

# Campus Network Design Workshop

## Configuration Management with RANCID

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# What is RANCID?

- The “Really Awesome New Cisco config Differ”!



- A configuration management tool:
  - Keeps track of changes in the configurations of your network equipment (Cisco, HP, Juniper, Brocade, etc.)
  - Works on routers and switches
- And most devices with command line interface



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# What is RANCID?

- Automates retrieval of configurations & archives them
- Functions as:
  - Backup tool – “woops, my router burned”
  - Audit tool – “how did this error get in?”
  - Blame allocation 😊 – “who did it?”
- The data is stored in a Version Control System, either of:
  - CVS (Concurrent Versions Systems)
  - SVN (SubVersion)

# What is Version Control?

- Three basic principles:
  1. Keep a record and history of changes
  2. Give public access to the information
  3. Maintain different versions from the same data set
- What types of data?
  - Source code
  - Documentation
  - ***Configuration files***
  - Generally, any type of data...



# How does RANCID work?

- Run (manually or automated)
- Lookup list of groups
  - For each device in each list of groups
    - Connect to the equipment (telnet, ssh, ...)
    - Run "show" commands – config, inventory, ...
    - Collect, filter/format data
    - Retrieve the resulting config files
    - CVS/SVN check-in the changes
    - Generate a *diff* from the previous version
    - E-mail the diff to a mail address (individual or group)



# Example Email

•	← RANCID User	5/08/2015, 10:02	• •	config fetcher problems - home
•	← RANCID User	5/08/2015, 11:02	• •	config fetcher problems - home
•	← RANCID User	5/08/2015, 12:03	• •	config fetcher problems - home
•	← RANCID User	12/08/2015, 22:01	• •	home router config diffs
•	← RANCID User	13/08/2015, 12:01	• •	home router config diffs
•	← RANCID User	14/08/2015, 01:01	• •	home router config diffs
•	← RANCID User	17/08/2015, 16:01	• •	home router config diffs
•	← RANCID User	18/08/2015, 18:05	• •	home router config diffs
•	← RANCID User	18/08/2015, 19:01	• •	home router config diffs

From RANCID User <rancid@apnic.net> ☆  
Subject home router config diffs  
To rancid-home@thyme.rand.apnic.net ☆

12/08/2015, 22:01 +100

Index: configs/gw.pfs.name

```
=====
retrieving revision 1.58
diff -U 4 -r1.58 gw.pfs.name
@@ -19,15 +19,15 @@
!Flash: 3      29611608 Apr 26 2014 19:14:56 +10:00 c180x-advipservicesk9-mz.151-4.M8
!Flash: 3747840 bytes available (60272640 bytes used)
!
!Flash: nvram: Directory of nvram:/
- !Flash: nvram: 174 -rw- 12983 <no date> startup-config
+ !Flash: nvram: 174 -rw- 13224 <no date> startup-config
!Flash: nvram: 175 ---- 3560 <no date> private-config
- !Flash: nvram: 176 -rw- 12983 <no date> underlying-config
+ !Flash: nvram: 176 -rw- 13224 <no date> underlying-config
!Flash: nvram: 1 -rw- 0 <no date> ifIndex-table
```

# Why Use RANCID?

- Track changes in the equipment configuration
- Track changes in the hardware (S/N, modules)
- Track version changes in the OS (IOS, CatOS versions)
- Find out what your colleagues have done without telling you!
- Recover from accidental configuration errors (anyone have stories?)

# Post Processing

- Run traditional filtering commands on your configs (grep, sed, for information)
- Re-use the automated login tools to build your own batch tools or do interactive login
- On large configurations, you can parallelize operations



# Other Operations

- Automated checks (verify configurations for strange/inconsistent setup)
- Generate DNS file from equipment list
- Use IP address adjacency to produce a graph of your network

# References

- RANCID Project:
  - <http://www.shrubbery.net/rancid/>
- Subversion (SVN):
  - <http://subversion.apache.org/>
- Good, Short RANCID Presentation
  - <http://www.shrubbery.net/rancid/NANOG29/>
- RANCID HowTos
  - [http://www.linuxhomenetworking.com/wiki/index.php/Quick\\_HOWTO:\\_Ch1:\\_Network\\_Backups\\_With\\_Rancid](http://www.linuxhomenetworking.com/wiki/index.php/Quick_HOWTO:_Ch1:_Network_Backups_With_Rancid)
  - [http://gentoo-wiki.com/HOWTO\\_Rancid](http://gentoo-wiki.com/HOWTO_Rancid)
  - <http://homepage.mac.com/duling/halfdozen/RANCID-Howto.html>



# Questions?

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