



PANDUIT

New Standardized Cabling Options for NBASE-T Devices

NBASE-T
ALLIANCESM

Webinar Speakers



Tom Baum

Sr. Product Manager, Panduit
tmba@Panduit.com



Peter Jones

Chairman, NBASE-T Alliance
Distinguished Engineer, Cisco
chairman@nbaset.org
@petergjones
@nbasetalliance

Agenda



	NBASE-T Overview	Peter
	New Standardized Cabling Options	Tom
	Choosing & Deploying Cabling for Devices	Tom
	Wrap-up & Discussion	Tom/Peter

NBASE-T Alliance

- NBASE-T Alliance (www.nbaset.org/)
 - Vendor alliance for 2.5G/5G BASE-T
- Who are we?
 - Member companies representing all areas of network infrastructure including components, silicon, systems, cabling, testing equipment
- What are we doing?
 - Educate the market about multiple NBASE-T applications, enable widespread deployment, facilitate interoperability and build the market



Promoters



Contributors



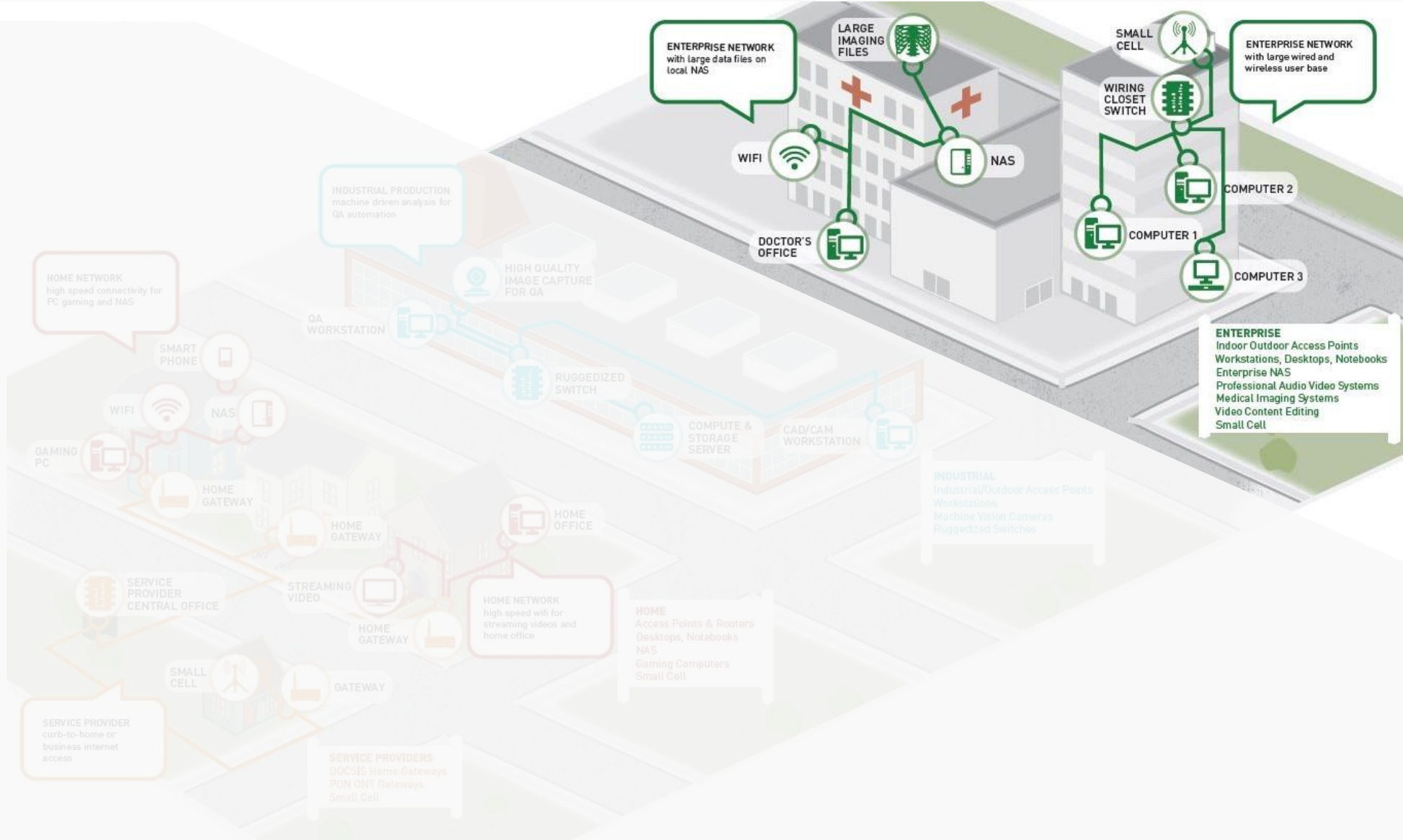
Adopters



Liaisons



NBASE-T Application Areas



Enterprise:

Switch
Wireless AP
Desktop
Storage
Small Cell

Industrial:

Switch
Wireless AP
Workstation
Storage
Compute
Machine Vision

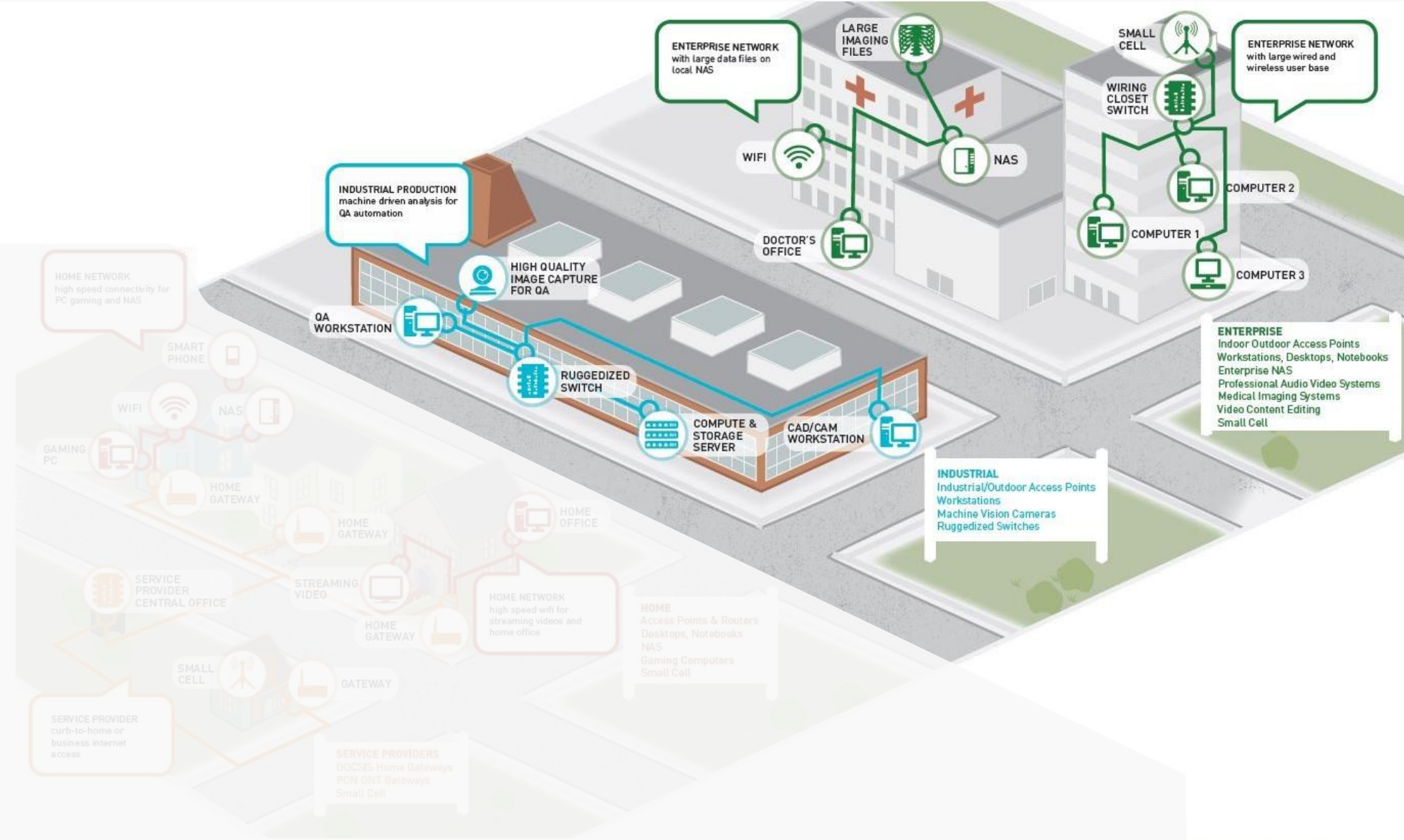
Home:

Switch
Wireless AP
Storage Server
Home Gateway
Streaming Media

Service Provider:

Small Cell
Home Gateway

NBASE-T Application Areas



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- Wireless AP
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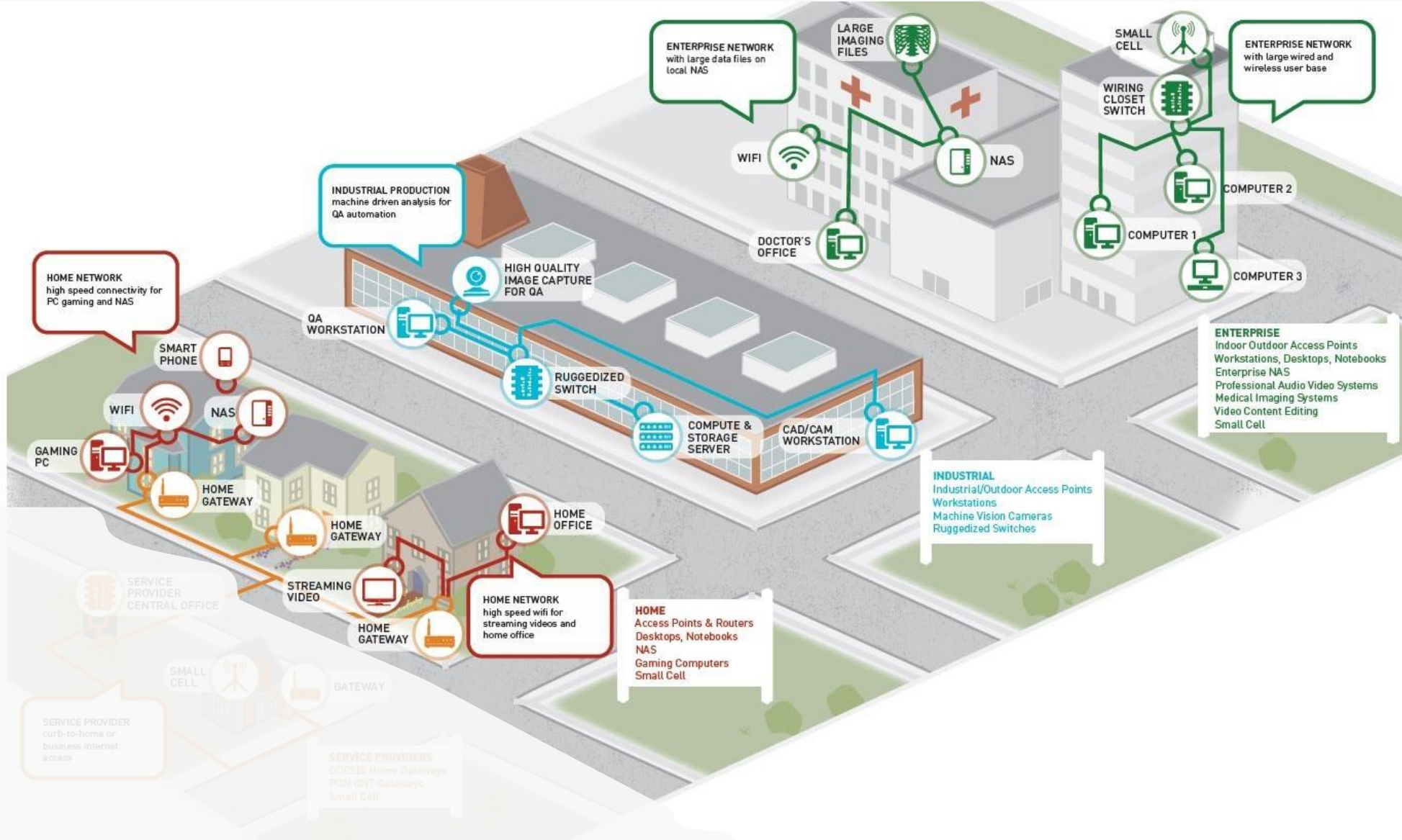
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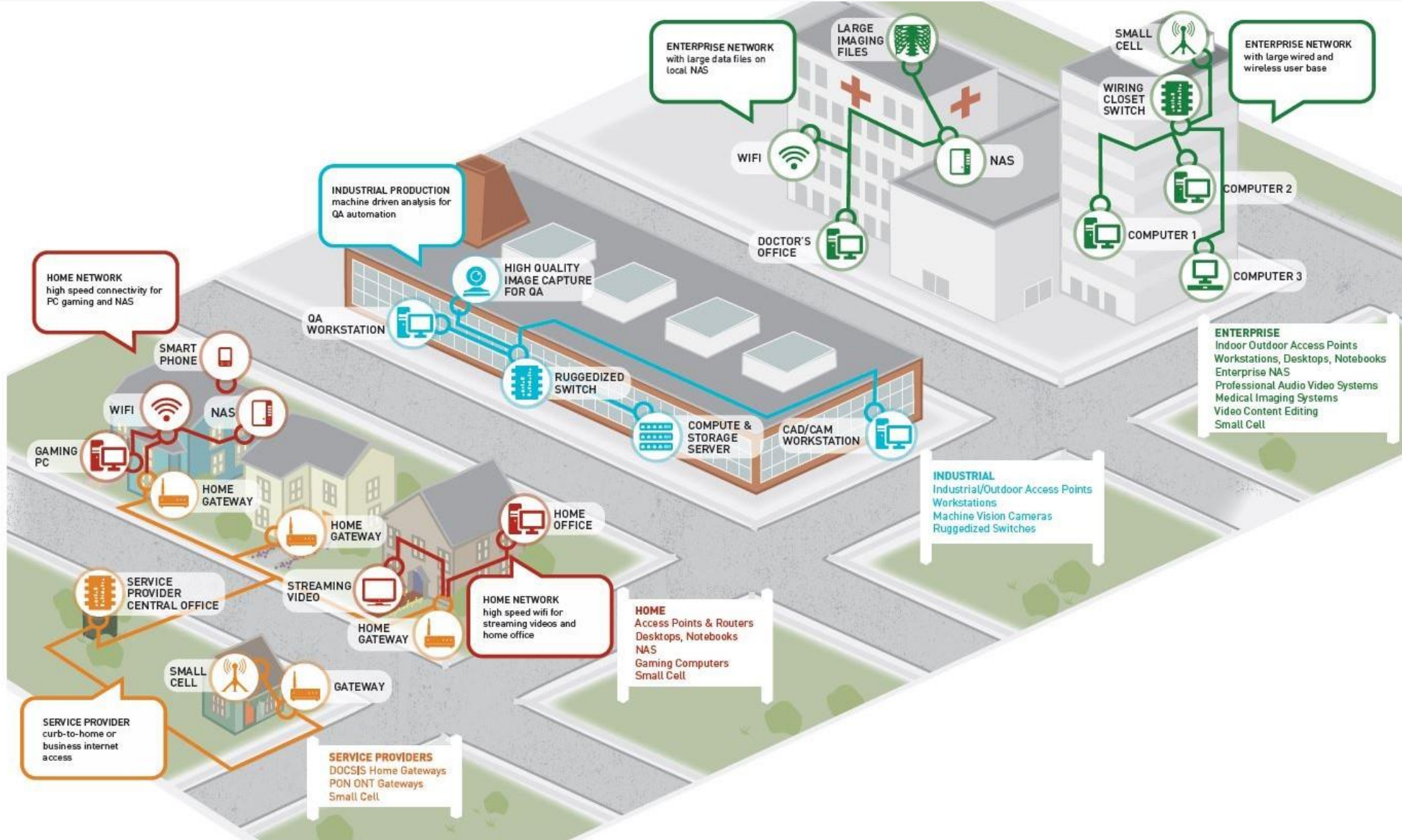
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Companies with NBASE-T Product

NBASE-T Products

NBASE-T Alliance Member Companies

Component

Aquantia
Aruba HPE
Bel Magnetic Solutions
Cisco
GLGNet
Intel
KinnexA
Marvell
NXP

System Level Product

Aquantia
Aruba HPE
Cisco
Microsemi
Netgear
Pleora Technologies
Tehuti Networks
Teledyne e2v

Test Equipment

AEM
Aukua Systems
Spirent
Tektronix
Xena Networks

Non-Member Companies

Component

Akitio
Dell
Gigabyte
Promise Technology
QNAP
Sonnet

System Level Product

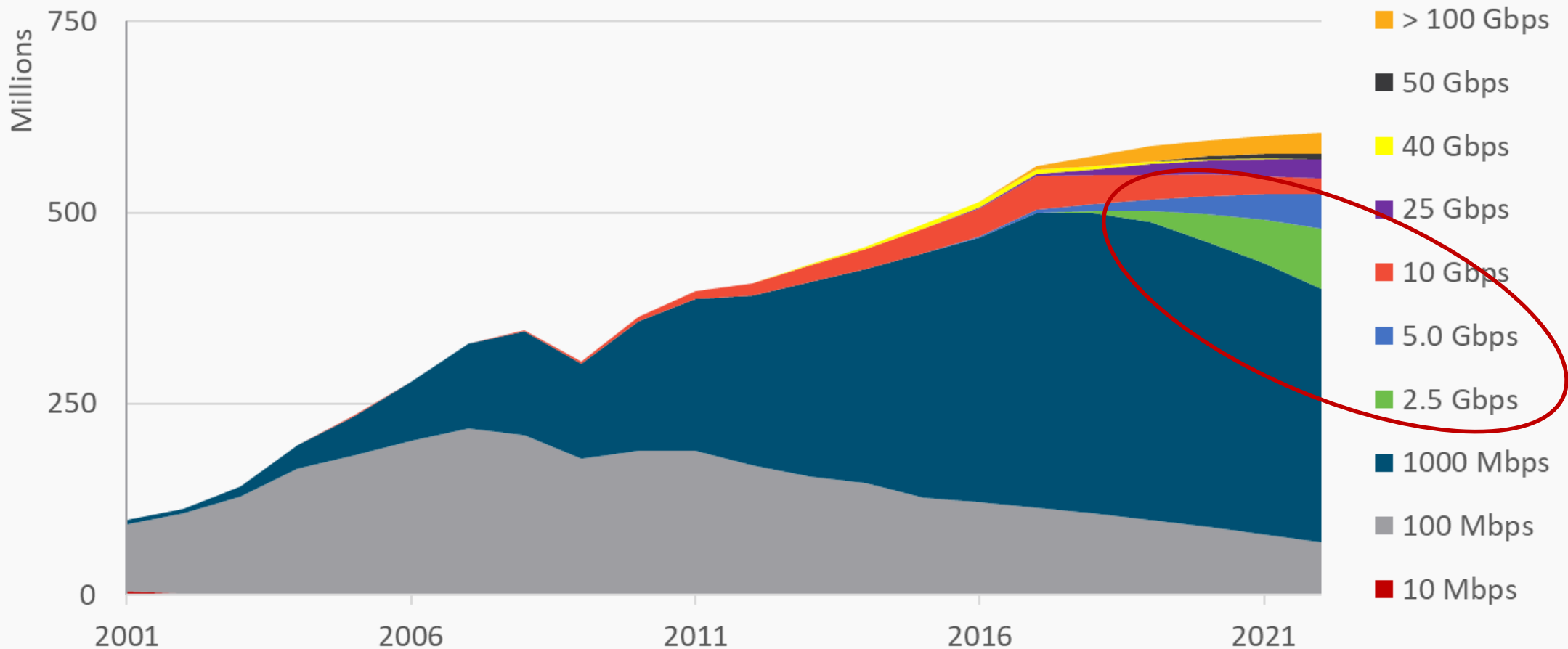
Accton
Apple
ASRock
ASUS
Brocade
Buffalo
Dell
Dell EMC
Lenovo
MSI
Promise Technology
Sonicwall
StarTech
Supermicro

<https://www.nbaset.org/technology/nbaset-products/>

NBASE-T Momentum



Ethernet Switch Ports
Dell'Oro Group Ethernet Switch 5-year Forecast Jan 2018





Value of NBASE-T Technology

Leverages more than 1.3+ billion Cat5e/Cat6 outlets and more than 70 billion meters of Cat5e/Cat6 cables that make up greater than 90% of the current installed base

Enables network evolution by providing up to 10x faster speed without pulling cables or requiring building construction

Supports high-speed links to next generation WiFi access points and high-data rate client PC and workstation systems



New Standardized Cabling Options

About Panduit

- Since 1955, Panduit's culture of curiosity and passion for problem solving have enabled more meaningful connections between companies' business goals and their marketplace success.
- Panduit creates leading-edge physical, electrical, and network infrastructure solutions for enterprise-wide environments, from the data center to the telecom room, from the desktop to the plant floor.



New Standardized Cabling Options

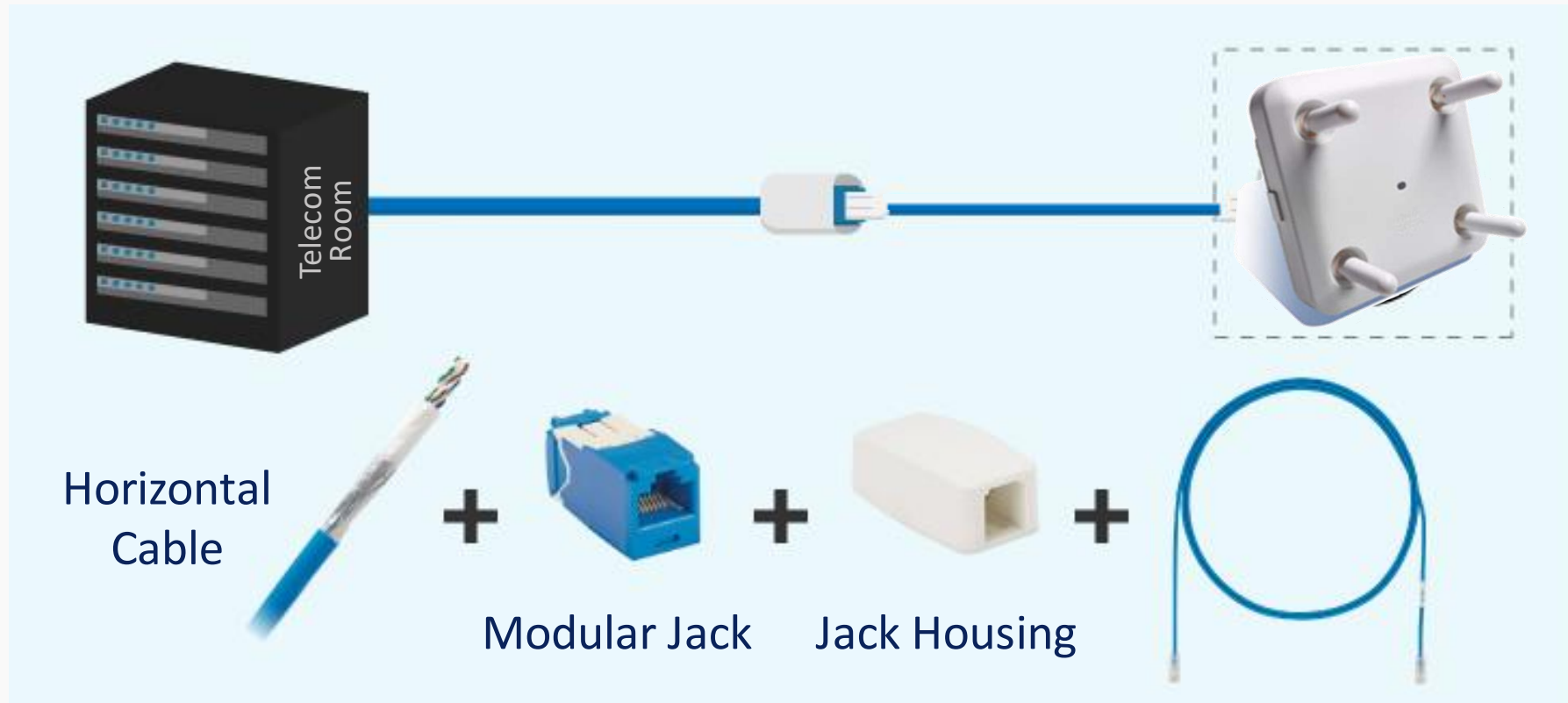
- Latest revision of standard governing structured cabling
 - ANSI/TIA568.2-D – new “D” revision published 9/20/2018
 - Major changes related to device cabling
 - 28 gauge patch cords included
 - New type of permanent link – “MPTL” – included
 - What do these changes mean for device cabling?



Balanced Twisted-Pair
Telecommunications Cabling and
Components Standards

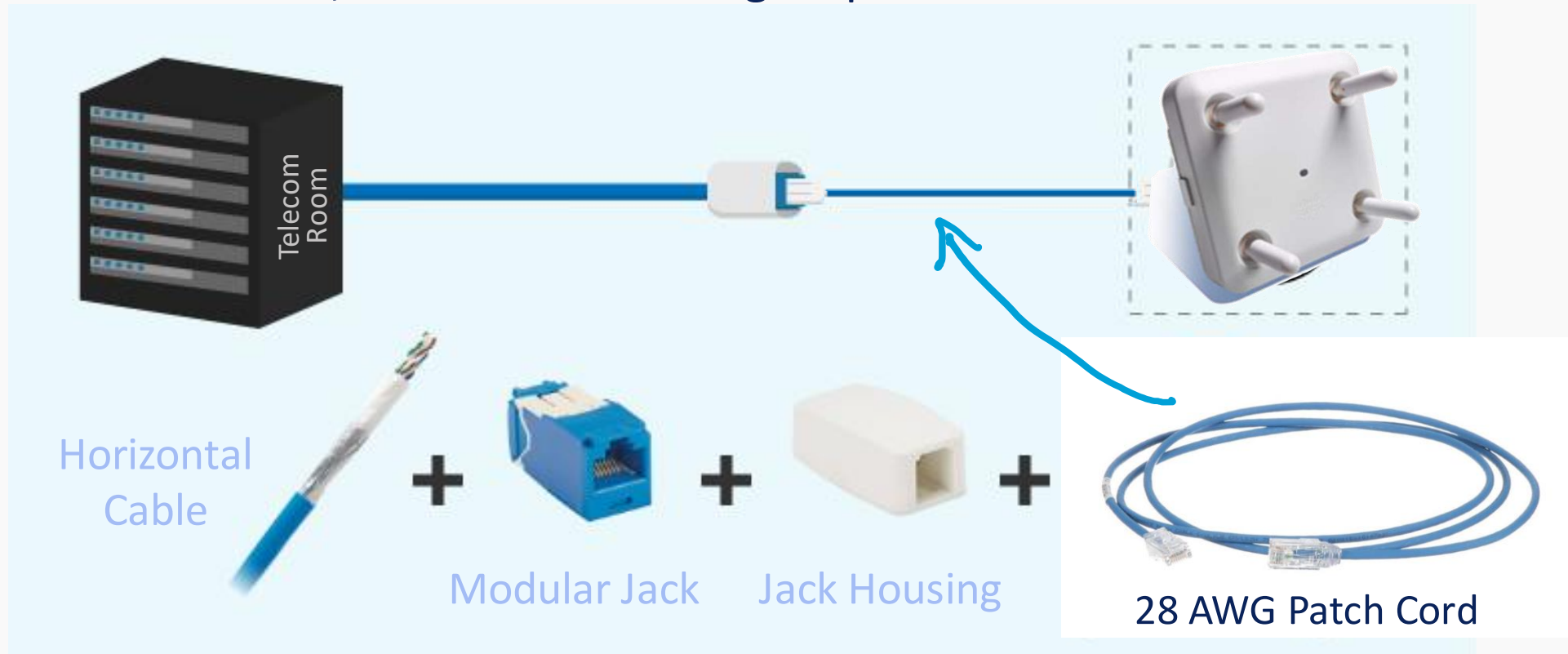
Patch Cord Method

- Traditional structured cabling method



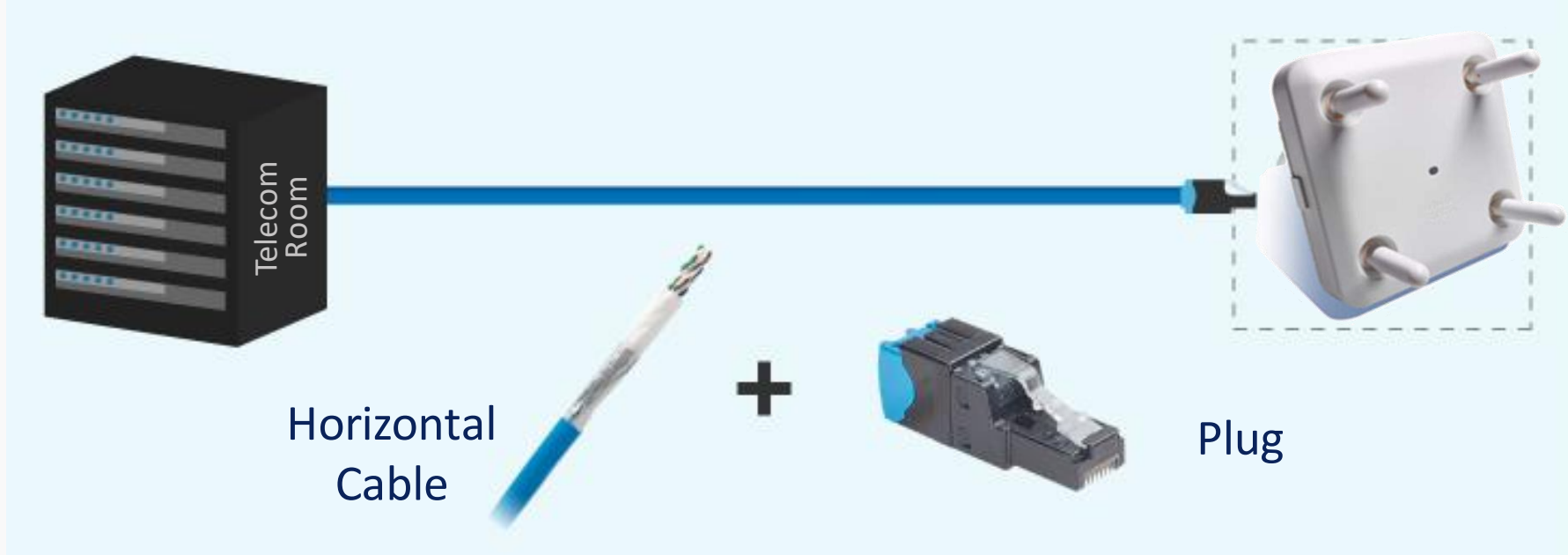
Patch Cord Method – with 28 AWG Cords

- Advantage of much smaller 28 AWG cords to connect devices
 - Much more flexible, able to feed into tight spaces or devices



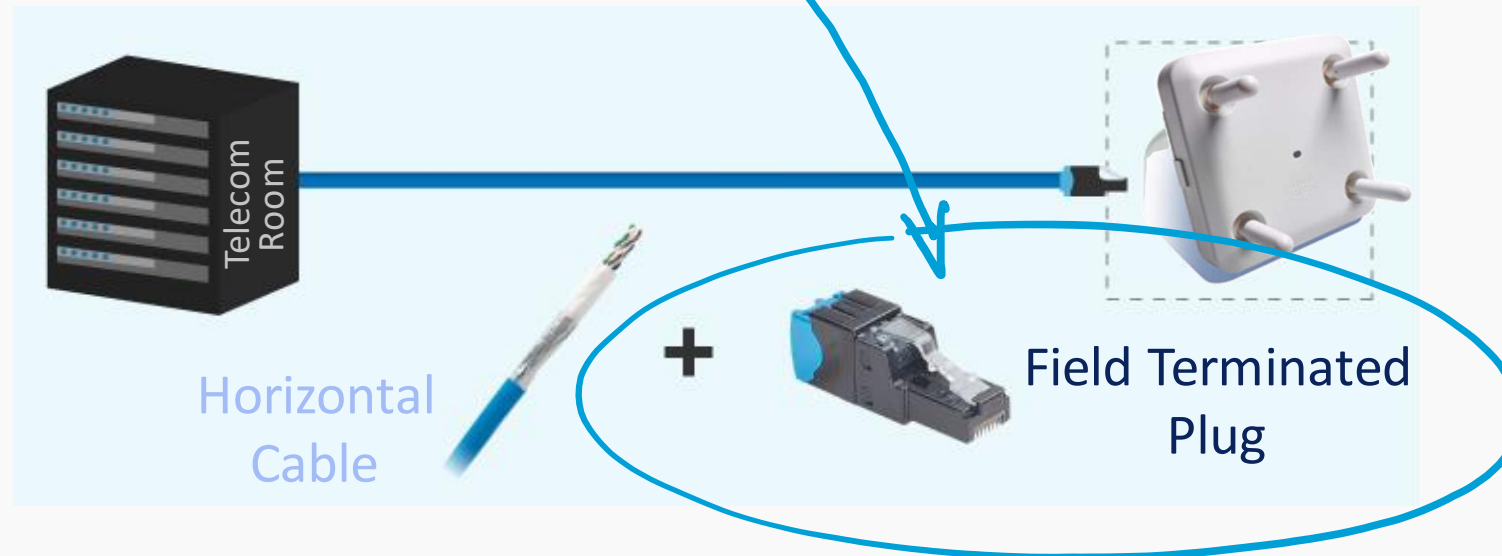
Direct Connect Method

- Running horizontal cable directly to device by attaching plug



Direct Connect Method with MPTL

- New “Modular Plug Terminated Link” (MPTL) is approved field terminable and field testable link
 - More cost effective “direct connect” method formally included in standard
 - Increased availability of field terminable plugs





Comparing Cabling Methods for NBASE-T Devices



Comparing Cabling Methods

- Do 28 AWG patch cords and MPTL links change which method is better to use?

Patch Cord Method	Direct Connect Method
<p>Familiar method that provides <u>modularity</u> and <u>physical flexibility</u>.</p> <ul style="list-style-type: none">✓ Familiar approach doesn't require training✓ Modular plugs on patch cords are generally more compact than field terminable plugs allowing better fit in confined ports✓ Flexible cord routing options, especially with 28 AWG✓ Included in TIA-568 standard	<p>Provides <u>cost savings</u>, <u>faster installation</u>, and <u>increased reliability</u>.</p> <ul style="list-style-type: none">✓ Lower install cost and faster installation with fewer components✓ Plug terminated directly to horizontal cable avoids need for junction box✓ Increased reliability due to fewer points of failure✓ Included in TIA-568 standard

Use Patch Cord for tight spaces and flexibility.
Use Direct Connect for lower cost and faster installation.



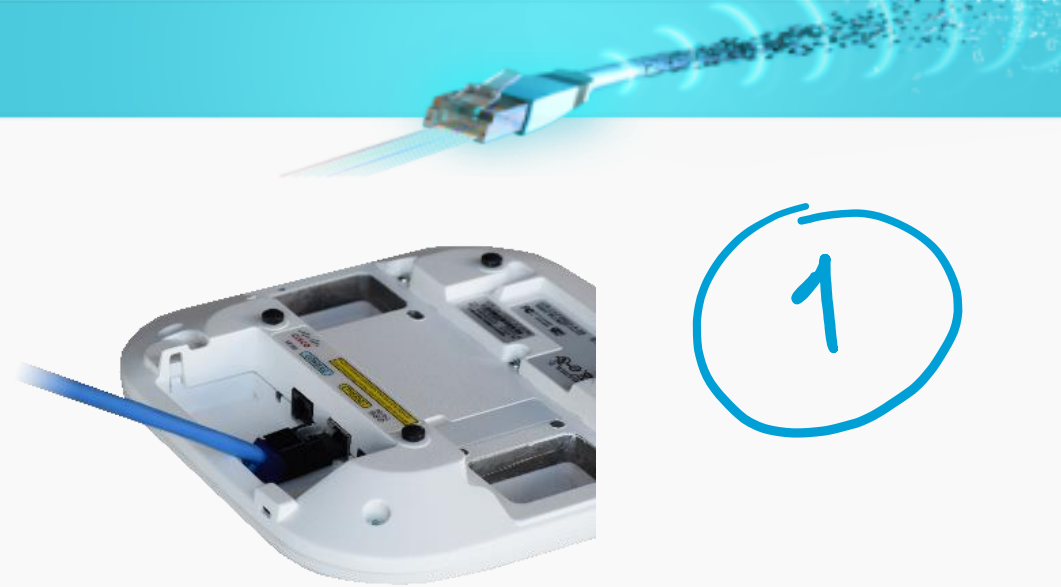
Selecting Cabling Methods for NBASE-T Devices

Which Method to Use?

- 3 determining factors



Device RJ45 port & cabling layout



Which Method to Use?

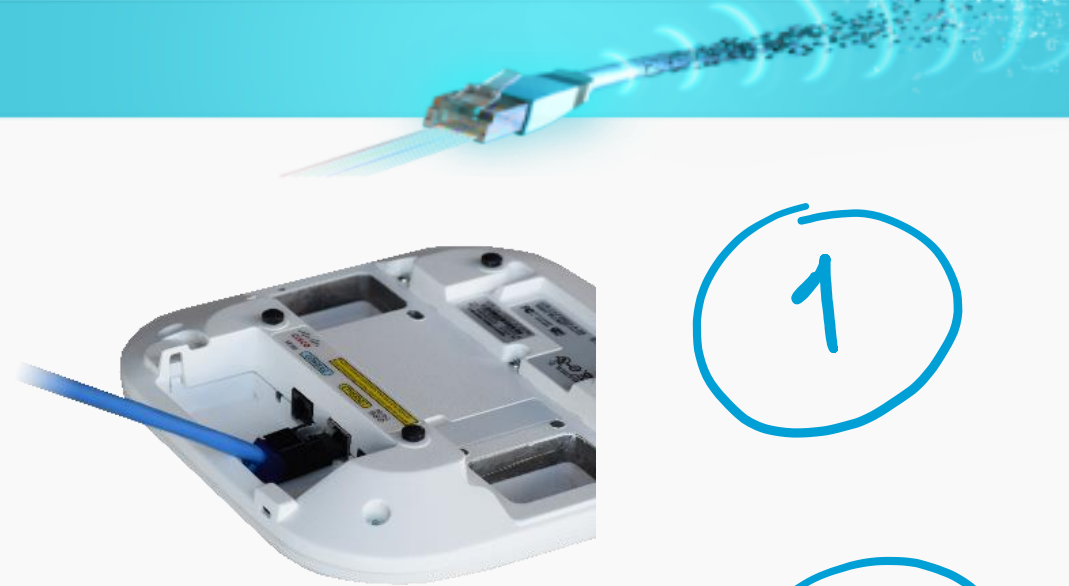
- 3 determining factors



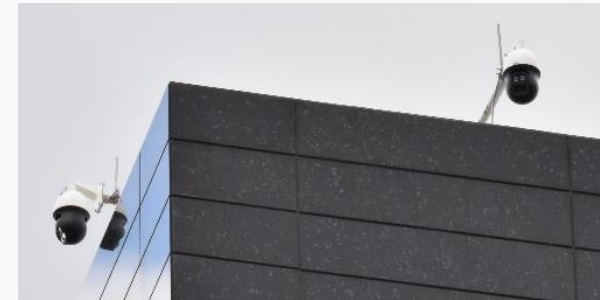
Device RJ45 port & cabling layout



Device mounting environment



1



2

Which Method to Use?

- 3 determining factors



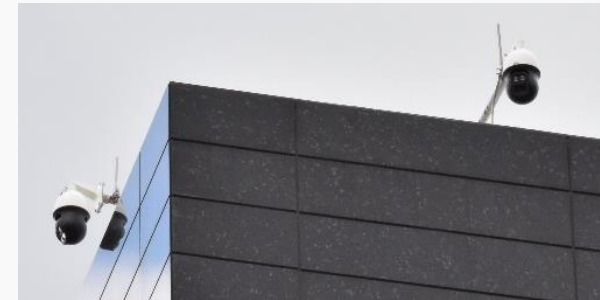
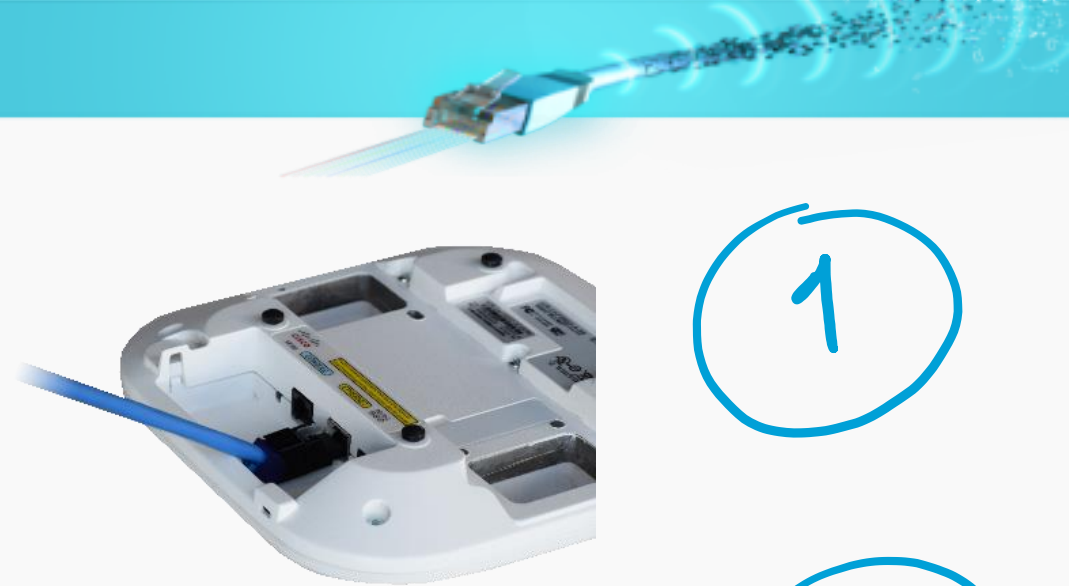
Device RJ45 port & cabling layout



Device mounting environment



Cabling & connector solutions used



Device RJ45 Port & Cabling Layout



Examples: The devices above have open or unconstrained routing paths, providing the most cabling options. The direct connect method can easily be used because there are no bend radius concerns.

Examples: The devices above have constrained cable routing paths that require tight bends. In these cases, a patch cord may be preferred because of its smaller size and flexibility. In the most extreme cases, 28 AWG patch cords may be required.

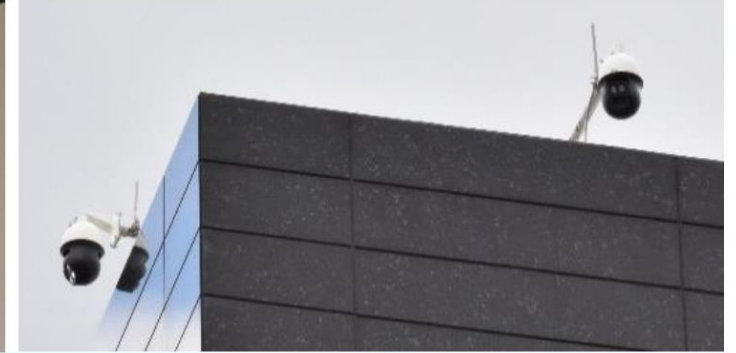
Device Mounting Environment



Example: Drop ceiling locations can usually accommodate either cabling method, as there is normally open space to work with and the ceiling conceals the cabling.



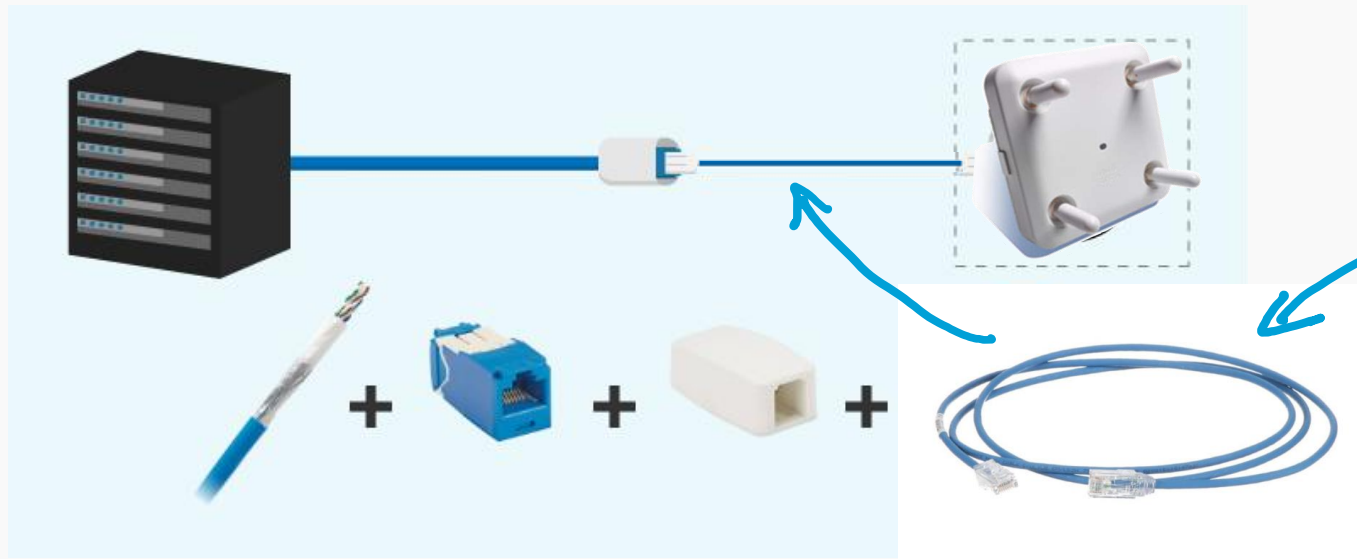
Example: If a jack outlet can be located close by, the patch cord method may be better for wall mounted devices because either a faceplate or surface mount box provides a housing for the modular jack that is visually clean.



Example: The direct connect method is recommended for hard to access environments, such as roof-mounted security cameras, due to its increased reliability and the ability of the cable to feed directly through the conduit to the device without a need for an intermediate jack connection.

Cabling & Connector Solutions Used

- Patch Cord Method with 28 AWG Cords

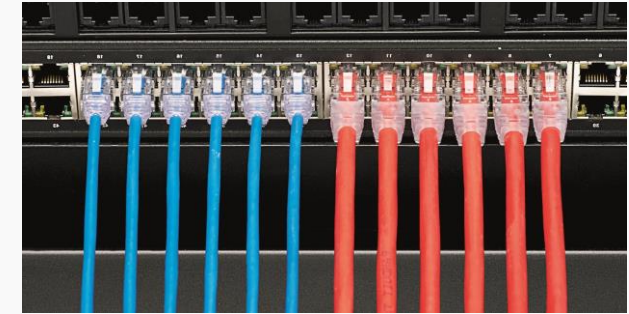
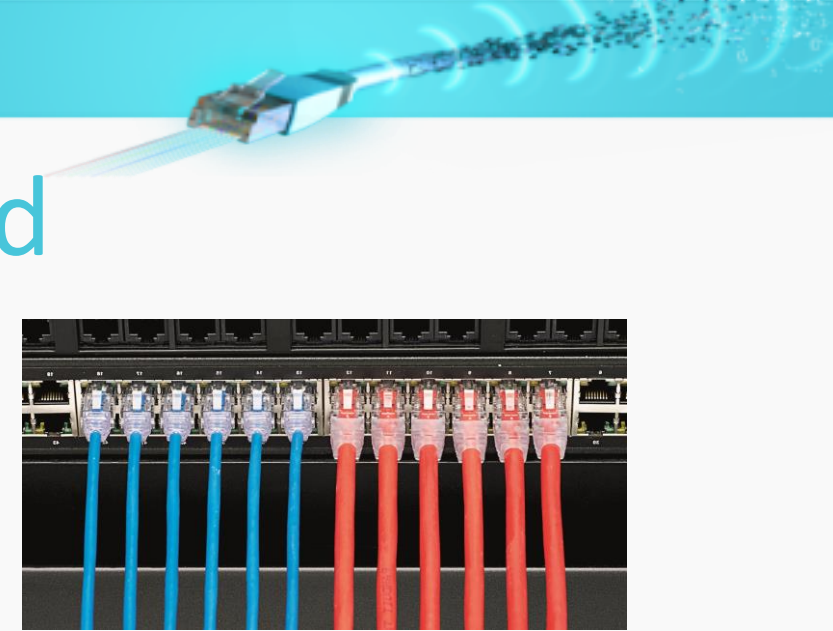


28 AWG Patch Cords

Provide increased flexibility and ease of cord routing due to much smaller diameter

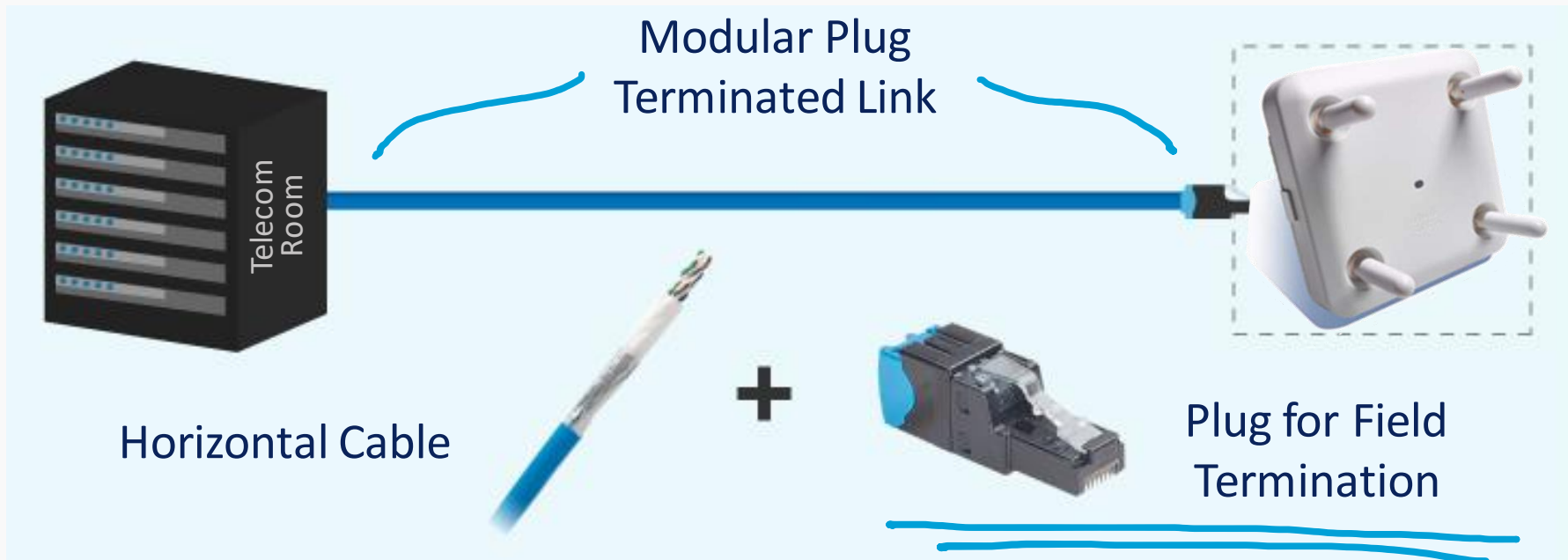
Cabling & Connector Solutions Used

- How are 28 AWG patch cords different?
 - Smaller wire diameter = smaller cable
 - Higher attenuation = shorter maximum lengths
 - Still support all PoE levels
- What to look for in 28 AWG Patch Cords
 - Full range of cord options
 - Category 5e, 6 & 6A and UTP & Shielded
 - Large number of standard colors
 - Complete family of 28 AWG connectivity
 - Modular jacks and plugs designed for 28 AWG



Cabling & Connector Solutions Used

- Direct Connect Method with MPTL



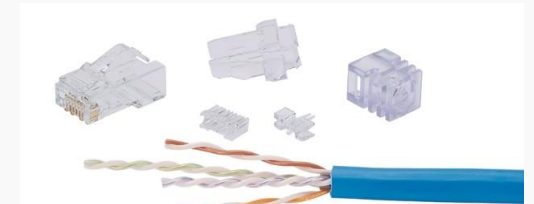
Cabling & Connector Solutions Used

- How are field terminable plugs different?

- Designed for easier install in field
- Fewer pieces, easier to dress wires



Panduit Field Term Plug



Typical Modular Plug

- What to look for in field terminable plugs

- Compact size to fit high density layouts
- Options for multiple cable directions
- Reterminable
- UTP and shielded versions

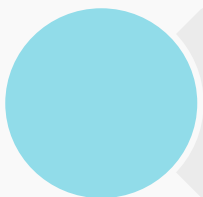




Wrap-up & Discussion



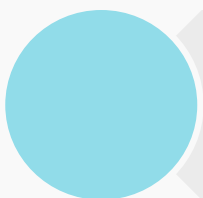
Wrap-up & Discussion



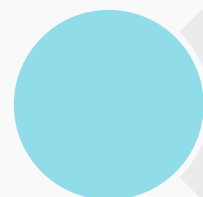
More NBASE-T cabling options



28 AWG Patch Cords



MPTL with field terminable plugs



Look for suppliers with wide range of options



Thank you!

Visit www.nbaset.org & www.Panduit.com
for more information