

SDN101 – Software-Defined Networking (SDN) Essentials

Duration: 1 Day

Level: Introductory

What you will learn

This course will introduce you to a disruptive transformation underway in networking. You will learn fundamentals of Software-Defined Networking (SDN) including its motivation, architecture, abstractions, basic building blocks, use cases and applications, and most importantly how SDN represents a new paradigm of networking using hands-on illustrations. SDN101 will teach you how to "think differently" about networking and will serve as a foundation for your explorations in this rapidly advancing dynamic field.

Audience

Architects
Development Engineers
Network Administrators
Network Planners
Product Managers
Sales Engineers
Systems Engineers
Technical Managers/Leads
Technical Marketing Engineers

Suggested Prerequisites or Prior Knowledge

SDN 101 is an introductory level course with no hard prerequisites. To get the most out of the training, students are expected to be network professionals with working knowledge of networking fundamentals, basics of TCP/IP suite of protocols, and, network service provisioning and management.

Course Topics

SDN Academy's SDN101 course offering will cover the following topics.

Introduction to SDN

- What is SDN?
- SDN Architecture
- What is OpenFlow?
- Benefits of SDN
- Overview of SDN101

Play with OpenFlow (Hands-on exercise)

- Intro to OpenFlow
- OpenFlow Basic Operations & Messages
- Mininet & Wireshark platforms (used for other hands-on exercises)

The SDN Stack: Switches

- The OpenFlow switch abstraction as an example SDN switch
- Issues with OF 1.0 and the need for a richer API
- SDN Switch Performance
- SDN Switch Examples

The SDN Stack: Network Operating Systems

- SDN Controllers and NetOS Architecture
- Performance Considerations
- SDN Controller Examples

Build a Learning Switch (Hands-on exercise)

- Write and test a Controller
- Turn a simple hub to a learning switch and then a flow-based learning switch

The SDN Stack: Applications

- SDN in production – virtualization, traffic-engineering & monitoring
- Newer use cases in wireless, optical, security, NFV and others

Wrap-up: SDN - A Paradigm Shift

- Why SDN means thinking differently about networking
- SDN operational choices
- What is Not SDN?
- SDN future

SDN Academy™ reserves the right to modify the contents of the training material from time to time to better meet the goals of this course.

Information on SDN Academy's Integrated Hands-on Exercises

SDN Academy limits class sizes to provide students with individual attention during the hands-on exercises. Each student will run a complete OpenFlow-enabled network environment with emulated hosts, switches, and links that run as a virtual machine - on their laptop. Each exercise is guided; typically, students begin with starter code, then run commands and create small code additions as directed.

To run the exercises, each student must bring a modern laptop computer (Windows, Mac or Linux) to the training session to participate in the hands-on exercises; sorry, netbooks and tablets are **not** able to run our exercises. Since the exercises run in a virtual machine, a strict requirement is an installation of VirtualBox – free virtualization software that work on all platforms. SDN Academy strongly recommends that students download and install VirtualBox for their laptop before arriving at the tutorial. More detailed instructions for the laptop setup will be emailed to registered students prior to the training.