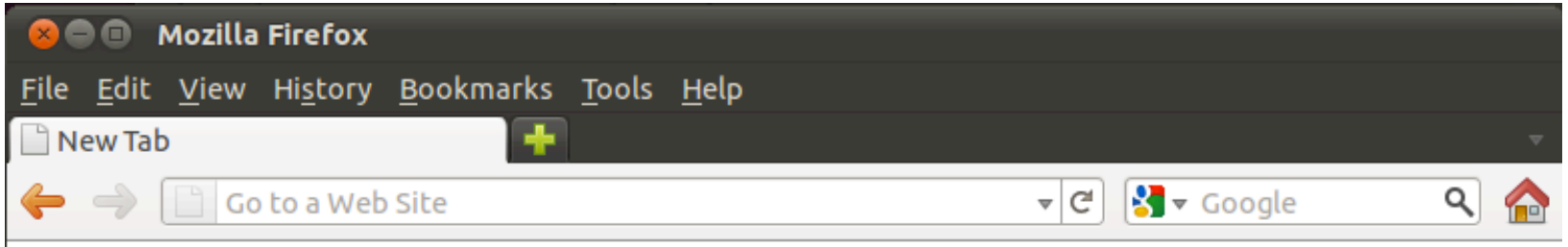


Web Publishing with Athena

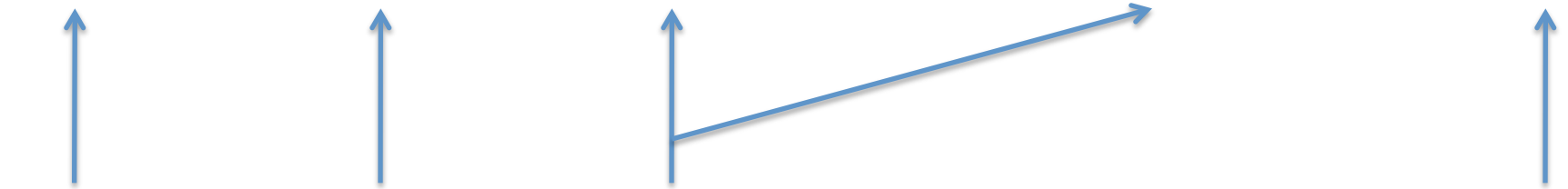
Information Services & Technology

Some Terminology

- URI - Uniform Resource Identifier
  - Identifies a resource
- URL - Uniform Resource Locator
  - Tells you where it is and how to get it
- DNS - Domain Name Service
  - Turns something.mit.edu into a numeric address
- CGI - Common Gateway Interface
  - Allows programs to generate web content dynamically

URL

http://en.wikipedia.org/wiki/Uniform_Resource_Locator#Syntax



scheme domain path fragment

Relative vs. Absolute

- http://web.mit.edu/ist/helpdesk
  - Absolute URL
- /ist/helpdesk/minicourses
  - Absolute path, but relative to the *scheme* and *domain* portion of whatever URL is active
- helpdesk/minicourses
  - Relative path

DNS

- All computers on the internet identified by a numerical address (e.g. 18.9.22.69)
- DNS maintains a mapping of IP addresses and hostnames (and other things)
  - Record Types
    - A record - **A**ddress for a hostname
    - CNAME - **C**anonical **name** for a hostname

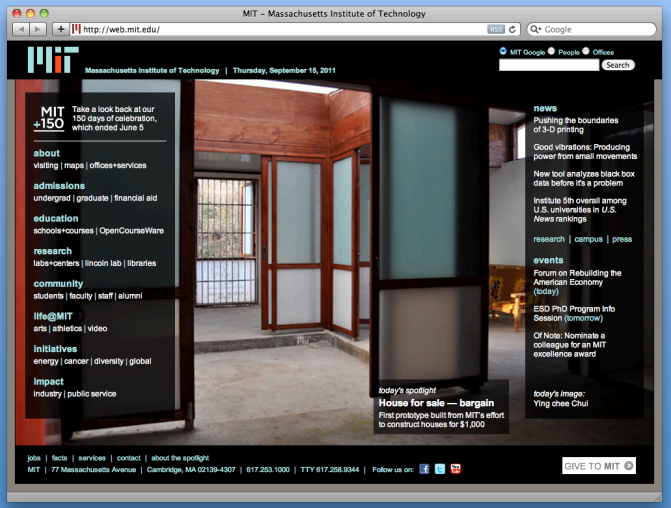
Hostnames at MIT

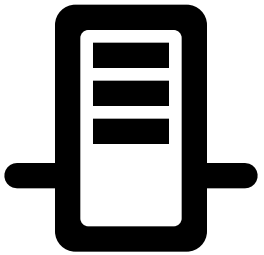
- something.mit.edu
  - A hostname, not a "subdomain"
- The hostname can point to an IP address controlled by you (e.g. in your dorm)
  - Request at http://rcc.mit.edu
- Or can be an alias ("CNAME") for another hostname (e.g. scripts.mit.edu)

What actually happens?

```
GET / HTTP/1.1
Host: web.mit.edu
```

HTTP/1.1 200 OK





YOU

WEB.MIT.EDU

HTTP Response Codes

- 200 - OK

- 301 - Moved Permanently
- 302 - Found (Moved Temporarily)

- 403 - Forbidden
- 404 - Not Found

Generating the content

- Commercial software
  - Adobe Dreamweaver
  - Microsoft Word
- Free Software
  - OpenOffice/LibreOffice
  - Amaya
  - Mozilla/SeaMonkey Composer
- By hand

Hosting a website

web.mit.edu	scripts.mit.edu	external hosting provider	your own web server at MIT

web.mit.edu

- Allows static content
  - HTML files, images, PDF, Flash animations, movies, etc
  - JavaScript, Style sheets (CSS), etc
- Minimal web form support (e-mail only)
  - suitable for "guest books", "comment forms", etc.
- Some support for server directives and server-side includes

Review of AFS permissions

- Per-directory basis
- Permissions can be assigned to users or groups ("Moira lists")
- List of permissions for a directory called Access Control List (ACL)
- 7 modes (can be combined)
  - **R**ead, **L**ist, **I**nsert, **D**elete, **W**rite, loc**K**, **A**dminister
  - or the aliases `read`, `write`, `all`, or `none`

Viewing Permissions

- `fs listacl -dir` *`directory`*
- Can be abbreviated
  - `fs la` *`directory`*
  - If directory omitted, defaults to current working directory
- Example:

```
joeuser@mint-square:~$ fs la
Access list for . is
Normal rights:
  system:expunge ld
  system:anyuser l
  joeuser rlidwka
```

Granting Permission

- `fs setacl -dir` *`directory`* `-acl` *`entity mode`*
  - *`directory`* - a relative or absolute path
  - *`entity`* - a username or `system:group`
  - *`mode`* - e.g. `rl` or aliases like `read`
- Can be abbreviated:
  `fs sa` *`directory entity mode`*
- Example
  - *`mkdir shared`*
  - `fs sa shared jruser read`

Special AFS Entities

- `system:anyuser`
  - Anyone, anywhere
  - required for web access to a directory
    - parent directories must be listable, e.g. `system:anyuser l`
- `system:authuser`
  - Anyone with an Athena account
  - Applies to AFS access only, not web access

Your URL

- http://web.mit.edu/joeuser/www/
- http://www.mit.edu/~joeuser/

- Corresponds to /mit/joeuser/www/

index.html

- Web server looks for this file in directories
- If it's there, display it
- If not, display a listing of the directory

htaccess.mit

- Many web servers use ~/.htaccess to control how a directory is served
- web.mit.edu uses ~/.htaccess.mit and supports a subset of features supported by ~/.htaccess
- When you view a URL, the server looks for .htaccess.mit in that directory
  - And its parent directories

Restricting Access

- Create .htaccess.mit file

  <limit GET>

  require valid-user

  </limit>
- fs sa . system:anyuser none
- fs sa . system:htaccess.mit read

system:htaccess.mit

- A special group
- Allows the web servers access to your files
  - But if there's no `.htaccess.mit` file to tell them what to do, they'll just serve up your files, without restriction
- If you add `system:htaccess.mit` to an ACL, add an `.htaccess.mit` file
  - Corollary: If you delete `.htaccess.mit`, remove `system:htaccess.mit`

Limiting to users and groups

- Users

```
<limit GET>
require user joeuser
</limit>
```

- Groups
  - Must be "group" in Moira

```
<limit GET>
require group myfriends
</limit>
```

Caveats

- Can restrict to users **or** groups, not both
- **Always** test your restrictions
  - Use a browser without certificates
  - Ask a friend who is not on the list to try it

- When you create a new directory, permissions are inherited
  - Always double-check with `fs la`

Custom Error Documents

- In .htaccess.mit

```
ErrorDocument 404 /joeuser/www/error.html

ErrorDocument 404 http://www.harvard.edu

ErrorDocument 404 "Your princess is in another castle"

ErrorDocument 403 /joeuser/www/notallowed.html
```

Custom Error Documents

- The document must exist
- If it's a URL, the URL must not redirect you somewhere else
- Best to use full AFS path so it works from all servers (web.mit.edu, www.mit.edu, stuff.mit.edu)
  - /afs/athena.mit.edu/user/j/o/joeuser/www/

Redirecting

- .htaccess.mit

```
Redirect 301 /joeuser/www http://joeuser.com

Redirect 301 /~joeuser http://joeuser.com
```

- Use 302 instead to prevent Google from changing the URL in listings

Other Tricks

- .htaccess is the standard file used by the Apache web server to control some things
- .htaccess.mit is our version
  - Some things work, some things don't
  - Not ever guaranteed to work for anything but certificate restrictions and ErrorDocument
- Recommended that you edit on Athena, not on your own computer

E-mail Forms

- CGIemail
- You create a web form and a corresponding text file
  - values from form filled in to special fields in text file; result e-mailed to address you specify
- Good for comment forms, reservation forms, guestbooks, etc.
- Anything more advanced requires scripts.mit.edu

scripts.mit.edu

- Dynamic content (wiki, blog, etc)
- Support for virtually any script in any scripting language

Services

- Web scripts (e.g. CGI)
- Cron scripts
- Mail scripts
- SQL database service (MySQL)
- Autoinstallers
  - Wordpress, MediaWiki, Trac, phpBB, Django, Gallery2

Getting Started

- Sign up:

```
add scripts
scripts
```

- Can sign up your locker, or a group locker that you control
  - If you're on the AFS ACL for the root of the locker

scripts.mit.edu

- Content goes in `~/web_scripts`
  - Special permissions set here to allow access by Scripts servers
- Your URL:
  - http://joeuser.scripts.mit.edu
  - Can't be accessed from http://web.mit.edu
  - Can request something.mit.edu as alias

Some more special AFS entities

- `daemon.scripts`
  - The Scripts servers (sort of)
    - Some black magic is done to ensure that even though joeuser and janeuser have web_scripts directories writable by daemon.scripts, one can't use the other
  - Can assign write permission
- `system:scripts-security-upd`
  - Allows the Scripts servers to make updates to selected software packages

Testing your scripts

- You can log in to the scripts servers to test things

```
ssh scripts.mit.edu
ssh -l lockername scripts.mit.edu
```

- Scripts is load-balanced, so don't count on getting the same server each time

Getting the most out of scripts

- If you're requesting a hostname for a group or project, get the AFS locker first, then request the hostname
  - Staging things in your locker and then moving them breaks things like Wordpress
- Use a Moira list (group) for access to your locker
  - e.g. `fs sa /mit/group system:group-www all`
  - then add/remove people to group-www

Keeping Your Site Secure

- Bad guys always on the lookout for wikis/ blogs to fill with spam
- Use good passwords for administering your blog, wiki, etc.
  - And make sure your users do
- Check your site periodically
- Know how to quickly re-create it if necessary

Getting Help

- web.mit.edu
  - http://kb.mit.edu
  - helpdesk@mit.edu
- scripts.mit.edu
  - http://scripts.mit.edu/faq
  - scripts@mit.edu

More Minicourses

- Sep 7: Dotfiles and Shell Customizations

- http://web.mit.edu/ist/helpdesk/minicourses/