# One Convergence Network Service Delivery Controller

One Convergence Network Services Delivery (NSD) is the next generation software based platform that enables orchestration and lifecycle management of network services in OpenStack. The controller enables complete policy driven automation of rich differentiated services comprising of open source and vendor network services and offers innovative choices for insertion models and service chains. The solution includes built in analytics that provide visibility into the operation of network services and applications.

Architecture
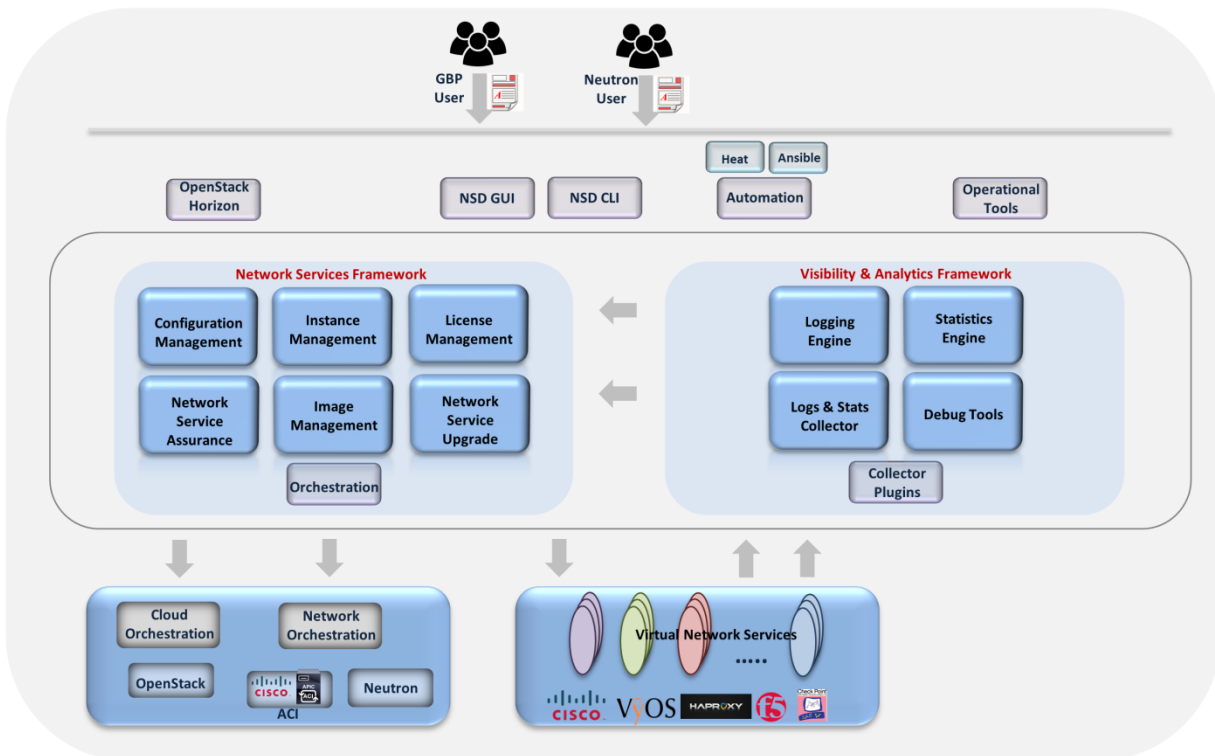
Benefits

- ❖ Complete automation of all layers (L3-L7) of networking.
- ❖ Simplicity for end user application deployment
- ❖ Rich differentiated service offering
  - ▪ Multi-vendor network services
  - ▪ Open-source network services
  - ▪ Support for Tap, transparent L-2, & L-3
  - ▪ Service chains

- ❖ L3-L7 Lifecycle Management
  - ▪ Service assurance / high availability
  - ▪ Uniform/common model for orchestrating/configuring network services
  - ▪ Seamless support for VMs and containers
- ❖ Flexible deployment model
  - ▪ Group-Based Policy (GBP)
  - ▪ Neutron ML2 Plugin and *aaS APIs
- ❖ Advanced operational visibility and analytics

Features

Lifecycle Management

- ❖ Orchestration
  - ▪ VMs, Containers
- ❖ License management
- ❖ Image management
- ❖ Service upgrade
- ❖ Instance management
  - ▪ Scheduling, Migration

Configuration Management

- ❖ OpenStack APIs
  - ▪ LBaaS, FWaaS, VPNaaS
- ❖ Intent policy
- ❖ Custom configuration
- ❖ Vendor specific features
- ❖ Automation support
  - ▪ Heat

Network Services

- ❖ Open source services
  - ▪ VyOS VPN & firewall, HAProxy
- ❖ Vendor services
  - ▪ Cisco, F5, Check Point
- ❖ Service assurance
  - ▪ High availability
- ❖ Service monitoring

Operational Tools & Analytics

- ❖ Operational analytics
  - ▪ Logging & Reporting
  - ▪ Statistics
- ❖ Debug tools

Network Fabrics

- ❖ OpenStack neutron
- ❖ Cisco APIC

Use cases

Managed Service Provider

Managed Service Providers (MSPs) enabled to offer enterprise grade IaaS platform with the availability of the following functionality –
- ❖ Complete automation of all layers of networking
- ❖ Rich set of network services provided to the tenants
- ❖ New revenue models by offering flexible and dynamic network services

Enterprise IT

The solution offers the following functionality for Enterprise IT operators, providing cloud infrastructure for application owners in various business groups –
- ❖ Flexibility and agility in deploying virtual network services
- ❖ Simplicity of definition via intent policy for the application owners
- ❖ Assurance of network services
- ❖ Best of breed network services and availability of vendor specific features

Managed Network Services Cloud

Cloud operators can now compose rich network services and offer them as a cloud service. New business models to support "bring your own device" (BYOD) via dynamic insertion of customer provided network services over the base set provided by cloud operators.

Application Visibility as a Service

Operational visibility and analytics provided across all layers of networking can be offered as a service to tenants. This not only allows for customer specific visibility into networks and network services but also into the customer applications