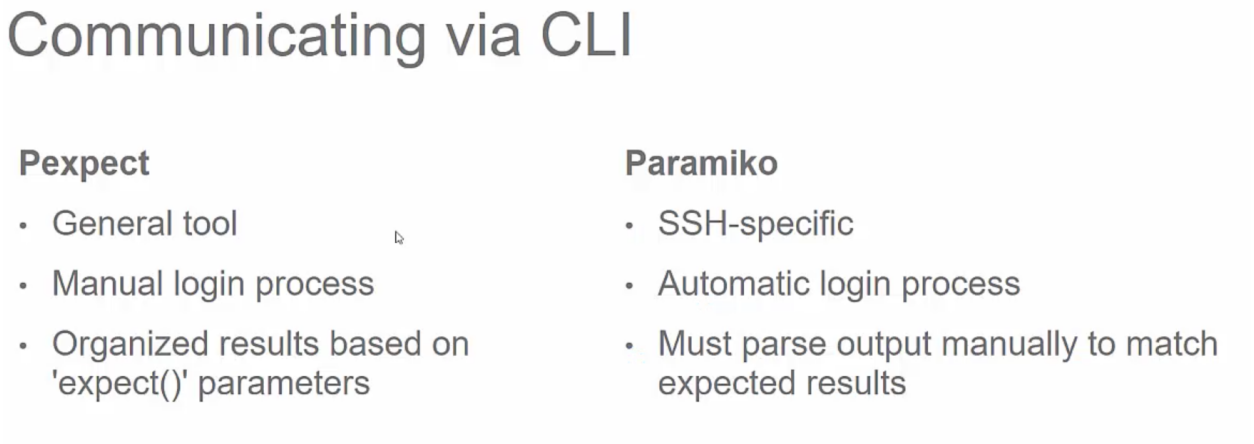

If communication via CLI had to be coded in your application, it would be quite difficult. Fortunately, in keeping with Python's philosophy of providing a rich set of libraries for various tasks, there are two specific tools, Pexpect and Paramiko, that will assist you in device communication.

Pexpect:

- Pexpect is a general tool for spawning processes, hence you can do many things such as 'ping', 'telnet', and 'SSH'. Specifically, Pexpect is used for connecting to devices and interacting with their sometimes complicated user interfaces.
- The login process must be done manually.
- Pexpect can be a little verbose, but that is the general manner of the tool – it can be verbose but it allows the application to anticipate ('expect') certain replies, and respond accordingly.

Paramiko:

- Paramiko is a Python implementation of SSH supporting both client and server functionality.
- Supports automated login process.
- Manual checking of results using pattern matching to determine results.

```
cisco@cisco-python:/var/local/PyNE/labs/sections/section06$ cat SEC06-telnet.py
import pexpect

ip_address = '10.30.30.1'
username = 'cisco'
password = 'cisco'

print '\n-----------------------------------------------------'
print '--- Attempting connection via telnet to: ', ip_address

# Create the pexpect session
session = pexpect.spawn('telnet ' + ip_address, timeout=20)
result = session.expect(['Username:', pexpect.TIMEOUT])

# Check for error, if so then print error and exit
if result != 0:
    print '--- FAILURE! creating session for: ', ip_address
    exit()

# Session expecting username, enter it here
session.sendline(username)
result = session.expect(['Password:', pexpect.TIMEOUT])

# Check for error, if so then print error and exit
if result != 0:
    print '--- FAILURE! entering username: ', username
    exit()

# Session expecting password, enter it here
session.sendline(password)
result = session.expect(['>', pexpect.TIMEOUT])

# Check for error, if so then print error and exit
if result != 0:
    print ' FAILURE! entering password: ', password
    exit()

print '--- Success! connecting to: ', ip_address
print '---                Username: ', username
print '---                Password: ', password
print '-----------------------------------------------------\n'
```