CS631 - Advanced Programming in the UNIX Environment
–
Practical Code Reading of HTTP Server Implementations

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Setting up your SSH keys

```
$ ssh linux-lab.cs.stevens.edu
linux-lab$ ssh-keygen -t rsa -f ~/.ssh/cs631
linux-lab$ cat ~/.ssh/cs631.pub | mail -s "[CS631] $USER's pubkey" \
                  jschauma@stevens.edu
```

Different systems available

The following hosts should now be available to you:

- NetBSD 6.1.2: `cs631-netbsd.netmeister.org`
  `#ifdef __NetBSD__`
- OmniOS 5.11 (Solaris 11): `cs631-omnios.netmeister.org`
  `#ifdef __sun__`

```
cc -E -dM - </dev/null | more
```

Different systems available

You can log in on them using the SSH key you generated.

```
linux-lab$ ssh -i ~/.ssh/cs631 cs631-netbsd.netmeister.org
cs631-netbsd$ git clone linux-lab.cs.stevens.edu:git/sws.git
cs631-netbsd$ cd sws
cs631-netbsd$ make
```

Let's set up a web server!

```
linux-lab$ ssh -i ~/.ssh/cs631 cs631-netbsd.netmeister.org
cs631-netbsd$ wget http://www.eterna.com.au/bozohttpd/bozohttpd-20130711.tar.bz2
cs631-netbsd$ tar jxf bozohttpd-20130711.tar.bz2
cs631-netbsd$ cd bozohttpd-20130711
cs631-netbsd$ make
cs631-netbsd$ nroff -man bozohttpd.8 | less
cs631-netbsd$ export PORT=$(( $(id -u) + 1025 ))
cs631-netbsd$ ./httpd -b -X -I ${PORT} .
```

Let's set up a web server!

```
$ telnet cs631-netbsd.netmeister.org ${PORT}
Trying 54.211.148.123...
Connected to ec2-54-211-148-123.compute-1.amazonaws.com.
Escape character is '^]'.
GET / HTTP/1.0

HTTP/1.0 200 OK
Date: Mon, 11 Nov 2013 16:17:39 GMT
Server: bozohttpd/20111118
Accept-Ranges: bytes
Content-Type: text/html

<html><head><title>Index of index.html</title></head>
<body><h1>Index of index.html</h1>
<pre>
Name                                    Last modified          Size
```

Let's see...

Or: in your browser go to

`http://cs631-netbsd.netmeister.org:$PORT/`

Code Reading

Each team reads one code base:

- bozohttpd – `http://www.eterna.com.au/bozohttpd/`
- lighttpd – `http://www.lighttpd.net/download/`
- mini_httpd – `http://www.acme.com/software/mini_httpd/`
- nginx – `http://www.nginx.org/en/download.html`
- tinyhttpd – `http://tinyhttpd.sourceforge.net/`

Present the basic parts of the code:

- Where/how does it handle connections? Does it select, pre-fork, ...?
- Were/how does it handle HTTP request parsing, validation, ...?
- Where/how does it handle directory indexing?
- Where/how does it server actual files?

Next Milestone

`http://www.cs.stevens.edu/ jschauma/631/f13-hw4.html`

Let's brainstorm how to test this.

Let's collect test cases.