Network Management & Monitoring

Log Management

Syslog basics

Uses UDP protocol, port 514

Syslog message have two attributes (in addition to the message itself):

Facility		Level	
Auth	Security	Emergency	(0)
Authpriv	User	Alert	(1)
Console	Syslog	Critical	(2)
Cron	UUCP	Error	(3)
Daemon	Mail	Warning	(4)
Ftp	Ntp	Notice	(5)
Kern	News	Info	(6)
Lpr		Debug	(7)
Local0 ...Local7			

Log Management and Monitoring

What is log M&M ?

- Keeping your logs in a secure place where they can be easily inspected.
- Watching your log files.
- They contain important information:
  - Lots of things happen and someone needs to review them.
  - It’s not practical to do this manually.

Log Management and Monitoring

On your routers and switches

```
ep  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

ep  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

ar  1 00:05:51.443: %LINK-3-UPDOWN: Interface Serial1, changed
state to down
```

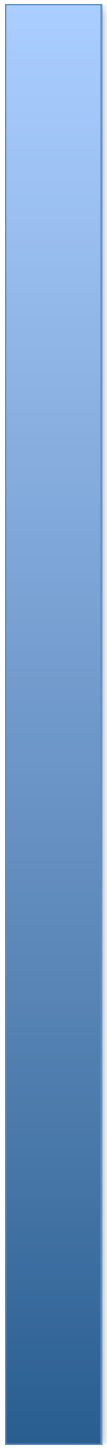
And, on your servers

```
ug 31 17:53:12 ubuntu nagios3: Caught SIGTERM, shutting down...

ug 31 19:19:36 ubuntu sshd[16404]: Failed password for root from
169.223.1.130 port 2039 ssh2
```

Log Management

- Centralize and consolidate log files
- Send all log messages from your routers, switches and servers to a single node – a *log server*.
- All network hardware and UNIX/Linux servers can be monitored using some version of `syslog`.
- Windows can, also, use syslog with extra tools.
- Save a copy of the logs locally, but, also, save them to a central log server.



Configuring centralized logging

Cisco hardware

- At a minimum:
  - logging ip.of.logging.host

Unix and Linux nodes

- In /etc/syslog.conf, add:

```
*.*             @ip.of.log.host
```

- Restart syslogd

Other equipment have similar options

- Options to control *facility* and *level*

Receiving syslog messages

- Identify the *facility* that the equipment is going to use to send its messages.
- Reconfigure *syslogd* to listen to the network.
  - Ubuntu: add "`-r`" to `/etc/defaults/syslogd`
- Add an entry to *syslodg* where messages are going to be written:

```
local7.*                /var/log/routers
```

- Create the file

```
touch /var/log/routers
```

- Restart *syslogd*

```
/etc/init.d/syslogd restart
```

Grouping logs

- Using *facility* and *level* you can group by category in distinct files.
- With software such as *syslog-ng* you can group by machine, date, etc. automatically in different directories.
- You can use *grep* to review logs.
- You can use typical UNIX tools to group and eliminate items that you wish to filter:

```
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 logs looking for patterns using regular expressions.
- Executes a specific action if a pattern is found.
- Can be any pattern and any action.
- Defining the patterns is the hard part.

Sample configuration

```
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
```

What are these? What does it mean?

References & links

SyslogNG

http://www.balabit.com/network-security/syslog-ng/

Rsyslog

http://www.rsyslog.com/

Windows Log to Syslog

http://code.google.com/p/eventlog-to-syslog/

http://www.intersectalliance.com/projects/index.html

SWATCH log watcher

http://sourceforge.net/projects/swatch/

Other software

http://www.crypt.gen.nz/logsurfer

http://simple-evcorr.sourceforge.net/

Sample configs

Questions?

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