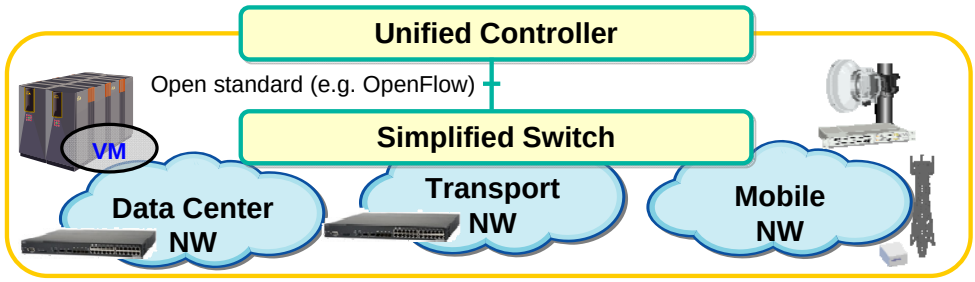
Empowered by Innovation NEC

Toward Real IT/NW Integration

Unified Platform for Future Network

Unified Platform for Data Center, Transport and Mobile Networks

Until now, applications and IT services have been realized on a common IP network. But service innovation fuels the demand for tighter coupling of IT services and applications with the network, making the network infrastructure increasingly diverse. Quick, easy and cost-efficient customization of the network is desired. To satisfy these needs, NEC proposes the concept of a unified, yet largely configurable platform. The platform is based on a unified network layer that gains its configuration and customization capabilities from an associated controller. The controller can create virtualized networks per service/application on a physical network. Each virtualized network can be customized based on policies in the controller. The controller uses open interface protocols, such as OpenFlow, to configure, monitor and control network and IT resources.



Benefits

■Service oriented information flow optimization

Our concept can easily integrate network control with other applications, services and systems, since our concept takes a centralized control approach. For example, integration with IT services realizes on-demand NW/IT resource (re-) allocation (e.g. VM migration) in both public and private clouds. Similarly, integration with mobile networks may provide fine-grained QoS control for VoIP in mobile backhaul networks in addition to 3GPP nodes.

Furthermore, new services and their particular QoS requirements can easily and quickly be accommodated by adding policy configurations to the controller.

■CAPEX/OPEX reduction

Our concept has two aspects for CAPEX/OPEX reduction.

First, there is unified equipment and management for IT and NW resources. Our solution is based on the use of a single kind of switch, not various types of network devices (e.g. routers and L2 switches) as is common today. The various capabilities (firewall, load balancing, etc.) are then realized on top of the switches. This model reduces the effort needed for network configuration and maintenance.

Second, there is resource utilization improvement through IT/NW integrated management by setting optimized data path per service and/or user. For example, when traffic volume is small, data paths can be aggregated on specific switches and unused switches can be turned off for power-saving.

Acknowledgment
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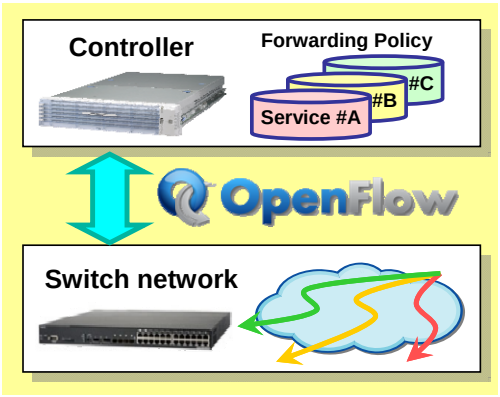
Products & Solutions

■ ProgrammableFlow

To realize above concept, NEC is developing new products and solutions called "ProgrammableFlow".

"ProgrammableFlow" supports state-of-the-art technologies, incl. OpenFlow [1], to improve reliability and flexibility of networks. OpenFlow separates the control logic of a switch from the physical device, exporting it to an external controller. Controlling the forwarding rules of a switch from an external controller ensures efficient and optimal routing in the network, including failure avoidance, load balancing, and QoS assurance.



[1] http://www.openflowswitch.org/

NEC Corporation
http://www.nec.com/