

# Software Defined Networking

## ABOUT COURSE

Our Software Defined Networking Fundamentals course is a one day or 8 hours instructor-led training providing a new paradigm of networking. This training is for network architects, engineers, administrators, technical managers/leads, product managers, and sales engineers. You will learn the fundamentals of Software Defined Networking (SDN), OpenFlow and Network Functions Virtualization (NFV). This vendor-agnostic, technology-inclusive course is broken up into two sections: lectures and labs. In lectures, instructors will give you knowledge of building blocks of SDN, its fundamentals and familiarize you with the protocols in use. Highly correlated, NFV technologies are explained. Performance aspects of NFV take a special attention, so that DPDK, SR-IOV, NUMA are covered in the course as well. Among already established technologies, instructors will also give an introduction to the most recent moves in SDN world. Apart from fundamentals, you'll learn main use cases and architectures used in modern SDN solutions: OpenDayLight, Contrail, Calico, ONOS are covered in the course. From the labs you will get hands-on experience with Open vSwitch, Mininet and ONOS.

## REQUIREMENT

- Basic GNU/Linux command line
- Networking fundamentals
- Basics of TCP/IP suite of protocols
- Laptop with WiFi Card
- Web browser such as Firefox or Chrome
- SSH & SCP programs

## YOU WILL GET

- An understanding of SDN and OpenFlow concepts
- An understanding of NFV concepts
- Familiarity with SDN motivation, benefits, use cases, and applications
- Familiarity with the basic SDN concepts: control plane, data plane, flow tables
- The relation between SDN and NFV
- Experience with Open vSwitch, Mininet and Wireshark

## TARGET AUDIENCE

- Network Professionals
- Technical Managers/Leads
- Product Managers
- Sales Engineers

## COURSE OUTLINE

## **MODULE 1– INTRODUCTION**

- Theory
  - Course Introduction
  - Traditional Networks and their limitations

## **MODULE 2– INTRODUCTION TO SOFTWARE DEFINED NETWORKING**

- Theory
  - Separation of Control Plane and Data Plane
  - OpenFlow
  - Open vSwitch architecture
  - Cisco OpFlex
  - Protocol Independent Packet Processor or P4
  - SDN on established standard protocols, such as BGP
  - Networking flexibility in the kernel or eBPF
- Workshops
  - Mininet, ONOS, Open vSwitch

## **MODULE 3– SDN USE CASES**

- Theory
  - Cloud Data Centers
  - Network Functions Virtualization
  - Internet Exchange Points
  - Office networks

## **MODULE 4– OVERVIEW OF SOME MODERN SDN SOLUTIONS**

- Theory
  - OpenDayLight
  - Contrai
  - Calico
  - Onos

## **DURATION**

1 Day.