Running a Web Server from Raspberry Pi

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This module is about...

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HTTP://

Raspberry Pi as a Web Server

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- **Exposing an HTTP endpoint is the easiest way to enable ubiquitous access to data from a Pi**
  - Or any device for that matter

Serving up static files

- **nginx is currently the favorite lightweight web server**
  - sudo apt-get install nginx
- **Cool feature of nginx is that can serve as a remote proxy to other HTTP servers**
  - Often used as a front-end to dynamic content servers running on same server on different Port

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```
upstream node{
    server 127.0.0.1:8080;
}
server{
    listen 80;
    ssl off;
    ssl_certificate /etc/nginx/public.crt;
    ssl_certificate_key /etc/nginx/private.rsa;
    root /usr/share/nginx/aym;
    try_files $uri @node;
        location @node{
         proxy_set_header  X-Real-IP         $remote_addr;
          proxy_set_header  X-Forwarded-For  $proxy_add_x_forwarded_for;
          proxy_set_header  Host             $http_host;
          proxy_redirect    off;
         proxy_pass         http://node;
        }
    }
```

Demo - using nginx

Dynamic content

- **For dynamic content or web services there are many popular choices that can run on the Pi**
  - PHP
  - Java (you need a special build of Raspbian that handles floating point differently)
  - Ruby on Rails
  - Python
  - Node.js seems to be the new hotness - and JavaScript skills are fairly ubiquitous

Running Python through HTTP

- **python -m CGIHTTPServer 8000**
  - This is python 2.7 - for 3.3 you need to write a bit of code using the http.server module
- **Will use static source files in the current directory**
  - put python code into an executable file named *.cgi into the cgi-bin subfolder

Running Node.js

- **Get dependencies**
  - sudo apt-get install git-core build-essential
- **Get the node source**
  - git clone https://github.com/joyent/node.git
  - cd node
  - git checkout v0.10.4
  - ./configure
  - make (this one can take along time - run right before you go to sleep)
  - sudo make install (this will create and install the node package manager - npm)
- **Using node's child_process module may become important**
  - No node.js libraries to access the Raspberry Pi's functionality

Demo - node.js

Summary

- Running a web server on Raspberry Pi can be useful to both cause code to execute remotely or to serve up data the Pi is holding onto