Ultra High Speed Wavelength Selective Switching Technique for Optical Aggregation Network

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Optical Aggregation Network

- The Internet is composed by many routers.
- Energy consumption of all routers are increasing as below.

\[ \text{Agg...} \]

Energy Consumption of all routers : \(13\text{TWh} = \text{Energy from two whole nuclear power plants.}\)

Proposed Optical Aggregation Network Topology

\(<\text{Features}>\)
- Multiple wavelengths per OLT
- Density-based bandwidth allocation

Proposed WDM Network
(Wavelength Division Multiplexing)
- \(40\text{Gbps per Wavelength}\)
- \(40\text{ Wavelengths}\)

PLZT Optical Wavelength Selective Switch

\[\text{AWG per outgoing fiber}\]

PLZT SW(※) per wavelength

ONU (Optical Network Unit)

Countryside

Metropolitan City

Customer and business customer
ISP and Contents Provider
※Source: Ministry of Internal Affairs and Communications (MIC) Japan

Energy Consumption of all routers : \(13\text{TWh} = \text{Energy from two whole nuclear power plants.}\)

Reduce the energy consumption of routers for saving the earth

Consumer and business customer
ISP and Contents Provider

※Source: Ministry of Internal Affairs and Communications (MIC) Japan

PLZT : Plomb Lanthanum Zirconate Titanate
PLZT Optical SW is developed with EpiPhotonics Ltd.