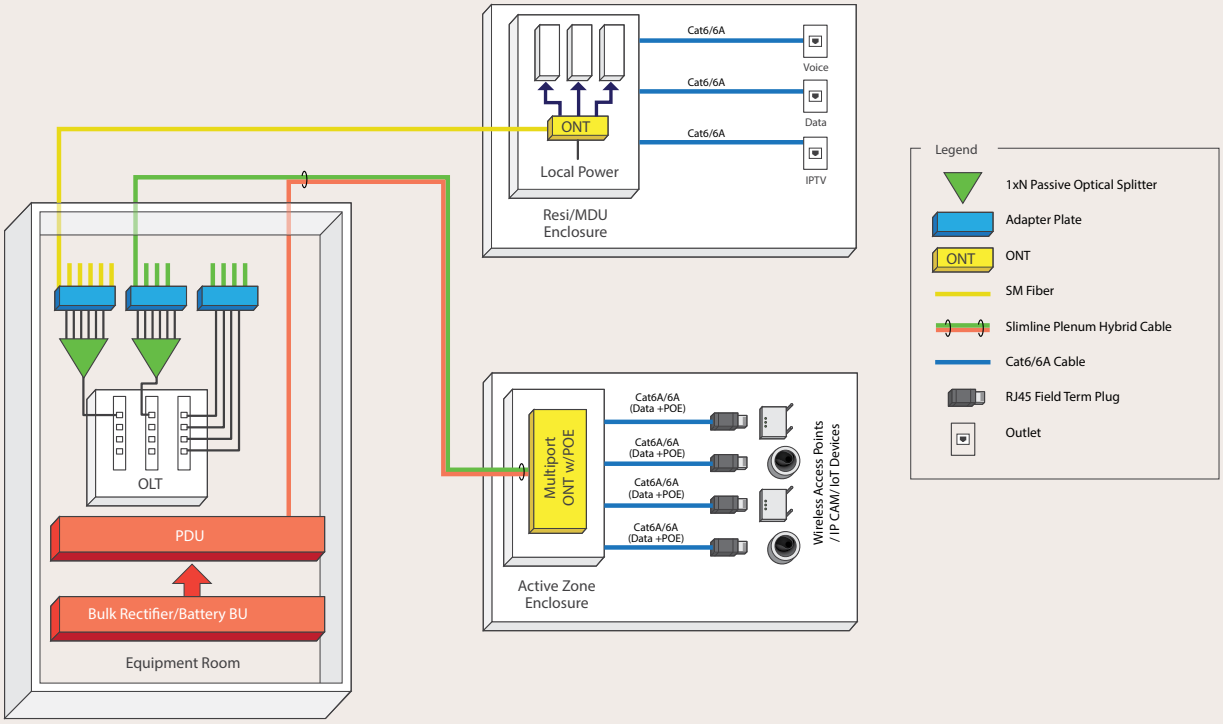




REMOTE POWERED ONT DIAGRAM

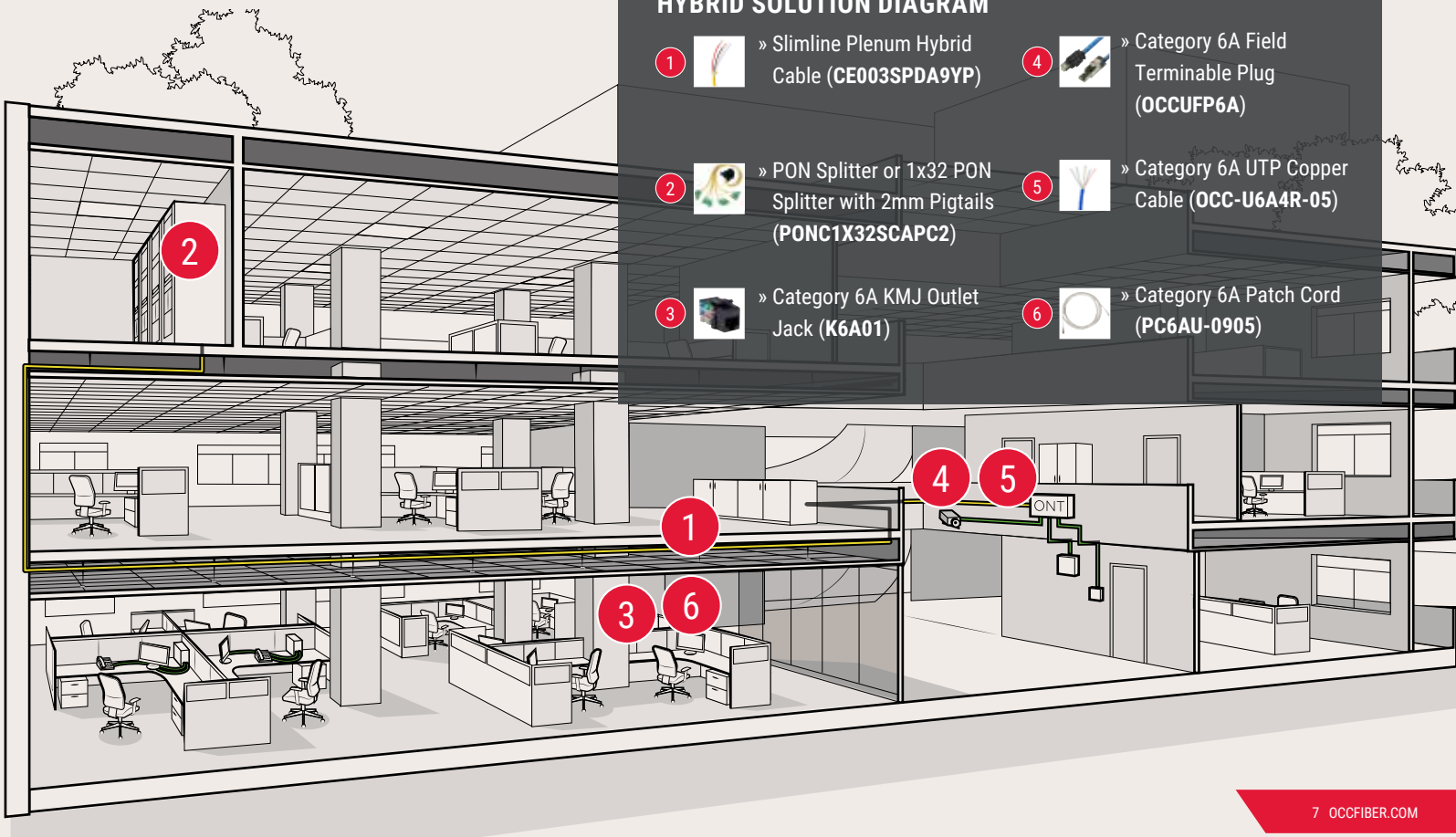
1.  » DC Pass-Thru Adapter Plate (**6112DCPASS**)
2.  » KMJ Adapter 2-Conductor Pass-Thru (**AKDCPT12**)
3.  » Slimline-Plenum Hybrid Cable (**CE003SPDA9YP**)
4.  » SC/APC HD Adapter Plates (**6112SMDSCAPCHD**)
5.  » Faceplate Kit with SC Shuttered Insert, 1-Port, Bright White (**FPSK01ASCAS12**)

HYBRID SOLUTION ARCHITECTURE



The Hybrid Solution architecture is comprised of both optical fiber and copper cabling. The ONT is typically located in an active zone enclosure and may be either locally or remotely powered. The ONT utilizes Category 6/6A copper cabling to provide data and optional Power over Ethernet (PoE) to end devices, such as Wireless Access Points (WAPs), IP cameras, or workstations.

HYBRID SOLUTION DIAGRAM



1. » Slimline Plenum Hybrid Cable (**CE003SPDA9YP**)
2. » PON Splitter or 1x32 PON Splitter with 2mm Pigtails (**PONC1X32SCAPC2**)
3. » Category 6A KMJ Outlet Jack (**K6A01**)
4. » Category 6A Field Terminable Plug (**OCCUFP6A**)
5. » Category 6A UTP Copper Cable (**OCC-U6A4R-05**)
6. » Category 6A Patch Cord (**PC6AU-0905**)

OCC® PRODUCT HIGHLIGHTS

CABLES & PRE-TERMINATED CABLE ASSEMBLIES

» A complete system that integrates with other POL and structured cabling components
» Flexible options based on application needs and infrastructure requirements
» OCC's POL Solution integrates seamlessly with all of our structured cabling components

DESCRIPTION	OCC PART #
Fiber Optic Jumper/Station Cable, SCAPC, Simplex #	S8SCAPC-SCAPC
Fiber Optic Jumper, Single-Mode, LCAPC, Simplex #	S8LCAPC-LCAPC
Fiber Cable Assembly, MT-MT, 12-Fiber, SM, HD Plenum#	MT12PRF8TK-0010
Slimline-Riser Indoor/Outdoor PLTC Hybrid	CE004DPDA9YR
Slimline Plenum Hybrid Cable *	CE003SPDA9YP
Simplex Bulk Cable, Single-Mode, Riser *	AX001DSLA9YR
Simplex Bulk Cable, Single-Mode, Plenum *	AX001SSLA9YP
Category 6 Patch Cord #	PCSIX04B02
Category 6A Patch Cord #	PC6AU-0905
Category 6 Bulk Cable *	OCC-UE64PLM-05
Category 6A Bulk Cable *	OCC-U6A4R-05

#Other configurations and varying lengths available.
*Other configurations available.

ADAPTER PLATES

» Available in 6-, 12-, and 24-Port fiber configurations
» Panel options available include SC, ST, FC, and LC

DESCRIPTION	OCC PART #
SC/APC 600-Series Adapter Plates	6112SMDSCAPC
SC/APC HD Adapter Plates	6112SMDSCAPCHD
LC/APC 600-Series Adapter Plates	6112DLCAPC
LC/APC HD Adapter Plates	6112DLCAPCHD
DC Pass-Thru Adapter Plates	6112DCPASS

SPLITTER MODULES & BREAKOUT CASSETTES

» Low-loss Planar Lightwave Circuit (PLC) design
» Dual input ports also available for redundancy
» 2mm fiber pigtails (1-meter length) for easy patching to adapter plates or cassettes

DESCRIPTION	OCC PART #
1X8 PON Splitter with 2mm Pigtails	PONC1X8SCAPC2
1X16 PON Splitter with 2mm Pigtails	PONC1X16SCAPC2
1X32 PON Splitter with 2mm Pigtails	PONC1X32SCAPC2
2X8 PON Splitter with 2mm Pigtails	PONC2X8SCAPC2
2X16 PON Splitter with 2mm Pigtails	PONC2X16SCAPC2
2X32 PON Splitter with 2mm Pigtails	PONC2X32SCAPC2
MTP/MPO to 12-Port SC/APC Breakout Cassette *	PONCMTP12SCAPC2

*Other configurations available.

WORK AREA & EQUIPMENT OUTLETS/ADAPTERS

» Faceplates accept KMJ-style fiber or copper jacks/adapters
» Angled faceplates minimize damage to connector and reduce space
» Shuttered SC/APC fiber adapters protect fiber interface when not connected

DESCRIPTION	OCC PART #
Faceplate, 1-Port, Angled, Bright White	FPSK01A12
Faceplate Adapter, SC/APC, Office White	AKSCAPC01
Faceplate Adapter, SC/APC, Shuttered, Green	AKSCAPCS04
Faceplate Kit with SC insert, 1-Port, Angled, Bright White	FPSK01ASCA12
Faceplate Kit with SC Shuttered Inset, 1-Port, Bright White	FPSK01ASCAS12
KMJ Adapter 2-Conductor Pass-Thru	AKDCPT12
Fiber Service Outlet Box	SMEK2FSO12
Category 6A Field Terminable Plug, Unshielded	OCCUFP6A
Category 6A Field Terminable Plug, Shielded	OCCSFP6A
Category 6 KMJ Outlet Jack, Office White	KMJA601
Category 6A KMJ Outlet Jack, Office White	K6A01

WALL MOUNT ENCLOSURES

» Available in 600-Series (WTC6/12) and HD (WTC8/16HD) configurations
» WTC6/12 enclosures accept OCC standard 600-Series adapter plates and cassettes
» WTC8/16 HD enclosures accept HD adapter plates for high-density applications (33% more port capacity than 600-Series)

DESCRIPTION	OCC PART #
WTC Cabinet - Wall Mount Fiber Enclosure	WTC6APB
WTC 6APB Enclosure with Lockable Inner Door	WTC6APBD
WTC 8HDAPB Enclosure	WTC8HDAPB
WTC 8HDAPB Enclosure with Lockable Inner Door	WTC8HDAPBD
WTC 12APB Enclosure	WTC12APB
WTC 12APB Enclosure with Lockable Inner Door	WTC12APBD
WTC 16HDAPB Enclosure	WTC16HDAPB
WTC 16HDAPB Enclosure with Lockable Inner Door	WTC16HDAPBD
WTC 6/8HD, Inner Door	WTC6/8LD
WTC 12/16HD, Inner Door	WTC12/16LD

RACK MOUNT ENCLOSURES

» RTC/RTS 600-Series rack mount enclosures (1/2/4U)
» RTC/RTS HD series rack mount enclosures (1/2/4U) Features and Benefits
» Available in fixed (RTC) and sliding (RTS) configurations
» Available in 1RU, 2RU, and 4RU configurations

DESCRIPTION	OCC PART #
Rack Mount Enclosure for 600-Series Adapter Plates *	RTC1U-3APB
Rack Mount Enclosure for 600-Series Adapter Plates *	RTC2U-6APB
Rack Mount Enclosure for HD Series Adapter Plates *	RTC1U-HD4APB
Rack Mount Enclosure for HD Series Adapter Plates *	RTC2U-HD8APB

* RTS (sliding chassis) configurations available.

CEILING MOUNT ENCLOSURES

» Fits 2'x2' ceiling grid
» ZED12AP enclosure 7" deep
» ZES6AP enclosure 3.5" deep

DESCRIPTION	OCC PART #
Zone Enclosure, 22"h x 24"w x 7"d, Accommodates 12 inserts	ZED12AP
Zone Enclosure, 22"h x 24"w x 3.5"d, Accommodates 6 inserts	ZES6AP

MINI-ZONE DISTRIBUTION ENCLOSURES

» Ideal for deployment in various locations to support multiple mini-zones
Ex. Accommodates PONCMTP12SCAPC2 cassette to breakout 12-fiber trunk cable to simplex ports to support up to (12) ONTs in a mini-zone.
» Accommodates (1) 600-Series adapter plate or cassette module
» Can be used for splicing or patching applications
» Front door includes hasp for optional padlock
» 9.5"W x 7"H x 1.5"D

DESCRIPTION	OCC PART #
Fiber Zone Distribution Enclosure	ZDMBC1AP

ACCESSORIES

» Both SC and LC attenuators available to optimize signal level at ONT
» High optical power capacity (up to 500mW)
» Wide operating wavelength

DESCRIPTION	OCC PART #
POL Attenuators-SC/APC *	ATTEN-SCAPC
POL Attenuators-LC/APC *	ATTEN-LCAPC

* Varying optical attenuation values available.

» Reduces fiber stress and provide support for proper cable bends and efficient cable management
» Slots for cable ties and hook and loop fasteners
» Fits most OCC fiber enclosures

DESCRIPTION	OCC PART #
External Strain Relief Bracket	TCSRB2

» Accommodates PONC1 splitters, PONCMTP breakout cassettes, or 600-Series adapter plates
» Stackable mounting for higher density
» May be mounted in RTC/RTS rack mount enclosures and WTC6/8/12/16 wall mount enclosures

DESCRIPTION	OCC PART #
Stackable Cassette Bracket *	PONSCB1U

* (3) stackable cassette brackets shown.

Contact your OCC representative at 1-800-622-7711 for ordering information. We're ready to assist you.

CUSTOMER SUPPORT & WARRANTY INFORMATION

TECHNICAL AND DESIGN-BUILD EXPERTISE

Instead of relying on OCC just for products, more and more of our customers rely on our design-build expertise. Our design engineers and technical staff provide unprecedented service, support, and assistance.

ONE-STOP SHOP

Since we provide one of the largest network-solutions portfolios in the industry, many of our customers rely on OCC as their one-source solutions provider. From the most reliable end-to-end cabling and connectivity systems, down to the shortest patch cable, we can meet your every network need.

CUSTOMER-DERIVED INNOVATIONS

We partner with you, our customer, and listen to your needs. Thanks to our customers, we've designed, innovated, and customized some of the best solutions in the industry, providing the speed, immediate scalability, space savings, and ultra-high performance demanded by zero-downtime networks of all sizes.

COMPETITIVE WARRANTY PROGRAMS

OCC, in conjunction with certified Multimedia Design and Integration Specialist (MDIS) installers around the world, is able to offer various competitive warranty and extended warranty programs. OCC has developed warranty plans that offer a flexible approach to long-lasting network installations.

QUICK SHIPPING

FAST AS FIBER

24 HR QUICK TURNAROUND

SAME DAY SHIPPING ON IN-STOCK ITEMS IF ORDERED BY 12PM, EST.

GLOSSARY

ATTENUATOR: A passive optical device that reduces the strength of the optical signal by a fixed amount.

CENTRALIZED SPLIT: A POL architecture wherein the optical splitters are located in a centralized location, often near the OLT, and individual fibers extend from the centralized location to each ONT.

ETHERNET PON (EPON): EPON is part of IEEE standard Ethernet for 1/1 Gbit/s, 10/1 Gbit/s, and 10/10 Gbit/s. With over 40 million installed EPON ports, it is the most widely deployed PON technology worldwide. Cable operators are utilizing EPON for business services as part of the DOCSIS initiative.

GIGABIT PON (GPON): Based on the previous PON types, GPON supports higher data rates and increased security and has been deployed around the world by major telecom operators.

HYBRID CABLE: A cable that contains both copper conductors and fiber optic elements under one jacket. These cables are typically used to remotely power ONTs from a centralized power source that is located near the optical splitters.

HYBRID SOLUTION: An architecture in which the infrastructure is comprised of both fiber and copper cabling. ONTs are typically mounted in an active zone enclosure and provide data and PoE over Category 6/6A copper cabling to end devices (WAPs, IP cameras, etc.) or workstations.

OPTICAL LINE TERMINAL (OLT): An active device which serves as the service provider endpoint of a passive optical network. It converts between the electrical signals used by the service provider's equipment and the fiber optic signals used by the passive optical network.

OPTICAL NETWORK TERMINAL (ONT): An active device which converts optical signals to traditional copper-based Ethernet signals. ONTs can provide data to multiple end devices and can also provide POE to end devices.

PASSIVE OPTICAL LAN (POL): An implementation of a Passive Optical Network wherein all users are physically local to each other. This user base may also be served by installing a traditional Local Area Network (LAN).

PASSIVE OPTICAL NETWORK (PON): A telecommunications technology used to provide fiber to the end consumer. A PON's distinguishing feature is that it implements a point-to-multi-point architecture, in which unpowered fiber optic splitters are used to enable a single optical fiber to serve multiple end-users. Variants include GPON and 10GPON.

POWER OVER ETHERNET (POE): A standard developed by the IEEE to provide both power and data to an end device over a single Category 5e, 6, or 6A cable.

REMOTE POWER: A method of powering the ONT's from a centralized power source using a hybrid cable, as opposed to local power, where the ONT's are powered from a wall outlet near the ONT.

WAVELENGTH DIVISION MULTIPLEXING (WDM): Allows for a number of optical carrier signals to be put onto a single fiber at different wavelengths, thus enabling bidirectional traffic as well as increased capacity.

ZONE SPLIT: A POL architecture wherein the optical splitters are located in a remote location, often near the end users. A single fiber connects the centralized OLT to the zone splitter, and then single fibers extend from the zone splitter to individual end-users.

10 GIGABIT PON (10GPON): Enables the delivery of 10Gbit/s speeds using PON network architecture. As the next generation of GPON, devices can operate on the same network as GPON devices.

LOCATIONS

VISIT OCCFIBER.COM

OCC ROANOKE, VA

Corporate Headquarters and Fiber Optic Cable Manufacturing Facility

5290 Concourse Drive
Roanoke, VA 24019 USA
540-265-0690 or 800-622-7711

OCC DALLAS, TX

Harsh Environment and Specialty Connectivity Manufacturing Facility

1700 Capital Avenue, Suite 150
Plano, TX 75074 USA
972-509-1500 or 877-509-1500

OCC ASHEVILLE, NC

Enterprise Connectivity Manufacturing Facility

33 Superior Way
Swannanoa, NC 28778 USA
828-298-2260 or 800-880-7674

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