

Log management

Network Management Tutorial

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

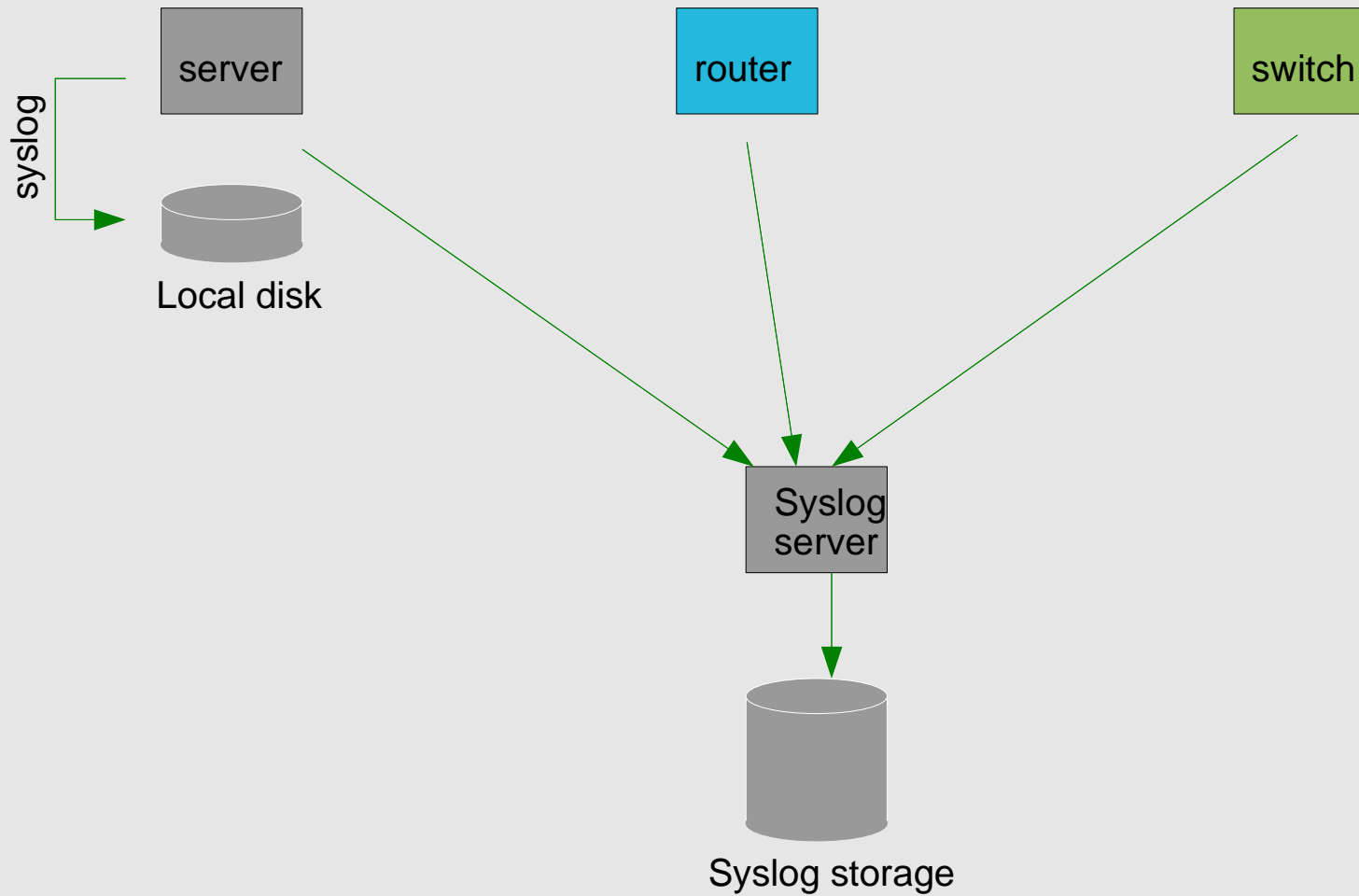
- On your servers as well

- 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/init.d/sysklogd restart`

Syslog basics

- UDP protocol, port 514
- Syslog messages contain:

Facility:

Level:

Auth	Emergency	(0)
Authpriv	Alert	(1)
Console	Critical	(2)
Cron	Error	(3)
Daemon	Warning	(4)
Ftp	Notice	(5)
Kern	Info	(6)
Lpr	Mail	(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`
 - Is there a way to do this automatically ?

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

```
ignore /things to ignore/
```

```
watchfor /NATIVE_VLAN_MISMATCH/  
    mail=root,subject=VLAN problem  
    threshold type=limit,count=1,seconds=3600
```

```
watchfor /CONFIG_I/  
    mail=root,subject=Router config  
    threshold type=limit,count=1,seconds=3600
```

References

- <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

References

- <http://www.crypt.gen.nz/logsurfer/>
- <http://sial.org/howto/logging/swatch/>

Questions ?

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