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Information Center



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Brazilian Internet
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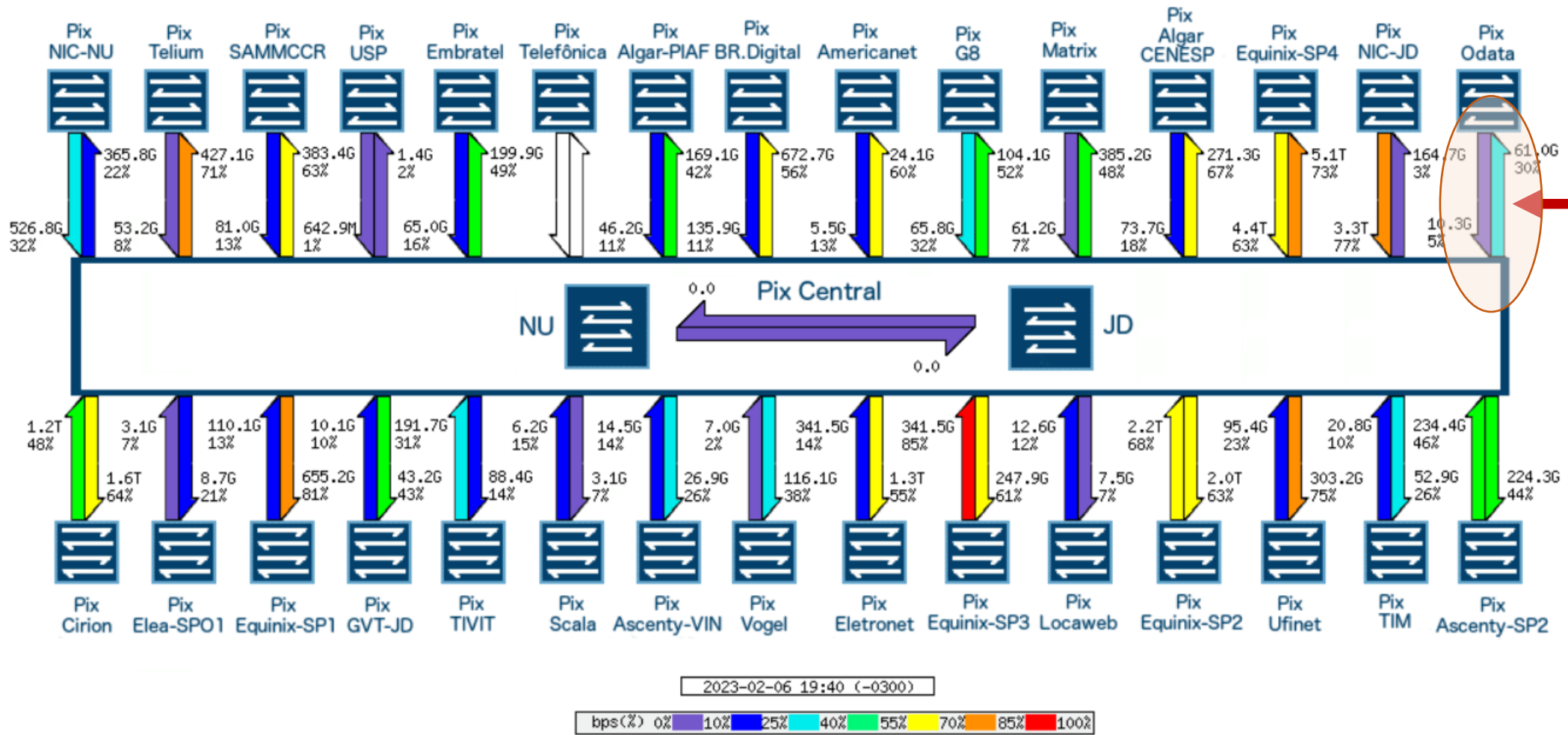
APIX Meeting #23
Manilla, Phillipines | 03/2020

From DCI to 400ZR

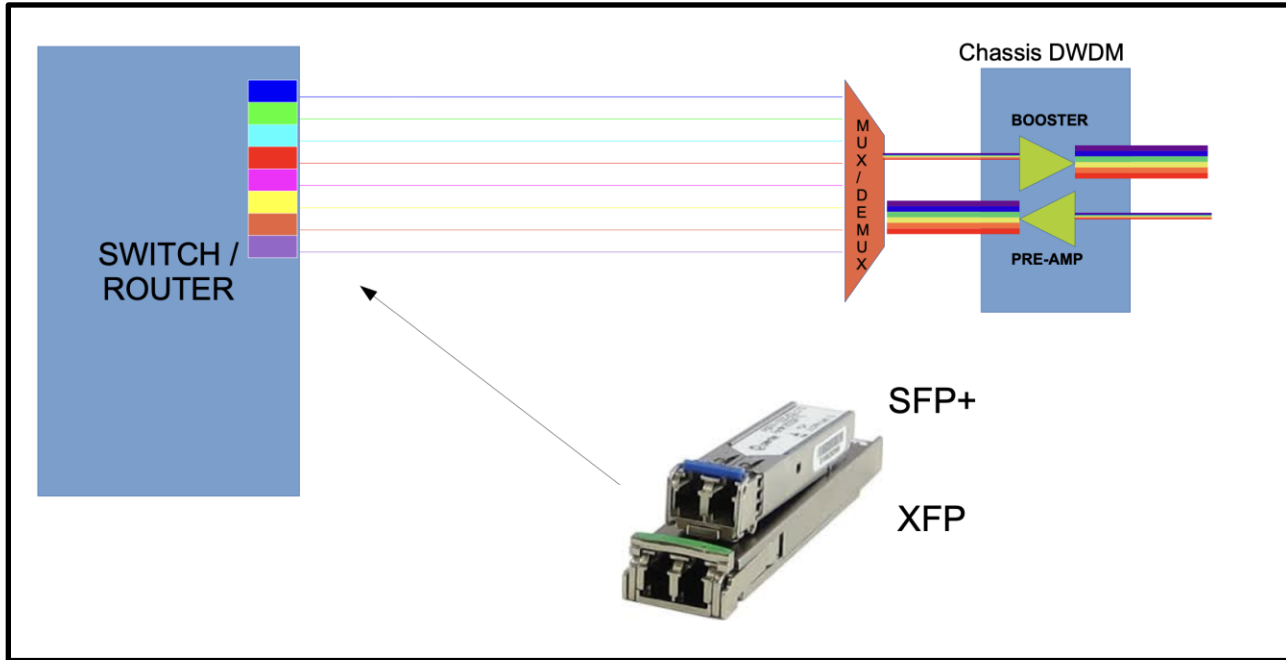
Julio Sirota (jsirota@nic.br)

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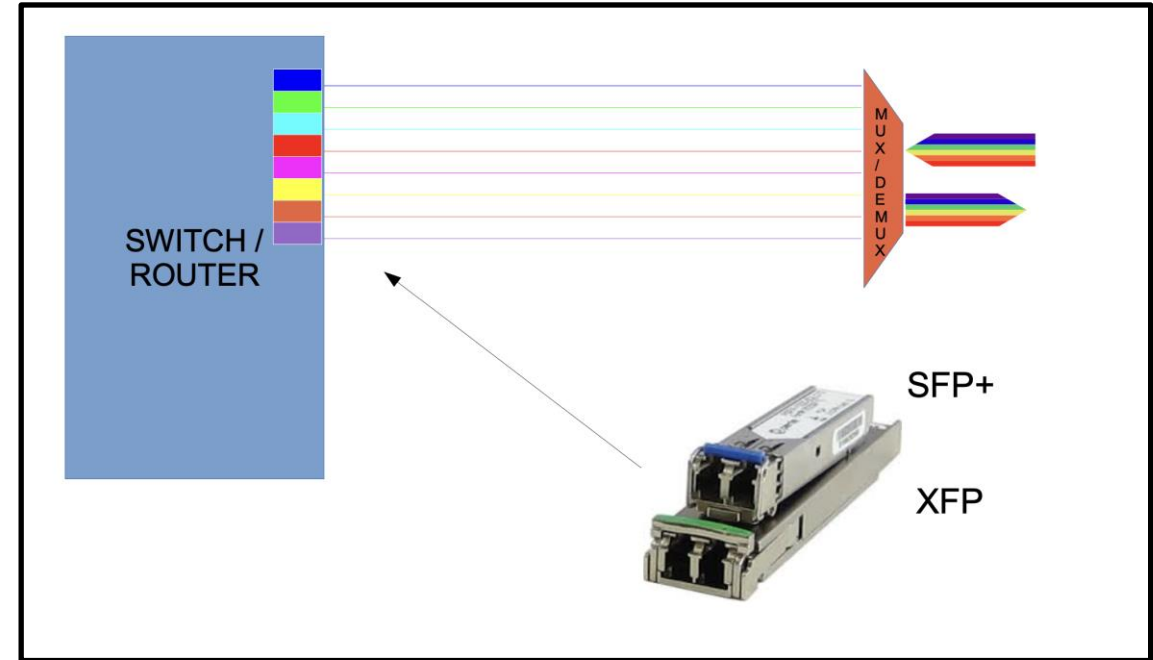
This talk is about datacentres interconnection



2016 – 10G ports/transport reached operation limit

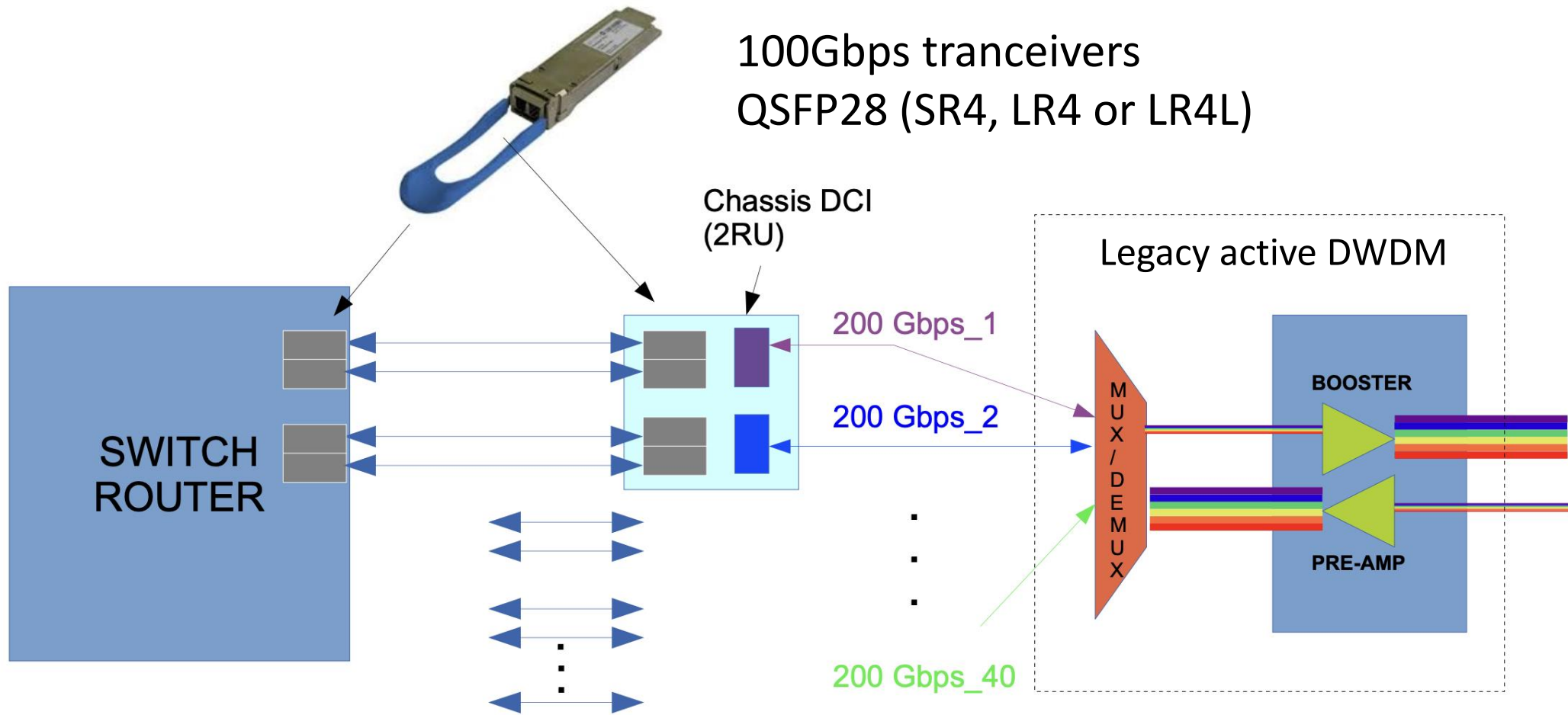


Active DWDM (80 km)

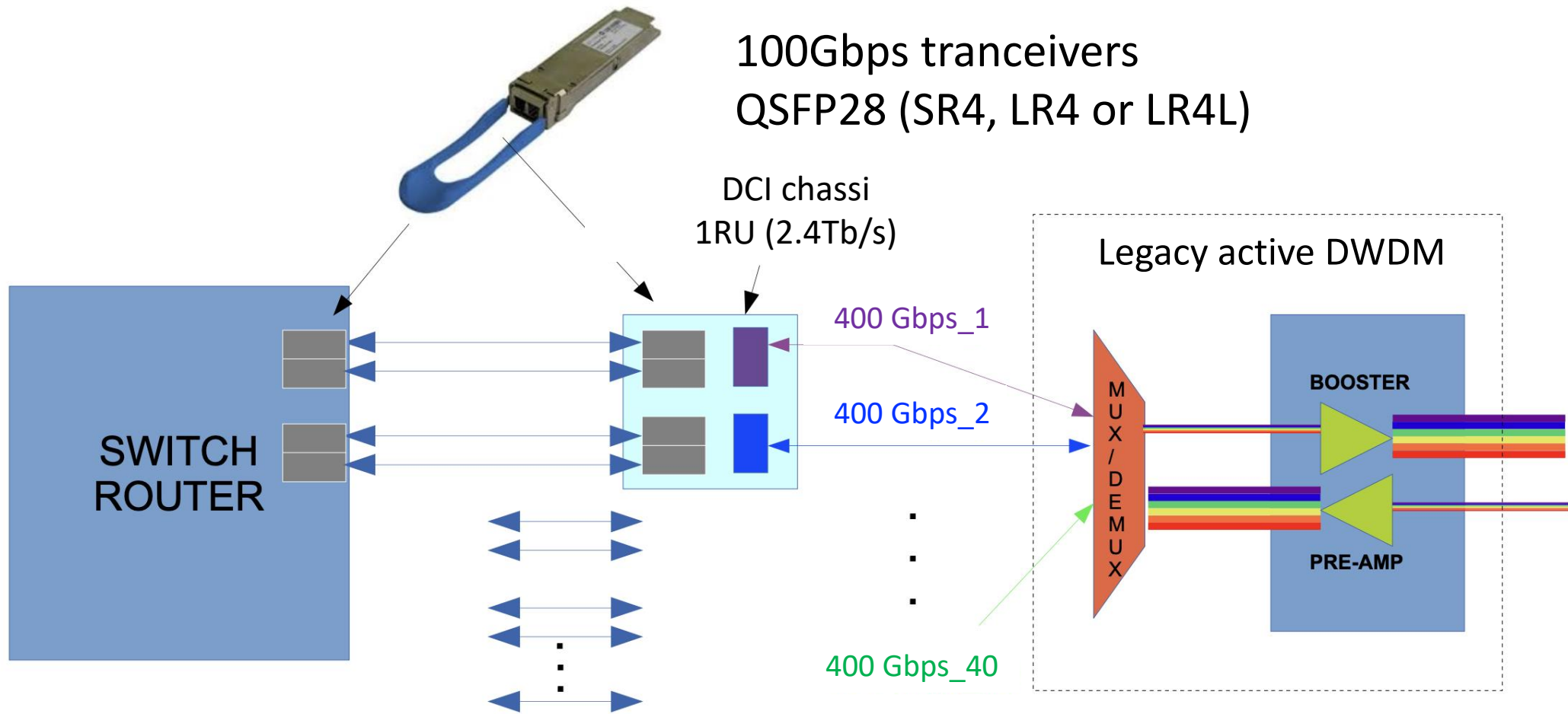


Passive DWDM (20 km ???)

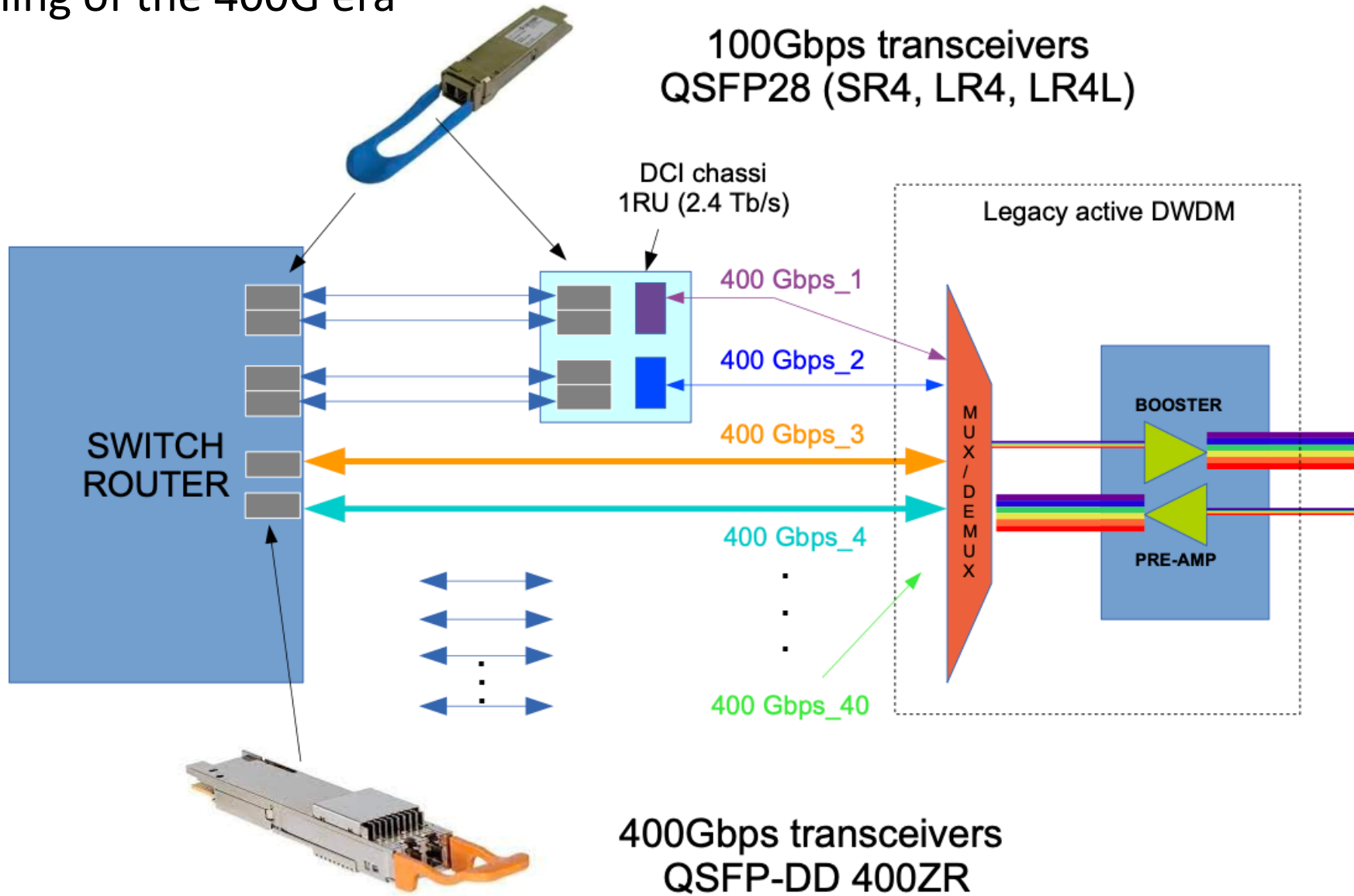
2017 – Beginning of the 100G era



2022 – End of the 100G era



2022 – Beginning of the 400G era



Network equipment

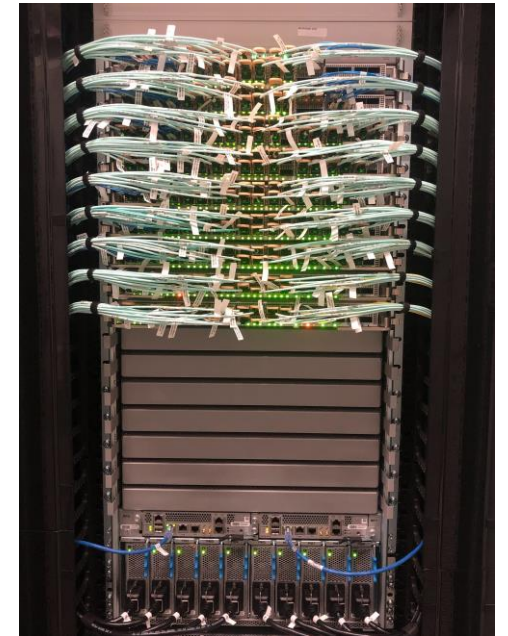
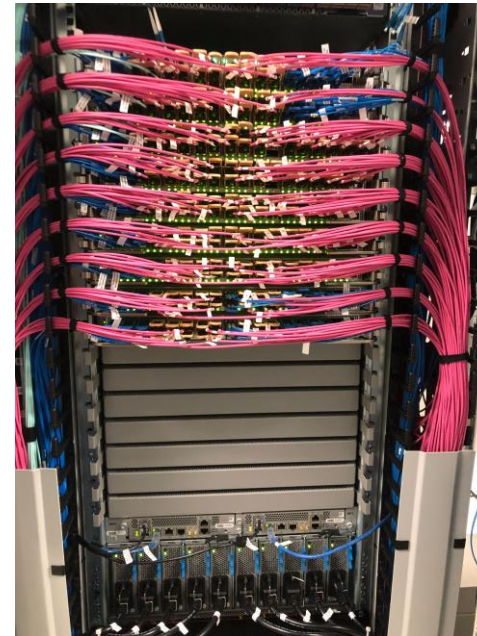
2016

8 line cards chassi
2 controllers
Fabric (n + 1)
Fans (n + 1)
Line cards: 36 x 100G
Total capacity: 288x100G = 28.8 Tbp/s
Typical consumption: 7,368W -> **25.6W/100G**



2022

16 line cards chassi
2 controllers
Fabric (n + 1)
Fans (n + 1)
Line cards: 24x100G+6x400G | 24x400G
Total capacity: 384x400G = 153.6 Tbp/s
Typical consumption: there are a few topologies to consider

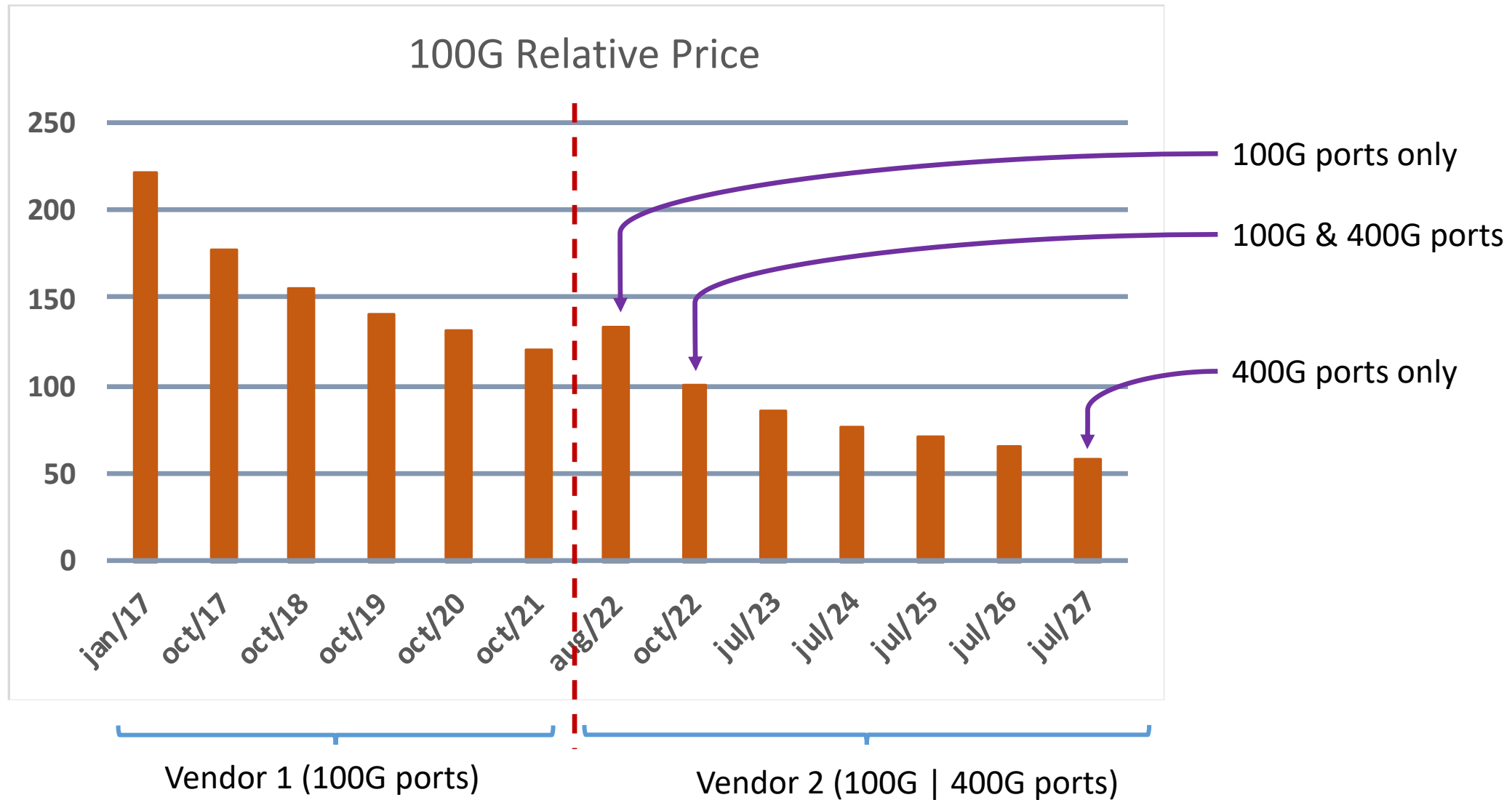


Network equipment

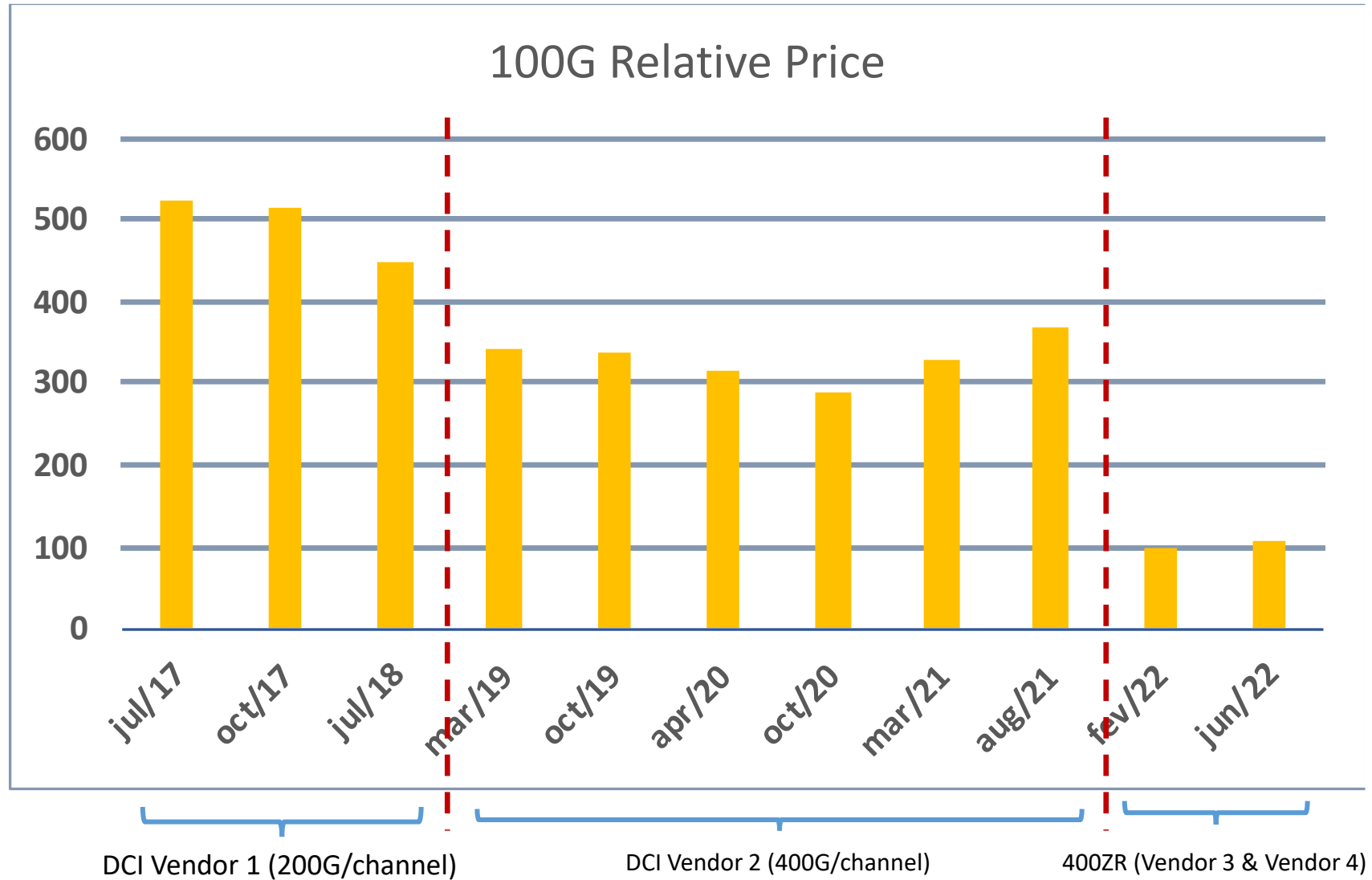
2022 network equipment tipycal consumption

COMMON W	LC CONFIG	LC W	XCVR W	W/100G	Total W
3,412	10 x (36x100G)	6,760	1,080	31.26	11,252
3,412	10 x (24x100+6x400)	6,760	1,620	24.57	11,792
3,412	10 x (24x400)	8,800	3,600	16.47	15,812
3,412	16 x (24x400)	14,080	5,760	15.14	23,252

Network equipment – price evolution

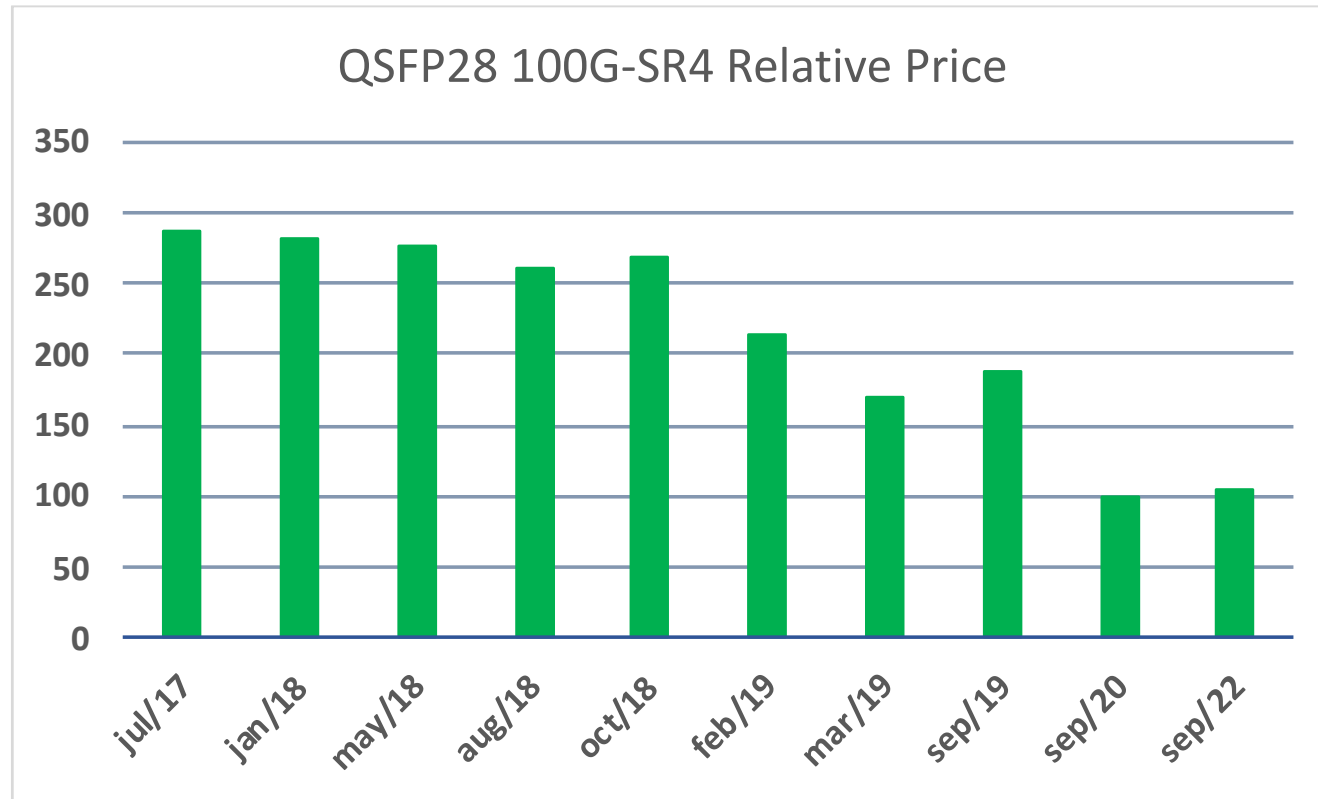


DCI equipment & 400ZR

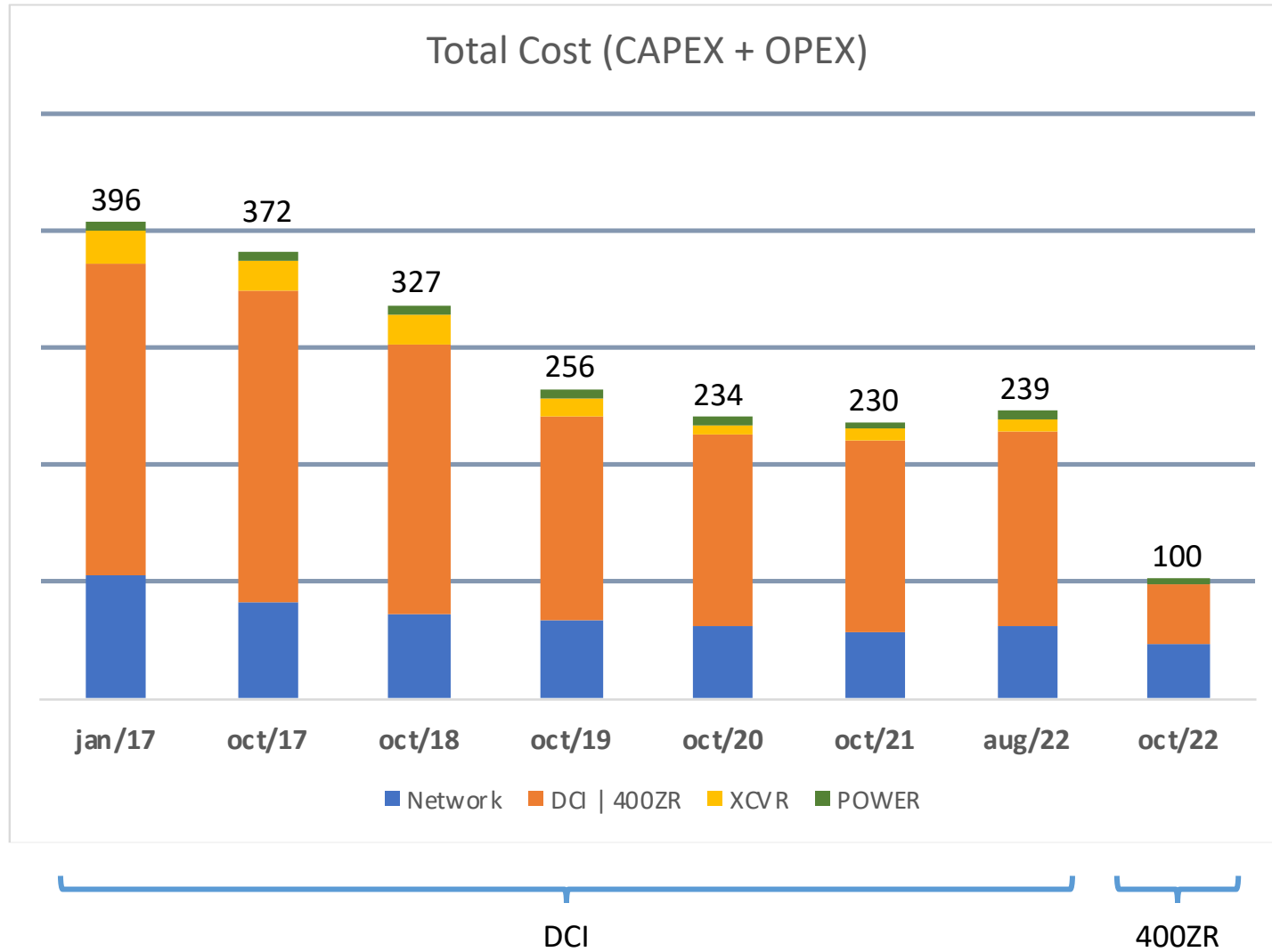


XCVRs and patch cords

Each 100G connection using DCI uses 2 x QSFP28-100G SR4 and one MPO multimode cord
A 400ZR connection uses Only a LC/PC monomode cord



Total costs (TCO + OPEX) / 100G



Comments about IX.br São Paulo core migration

- Space
- Power
- Lead time of equipment
- Lead time of XCVRs

DWDM Optical Layer

- No changes were made so far.
- There is a big concern about the maximum number of 400ZR channels per fiber span. Optical Signal to Noise Ratio is more important when compared to DCI use.
- Each 400ZR vendor has a different set of information about its operating status. Now we are trying to understand their values and behavior.
- A more detailed study about operation status may be required.

Next steps

- New equipment acquisition to increase 400G ports available
- Expand number of 400ZR channels
- Start the offer of 400G ports to participants

CGI.br members and former members
(only the current members have right to vote) →

GENERAL ASSEMBLY

7 members elected by the General Assembly →

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COUNCIL**

**AUDIT
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ADVISORIES:
CGI.br and PRESIDENT

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- 1 Chief Executive Officer
- 2 Administrative and Financial Director
- 3 IT and Services Director
- 4 Director of Special Projects and Development
- 5 Consulting Director for CGI.br activities

THE ROLE OF THE BRAZILIAN NETWORK INFORMATION CENTER – NIC.br



() New Federal Decree: constitution and structure of CGI.br.*

- The Brazilian Network Information Center is a non-profit civil entity that implements, since December 2005, the decisions and projects designed by the Brazilian Internet Steering Committee

Thanks !

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