

Data Centre Connectivity

Delivering the Edge

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PANDUIT[™]

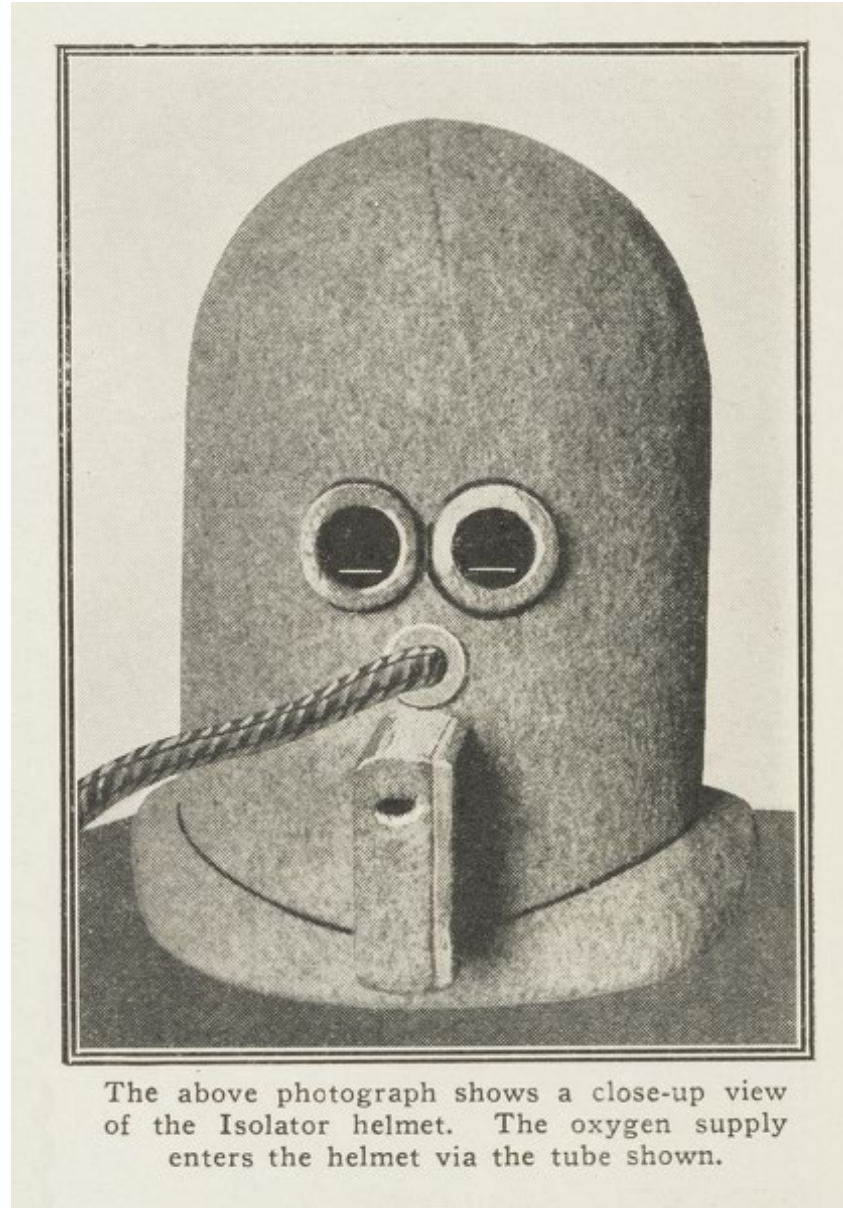
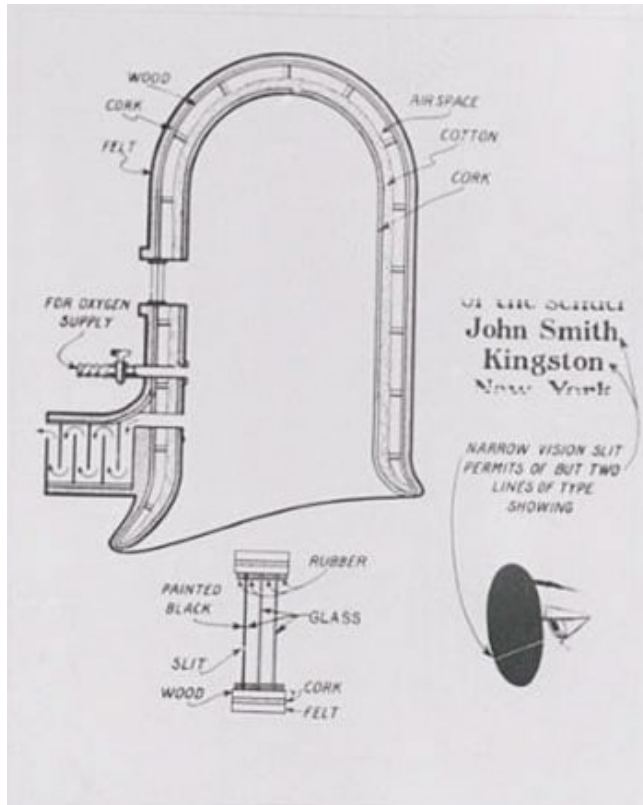


Top Tips

Cut down distractions – improve focus



Invented 1925 to cut down distractions



Hugo Gernsback,
Editor of Science
and Invention
magazine, a pioneer
of science fiction.

Instructions

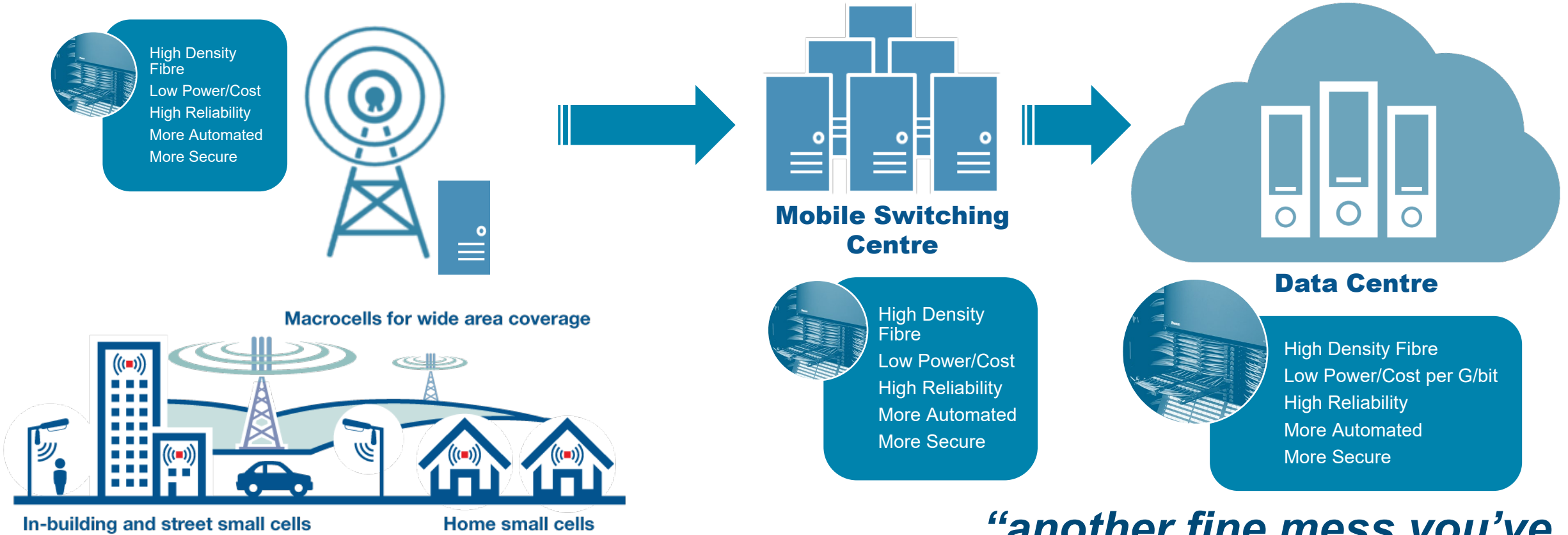
Count how many times the players wearing white pass the basketball.

What is the Edge?



“Organisations are working hard to decentralise compute power and place it closer to the point where data is generated. That is the edge”

5G – The Connected Edge

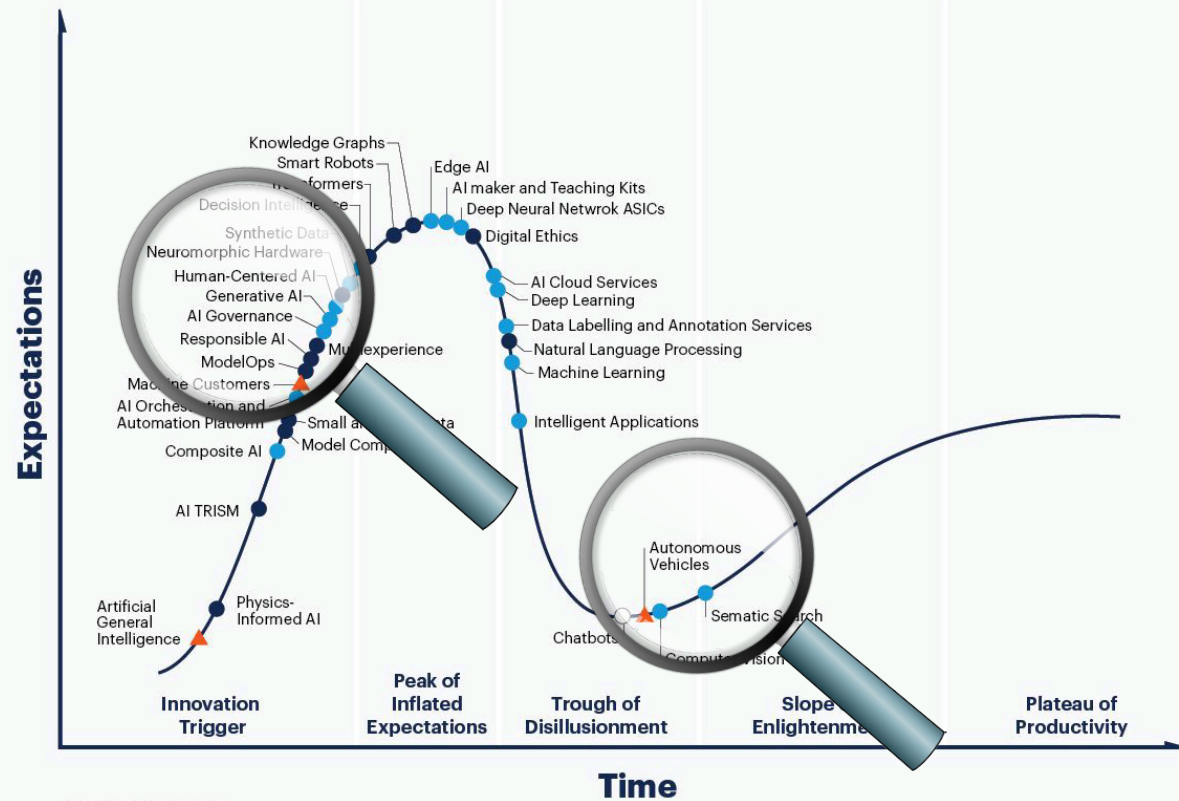


... *“another fine mess you’ve gotten me into”*

Solving the cable management challenge

AI predictions

Hype Cycle for Artificial Intelligence, 2021

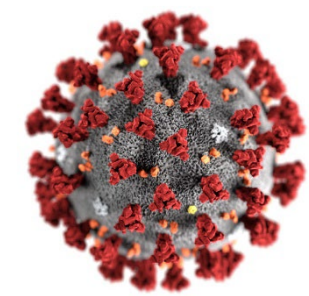


Plateau will be reached:
 ○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years ⊗ obsolete before plateau As of July 2021

gartner.com

“By 2025, more than 30% of new drugs and materials will be discovered using generative AI techniques”
 Gartner July 2021

“On average it takes \$3bn and 12-14 years for a new drug to reach the market”
 IBM Blog



Edge application example

Future of law enforcement



Edge application example

Future of law enforcement

Meet K5 Robocop



- Highly connected
- Artificial Intelligence (AI)
 - Detects fights and vandalism
- South LA, 50% crime reduction, 30% decrease in arrests. \$75K per annum
- GPS
- Sensors, Cameras
- Smart Cities

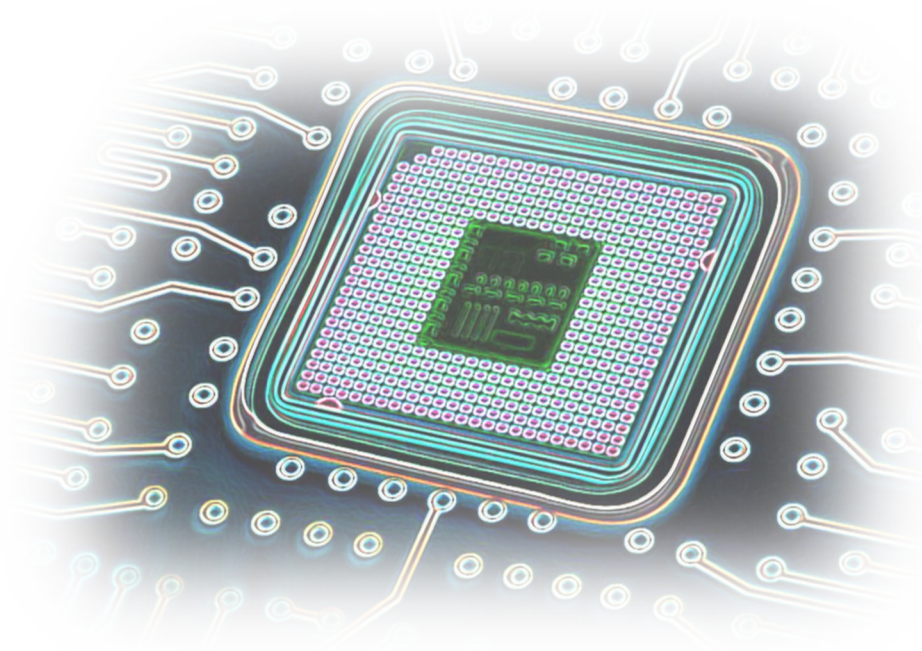
Smart, however...

... will eventually need lower latency (1ms), human factors & privacy concerns to be addressed

Supply chain resilience

Impact of global chip shortage

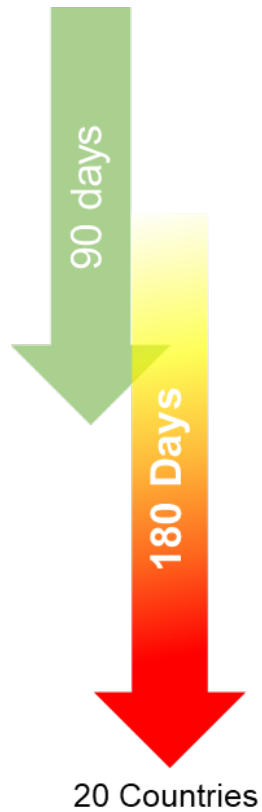
- **Broadcom struggle to deliver chips**
 - Apple shares drop 1.2% following news of on iPhone 13 production fears
 - ZTE and Huawei stockpiling chips ahead of US sanctions
- **Switch lead-times have doubled**
 - now 8-16 weeks *Dell'Oro Group, Sept 2021*
- **87% of Supply chain professionals plan to Invest in resilience** *Gartner 2021*



‘60% of executives admitted their supply chains are designed for cost efficiency NOT resilience’ *Gartner 2021*

Today's Edge?

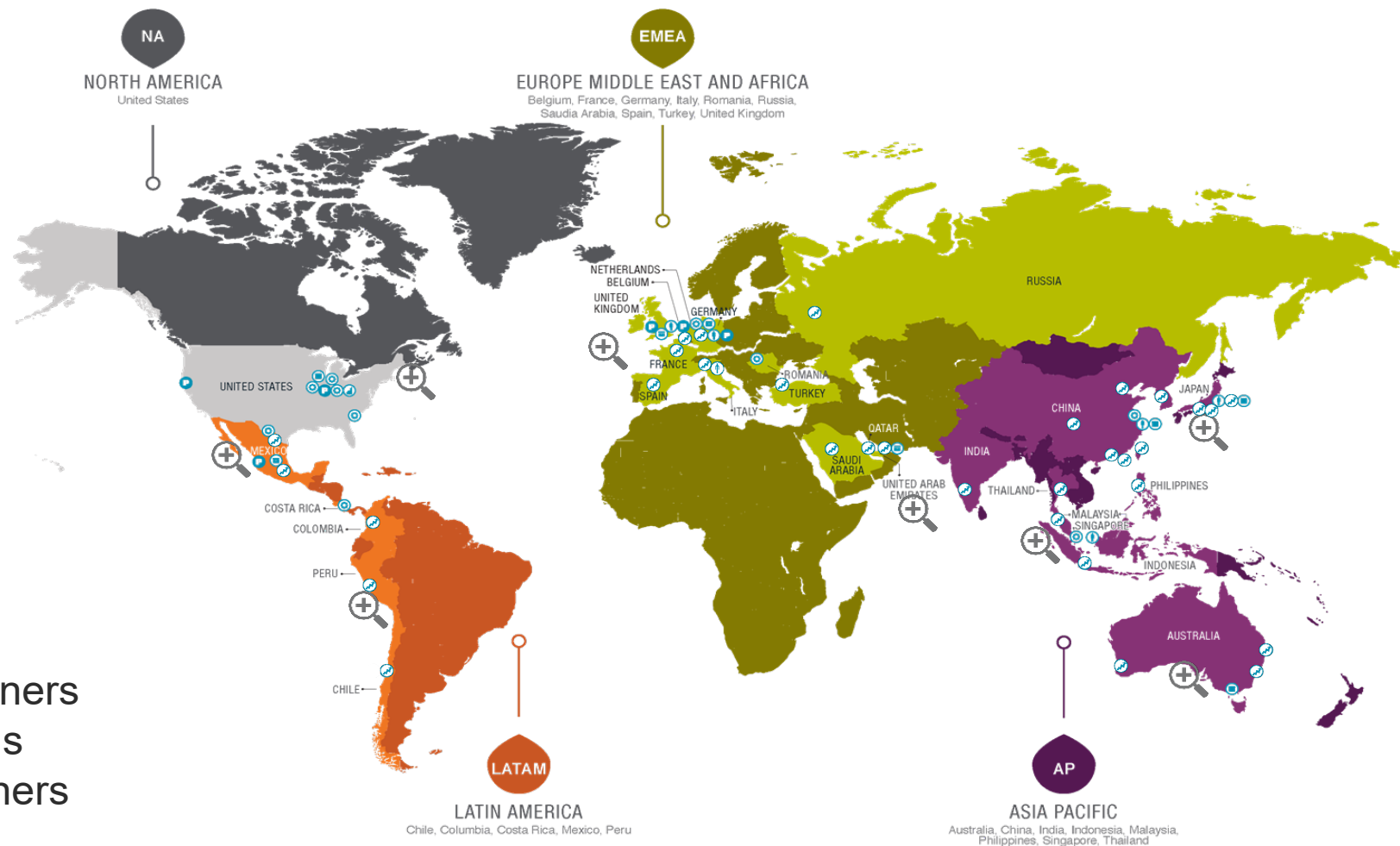
High frequency of small-medium size projects



A single customer
 deployed a **NEW EDGE** project
every 9 days
 ... in multiple countries across EMEA

Supply chain resilience

Diverse manufacturing base & strong channel mitigates supply continuity risk

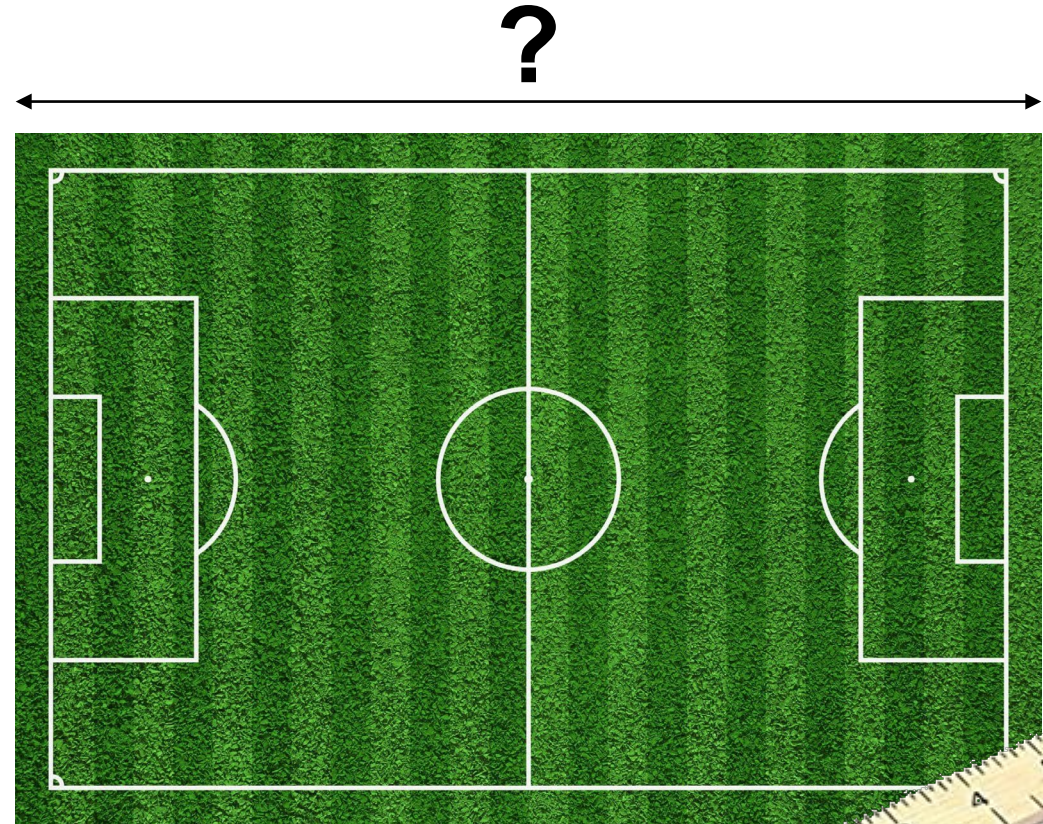


EMEA Partner Channel

- >200 Distributions Partners
- 487 Distributor locations
- 305 Panduit ONE Partners

Which Mode of Fibre?

- Preserve base of multi-mode fibre (MMF)
 - Supports roadmap to 1.6Tb
 - IEEE - no more than 2 wavelengths
 - Panduit's OM4+ (Signaturecore) is the **highest performing MMF**
- Longer reaches – Hyperscale (Km)
 - High volume demand lowering cost of high speed singlemode optics



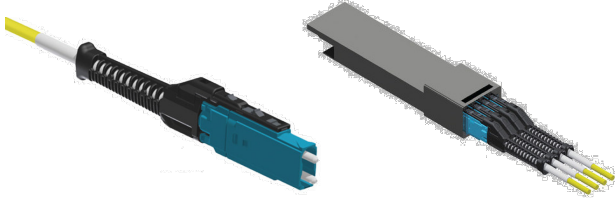
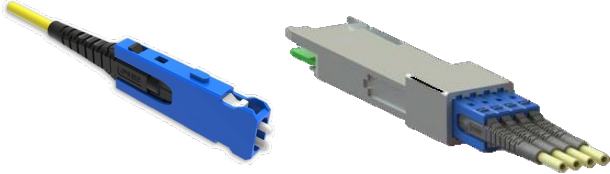
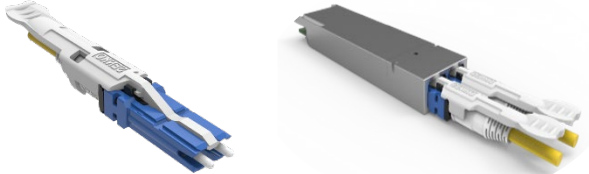

OM4+ SIGNATURE CORE™



NAWCAD SCMS and the U. S. Air Force 480 ISRW (Beale Air Force Base)



Very Small Form Factor (VSSF) Connectors

Name	Image	IEC or TIA	MSA
MDC		○	●
SN		○	●
CS		●	●
MPO	 MPO24 MPO12 (or 8) MPO16	●	●

KEY

- Published Standard
- No Published Standard

MSA – Multi Source Agreement. Including QSFP-DD & OSFP
TIA – Telecommunication Industry Association. TIA FOCIS' connector standards
IEC – International Electrotechnical Commission. Connector standards (various)

NEW Connectors

PanMPO NEW and IMPROVED

- Change polarity and gender
 - Integrated tool
- Push-pull boot
- Always have the right cord on hand



LC Uniboot – Push Pull

- Slim design
- Push pull boot
- Fast MAC's
- Easy polarity change



Small Diameter Cabling

- Deploy faster - pull/install fewer cables
- Manage 4x more fibre in the same space
 - Factory terminated (MPO) or field splice (cable - LC cassette)
 - 288F-864F cable is dual rated - Riser & EuroClass Cca S1b

X4

More Glass
Parallel Optic
Transmission
(vs Duplex)

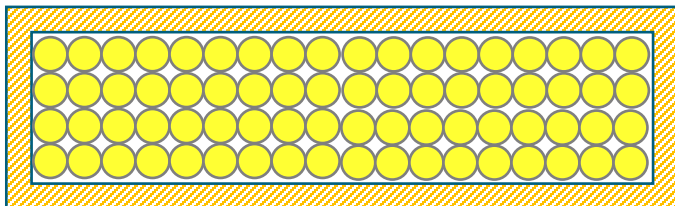


12F-144F MPO Trunks MMF & SMF
EuroClass B2ca

288F-864F SMF
Riser/EuroClass Cca

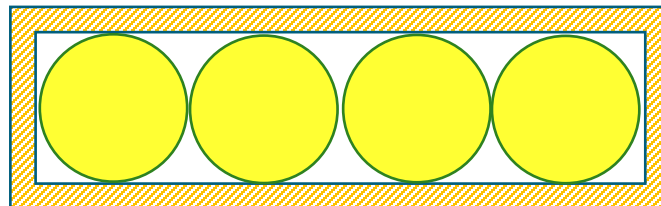
72 x **12F** Trunks (4.5mm O/D)

864F

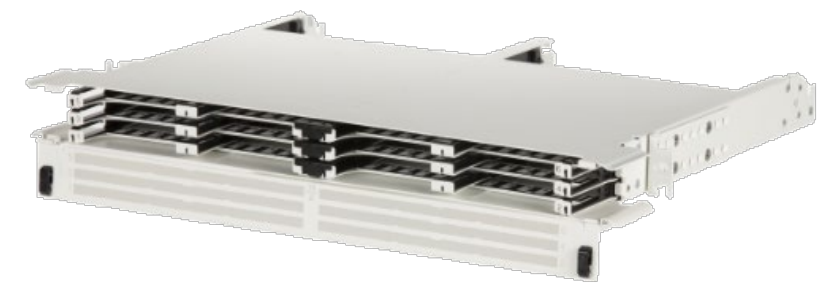
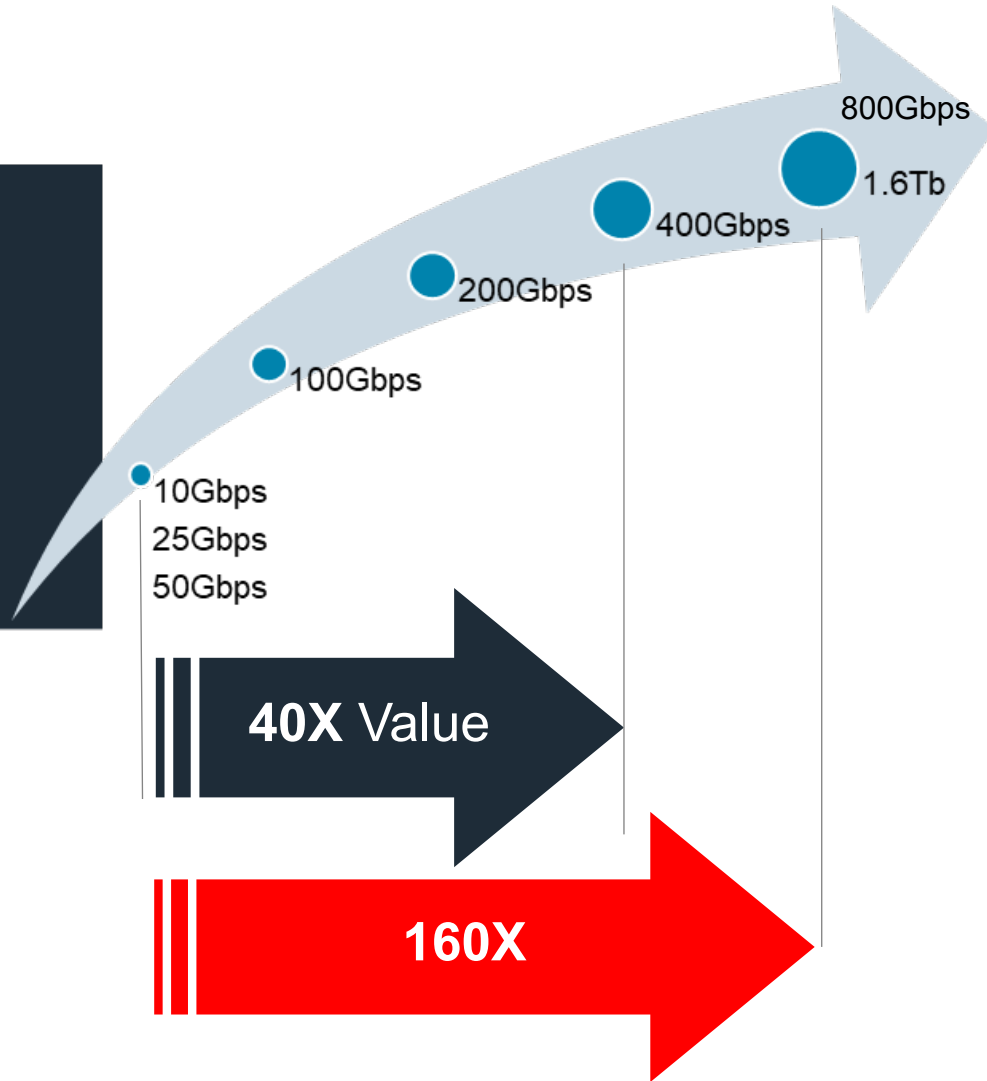


4 x **864F** Trunks (19.5 O/D) Trunks)

3,456F



576F
48 x MPO's
(per end)

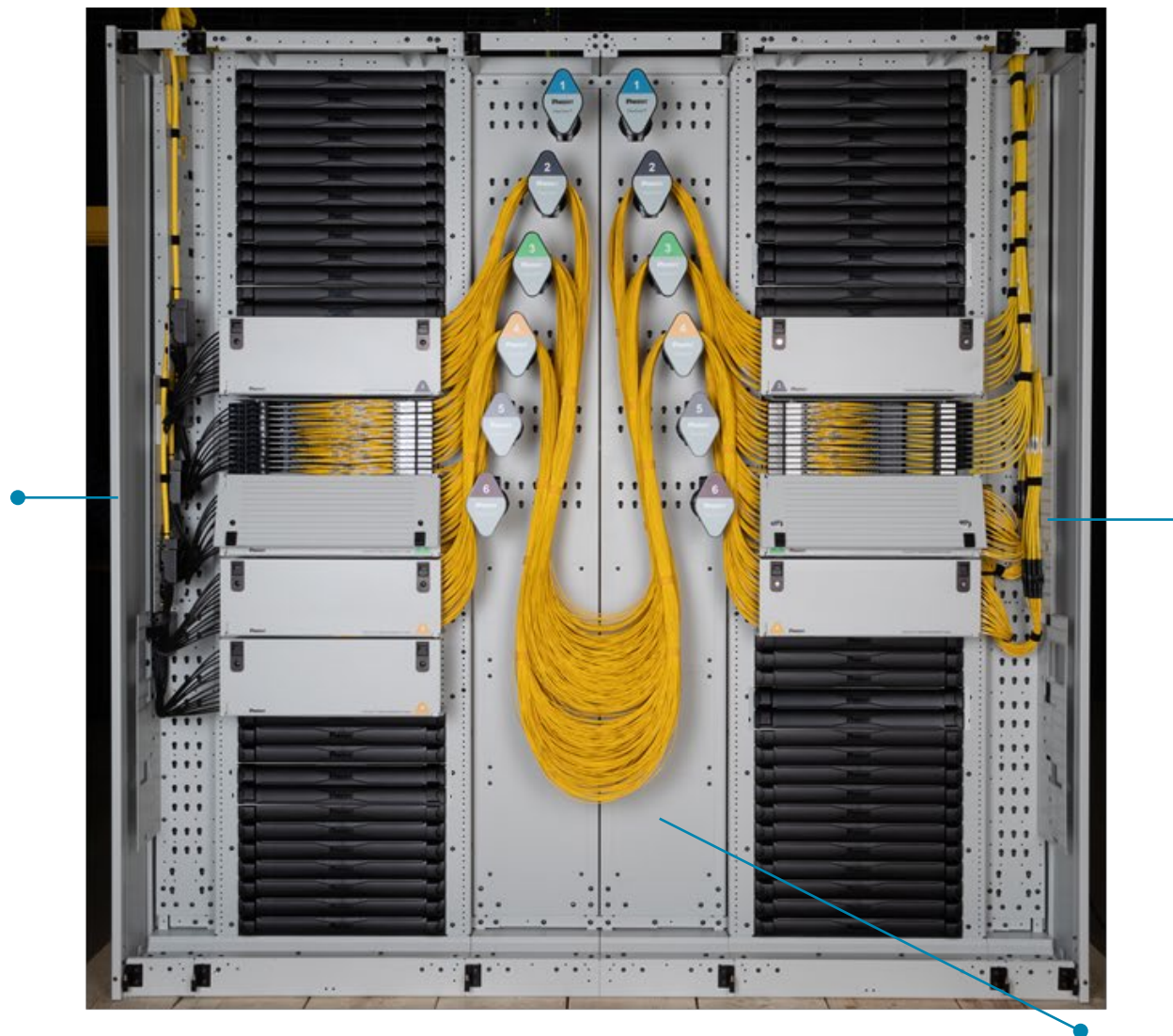


HD-Flex™
Split tray - ½ circuit risk



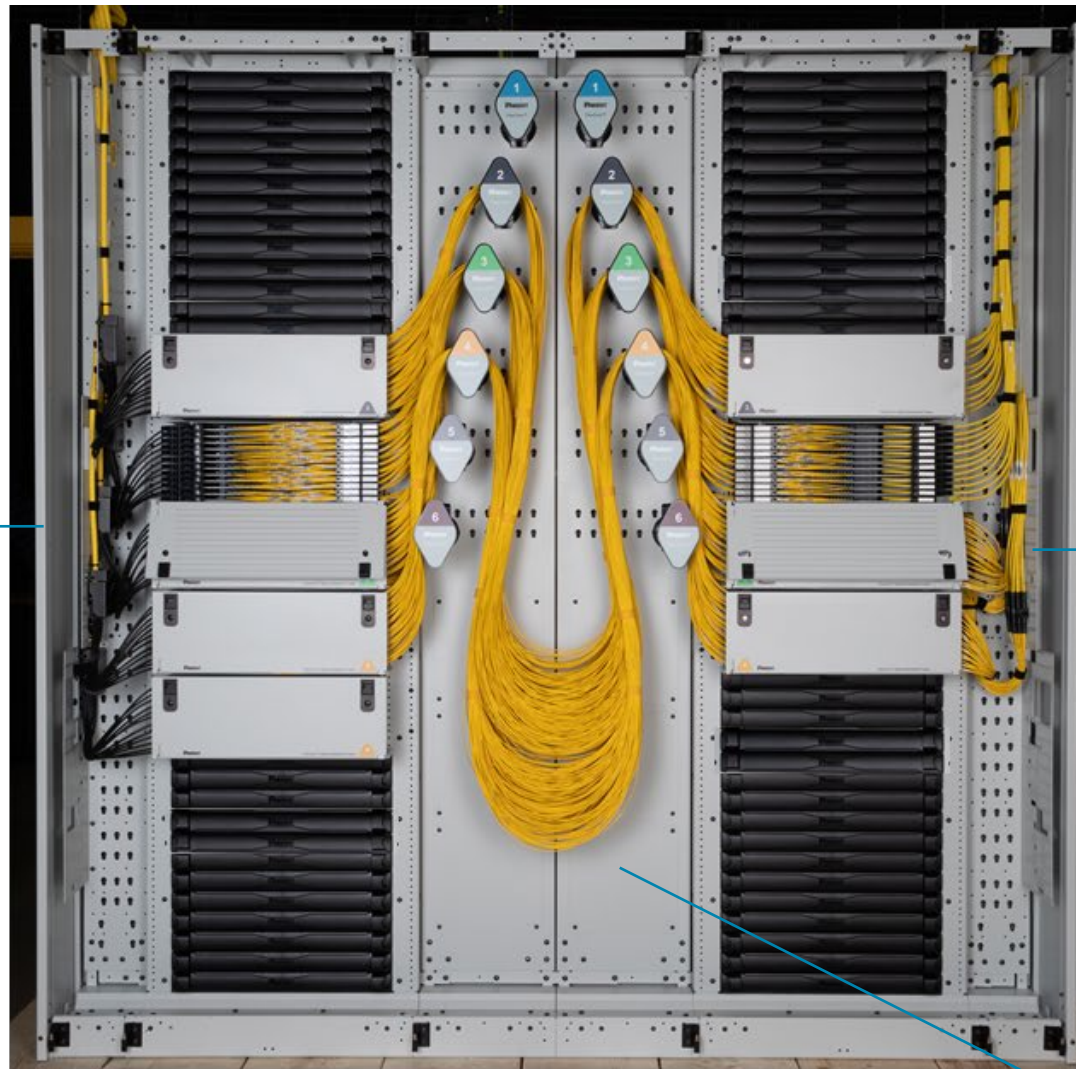
HD Flex™ Zone/Floor Box
Secure Access
Split access - ½ circuit risk

FlexCore™ Total Front Access ODF



4m Patch Cord

FlexCore™ Total Front Access ODF



FlexCore™ Frame System

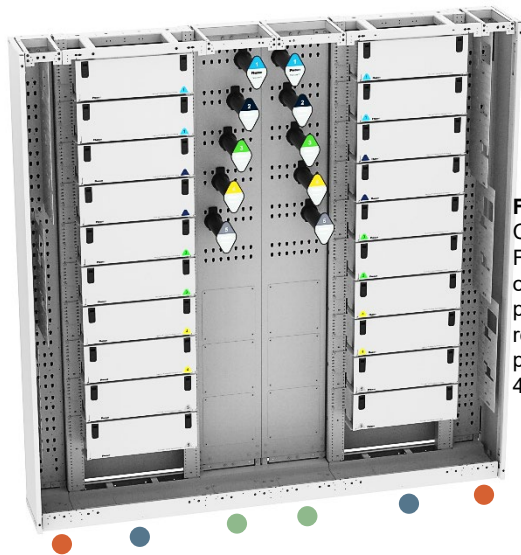
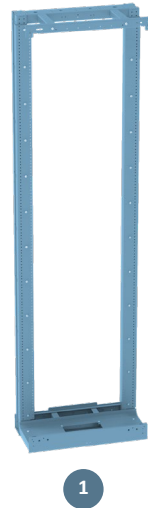


Figure 1: Double Cross Connect Frame, with optional end panels, recommended patch cord length 4m.



1



2



3

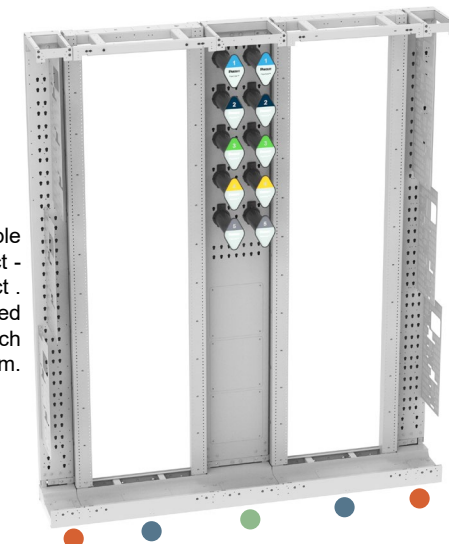


Figure 4: Double Cross Connect - Compact . Recommended Uniboot patch cord length 4m.

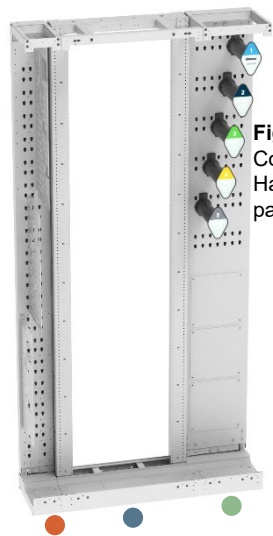


Figure 2: Single Cross Connect Frame, Left Hand, Recommended patch cord length 4m.

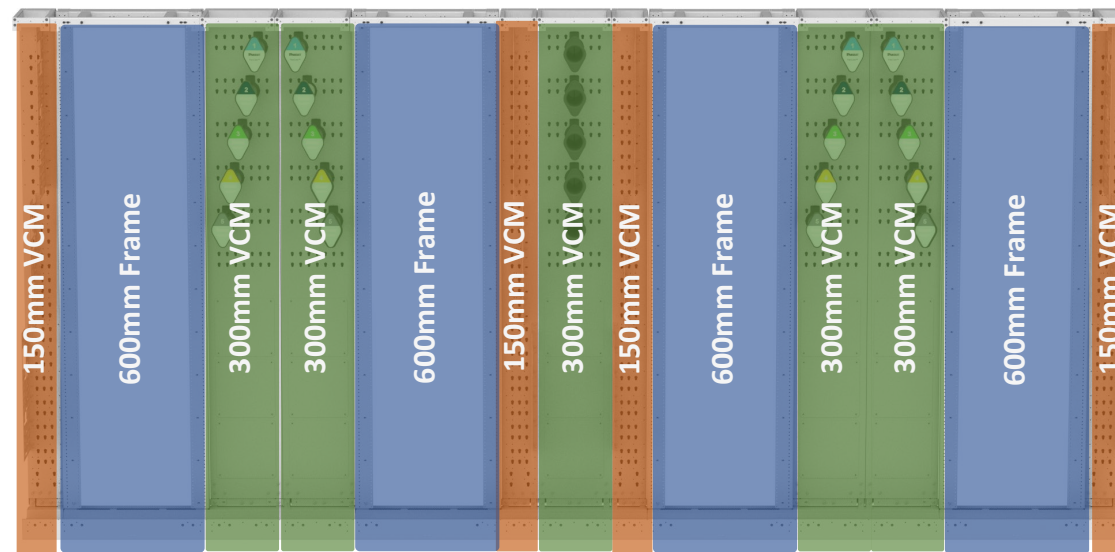


Figure 3: Cross Connect, Four-Frame line-up, with intermediate VCM, end panels. Recommended patch cord length between two double frames 9m and/or within same double frame 4m.

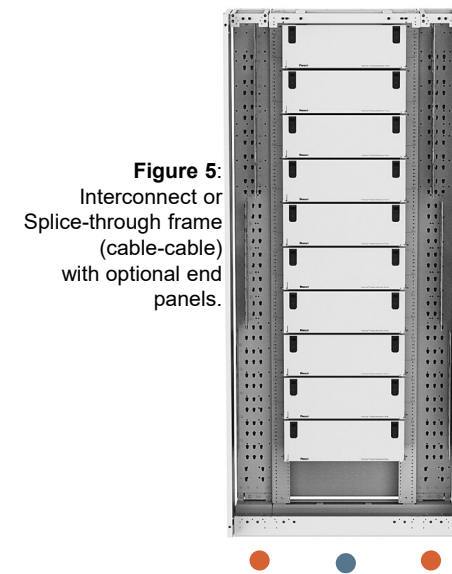


Figure 5: Interconnect or Splice-through frame (cable-cable) with optional end panels.

FlexCore™ Frame System

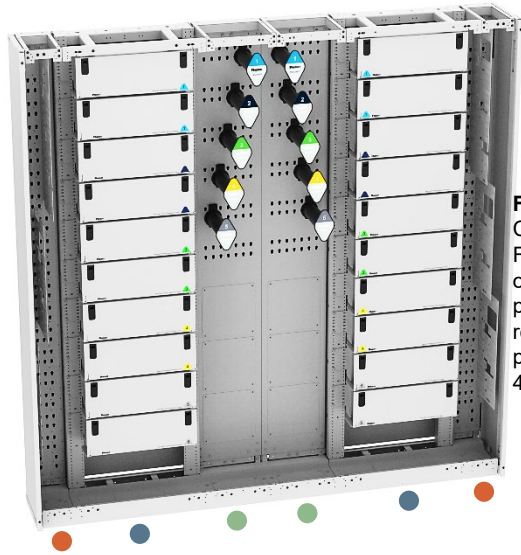


Figure 1: Double Cross Connect Frame, with optional end panels, recommended patch cord length 4m.

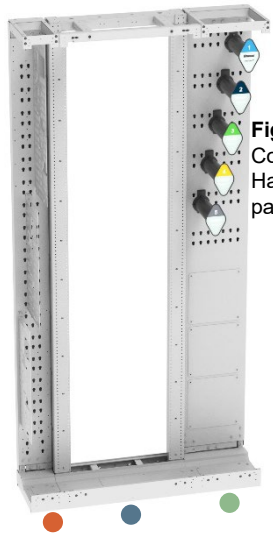


Figure 2: Single Cross Connect Frame, Left Hand, Recommended patch cord length 4m.

Figure	Application	10 x 4RU Enclosures Fibers per Frame	11 x 4RU Enclosures Fibers per Frame	††Width	Depth (Illustrated)
Fig. 1	Cross Connect	5760 (LC)	6336 (LC)	2100mm	300mm
Fig. 2	Cross Connect	2880 (LC)	3168 (LC)	1050mm	300mm
Fig. 3	Cross Connect	11,520 (LC)	*See note	4500mm	300mm
Fig. 4	Cross Connect (Compact)	5760 (LC)	6336 (LC)	1800mm	300mm
Fig. 5	Interconnect or Splice Through	†2880/5760	†3168/6336	900mm	300mm

*If planning to use bottom trough for patch cord pass-through do not use 11th (bottom) 4RU enclosure position
 † Discrete splice/ribbon splice
 ††Width excludes end panels

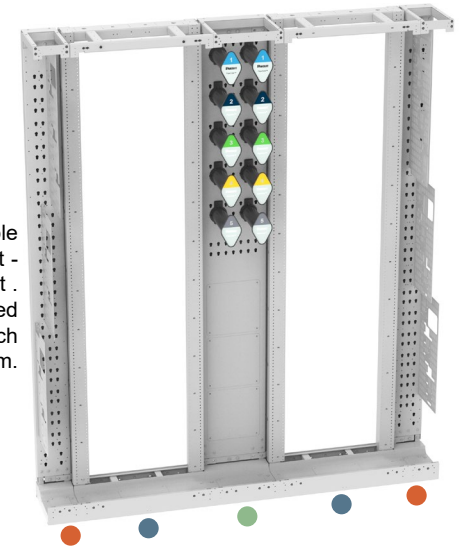


Figure 4: Double Cross Connect - Compact. Recommended Uniboot patch cord length 4m.

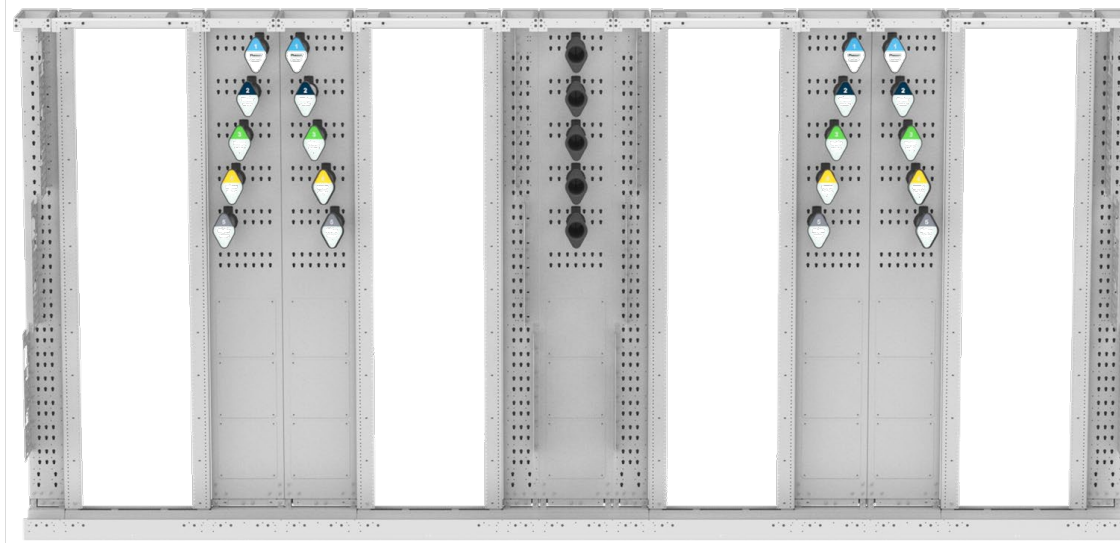


Figure 3: Cross Connect, Four-Frame line-up, with intermediate VCM. Recommended patch cord length 9m
 Panduit EMEA | Press Conference 19 May 2022

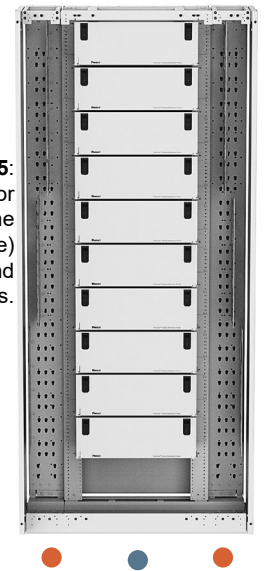





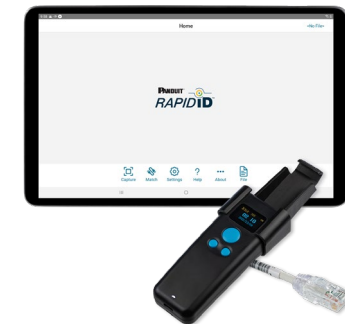


Figure 5: Interconnect or Splice-through frame (cable-cable) with optional end panels.

FlexCore™ - Flexible

 <p>Port Density</p>	 <p>Modular/Scalable</p>	 <p>Secure</p>	 <p>Zone 3</p>	 <p>Solution Breadth</p>
<p><u>Higher</u> fibre density (vs other front access systems with 24F based cassettes)</p> <p>Managed density</p> <p>Circuit risks mitigated</p>	<p>Scale at smaller increments</p> <p>Improve cash flow</p> <p>Defer cap-ex</p> <p>Fully allocate MAC 'costs' back to hosted client(s)</p>	<p>Three tier security and service level access</p> <ol style="list-style-type: none"> lockable 4RU enclosure lockable vertical cable managers lockable main frame 	<p>Seismic activity (region) relevance</p> <p>Use the same product across multiple site</p>	<p>HD Flex™ and FlexCore™ system commonality</p> <p>Fiber runner, grounding, bonding + more</p> <p>Cabinets and FlexCore™ aesthetics cohesion</p>

RapidID™
Compatible

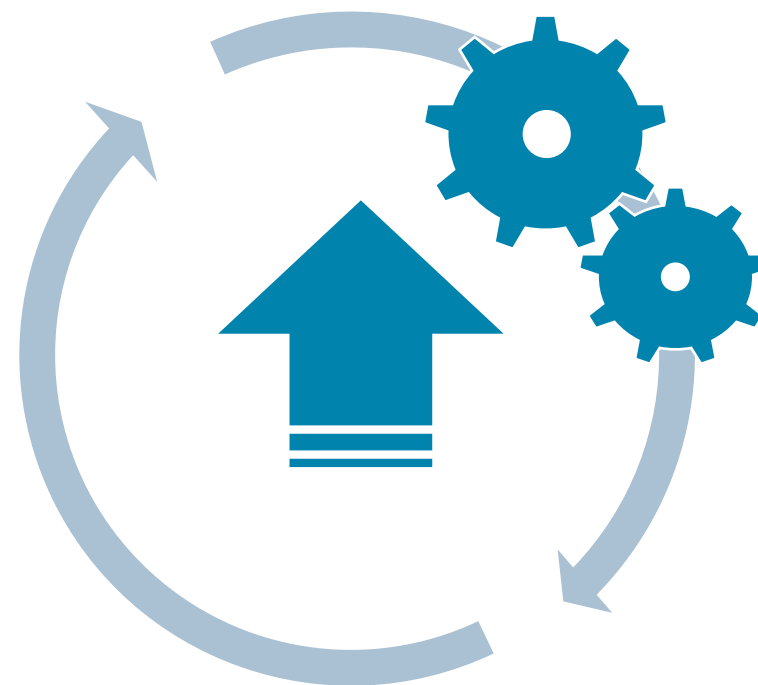


Panduit has a independent 150mm VCM door – so ingress cable is locked away protecting circuits during MAC work

Delivering the Edge

Leader in high speed data transport solutions

- Highest performance
- Most scalable
- More modular and flexible
- More secure
- More manageable



Thank You