External Support Libraries

Python code from other sources

- Python
- Cisco (DevNet, Learning Labs)
- External Sources
  - Device communication
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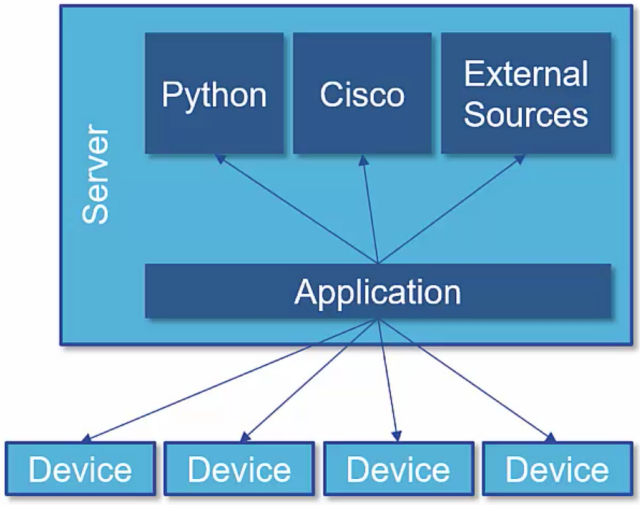

Python Standard Libraries

Python advertises itself as "batteries included," meaning that the language itself provides many of the resources you need in order to create your Python application. There may be a need to go outside of Python for certain functionality; however, Python does itself provide several standard libraries for the benefit of the developer.

os: This library provides functionality for performing common operating system tasks, which may be unique depending on whether your Python is running on Windows, Mac, or Linux, such as directory operations, OS commands, and so on.

sys: This library provides common system functionality such as retrieving command line arguments from the running of your Python application, redirecting output to a specific location, or terminating your application.

re: Parsing strings is important and often required for Python programs. Functionality such as regular expressions have been used for this task for several decades. Python thus includes a library for performing regular expressions.

Date and time: Programs often need access to time of day, and date, functionality. Python provides libraries for these operations in the datetime library.

Internet access: Getting access to the internet, whether via HTTP for web services, or for services such as email (SMTP), is increasingly important, and Python has libraries to help with these tasks.

Unit testing: The testing of code in an automated manner, either for regression testing or for test driven development (TDD), is an important capability for a language. Python has standard libraries to assist the developer in accomplishing their goals in this area.

Cisco Libraries

In addition to the standard libraries available with Python, there are several other sources of both information and source code that can be leveraged. In particular Cisco offers several information and programming resources, including:

Cisco DevNet: Go to DevNet to engage with a community of developers and network engineers who are looking to receive information about various Cisco solutions and devices.

GitHub: GitHub is a resource for many categories of software, ranging across the entire spectrum, from OpenStack to OpenDaylight and everything in between. Code here can be examined as well as downloaded for use according to specific licensing restrictions.

Learning Labs: Cisco Learning Labs is a location to get training, take certification courses, and to examine and download teaching source code ranging across all networking domains.

Once you have acquired basic abilities in terms of developing your own Python network-based applications, these resources will help you develop specific solutions for your networking needs.

External Libraries for Networking

In addition to standard and Cisco libraries, there are hundreds if not thousands of other Python libraries, big and small, for doing different common functions, which may be of use to the network programmability developer. The following libraries are especially useful, and will be used in the code examples in this course.

Pexpect: Pexpect is a popular library that is used by developers to simplify and expedite functions that are related to connecting to network devices, entering CLI commands, and receiving responses.

Paramiko: Paramiko is another tool for connecting to network devices, using SSH. Much of the connectivity overhead is taken care of by Paramiko, so that the developer does not need to worry about many repetitive tasks related to connecting to devices via SSH.

Requests: The requests library is popular for performing HTTP requests, either to a web site or a web service.