Promethues

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pppp.hdns.xyz

[快閃活動] Nextcloud 簡單分享 + 入門普羅米修斯
9/15 這個星期六下午
https://opensuse-tw.kktix.cc/events/2018915
#如果颱風來就會延期_星期五下午告知

OPENSUSE-TW.KKTIX.CC
Nextcloud 簡單分享 + 入門普羅米修斯
Nextcloud 簡單分享 + 入門普羅米修斯

Chun-Ping Chang 和其他 11 人　　1則留言 2則分享

讚　　分享

陳正瑋 Duncan HuangMouson Chen 有現成的
讚 · 2小時 · 2

Duncan Huang 感謝！已報名！
讚 · 2小時

Chunhung Huang 現成的??
讚 · 2小時

陳正瑋 Chunhung Huang 他們在問有沒有普羅工作坊
讚 · 2小時

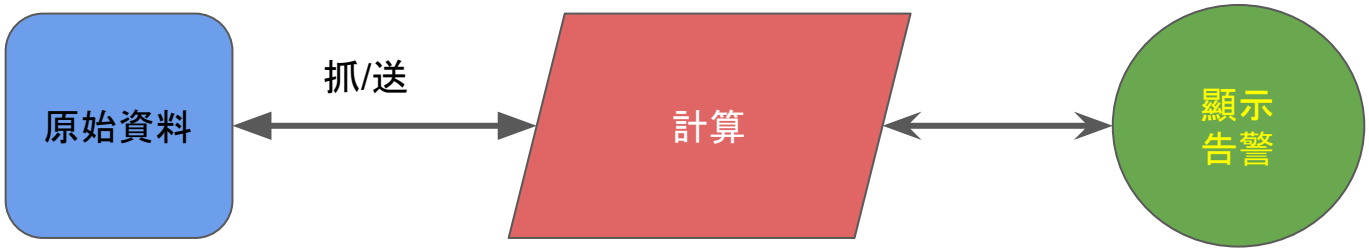
Chunhung Huang 陳正瑋 對阿, 我也想聽, 所以找 Liang HaWay
讚 · 2小時

查看更多回覆

What is Prometheus ?

- Monitor Tool

What is Monitor Tool?



Log: 404 /index.html	Count(404)	(圖表)
數據：CPU idle “30”	平均使用(CPU)	(圖表)
狀態：Web “True”	if 狀態 = False	(告警)

與監控有關的資料

原始資料, ex: Log

2018-09-12 01:02:32 404 GET /index.html
Status: Error
CPU idle：32

資訊（已計算過的資料）, ex：數據

404：60
Session: 300
平均值(CPU idle): 50

Monitor Tools

- SNMP + MRTG(RRDTool)
- Splunk
- Promethues

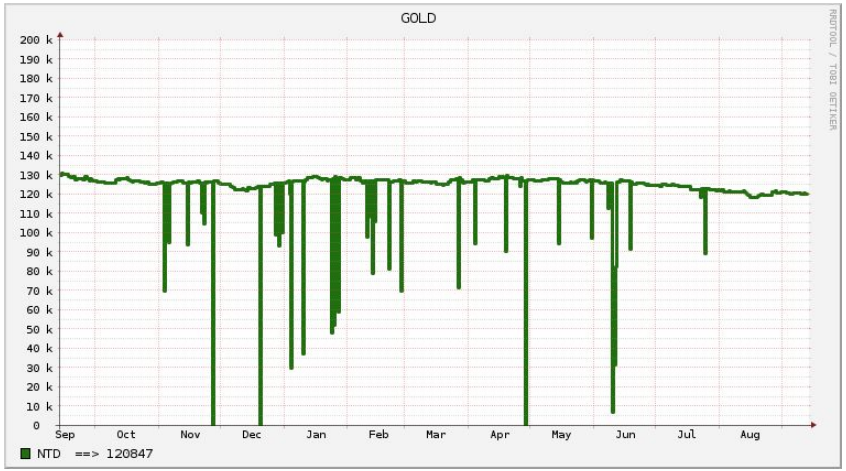
SNMP + RRDTool

Cacti

抓取 SNMP 的資料, 計算過後用圖形介面顯示

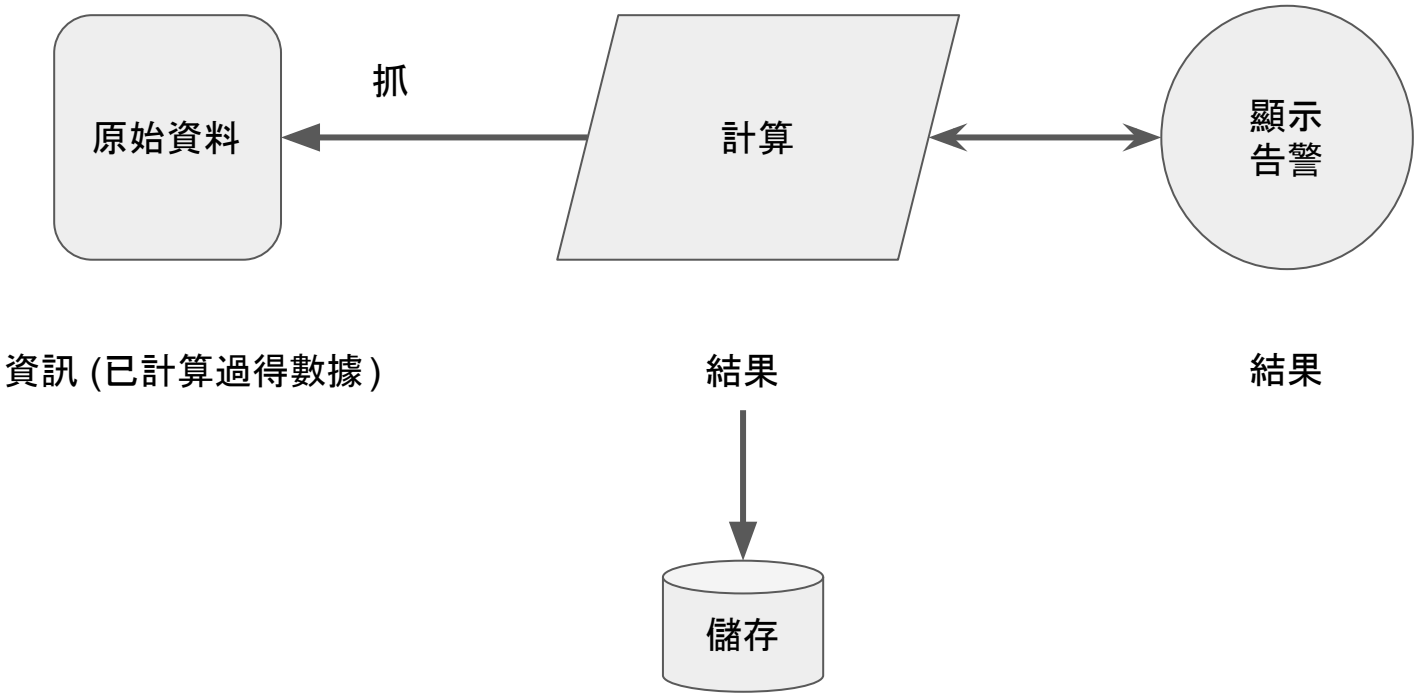
Script

自己依照 Raw Data 去計算要顯示的數字, 文字, 再用圖形介面顯示



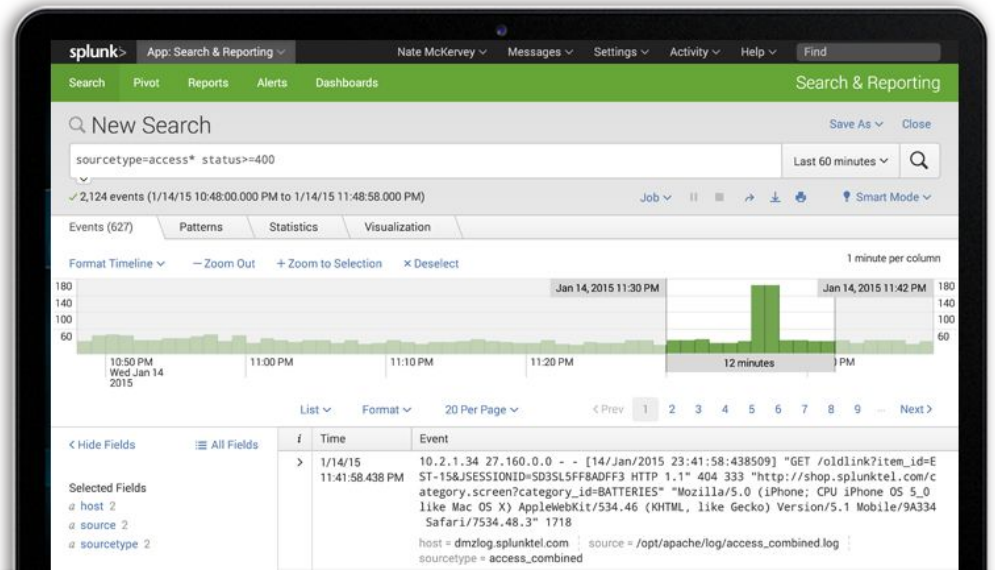
圖片來源:日京三子

SNMP + RRDTool



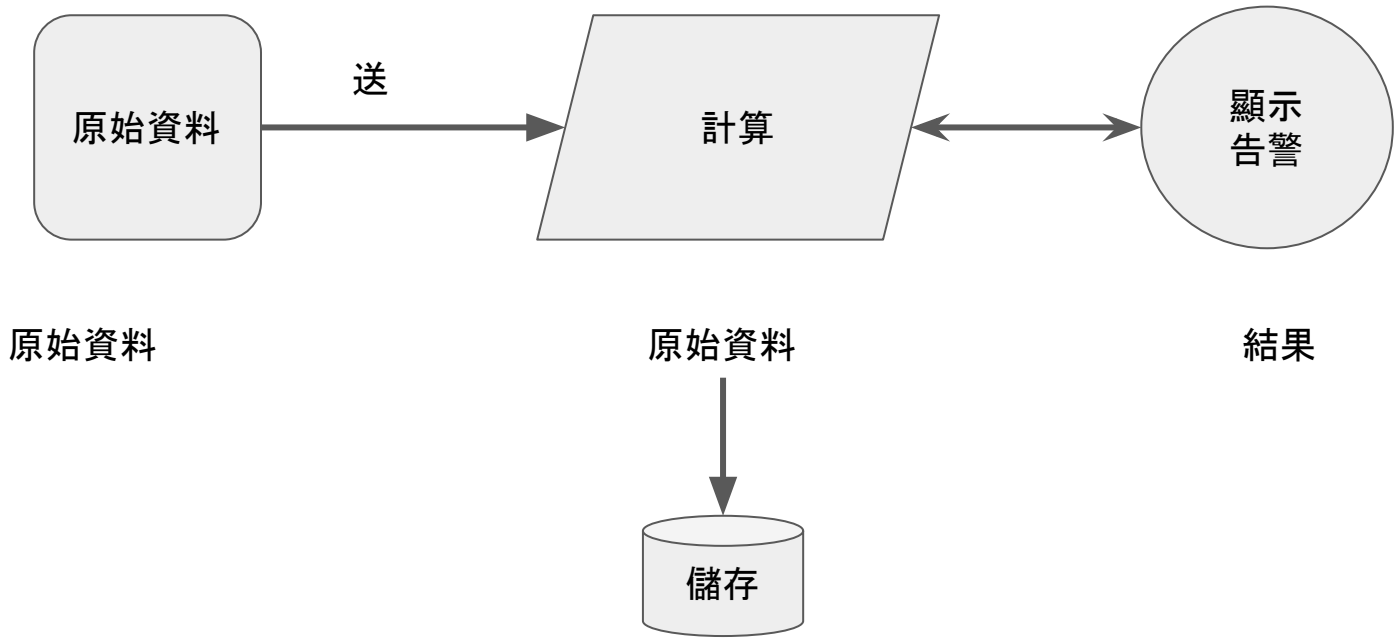
Splunk

直接抓取 Raw Data（Log）回 Server, 依照當下的運算公式去立即計算數值, 總和等等



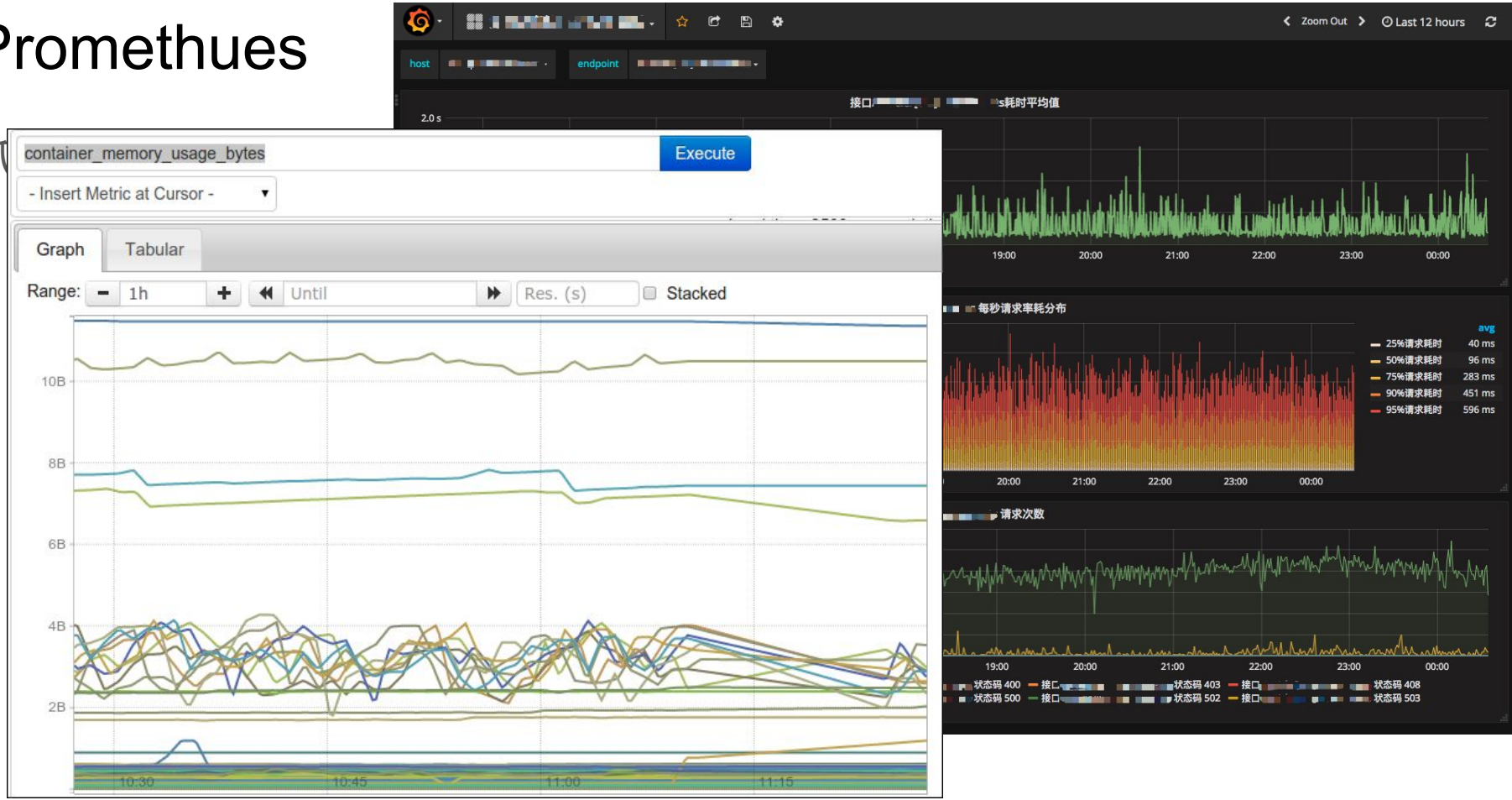
圖片取自 Google

Splunk

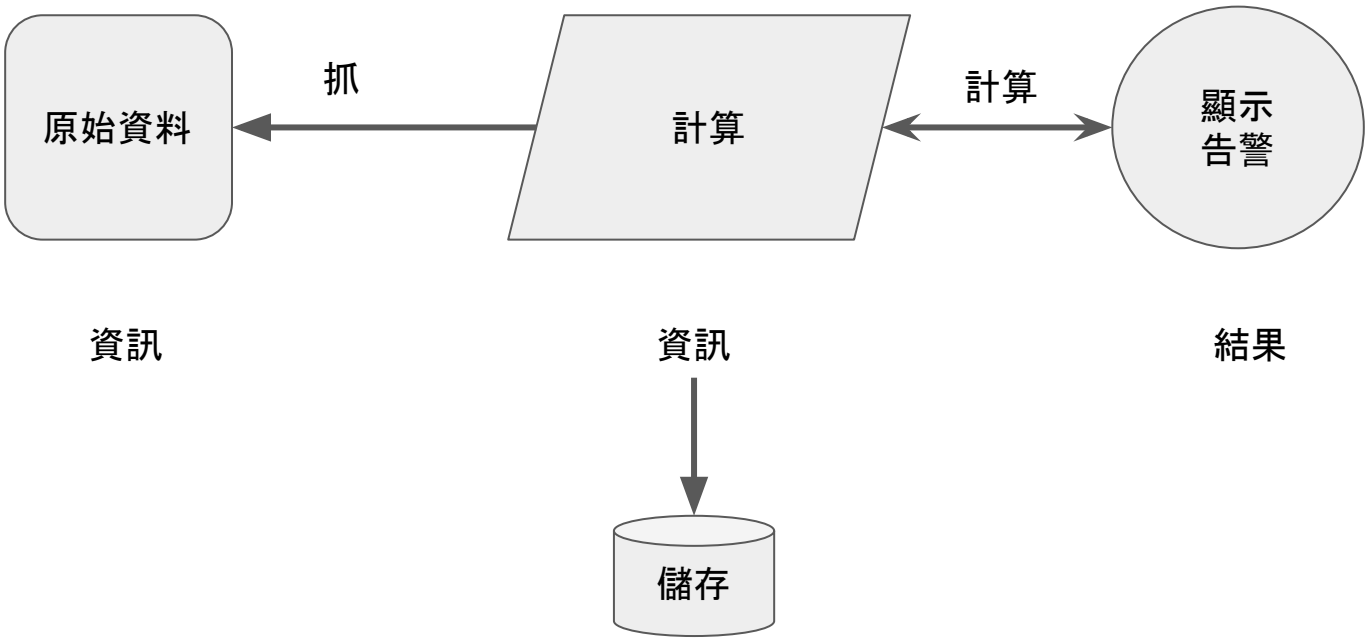


Promethues

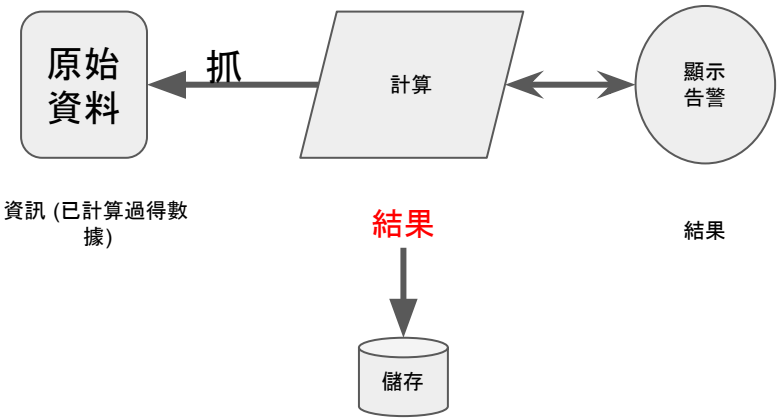
抓



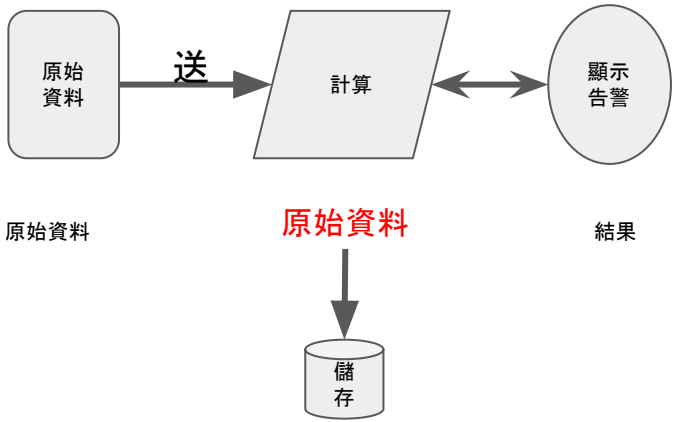
Promethues



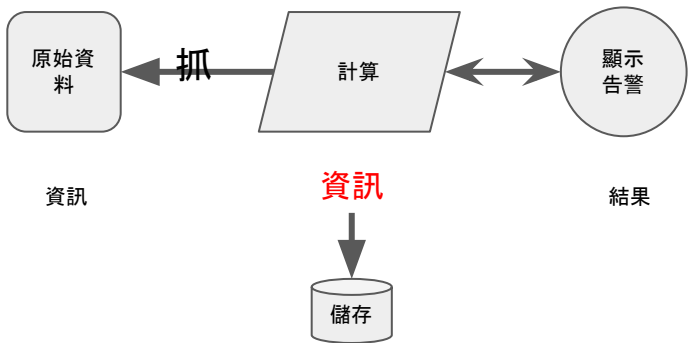
SNMP + RRDTool



Splunk

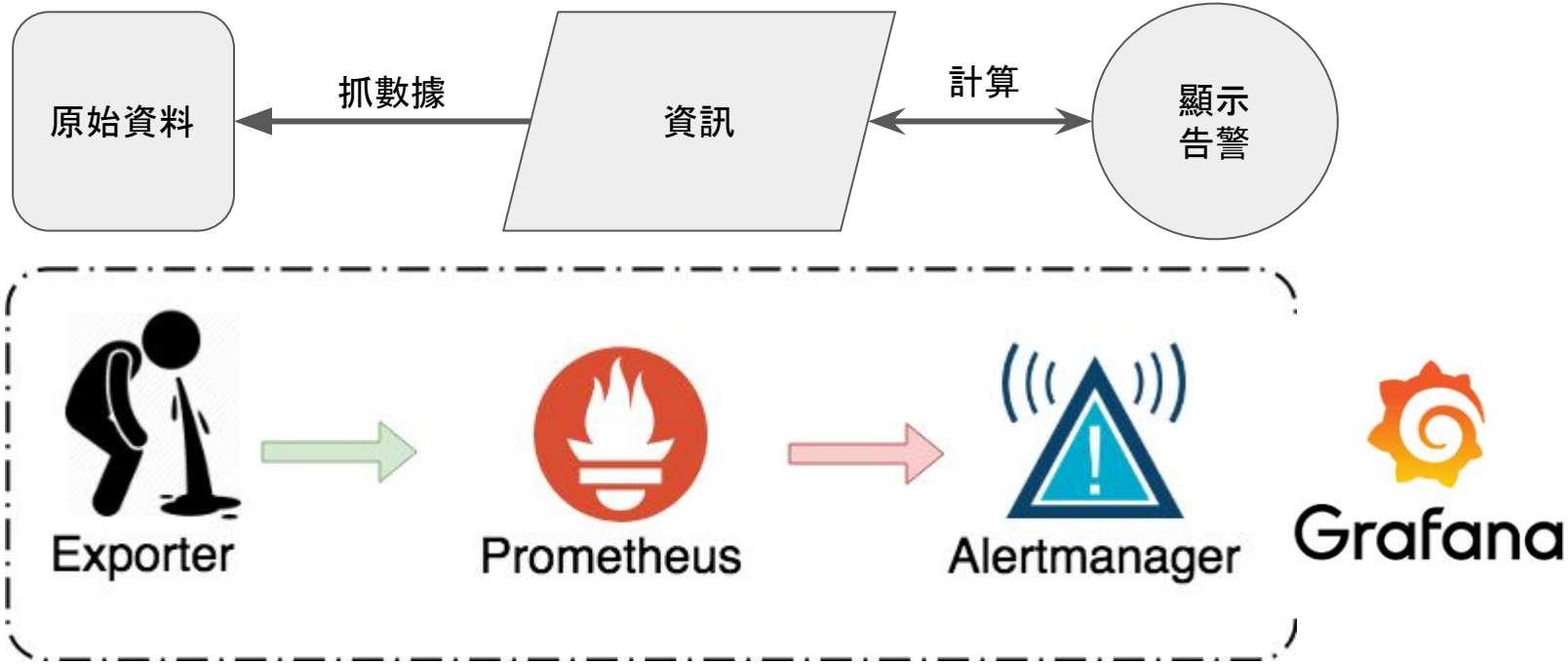


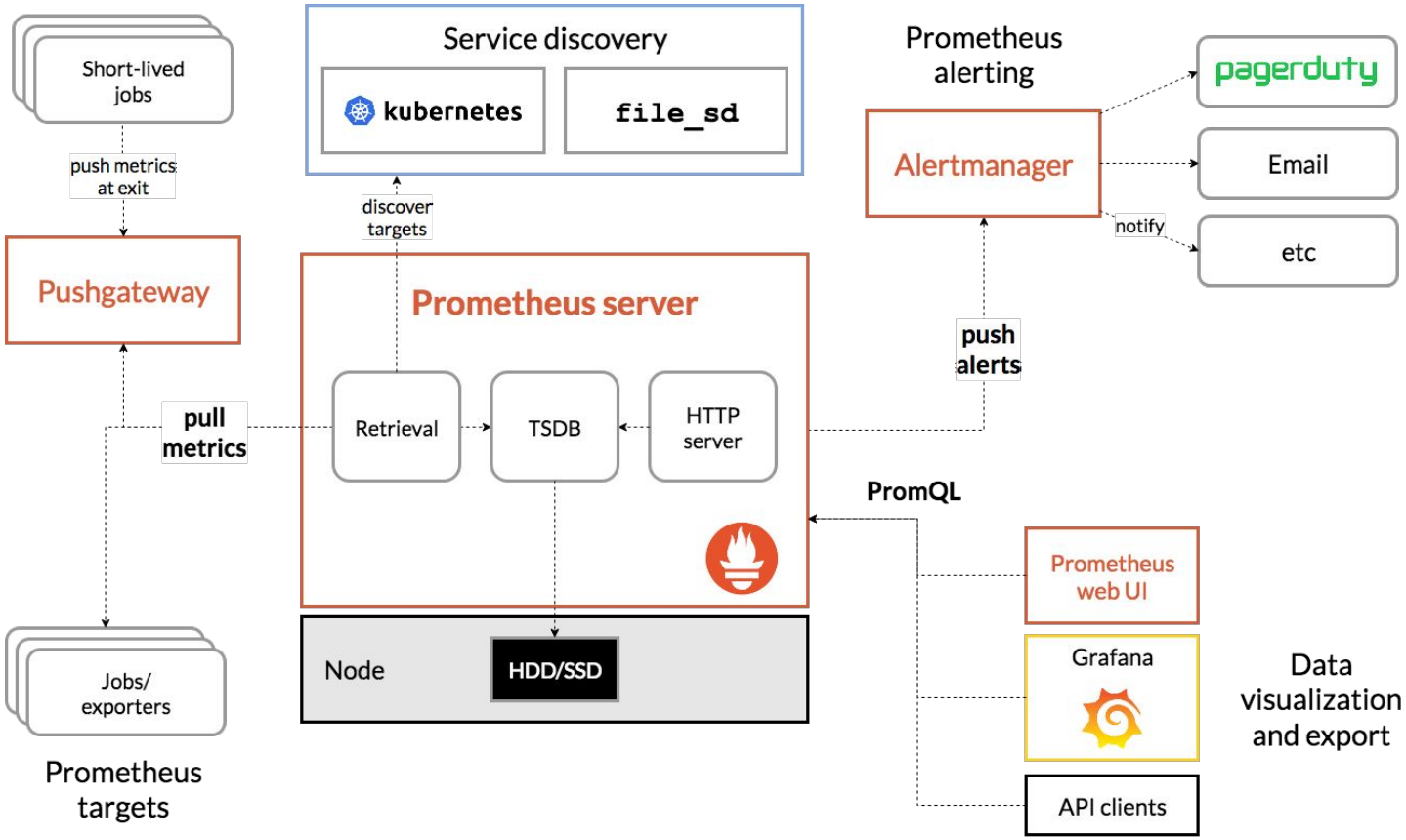
Promethues



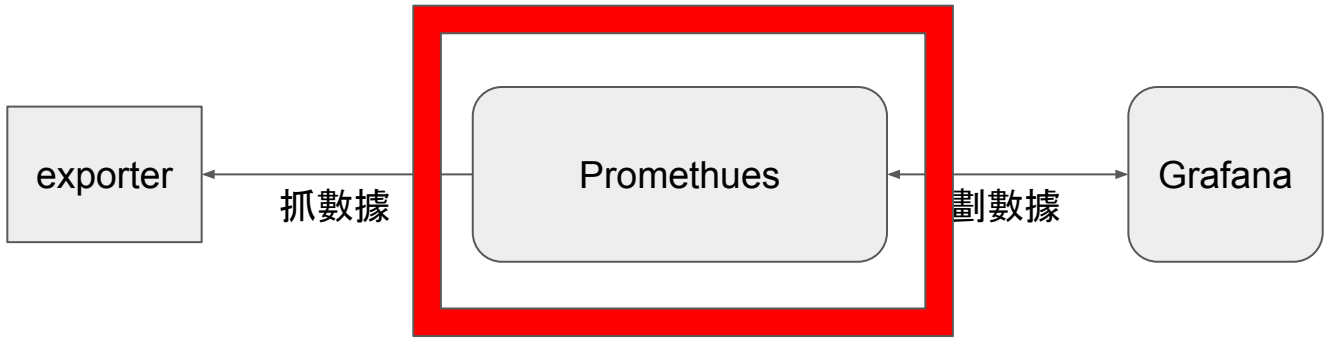
入門 Promethues

Promethues


原始資料
抓數據
資訊
計算
顯示
告警
Exporter
Prometheus
Alertmanager
Grafana


Short-lived jobs
push metrics at exit
Pushgateway
Jobs/ exporters
Prometheus targets
Service discovery
kubernetes
file_sd
discover targets
Prometheus server
pull metrics
Retrieval
TSDB
HTTP server
Node
HDD/SSD
Prometheus alerting
Alertmanager
pagerduty
Email
etc
notify
push alerts
PromQL
Prometheus web UI
Grafana
API clients
Data visualization and export

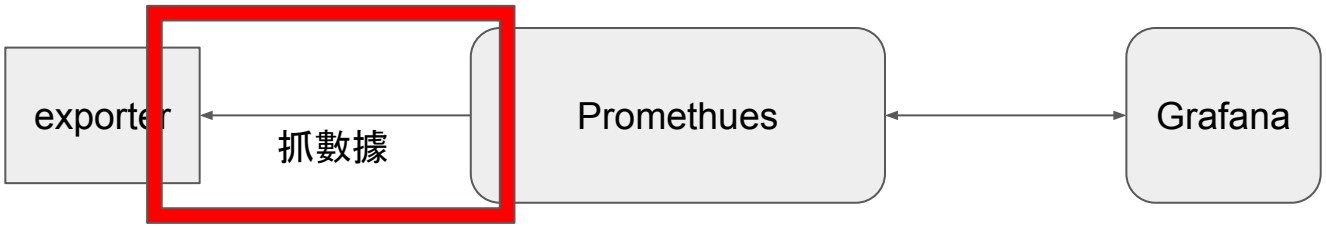

exporter
抓數據
Promethues
劃數據
Grafana


exporter
抓數據
Promethues
劃數據
Grafana

安裝 Promethues

- https://prometheus.io/

- docker run -p 9090:9090 prom/prometheus
- http://127.0.0.1:9090/graph
-
- 自帶 exporter (陽春)
  - http://127.0.0.1:9090/metrics


exporter
抓數據
Promethues
Grafana

Promethues 去哪裡抓資料？

- prometheus.yml

```
global:
  scrape_interval:     15s
  evaluation_interval: 15s

rule_files:
  # - "first.rules"
  # - "second.rules"

scrape_configs:
  - job_name: prometheus
    static_configs:
      - targets: ['localhost:9090']
```

被 Promethues 抓的資料格式 (exporter 格式)

- http:///(hostname):9090/metrics
- HTTP
- 文字格式

HELP say something

TYPE (名稱) (資料類型)

<metric name>{<label name>=<label value>, ...} data


exporter
抓數據
Promethues
Grafana

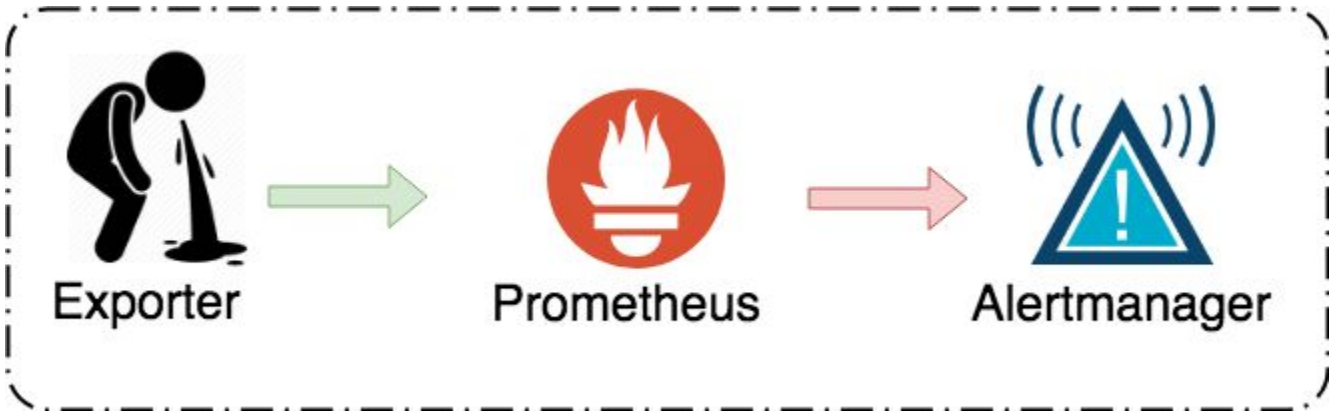
把主機/服務/軟體的資料吐出來 - exporter

- 等於以前的 SNMP
- 所有 exporter: https://prometheus.io/docs/instrumenting/exporters/

- 安裝 node/system exporter
- https://github.com/prometheus/node_exporter
- docker run -d --net="host" --pid="host" quay.io/prometheus/node-exporter

exporter 吐資料

http:///(hostname):9100/metrics



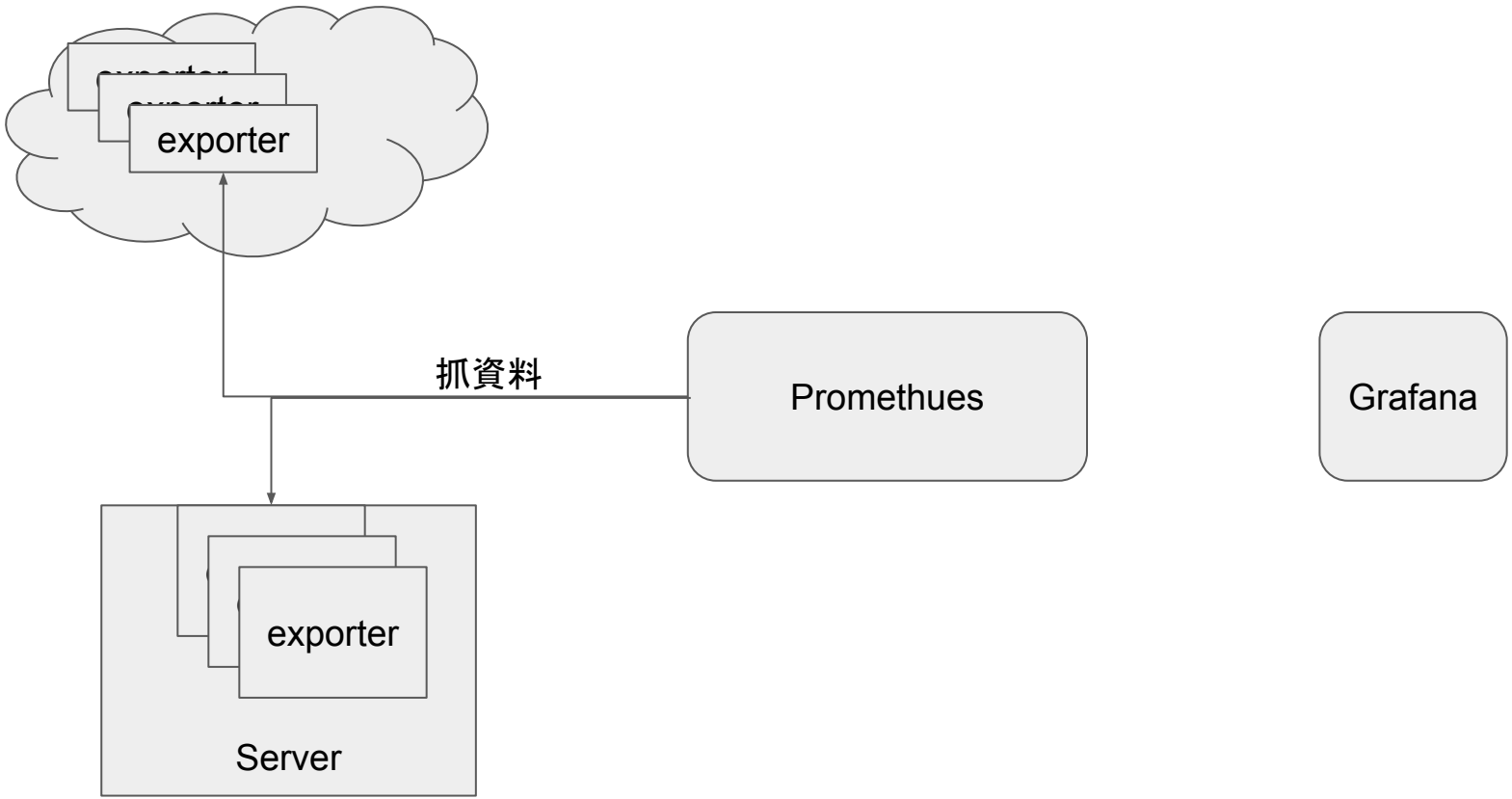
exporter 資料格式

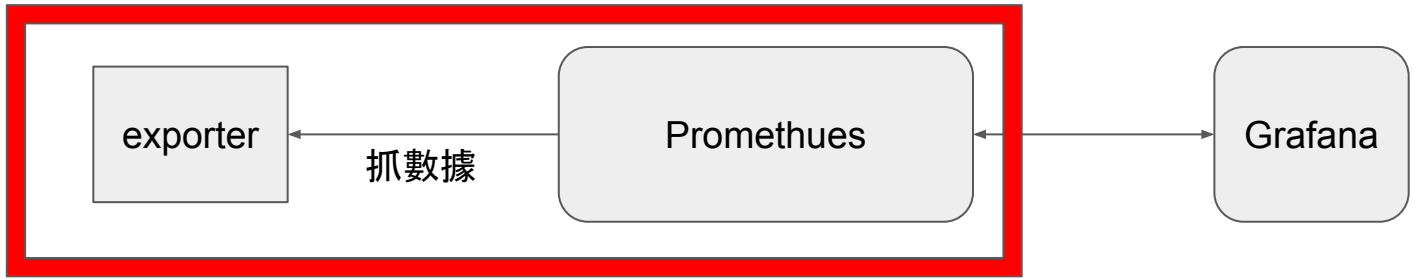
HELP say somethings

TYPE (名稱) (資料類型)

<metric name>{<label name>=<label value>, ...} data

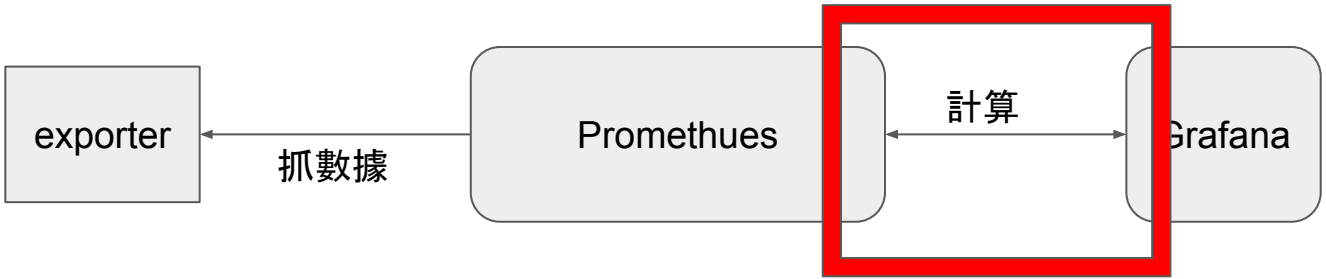
- TYPE
  - Counter, 累加值, 如 網路
  - Gauge, 常規值, 如 CPU
  - Histogram, 柱狀資料
  - Summary


exporter
抓資料
Promethues
Grafana
exporter
Server


exporter
抓數據
Promethues
Grafana

檢查 Exporter 連線

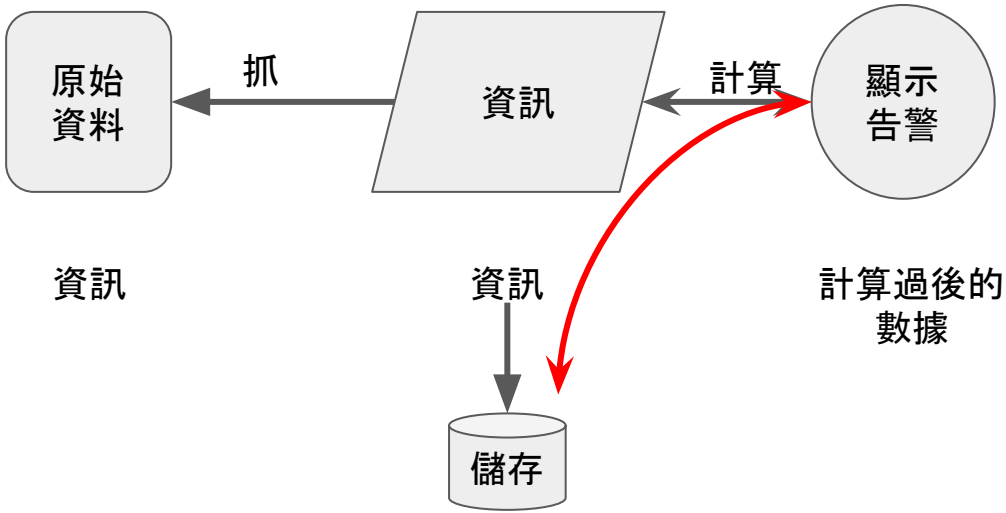
Promethues -> Status -> Targets


exporter
抓數據
Promethues
計算
Grafana

對數據進行計算

- Prom QL

https://songjiayang.gitbooks.io/prometheus/content/promql/summary.html



計算

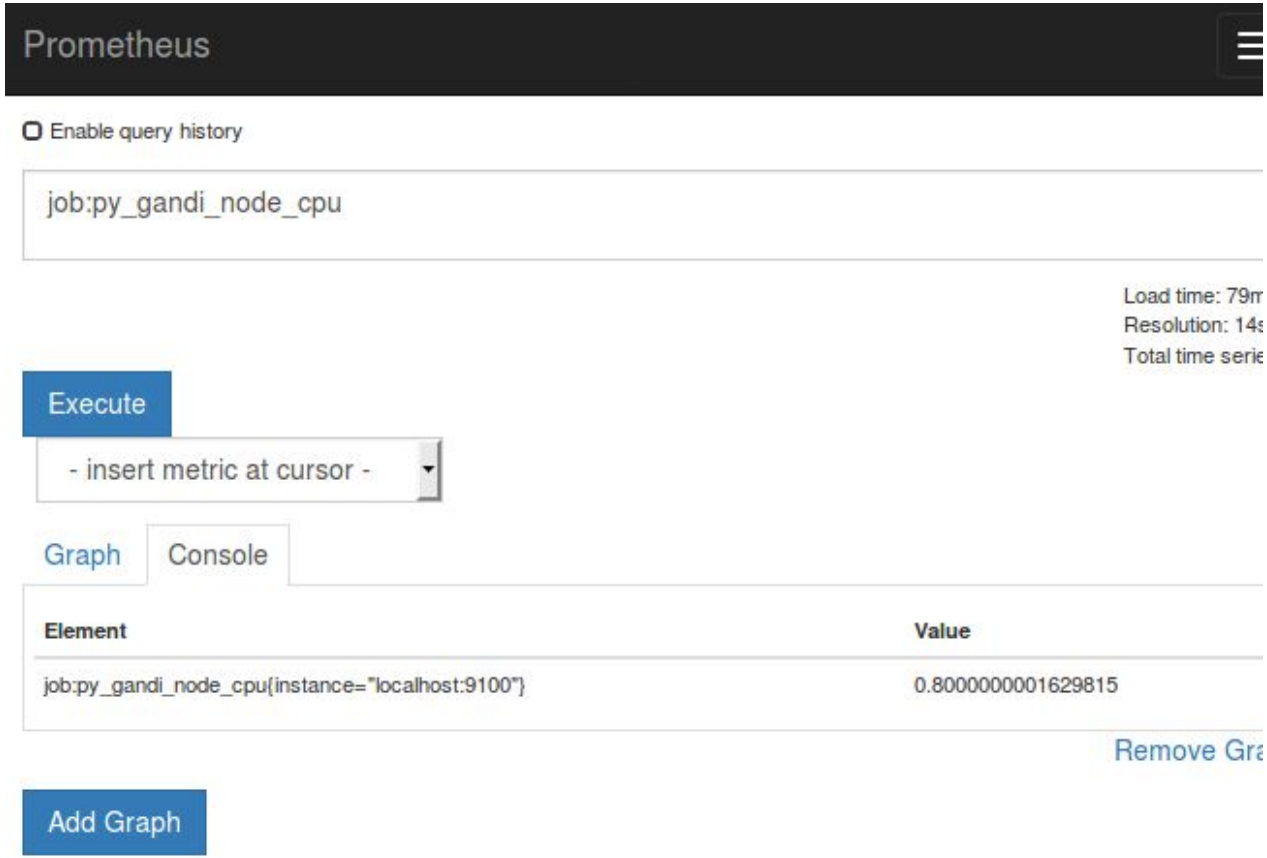
- 即時計算
- 預先計算 (Recording Rules)
  - 將常會使用到的計算預先紀錄, 再次取資料時會比較快。
  - 重新定義 metric 的名稱

    vi ./prometheus.yml:
    rule_files:
      - ./recording_rules.yml

將常會使用到的計算計算，再次取時會比較快

vi ./recording_rules.yml:

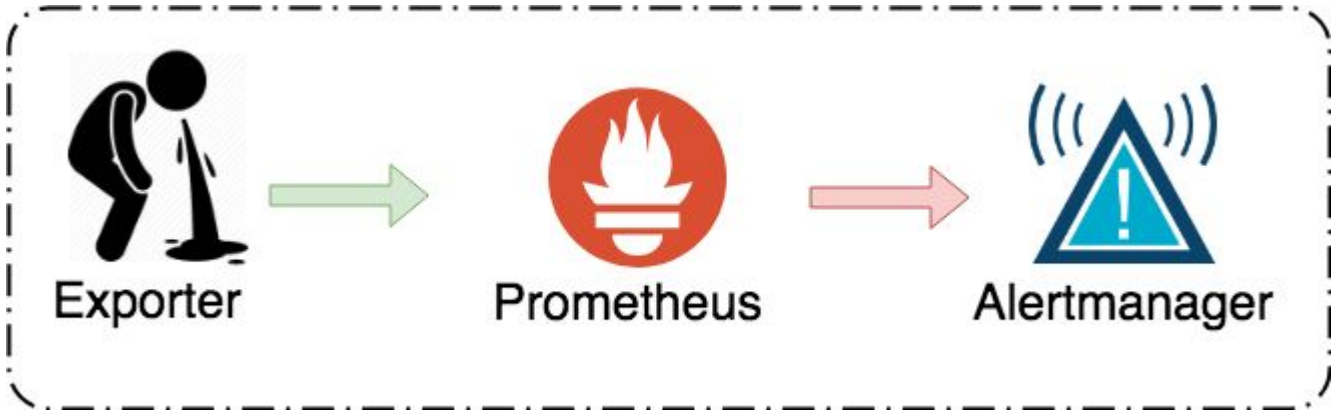
```
groups:
- name: py_gandi_cpu
  rules:
  - record: job:py_gandi_node_cpu
        expr: 100 - (avg by (instance) (irate(node_cpu_seconds_total{ mode="idle"}[5m])) * 100)
```


Prometheus
Enable query history
job:py_gandi_node_cpu
Load time: 79m
Resolution: 14s
Total time serie
Execute
- insert metric at cursor -
Graph
Console
Element
Value
job:py_gandi_node_cpu{instance="localhost:9100"}
0.8000000001629815
Remove Gra
Add Graph

重新定義 metric 的名稱

```
- name: dio
  rules:
  - record: rdio
        expr: node_disk_io_time_seconds_total{device="sda"}
```

設定告警指示



AlertManager

- Prometheus 中去設定告警條件, 達到告警條件時, 會觸發訊息
- 透過 AlertManager 將訊息傳送到不同的平台
  - EMail
  - Slack
  - HipChat
  - WeChat
  - ….

設定 Prometheus 告警 ./recording_rules.yml

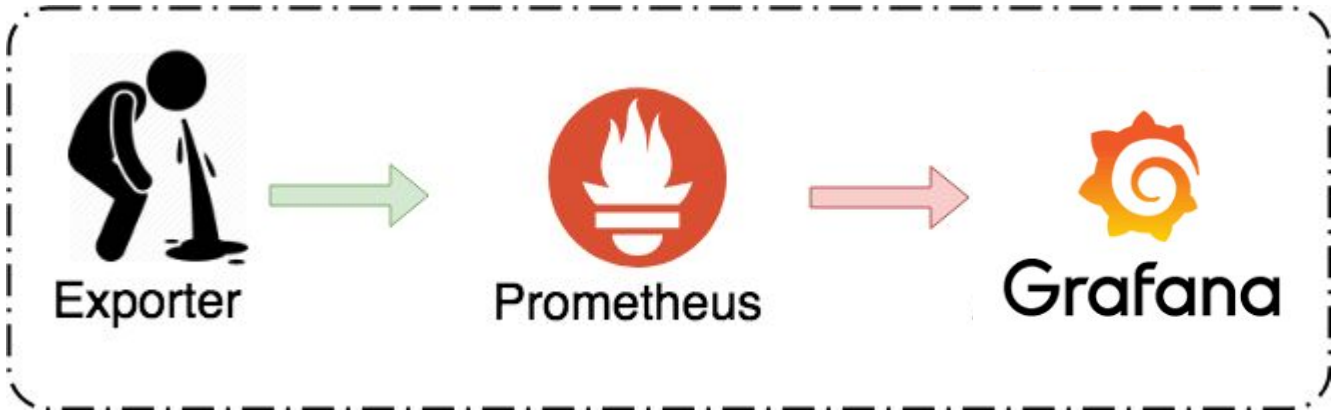
```
- name: example_alert
  rules:
  - alert: InstanceDown
        expr: rdio > 80
        for: 1m
        labels:
        severity: page
        annotations:
        summary: "{{ $labels.instance }} rdio > 20 "
        description: "{{ $labels.instance }} of job {{ $labels.job }} rdio > 20"
```

串接 AlertManager

```
vi ./prometheus.yml
alerting:
  alertmanagers:
        - static_configs:
        - targets: ["localhost:9093"]
```

- AlertManager 設定
  - https://prometheus.io/docs/alerting/configuration/

視覺化儀表板



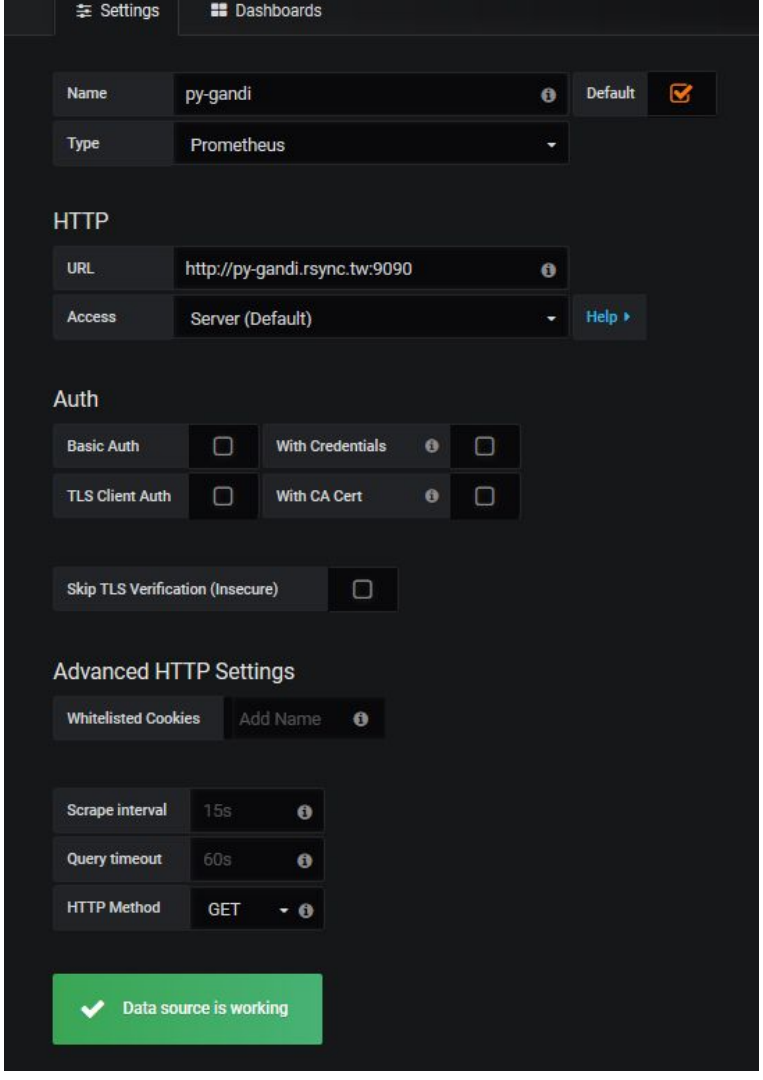
Grafana

- https://grafana.com/

```
$ docker run \
  -d \
  -p 3000:3000 \
  --name grafana \
  grafana/grafana
```

Default Account/Password: admin/admin

Add Data Source



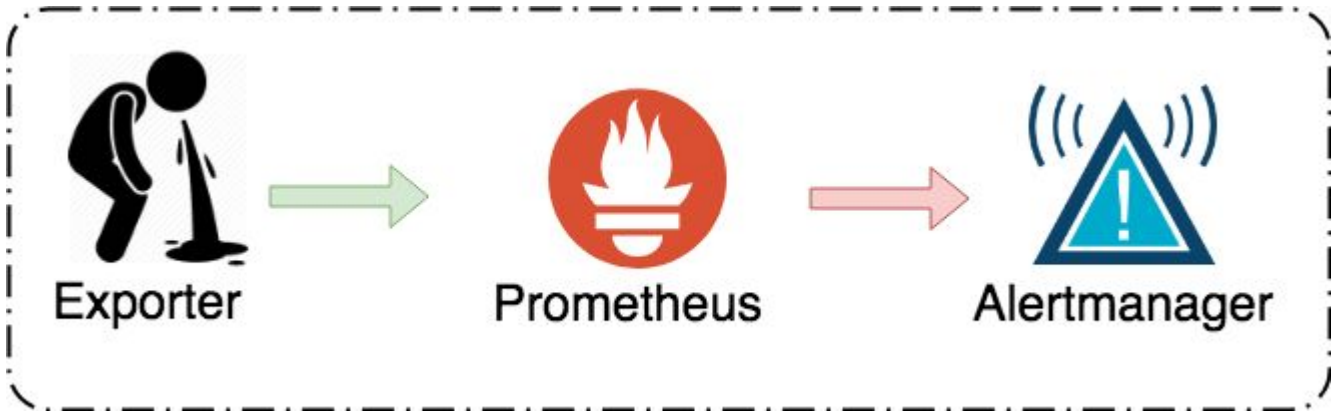
Dashboard

Add Panel -> Edit -> Mertic -> General -> Save

參考資料

http://marklin-blog.logdown.com/posts/6865537
https://www.jianshu.com/p/0a4acb61ce35
https://medium.com/getamis/kubernetes-operators-prometheus-3584edd72275
http://marklin-blog.logdown.com/posts/6865537
https://songjiayang.gitbooks.io/prometheus/content/rule/config.html
https://github.com/1046102779/prometheus
https://songjiayang.gitbooks.io/prometheus/content/exporter/nodeexporter_query.html
http://yjph83.iteye.com/blog/2394093
https://www.hi-linux.com/posts/25047.html

Thank you


Exporter
Prometheus
Alertmanager

docker pull prom/prometheus

docker pull quay.io/prometheus/node-exporter

docker pull grafana/grafana

```
100 - (avg by (instance) (irate(node_cpu_seconds_total{mode="idle"}[5m])) * 100)
```