



SHOW ME THE METRICS

James Brooks



The World's Biggest Betting Community

Born in 1999

UK, Romania, Portugal, Ireland, Malta, Gibraltar, USA

Engineering Blog: www.betsandbits.com

700+ Engineers and Growing

Exchange / Sportsbook / Games

~750k active users

~70M daily transactions

~2.5Bn daily API calls

~100k/s Monitoring Points

E2E P95 transaction times <4ms

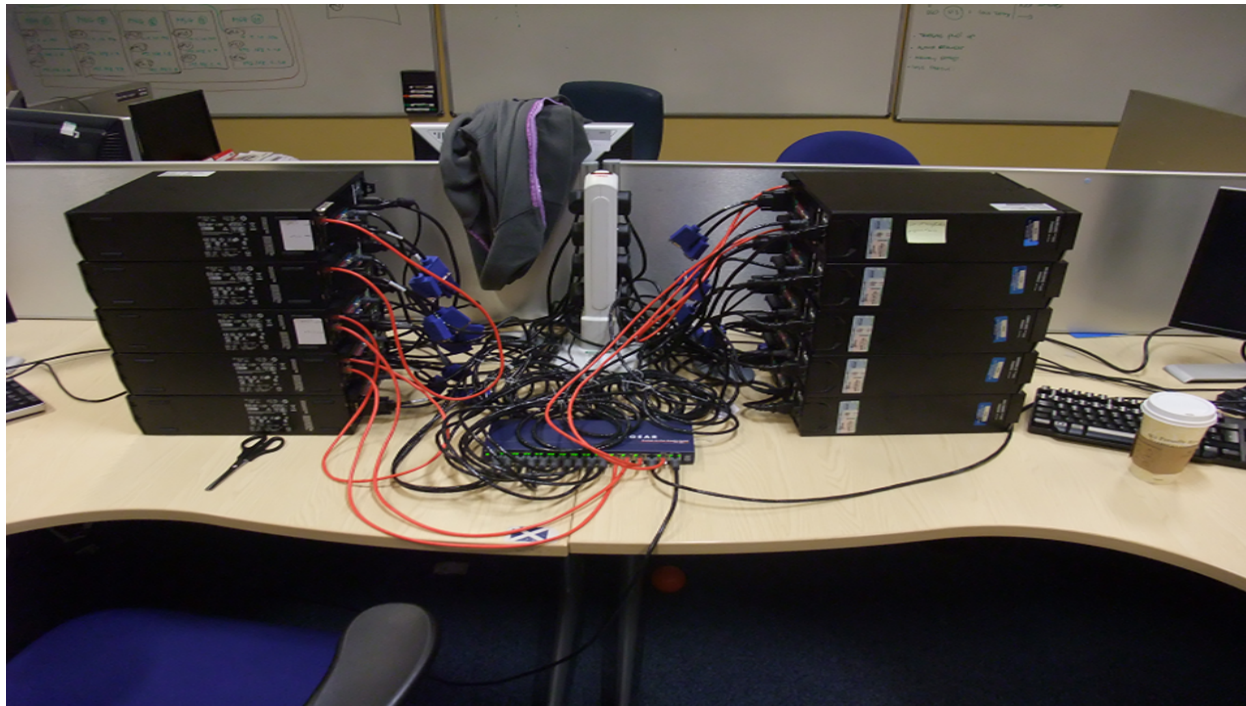


One of UK's most successful .coms with ~£2Bn Market Cap



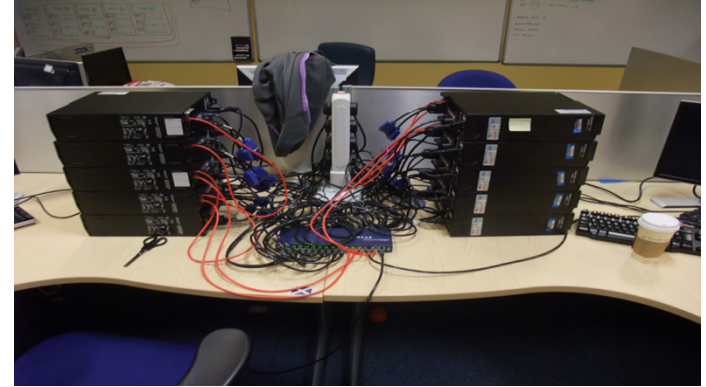
OpenTSDB & OpenTSP at Betfair

What is OpenTSDB?



What is OpenTSDB?

A database optimised for storing and querying Time Series Metrics



Name

Timestamp

Value

os.filesystem.size

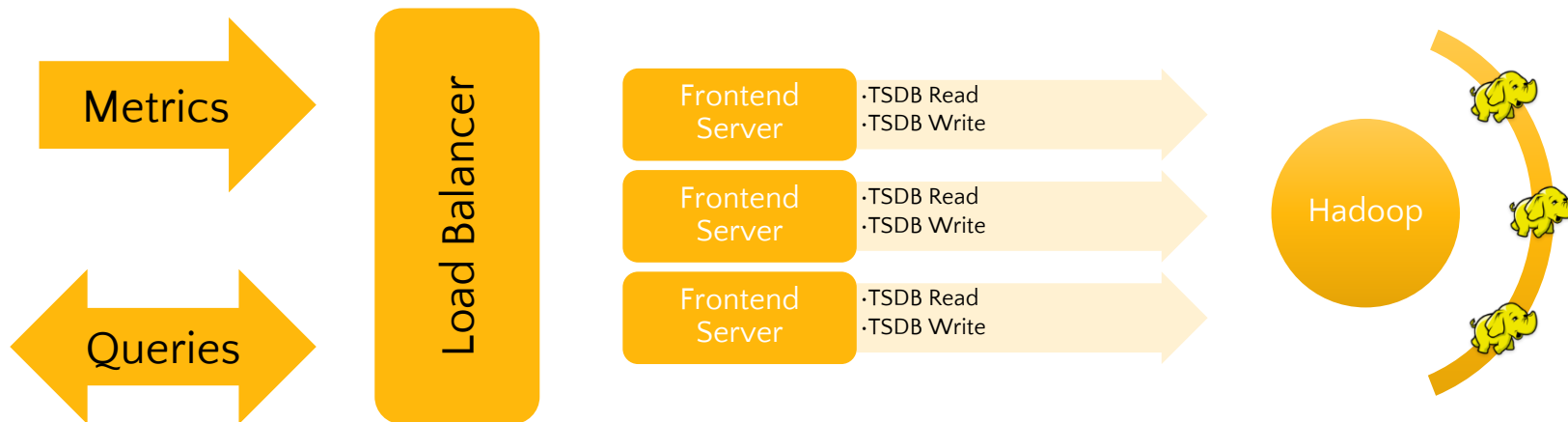
1413978032

912234340

host=fe-108 cluster=bf_c mount=/ type=Free

metadata

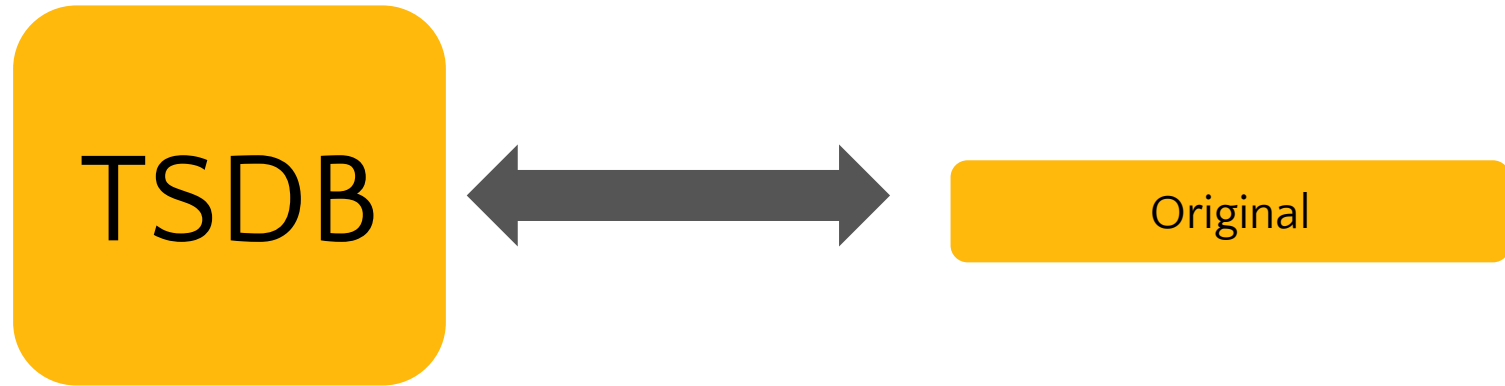
OpenTSDB Architecture



OpenTSDB Architecture



OpenTSDB Architecture (ctd)



From To Autoreload WxH:

transfer_time +

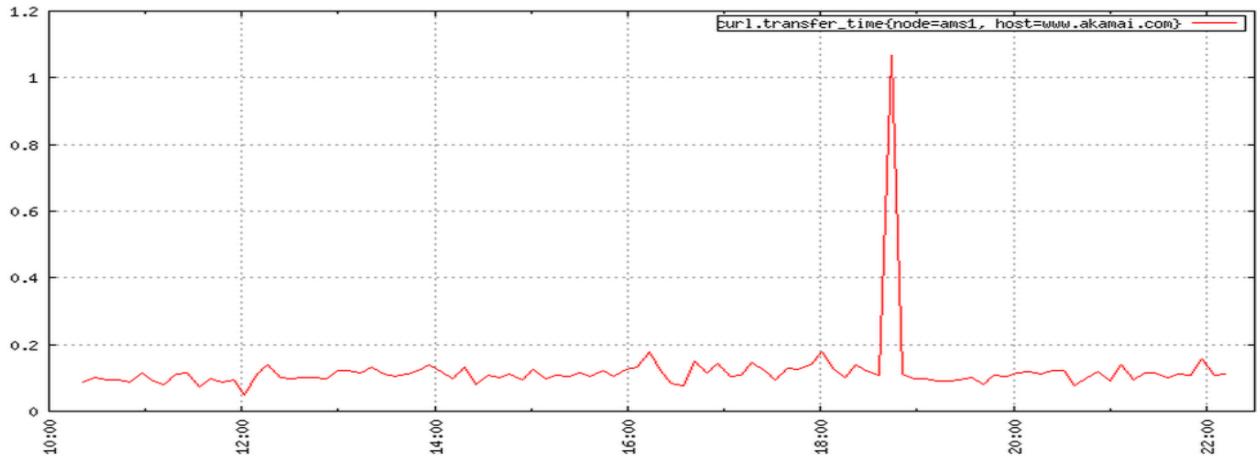
Metric: Rate Rate Ctr Right Axis
 Rate Ctr Max:

Tags Rate Ctr Reset:
 host Aggregator:
 Downsample

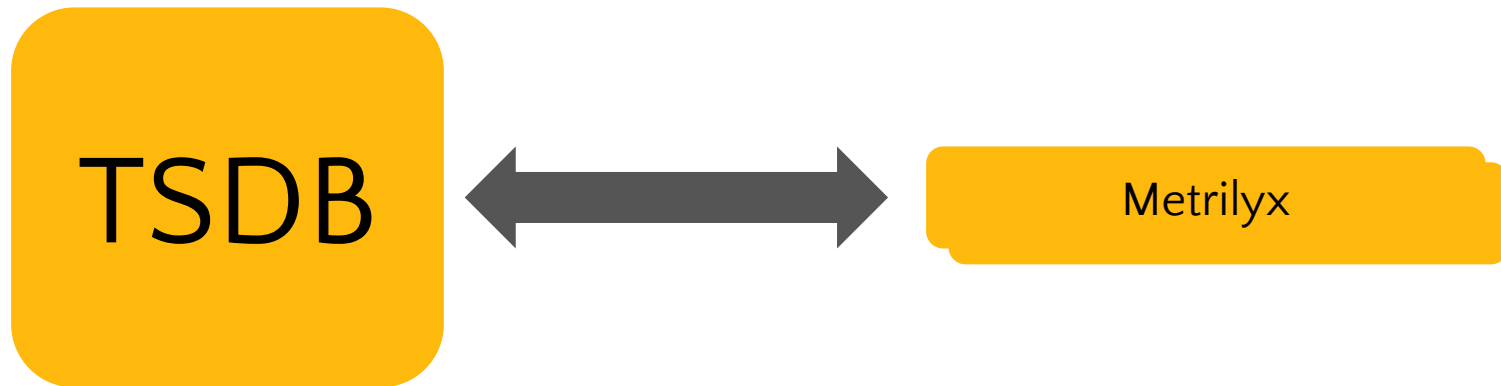
Key location:

 Horizontal layout
 Box
 No key (overrides others)

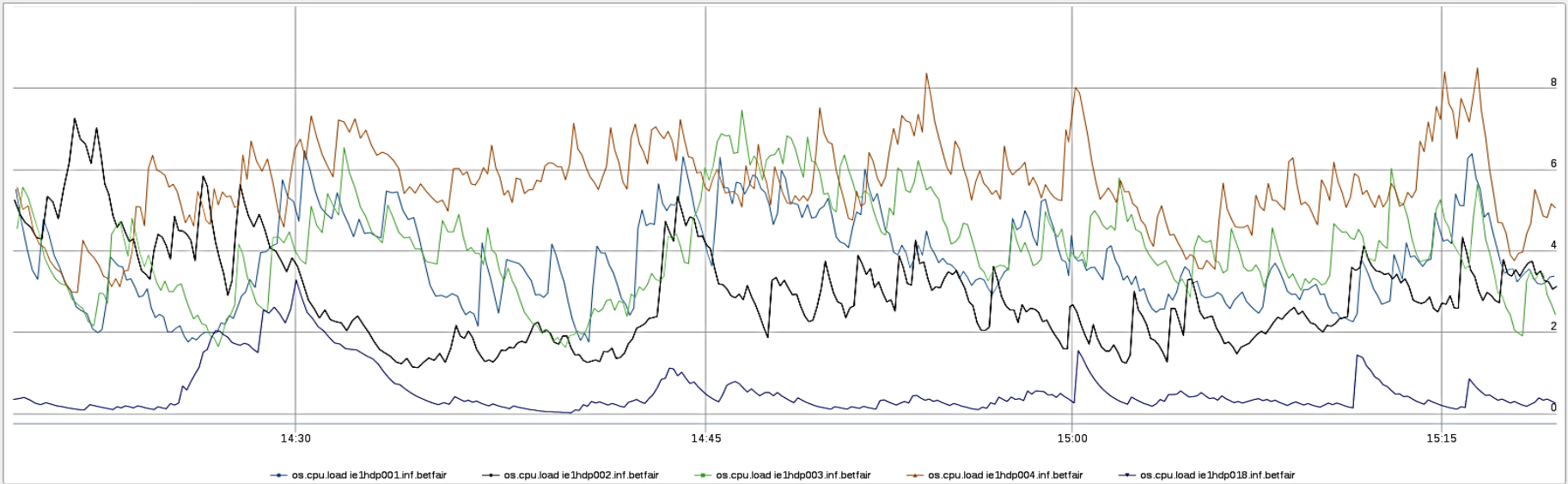
5656 points retrieved, 655 points plotted in 46ms.



OpenTSDB Architecture (ctd)



✘ sum:os.cpu.load
cluster=hadoop.data, host=*



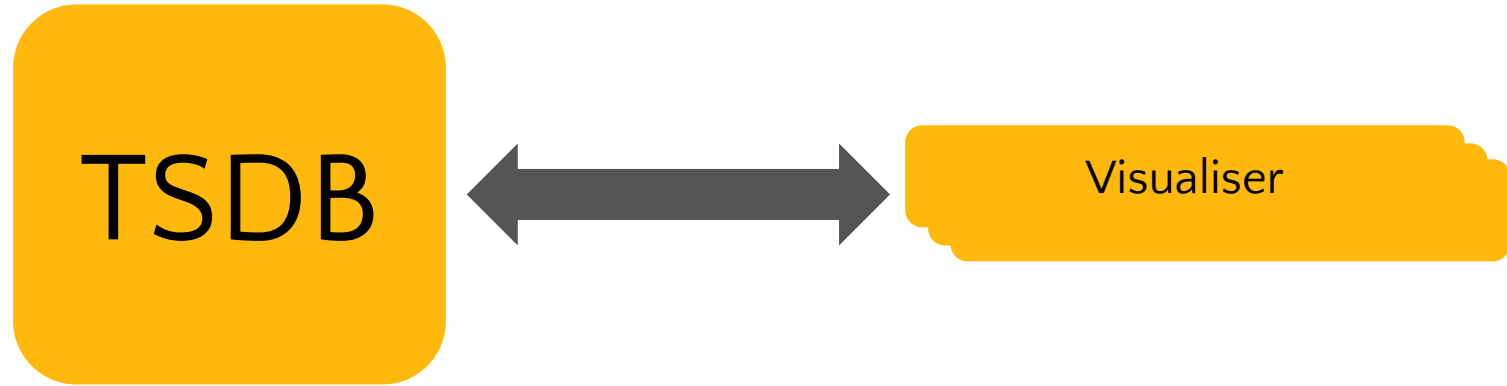
Danger: 10000000000000000000

Warn: 10000000000000000000

Info: 9999999999999999



OpenTSDB Architecture (ctd)



Graph control

2h Relative to now

- Highlight lines
 Auto scale
 Logarithmic y-axis
 Mean adjusted
 Stack lines
 Interpolate gaps
 Squash neg Y
 Show annotations

Downsampling

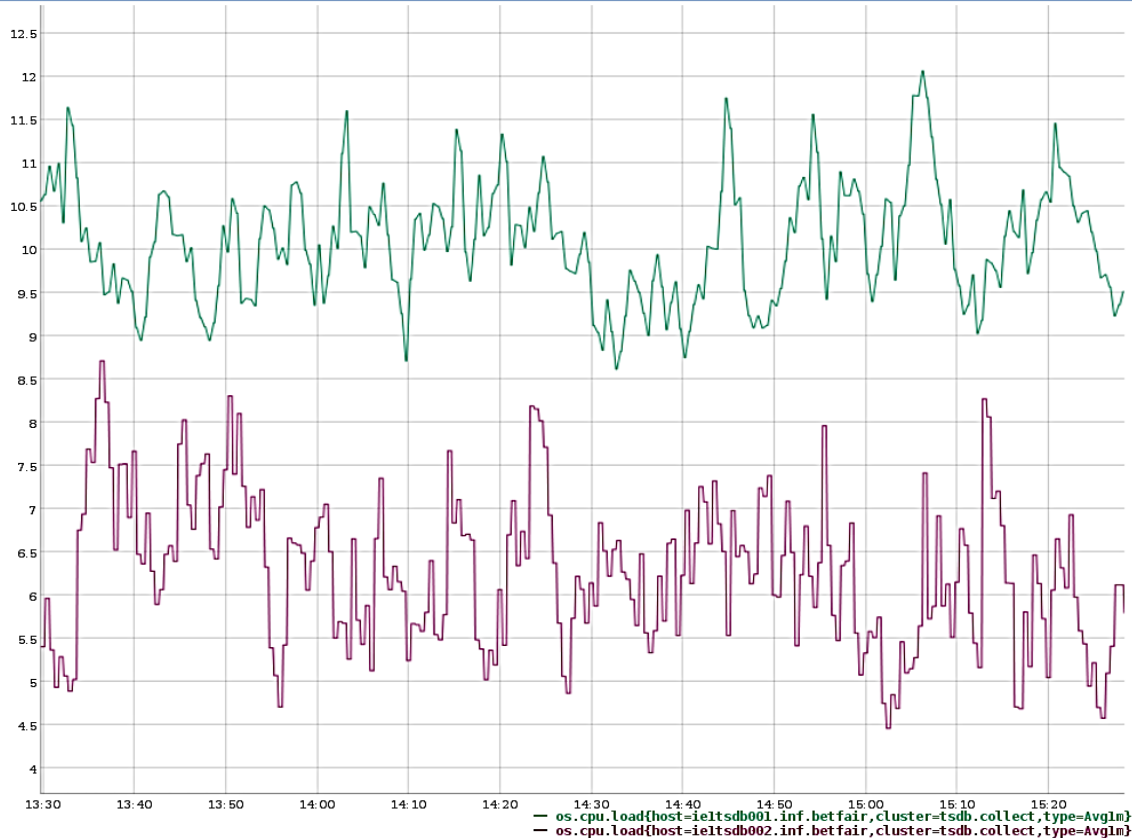
- None
 Global:
 Automatic

Baseline

- None
 Relative:
 Absolute:

Update

Graph



Metrics

- aandp
- adhoc
- betex
- bfrtd
- bts
- coherence
- content-server
- cougar
- df
- exp
- frontend
- gc
- go
- hadoop
- iostat
- java
- jmxcollector

Filter

os.cpu.load

Aggregation

SUM Rate

Downsample

 Enabled AVG

GroupBy

host

cluster

Filter

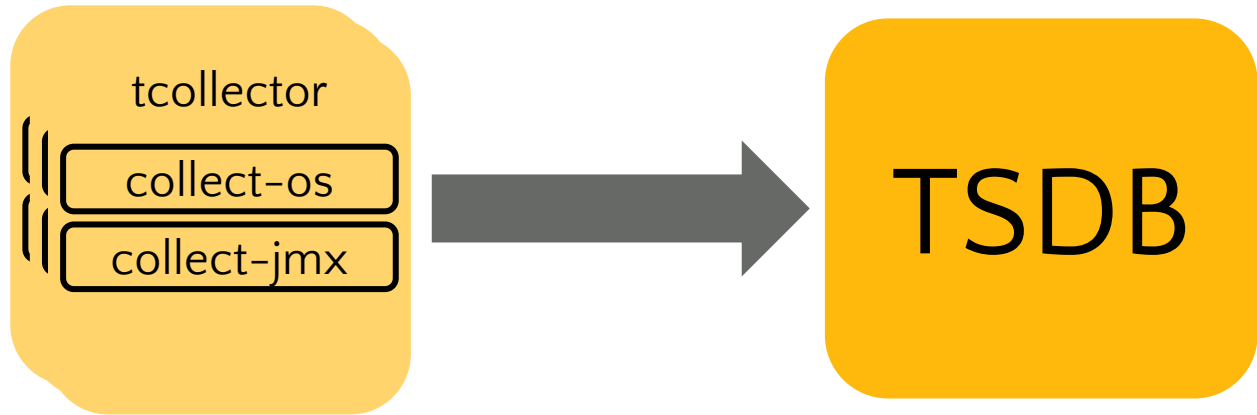
- aan.dark
- aan.live
- aas.live
- afc.dark
- afc.live
- afs.live
- agg.live
- amt.live

Hide

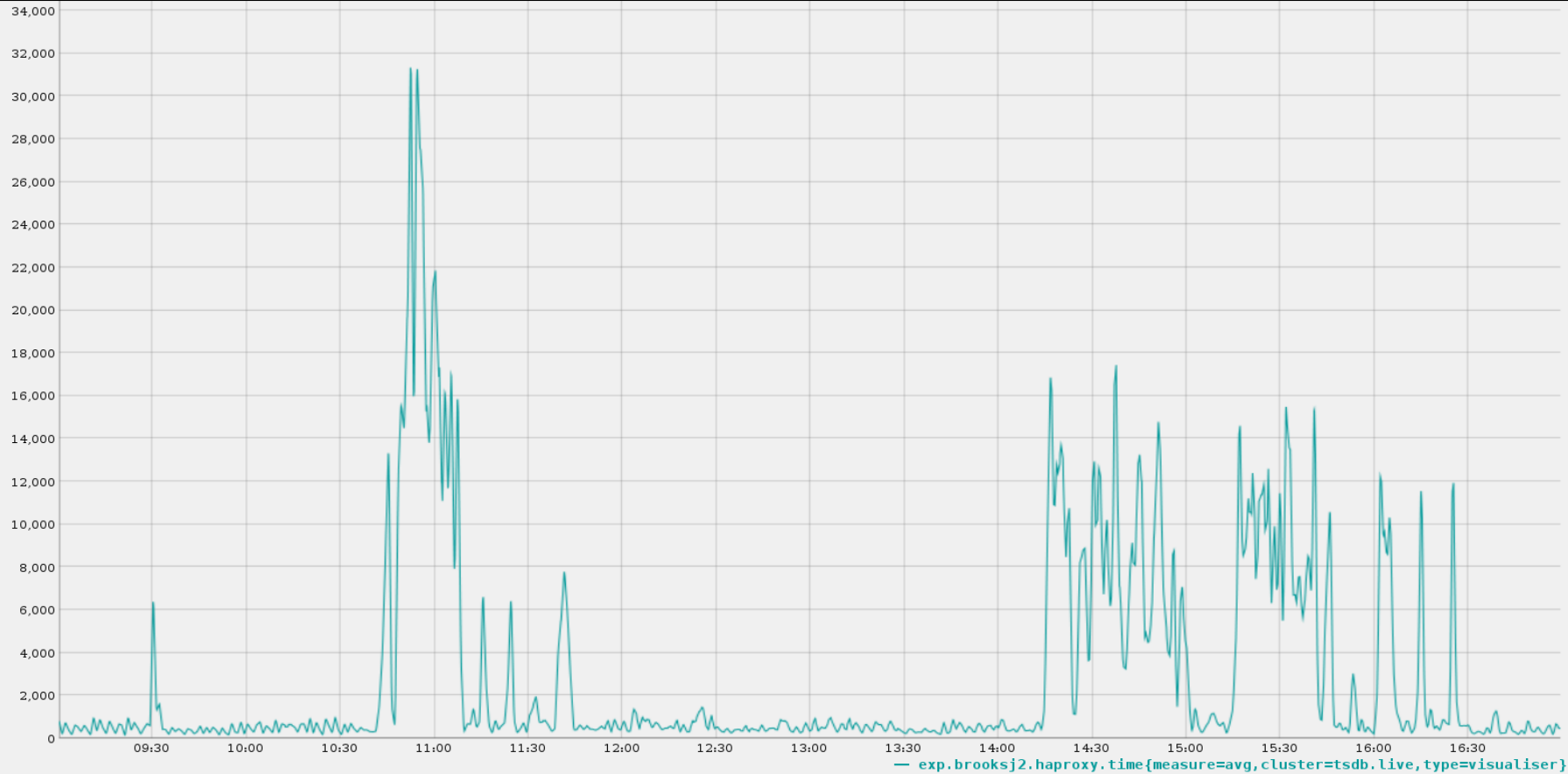
Remove

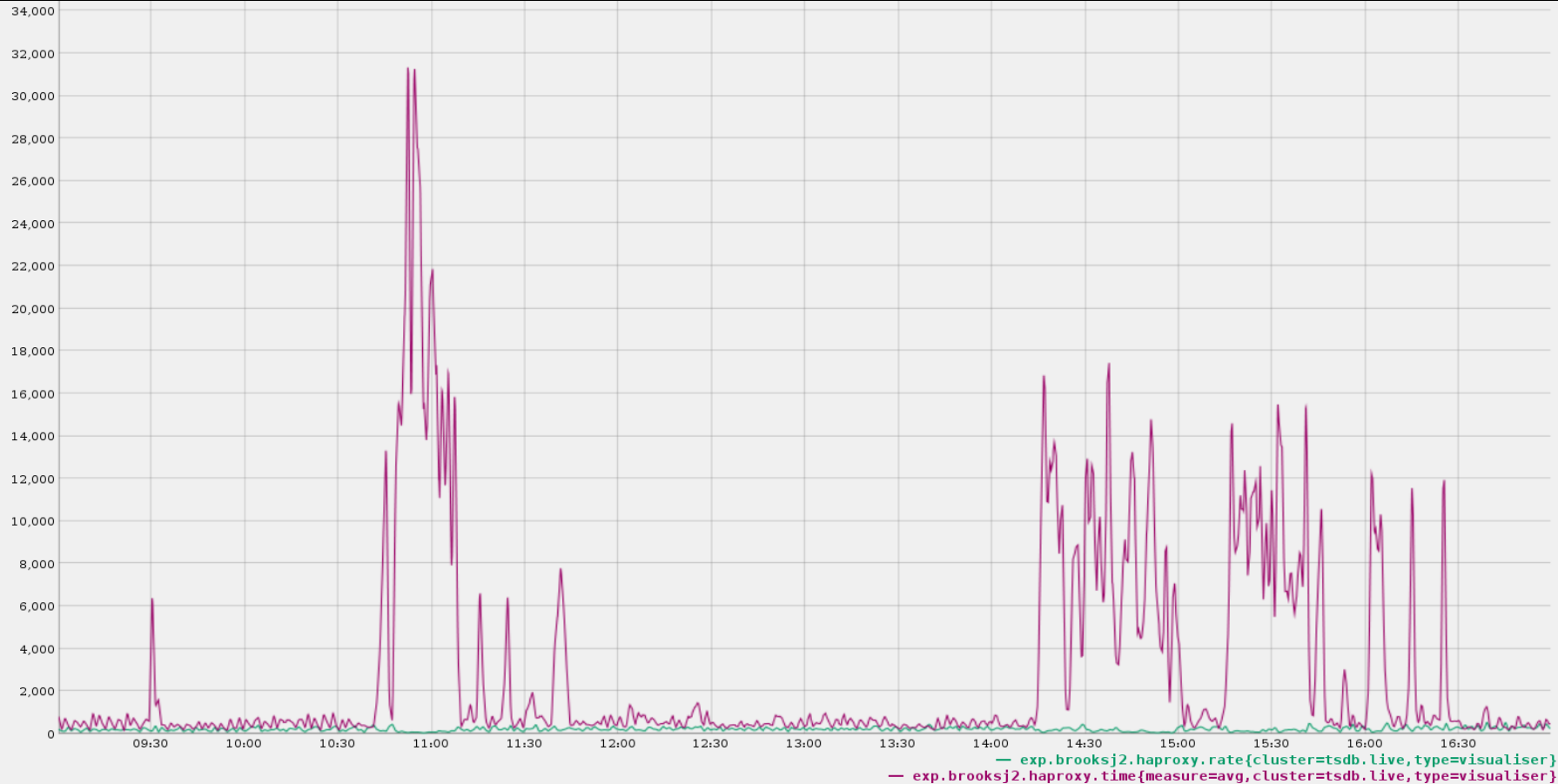
Update

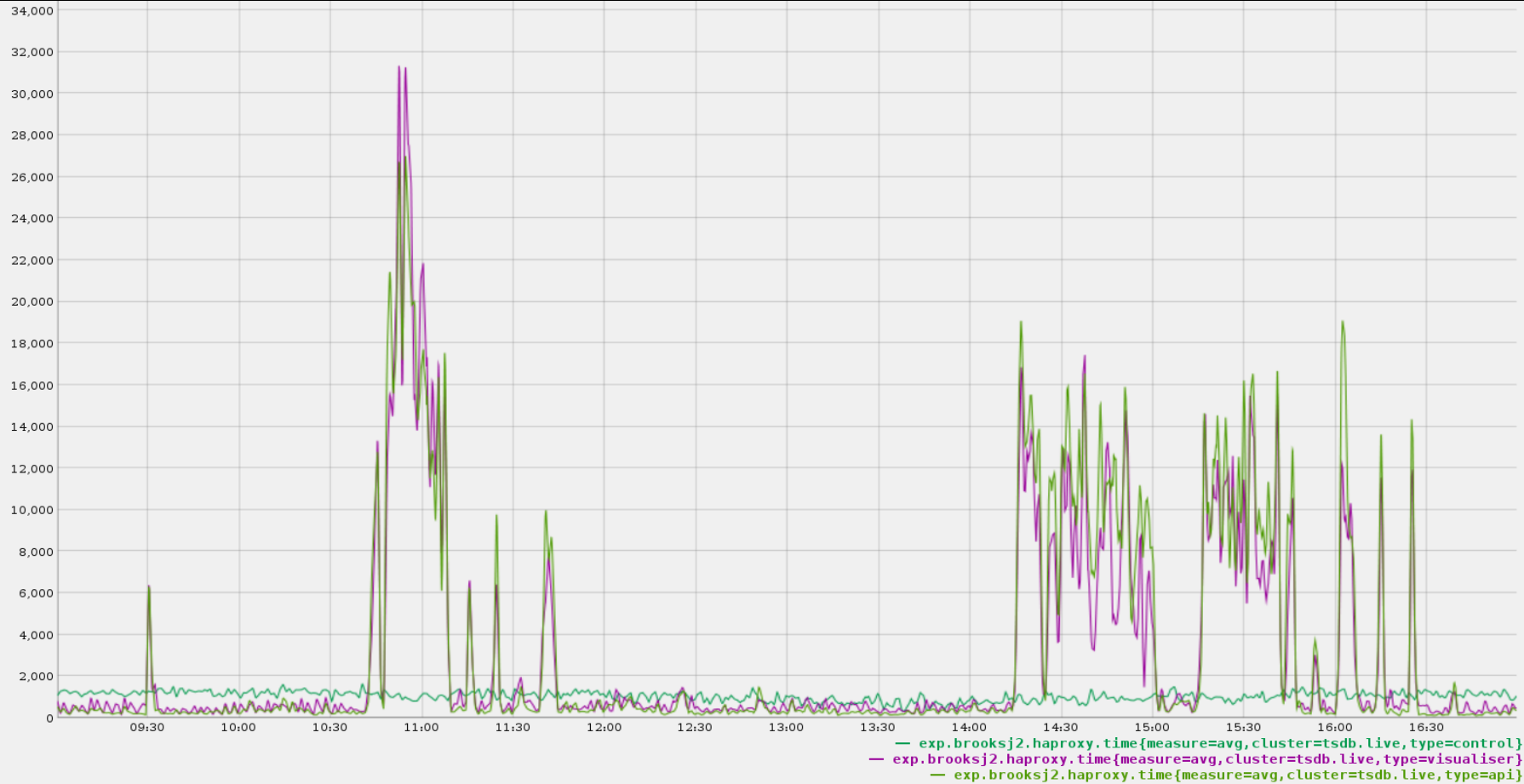
OpenTSDB Architecture (ctd)

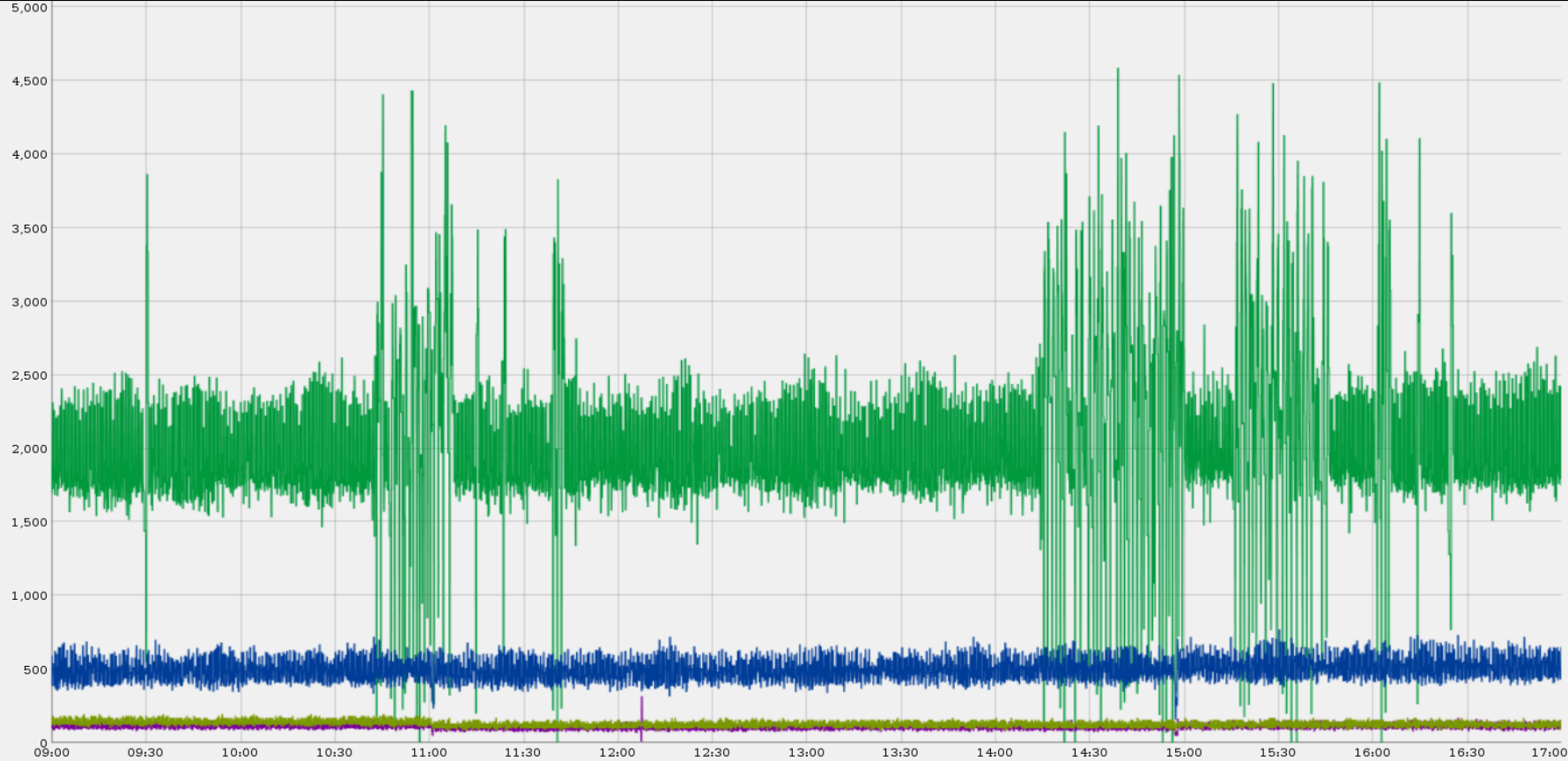


- **TSDB Use Cases**
 - Troubleshooting / Root Cause analysis
 - Performance Analysis

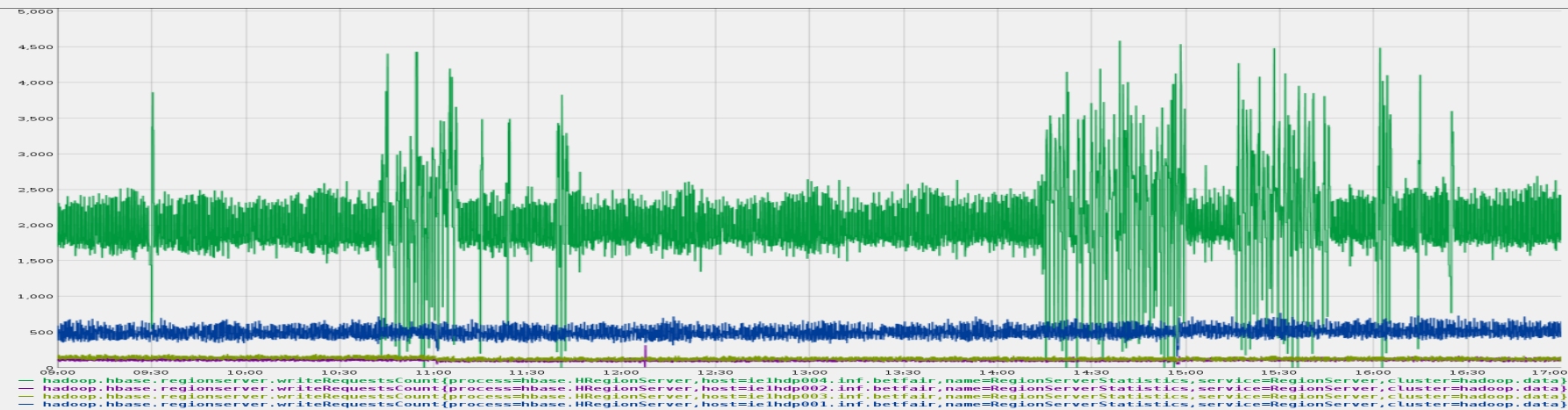
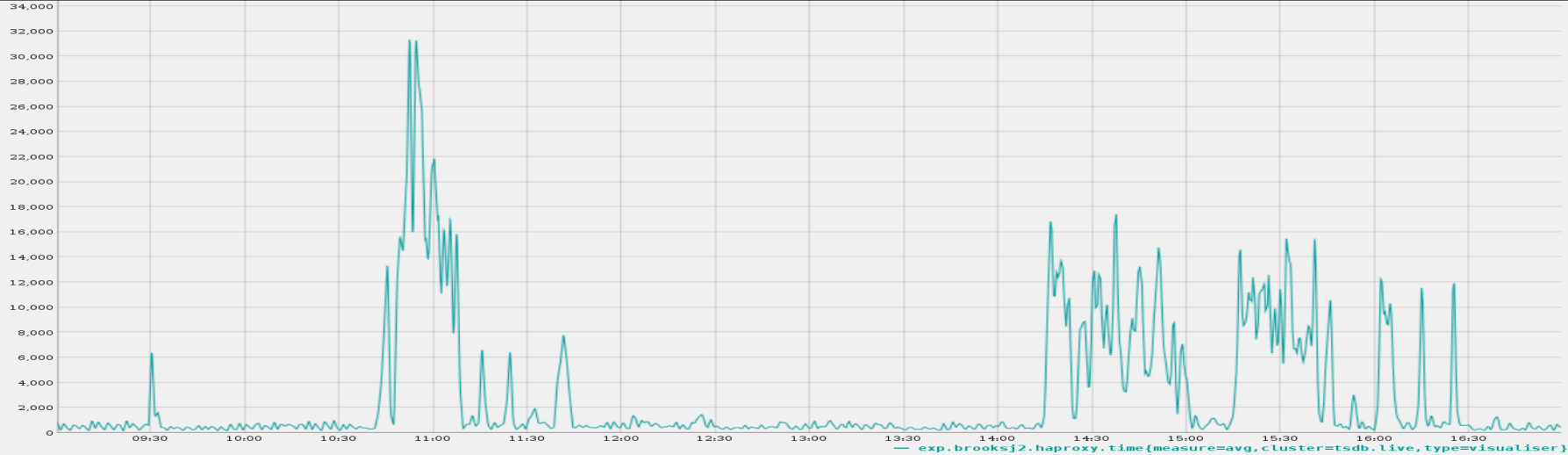


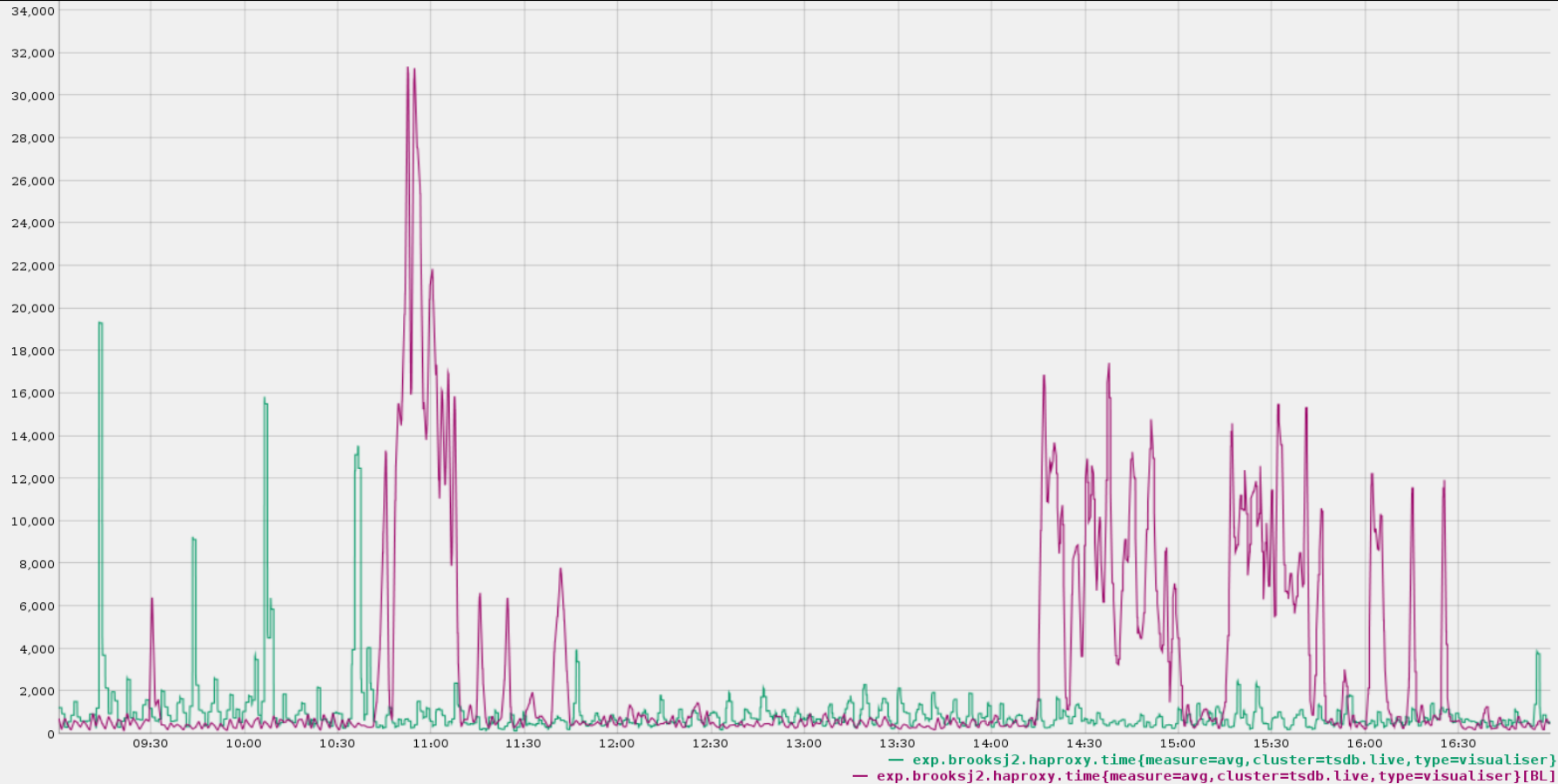




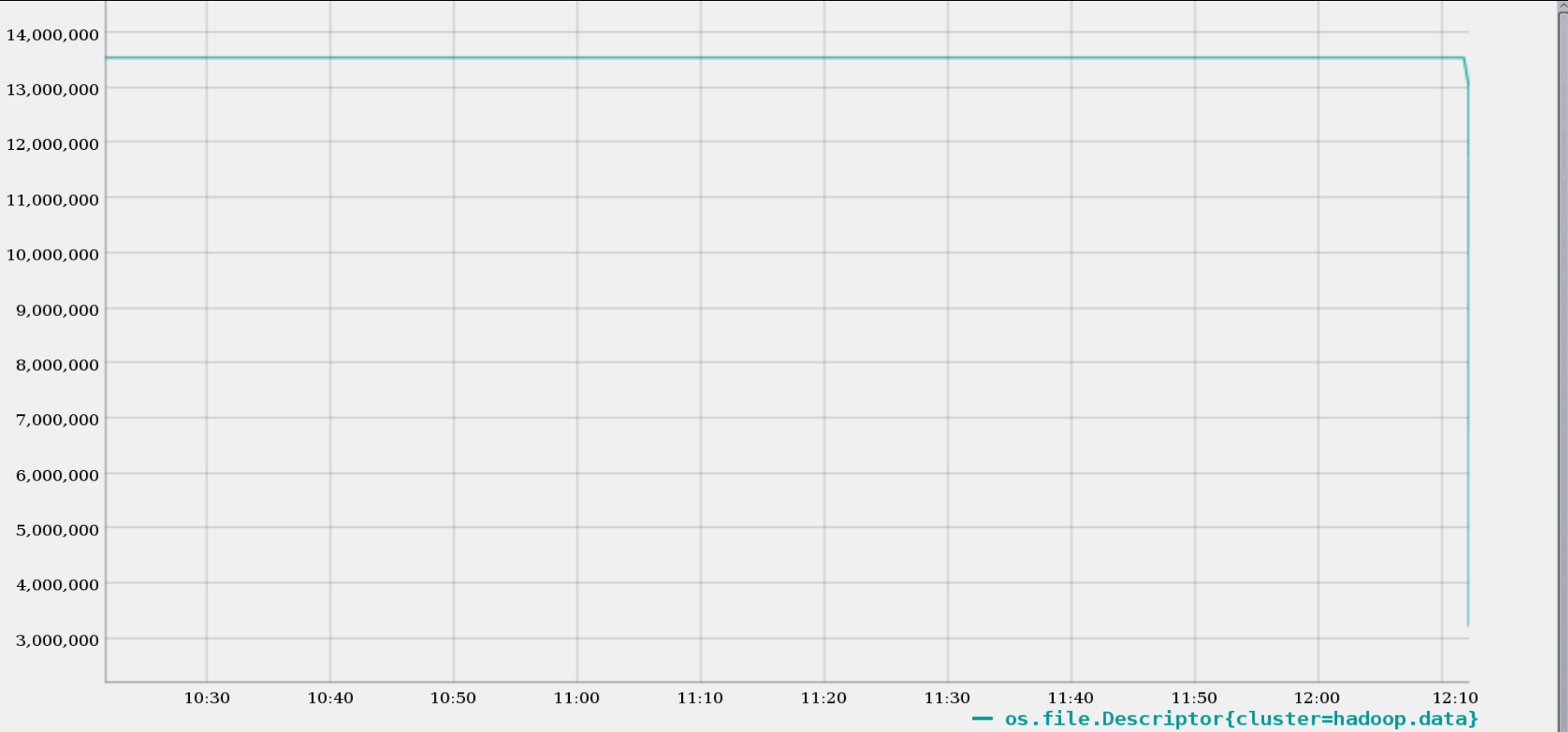


— hadoop.hbase.regionserver.writeRequestsCount{process=hbase.HRegionServer,host=ie1hdp004.inf.betfair,name=RegionServerStatistics,service=RegionServer,cluster=hadoop.data}
— hadoop.hbase.regionserver.writeRequestsCount{process=hbase.HRegionServer,host=ie1hdp002.inf.betfair,name=RegionServerStatistics,service=RegionServer,cluster=hadoop.data}
— hadoop.hbase.regionserver.writeRequestsCount{process=hbase.HRegionServer,host=ie1hdp003.inf.betfair,name=RegionServerStatistics,service=RegionServer,cluster=hadoop.data}
— hadoop.hbase.regionserver.writeRequestsCount{process=hbase.HRegionServer,host=ie1hdp001.inf.betfair,name=RegionServerStatistics,service=RegionServer,cluster=hadoop.data}





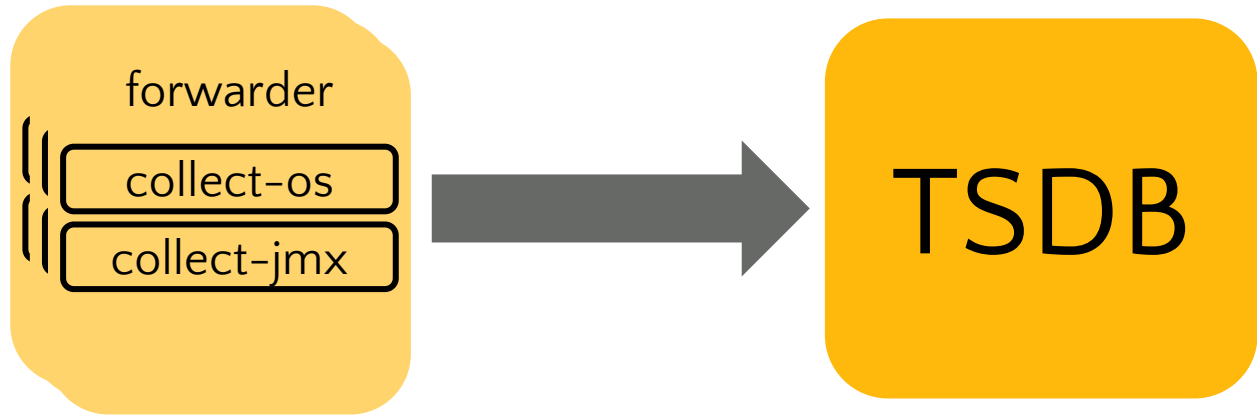
- **TSDB Use Cases**
 - Troubleshooting / Root Cause analysis
 - Performance Analysis
 - Monitoring and Alerting
- **Limitations**
 - Load
 - Recency



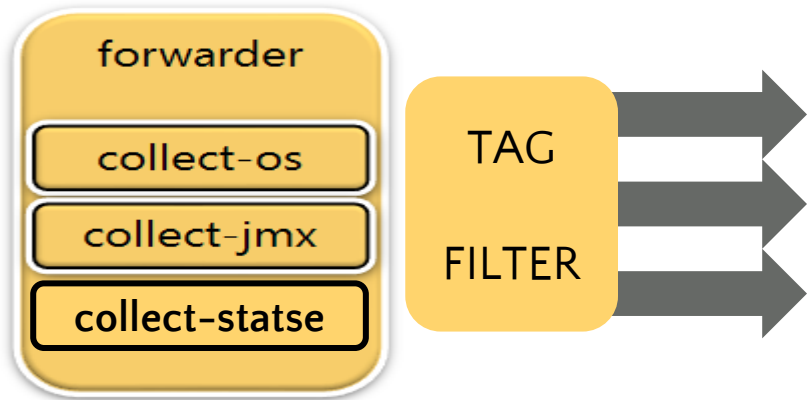
- **TSDB Use Cases**
 - Troubleshooting / Root Cause analysis
 - Performance Analysis
 - Monitoring and Alerting
- **Limitations**
 - Load
 - Recency
- TSP

OpenTSP

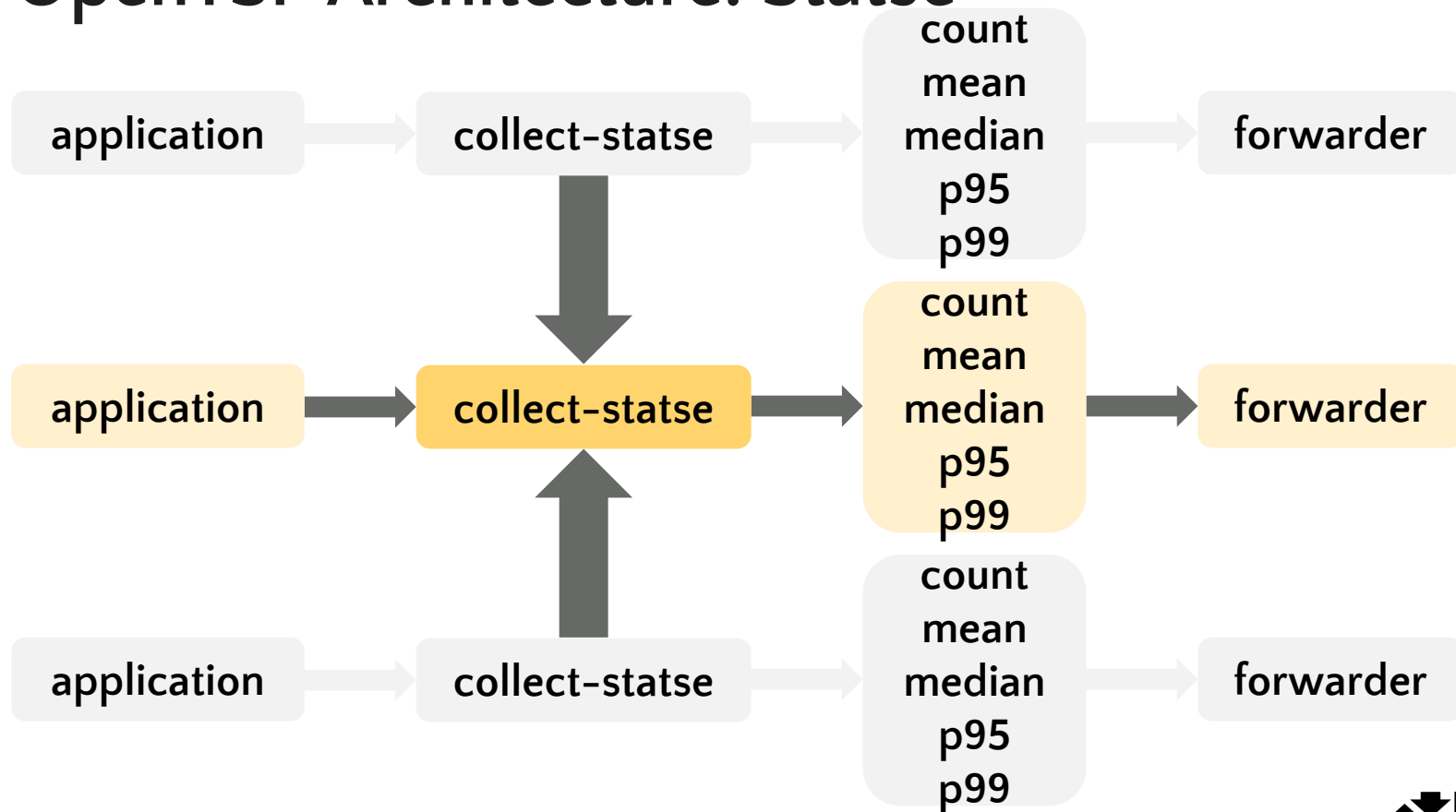
OpenTSP



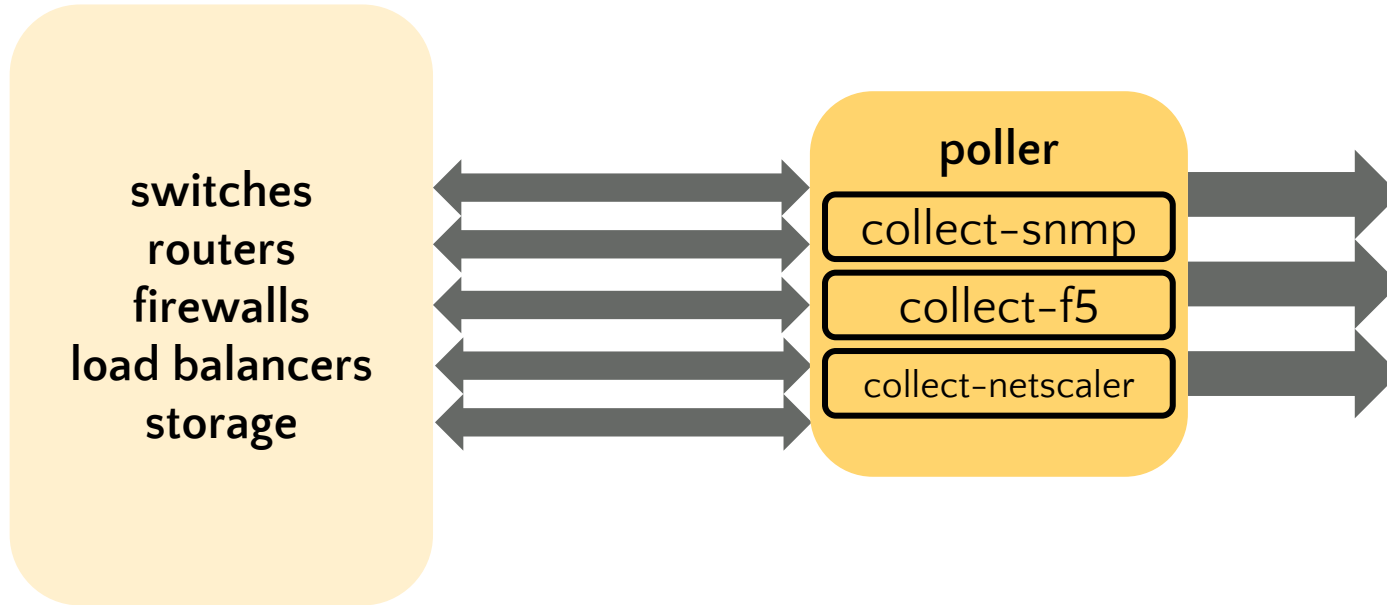
OpenTSP Architecture: Forwarder



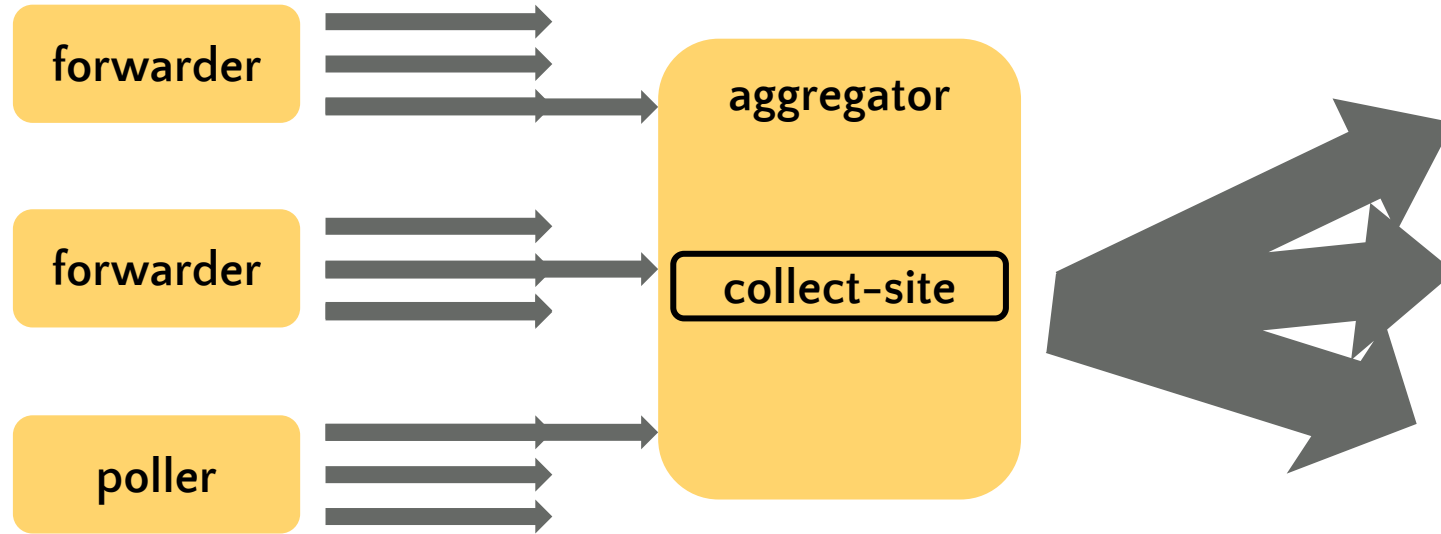
OpenTSP Architecture: Statse



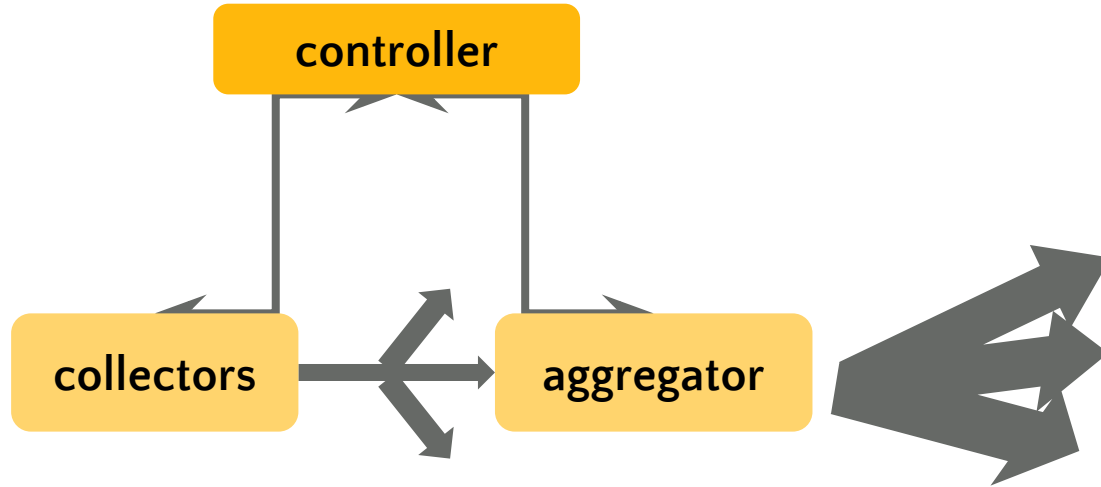
OpenTSP Architecture: Poller



OpenTSP Architecture: Aggregator

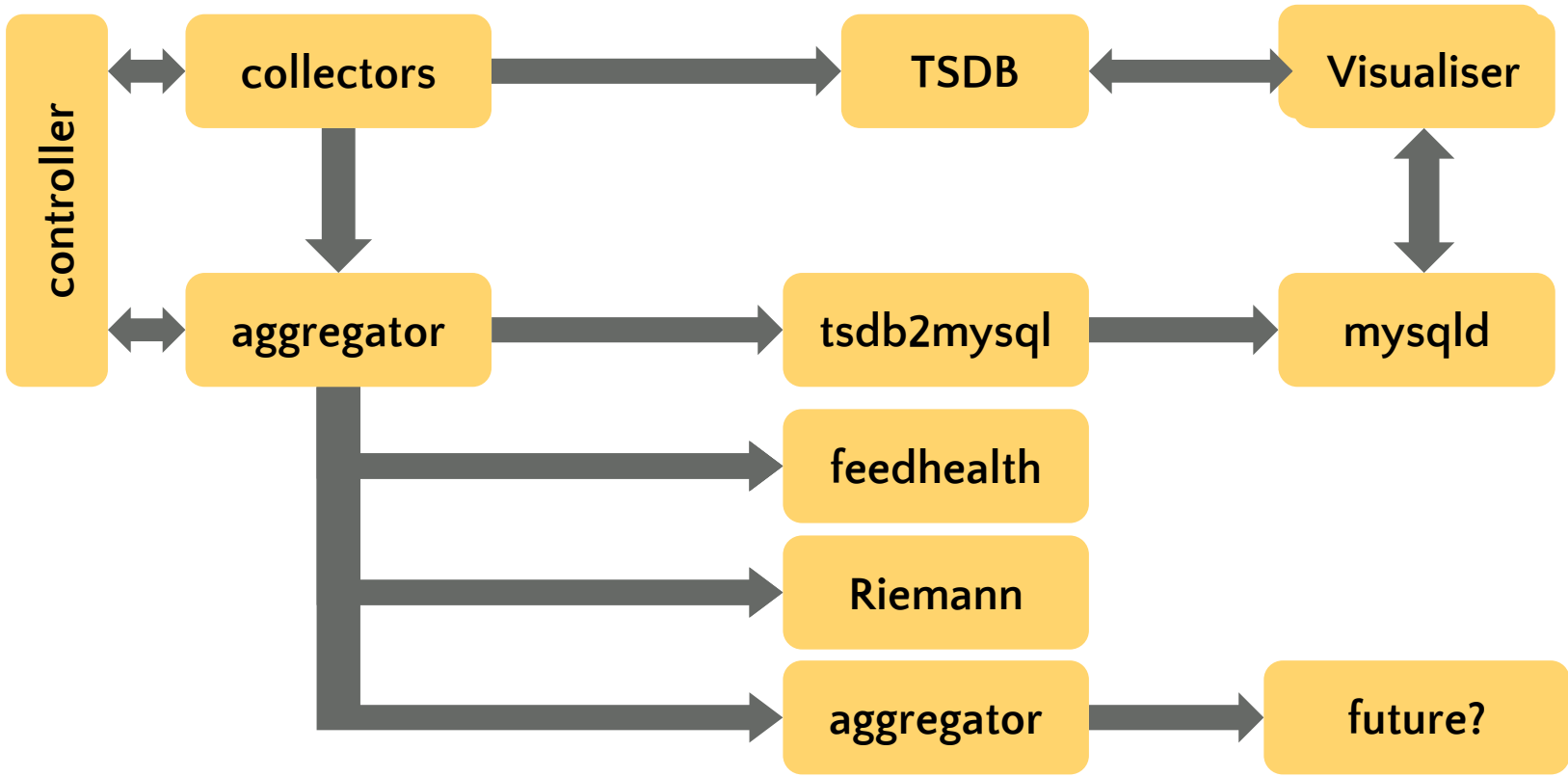


OpenTSP Architecture: Controller



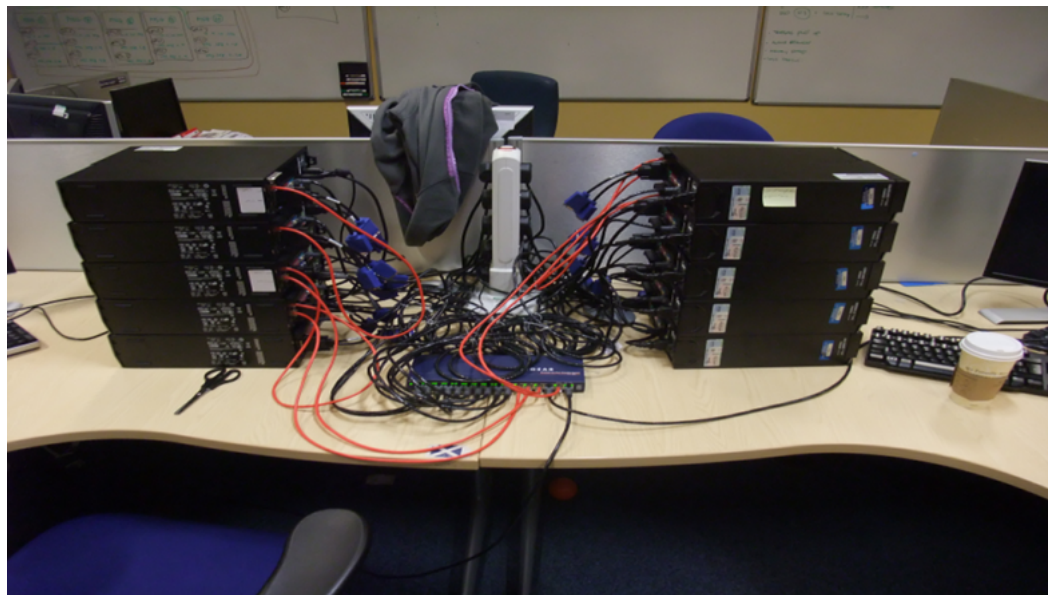
```
[james@ohlookahostname~]$ CONTROL_HOST=tspconfig.inf.betfair tsp-forwarder -t
{
  "Filter": [
    {
      "Match": [
        "",
        "host",
        "^$"
      ],
      "Set": [
        "",
        "host",
        "ohlookahostname.inf.betfair"
      ]
    }
  ],
  "LogPath": "/var/log/tsp/forwarder.log",
  "Relay": {
    "aggregator": {
      "DropRepeats": false,
      "Host": "tspaggregator.inf.betfair",
      "MaxConnsPerHost": 1,
      "OnQueueFull": "Drop"
    },
    "tsd": {
      "DropRepeats": true,
      "Host": "tsdb.inf.betfair",
      "MaxConnsPerHost": 1,
      "OnQueueFull": "Drop"
    }
  },
  "CollectPath": "/etc/tsp/collect.d"
}
```


TSP at Betfair



Open Source

- `tsp-forwarder`
 - `collect-statse`
- `tsp-poller`
 - `collect-f5`
 - `collect-netscaler`
 - `collect-snmp`
- `tsp-aggregator`
- `tsp-controller`



Apache Licence v2

<http://github.com/betfair/opentsp>

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