IOWN INTEGRAL

NTT R&D FORUM 2024

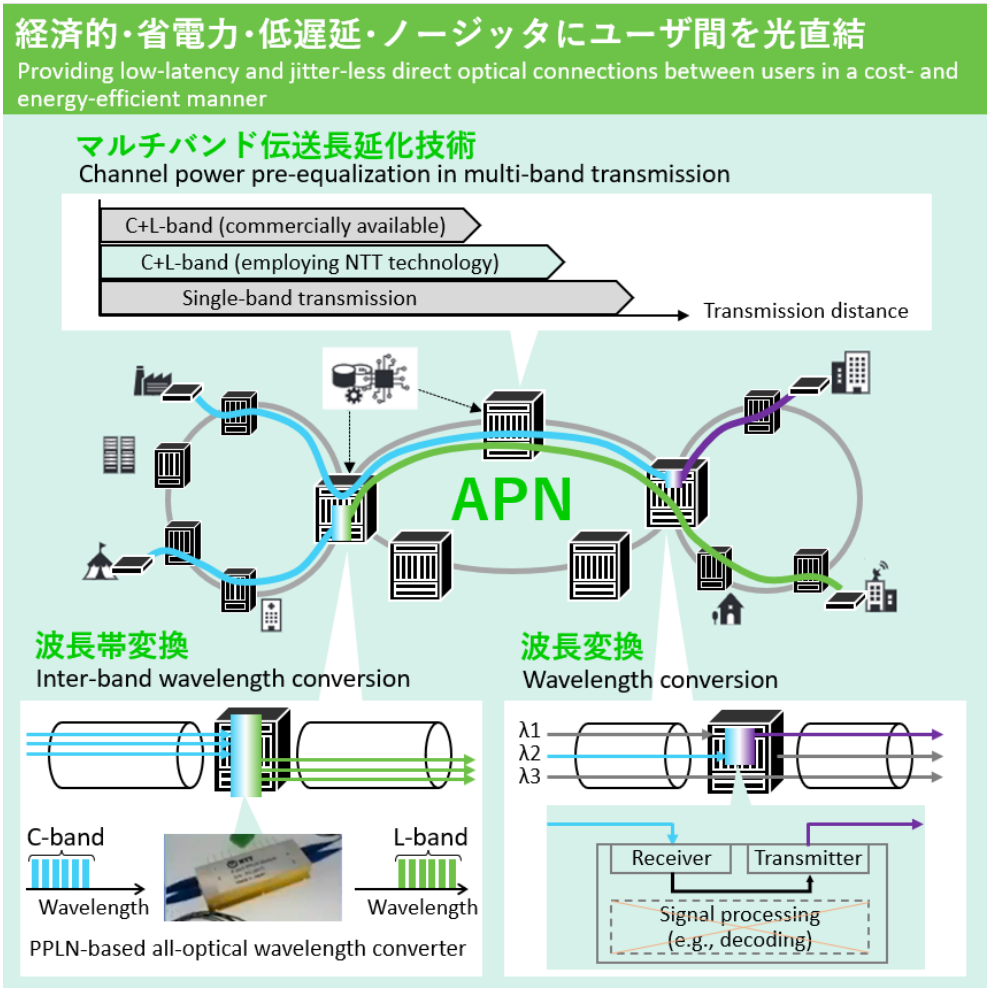
DEVELOPMENT

δ 04-01

Toward future APN: Novel transport system employing wavelength converter for end-to-end direct optical connections

Future APN offers an economical and power-efficient social infrastructure by utilizing existing facilities and minimizing electrical processing

#Business Resilience



///Technical Issue

Providing end-to-end optical connections across multiple domains without conventional optical/electrical conversions.

///Research Goal

Highly immersive services will be available by providing end-to-end direct connections between users with higher capacity, lower power consumption, and lower latency.

---Technology

- Inter-band wavelength conversion enabled by NTT's cutting edge PPLN device.
- Wavelength conversion without electrical processing.
- Channel power pre-equalization that analytically calculates the optimal fiber launch power for multi-band transmission.

---Novelty

Direct optical connections can be provided between users energy efficiently by eliminating additional hardware for long-haul multi-band transmission and electrical processing within wavelength conversion.

---Applicable Business

In the network infrastructure and the network service business areas, network capacity can be expanded cost-effectively while utilizing existing facilities such as fiber infrastructure and transport systems. In addition, End-to-end optical path enables highly immersive services that require high-capacity and low-jitter communication environment. Moreover, by leveraging wavelength conversion, direct connections can be setup across multiple operators while concealing owned facility information. (available in FY 2028)

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