

Tracking IP-over-DWDM Momentum as the Industry Turns Toward Convergence

from  LightReading

Weekly Lab Meeting

November 17, 2023

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Tracking IP-over-DWDM Momentum as the Industry Turns Toward Convergence

Across the industry, the IP-Optical networking revolution continues to gain momentum—and we're just getting started.

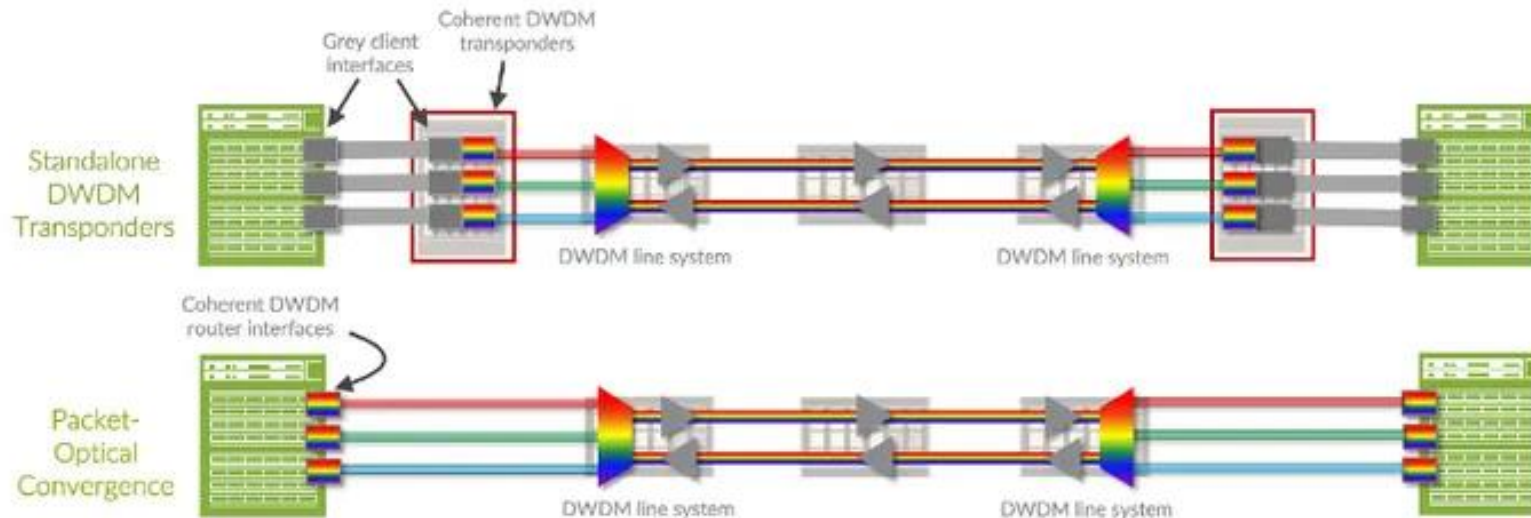
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- Last spring, Juniper Networks unveiled IP-over-Dense Wavelength Division Multiplexing (IPoDWDM) solution, the Converged Optical Routing Architecture (CORA).
- It was a signal to communications service providers (CSPs), cloud providers and enterprises alike that coherent optical transport and IP networking no longer have to live in separate worlds.
- They can flexibly extend 400G capacity and beyond to every part of metro, edge and core networks.

Setting the Stage for Convergence

Analysts forecast explosive growth in IP traffic over the next several years, increasing by more than 500% from 2021 through 2027.

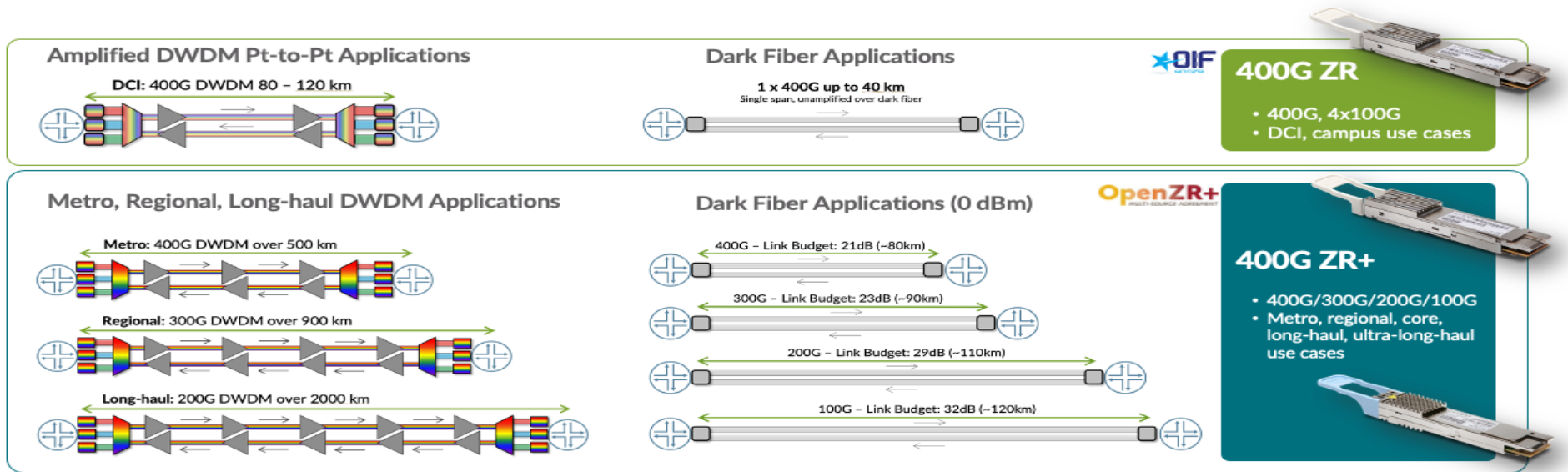
- **Reduce costs:**
Coherent DWDM pluggables maximize routing platform capacity, scale up link bandwidth and extend the reach to more customers and network locations without having to buy and maintain external DWDM equipment.
- **Simplify network architectures:**
IP-Optical convergence enables organizations to adopt new mesh architectures that consolidate previously siloed IP and Optical network layers into a unified system.



Setting the Stage for Convergence

- **Increase flexibility:**

With the ability to mix and match on the same line card client optics and different types of coherent DWDM pluggables, it becomes much easier to connect to prior unreachable locations and to cost-effectively add capacity in almost any metro, regional, core or long-haul network.

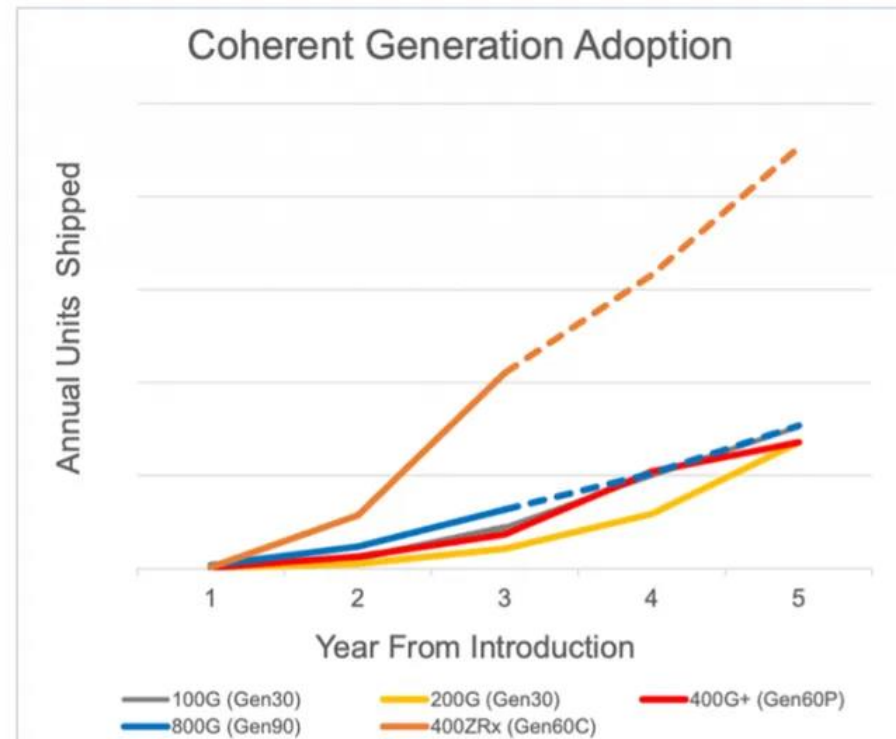


- **Improve sustainability:**

In a Juniper economic analysis, converged IP-Optical solutions like CORA consume 55% less power and generate 54% less carbon emissions than traditional architectures.

Converging Trends

- **Accelerating adoption of 400G coherent pluggable optics:**
 - In a 2022 *Heavy Reading* survey, 72% of providers said they currently use 400G coherent pluggables or plan to by the end of 2024.
 - At 2023 *Optical Fiber Communications Conference (OFC)*, Signal AI announced that 400G coherent DWDM optics had reached a market inflection point and are being adopted more quickly than any past coherent optical technology.



Converging Trends

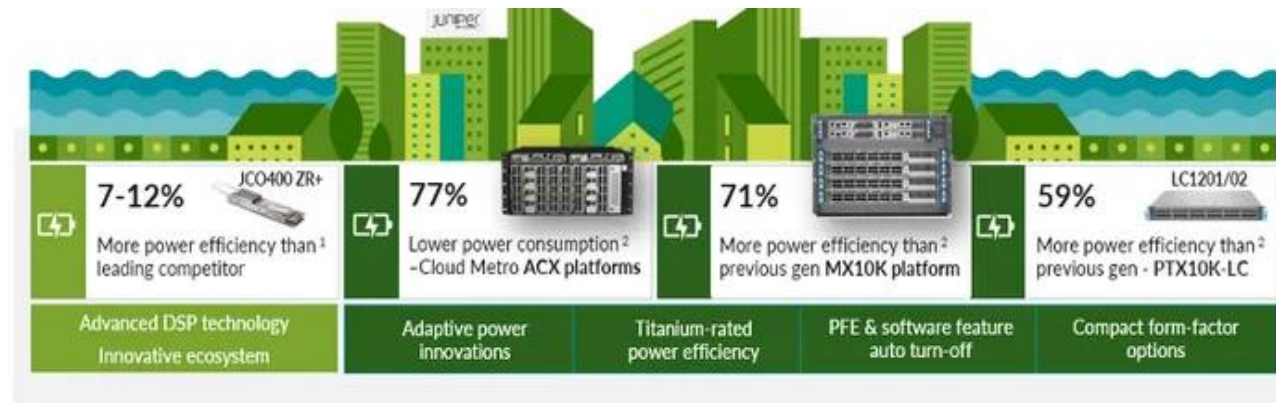
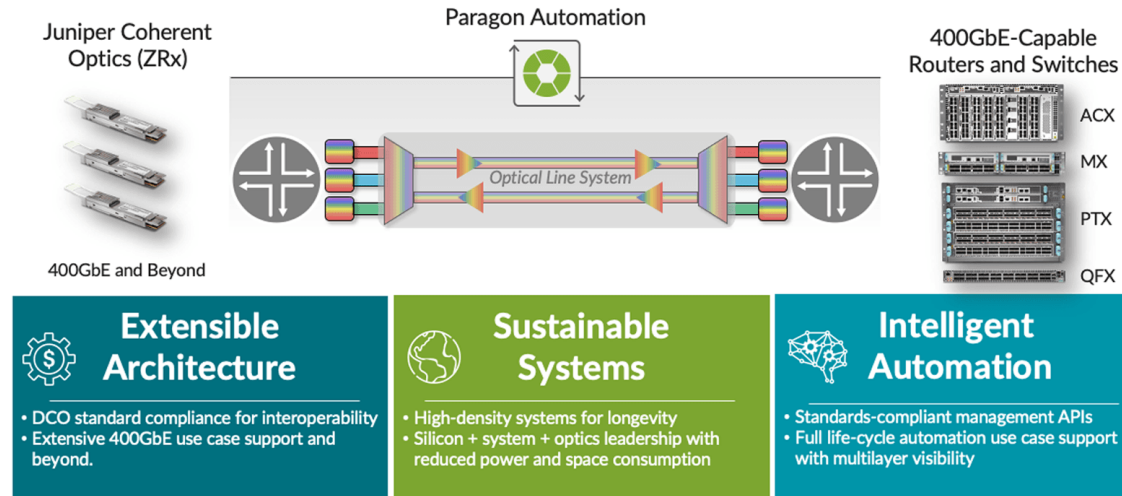
- **More operators exploring converged networks:**

In a recent *Heavy Reading* survey, more than 90% of providers reported planning to deploy converged networks by integrating optics in routers/switches within five years.

- **Increasing interoperability:**

At *OFC* 2023, for example, OIF showcased a live optical network featuring 400G ZR pluggables, including Juniper's JCO-series 400ZR coherent transceivers, where Juniper's MX304 multi-service router interoperated with pluggables from 12 different vendors.

Juniper Leads the Way in the IPoDWDM Revolution



Juniper coherent optics + systems are better together
54% more power efficiency than traditional transport systems

References

- [1] <https://www.lightreading.com/optical-networking/tracking-ip-over-dwdm-momentum-as-the-industry-turns-toward-convergence>
- [2] [White paper: Reimagine IP over DWDM with Juniper's Converged Optical Routing Architecture \(PDF\)](#)
- [3] [Blog: Making the Dream of Packet-Optical Convergence a Reality: Juniper Networks' Converged Optical Routing Architecture \(CORA\)](#)



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and
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