

Is 10 Gb Copper really cost effective in Data Centres?

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Standards Activities



Member

JTC1 SC25 WG3: Generic Cabling

Convenor

JTC1 SC25 WG3 CITG: Cabling Implementation Task Group

JTC1 SC25 WG3 IPTG: Industrial Premises Task Group



Convenor

TC215 WG1: IT Cabling

TC215 WG1 PT Industrial Premises Cabling

Secretary

TC215 WG1 PT Data Centre Cabling



Chairman

TCT7: Telecommunications - Installation Requirements

Chairman

TCT7/-/1: Cabling infrastructure design, planning and commissioning

TCT7/-/3: Cabling: Infrastructure standards - UK implementation panel



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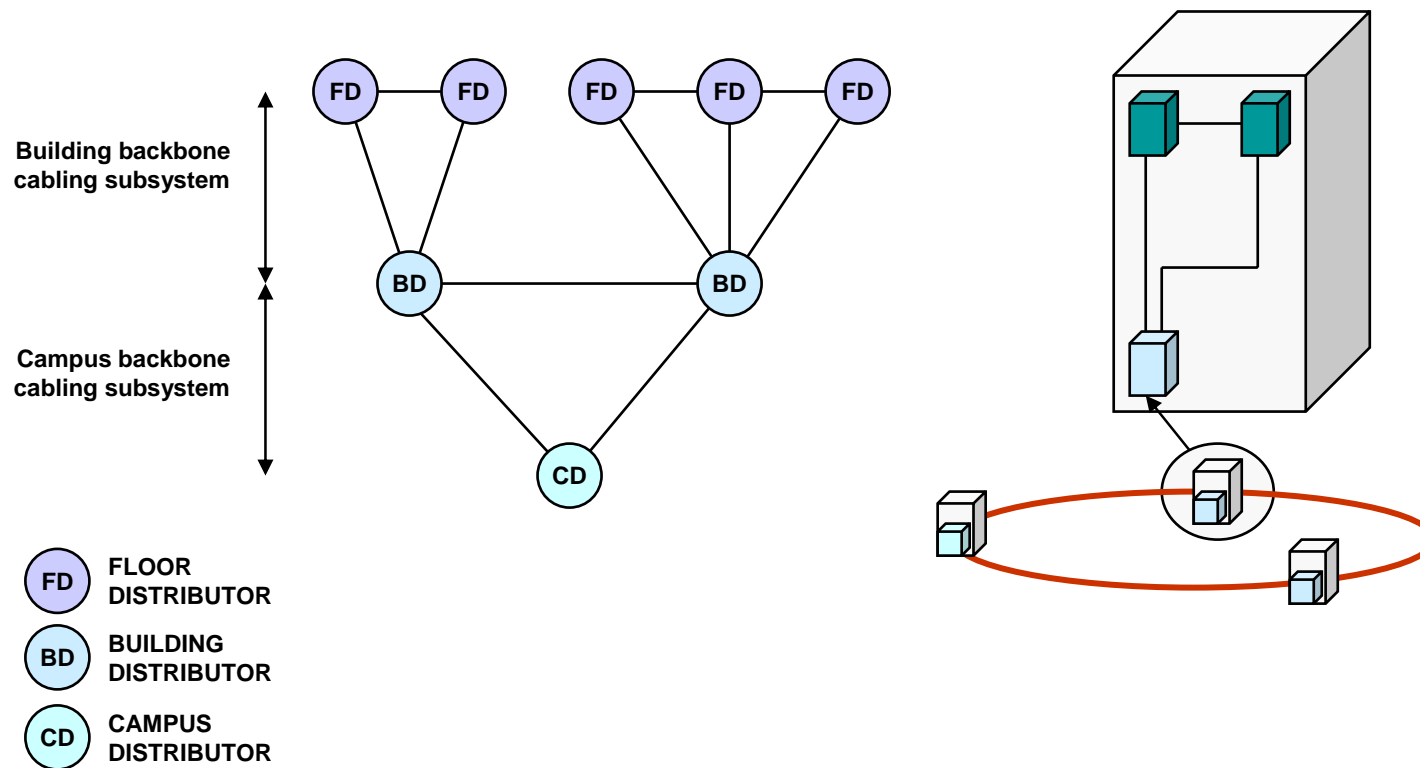
10 Gb Copper: Cost Effective in Data Centres?

- 10GBASE-T Overview
 - targeted to deliver lower cost end equipment
 - primary usage - data centres
 - IEEE delivery date July 2006
- 10GBASE-T issues
 - new cabling required
 - except for conformant* legacy cabling
 - » Class E/Category 6 unshielded cabling up to 40 m
 - » Class E/Category 6 shielded cabling up to 100 m
 - power dissipation emerging as a problem

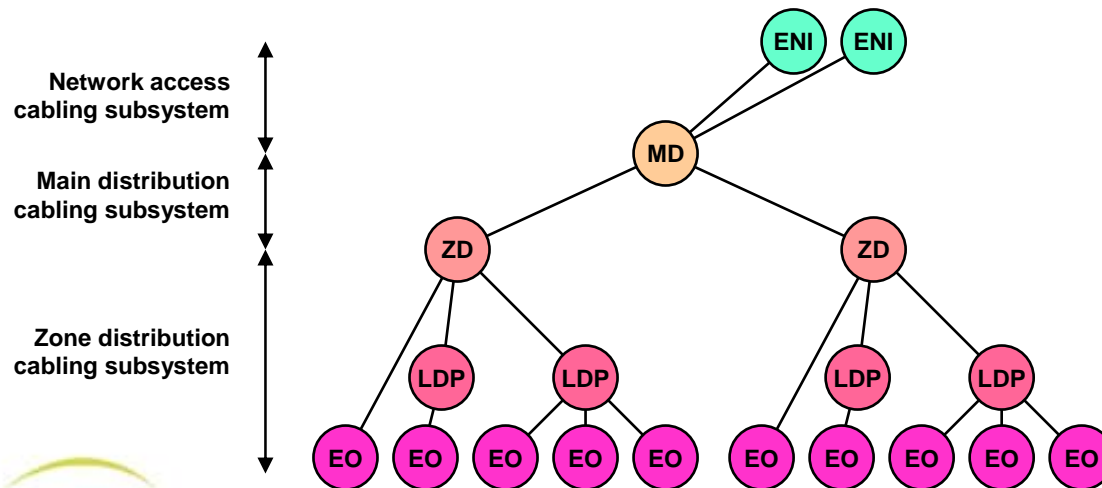
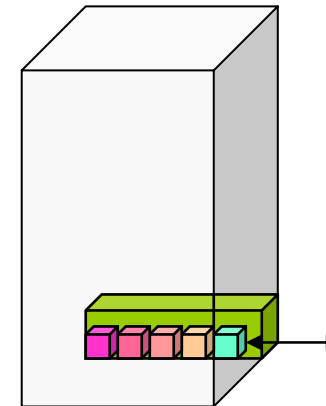
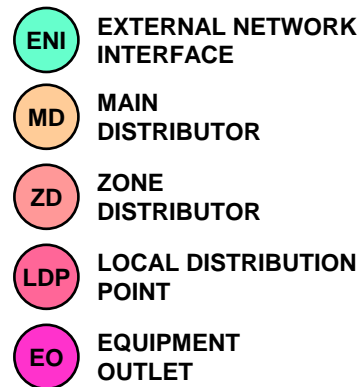
* linear behaviour to 500MHz



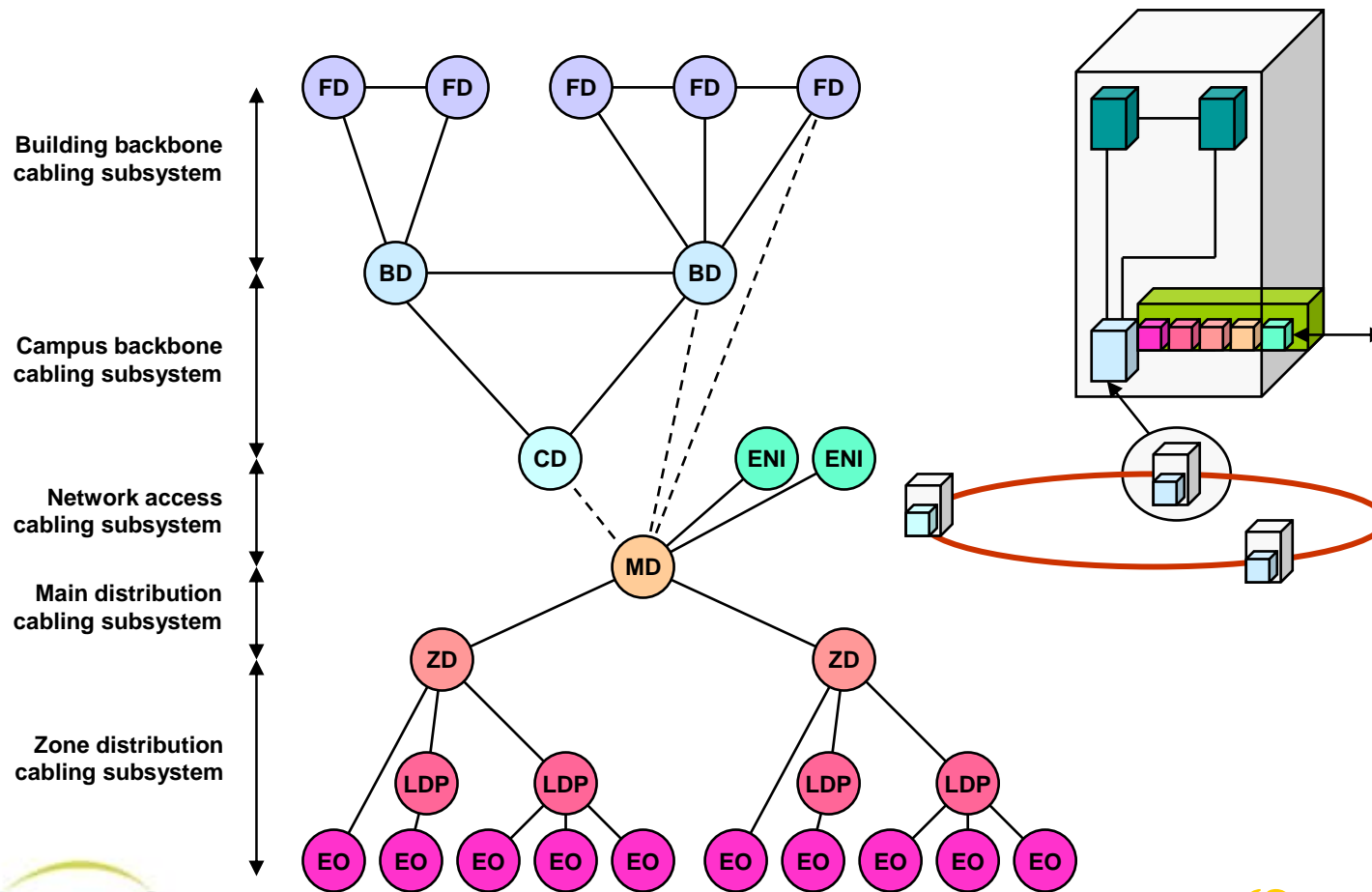
Backbone Cabling: EN 50173-1 and ISO/IEC 11801



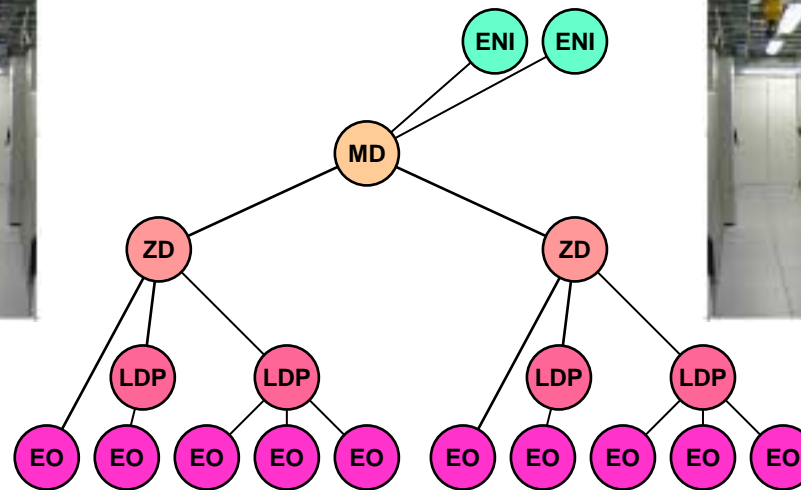
Data Centre Cabling: prEN 50173-5 and WD ISO/IEC 24764



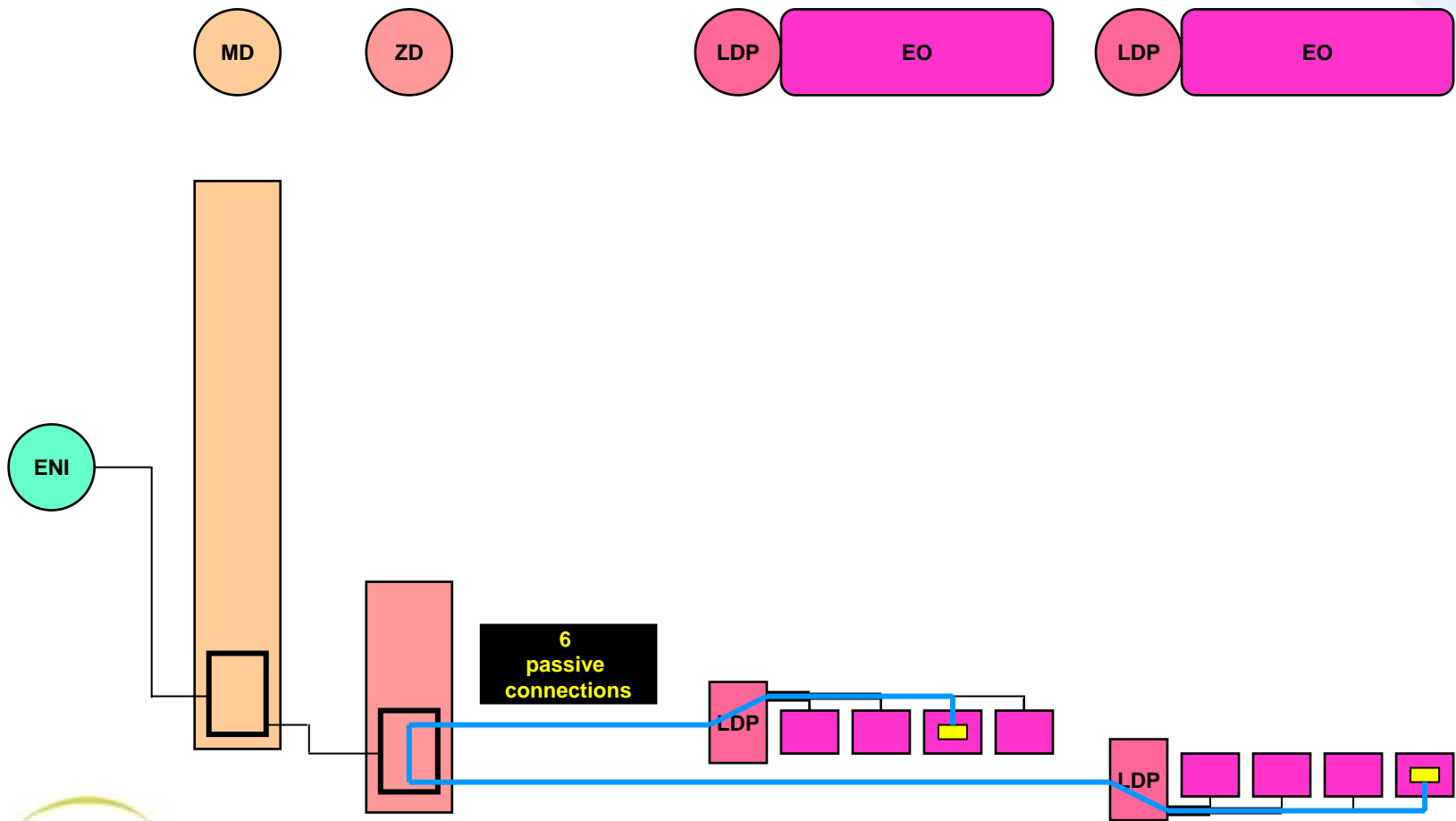
The Big Picture



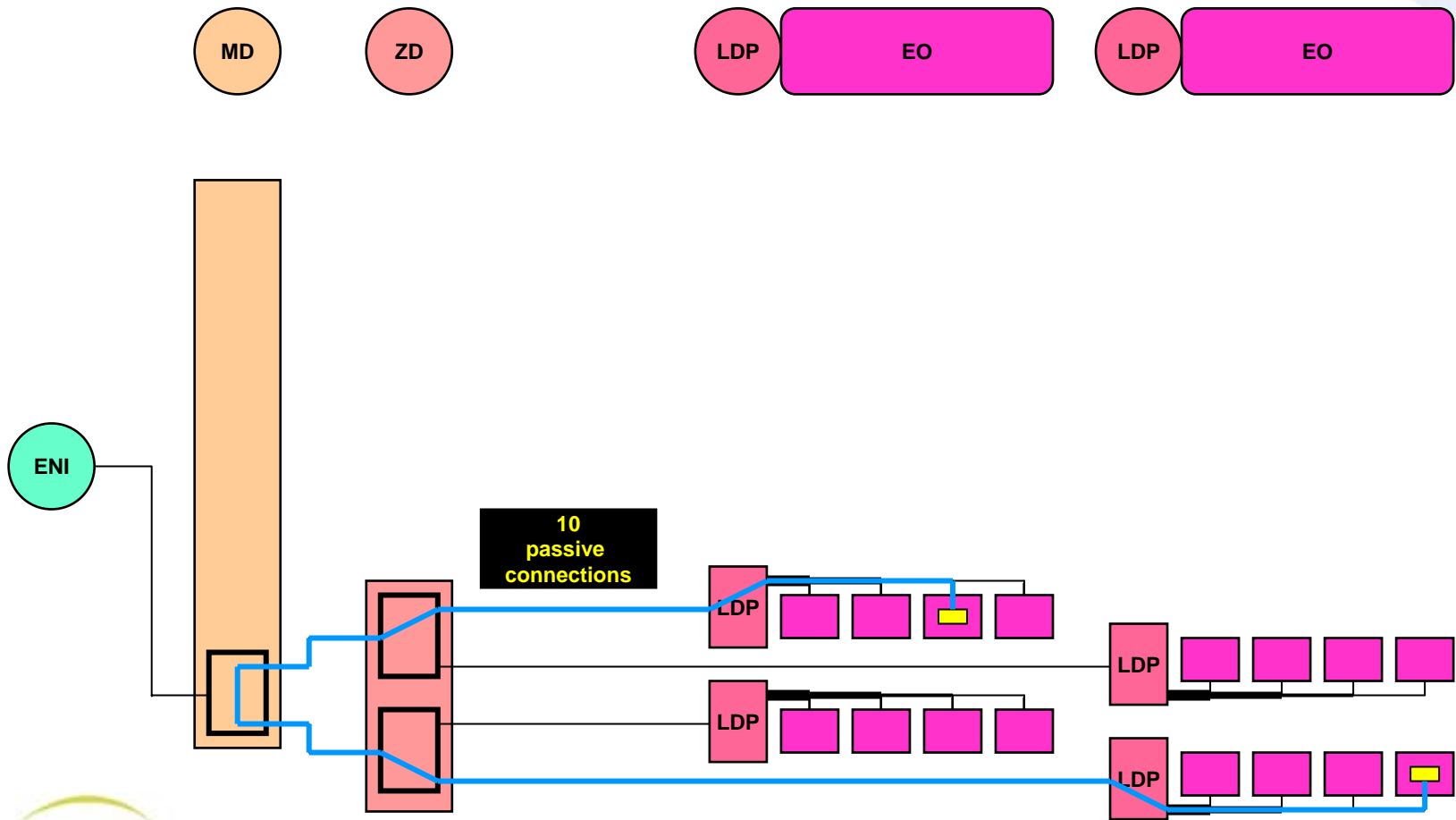
The Demand For Connectivity



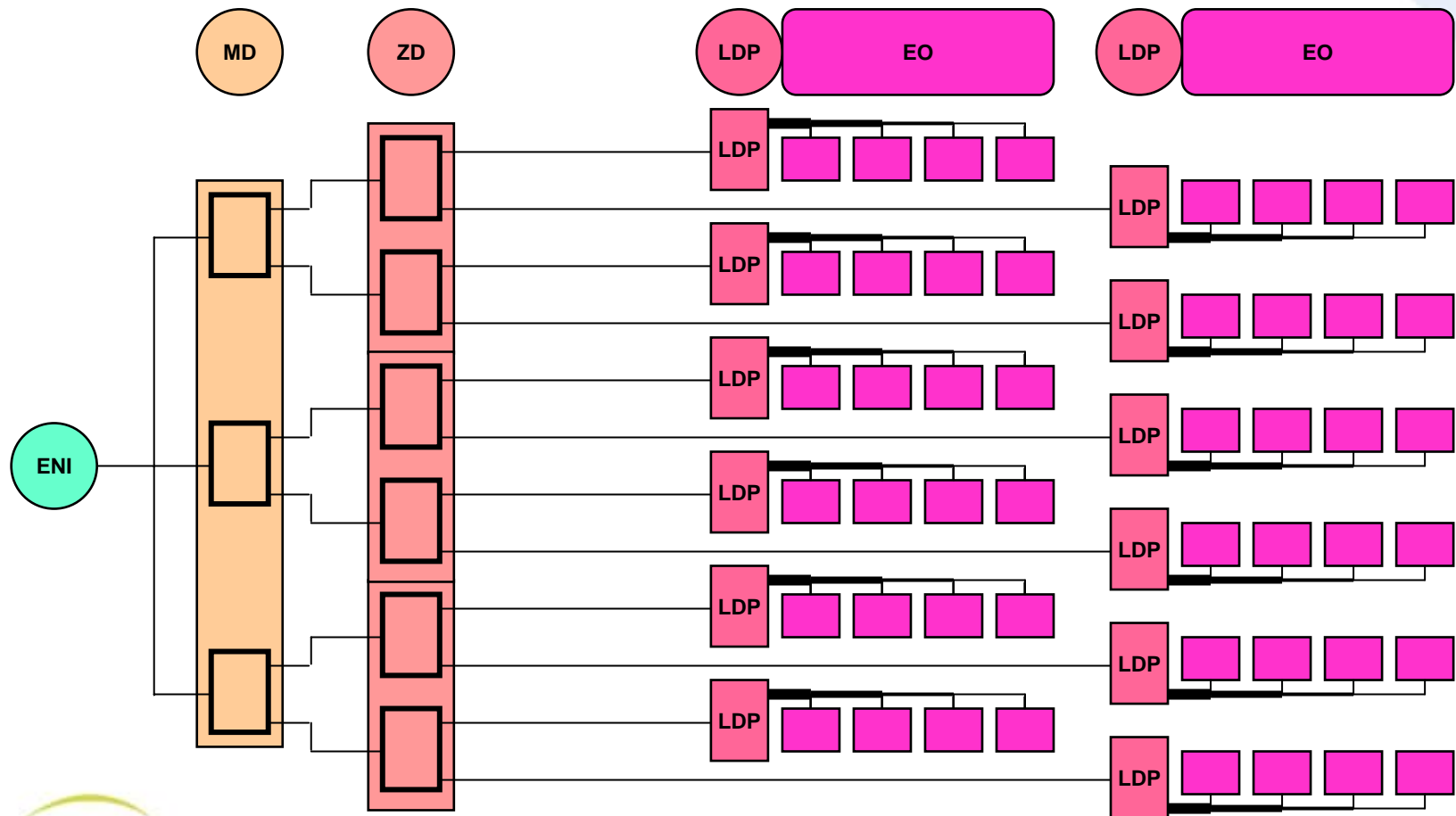
Data Centre Evolution - I



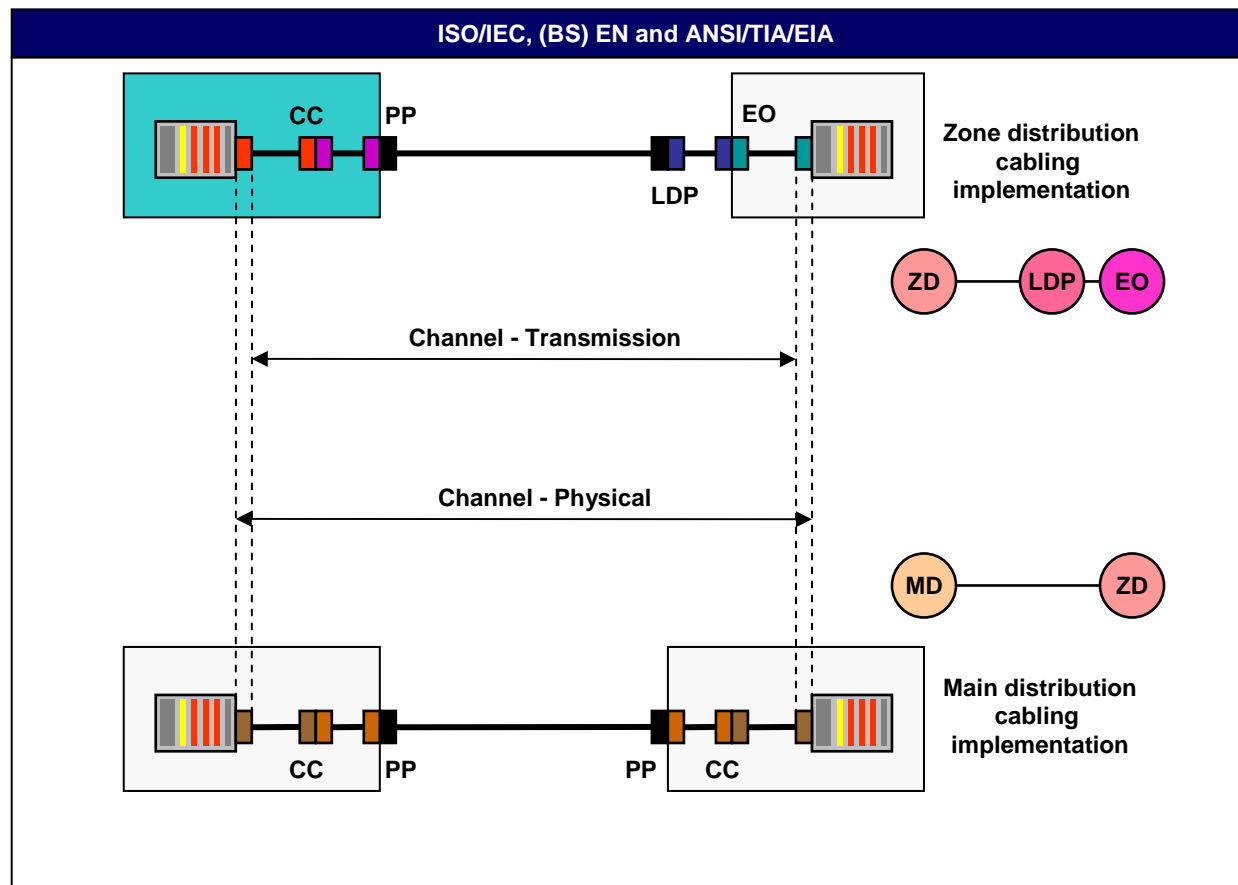
Data Centre Evolution - II



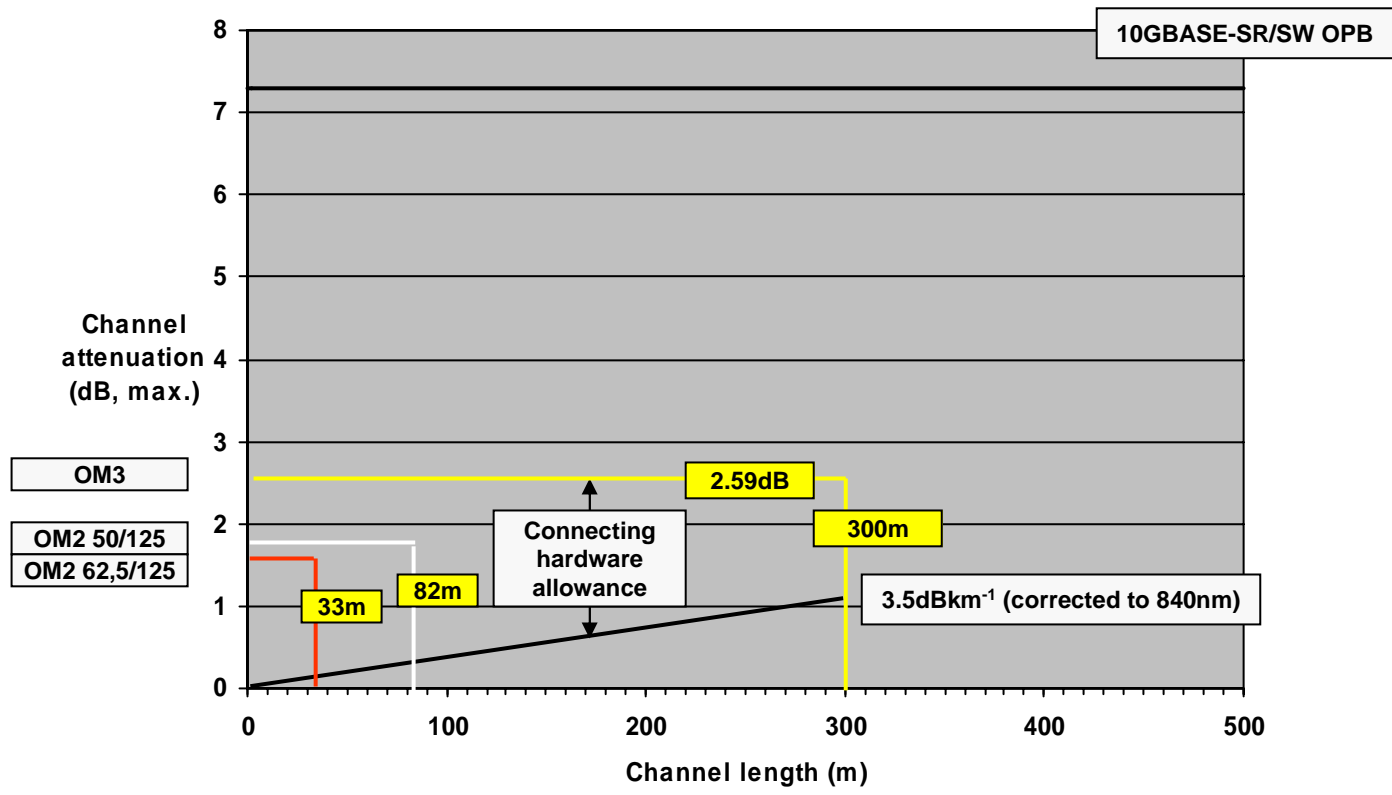
Data Centre Evolution - III



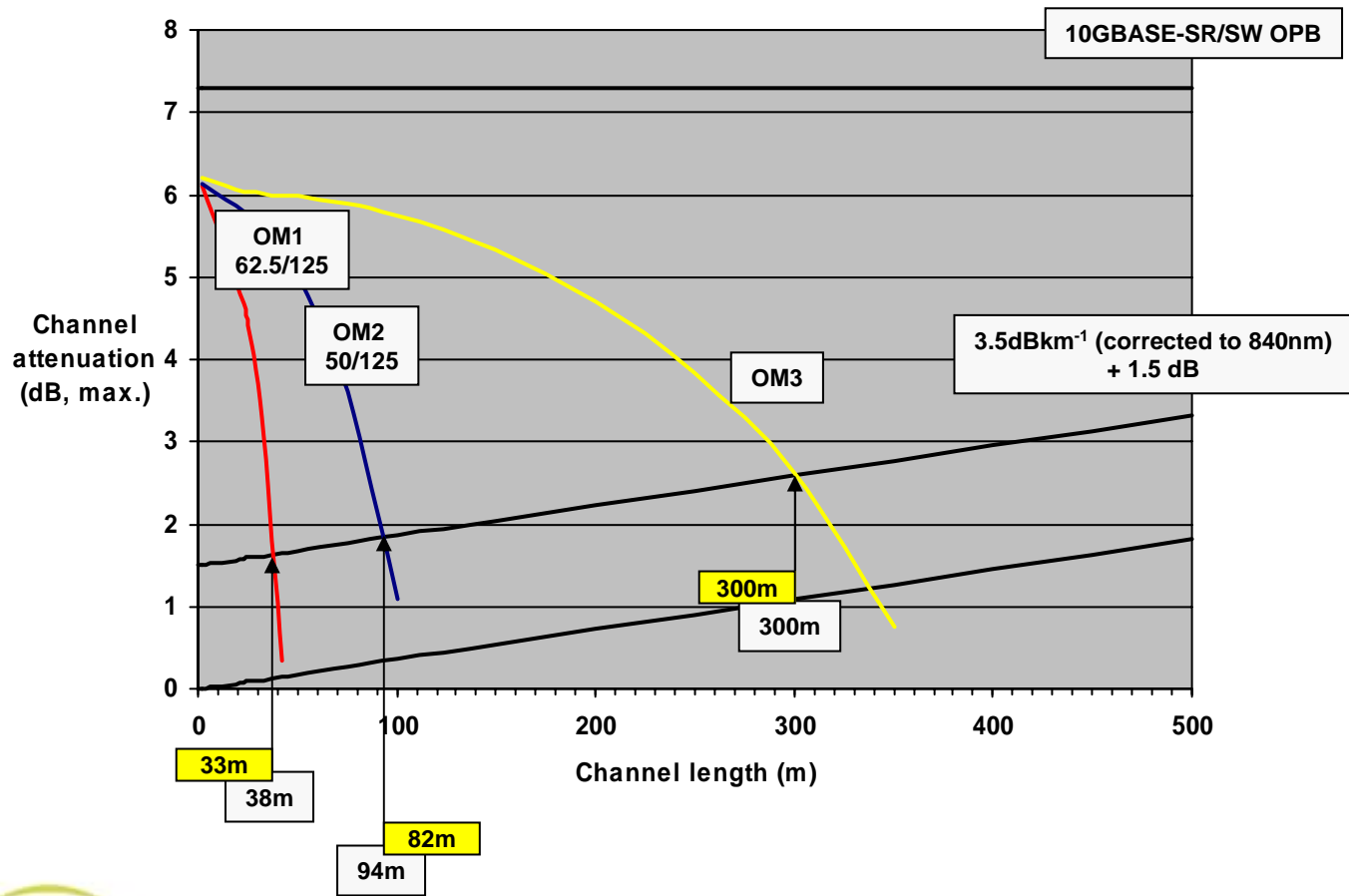
The Copper Solution



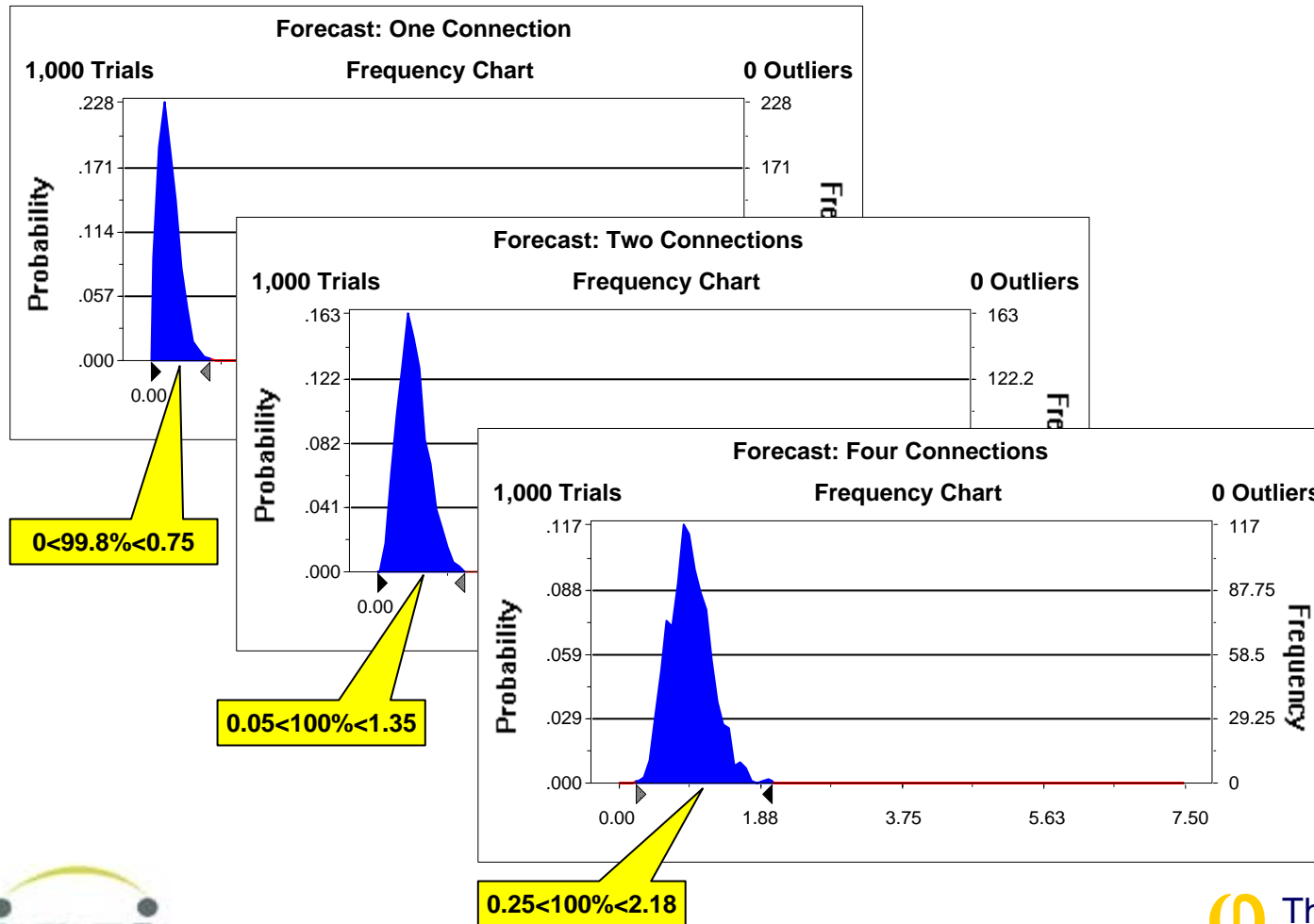
The Optical Fibre Solution - Belief



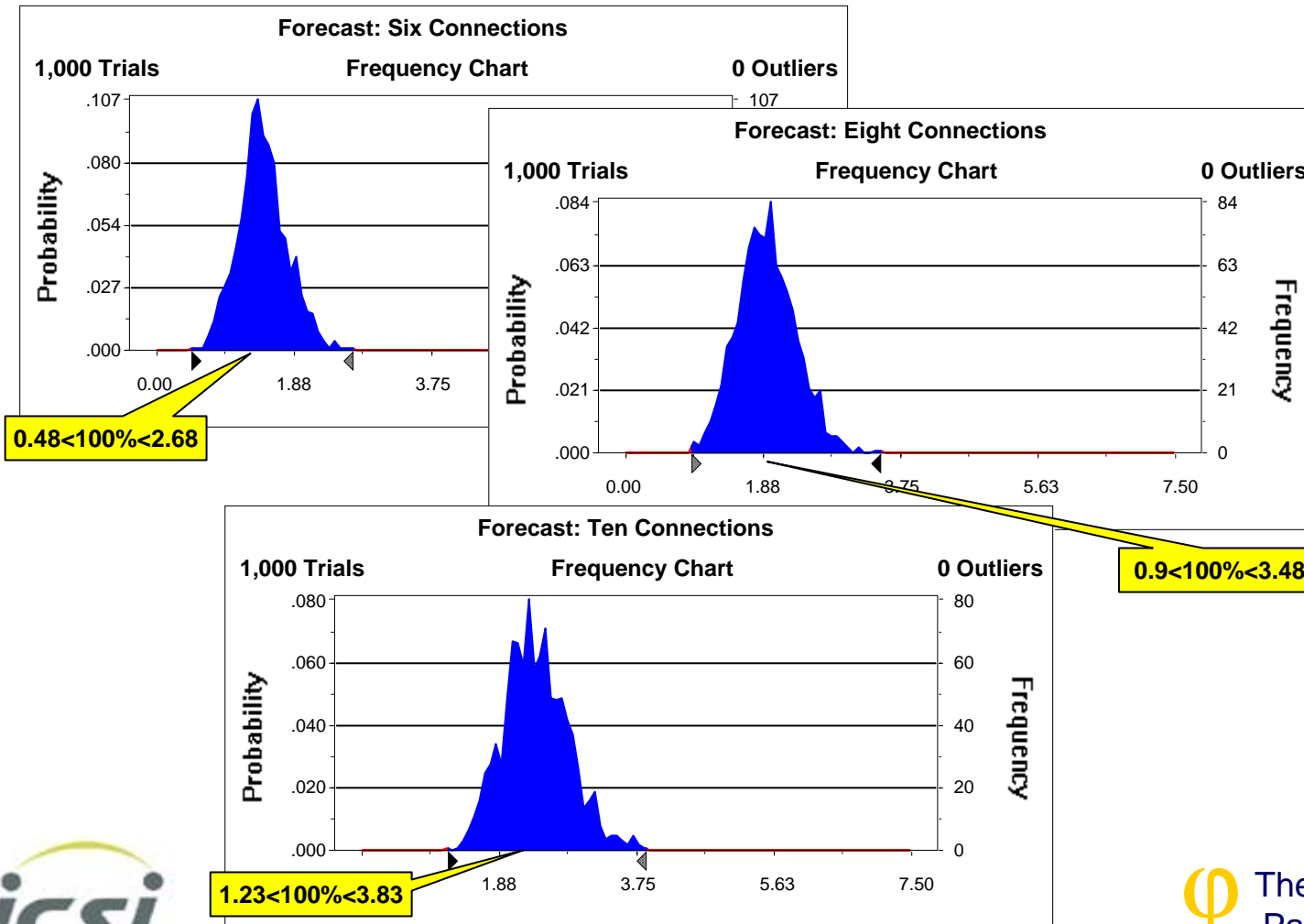
The Optical Fibre Solution - Reality



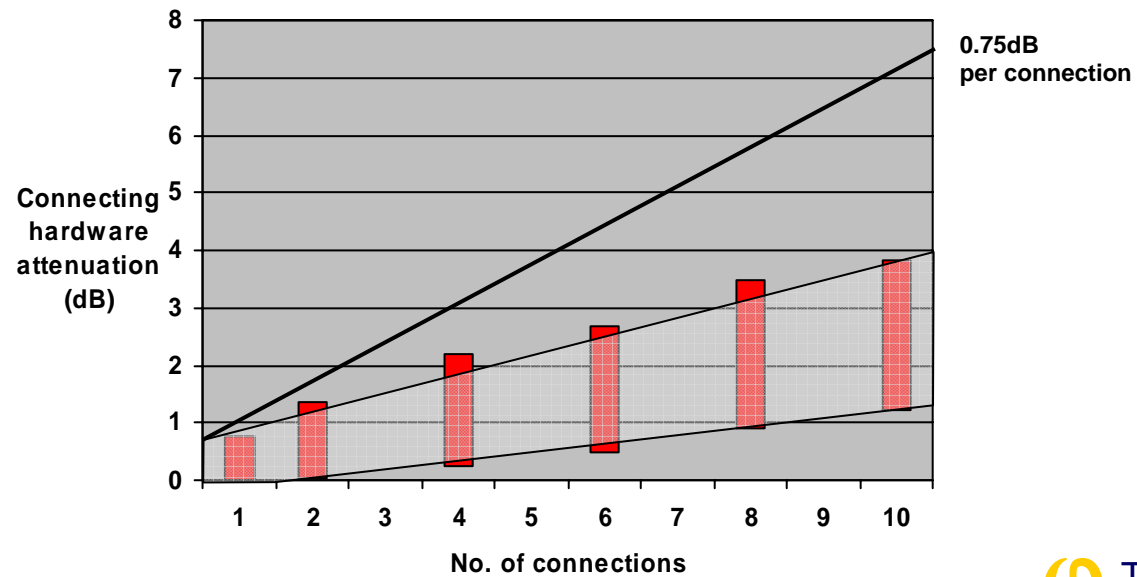
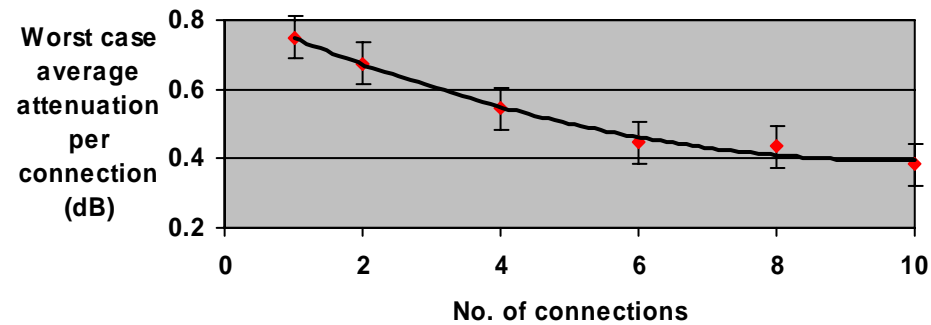
The Addition of Optical Connections - I



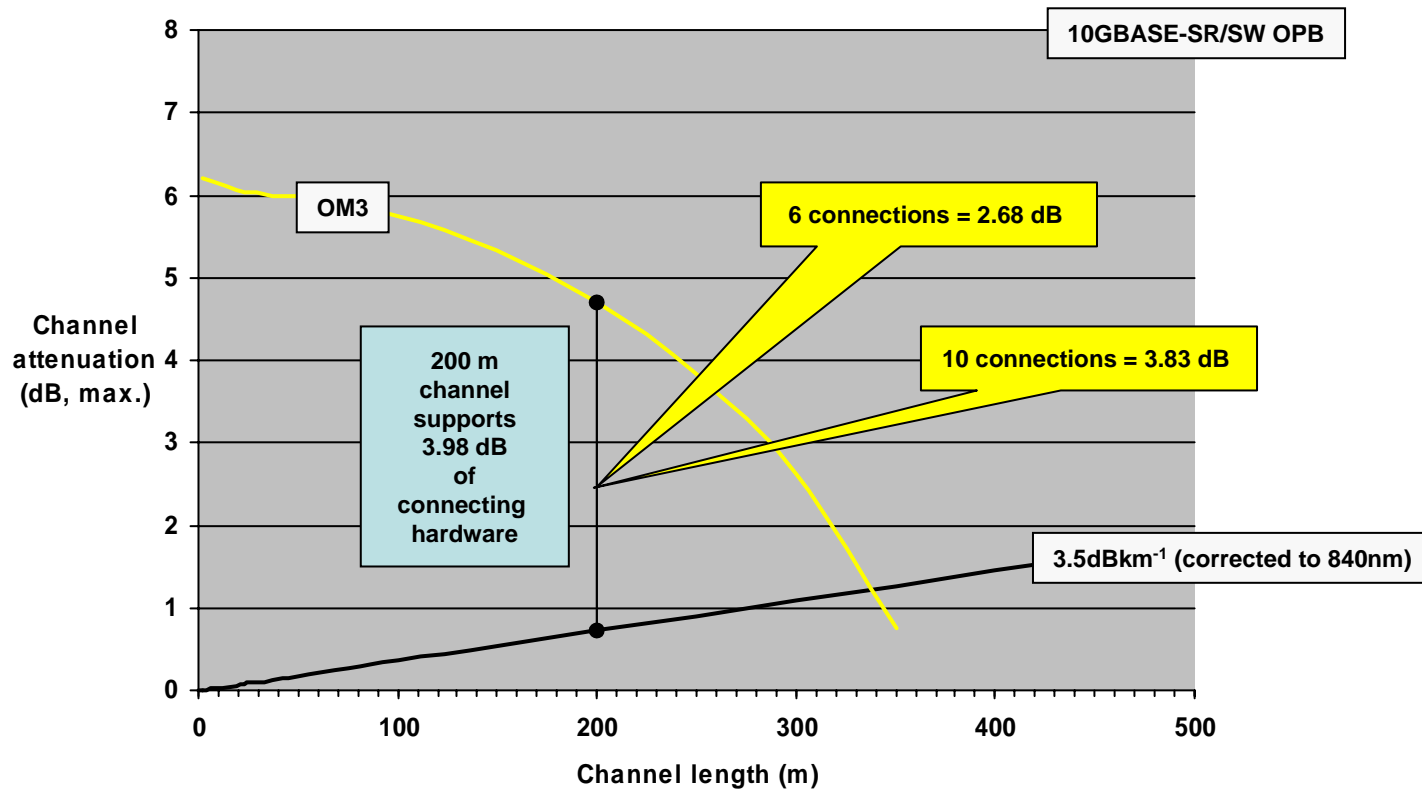
The Addition of Optical Connections - II



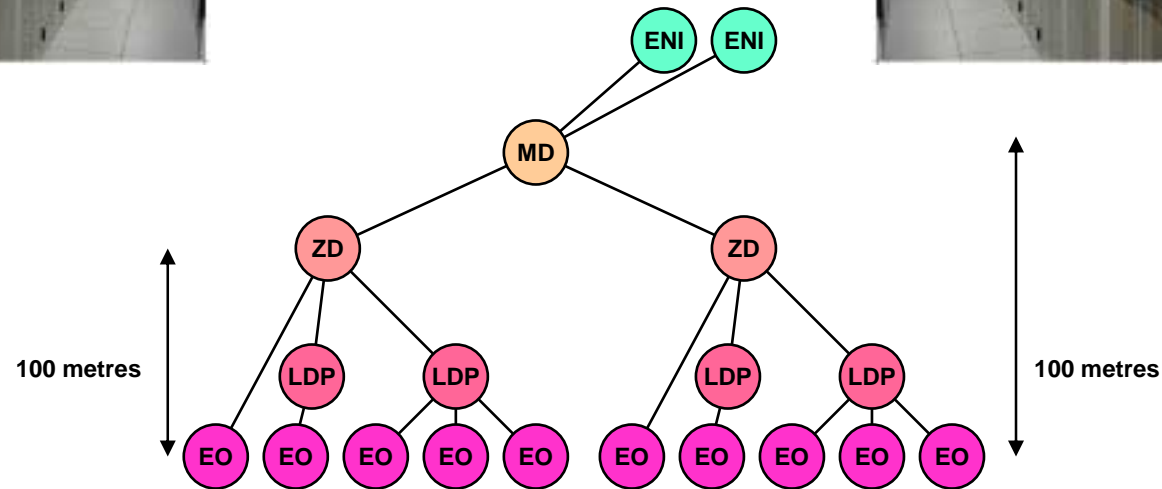
The Addition of Optical Connections - II



Data Centre Configuration



Data Centre Dimensioning



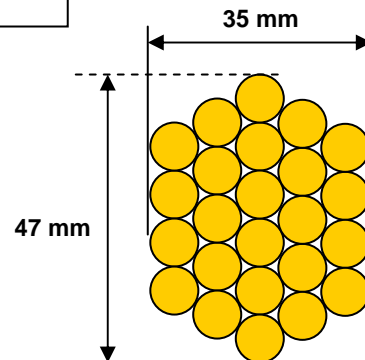
Data Centre Construction - I



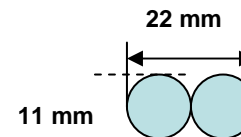
DATA CENTRE DESIGN CRITERIA

- Flexibility**
 - LDP providing advantage
- Speed of service provision**
 - LDP providing advantage
- Connection density**
 - in-cabinet LC = RJ45 density
 - future balanced connection dimensions
 - no reduction as performance increases
 - underfloor MTP/MPO » RJ45 density
- Cooling (20kW per cabinet)**
 - provision of air flow through cabinet
 - provision of air flow to cabinet
 - hot aisles/cold aisles
 - providing underfloor structure
 - supporting LDPs

10 Gig UTP balanced cabling
24 circuit cable bundle



10 Gig OF cabling
24 circuit cable bundle



97% weight saving

85% volume saving

Data Centre Construction - II

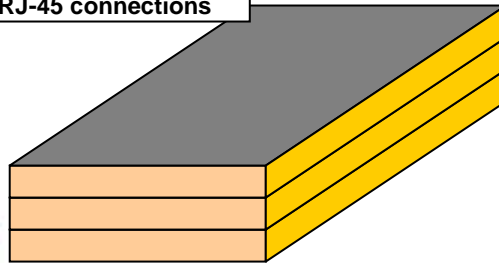


DATA CENTRE DESIGN CRITERIA

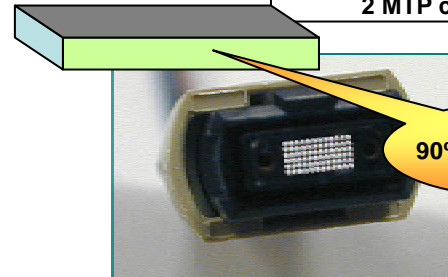
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- Cooling (20kW per cabinet)
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 - provision of air flow to cabinet
 - hot aisles/cold aisles
 - providing underfloor structure
 - supporting LDPs

72 port LDP

10 Gig balanced cabling
72 Cat 6_A RJ-45 connections



10 Gig OF cabling
2 MTP connections



90% volume saving

Bicsi

 The Cabling Partnership
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10 Gb Copper: Cost Effective in Data Centres?

- 10GBASE-T
 - no cabling component standards
 - no test methods for critical parameters (AXT)
 - equipment will be lower cost than 10GBASE-F options
 - true cost differential yet to be seen
 - EO-EO connections require active “star” (4 TxRx)
- 10GBASE-F options
 - cabling standards published
 - true passive EO- EO connectivity
 - lower weight, lower volume, no EM issues
 - lower risk

Hidden cost savings
which affect the financial balance

10 Gb Copper:
Cost Effective in Data Centres?

Questions

The logo for Bicsi, featuring the word "Bicsi" in a white, italicized, sans-serif font. A thin yellow arc is positioned above the letters "i" and "s".

Bicsi