I Introduction To Client-Server Networking | Foundations of Python Network Programming

I The Building Blocks: Stacks and Libraries

2 concepts that will appear repeatedly:

- Protocol Stack: In simpler network services are used as the foundation to build more complex services
- Python Libraries: Internal or third party code

A lot of the time, network programming simply involves selecting and using existing libraries that support the network operation.

However, this book will provide an under the hood view to how a lot of these tools work

The first place to look for protocol libraries is in the standard library

'http://docs.python.org/3/library/'

II ~~(5)~~ Application Layers

Typical modules and packages are built on top of other packages. That is, the problem is being abstracted.

The high level code ~~talks~~ interprets inputs with meaning relative to the problem

The lower-level code constructs the higher level response.

III ~~(5)~~ Speaking Protocol

The URL of a protocol typically consists of the protocol, followed by the name of the machine, finally a path to the file of interest.

IV A Raw Network Conversation

TCP is one of the most basic methods of network communication. It sends and recieves plaintext.

When using the socket library in ~~Sys~~ python, you are at its lowest level. At this point you are interacting with C code.

Raw network communication is a matter of sending and recieving byte strings.

I Encoding and Decoding

Python 3 makes a strong distinction between strings of characters and low-level sequence of bytes. Python is careful to treat characters as such and only to convert bytes to and from character sequences only when asked to.

- Decoding: Convert byte stream to character stream. Incoming messages
- Encoding: Turn character string into byte stream. Outgoing messages.

VI The Internet Protocol

The fundamental unit of sharing among network devices is the packet.

> A packet is a byte string whose length might range from a few bytes to a few thousand bytes, which is transmitted as a single unit between network devices.

A packet often only has two properties at the physical level:

- The byte-string data it carries
- Address to which it is delivered.

The Internet Protocol is a scheme for imposing a uniform system of addresses on all the Internet connected computers in the entire world and to make it possible for packets to travel from one end of the Internet to the other.