

Scripts

MIT's Dynamic Web Hosting Service

Overview

- Scripts serves web apps from your home directory in AFS (`/mit/your-username/web_scripts` on Athena)
- Autoinstaller does all the hard setting up of a web app for you!

What's a web app?

- Computer program accessed using a web browser
- Wordpress, MediaWiki, webmail clients, or your own code (such as Django or Ruby on Rails)
- Scripts runs your web apps!

What is AFS?

- AFS, a distributed network-based file system
- For more information, go to <http://sipb.mit.edu/doc/afs-and-you/>

Autoinstaller

- No one likes setting up web apps
 - They like using them!
- Go to <http://scripts.mit.edu/start/> to get started!

Security Principles

1. Everything is compromised
2. Passwords aren't safe on a system that is compromised
3. Scripts can only access the parts of your Athena account that you give it access to
4. Other users can't access ANY of your files

Apache

- Web server used on Scripts to serve the web apps from your `web_scripts` folder (principle 3)
- Uses `suEXEC` to accomplish app separation (principle 1, 4)

What is 'suEXEC'?

- Feature of Apache Web server to serve dynamic files
- Provides ability to run web apps under user IDs different from the user ID of the web server
- Means that your code is running as you and other people's code is running as them!



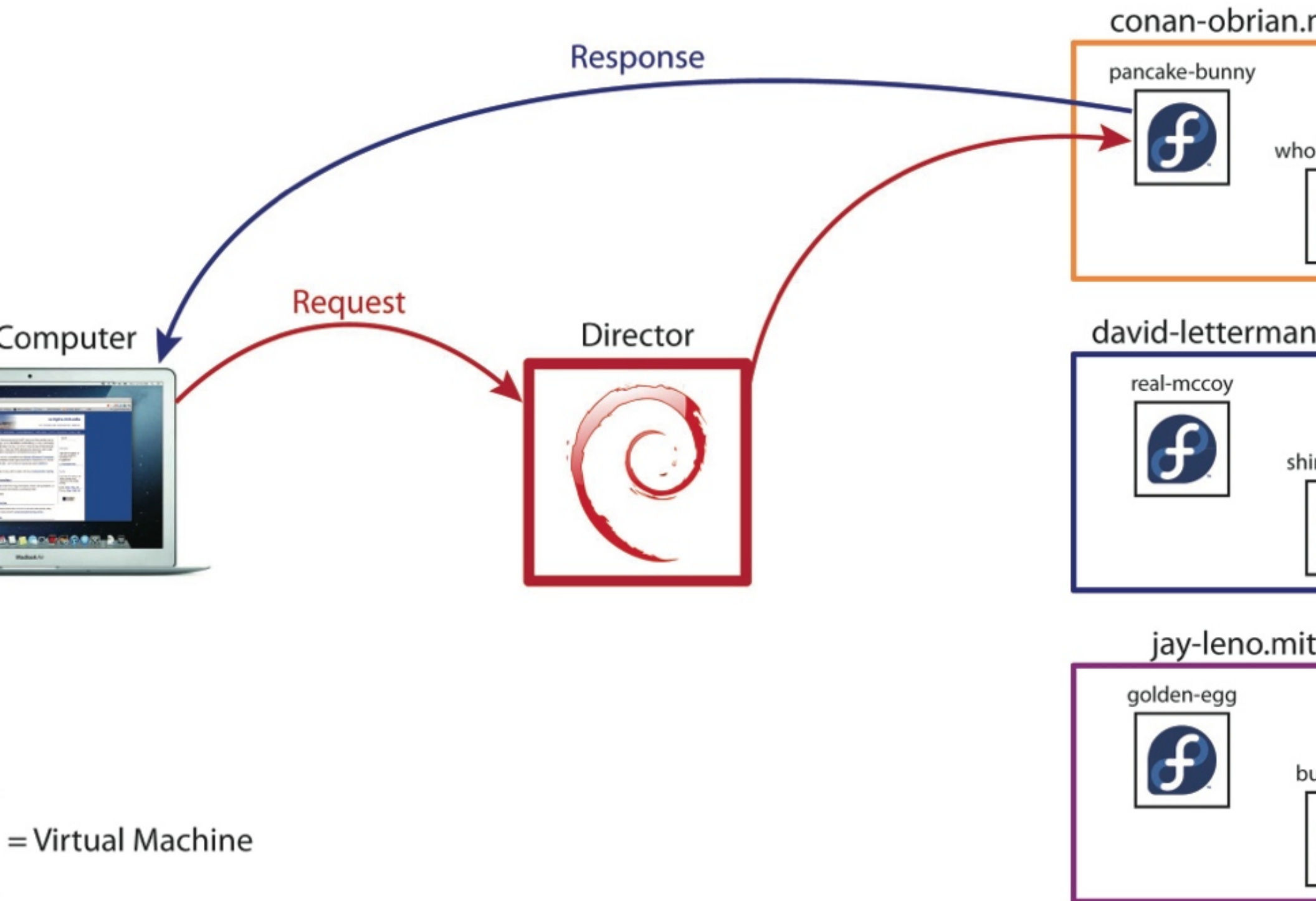
What is static-cat?

- Normally, static files are served directly by Apache
- Serves static files (like images, HTML files, CSS, JavaScript, etc.) with suEXEC
- Ensures that even if another user's web app is compromised, other people can't read your static files

Architecture

- 8 Physical Servers
 - 5 VM Hosts
 - 3 Directors
- 8 Server VMs (these are the server that actually serve your stuff!) which run on the VM Hosts
- Directors (rack-forward, rack-backward, and stanley kubrick) receive requests and forward the request to a Server VM with the lowest number of active connections

Scripts Physical Architecture



SQL

- MySQL for Scripts apps
- Go to <http://sql.mit.edu>
- Normal MySQL database server

Pony

- Accepts hostname requests (adding alias for username.scripts.mit.edu site)
 - coolname.mit.edu
 - foo.username.scripts.mit.edu (no approval required)
 - mycoolsite.com
- Creates an RT (Request Tracker) ticket for request and sends an email to Scripts Admin to approve
- Must-read on hostnames:
<http://scripts.mit.edu/faq/14>

Other Scripts Services

- Scheduled job service (Cron, <http://scripts.mit.edu/cron>)
- Accept, process, and send email (Mail, <http://scripts.mit.edu/mail>)
- Source code hosting (like Git and SVN)

Technical Content!

Scripts, AFS, and You

- Normally, you need to type your password to access AFS
- But Scripts never has your password
- How does Scripts access AFS?

A second user?

- Special AFS user created by IS&T just for Scripts: `daemon.scripts`
- Granted read & write privileges on your `web_scripts` folders
- New problem: every user has given privileges to `daemon.scripts`...

daemon.scripts

- Scripts uses a modified AFS client to protect `daemon.scripts`
- Scripts enforces additional access control in the kernel
- Accounts can only access files in their own volume or public data—not even Apache can access user data!

User Accounts

- “Users” are more than just people—scripts users also include departments, labs, student groups, etc.
- Scripts users correspond 1:1 to Athena lockers
- User IDs are actually AFS volume IDs

User Account Data

- Stored in Lightweight Directory Access Protocol (LDAP) in 389-Directory Server
- Multi-Master Replication between all Scripts Servers
- Change on 1 server propagates to the others
- Also stores configuration for Apache! (mod_vhost_ldap)

mod_vhost_ldap

- Apache has to read all configuration files at start—really slow with 1000 hostnames!
- Apache module to load configuration from LDAP
- New hostnames and domains can be configured without Apache restart

We need help!

- Users of the Scripts service frequently ask questions or need guidance in using Scripts
- Scripts has a yearly update cycle to keep up with the latest and greatest web app technology
- Maintaining Scripts is a lot of fun, and you can help!

How do I contribute?

Trac

- Scripts' bug-tracking system:
<http://scripts.mit.edu/trac/wiki/StarterTickets>
- Click on a ticket!
- Ask questions on Zephyr!

Zephyr

- Zephyr is MIT's internal Twitter
- Used for Scripts tickets discussion among other things
- Go to <http://sipb.mit.edu/doc/zephyr/> to get started
- Subscribe to class 'scripts' to get updates on tickets and ask questions!

RT (Request Tracker)

- If a Scripts user has a question, they can send an email to scripts@mit.edu
- The ticket can be viewed at <http://help.mit.edu>
- Talk to a Scripts team member (scripts-team@mit.edu) to get added to the RT system
- If you have questions on a ticket, ask about it on Zephyr!

Code Checkout

- Clone scripts repo:
`git clone git://github.com/sipb/scripts.git`
- Other repos (prefix with `git clone`):
 - `git://scripts.mit.edu/wizard.git`
 - `git://scripts.mit.edu/xen.git`
 - `git://scripts.mit.edu/scripts-pony.git`
- See all: <http://scripts.mit.edu/gitweb>

Questions?

- Please look at FAQ first, but always feel free to ask on Zephyr, or find us in the SIPB office!
- <http://scripts.mit.edu/faq/>

How to I find these slides

- ssh username@linerva.mit.edu
- cd /mit/scripts/doc/cluedump
- Look at slides.pdf!