# Introduction to Cisco Network Programmability («CNPI»)

This course offers an introduction to the topic «SDN network automation». The individual functions of SDN and network programmability are explained and the relationships between the functions are shown.

**Duration:** 3 days
**Price:** 2'480.–
**Course documents:** Original Cisco Courseware

## Content

SDN offers new opportunities in network automation and is changing the way we run networks. The SDN Controller makes it easy to access the network using scripts and programs (Network Programmability). The course provides an easy to understand introduction to the new concepts. In addition to the concepts of SDN, interfaces such as REST and NETCONF, the YANG data model and other elements frequently used in connection with network automation are explained.

1. SDN – Intro
    - How networks can be operated
        - The role of SDN in «Programming the Network» environment
        - Introduction to SDN
    - Function blocks of SDN
2. SDN Controller
    - OpenDaylight – SDN's university approach
    - DNAC – Cisco's implementation of SDN in the campus network
    - Cisco DNA – Cisco's SDN implementation for enterprise networks
    - ACI – Cisco's implementation of SDN in the Data Center
3. Programming Environment
    - Version control
    - Programming language
    - Operating system
4. SDN and Application Programming Interfaces (APIs)
    - SDN Controller – The heart of SDN
    - Communication with users and applications – North bound API
        - REST
        - Encoding (JSON, ...)
        - GUI
    - Communication with network components – South bound API
        - RESTCONF
        - NETCONF
5. Data Models
    - What is the purpose of data models?
    - What is the big advantage of data models?
    - YANG – The data model for network components
6. Programming
    - Why program?
    - Python
    - Development Models
        - Agile
        - DevOps
7. Further tasks in the field of «network programmability»
    - Network operation

- - - Configuration management
  - Script and application handling
    - Version control
    - Testing
8. The big picture – Putting all elements together to form a big picture
9. Hands-On
  - Build your own virtual Linux
  - XML, Jason encodings
  - REST
    - Postman on DNA-C
    - Swagger on DNA-C
  - NETCONF
    - On Cat9k
  - YANG Explorer
  - Git

## Key Learnings

- Knowledge of the concepts and tools required for network automation (APIs such as REST, RESTCONF and NETCONF, but also tools needed in the programming environment)
- Knowledge of the individual elements and their context
- Stable foundations in Network Programmability and SDN

## Target audience

This course is designed for networkers who want to keep their finger on the pulse and take the step towards network automation and SDN.

## Certification

This course does not include an exam.

## Further courses

- Python for Networkers («PYN»)

## Any questions?

We are happy to advise you on +41 44 447 21 21 or info@digicomp.ch. You can find detailed information about dates on www.digicomp.ch/courses-it-provider/cisco/cisco-associate/introduction-to-cisco-network-programmability