Ethernet and UTP Cabling from 10BASE-T to 10GBASE-T

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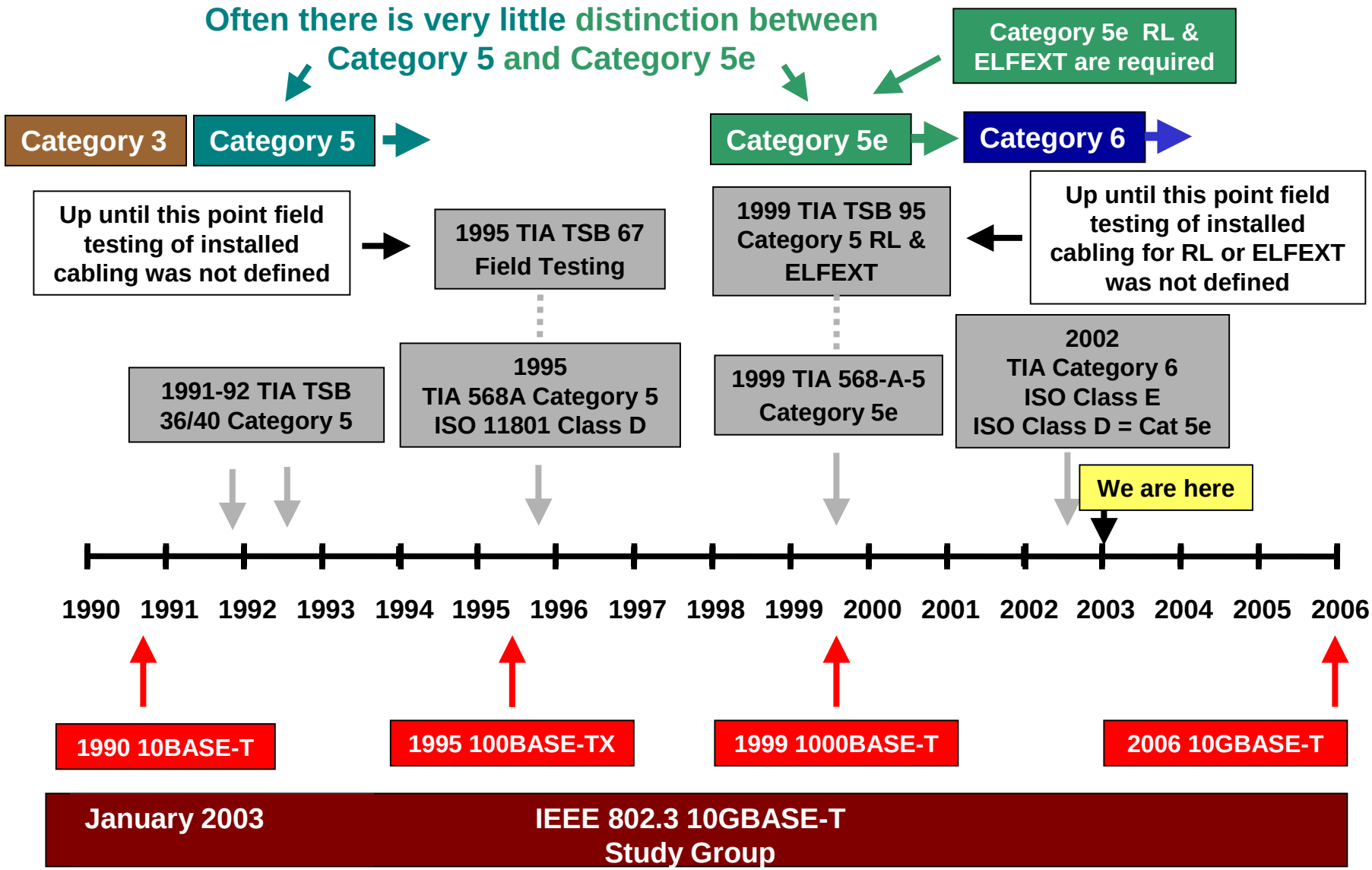
Presentation

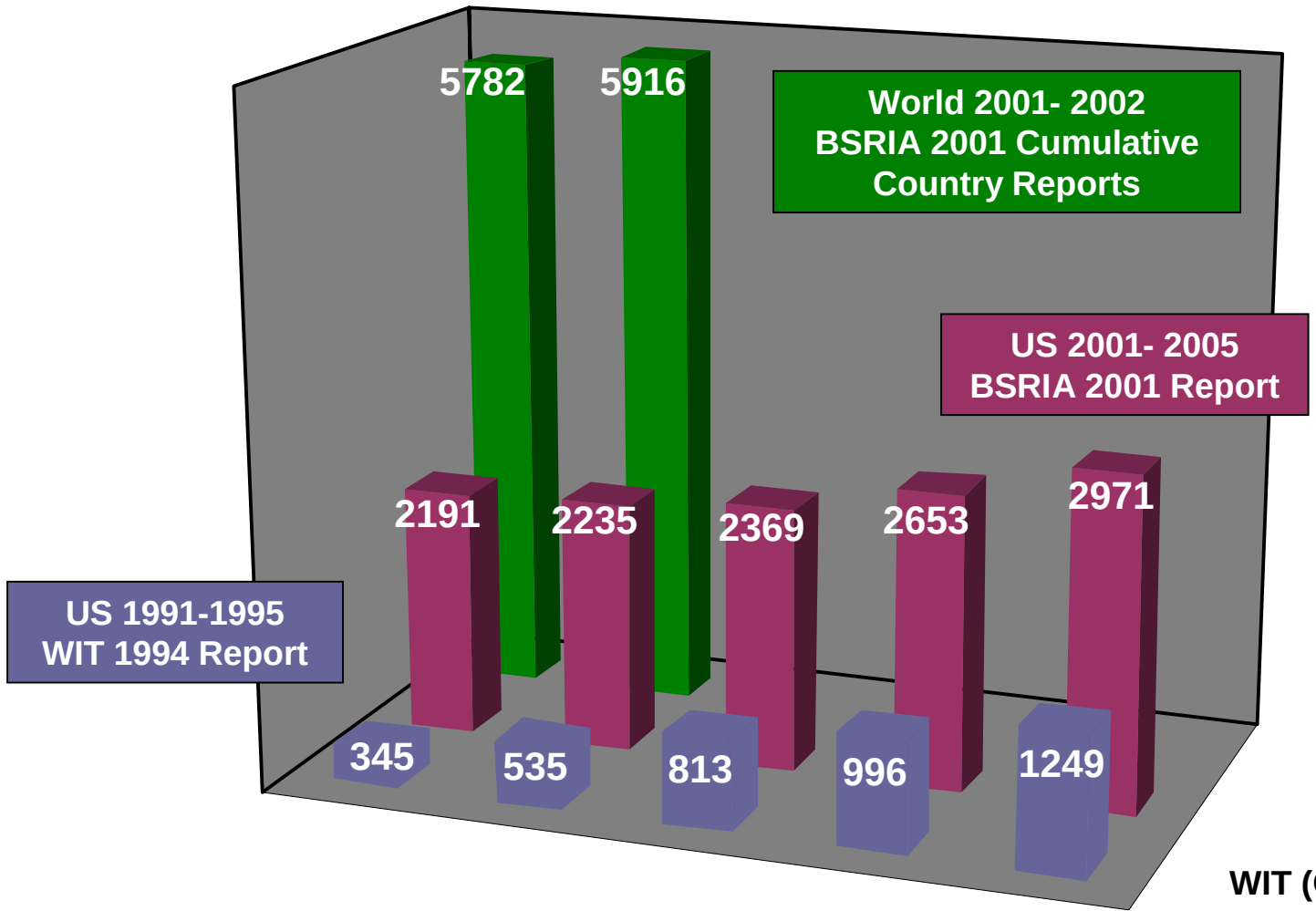
- Timeline
- Market Forecast
- Cabling Past and Present
- Ethernet and Cabling
- Cabling Installation Trends
- 10GBASE-T Cat 6 compared to Cat 5
- Conclusion

Timeline (UTP Category 3-6)



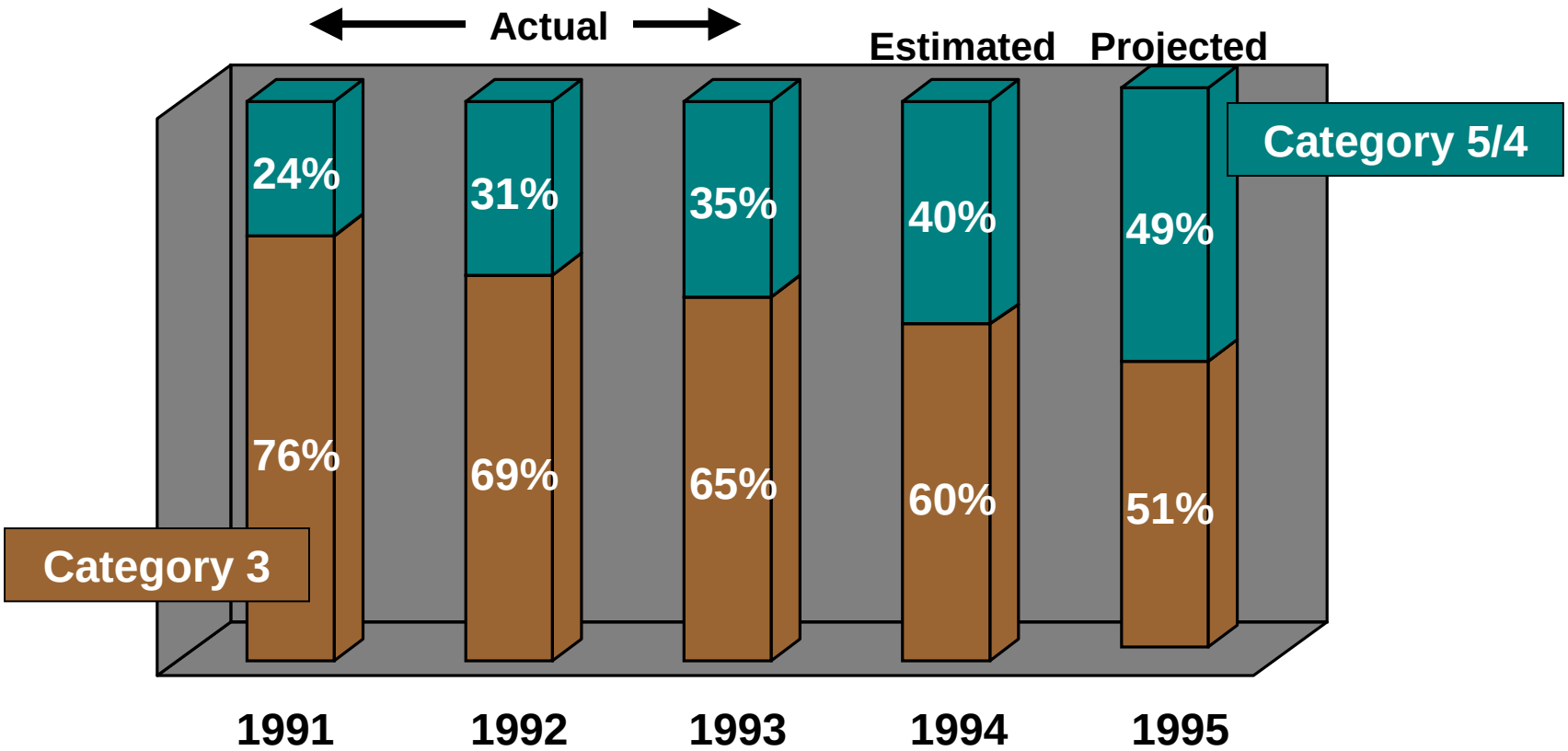
Horizontal UTP Cable Forecast

(million meters)



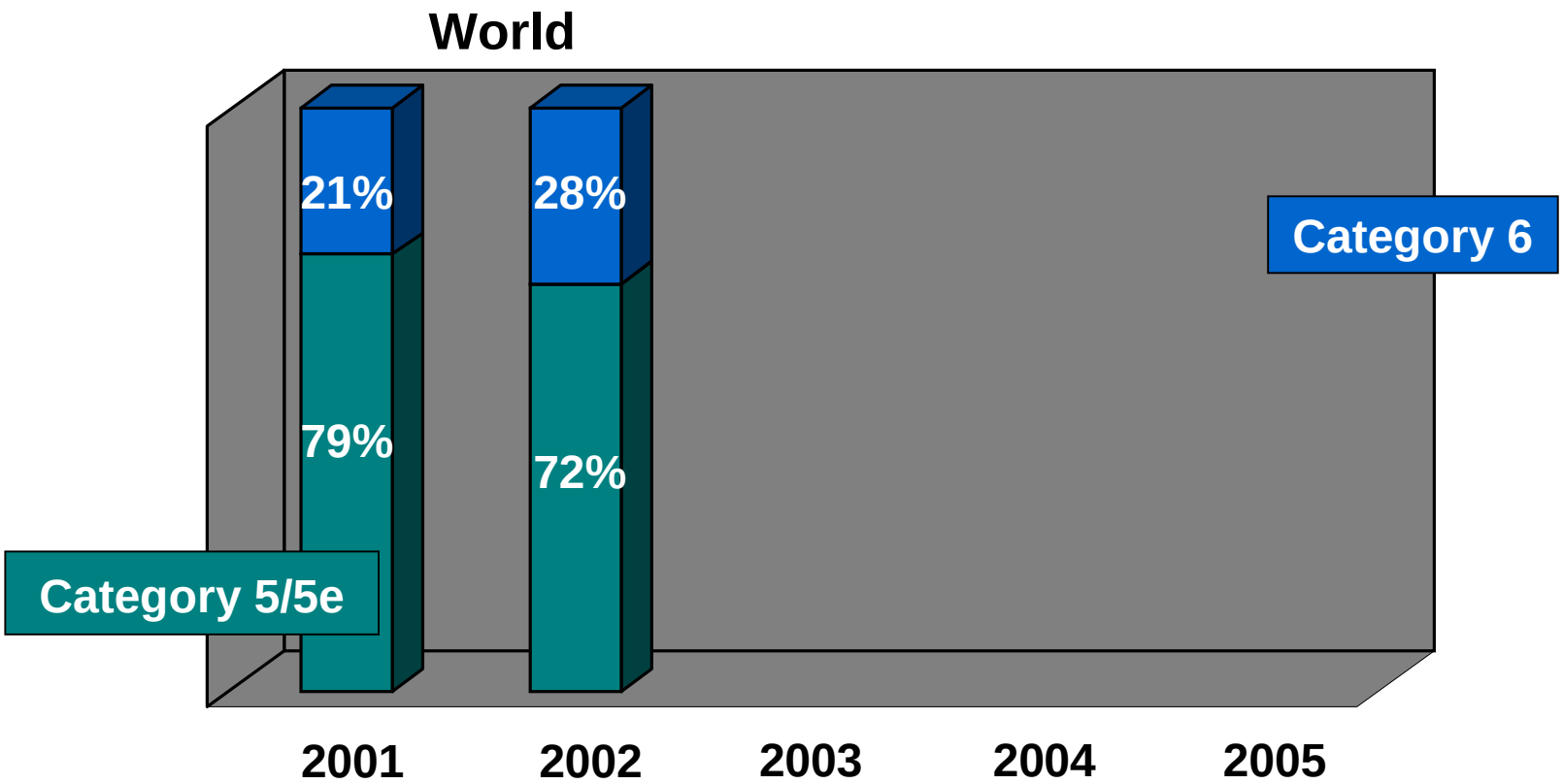
WIT (Cat 3-5)
BSRIA (Cat 5-6)

WIT 1994 US Report by Category



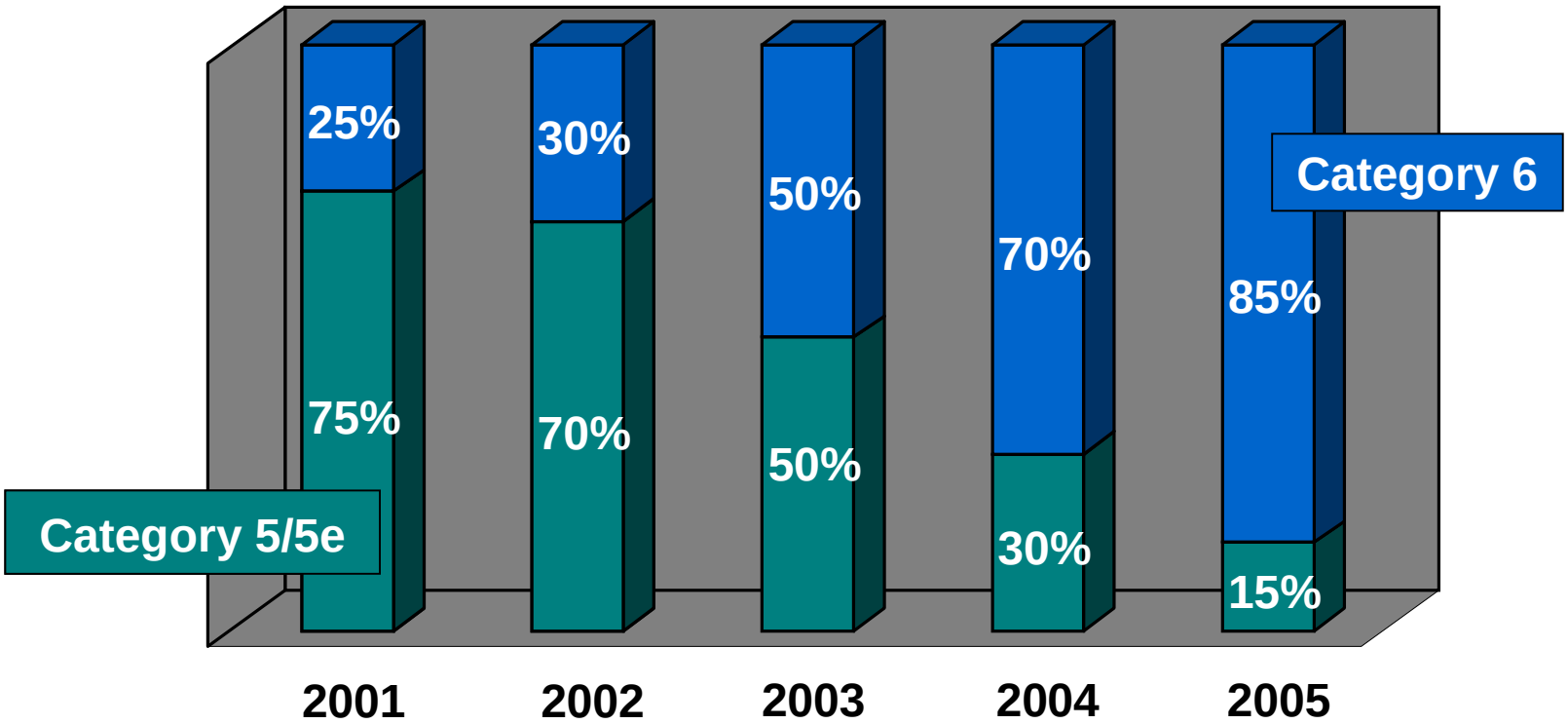
WIT (UTP)

BSRIA 2001 Forecast by Category



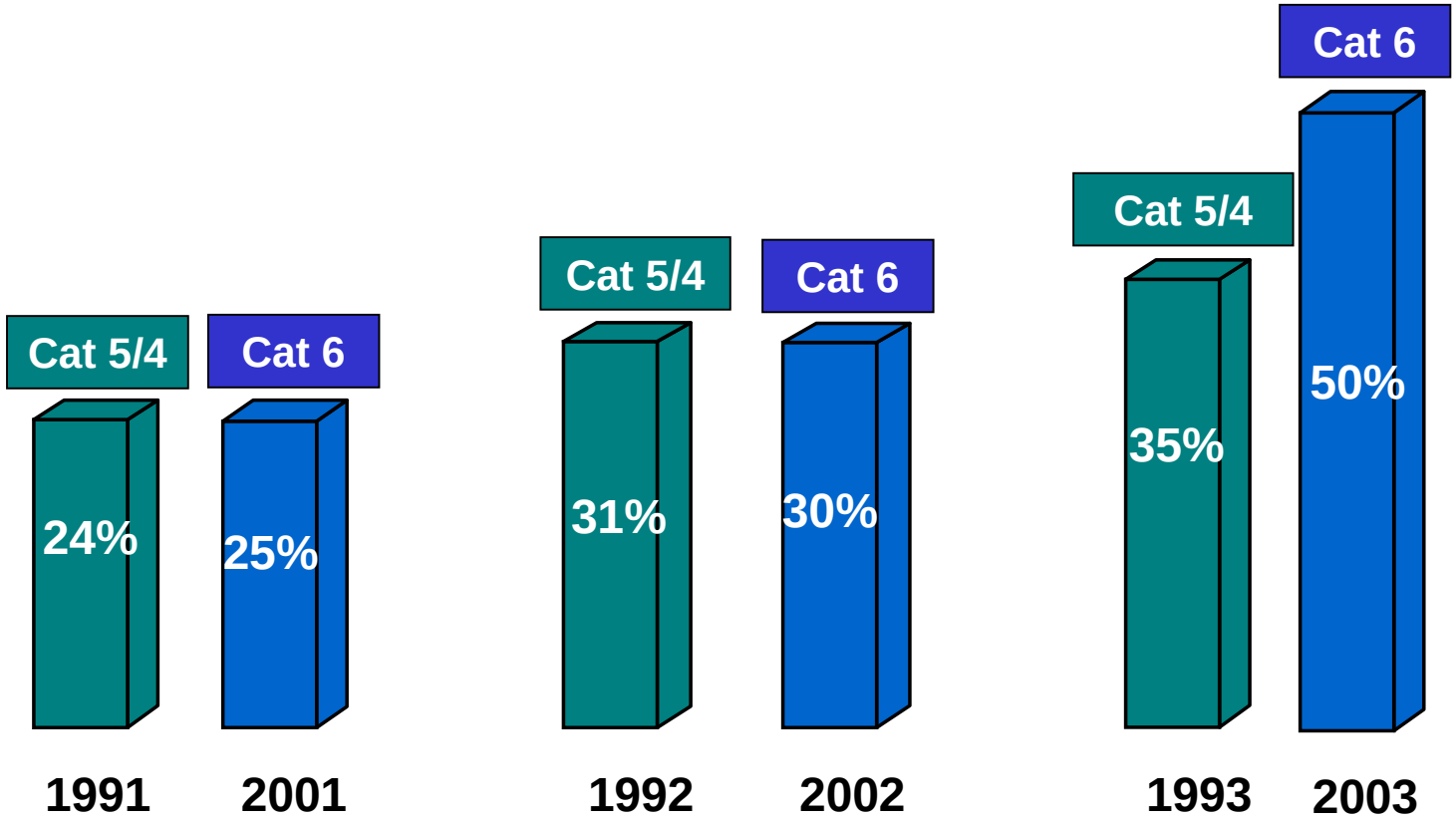
BSRIA Cumulative (UTP)

BSRIA 2001 US Forecast by Category



BSRIA (UTP)

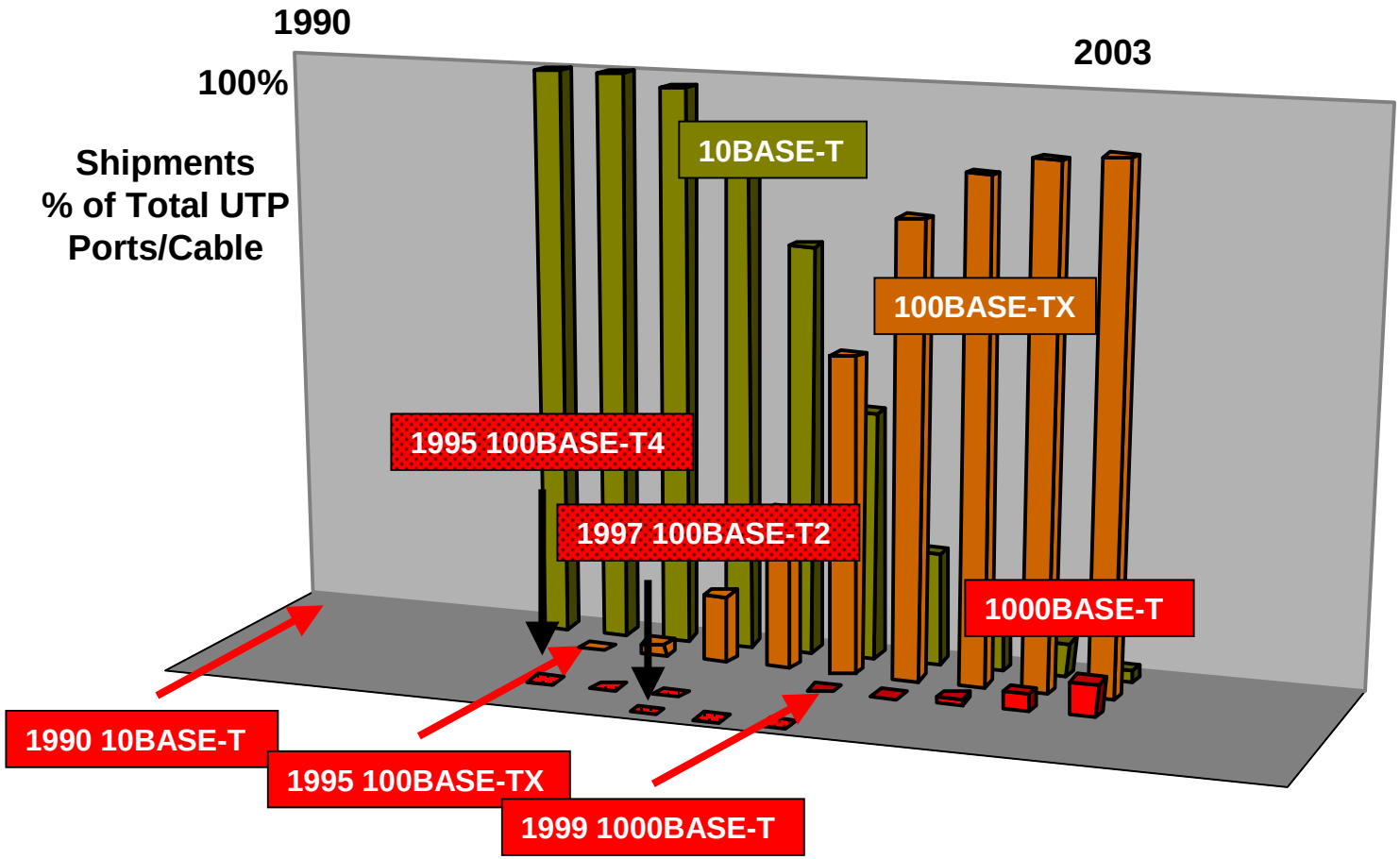
Cat 6 follows the same trend as Cat 5



Cat 5 Standard 1992
Cat 6 Standard 2002

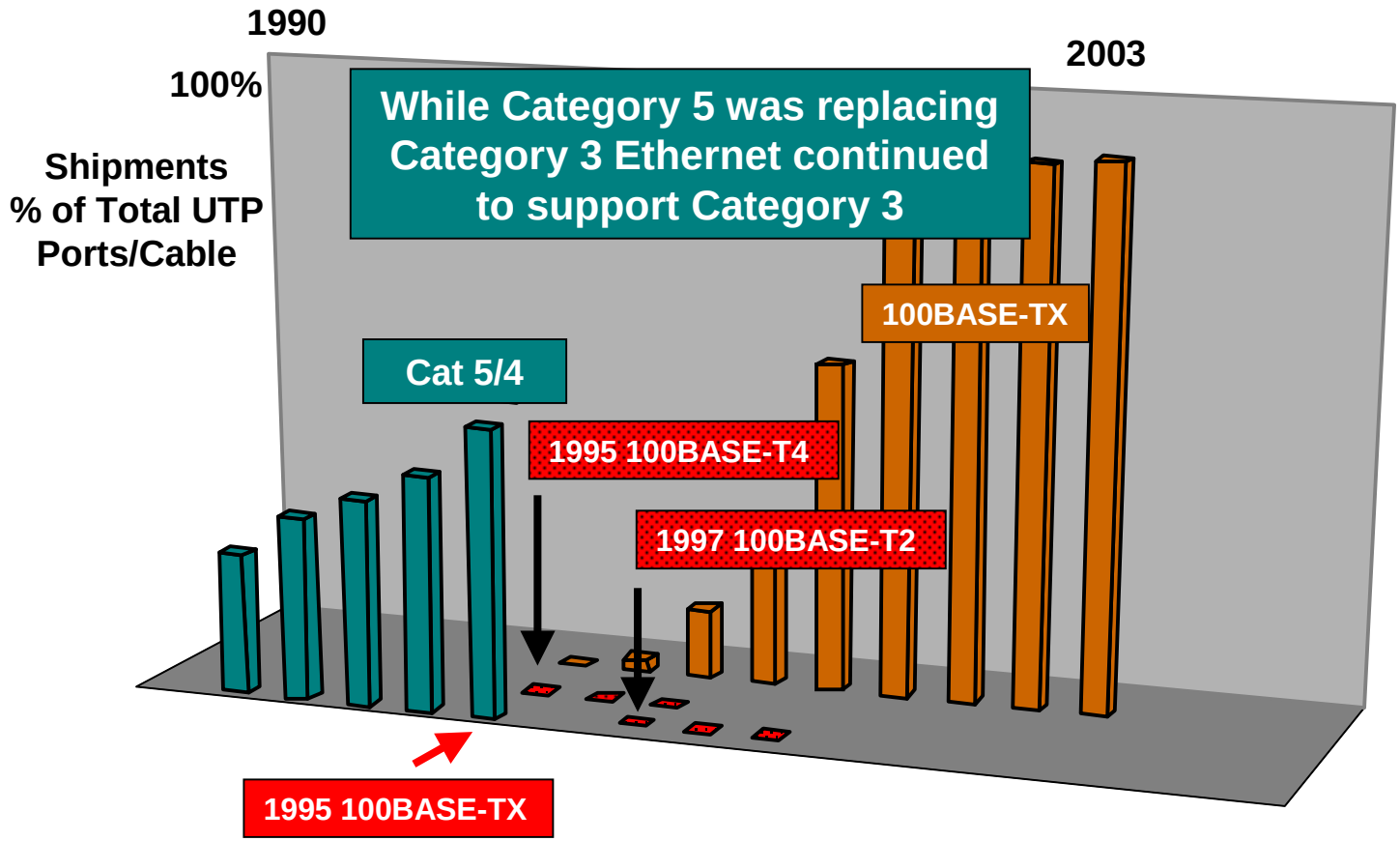
WIT US (Cat 5/4 actual)
BSRIA US (Cat 6 forecast)

Ethernet History

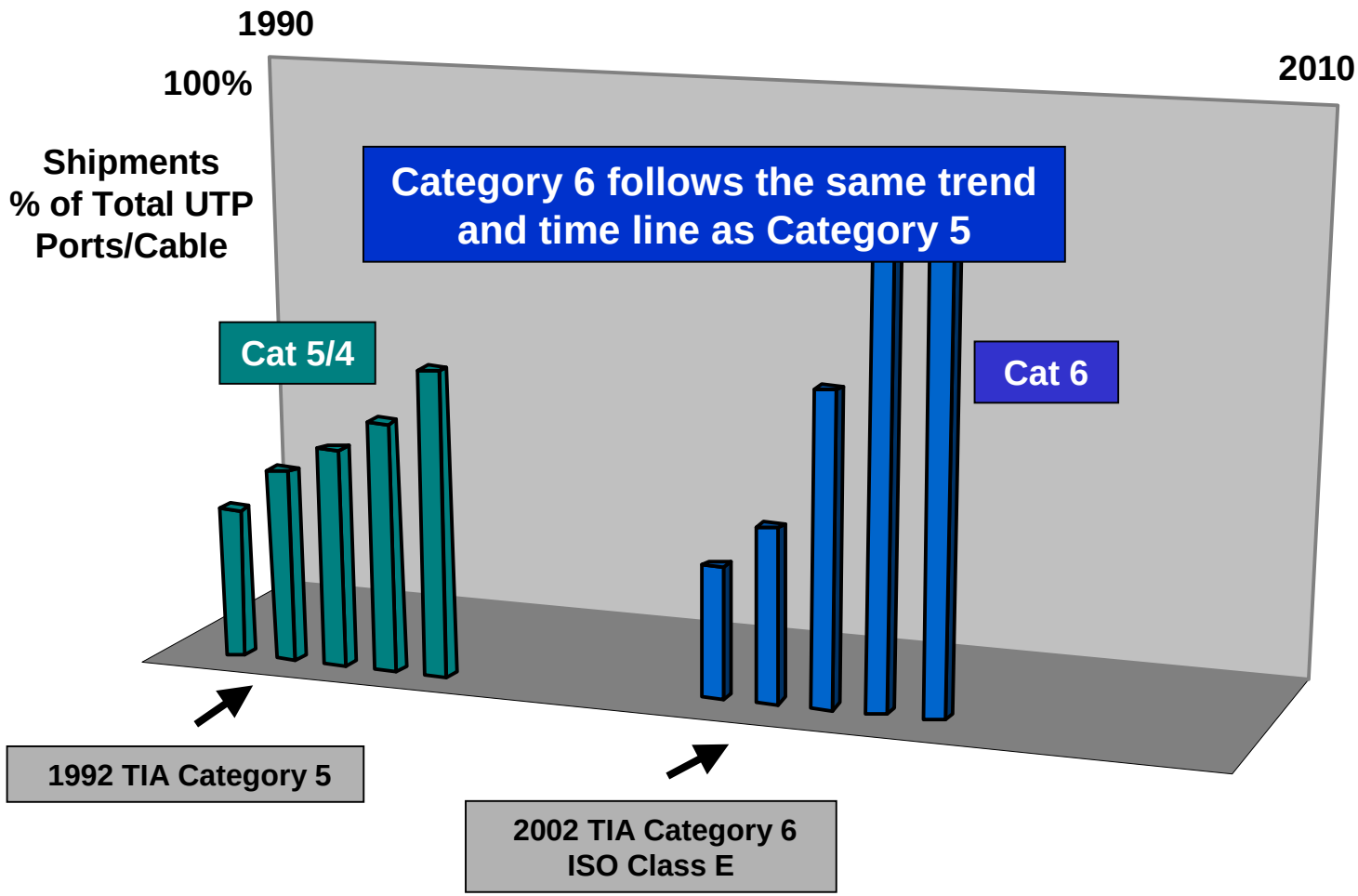


CFI tolley_1_1102 (UTP ports)

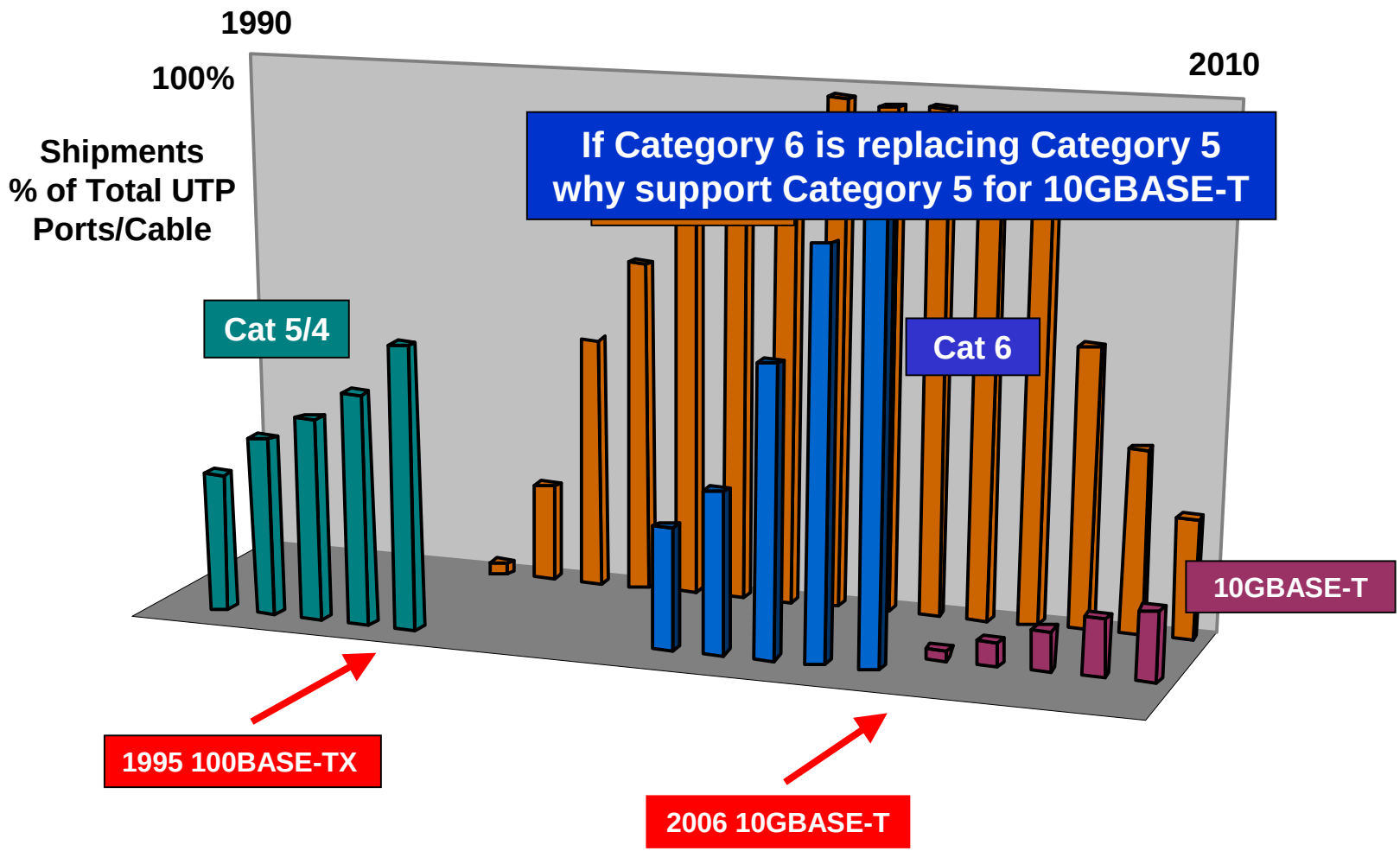
Ethernet and Cabling



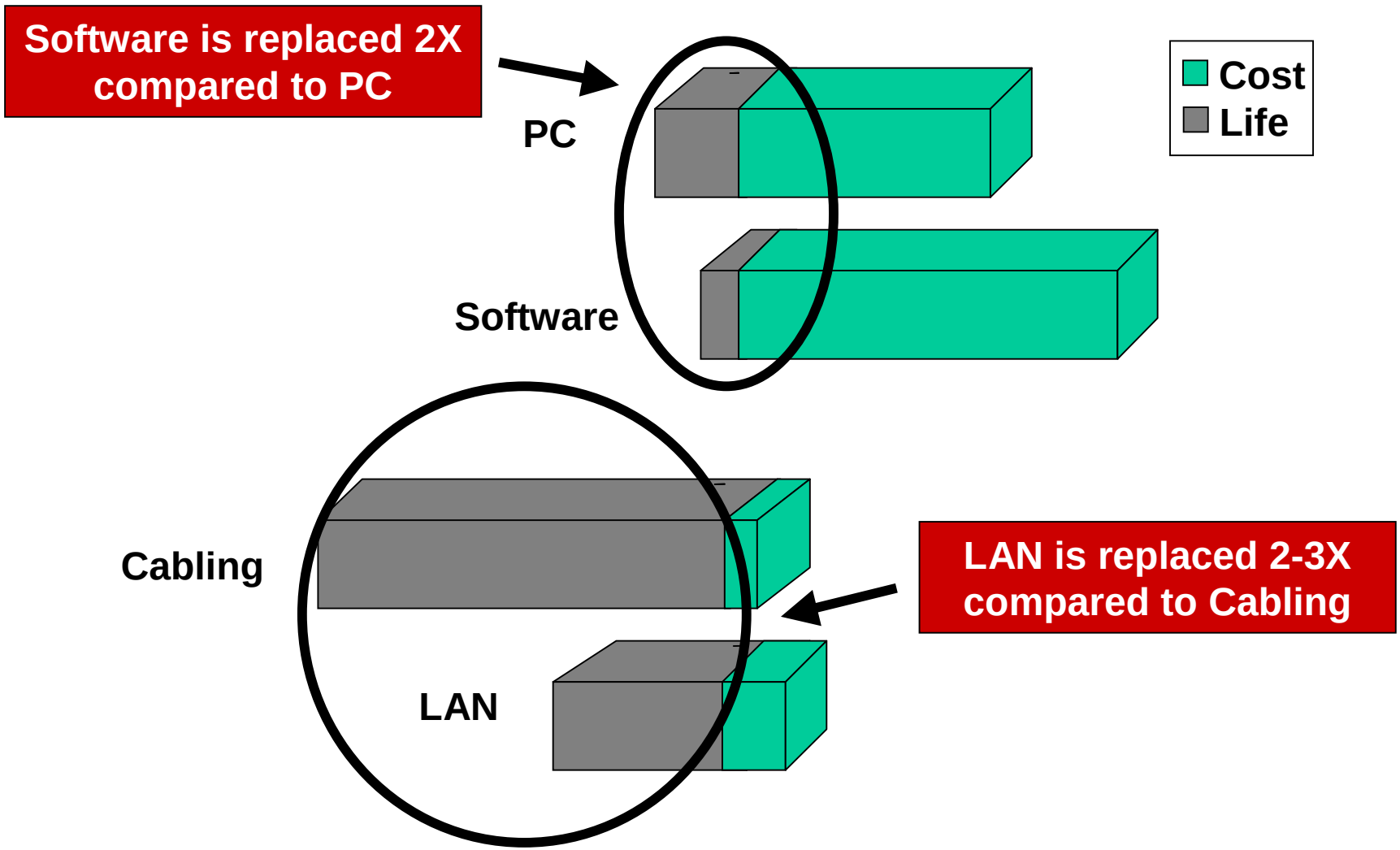
Ethernet and Cabling



Ethernet and Cabling



How often is cabling replaced



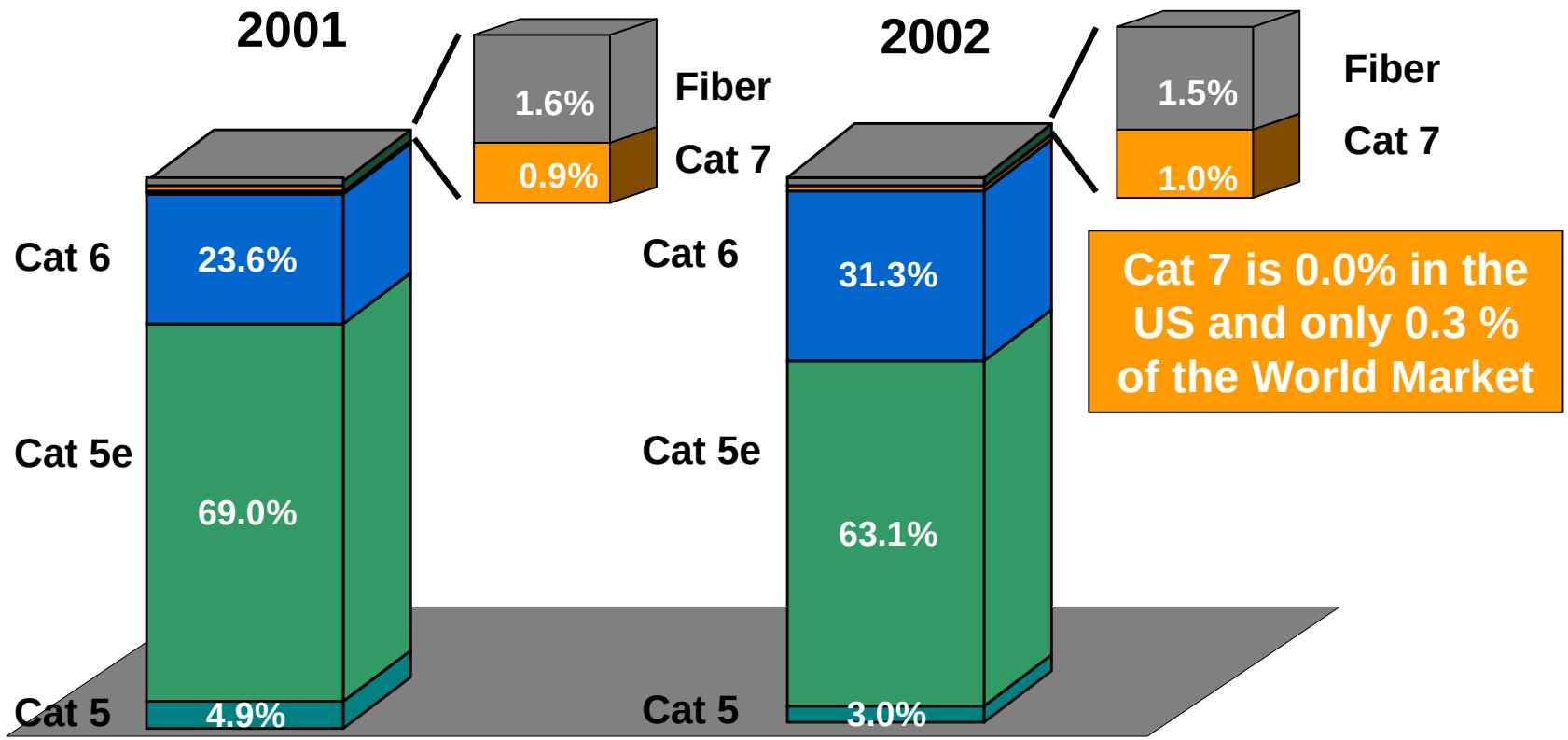
Why do customers replace cabling

- Building renovation
  - Entire building is torn down and replaced
  - Floors/sections of buildings are renovated
- Move or new tenant
  - Cabling type doesn't meet new IT needs
  - New tenant has different corporate wiring standard
- Work area move, additions, or changes
  - Furniture clusters are rearranged around group/departments
  - Walls and/or furniture are upgraded
- Performance
  - Cabling type is outdated and no longer adequate
- Copper is viewed as a throw away medium
  - Over 50% of all cabling sold is used to replace existing cabling
  - Cat 3 replaced coax, Cat 5 replaced Cat 3, Cat 6 replacing Cat 5…
- The infrastructure is constructed for replacement

Why not Category 7

Western Europe

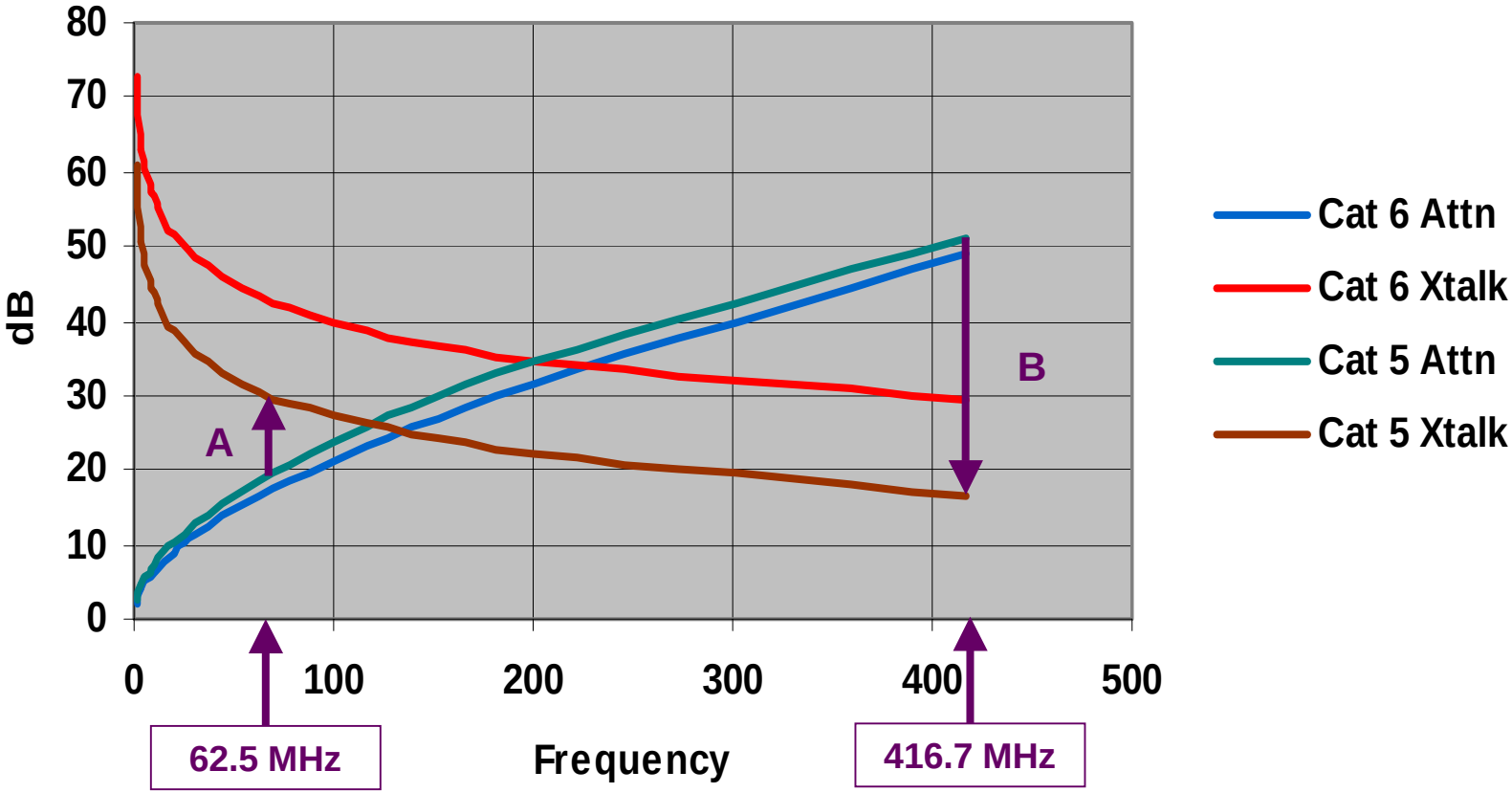
Customers select Fiber over Category 7



Cat 7 is 0.0% in the US and only 0.3 % of the World Market

BSRIA (Western Europe)

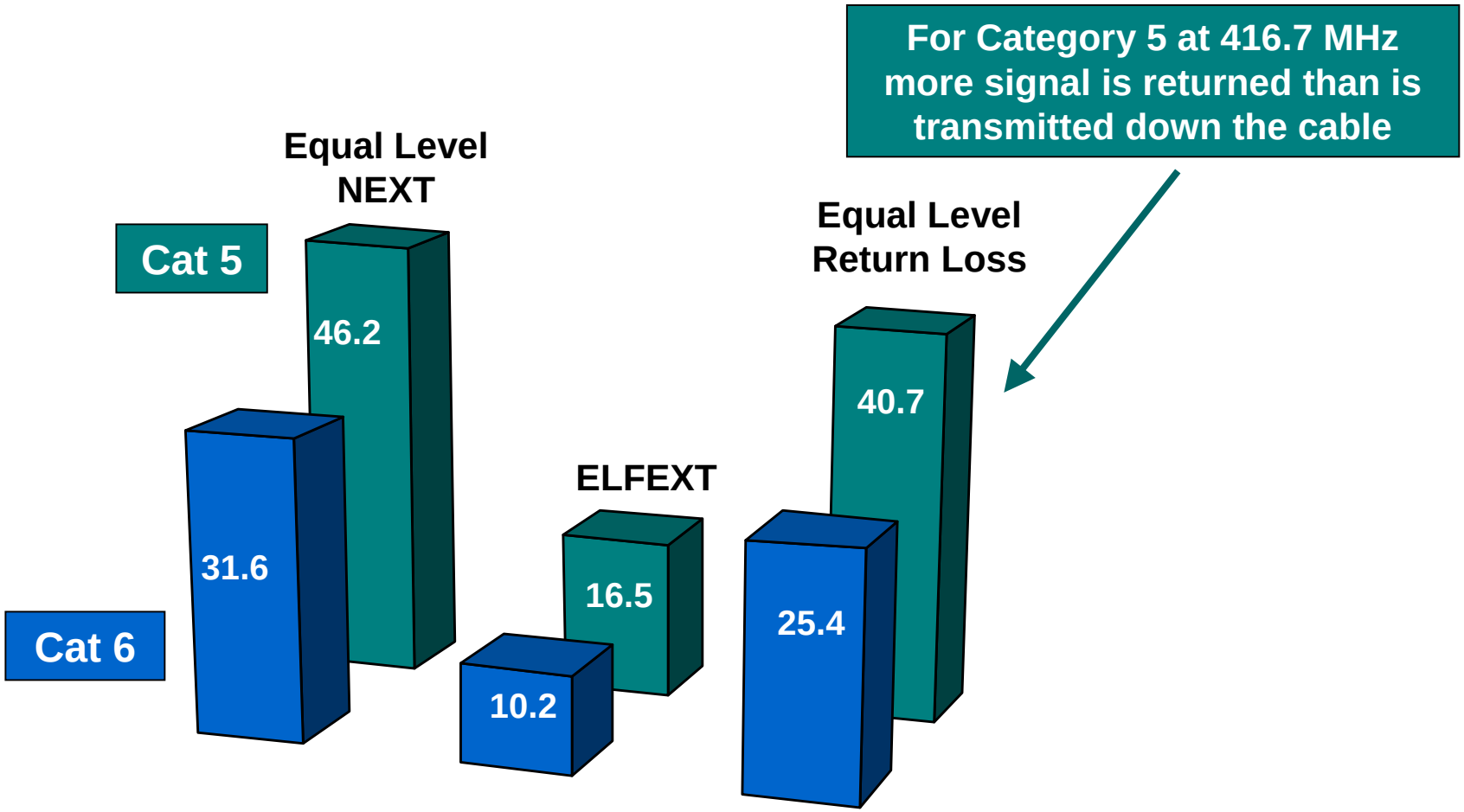
10GBASE-T Cat 6 compared to Cat 5



How much additional cancellation is required in going from 1000BASE-T to 10GBASE-T A - B

Extrapolating Cat 6 and Cat 5 limits to 416.7 MHz

Additional cancellation



Extrapolating Cat 6 and Cat 5 limits to 416.7 MHz

Conclusion

- For Category 5 Cabling:
  - None has been tested above 100MHz,
  - Very little has been tested for Return Loss or ELFEXT,
  - Only some has been tested to a requirement at all.
- Category 5e has become mixed in with Category 5 and is not significantly different in performance.
- The Forecast for Category 6 follows the same trend and time line as Category 5.
- 10GBASE-T should support what will be it's installed base when it reaches the market.
- The cabling will be replaced.
- Supporting legacy cabling makes the solution more difficult and in the past has not been successful.