Logstash and friends

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Techies Teach Techies

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Logging

- Recording of events
- Voice of your systems and applications
- It tells you almose everything
- It is a source of knowledge

Logging is useful

- Understanding outages

Logging is useful

- Understanding outages
- not only when it's wrong
- you can extract metrics
- no logs means something
- it tells you what, why, who, when

Logging in the wild

- Syslog
- `|tee /var/log/myapp.log`
- Cron + `MAILTO=`
- `&>/dev/null`

Logging in the past

- Logging to files on each server
- Using syslog protocol
- Decentralized
- Reading requires SSH access
- Not developer friendly

The tools nowadays

- Jenkins, Icinga, Graphite, Foreman
- Nice web interfaces
- Centralized
- Easy to use

Requirements

- Scalable tools
- Configured by text files
- Playing with existing tools
- Scalable
- Following the Unix philosophy

3 separate tools

- Elasicsearch, distributed search & analytics engine
- Logstash, logs managment
- Kibana, very nice webui to ES and Logstash

Logstash

Shipping the logs

- Some applications can only write to files
- But you need them on the main logstash server
- Logstash can act as a daemon to ship the logs
- Destinations can be syslog, redis,. . .
- Then you can act on your logs

Collecting the logs

- You can plug logstash to a lot of data sources
- It can be passive or active
- Listening on a UDP port vs checking mails
- All your logs are managed by one application
- It creates fields from the logs

Filtering the logs

- Making sense of a log message
- Finding what is important
- Adding and removing fields

Storing the logs

- Output to Elasticsearch
- Sending information to statsd
- Sending to your inbox, to icinga or files

http://www.flickr.com/photos/quinnanya/7237788632/

UDP and TCP input

- Compatible with rsyslog protocol
- Each syslog talks with logstash directly
- Allow you to use the syslog toolchains: logger, rsyslog
- UDP is shoot and forget

UDP and TCP input

Logstash configuration

```
input {
    udp {
        type => syslog
        port => 5544
    }
    tcp {
        type => syslog
        port => 5544
    }
}
```

UDP and TCP input

Rsyslog configuration

```
*.* @logstash.example.com:5544
```

- In `/etc/rsyslog.conf`
- That line will forward all the logs to logstash
- Logstash will make useful fields out of it: priority, severity, program...

File

- Enable you to use logstash with every application
- Useful to ship the logs
- Acts as a `tail -n 0 -F`
- It works even if you use logrotate

File

```
input {
    file {
        path => "/var/log/legacyapp.log"
        type => "legacylog"
    }
}
```

Grok

- Extract fields from text
- Useful to read messages
- A lot of pre-existing patterns
- Uses Regex to find out fields

Grok

Input text

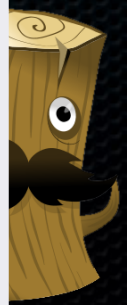
```
Invalid user oracle from 85.249.144.18
```

Grok pattern

```
Invalid user %{USERNAME:login} from %{IP:ip}
```

Result

```
{
    "login": [
        [ "oracle" ]
    ],
    "ip": [
        [ "85.249.144.18" ]
    ]
}
```



Grok

```
filter {
    grok {
        type    => "syslog"
        pattern => ["(?m)<%{POSINT:syslog_pri}>..."
        add_field => [ "received_at", "%{@timestamp}" ]
        add_field => [ "received_from", "%{@source_host}" ]
        add_tag  => "syslog-%{syslog_program}"
    }
}
```

Grep

- Allows you to grep interresting messages
- Useful to count

Grep

```
filter {
    grep {
        add_field => ["outputirc", "A puppet package
                                    has been deployed"]
        add_tag => "outputirc"
        drop => false
        match => [ "syslog_program", "yum" ]
        match => [ "@source_host", "puppetmaster" ]
        match => [ "@message", "puppet-tree" ]
    }
}
```

Geoip

```
filter{
    geoip {
        tags   => ["syslog-httpd"]
        source => ["client"]
    }
}
```

- Transform ip address into geo data
- Useful to filter by country/map the data

Elasticsearch

- Version of elasticsearch <=> version of logstash
- Unless you use the elasticsearch_http output

```
output {
    elasticsearch  {
    }
}
```

IRC

```
output {
    irc {
        channels => ["#example"]
        host => "chat.freenode.net"
        nick => "loggy"
        port => 6667
        tags => "outputirc"
        user => "loggy"
        format => "%{outputirc}"
    }
}
```