

The Need for a Low-Cost 100GbE Inter-rack Copper Interconnect

Mike Bennett

- **Why 100GbE Copper?**
- **Survey results – end user input**
- **Observations**
- **Conclusion**

Why 100GbE copper interconnect?



- **Main reason is to have a lower cost option for next generation of Ethernet**

- **Sent out survey to National Lab network operators and managers**
 - 6 responses (including mine)
- **Key Questions:**
 - **Would you support a 100G reach objective of at least 5 m over copper?**
 - **What is the relative cost ratio between fiber and copper you require?**

- **Other questions included**
 - **When would you use a 100GbE copper interconnect?**
 - **Most said in the next 5 years**
 - **Where would you use a 100GbE copper interconnect?**
 - **Most said between equipment in an equipment room**
 - **Assuming it had no impact on the completion date of the standard, would you prefer 40GbE or 100GbE?**
 - **All stated a preference for 100GbE**

● Back to the Key Questions

- Would you support a 100G reach objective of at least 5 m over copper?

- All but one answered “yes”

- The site answering no preferred fiber

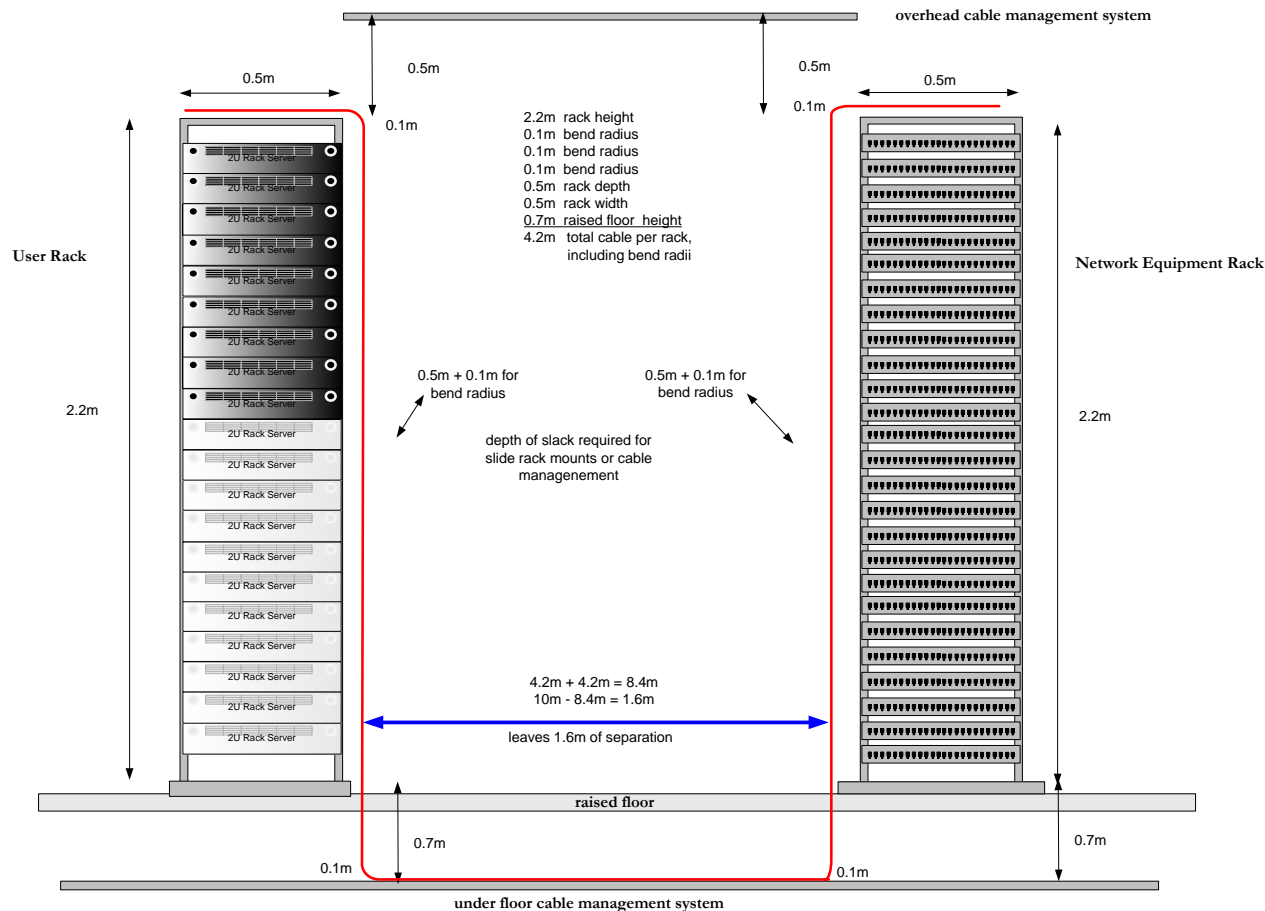
- What is the relative cost ratio between fiber and copper you require?

- 2-to-1 1
- 3-to1 1
- 4-to1 2
- None 2

- Note: one response due to the need being more than 5 years out and the other because they don't want copper

● 10 m would be more desirable

- 4.2 m of cable in each rack (8.4m) allows 1.6m between racks (worst case)



- **Regarding sweet spot for cost**
 - **Our Scientific Cluster expert said the rule of thumb is interconnect cost is .5 node cost**
- **Need to keep that in mind**

- **There is a market interest in 100GbE copper for at least 5m reach**
 - Longer would be better
- **The “sweet spot” is somewhere between 3x less than optical and 50% the cost of a computing-node in a cluster**

Thanks!



- **Questions / comments:**
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