

System achieves six times faster data transmission between virtual machines

4 November 2014

NTT DOCOMO and NEC Corporation announced today their completion on October 31 of proof-of-concept trials to confirm up to six times faster data transmission between multiple virtual machines by utilizing network interface cards (NICs) with Virtual eXtensible Local Area Network (VXLAN) offloading.

The trials verified that a cloud system configured with open-source OpenStack Neutron, the cloud networking controller within the promising cloud management software OpenStack, is capable of up to 16 Gbps [data transmission](#) between virtual machines on two different physical hosts.

DOCOMO and NEC developed high availability (HA) capability for OpenStack Neutron's network controlling process. The HA is achieved by enabling multiple networking controllers to instantly take over a failed network controller. The combination of this HA and the huge increase in data transmission speed verified by the trials now qualifies OpenStack Neutron for commercial use. DOCOMO expects to introduce OpenStack Neutron on a commercial basis to provide faster and more stable cloud services within the fiscal year ending in March 2016.

The trials, the largest scale ever involving OpenStack Neutron, were conducted in cooperation with the National Institute of Information and Communications Technology, VirtualTech Japan Inc., NTT Advanced Technology Corporation, Japan Advanced Institute of Science and Technology, Tokyo University and Dell Japan Inc. The large-scale emulation testbed StarBED, a platform for simulating internet environments with over 1,000 physical servers, was used in trials conducted from August 25 to September 24, after which verification of the results was carried out from September 25 to October 31.

Specifically, the trials verified 1) system stability for the provision of up to 5,000 virtual machines on

100 physical servers, 2) degrees of performance for NIC with VXLAN offloading, 3) network configuration achieving over 10 Gbps on [virtual machines](#) and 4) the HA capability of OpenStack Neutron with several virtually separated networks.

DOCOMO and NEC will announce the results of the [trials](#) on November 4 at the OpenStack Foundation's OpenStack Summit 2014 taking place in Paris from November 3-7. The two companies, which have participated in the OpenStack Foundation since 2012, have been providing specifications and source codes (e.g. General Bare-Metal Provisioning Framework, a physical server management technology) to the foundation.

Going forward, DOCOMO and NEC will continue working through the OpenStack Foundation to help upgrade cloud-based mobile services, which are expected to become a mainstream application for LTE-Advanced and future 5G mobile networks.

Provided by NTT DOCOMO

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