

Log management

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Log management and monitoring

- What is log management and monitoring ?
- It's about keeping your logs in a safe place, putting them where you can easily inspect them with tools
- Keep an eye on your log files
- They tell you something important...
 - Lots of things happen, and someone needs to keep an eye on them...
 - Not really practical to do it by hand!

Log management and monitoring

- On your routers and switches

- Sep 1 04:40:11.788 INDIA: %SEC-6-IPACCESSLOGP: list 100 denied tcp 79.210.84.154(2167) -> 169.223.192.85(6662), 1 packet
- Sep 1 04:42:35.270 INDIA: %SYS-5-CONFIG_I: Configured from console by pr on vty0 (203.200.80.75)
- %CI-3-TEMP: Overtemperature warning
- Mar 1 00:05:51.443: %LINK-3-UPDOWN: Interface Serial1, changed state to down

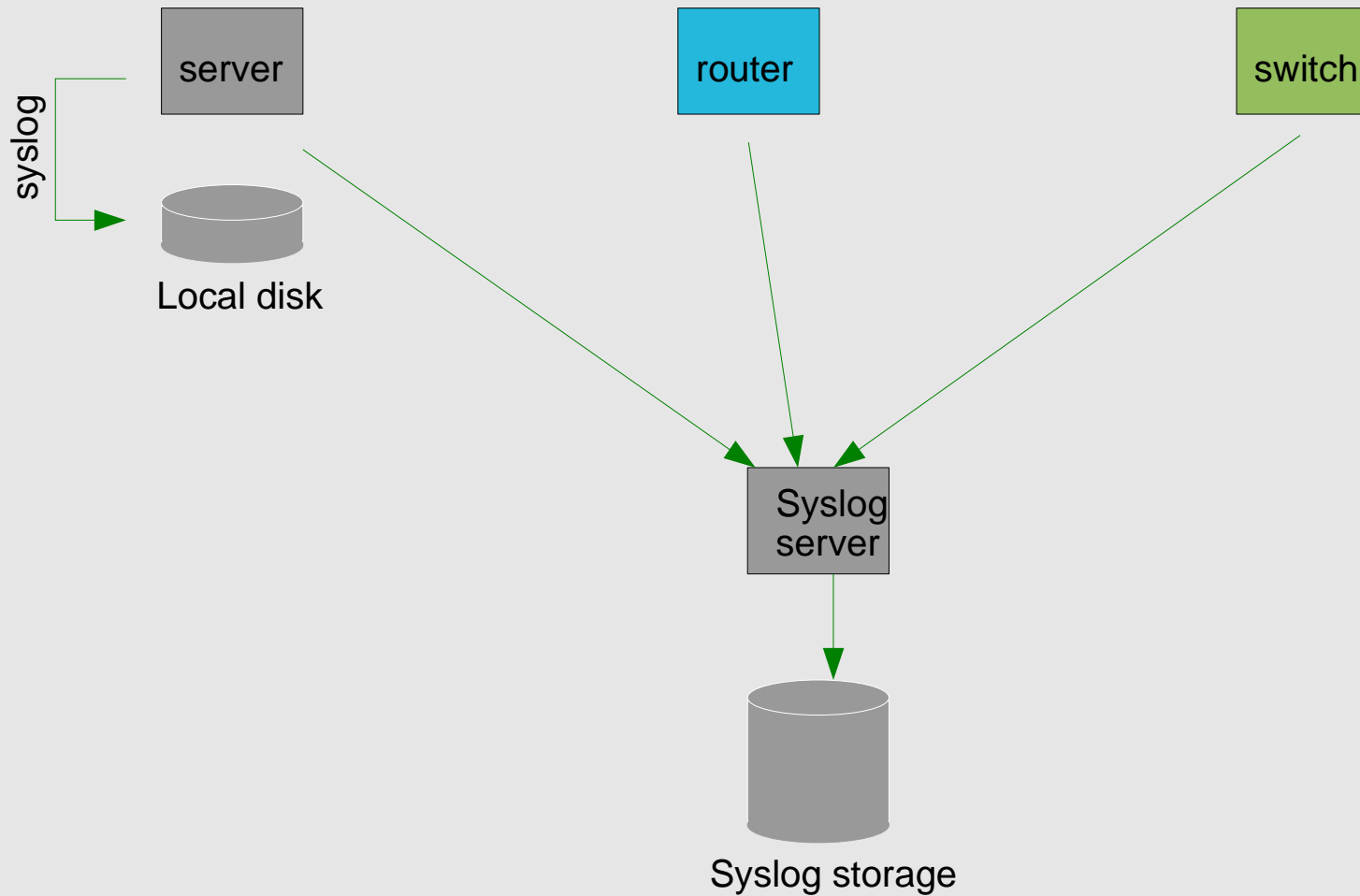
- On your servers as well

- Aug 31 17:53:12 ubuntu nagios2: Caught SIGTERM, shutting down...
- Aug 31 19:19:36 ubuntu sshd[16404]: Failed password for root from 169.223.1.130 port 2039 ssh2

Log management

- First, need to centralize and consolidate log files
- Log all messages from routers, switches and servers to a single machine – a logserver
- All logging from network equipment and UNIX servers is done using syslog
- Windows can be configured to use syslog as well, with some tools
- Log locally, but also to the central server

Centralized logging



Configuring centralized logging

- Cisco equipment
 - Minimum:
 - `logging ip.of.log.host`
- UNIX host
 - Edit `/etc/syslog.conf`
 - Add a line `"*. * @ip.of.log.host"`
 - Restart `syslogd`
- Other equipments have similar options
 - Options to control facility and level

Receiving the messages

- Identify the facility that the SENDING host or device will send their message on
- Reconfigure syslogd to listen to the network (on Ubuntu/Debian: add "-r" to /etc/default/syslogd
- Add an entry to syslogd indicating where to write messages:
 - local7.* /var/log/routers
- Create the file:
 - touch /var/log/routers
- Restart syslogd
 - /etc/rc.d/syslogd restart

Syslog basics

- UDP protocol, port 514
- Syslog messages contain:
 - Facility: Auth Level: Emergency(0)
 Authpriv | Alert (1)
 Console | Critical (2)
 Cron | Error (3)
 Daemon | Warning (4)
 Ftp | Notice (5)
 Kern | Info (6)
 Lpr | Mail | Debug (7)
 News | Ntp |
 Security | Syslog
 User | UUCP
 Local0 ... Local7

Sorting logs

- Using facility and level, sort by category into different files
- With tools like `syslog-ng`, sort by host, date, ... automatically into different directories
- Grep your way through the logs.
- Use standard UNIX tools to sort, and eliminate, things you want to filter out:
 - `egrep -v '(list 100 denied|logging rate-limited)' mylogfile`
 - Other tools exist, like "Swatch" to make this automatic

SWATCH

- Simple Log Watcher
 - Written in Perl
 - Monitors log files, looking for patterns ("regular expressions") to match in the logs
 - Perform a given action if the pattern is found

Sample config

- ```
watchfor /%LINK-3-UPDOWN/
 mail addresses=inst,subject=Link updown throttle 1:00
watchfor /%SEC-6-IPACCESSLOGP/
 exec /usr/bin/echo $* >> /tmp/accesslist.log
watchfor /%SYS-5-CONFIG/
 mail addresses=inst,subject=Configuration of router
```

# References

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- <http://www.loganalysis.org/>
- Syslog NG
  - <http://www.balabit.com/network-security/syslog-ng/>
- Windows Event Log to Syslog:
  - <https://engineering.purdue.edu/ECN/Resources/Documents/UNIX/evtsys>
- SWATCH log watcher
  - <http://swatch.sourceforge.net/>
  - <http://www.loganalysis.org/sections/signatures/log-swatch-skendrick.txt>
  - <http://www.loganalysis.org/>
  - [http://sourceforge.net/docman/display\\_doc.php?docid=5332&group\\_id=25401](http://sourceforge.net/docman/display_doc.php?docid=5332&group_id=25401)

# Questions ?

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