The Foundation of an Agile and Elastic Network

The Shifting Landscape

The combination of market conditions and network constraints is demanding the telecommunications industry to pursue a cloud-based model much like that adopted by the IT industry in order to simplify network operation, foster innovation, and increase long-term profitability. Network function virtualization (NFV) promises to transform the telecommunications industry.

Network Function Virtualization Infrastructure

As defined in ETSI’s reference architecture, the Network Function Virtualization infrastructure (NFVI) is a primary building block that enables the implementation environment for NFV. It provides a virtualized infrastructure for virtual network functions (VNF).

Cisco NFV Infrastructure

As the industry leader in cloud infrastructure and cloud services, Cisco has joined forces with number-one enterprise open source software provider Red Hat along with Intel to create a fully open platform to address carriers’ biggest business and technology challenges. The Cisco® NFV Infrastructure Solution is ETSI compliant and preintegrated. It offers carrier-grade high availability, reliability, and predictable performance to make sure of high-level customer SLAs.

Cisco NFV Infrastructure Building Blocks

**Compute:** Cisco Unified Computing System™ (Cisco UCS®) for a carrier class and reliable compute infrastructure.

**Storage:** Cisco UCS hardware and CEPH provide reliable storage. The user has the options to introduce additional storage as capacity needs grow.

**Networking:** Cisco Nexus® 9000 series hardware provides high throughput, low latency, and rich feature sets.

**Virtualized Infrastructure:** Fully integrated Red Hat Enterprise Linux and Red Hat OpenStack Platform runs on top of Cisco Unified Computing System™ (Cisco UCS®). It is open source yet hardened and mature.

**Management:** Cisco UCS Director functions as a unified management tool across multiple virtual environments. SDN controller is optional.
Cisco NFV Infrastructure Architecture

 Cisco NFV Infrastructure Platform Benefits

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<th>Deployment and Operation</th>
<th>Performance and Security</th>
<th>Manageability and Maintainability</th>
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<tr>
<td><strong>Automated Installer</strong></td>
<td><strong>Consistent Performance</strong></td>
<td><strong>Unified Management</strong></td>
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<td>The Cisco OpenStack installer includes user input and configuration validation and is capable of detecting improper parameters before starting installation, thus eliminating unexpected issues during deployment.</td>
<td>The Cisco VPP implementation delivers industry-leading data plane performance (20 Gbit/s Ethernet switching throughput and 2.5 Gbit/s virtual routing throughput per single Haswell or Sandy Bridge core).</td>
<td>Cisco UCS Director can manage multiple NFV-enabled data centers from a single location. It can function as a unified management point across multiple types of virtual infrastructures.</td>
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<td><strong>High Availability</strong></td>
<td><strong>Enhanced OpenStack Security</strong></td>
<td><strong>OpenStack Updates</strong></td>
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<td>Cisco NFV Infrastructure conducts health checks of the cloud environment. It performs high-availability testing of OpenStack services and core infrastructure components.</td>
<td>By integrating with OpenStack API rate limiting, secure cloud greatly reduces the chance of DDoS attach against critical infrastructure.</td>
<td>Continuous integration and continuous deployment allow for faster software bug fixes and software updates.</td>
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<td><strong>Centralized Logging</strong></td>
<td><strong>Security Audit</strong></td>
<td><strong>OpenStack Upgrade Path</strong></td>
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<td>Cisco’s centralized logging solution offers a holistic overview of the system. Operators can aggregate, monitor, and triage all system logs.</td>
<td>Cisco offers a valuable toolkit for network operators. It can conduct tests and audit for cloud security.</td>
<td>Cisco’s implementation enables Service Providers to upgrade from older versions of OpenStack to a newer version. This eliminates the current tedious and highly manual and thus error-prone.</td>
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**Single Point of Support**
Cisco understands the carrier’s need for predictable and reliable support. By being the single point of contact, Cisco allows customers to enjoy the full benefits of open-source innovation and 24/7 world-class technical support at the same time. With Cisco as your partner, you can focus on business outcomes and profitability.

More Information
For more information, visit cisco.com/go/nfvi.