

Active cables in a passive copper and optical module world

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Summary

- › **Active cables fill in a distance target for next gen 100G interconnects**
- › **We need to incorporate Active cable requirements into CR4 and SR4 electrical interfaces.**

Distance targets for CR4

Practical distances for passive copper

From kvist_01_0111:

(Probably used as ~3m with AWG30 to get more manageable cables)

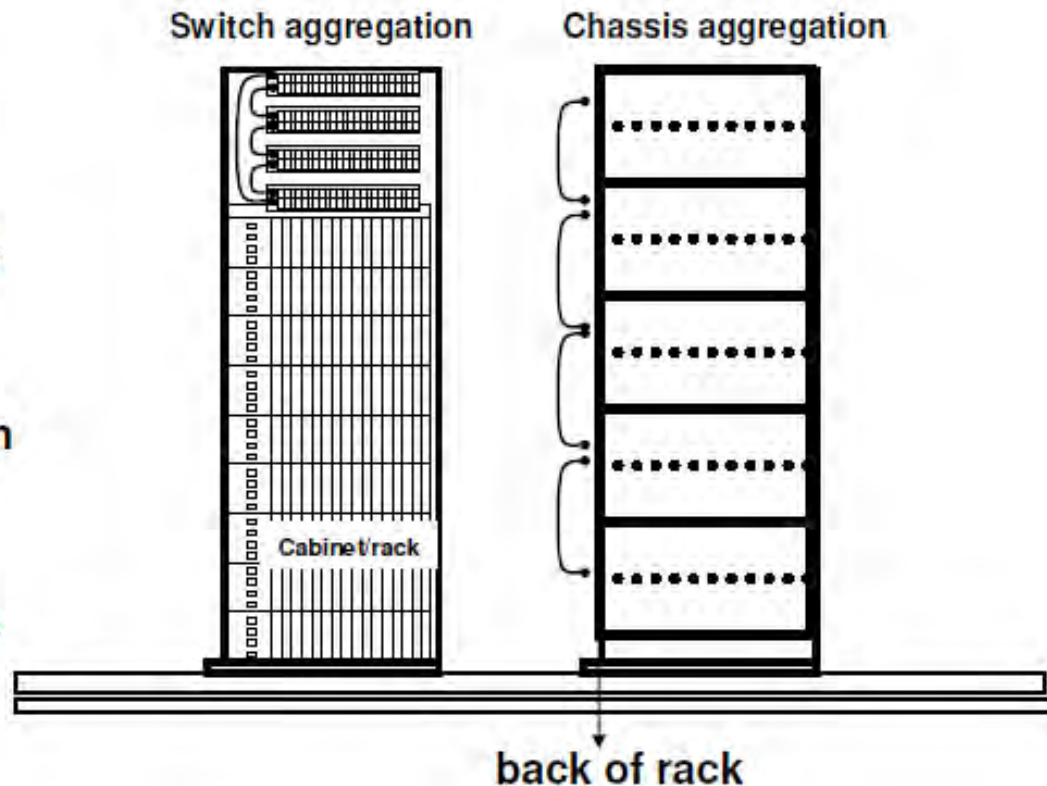
From diminico_01_0111:

Switch aggregation

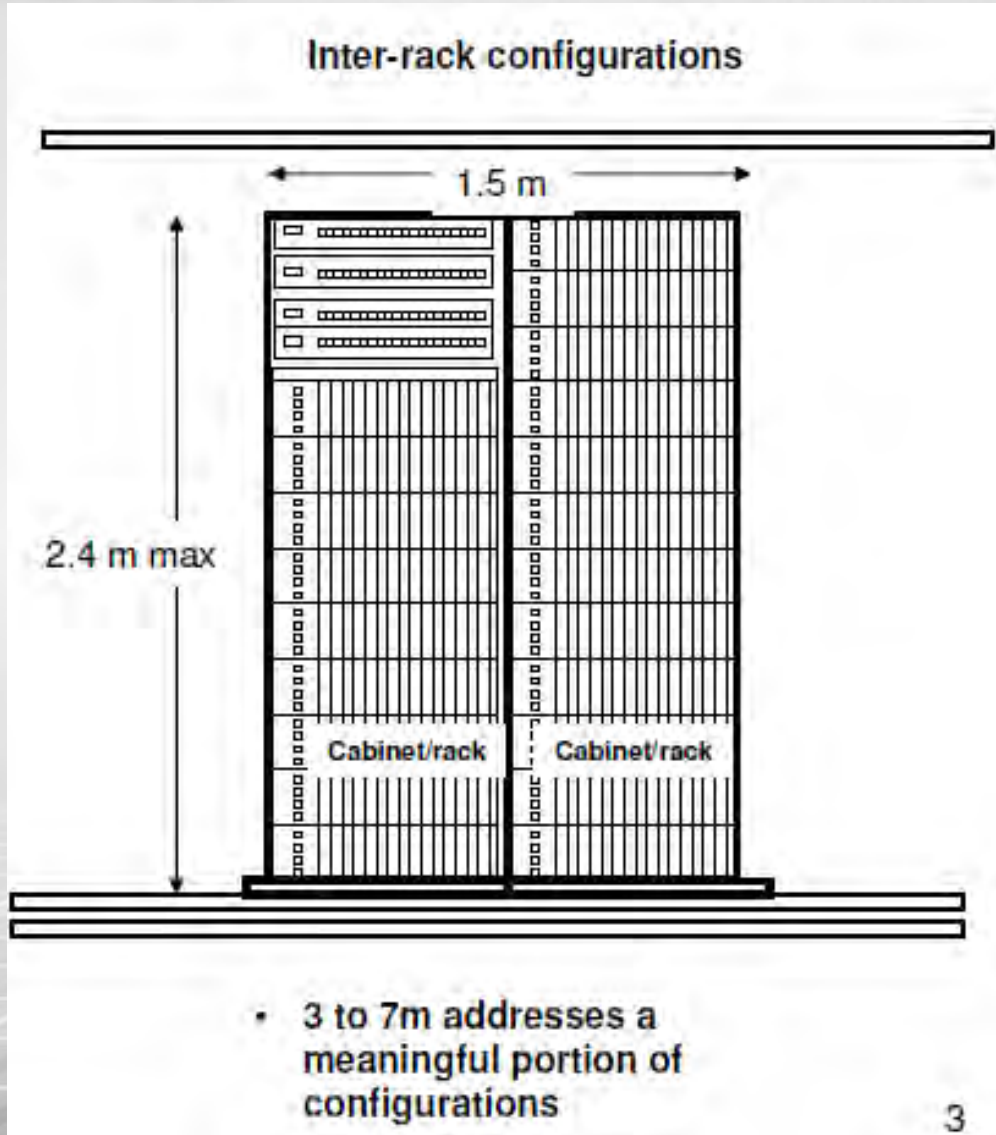
- Cost optimized
- At least 3 meters addresses majority of configurations

Blade/chassis aggregation /backplane extender

- Cost optimized
- At least 3 meters addresses majority of configurations



7m goal may require active cables



From diminico_01_0111

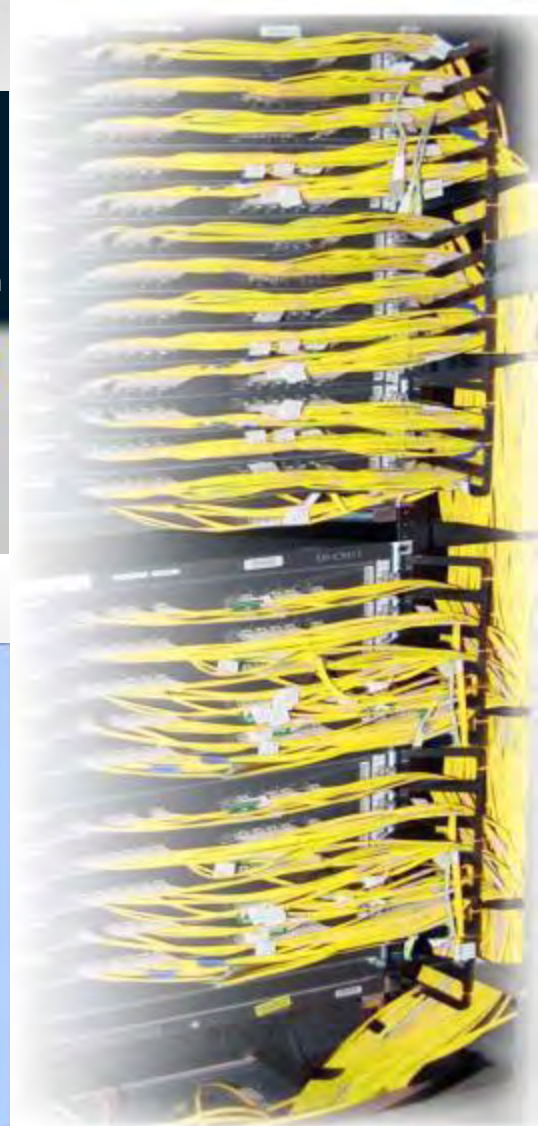
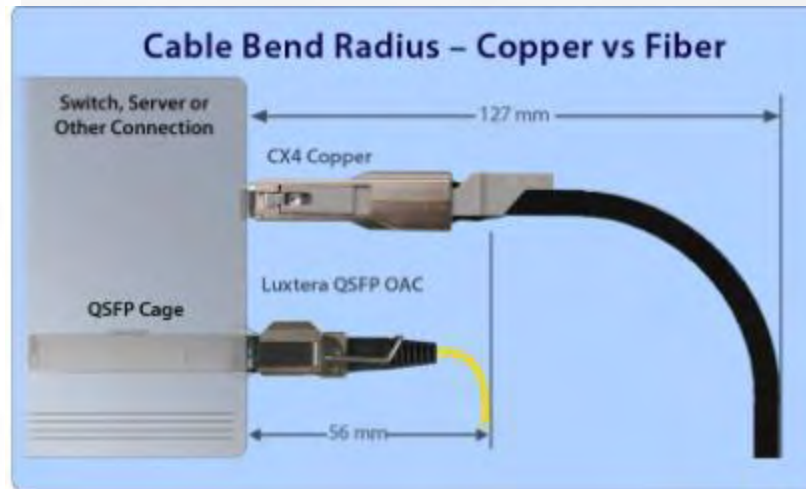
Improved Cable Management vs. passive Copper



85% Thinner and Lighter Cable



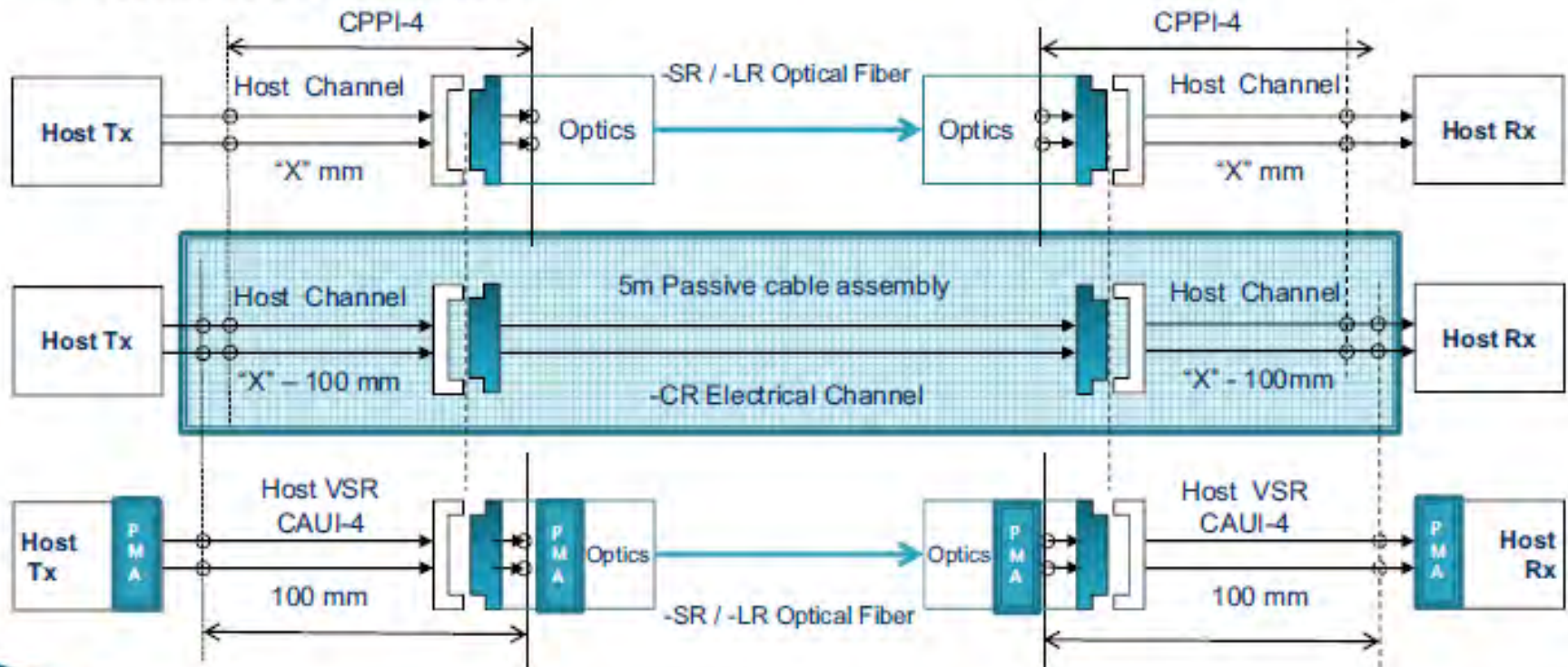
40% Smaller Bend Radius



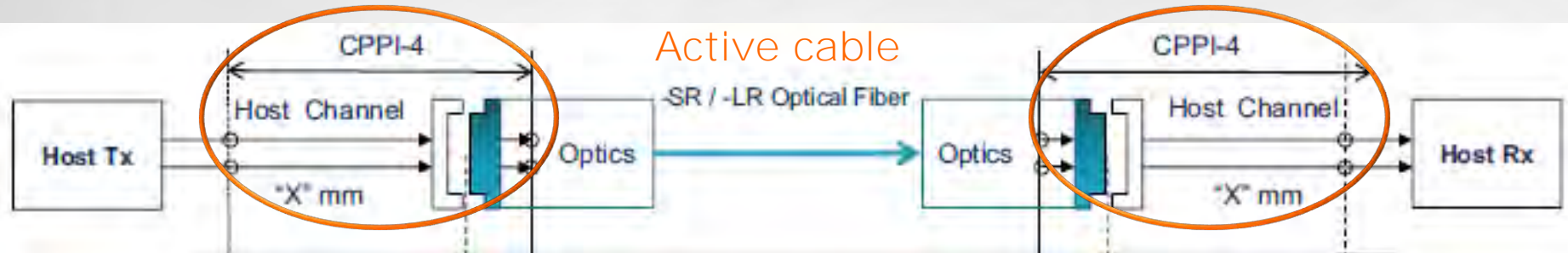
MDI options for CR4 and SR4

Interfaces & Shared Ports

- ▶ What might be common port(s) between 100GBASE-nR4 (optics or copper)?
- ▶ What is the channel?



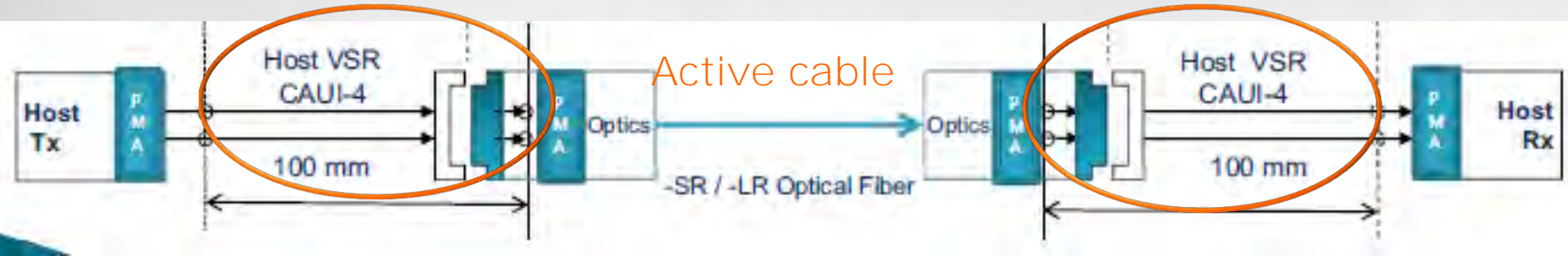
What is impact of Active cables for the cPPI-4 MDI?



➤ No changes should be required

- Jitter requirements should be relaxed for active cables vs optical modules.
 - Active cables have no separable connector at the faceplate

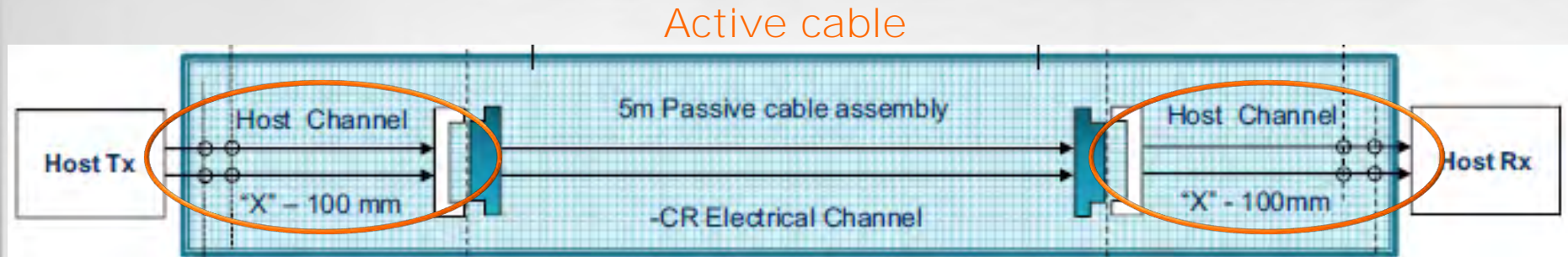
What is impact of Active cables for the cAUI-4 MDI?



➤ No changes should be required

- Jitter requirements for active cables isolated by PMA.
 - Active cables would require retimers

What is impact of Active cables for the 100GBASE-CR4 MDI?



> Specification at separable connector would be required

- May be more practical to define a 'min. eq.' setting for the Host IC.
- Will the link train thru an active cable?

Random thoughts

- › **Low Latency and power savings could be achieved if FEC could be disabled for Active cables.**

Thank you

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