Emerging Technologies Workshop: Network Programmability with Cisco APIC-EM v1.01 Scope and Sequence

Last updated 19 November 2018

Target Audience

The *Emerging Technologies Workshop: Network Programmability with Cisco APIC-EM* explores the field of network programmability. It is designed for students who are interested in learning about emerging technologies. The workshop explores network programmability concepts and provides opportunities for students to create Python programs that interact with an actual APIC-EM network that existed in an Internet sandbox provided by Cisco DevNet. The workshop is appropriate for students at many education levels and types of institutions, including high schools, secondary schools, universities, colleges, career and technical schools, and community centers.

Prerequisites

For proper skill building, the students should be familiar with the content and skills described in the prerequisite course and co-requisite course:

- CCENT-level knowledge
- Previous experience with one programming language such as C, Java, C++, or Python
- Preferred: Completion of the Networking Academy Python Essentials course

PC Hardware Requirements

- Computer with a minimum of 2 GB of RAM and 8 GB of free disk space
- High speed Internet access to download software and work with online tools

Curriculum Objectives

The goal of this workshop is to introduce the students to the concepts and techniques for programming a network device. Upon completion of the workshop, students will be able to perform the following tasks:

- Create a simple application in Python with REST APIs.
- Create a variety of programs to interact with the Cisco APIC-EM APIs.

Course Outline

Table 1.   Chapters, Sections, and Objectives

Chapter /Section	Objectives
Chapter 1: Introduction to Python and Programming Basics	
1.1: Code and Communities of Practice	Explain the importance of coders' communities of practice.
1.2: Python Basics	Use Python to create programs that accept user input and read and write to external files.
1.3: APIs and Parsing JSON	Create a Python application that accesses an API based on user input and processes and displays the JSON data that is returned.
Chapter 2: Programming the APIC-EM	
2.1: Network Programmability	Explain how the Cisco APIC-EM enhances network management and performance.
2.2: Programming the APIC-EM REST API	Explain features of the APIC-EM API and documentation.
2.3: Putting It All Together	Create Python software tools for working with the APIC-EM API.

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