



## **SDN Development Fundamentals**

### ***3-day Lecture/Lab Kick-Start for SDN Developers***

If you want to kick-start your skill set for developing software for SDN and network automation, this 3-day lab-intensive course is the right place to start. Taught by the author of one of the best-selling books on the subject, “SDN: A Comprehensive Approach”, this course will teach you how to build software applications on top of the most popular open-source controller, OpenDaylight. You’ll learn the fundamentals of SDN, as well as details of SDN protocols such as NETCONF, OpenFlow and BGP-LS/PCEP. Lab exercises allow you to create external, REST-based applications using Python, and internal, MD-SAL applications using Java.

### **Course Outline:**

#### ***Day One SDN Background, Protocols & Design***

#### **SDN Background**

#### **SDN History**

#### **SDN Definitions:**

- OpenFlow-based SDN
- API-based SDN
- Overlay-based SDN

#### **SDN Protocols:**

- OpenFlow
- NETCONF
- BGP-LS/PCEP
- SDN Design

#### **SDN Application Types:**

- Proactive versus Reactive
- Internal versus External

#### **SDN Application Examples & Labs:**

- Learning Switch

- Router
- Load Balancer
- Firewall
- Traffic Engineering
- Overlays
- Offload
- Network Access Control
- Blacklist

### ***Day Two: SDN Application Development with Python/REST***

#### **Development Environment:**

- Python
- NETCONF/YANG
  - Labs
- Environment
- Mounting/unmounting devices
- Capabilities
- Interfaces
- Advanced (ACLs, static routes)

### ***Day Three: SDN Application Development with Java/MD-SAL***

#### **MD-SAL Architecture**

#### **Development Environment**

#### **MD-SAL Tutorial Labs**

#### **Archetype/structure**

#### **Application Linkage to Controller**

#### **Data Definition (YANG model)**

#### **Reading Data**

#### **Writing Data**

#### **RPCs**

#### **Notifications**