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# Visualising Your Service

Rob Taylor

# Who am I?

- Professional Ranter
- Contract Developer
- Not an expert – just opinionated
- 20+ years Developer/Support Experience
  - British Airways/Sage/HMRC/Nissan
  - 24\*7 On call support for 7yrs

# Agenda

- What's The Problem?
- Where the hell are my logs?
- What the hell was the app doing?
- What the hell was the server doing?
- Where can I see pretty pictures?
- How does this all fit together?
- Who thought a live demo was a good idea?
- Q/A

# What's the Problem?

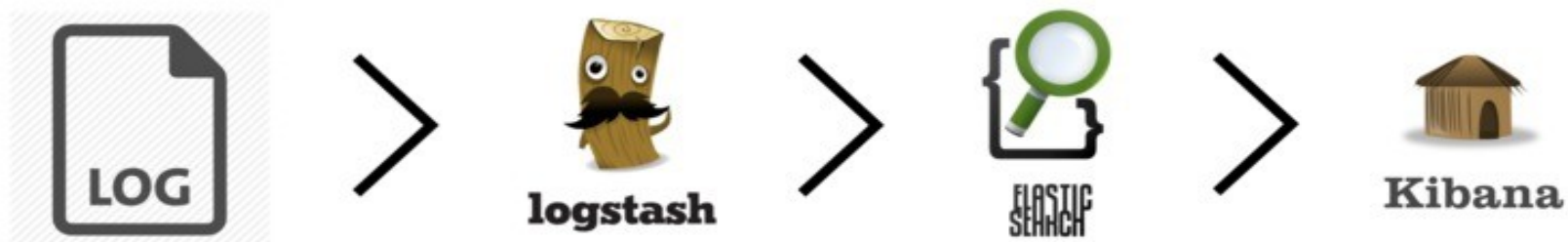
- Application running in the wild and it tanks!
- What the hell do I do now?
  - Run round servers looking for logs
    - Can I even access the bloody servers?
  - Typical... nowt in server logs
    - What now?

# Where the hell are my logs?

- Large number of servers
  - Probably now in the cloud
  - No way you're trusted to access them
  - Wtf?
- Log information from single logs isn't helpful in isolation

# logstash – elasticsearch - kibana

- Consolidate log files in a central/accessible area
  - logstash reads logs and writes them to elasticsearch
  - Can write to logstash over TCP/UDP directly
- Information from multiple sources accessible in Kibana to query



# What the hell was the app doing?

- Memory usage?
  - JVM – heap usage, garbage collection
    - Can run VisualVM to peek inside running app
      - Requires JMX ports for remote servers. No sysadmin in right mind giving you that! Plus firewalls and which server should I connect to?
- How long did x take?
  - Is the API it talks to taking 40+ seconds to respond?
- How many times did a user do x or y?



# Metrics Library For JVM apps

- Dropwizard Metrics library
  - <https://dropwizard.github.io/metrics/3.1.0/>
  - Metrics is a Java library which gives you unparalleled insight into what your code does in production.
- Monitors the JVM
- Can create custom counter/timer metrics
- Can write the results directly to Graphite!

# Graphite

Graphite does two things:

- Store numeric time-series data
- Render graphs of this data on demand

Graphite consists of 3 software components:

- carbon - a Twisted daemon that listens for time-series data
- whisper - a simple database library for storing time-series data
- graphite webapp - A webapp that renders graphs on-demand (it's abit shite)

# What the hell was the server doing?

- Application logs don't show anything
- Maybe the box ran out of memory/disk space/cpu?
  - Where the hell do I start?
  - How do I measure these things?
  - I still don't have access to the bloody boxes...

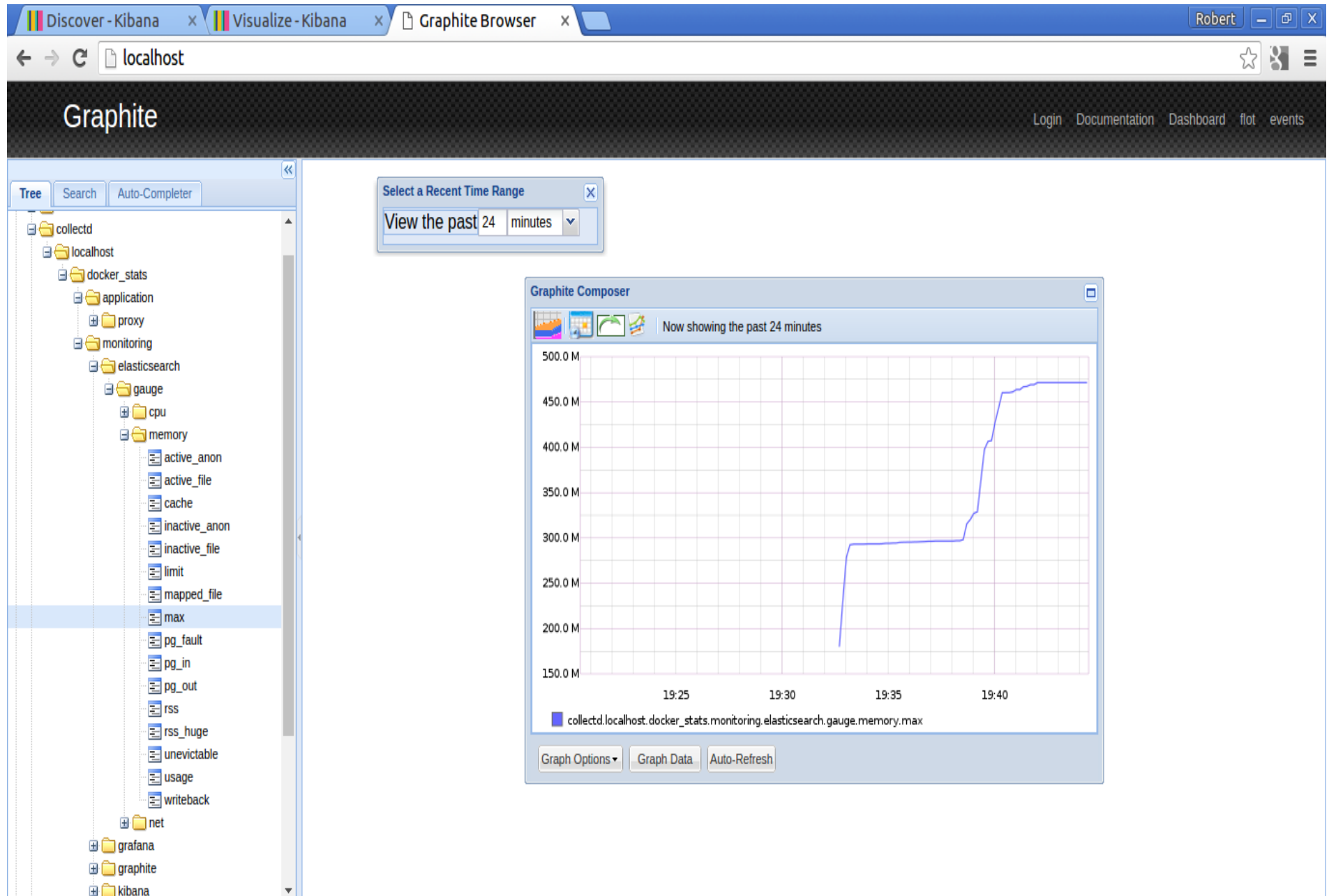
# Server Stats – collectd

- collectd gathers statistics about the system it is running on and stores this information.
- Everything in collectd is done in plugins.
  - Cpu/memory/disk space monitoring + loads more
  - Output is via plugins
    - Can write to CSV :(
    - Can write to Graphite Server :)

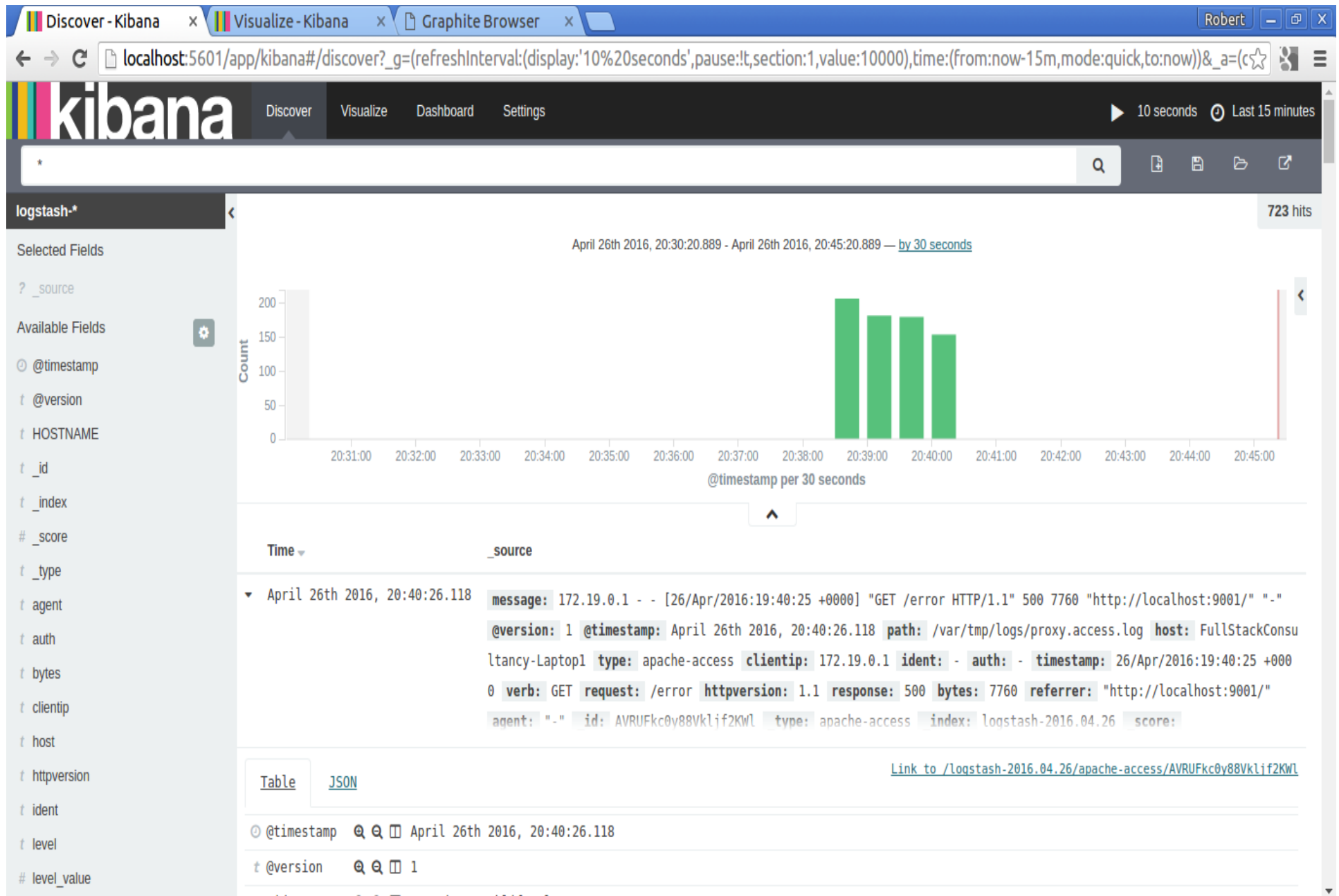
# Where can I see pretty pictures?

- Graphite Server
  - crude graphing interface...
- Grafana
  - Fast and flexible client side graphs with a multitude of options.
  - Can export data in JSON
- Dasher
  - Ruby dashboard app. Can show data from multiple sources.
- Kibana
  - Can create graphs the data from logs

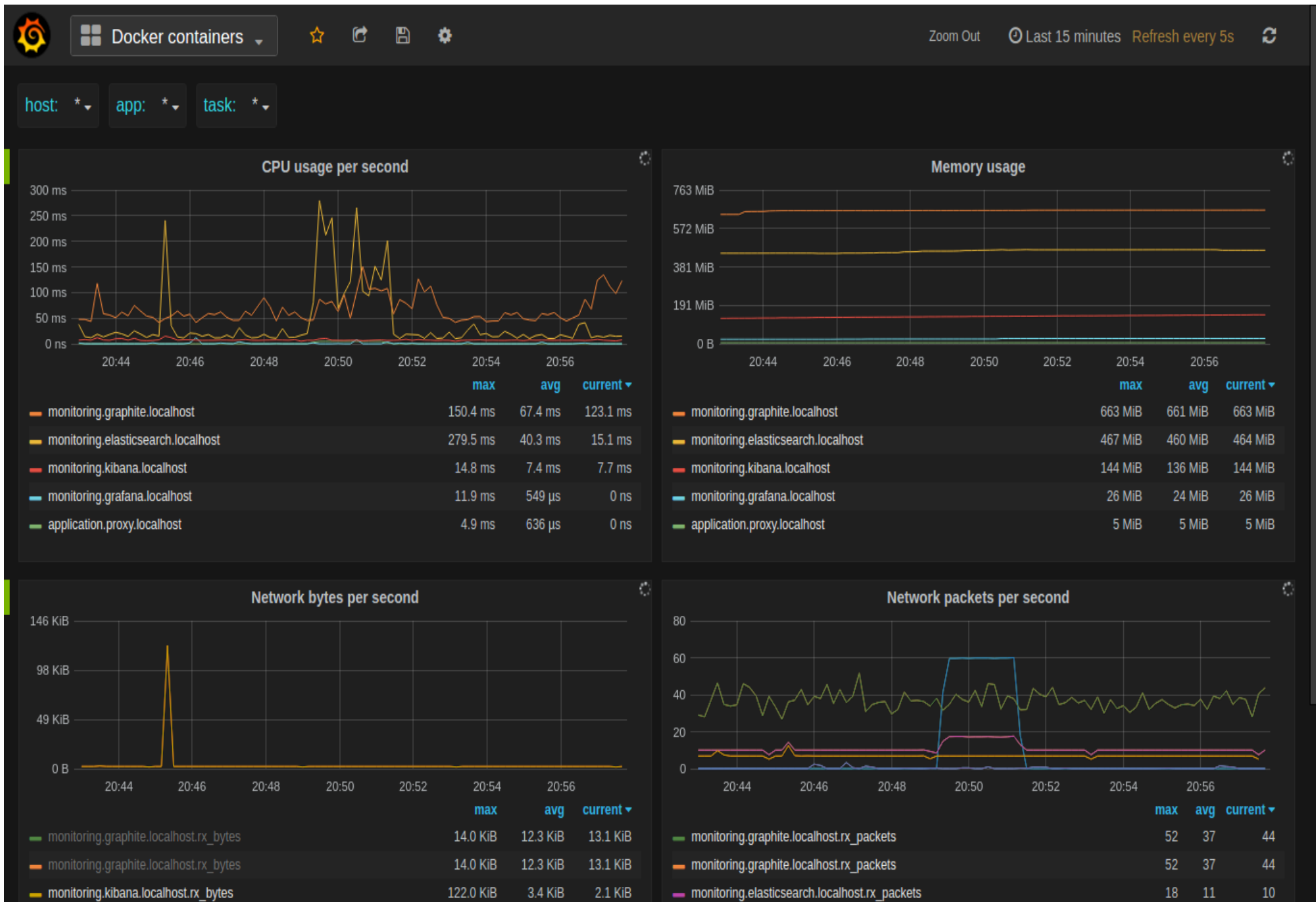
# Graphite



# Kibana



# Grafana





# How does this all fit together?

## Standard Server

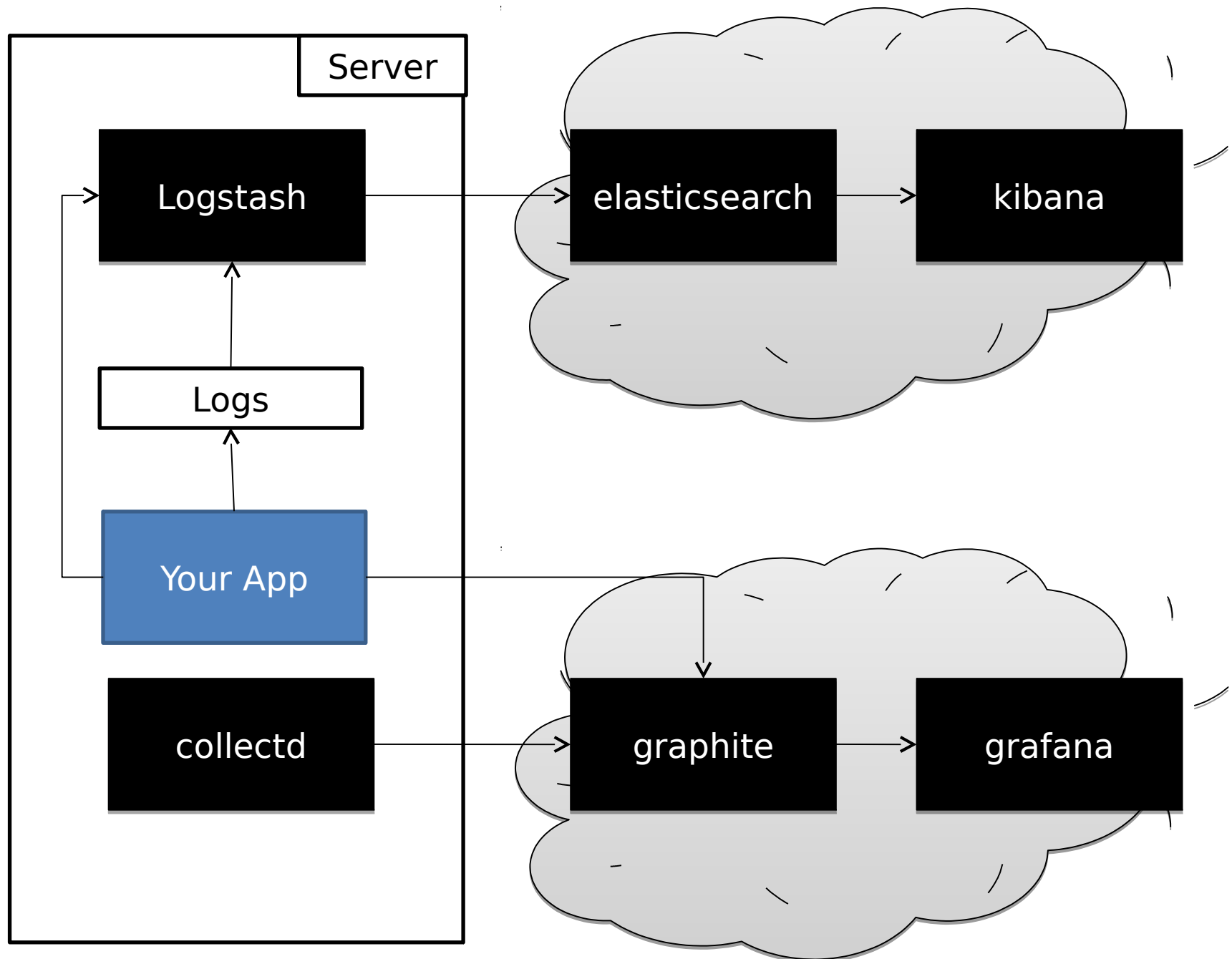
- Run collectd / logstash on your server
- Push metrics/logging to separate server

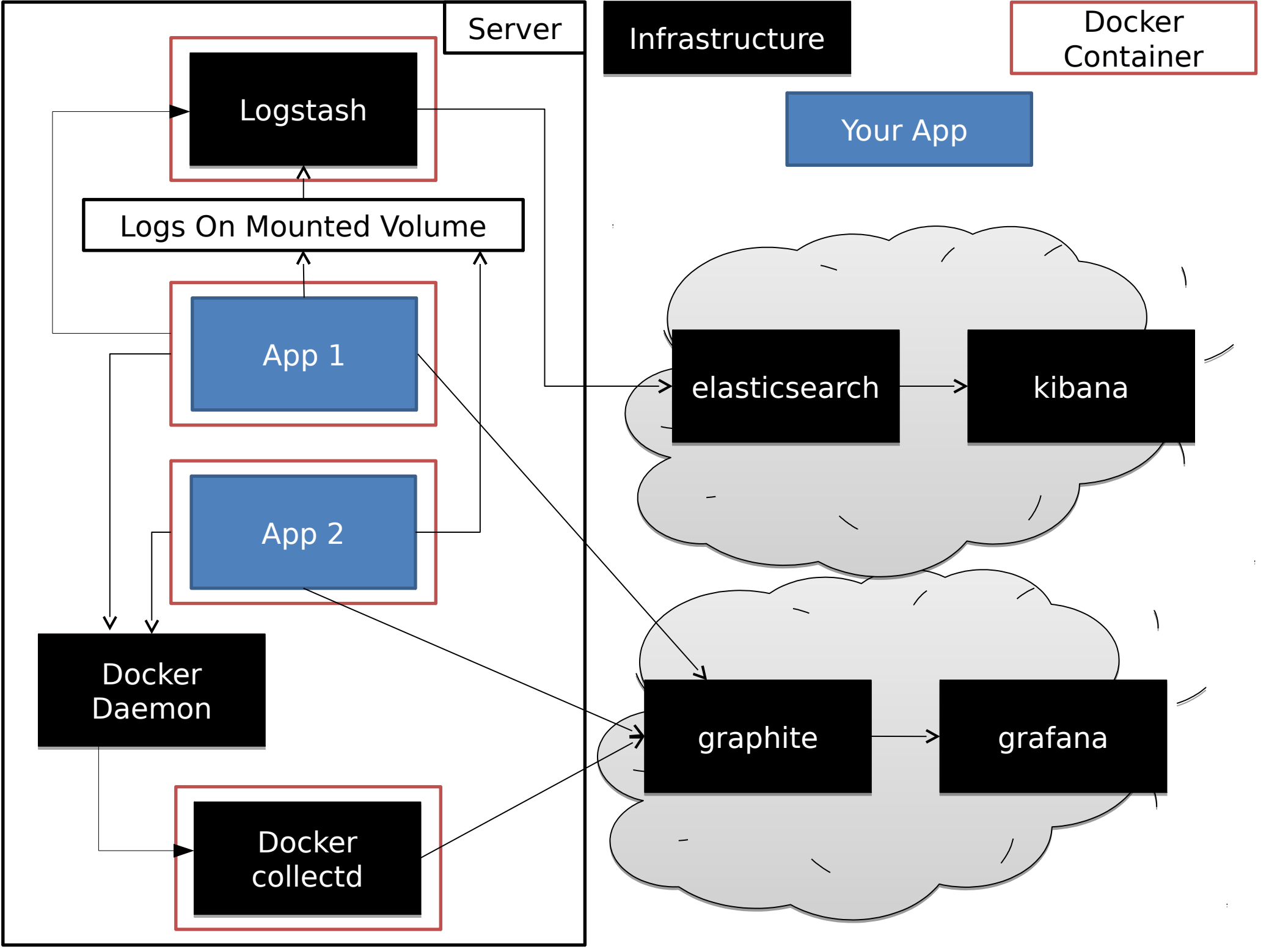
## Docker Server

- For collectd you are interested in container metrics not just box metrics.
- Want Logstash to pull together logs from multiple containers
- Push metrics/logging to separate server

Infrastructure

Your App

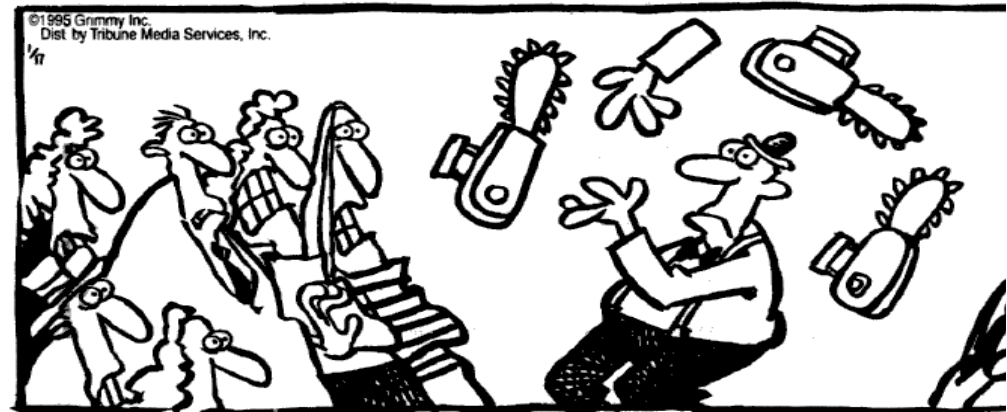




# Who thought a live demo was a good idea?

- Run the entire visualisation suite via Docker
- Show Kibana view of consolidated logs
- Show Grafana
  - Docker Container Stats
    - Memory / CPU
  - Show application Stats
    - JVM Stats

**MOTHER GOOSE & GRIMM • Mike Peters**



# Summary

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Q & A

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