

SDN APPLICATION DEVELOPMENT

Overview

Software-defined Networking (SDN) and Network Function Virtualization (NFV) allow network operators to move away from traditional vendor-locked networking to a more flexible vendor-independent networking paradigm thereby enabling operators to respond quickly to new service requests, improve overall network efficiency and end-to-end QoS.

Services

ALLEN Calsoft Labs has been working in the SDN space since 2009, from grounds up OpenFlow protocol implementation to SDN controller and SDN application development for industry leading networking equipment vendors (NEMs). Over the last five years ALLEN Calsoft Labs' SDN practice has played an important part in several key SDN projects that involved:

- OpenFlow enablement of switches/routers
- SDN Controller enhancements and Plug-in development to manage legacy network elements
- SDN Application development for network visualization, traffic engineering, network management or introduction of new differentiated services
- SDN solution staging and integration with legacy OSS/BSS, Service chaining with Virtual Network Functions (VNFs) and SDN controller integration with NFV orchestration and management layer
- Scenario-based SDN solution testing and deployment in production environment

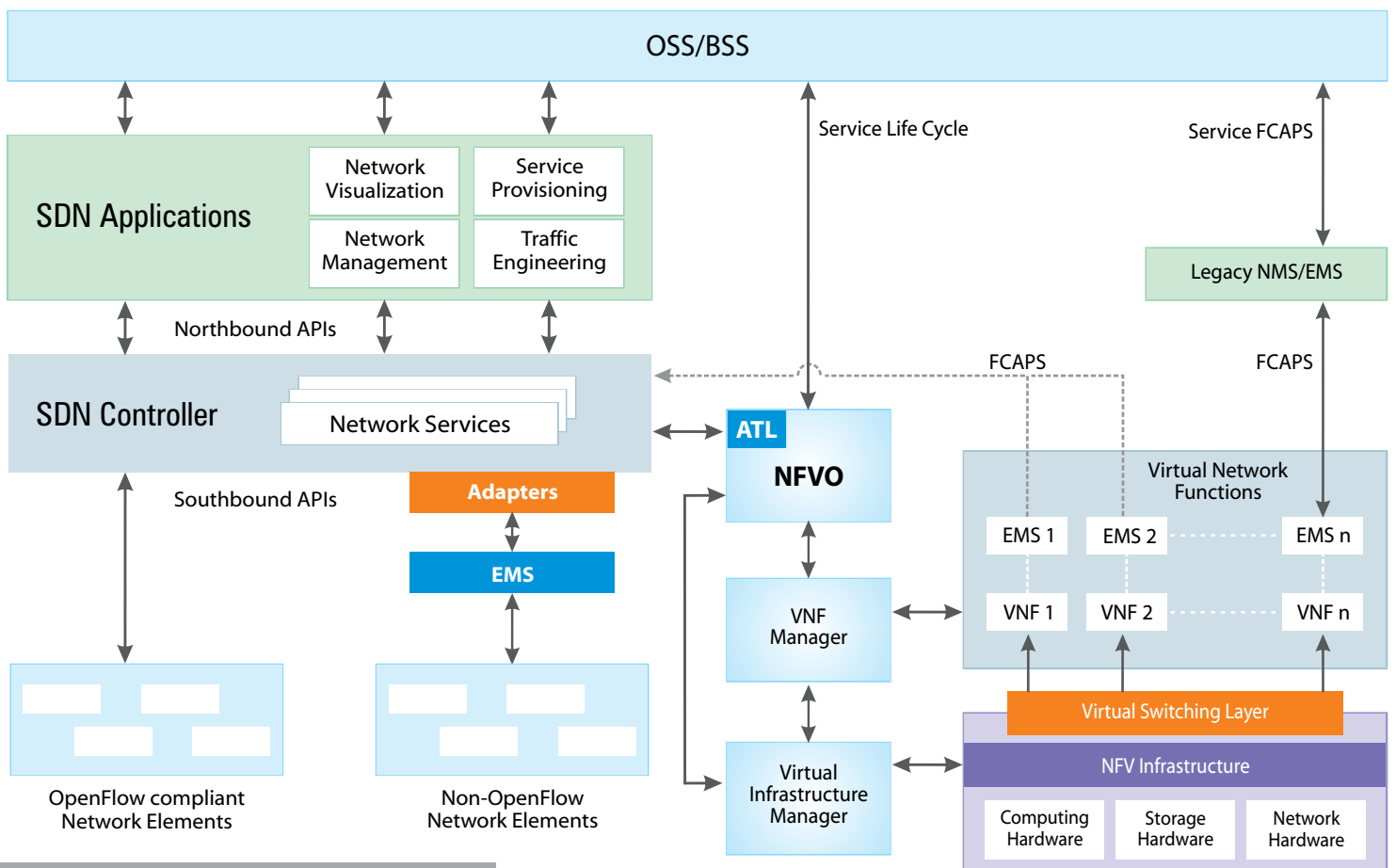


Figure 1: Typical SDN and NFV solution deployment scenario

SDN Application Development Expertise

With over 15 years of rich experience in networking, cloud computing and L4-L7 infrastructure, ALTEN Calsoft Labs brings a deep understanding of the domain, appreciation of deployment challenges and an expert engineering team that has worked on some of the industry first commercial SDN and NFV deployments.

ALTEN Calsoft Labs has expertise in development and testing of SDN applications for a number of use cases across Data Center, WAN, Metro and Campus networks, as highlighted below. We have worked with different open source and commercially available SDN Controllers such as NOX/POX, Beacon, OpenDaylight, Ryu, Cyan Blue Planet, HPVAN Controller, NEC ProgrammableFlow etc,

Data Center	Network Virtualization (traffic isolation, overlays, multi-tenancy), Traffic steering, Load balancing, Service Chaining (with VNFs), Service Orchestration, Automated Network Provisioning, Software-defined Data Center
WAN	Multi-layer Network Visibility & Control, Network Management (FCAPS +T/I*), Traffic Engineering, Load balancing, Bandwidth Provisioning, Service Provisioning, SLA monitoring
Edge	Network Management (FCAPS +T/I*), Firewall, Intrusion detection and prevention, Load balancing, QoS management, Traffic steering, Service Chaining (with VNFs), Service Provisioning and DPI and Big Data applications
Campus	Network Access Control, BYOD, Mobility management, Firewall and UTM, Load balancing, Network Virtualization, Automated Network Provisioning, End-to-End QoS management, DPI and Big Data applications

*T/I = Topology and Inventory

SDN Service Chaining with VNFs

ALTEN Calsoft Labs is a pioneer in high-performance VNF development; OpenStack based NFV orchestration and deployment for solutions such as virtual B-RAS, virtual CPE, virtual DPI, virtual EPC, Cloud VPN Gateway, etc. We combine our strengths in SDN and NFV to achieve end-to-end Service Orchestration for latency sensitive applications.



SUCCESS STORIES	SDN Application Development Developed SDN applications for various Metro Ethernet and Packet-optical Transport use cases for a leading SDN Controller platform.
	SDN Controller extensions for Legacy Network Elements Developed SDN Controller extensions for third party switching/routing products allowing non-OpenFlow devices to be visualized and controlled by SDN applications.
	OpenFlow implementation for Data Center switches Ground up OpenFlow v1.0 protocol implementation, hybrid mode support, and enhancements to support OpenFlow v1.3+ for a family of 10/40G Data Center switches.

ABOUT ALTEN CALSOFT LABS

ALTEN Calsoft Labs is a next gen digital transformation, enterprise IT and product engineering services provider. The company enables clients innovate, integrate, and transform their business by leveraging disruptive technologies like mobility, big data, analytics, cloud, IoT and software-defined networking (SDN/NFV). ALTEN Calsoft Labs provides concept to market offerings for industry verticals like education, healthcare, networking & telecom, hi-tech, ISV and retail. Headquartered in Bangalore, India, the company has offices in US, Europe and Singapore. ALTEN Calsoft Labs is a part of ALTEN group, a leader in technology consulting and engineering services.

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