

## Novel Optical Cross-Connect Device

### Background:

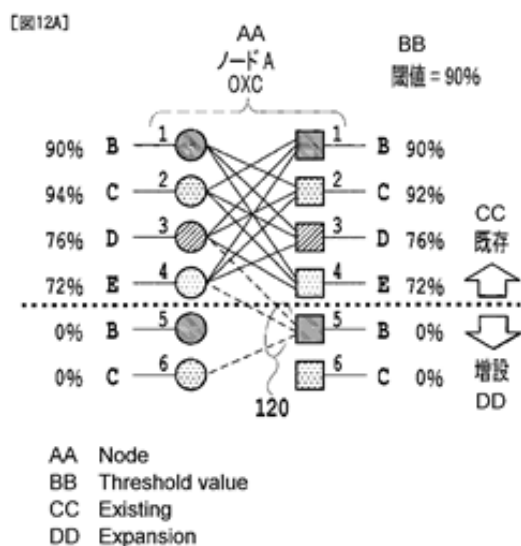
A traditional Optical Cross Connect (OXC) device requires a large quantity of expensive Wavelength Selective Switch (WSS). The expansion to the extent of increase in traffic of a node is impossible since it has very limited scalability.

### Technology Overviews:

Nagoya University researchers have successfully invented a novel OXC architecture that allows hitless expansion and matches routing performance of conventional OXCs.

This novel OXC uses smaller WSS and internally connects the WSS, irrespective of the number of input and output ports. It also reduces the cost and can be expanded flexibly and economically, stepwise only as necessary and without limits in accordance with the initial state of traffic and subsequent increases of traffic.

### Fig. Intra-node interconnection:



### Benefits:

- Scalability of OXC port count to meet periodic network expansion at minimum cost.
- High efficiency: degradation is less than 2% even if the traffic grows 40 fold.
- Simplicity: Port count and the number of WSSs are reduced more than 75 and 80% respectively.

**Further Details:** Kosuke Sato *et al.*, Algorithm for raising OXC port count to meet traffic growth at minimum cost. IEEE/OSA Journal of Optical Communications and Networking. Volume: 9, Issue: 2, Feb. 2017

**IP Status:** A patent application has been filed.

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