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NTT Press Releases

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Nippon Telegraph and Telephone Corporation
Cisco Systems G.K.
Juniper Networks, K.K.
Hewlett-Packard Japan, Ltd.

Use Case of Service Chaining Approved as a Proof of Concept by European Standards Organization ETSI¹ ~Applying Service Chaining Method to Multivendor Environments~

NTT(President & CEO: Hiroo Unoura), Cisco Systems G.K.(President & General Manager: Yasufumi Hirai), Juniper Networks(President & Representative Director: Jeffery Brown), and Hewlett-Packard Japan(President & Managing Director: Shinichi Koide)have proposed a trial use case of service chaining that has been approved as an authorized PoC (Proof of Concept) by NFV², a part of the European standards organization ETSI¹. This is the first such trial use case in Japan (the second in the world) that NFV has approved as a PoC.

The service chaining method NTT proposes aims to enable each customer to select and apply several virtualized network functions; therefore, interoperability³ is an important factor. Accordingly, NTT worked closely together with Cisco Systems, Juniper Networks, and Hewlett-Packard Japan in submitting the use case proposal to NFV.

The trial is scheduled to be demonstrated at "NTT R&D Forum 2014", which will be held at NTT Musashino R&D Center on February 13-14, 2014.

1. Background and Goals of Trial

As cloud services expand, servers in data centers and elsewhere are increasingly turning to the use of virtualized appliances. Virtualization technologies can also be applied to networks, enabling them to be set up and configured rapidly by connecting them with virtualized servers.

Considerable attention has been focused on adapting virtualized network functions to carrier grade networks. ETSI and other organizations are moving forward with technologies for virtualizing appliances currently used on dedicated hardware and integrating them into COTS servers.

In the future we can expect to see many different types of virtualized appliances⁴ being amalgamated to construct virtual networks. This will enable carriers to construct and configure networks more flexibly and rapidly, which in turn will enable them to provide services more quickly and create new services more efficiently.

2. Features of Proposed Use Case(Fig.1)

Interoperability is an important factor in service chaining, in which virtualized appliances are interconnected in conjunction with networks. Our PoC Trial will demonstrate the service chaining multiple services from multiple vendors with interoperability. NTT Network Technology Laboratories is developing a service chaining method in which each packet is assigned an identifier to enable customers to select and apply virtualized functions on demand. The identifier shows a chain of virtualized network functions and forwards packets to them as appropriate.

In a trial we conducted for the proposed use case, we set virtualized appliances (vCPE⁵, vDPI⁶, vFW⁷) in the environment and verified that our service chaining method enabled customers to select and use the functions they needed.

With current IP routing technology, traffic handling is done by prefix aggregation and routing control according to IP address. This makes it difficult to transfer packets in accordance with each customer's policy. In contrast, the service chaining method NTT proposes enables carriers to rapidly provide appropriate services customized for each user.

3. Participating Companies and Roles

- NTT: Providing service chaining method
- Cisco Systems: Providing vDPI
- Juniper Networks: Providing vFW
- Hewlett-Packard Japan: Providing vCPE

(Cisco Systems, Juniper Networks and Hewlett-Packard Japan have other solutions for NFV also, and cover multiples service for NFV. Each service of this PoC is the one selected by NTT.)

4. Roadmaps

Our aim is to contribute to the standardization of service chaining methodology at organizations such as IETF⁸, together with other telecom carriers and vendors within and outside Japan. We also intend to continue research and development with the aim of applying service chaining to commercial networks within the next few years.

Annotations

- *1 ETSI (European Telecommunications Standards Institute)
A standards organization that handles the standardization of telecommunication technologies in Europe.
- *2 NFV(Network Functions Virtualisation)
An organization established within ETSI by carriers in December 2012 to promote the study of network virtualization technologies for carriers.
- *3 Interoperability
The ability for two or more software/hardware applications with different functions to work together.
- *4 Virtual appliance
Software with specific functions and applications that can be readily used in a virtualized environment.
- *5 vDPI (virtualized Deep Packet Inspection)
A function for determining packet handling procedures such as filtering on the basis of IP packet data segments.
- *6 vFW(virtualized Firewall)
A function to control traffic between networks to ensure a secure environment.
- *7 vCPE(virtualized Customer Premises Equipment)
IP functions such as NAT (Network Address Translation)and DHCP (Dynamic Host Configuration Protocol), used to connect devices under a user's home network to carrier networks.
- *8 IETF(Internet Engineering Task Force)
A standards organization that handles the standardization of technologies used in Internet communication.

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Attachment Reference

- ▶ [Figure: Features of Proposed Use Case](#) □

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