IPv6 In The Real World: The IPv6-Enabled Website

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Enabling IPv6 for the Website

- Networking
- Operating System
- Web Server
- Statistics
- IPv6 Forum IPv6-Enabled Program

Networking

- Requirements:
  - Basic transit connectivity to the Internet using IPv6
    - Available from many providers.
      - For a list from the IPv6Forum, check http://www.ipv6forum.org/ipv6_enabled/isp/approval_list.php?type=loc&content=US
    - Using a tunnel broker is NOT recommended for a web site, but can be used if there is no other option.
  - IPv6 globally routable static address
    - Generally, this should be provided by the IPv6 network transit provider.

Operating System

- Lots of options here.
  - Window Server 2003/2008
  - Linux
  - *BSD (Darwin, OS X)
  - *Solaris
  - AIX
  - HP-UX
  - Android (?) – dunno if you'd want to run a web server here.

Web Server

- Lots of options here, too.
  - Apache Web Server
    - The classic open source server
  - ngnix
    - A newcomer from Russia
  - Lighttpd
    - A small memory footprint open source server
  - Zeus
    - A commercial server for hosting large numbers of web sites on a single server
  - IIS
    - For Windows

Choices for this discussion

- IPv6 Static Address: 2610:40:401::2/64
  - IPv6 Default Route: 2610:40:401::1
- System Characteristics:
  - Processors: 4 CPU Xeon 2.4Ghz
  - Memory: 4GB
  - Disk: 2 250Gb SATA
  - Ethernet card: Intel PRO/1000 (em0)
- Operating System: FreeBSD 7.3-RELEASE
- Apache 2.2 Web Server

Setup Network/OS

- Configure the operating system:
  - Add to `/etc/rc.conf` file:
    - `ipv6_defaultrouter="2610:40:401::1"`
    - `ipv6_enable="YES"`
    - `ipv6_ifconfig_em0="2610:40:401::2 prefixlen 64"`
- Load new settings:
  - The simple thing to do here is reboot.

Install Web Server

- Become root user
- Install from FreeBSD Ports Collection
  - Use **portsnap fetch** to get the latest batch. Next, **portsnap extract** to expand and put into place in `/usr/ports` directory.
- Install from `/usr/ports/www/apache22`
  - From the shell, use **cd /usr/ports/www/ apache22**
  - Then, **make install**

Start Web Server

- Add to /etc/rc.conf file:
  - `apache22_enable="YES"`
- No further changes are required for IPv6.
- Startup server.
  - At shell, run **`/usr/local/etc/rc.d/apache22 start`**.
- Verify server is running.
  - At shell, run **`netstat -a | grep http`**.
  - If running, output should contain this:

```
tcp46      0      0 *.http                    *.*                       LISTEN
```

Statistics

- How much IPv6 traffic has been seen on this site?

IPv6-Enabled Program

- The IPv6Forum has a program through which you can promote your website's capability to respond via IPv6.

  - See http://www.ipv6forum.org/ipv6_enabled/ipv6_enable.php for the details.

Thank you!

- Questions or comments – See me at the break or drop me an email at stan@txv6tf.org.