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 – "oops, 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)

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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)

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Example Email

From **RANCID User <rancid@apnic.net>** ☆   ↩ Reply   ↩ Reply All ▾   → Forward   ↪ Redirect   🗄 Archive   ⬤ Junk   ⊘ Delete   ABP

Subject **home router config diffs**   12/08/2015, 22:01 +100

To rancid-home@thyme.rand.apnic.net ☆

```
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 operating system
- Find out what your colleagues have done without telling you!
- Recover from accidental configuration errors (anyone have stories?)

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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

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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://gentoo-wiki.com/HOWTO_Rancid
  - http://homepage.mac.com/duling/halfdozen/RANCID-Howto.html

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Questions?