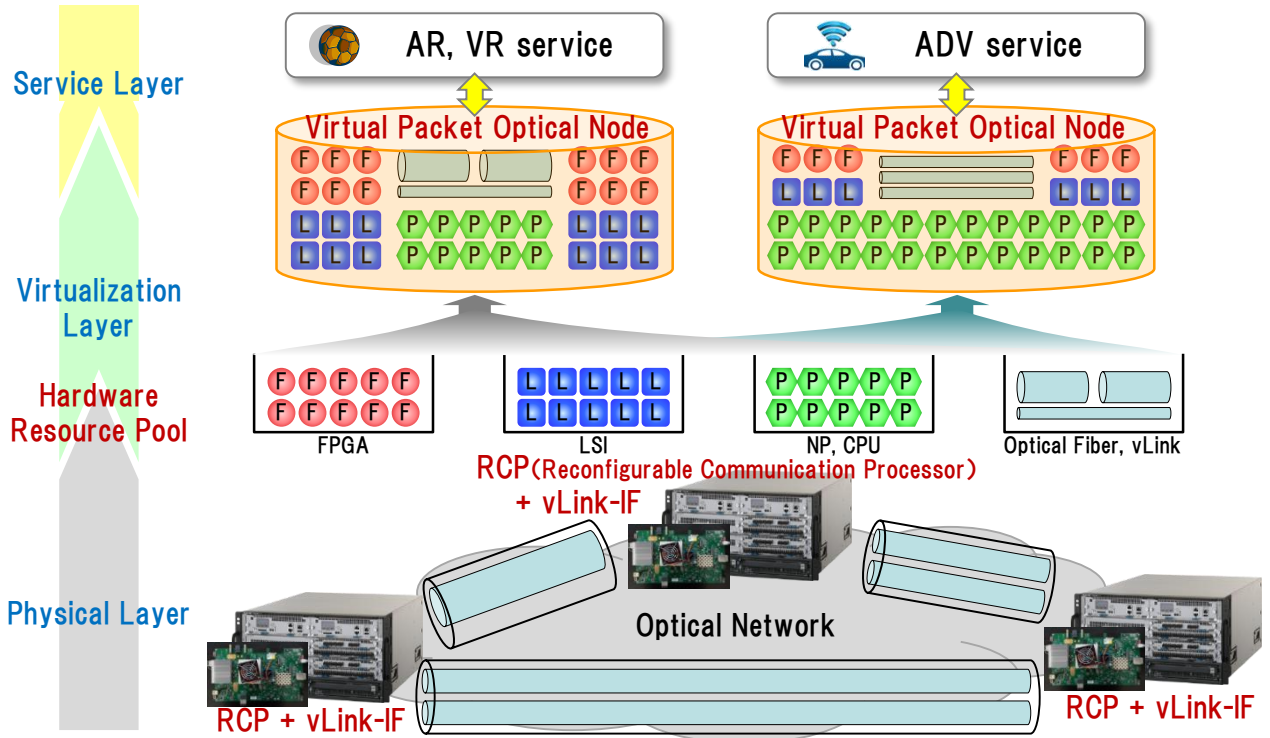


“Reconfigurable Communication Processor over Lambda” Project

ALAXALA Networks Corporation, NTT Network Innovation Labs., Keio University

Concept

Virtual Packet Optical Node: is constructed with Reconfigurable Communication Processor resources interconnected via high-speed and flexible optical network. “Resource pool” of hardware modules on RCPs can adaptively provide multiple service slices.

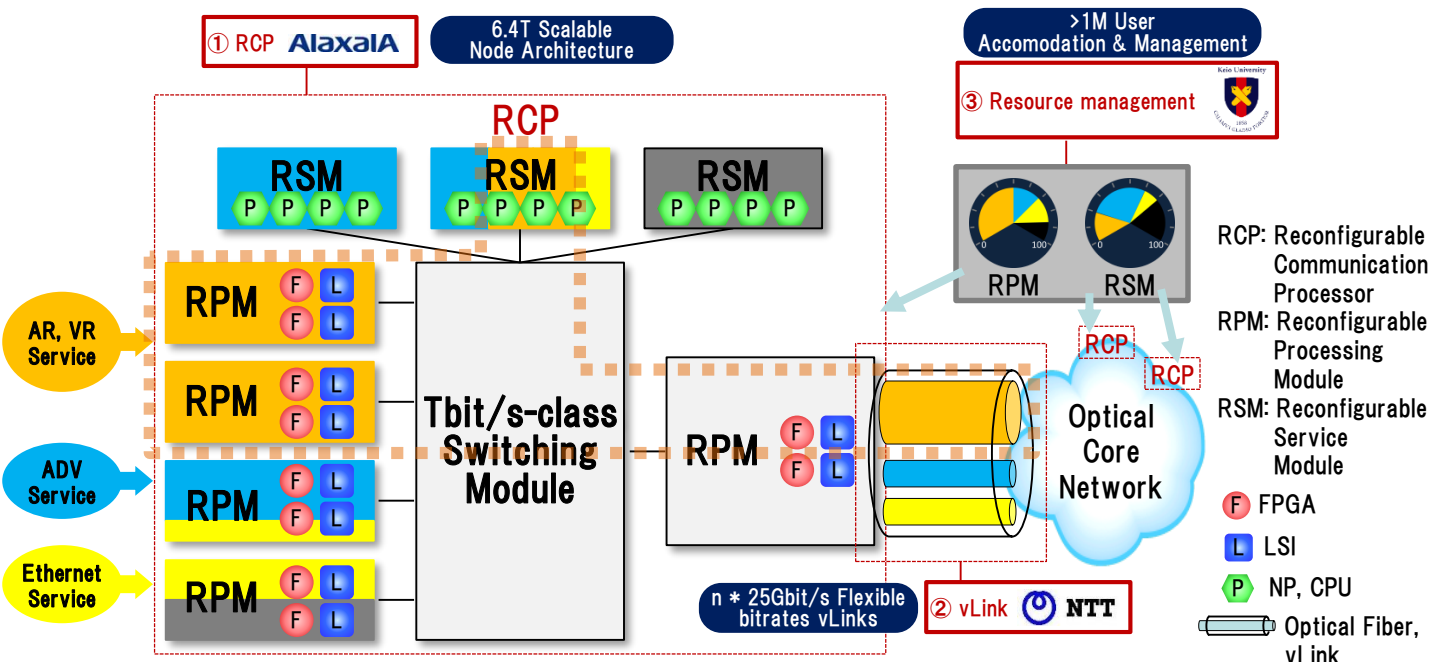


AR: Augmented Reality VR: Virtual Reality ADV: Autonomous Driving Vehicle

RCP Architecture

Reconfigurable Communication Processor (RCP):

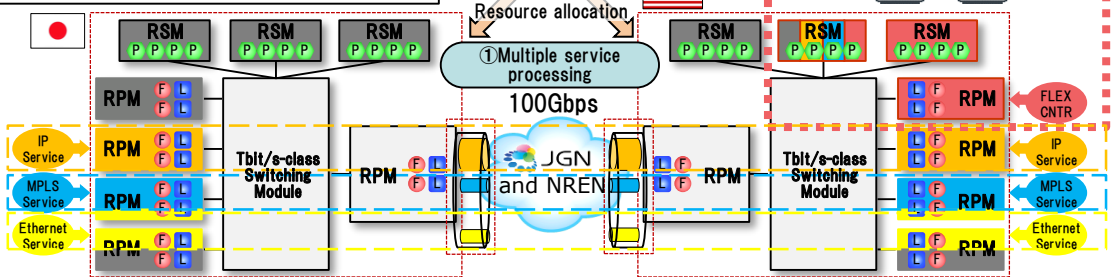
is composed of **RPM** (Reconfigurable Processing Modules), **RSM** (Reconfigurable Service Modules), and Tbps class (optical) switch modules which interconnect with intra/inter RCP modules.



Hardware technique for B100G reconfigurable communication processor

- Goal : Establishment of hardware technique to support Multiple functions as IP, MPLS, and Ethernet flexibly by using B100G reconfigurable communication processor
- Study: Reconfigurable hardware technique of co-designed and resource-pooled FPGA, LSI, and NP/CPU that processes 400Gbit/sec, and expandable to 1Tbit/sec.

- ① To demonstrate multiservice processing as IP, MPLS, and wide-area-Ethernet by flexibly reconfiguring communication processor
- ② To demonstrate a service to visualize 100 Gbps real-time network by flexibly reconfiguring packet counter hardware

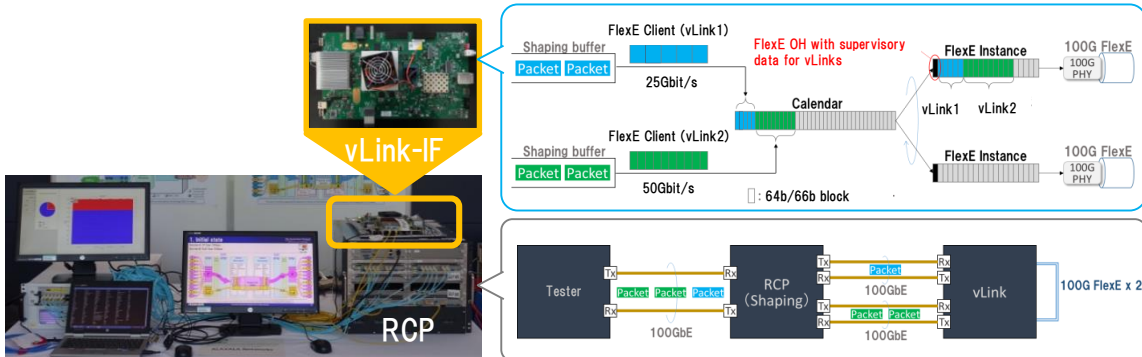


Monitoring technique for B100G reconfigurable interfaces

- Goal : Establishment of monitoring technique for realizing hi-reliable Flexible Channelized Link (vLink) on B100G interfaces
- Study: Advanced interface monitoring technique for realizing flexible optical transmission band by 50 Gbps granularity

- To device generation and condition monitoring method for vLink based on Flex Ethernet(FlexE)
- To confirm the capability of vLink generation and condition monitoring with 25 Gbps granularity
- To confirm good operability and observability of vLink on interconnectivity testing with RCP

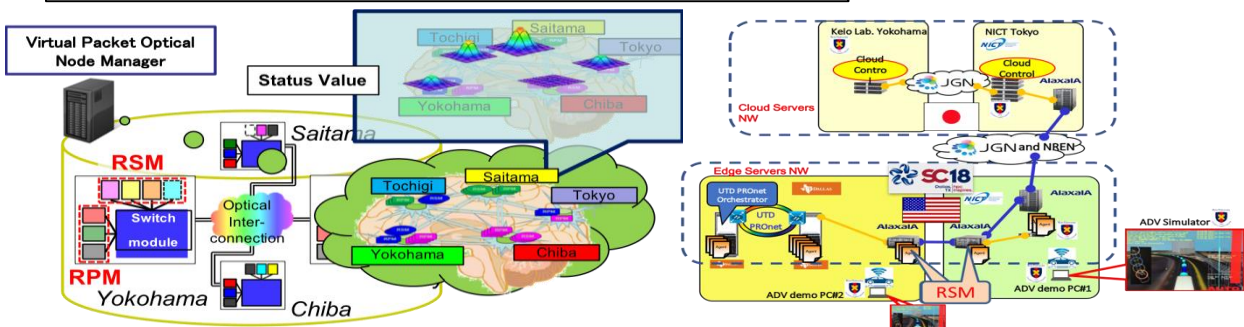
vLink condition monitoring method, implementation and interconnectivity test



Resource management technique for B100G Reconfigurable Hardware

- Goal: Establishment of controlling technique for handling single or multiple nodes of B100G class reconfigurable hardwares (RCP) as a resource pool in optical transport network.
- Study: Hardware resources control technique that achieves controlling virtualized resources using resource pools with over million users in whole network.

Concept verification by RCP Simulators and actual machine of RSM prototypes.



Virtual Packet Optical Node control using the Biological Attractor Selection RSM Application : Autonomous Driving Vehicle Control in SC18 Dallas