



**APT/ITU Conformance and
Interoperability Event 2015**
7 – 8 September 2015, Bangkok, Thailand



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NEC Corporation, Japan

TELECOM CARRIER SDN SOLUTIONS: vCPE

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APT/ITU Conformance & Interoperability Event 2015

Telecom Carrier SDN Solutions - vCPE -

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NEC Corporation

Orchestrating a brighter world

未来に向かい、人が生きる、豊かに生きるために欠かせないもの。
それは「安全」「安心」「効率」「公平」という価値が実現された社会です。

NECは、ネットワーク技術とコンピューティング技術をあわせ持つ
類のないインテグレーターとしてリーダーシップを発揮し、
卓越した技術とさまざまな知見やアイデアを融合することで、
世界の国々や地域の人々と協奏しながら、
明るく希望に満ちた暮らしと社会を実現し、未来につなげていきます。

Introduce NEC Activity in APAC

NEC in APAC

- 1 NEC in Thailand**
- NEC Corporation (Thailand) Ltd.
 - NESIC (Thailand) Ltd.
 - Nippon Express NEC Logistics (Thailand) Co., Ltd.
 - NEC TOKIN Electronics (Thailand) Co., Ltd.
 - NEC Platforms Thai Co., Ltd.

- 2 NEC in India**
- NEC India Pvt. Ltd.
 - ▲ NEC HCL System Technologies Limited
- Delhi, Mumbai, Dhaka

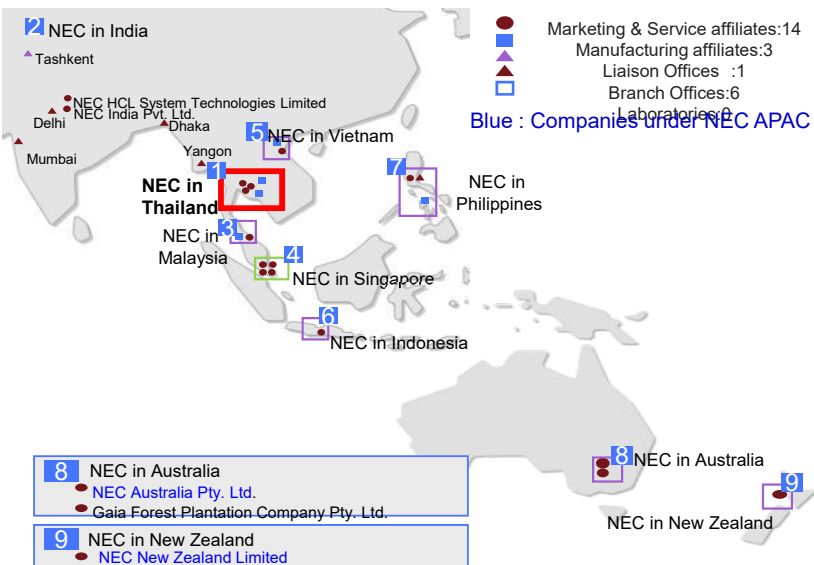
- 3 NEC in Malaysia**
- NEC Corporation of Malaysia Sdn. Bhd.
 - PERNEC Corporation Berhad

- 4 NEC in Singapore**
- NEC Asia Pacific Pte. Ltd.
 - Decillion Solutions Pte. Ltd.
 - NEC STE Cloud Services Pte. Ltd.
 - ObTech Asia Pacific Pte. Ltd.

- 5 NEC in Vietnam**
- NEC Vietnam Co. Ltd.
 - VINECO Telecommunication Systems Joint Stock Company

- 6 NEC in Indonesia**
- P.T. NEC Indonesia

- 7 NEC in Philippines**
- NEC Philippines, Inc.
 - ▲ NEC Telecom Software Philippines, Inc.
- Manila



(As of Apr. 1, 2013)

NEC Corporation (Thailand)

President : Mr. Hiroshi Sato

Established : 1st April, 2003

Employee : 350+

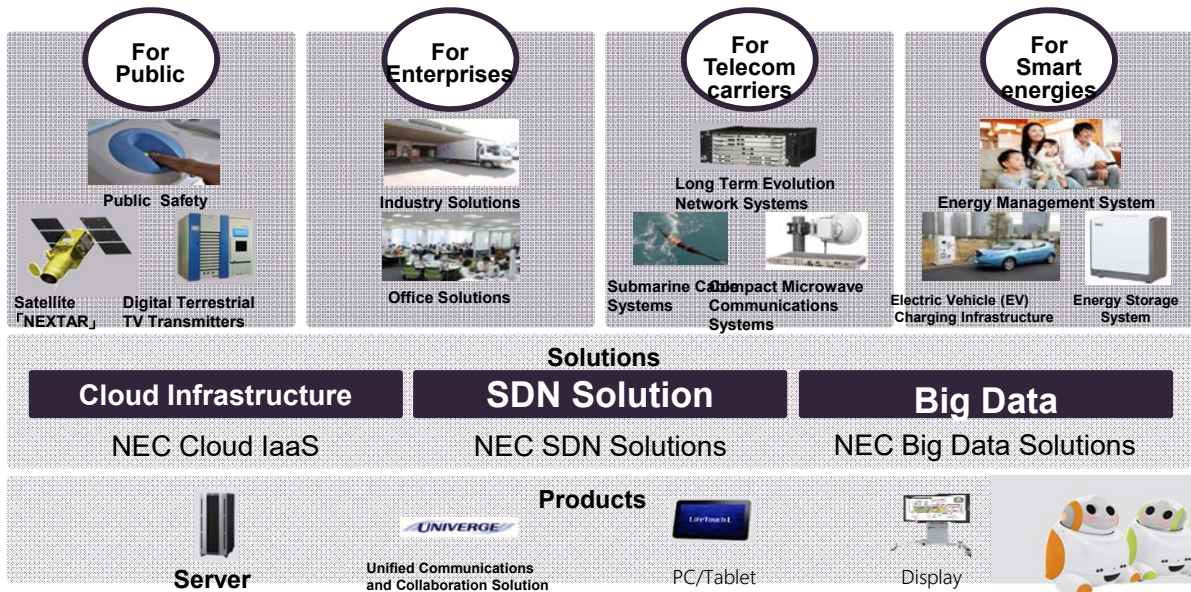
History :

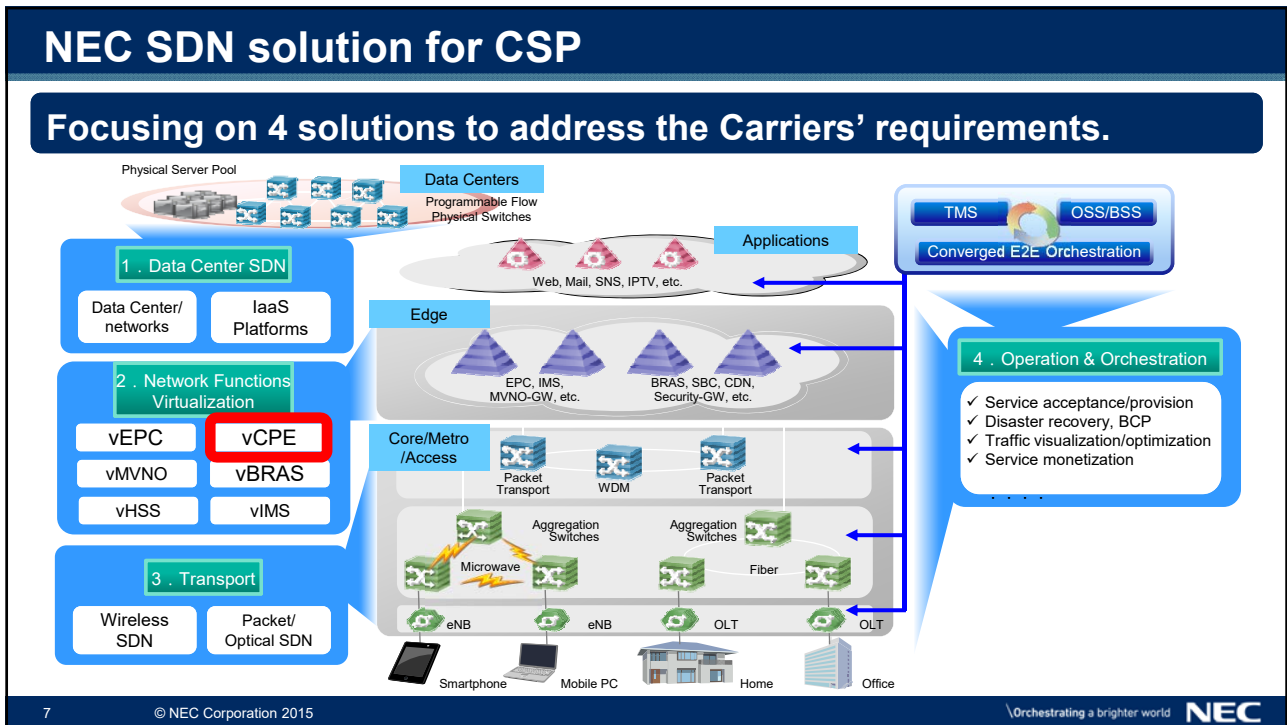
NEC has been contributing for **IT and Network** society in Thailand for over 50 years. Through “C&C” concept which was introduced as the integration of Computer and Communication technology.



- In 1962, NEC established Bangkok Representative Office
- In 1967, NEC supplied a cross bar switching system to TOT
- In 1981, Digital switching system were supplied to Thailand
- In 1987, NEC Thailand Ltd. was founded
- In 2003, NEC Corporation (Thailand) Ltd. was founded

Business domain of NEC





Key Benefits of NFV

CAPEX reduction

- Network infrastructure commonly used for various services.
- Optimized resource provisioning according to network demand.

OPEX reduction

- Automatic provision and configuration through end user requirements.
- Automated maintenance and trouble shooting, reducing site visits.

Flexible and faster new revenue creation

- Small start, easily scaling service sizing in later stage.
- Prompt network building for a new service on common NFV infrastructure resources.

Resiliency for traffic surge and disaster

- Service continuity by switching over the service to geographically remote site at disaster.
- Flexible resource allocation and traffic handling among multiple sites according to demands

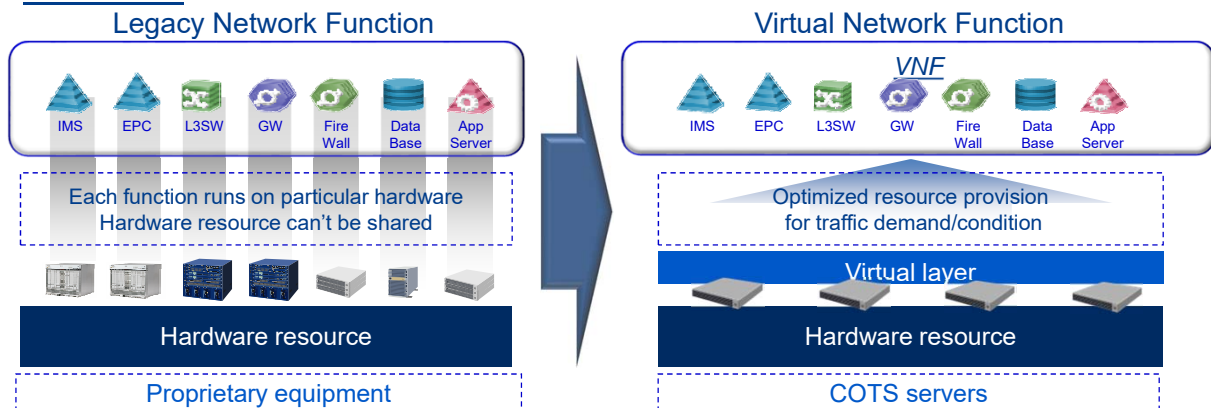
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NEC NFV solutions

- Network and Service node run on common Hardware by virtualization.
- TCO reduction and new revenue creation
- **Carrier-grade availability, carrier-scale capacity and high-density performance achieved in virtualization.**








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NEC NFV Solution

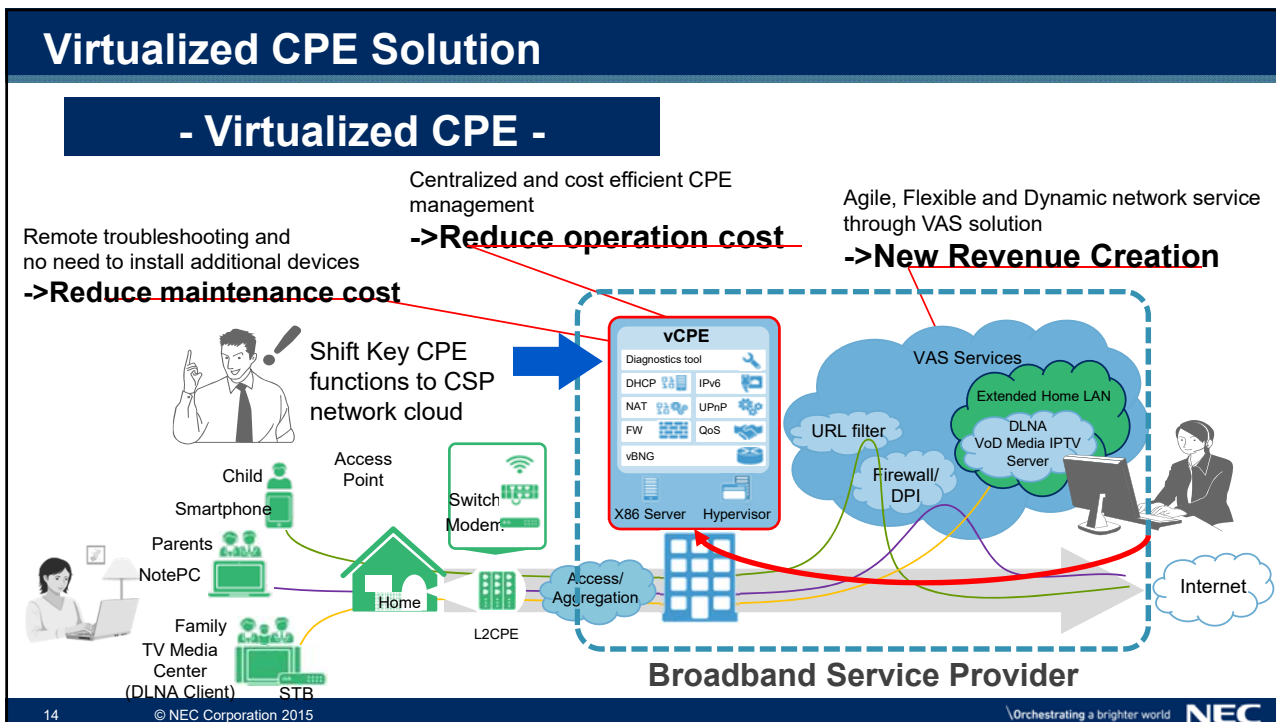
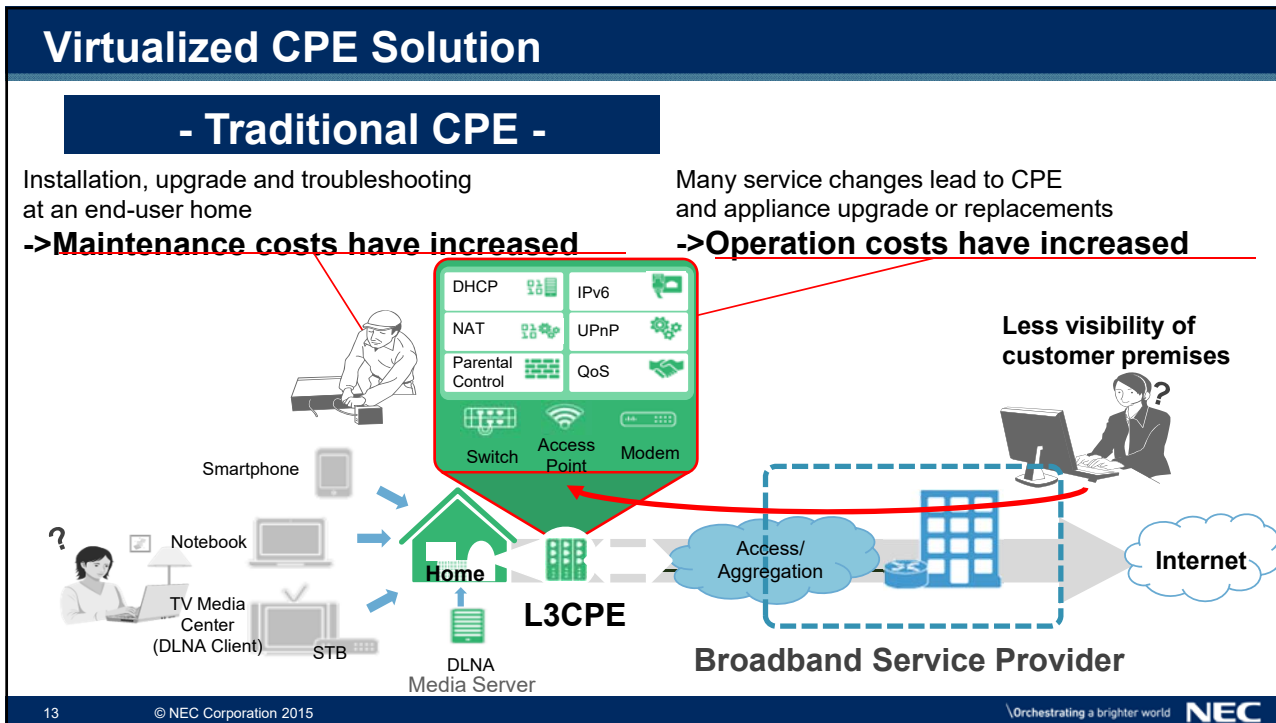
<h3>Openness</h3> <ul style="list-style-type: none">■ COTS hardware■ OpenSource software platform■ Industry standards 	<h3>Interoperability</h3> <ul style="list-style-type: none">■ Proven multi-vendor environment support■ Various cross vendors PoC and field service operation experience 	<h3>Scalability</h3> <ul style="list-style-type: none">■ Auto-scaling and on-demand deployment 
<h3>Operation Efficiency</h3> <ul style="list-style-type: none">■ Intelligent and automated resource allocation, scaling, recovery/healing■ Real-time closed loop optimization 	<h3>Carrier-Grade</h3> <ul style="list-style-type: none">■ Enables resiliency, stability, reliability, performance <p>99,999% availability</p>	<h3>Business Opportunities</h3> <ul style="list-style-type: none">■ Quick new service startups and service development agility■ New revenue opportunities with dynamic service provisioning 

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vCPE



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Virtualized CPE Solution

Operation Cost Reduction

- ✓ OPEX optimization for subscriber support by minimizing engineer dispatch to customer premise
- ✓ Flexible service addition and home gateway upgrade can be done remotely by telecom carrier without replacing the hardware

New Revenue creation

- ✓ New revenue creation through flexible centralized services quickly
- ✓ Collaboration with 3rd Parties will enable to quickly expand the service portfolio that can be rapidly deployed to address large scale as well as niche markets

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NEC vCPE Solution Feature

Carrier Grade Quality

- ✓ Carrier grade performance, capacity and quality in virtualization
 - High performance throughput with best-tuned data processing
 - High capacity for carrier scale network
 - Rich expertise in technology for telco carrier business

Service agility and Telco-driven VAS

- ✓ Various solution line-up
 - vCPE residential solutions will expand to enterprise solution
 - Various 3rd party appliances with open eco-system
 - End-to-end solution including suite of professional services

Network Virtualization leadership

- ✓ Released commercial vCPE
 - Launched PoC followed by commercial trial from Apr. 2015.
 - NEC has rich deployment experiences in global through commercial trials.

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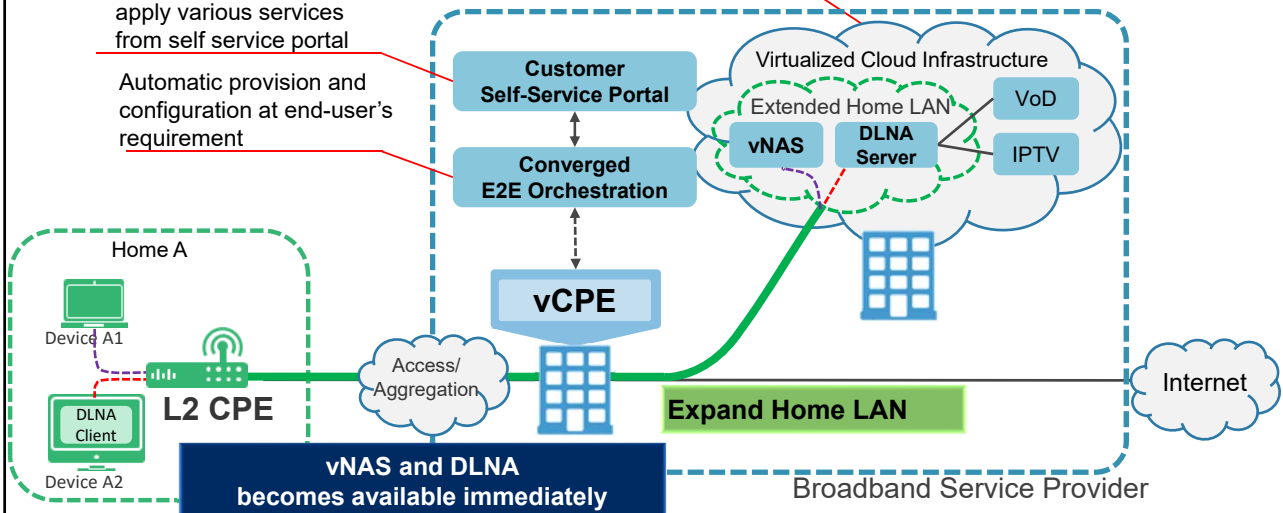
Residential vCPE -Home LAN Extension-

Expand business to Home LAN services

End-user can simply apply various services from self service portal

Automatic provision and configuration at end-user's requirement

End-user can add new services without upgrading their hardware assets



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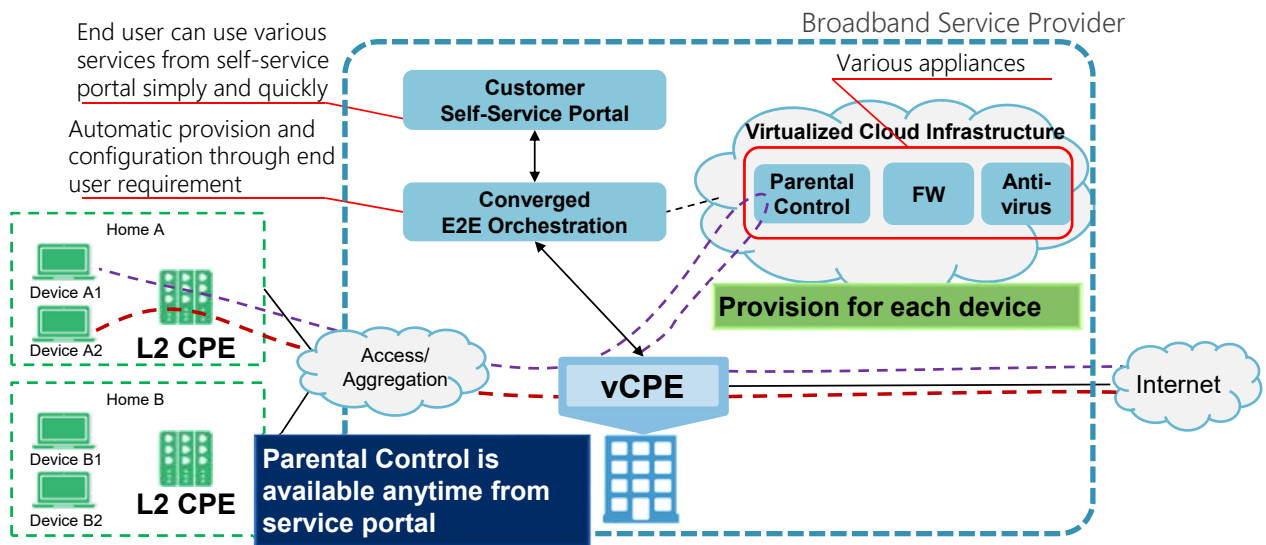
Residential vCPE -Per Device Policy Management-

Personalized service

End user can use various services from self-service portal simply and quickly

Automatic provision and configuration through end user requirement

Broadband Service Provider
Various appliances



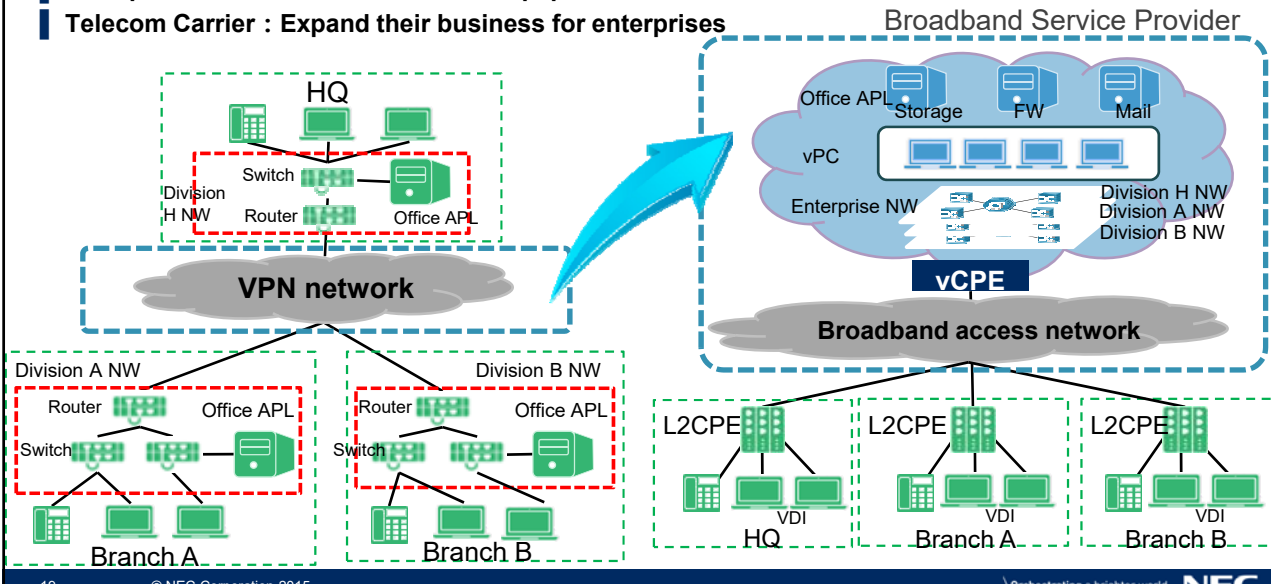
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[Reference] Enterprise vCPE

- Enterprise : Reduce costs for IT/NW equipment and maintenances
- Telecom Carrier : Expand their business for enterprises



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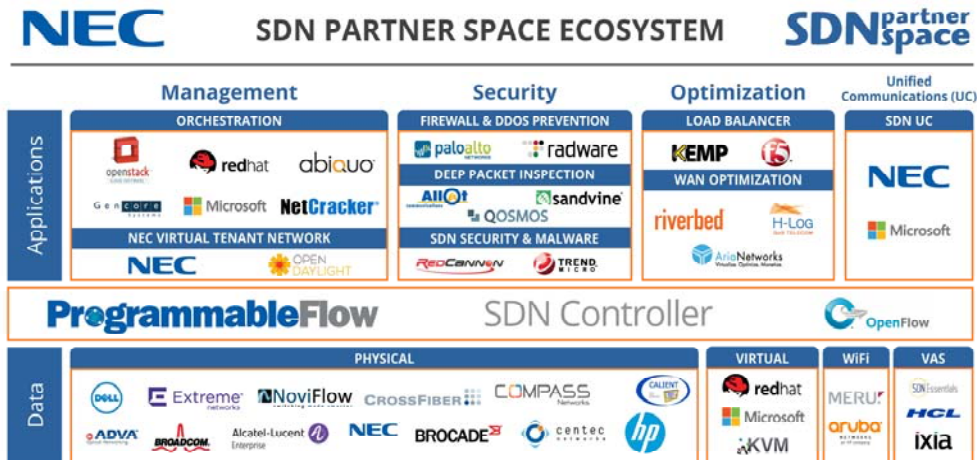
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NEC SDN Partner Space

NEC SDN Partner Space is an open SDN application ecosystem

- NEC realizes various services



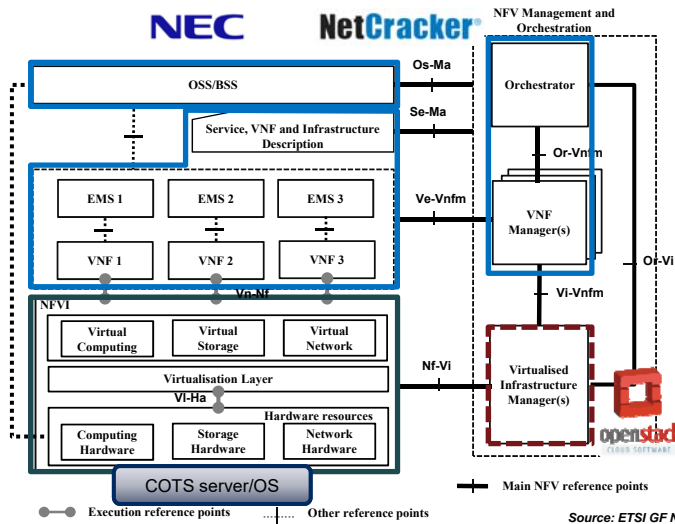
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NFV Open Ecosystem

NEC NFV solutions fully comply ETSI NFV standard. Each component provides open interfaces.



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