Software Defined Networking - Concepts and Implementation Essentials

Duration: 2 Days     Course Code: SDNE

Overview:
Software Defined Networking is a relatively new concept that will significantly impact the way networks are designed, maintained and secured. This course has been designed to provide to you with the latest go to market strategies of the leading network vendors - Cisco, Juniper, HP Networking, IBM, Brocade etc as well as understanding of the core requirements of an SDN environment.

Target Audience:
This course is designed for engineers looking to understand the concepts of SDN and the key considerations in an SDN deployment.

Objectives:

- After attending this course you will be able to:
  - Assess the products available in the current market
  - Understand the concepts and drivers for SDN
  - Identify target environments
  - Understand the potential of both Open Flow and alternative approaches.
  - Understand the differences for SDN in the Data Center and SDN in Provider Networks.

Prerequisites:
Attendees should meet the following prerequisites:

- Knowledge of IP Networks, and routing in large scale networks- Data Center and Service Provider Networks.

Testing and Certification

Recommended preparation for exam(s):
- There is currently no exam associated to this course.
Understanding the rationale behind SDN

- Closed environment; Vendor Hegemony
- Lack of Central Control in traditional networks.
- Difficulty of integrating new technology
- Poor performance due to redundant operations at several protocol layers
- Difficulties in accommodating new services

Challenges of SDN

- Scalability: Control elements responsible for many (possibly thousands) forwarding elements.
- Reliability and Security in case controller fails or is compromised.
- Requirement for programming skills.

Overview of SDN/Openflow

- The premise of Software-Defined Networking
- OpenFlow components: protocols
- How will OpenFlow be implementation in network devices
- Separation of Control and Data Plane functions
- What is Control Plane?
- What is Data Plane?

OpenFlow components:

- Switches / network device OpenFlow implementations
- Controllers
- Management
- OpenFlow protocol Details of OF requests, fields, settings, communication
- OpenFlow implementation in network devices

SDN Controller Implementations:

- SDN Landscape – Beacon, Floodlight, Big Switch, Nicera/Vmware, Flowvisor, RYU, NOX, Maestro
- SDN Device Implementations - TCAM Entries, Flow Tables
- SDN Device Vendors - Cisco, Juniper, HP Networking, IBM, Brocade, Accton, NEC.

Potential of SDN/OpenFlow

- Enable innovation from all sources
- Open environment for customers to choose best devices for their needs.
- Scaleability
- More entrepreneurial investment and effort
- Less single vendor lock-in over time
- Backward compatibility with switch hardware (simple firmware upgrade)
- Enormous cost savings in large networks (primarily data centers and Service Provider networks)
- Easy to implement and maintaining consistency of packet forwarding in the network
- New forms of network control
- Simplified programming and operations

Target environments; application for SDN/OpenFlow:

- Datacenter networking fabric (VM migration, Layer 2 routing)
- Routing infrastructure (more control over decision logic)
- Enterprise Networks (security appliances)
- Campus edge devices
- Remote, WANs, VPNs
- Research Networks (harmless coexistence with production network)
- Load balancing
- Traffic prioritisation
- Traffic slicing
- Routing and multi-path
- Authentication
- Service deployment

SDN Deployment

- Deployment: How would you go about deploying SDN in your network?
- Deploying into data centers, routing, edge, remote
- Deployment methods (evolutionary, incremental, large-scale)

Further Information:

For More information, or to book your course, please call us on 353-1-814 8200
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