



# Open Computing Facility

Fall 2014 General Meeting

# What is the OCF?

Founded in 1989 as an “**all-volunteer organization dedicated to free computing**”.

Provide services to students and a way to learn cool stuff.

# Services We Provide

- **Computer lab** on southside (14 computers, cool hardware) + free printing
- **Web & email hosting** for the vast majority of student groups
- **Shell accounts** on powerful servers for 30k users

# Things Staff Do

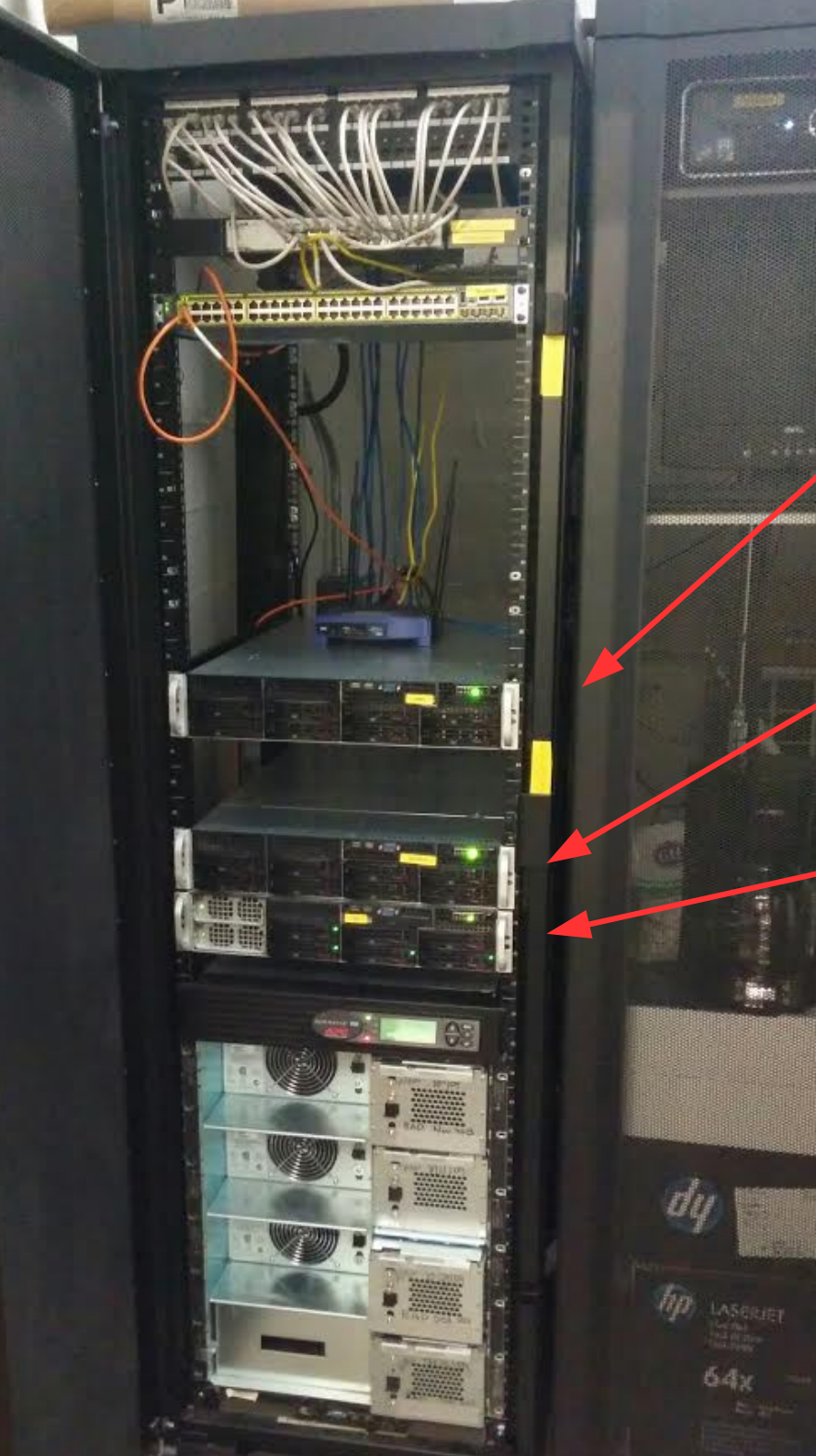
- **Hold weekly staff hours** to answer questions, help users
- **Maintain servers, computer lab, infrastructure**
- **Talk and make decisions** at weekly Board of Directors meetings

Technical Infrastructure



# Servers/Networking

3 main servers, all with many virtual machines (KVM)



# Servers/Networking

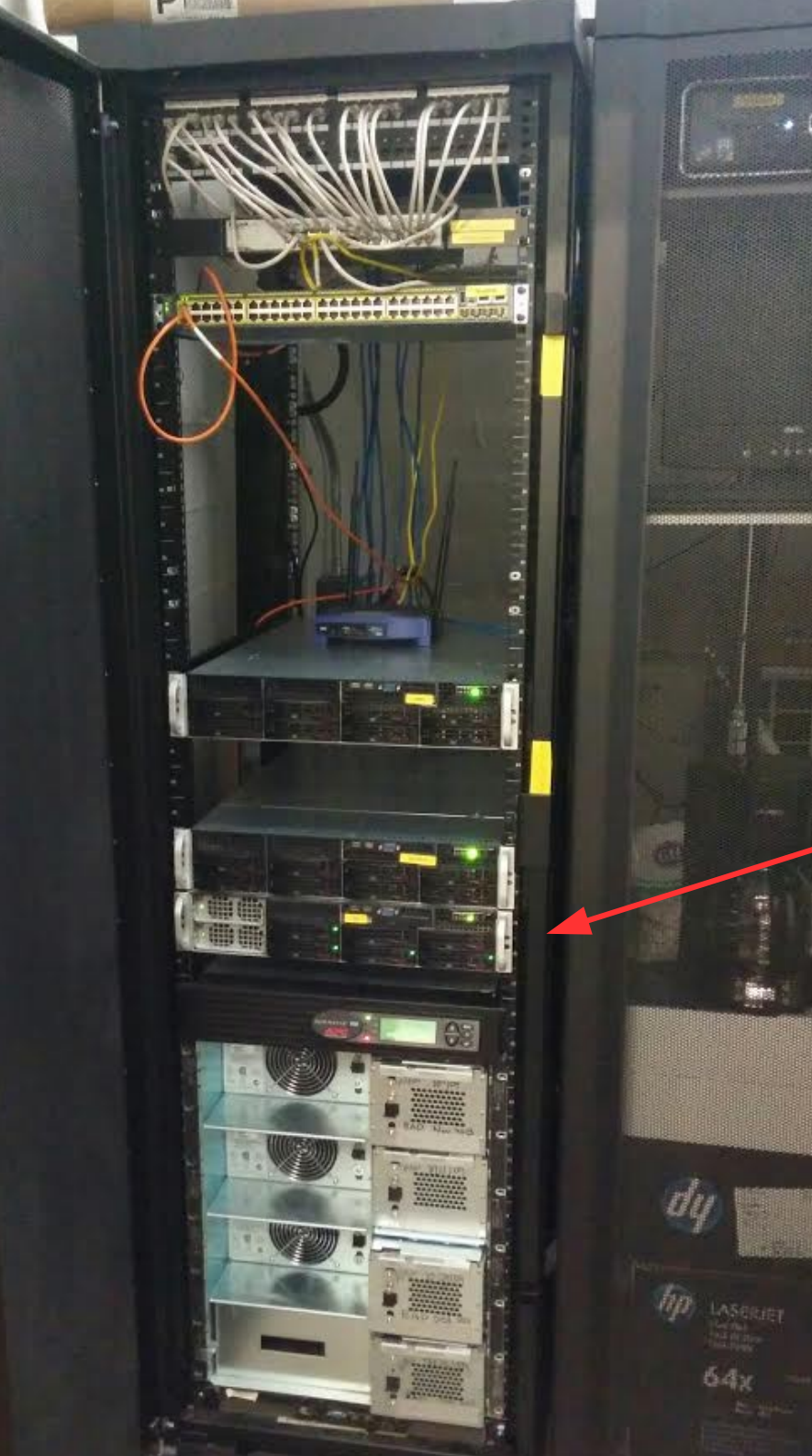
## hal

primary server, runs almost all production services

4x AMD Opteron 6174  
(48 physical cores)

4x 300GB 15krpm Cheetah (RAID5, for VMs)  
2x 2TB WD RE4 (RAID1, for backups)

128 GB RAM



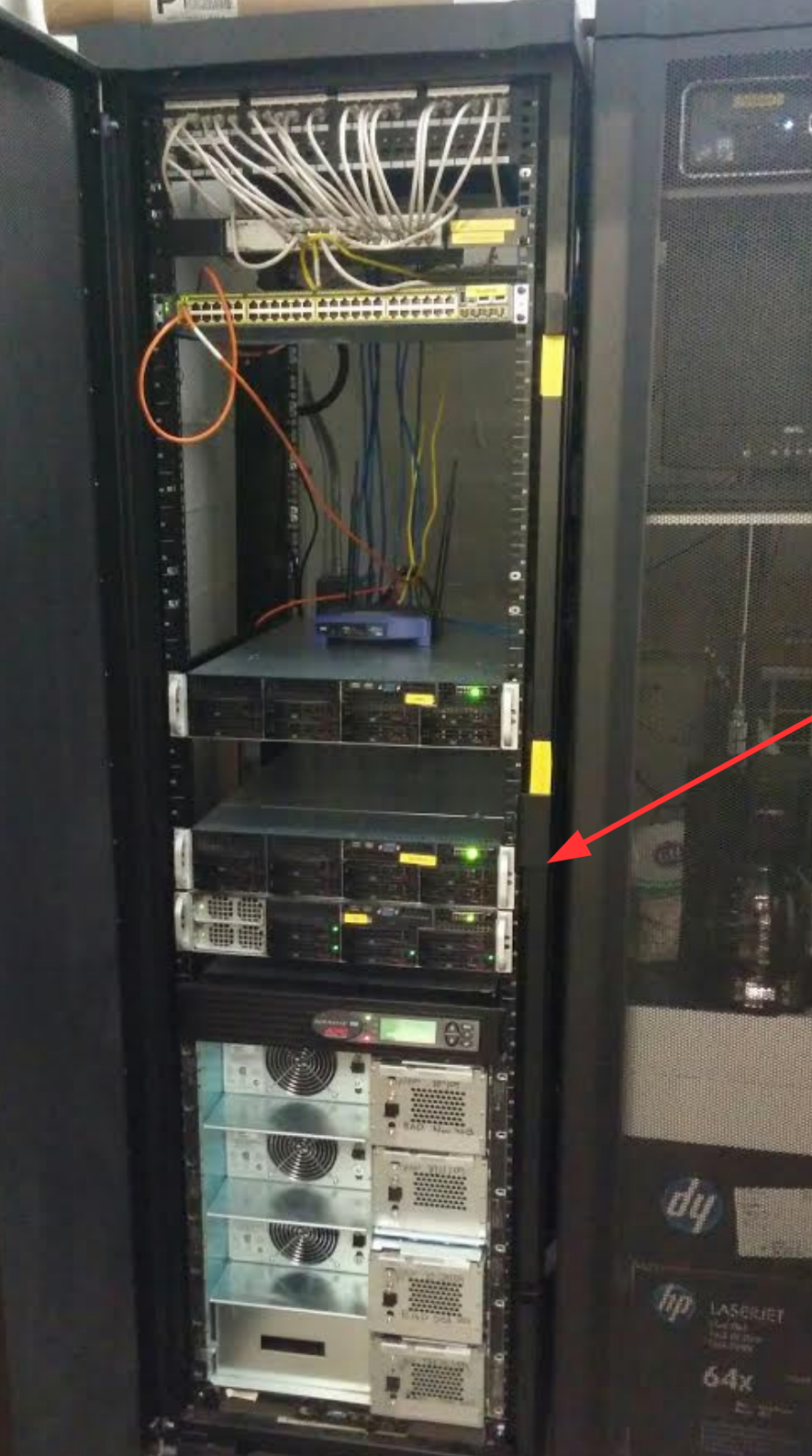
# Servers/Networking

**pandemic**  
file server, holds user home  
directories (exported via NFS)

2x AMD Opteron 6272  
(16 physical cores, 32 logical)

6x 1 TB WD Black (RAID5, for NFS)  
2x 2 TB WD Black (RAID1, backups)

32 GB RAM





# Servers/Networking

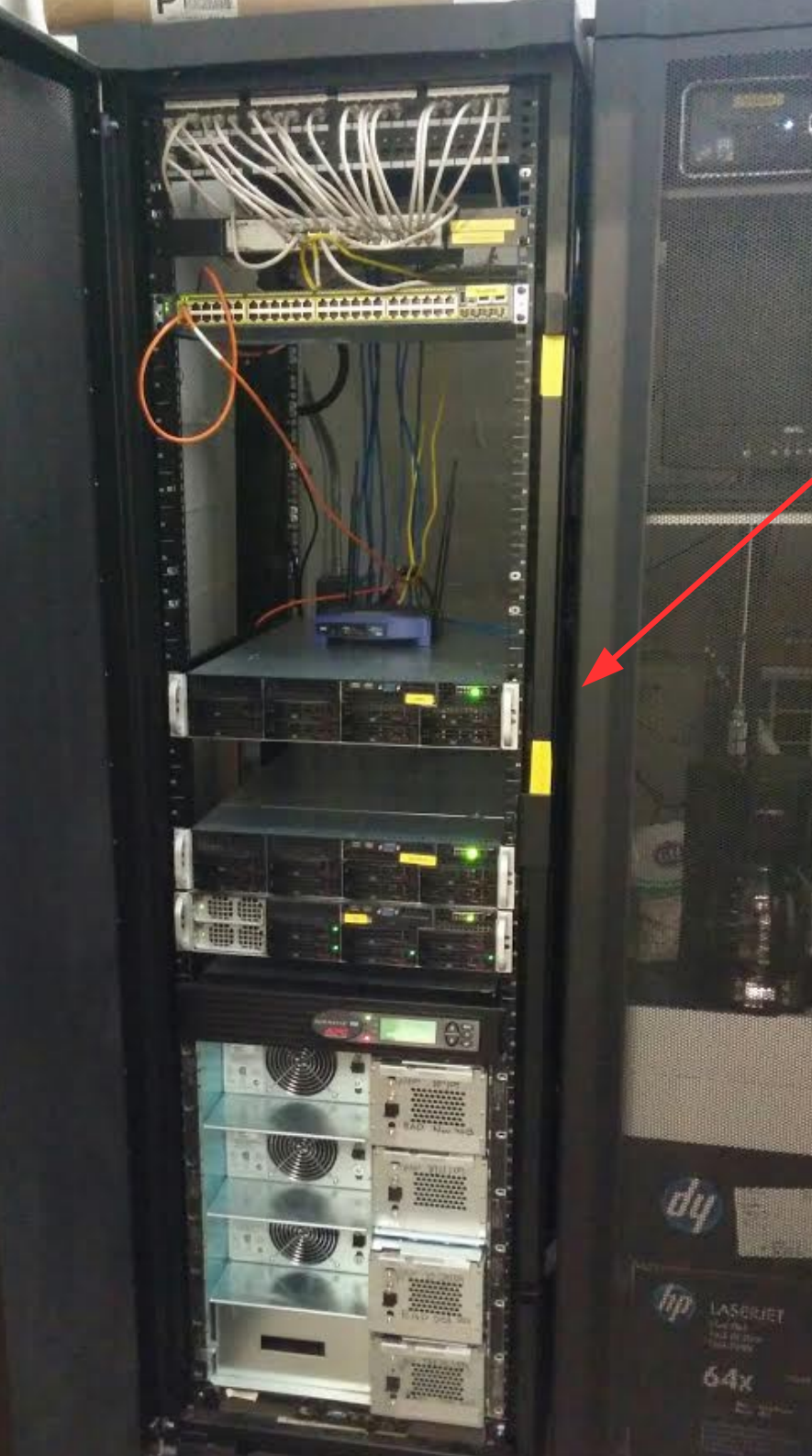
## **jaws**

staff hozing, testing

8x 256GB Samsung 840 Pro SSD  
(RAID5)

2x Intel Xeon(R) E5-2680  
(16 physical cores, 32 logical)

128GB RAM





# Servers/Networking

## **fallingrocks**

debian/ubuntu package mirror  
(mirrors.ocf.berkeley.edu)

1x 2TB WD Black

1x 3TB WD Black

(LVM'd together like RAID0; no  
redundancy)

some random desktop cpu

some amount of RAM

# Servers/Networking

## **blackhole**

gigabit ethernet switch  
(very expensive, pretty much does  
nothing currently)

Cisco WS-C2960S-48TS-L



# Servers/Networking

## patch panel

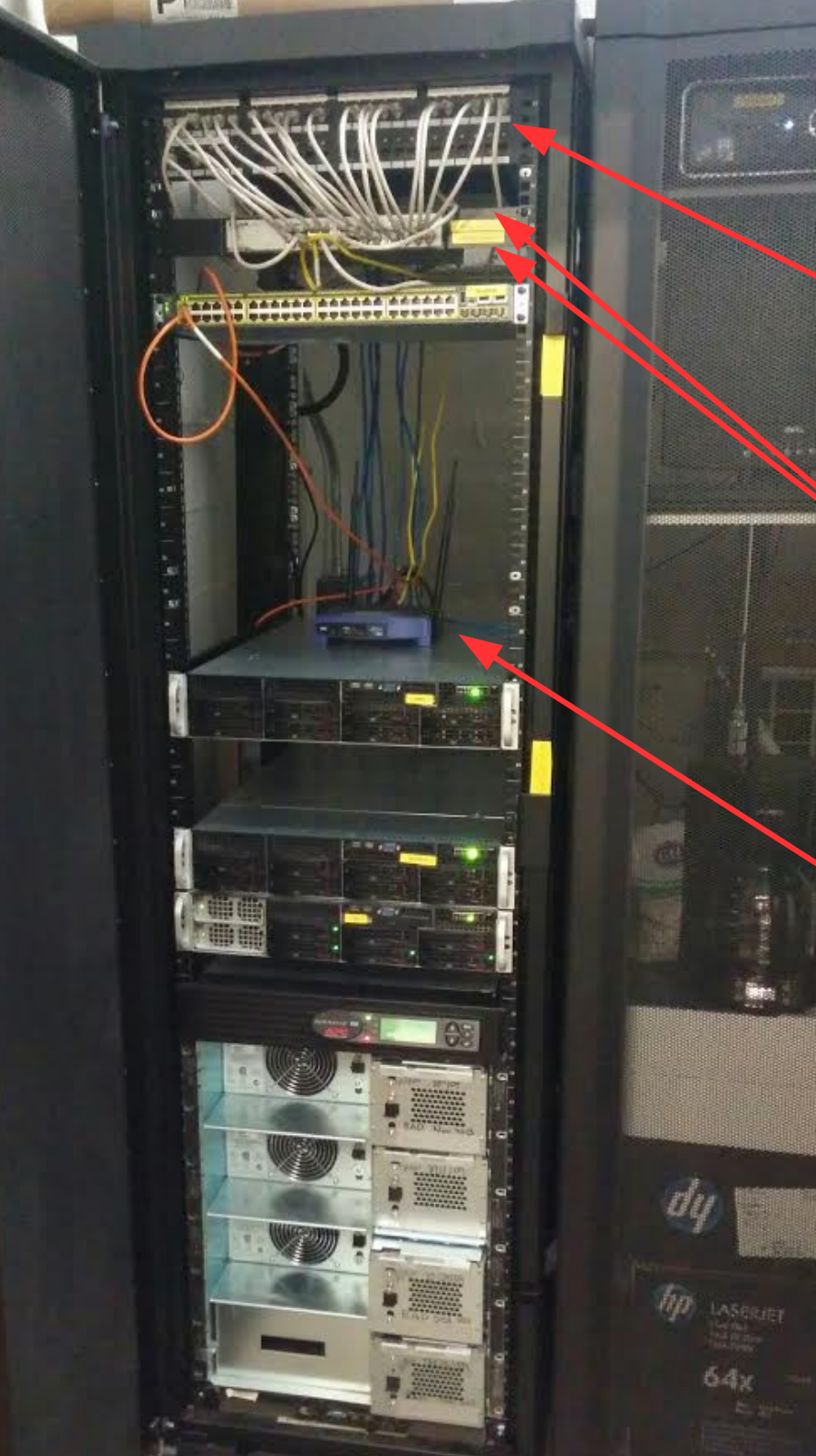
desktop computers from the lab connect here

## unmanaged switches (2)

connect desktops to blackhole (main switch)

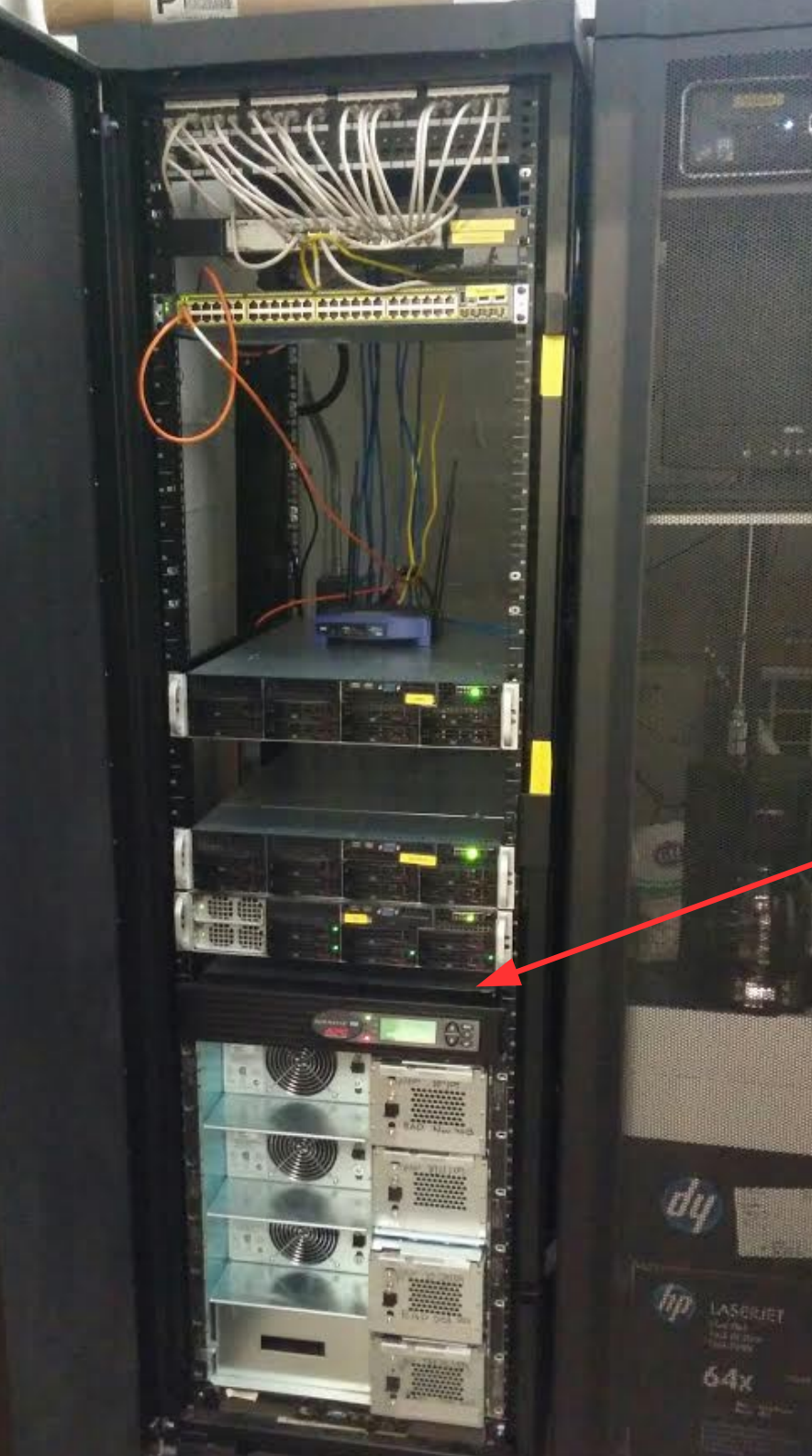
## radiation

staff wifi



# Servers/Networking

**uninterruptable power supply (UPS)**  
battery backup in case power goes out



# Computer Lab



Critical (1)

Warning (3)

Unknown (0)

## Groups

ocf.berkeley.edu

## Categories

apache [ d w m y ]

disk [ d w m y ]

munin [ d w m y ]

mysql2 [ d w m y ]

network [ d w m y ]

nfs [ d w m y ]

postfix [ d w m y ]

printing [ d w m y ]

processes [ d w m y ]

sensors [ d w m y ]

system [ d w m y ]

time [ d w m y ]

- ocf.berkeley.edu :: [ day week month year ]
  - acid.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - anthrax.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - avalanche.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - bigbang.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - biohazard.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - blackout.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - blackrain.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
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  - destruction.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - dev-anthrax.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - dev-death.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
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  - dev-firestorm.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - dev-sandstorm.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - earthquake.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - eruption.ocf.berkeley.edu [ disk network nfs postfix processes sensors system time ]
  - fallingrocks.ocf.berkeley.edu [ disk munin network nfs postfix processes sensors system time ]
  - famine.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - firestorm.ocf.berkeley.edu [ disk network postfix processes system time ]
  - firewhirl.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
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  - jaws.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - kamikaze.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - lightning.ocf.berkeley.edu [ disk network postfix processes system time ]
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  - locusts.ocf.berkeley.edu [ apache disk network nfs postfix processes system time ]
  - madcow.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - maelstrom.ocf.berkeley.edu [ disk network postfix processes system time ]
  - meltdown.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - meteorstorm.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - mudslide.ocf.berkeley.edu [ apache disk network nfs postfix processes system time ]
  - outbreak.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]
  - pandemic.ocf.berkeley.edu [ disk network nfs postfix processes sensors system time ]
  - pestilence.ocf.berkeley.edu [ disk network postfix processes system time ]
  - plague.ocf.berkeley.edu [ disk network postfix processes system time ]
  - pollution.ocf.berkeley.edu [ disk network nfs postfix printing processes system time ]
  - quicksand.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - ragnarok.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - raptors.ocf.berkeley.edu [ apache disk network nfs postfix processes system time ]
  - revolution.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - sandstorm.ocf.berkeley.edu [ apache disk network nfs postfix processes system time ]
  - smallpox.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - supernova.ocf.berkeley.edu [ disk network nfs postfix processes system time ]
  - tsunami.ocf.berkeley.edu [ disk network nfs postfix printing processes system time ]
  - typhoon.ocf.berkeley.edu [ apache disk mysql2 network postfix processes system time ]
  - volcano.ocf.berkeley.edu [ disk network nfs postfix printing processes sensors system time ]





# Maintaining servers/desktops



Everything runs  
Debian Linux



Manage configuration  
using Puppet

ocf / puppet

★ Star 3

🍴 Fork 0

branch: master puppet / modules / +

desktop: disable Chrome built-in PDF viewer

chriskuehl authored 22 hours ago

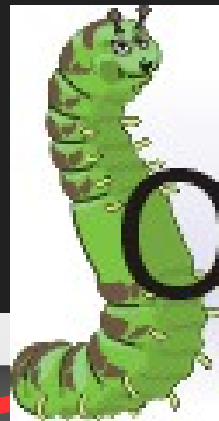
latest commit 44c3b34777

..		
📁 apache @ 212e09d	Add puppetlabs/apache module (v1.1.1) and deps	a month ago
📁 apt @ 125716d	Add apt (1.5.2), nginx (0.0.9) modules	a month ago
📁 blight	Always use HTTPS on wiki	4 months ago
📁 common	desktop: move includes from nodes to desktop::init	15 days ago
📁 concat @ cf366e2	Add puppetlabs/apache module (v1.1.1) and deps	a month ago
📁 coupdetat	moved everything else to separate modules	a year ago
📁 death	death: remove hello redirect, add aliases	5 days ago
📁 dementors	Mail ocfstats cron reports to root	3 months ago
📁 desktop	desktop: disable Chrome built-in PDF viewer	22 hours ago
📁 eruption/manifests	Upgrade configuration to support jessie desktops	2 months ago
📁 firestorm	firestorm: allow (dev-)?earthquake to change passwords	28 days ago
📁 lightning	puppet.conf: Enable pluginsync on master and nodes	a month ago
📁 maelstrom	maelstrom: Use apt module for repo config	a month ago
📁 networking	Use instance variables in ERB templates	a year ago
📁 nginx @ 52f80a8	Add apt (1.5.2), nginx (0.0.9) modules	a month ago

```
4 class ocf_mail::site_ocf {
5   include spam
6
7   # backport postfix because debian postfix-ldap packages prior to 2.11.1-1 are
8   # compiled without -DUSE_LDAP_SASL, and wheezy has only 2.9.6
9   #
10  # we need LDAP SASL support in order to auth with a GSSAPI LDAP bind to
11  # access users' mail LDAP attributes for mail forwarding
12  ocf::repackage {
13    'postfix':
14      backports => true;
15    'postfix-ldap':
16      backports => true;
17  }
18
19  package {
20    ['rt4-clients'];;
21  }
22
23  service {
24    'postfix':
25      require => [Ocf::Repackage['postfix'], Package['rt4-clients']];
26  }
27
28  user {
29    'ocfmail':
30      ensure => present,
31      name   => 'ocfmail',
32      gid    => 'ocfmail',
33      groups => ['sys'],
34      home   => '/var/mail',
35      shell  => '/bin/false',
36      system => true,
```

# 30k users maintained in LDAP/Kerberos

```
ckuehl@raptors:~$ ldapsearch uid=ckuehl
SASL/GSSAPI authentication started
SASL username: ckuehl/admin@OCF.BERKELEY.EDU
SASL SSF: 56
SASL data security layer installed.
# extended LDIF
#
# LDAPv3
# base <dc=ocf,dc=berkeley,dc=edu> (default) with scope subtree
# filter: uid=ckuehl
# requesting: ALL
#
# ckuehl, People, OCF.Berkeley.EDU
dn: uid=ckuehl,ou=People,dc=OCF,dc=Berkeley,dc=EDU
objectClass: ocfAccount
objectClass: account
objectClass: posixAccount
uidNumber: 28460
gidNumber: 20
homeDirectory: /home/c/ck/ckuehl
uid: ckuehl
loginShell: /bin/zsh
cn: Chris Kuehl
mail: ckuehl@g.ocf.berkeley.edu
calnetUid: 10341929999
```



OpenLDAP™

<http://www.OpenLDAP.org>

# Web hosting



Individual hosting:  
[ocf.berkeley.edu/~me/](http://ocf.berkeley.edu/~me/)

Virtual hosting:  
[mygroup.berkeley.edu](http://mygroup.berkeley.edu)

# Mail hosting



Projects this Semester



# Improving services for student groups

- Better web hosting  
(Django/Flask, Rails, Node.js, etc.)
- Better email for @mygroup.berkeley.edu  
(currently forward-only)
- Offering our infrastructure  
(storage space, processing power, etc.)



# Lab improvements

- Improving the software
- More robust printing
- More cool stuff

## Misc improvements

- Improve user/staff documentation
- Better training/events for new staff

Getting Involved



# Staff involvement

- **Weekly Board of Directors meetings**  
discuss plans, make decisions, talk tech
- **Weekly staff hours** (one hour per week)  
sit in lab, answer questions, help users, learn
- **Answer user emails/questions**  
we get ~50-200 emails/week from users

# Staff involvement

- Fun stuff (talks held by famous people, LAN parties, etc.)

# Staff involvement

- **Next BoD meeting:**  
assign staff privileges, go over basic training,  
decide on staff hours