



# 大数据监控告警系统

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# ● Agenda

- Background
- Architecture Road
  - Storage
  - Collector
  - Task Queue
  - API Server
  - Visualization
  - Alert
- Technology Selection

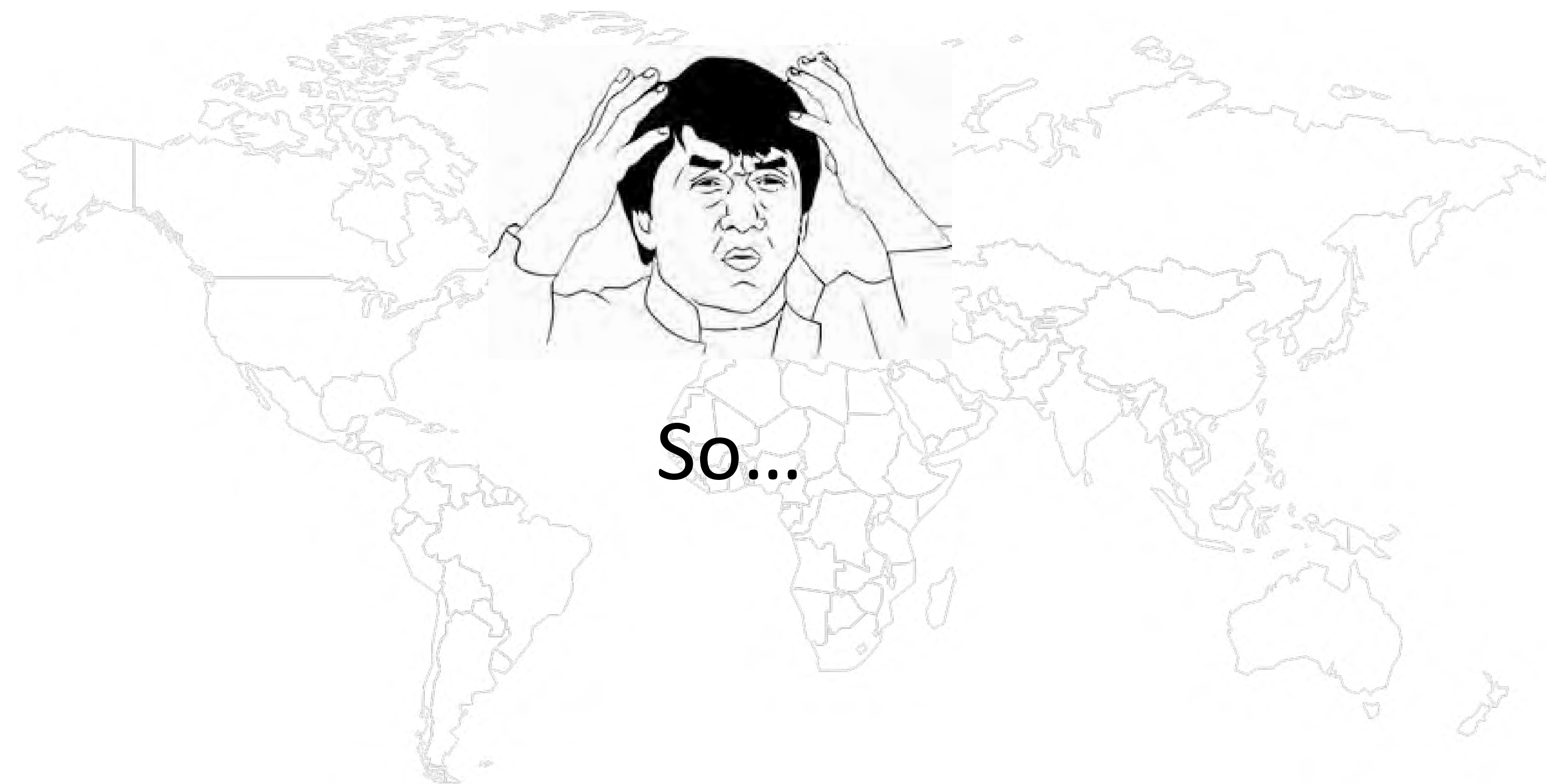


# • Background

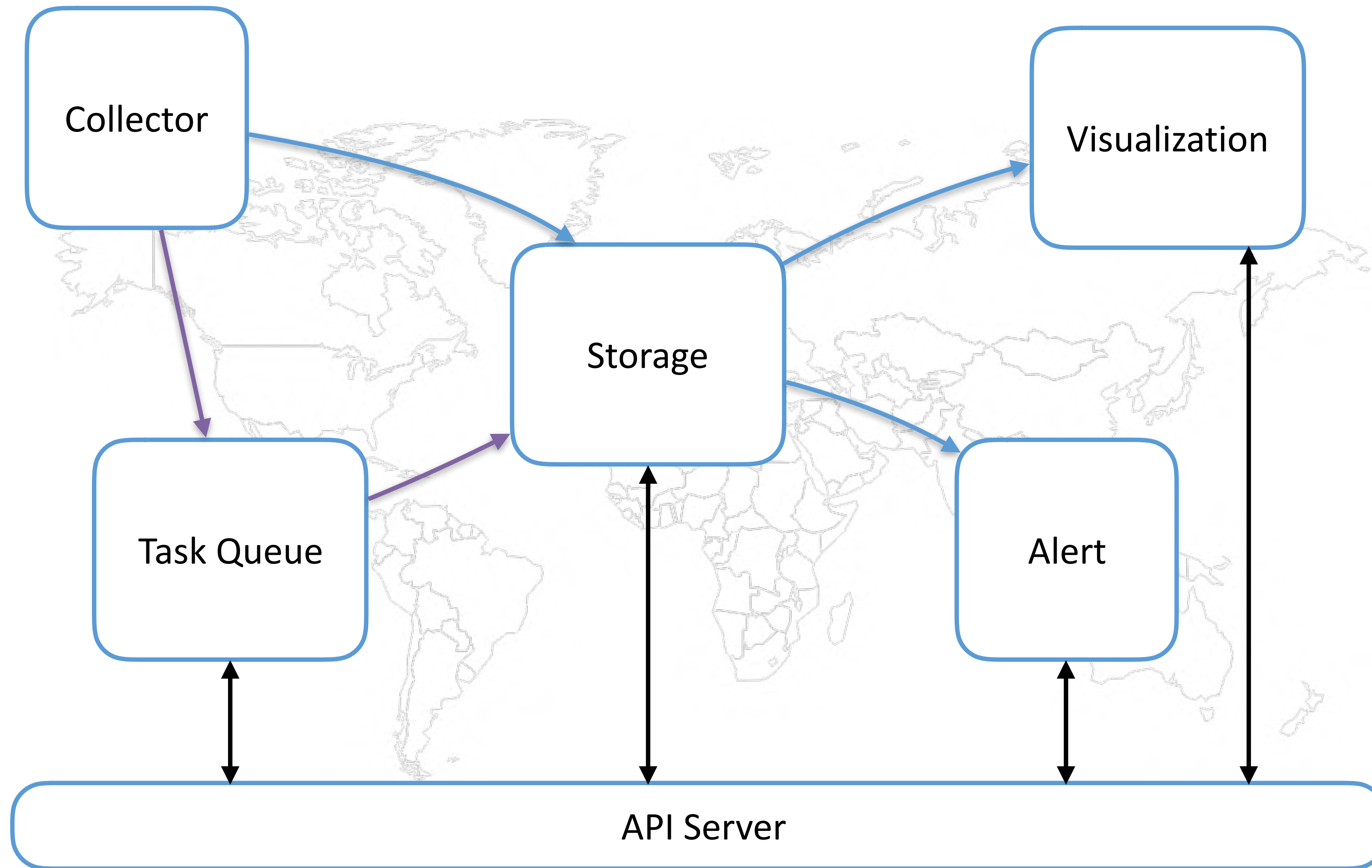
- Significance of monitor
  - Especially for clusters
- How to collect data
  - System state
  - Application state
  - Network data
- Mass storage
- Data visualisation
- In-time alert
- Highly available/scalable/concurrency

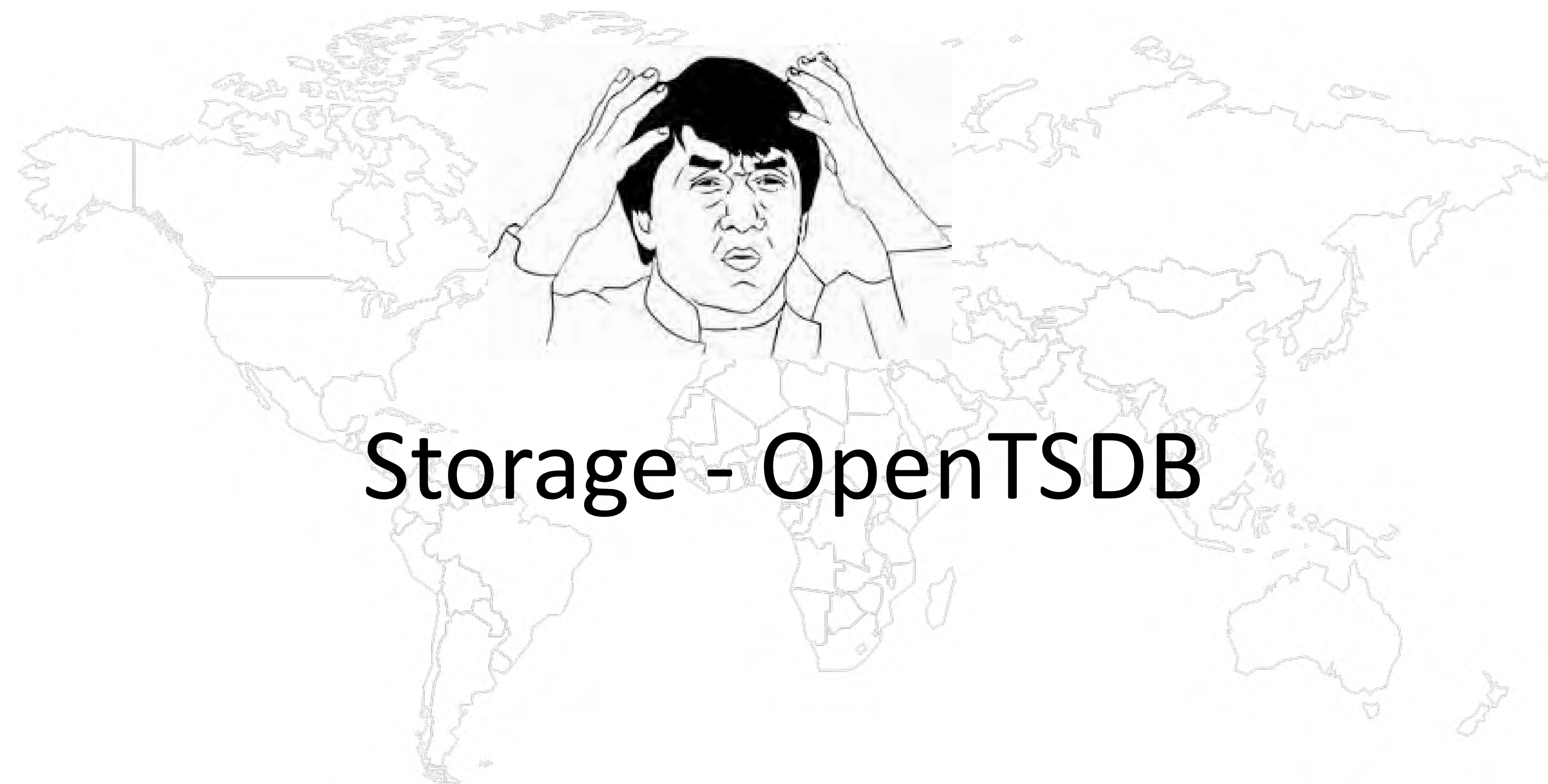






- Architecture





# Storage - OpenTSDB

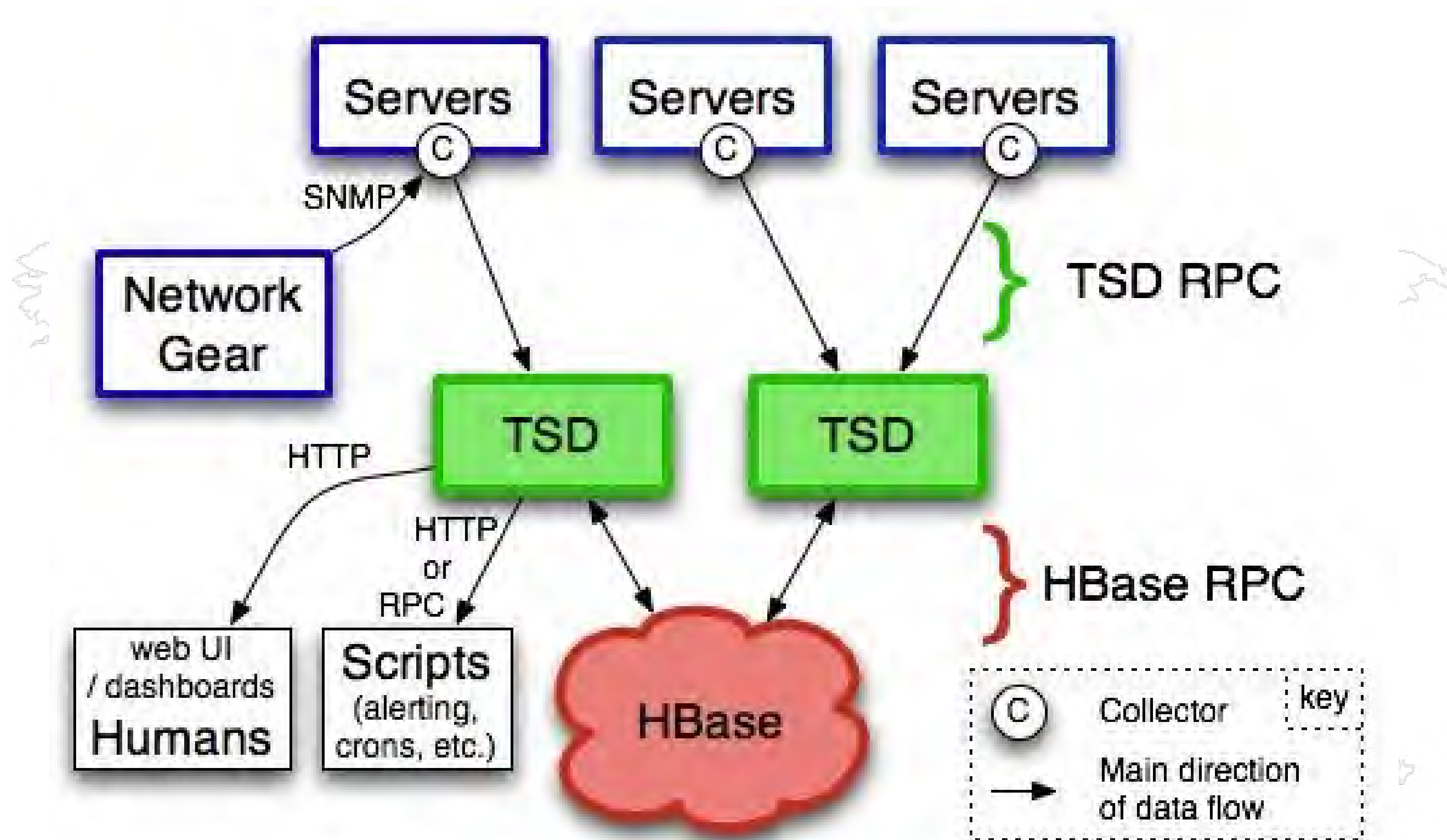


# • OpenTSDB



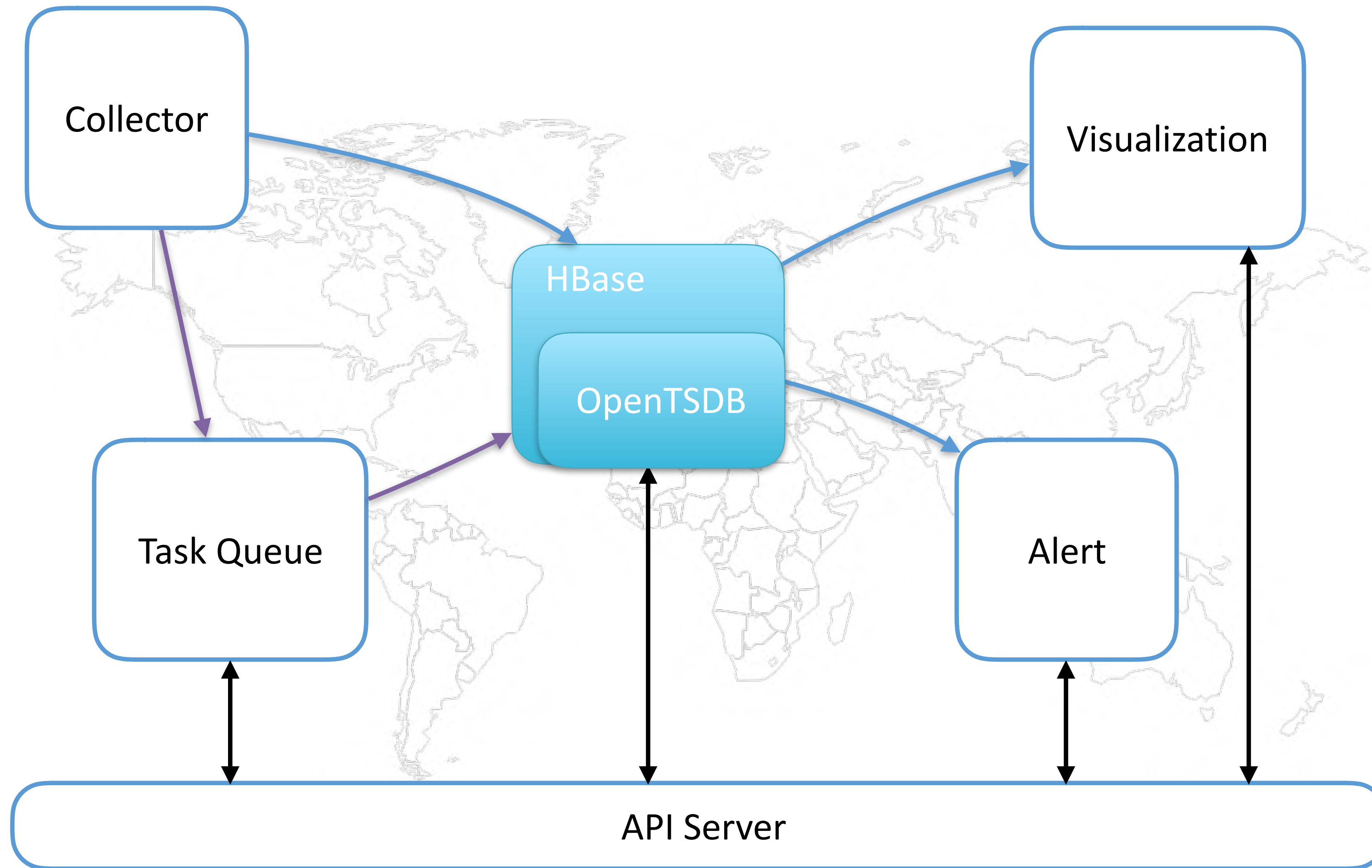
- Distributed, scalable Time Series Database (TSDB) written on top of HBase
- Store
  - Massive Storage
  - Store with millisecond precision
- Read/Write
  - Pull from the HTTP API
  - Millions of writes per second
- Scale
  - Runs on Hadoop and HBase
  - Add capacity by adding nodes

- OpenTSDB





- Architecture





# Collector - TCollector

# • Collector

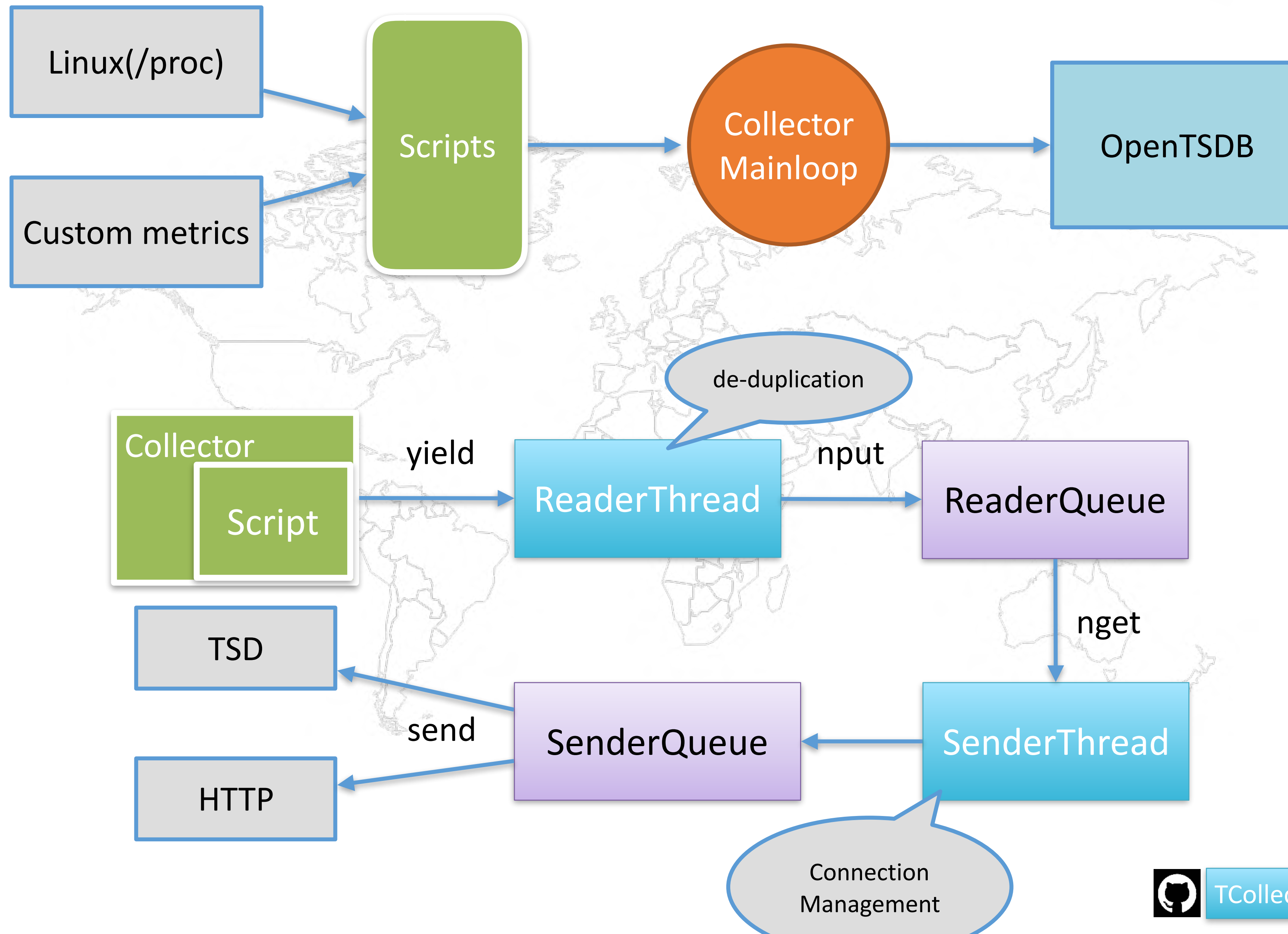


- TCollector(python)
  - Run collector scripts and gather their data
  - Manage connection to the TSD
  - De-duplication of repeated values
- What we do...
  - Reconstruction
  - Proxy support
  - User authorization
  - Celery Integration

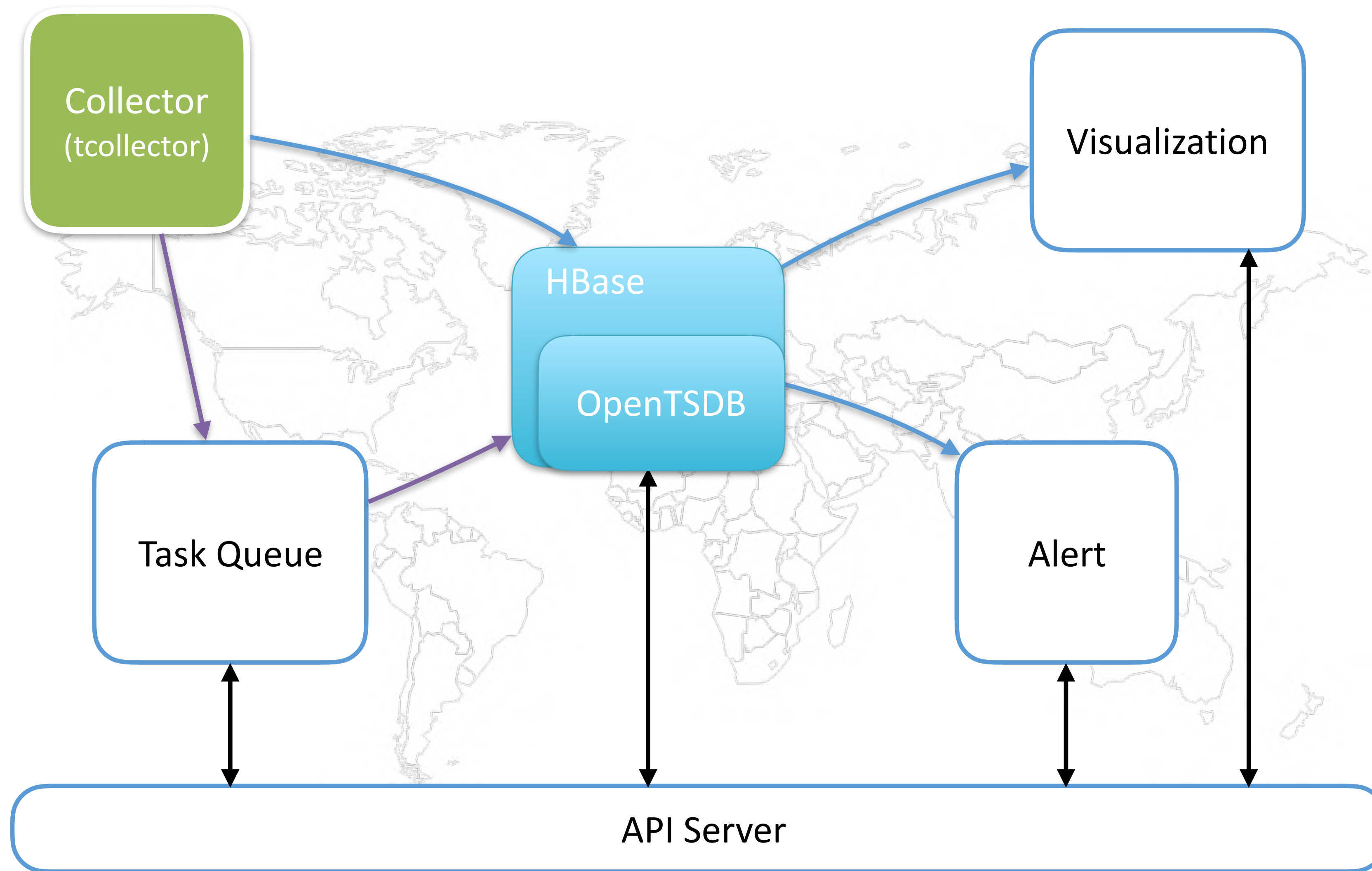


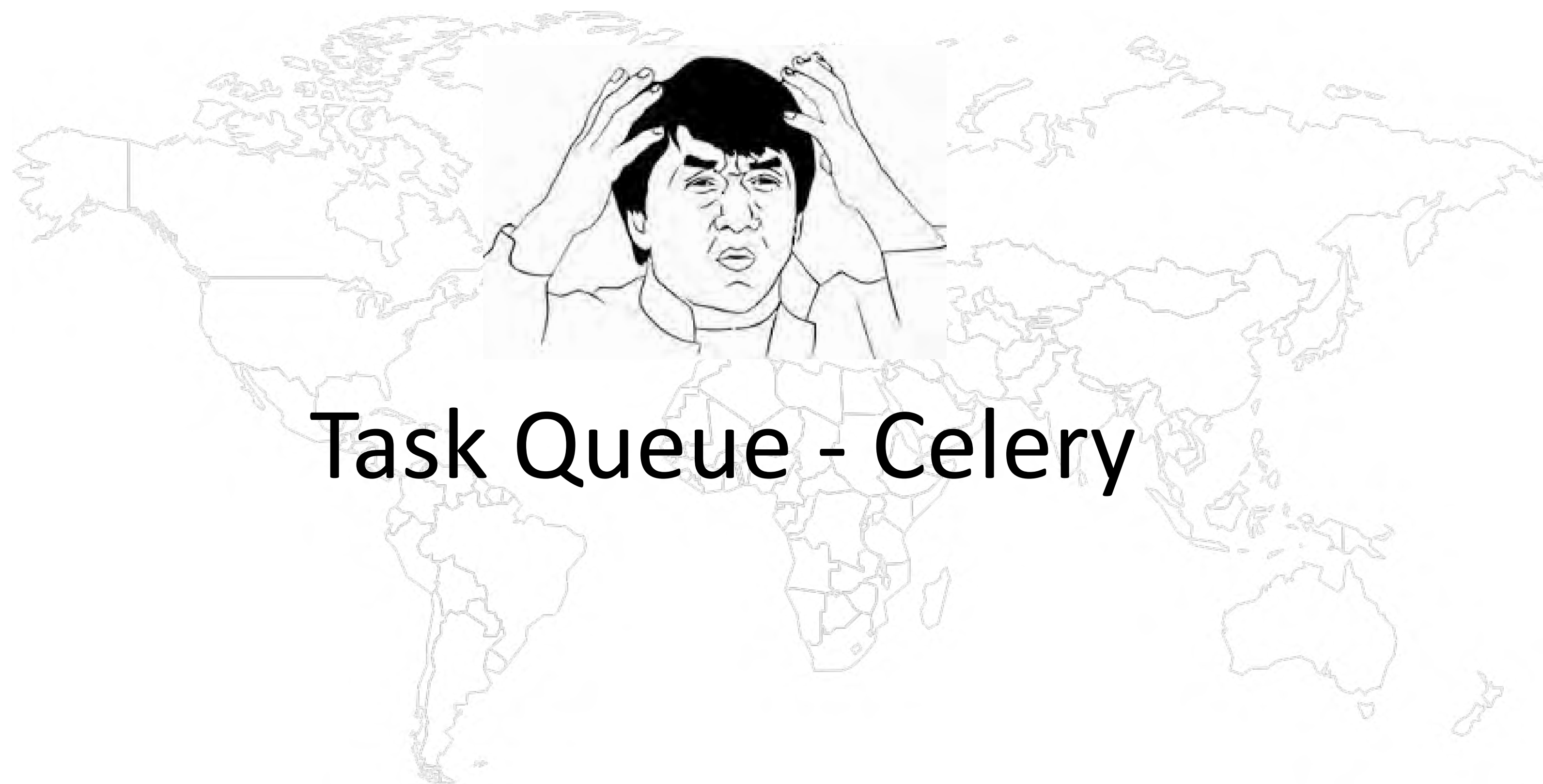


# Collector



- Architecture





# Task Queue - Celery



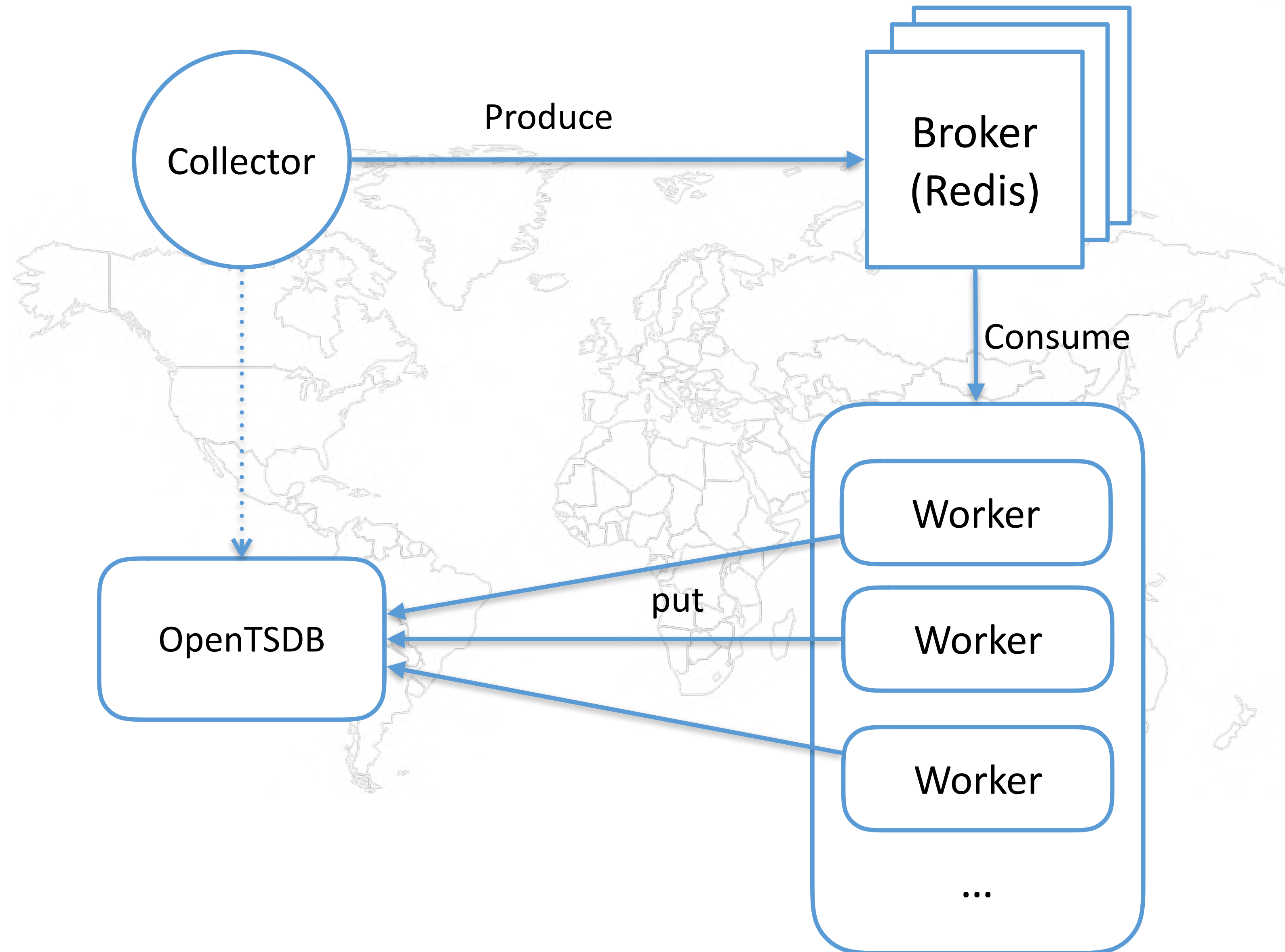
# • Celery



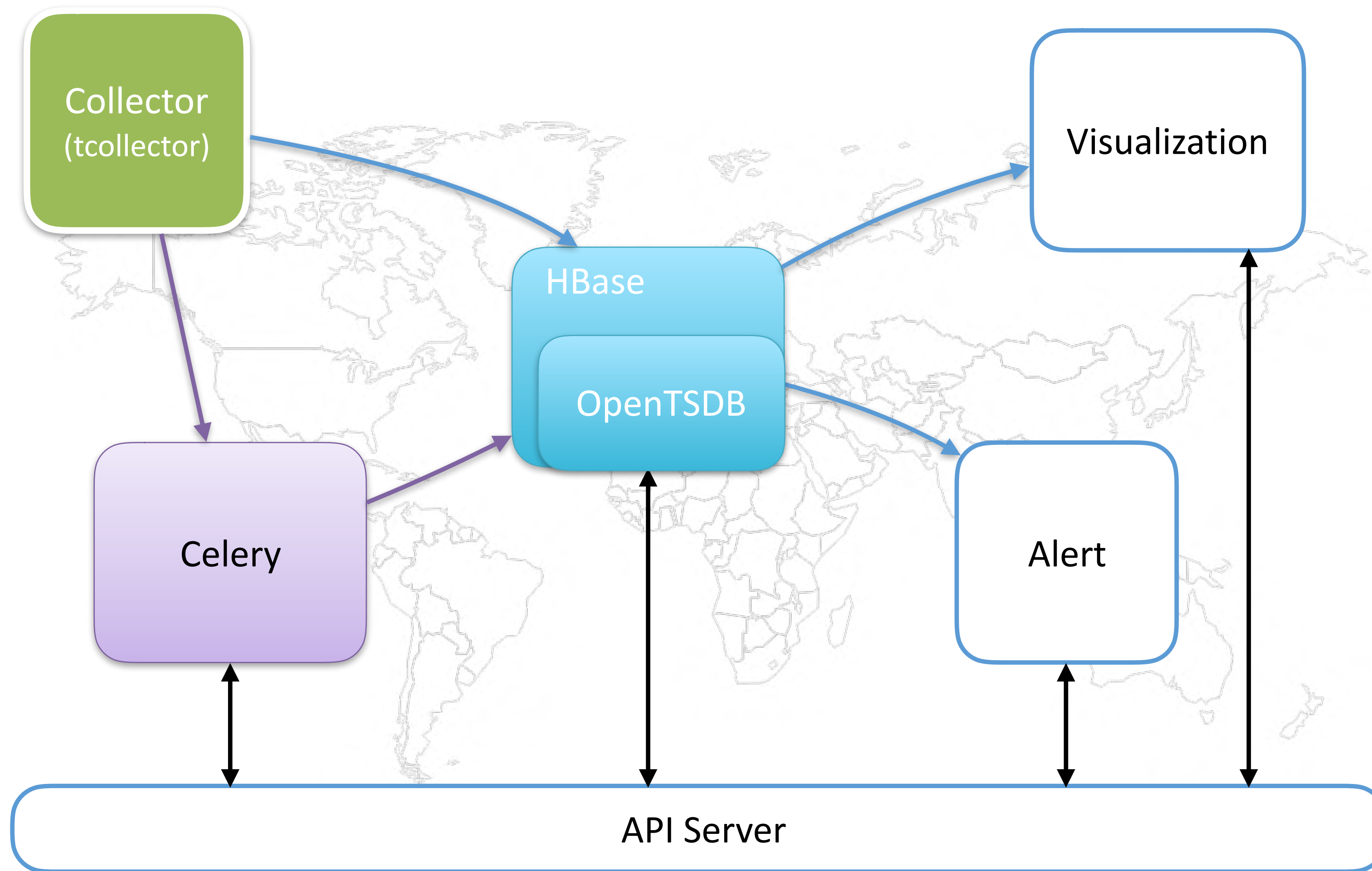
- Distributed asynchronous Task Queue
- Highly Available & Fast & Flexible
- Focus on real-time processing
- Time & Rate Limits
- Task scheduling
- User Components
- Message Broker
  - Redis
    - Use both RDB and AOF for redis persistence
      - RDB allows us to have snapshots of the datastore.
      - AOF allows us persistence across restarts of redis.



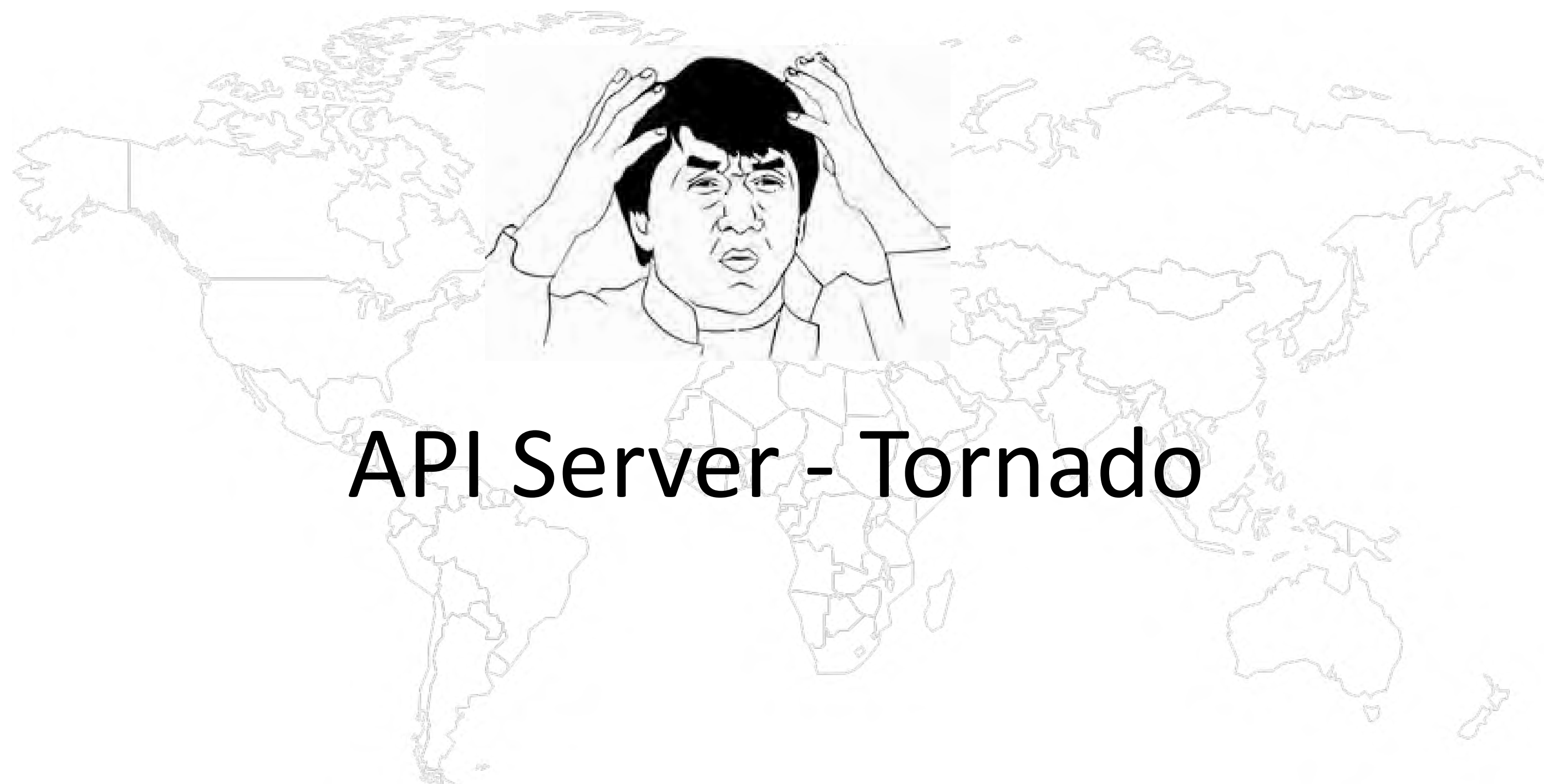
- Celery



- Architecture



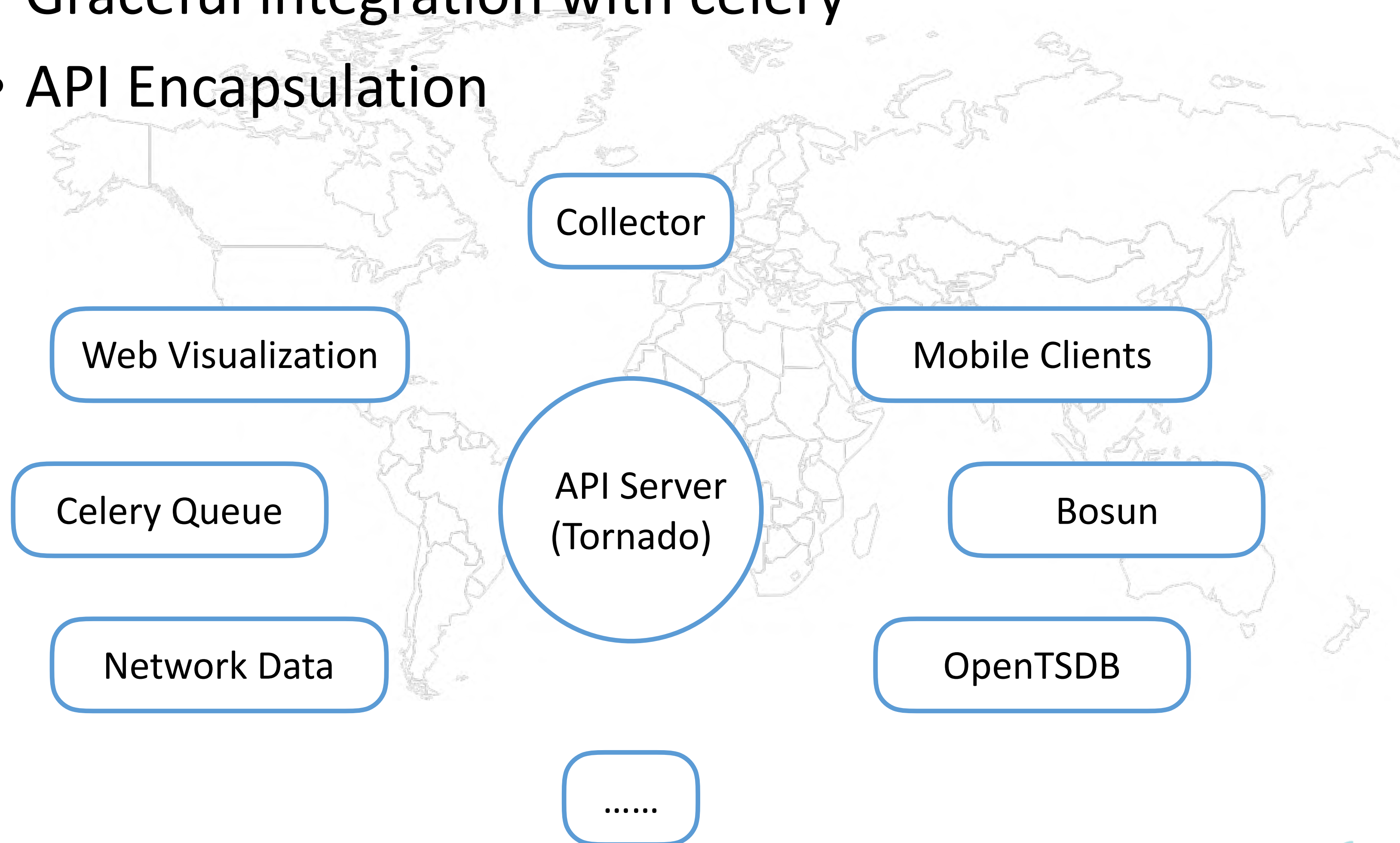




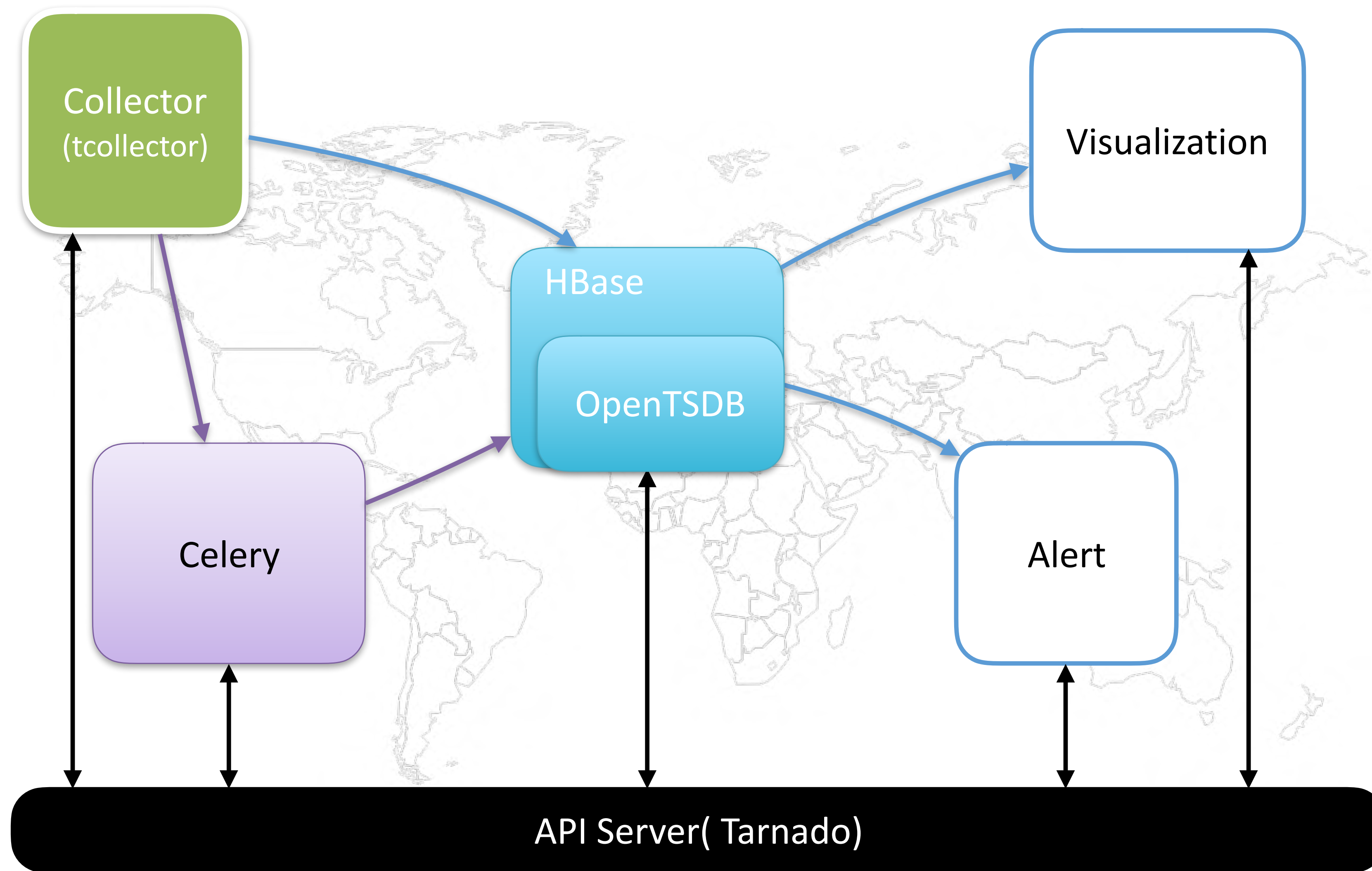
# API Server - Tornado

- Tornado

- High concurrent restful api server
- Graceful integration with celery
- API Encapsulation



- Architecture







# Visualization - Metrilyx

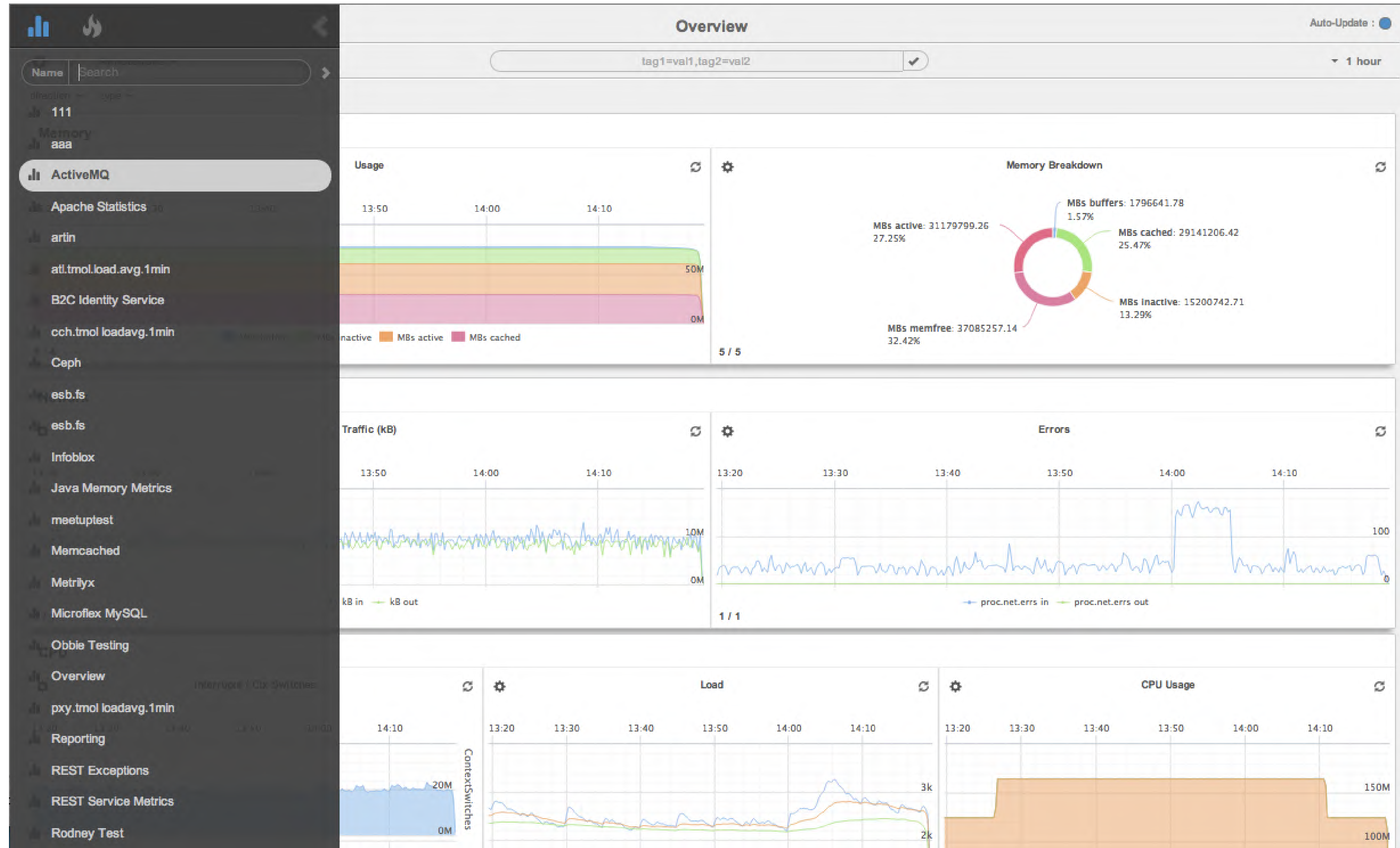
# • Architecture

## • Metrilyx

- Based on django
- Easy Dashboards
- Data Analysis / Metric Operations
- WebSocket Data Delivery
- Richer Metric Search
- Distributed, Highly-Available, Redundant

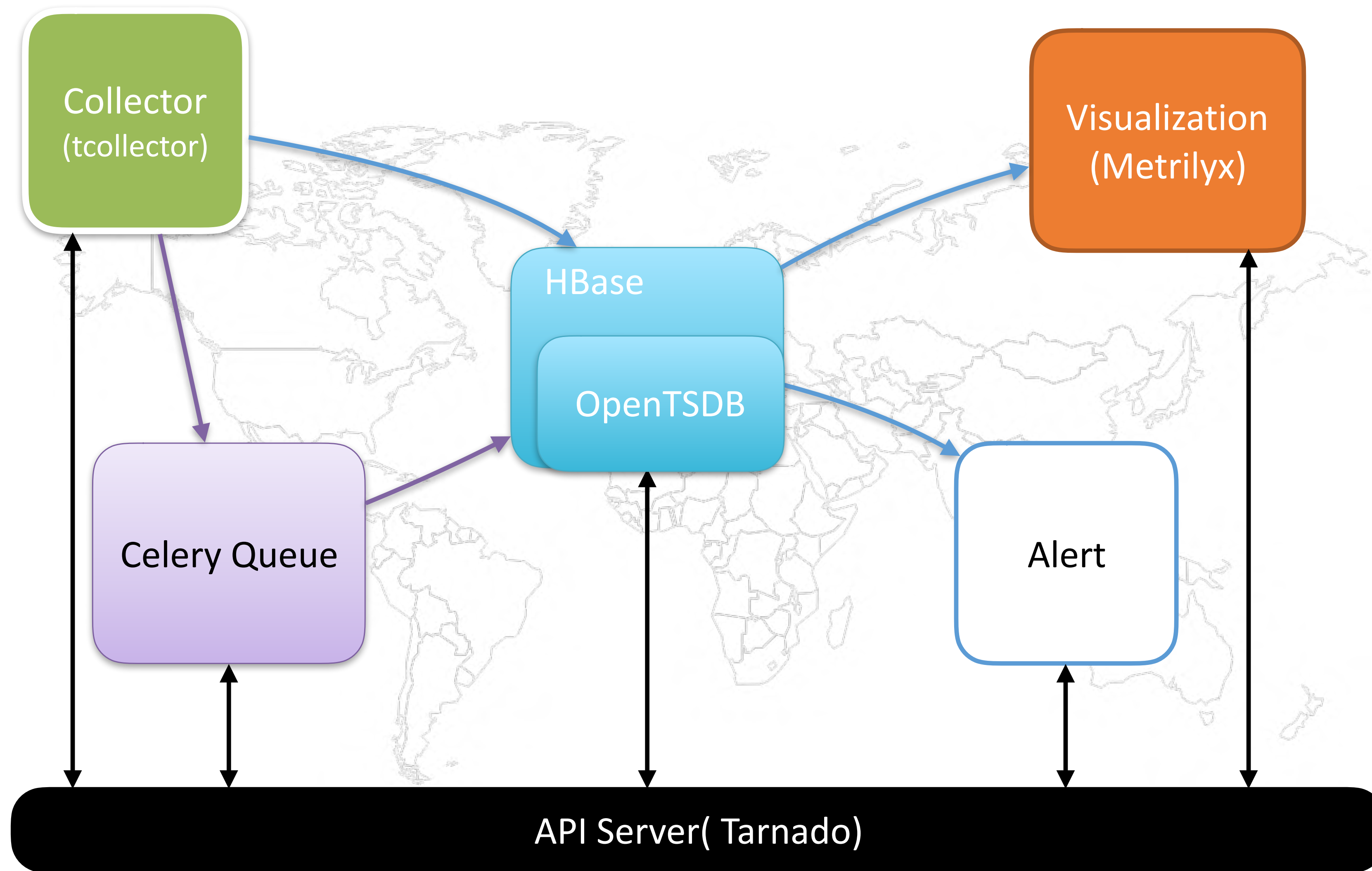


# ● Metrilyx-Dashboard





- Architecture

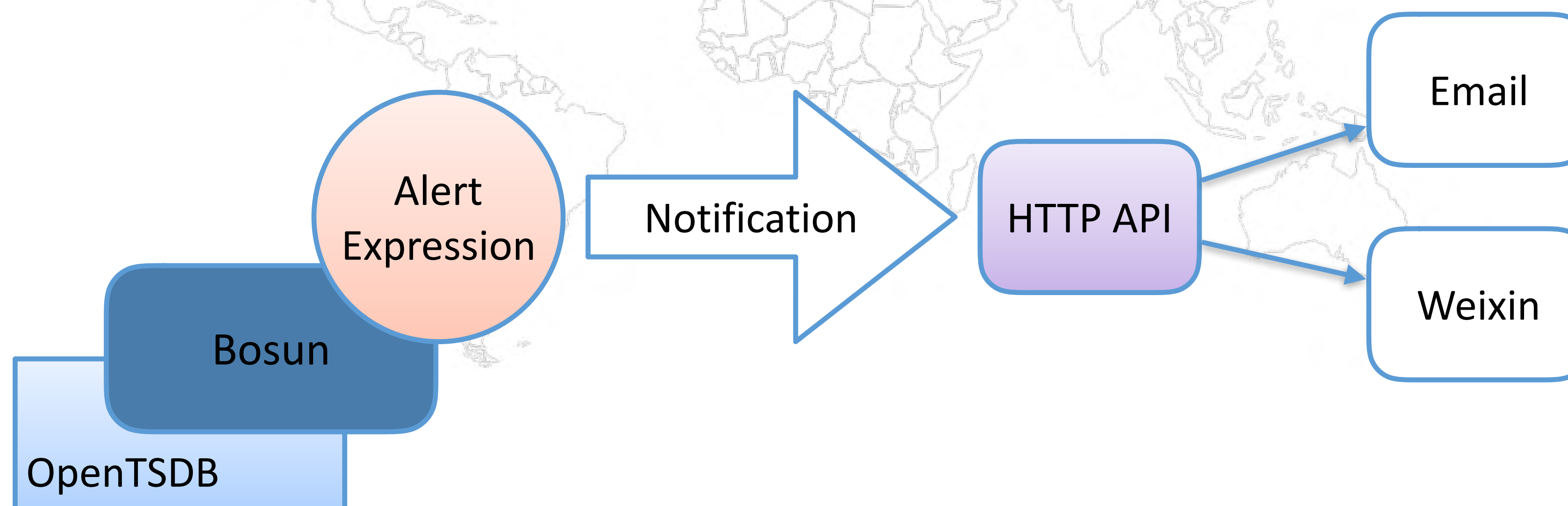




Alert - Bosun

# • Bosun

- Used in monitoring infrastructure at Stack Overflow
- Written in Go and AngularJS
- Based on OpenTSDB
- Define alert with powerful expression language
- Useful notification template
- HTTP API alert





# • Bosun - Expression

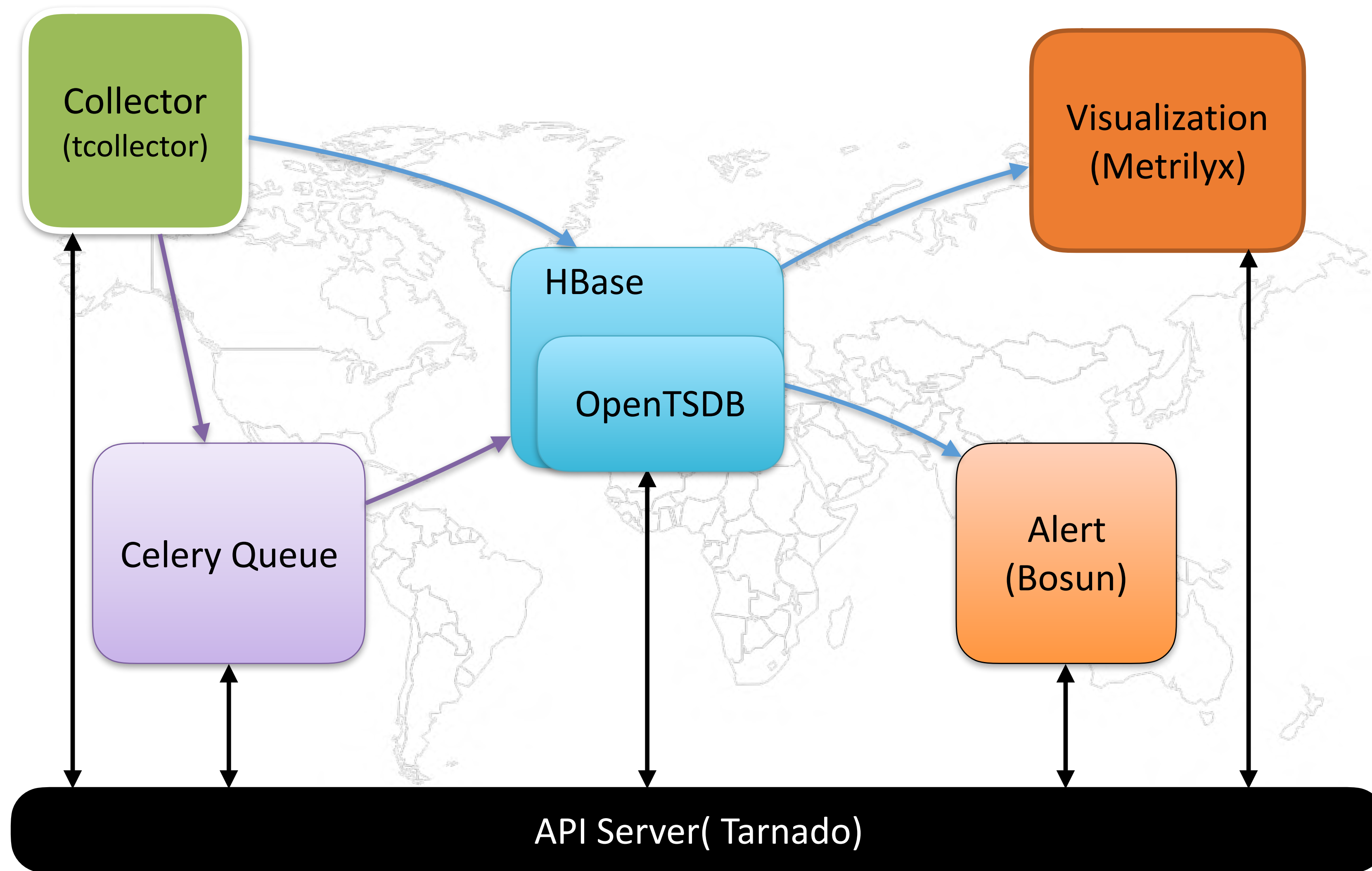
- Take various time series and reduce them to a single number
- True or false indicates whether the alert should trigger or not

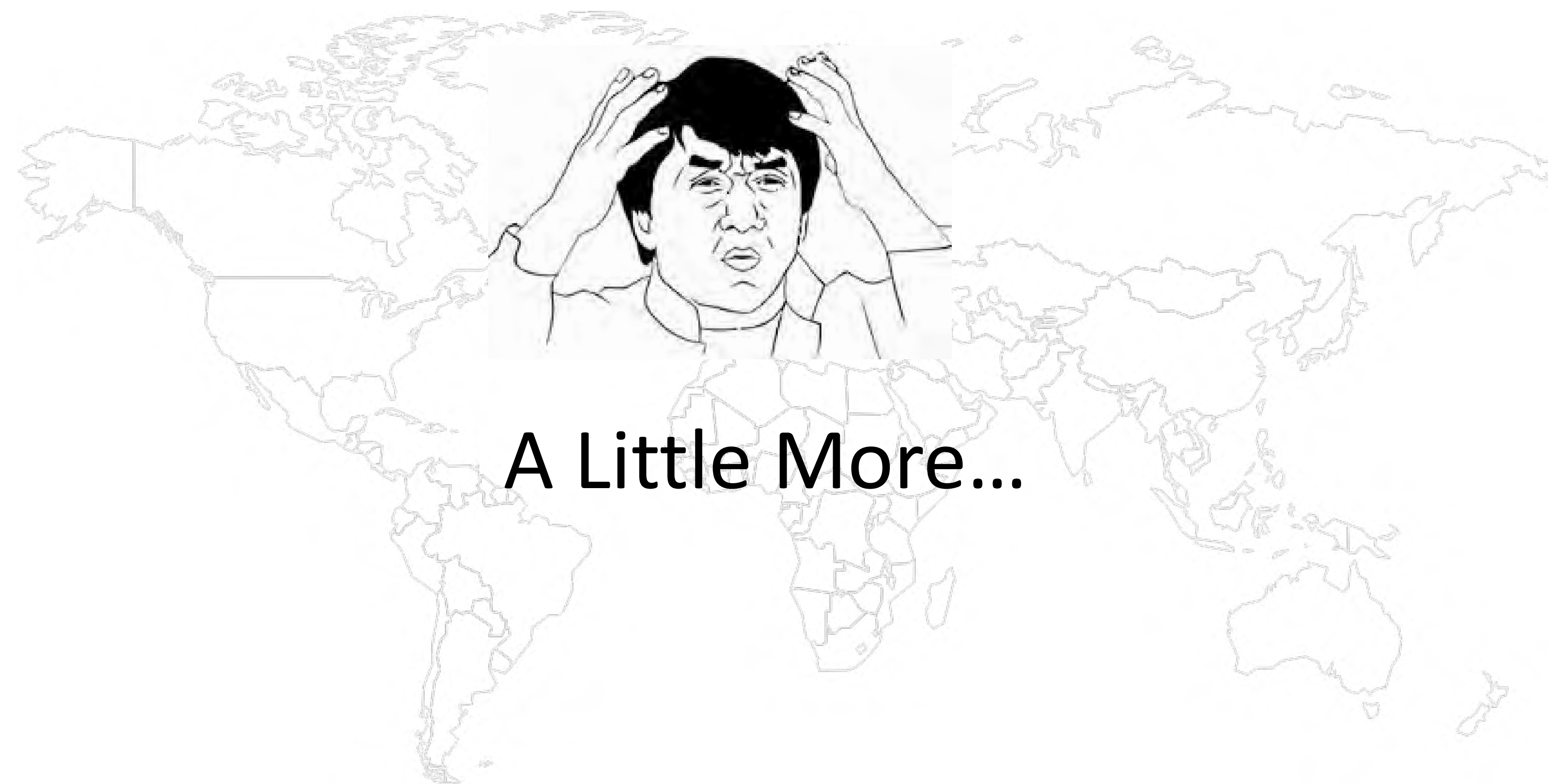
```

1 tsdbHost = tsdb01.stackoverflow.com:4242
2 smtpHost = mail.stackoverflow.com:25
3
4 template cpu {
5     body = `Alert definition:
6     Name: {{.Alert.Name}}
7     Crit: {{.Alert.Crit}}
8
9     Tags:{{range $k, $v := .Group}}
10    {{$k}}: {{$v}}{{end}}
11    `
12     subject = cpu idle at {{.Alert.Vars.q | .E}} on {{.Group.host}}
13 }
14
15 notification default {
16     email = someone@domain.com
17     next = default
18     timeout = 1h
19 }
20
21 alert cpu {
22     template = cpu
23     $q = avg(q("sum:rate:linux.cpu{host=*,type=idle}", "1m"))
24     crit = $q < 40
25     notification = default
26 }

```

- Architecture

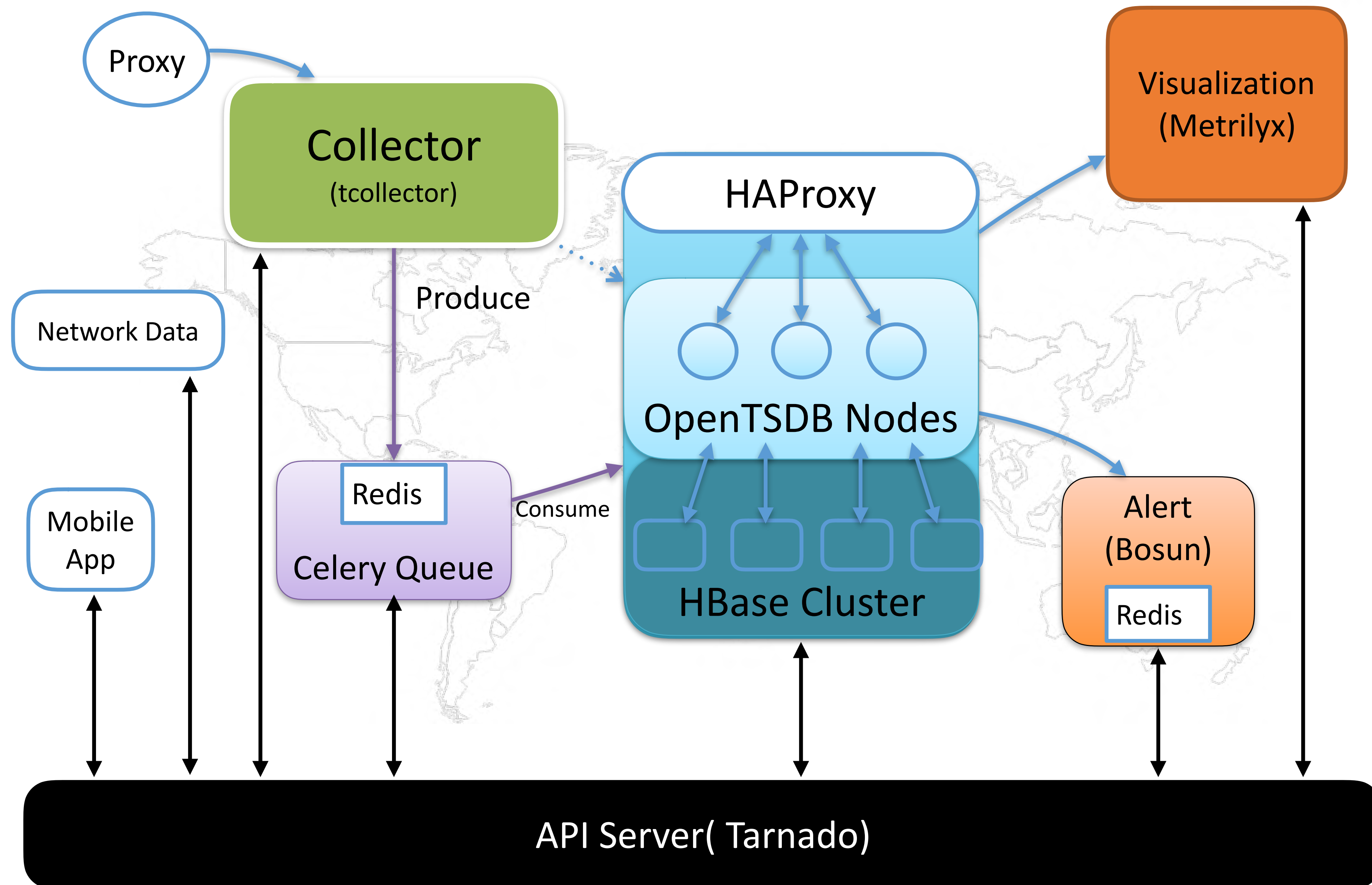




A Little More...

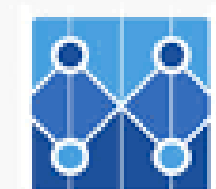


- Architecture





Metrilyx



Bosun



Tornado

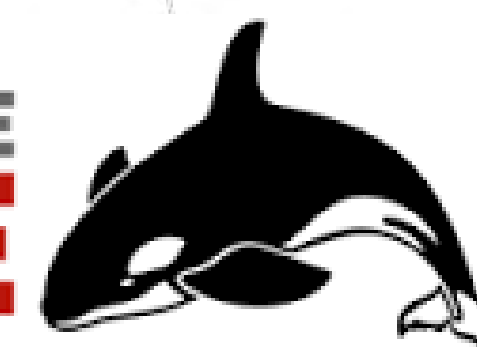


OPENTSDDB



TCollector

APACHE  
HBASE





Thanks



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Eacon



Eacon

广东 广州



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