

nextDrive



做**SRE**還是要靠通靈？

讓我們看見看不到的東西

情境

- 被通知公司的服務不能用
- 被通知公司某個服務慢 (感覺很慢)
- 什麼時候要加機器

瞎子領路

「他們是給瞎子領路的瞎子。
如果瞎子給瞎子領路，
兩個人都會掉進坑裡。」

科學一點、不要再通靈了

- 加入各種監控設施
- 讓數據說話，用數據做事
- 透過數據評估未來維運與擴容的方向

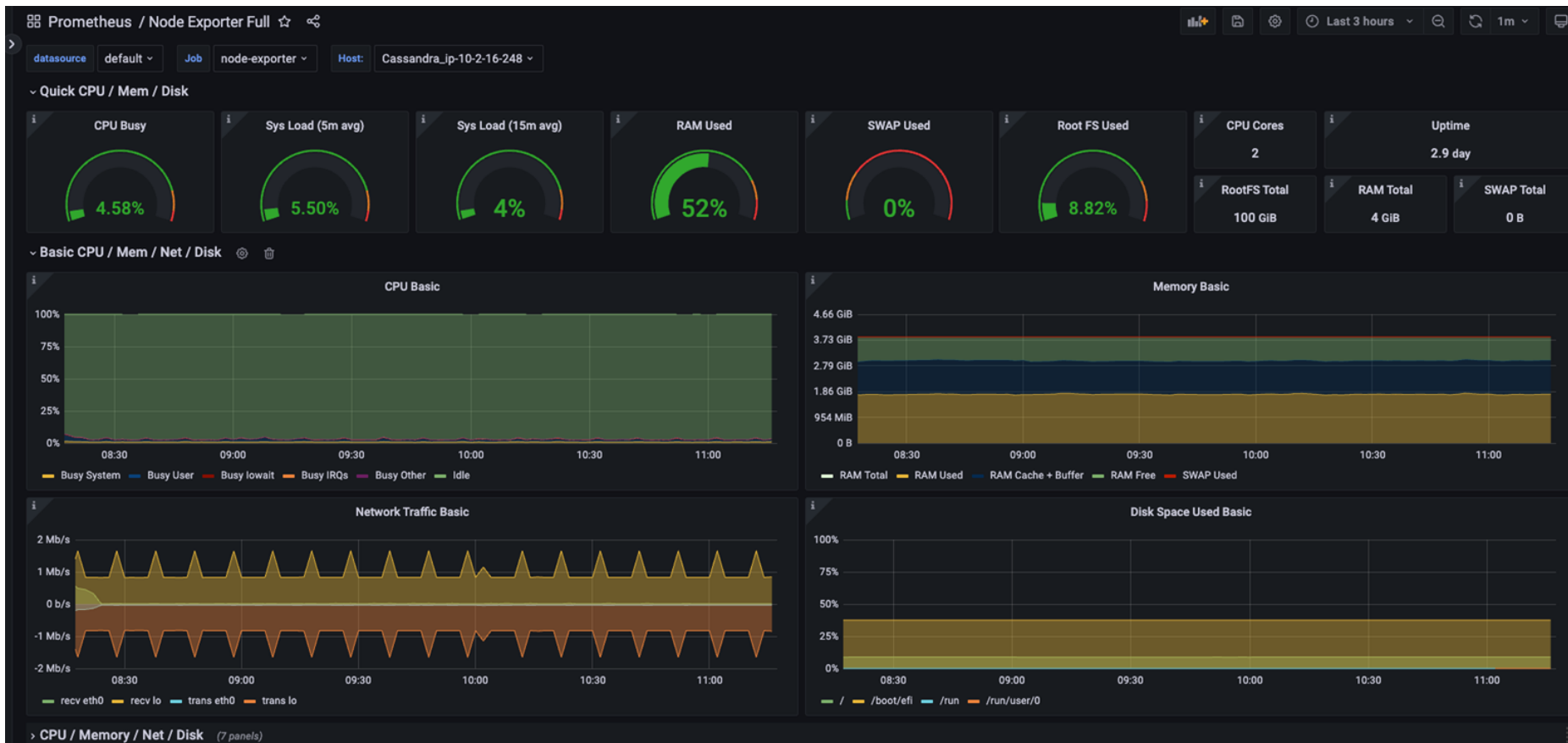
如何知道硬體面的問題

- Temperature 、 Fan Speed
- CPU 、 Memory 、 Disk (IO / Size)
- Networks
- Cloudwatch

Prometheus Exporters

- ipmi_exporter
- node_exporter
- cloudwatch_exporter

Grafana Dashboard for node_exporter



 因應

- 解決問題
 - 重開機 (Server Reboot Engineer)
 - 修復損壞的設備
- 購買更好的硬體
- 擴充原有的叢集
- 選擇更高的資源(cloud)

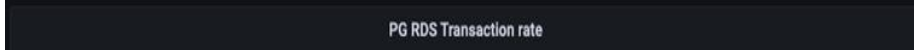
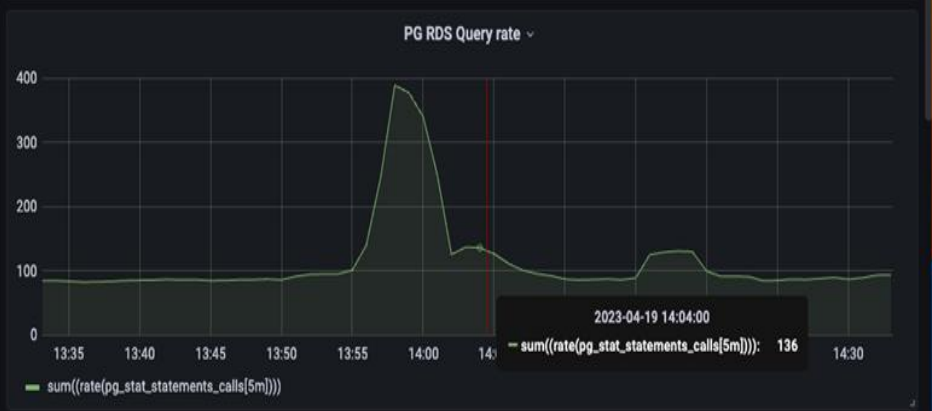
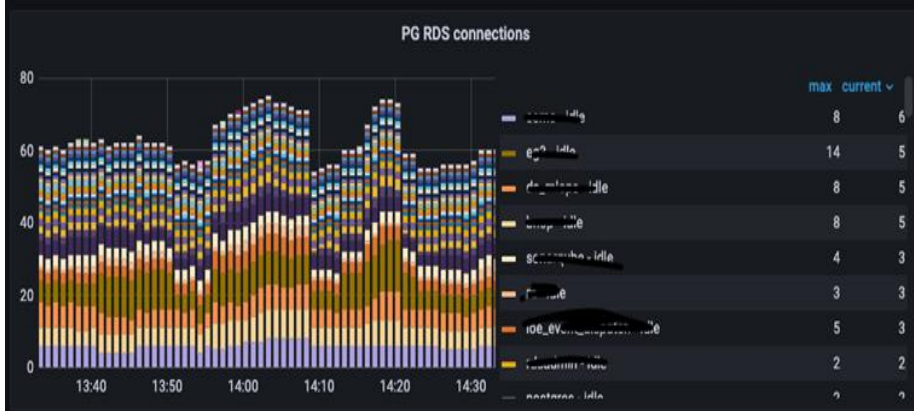
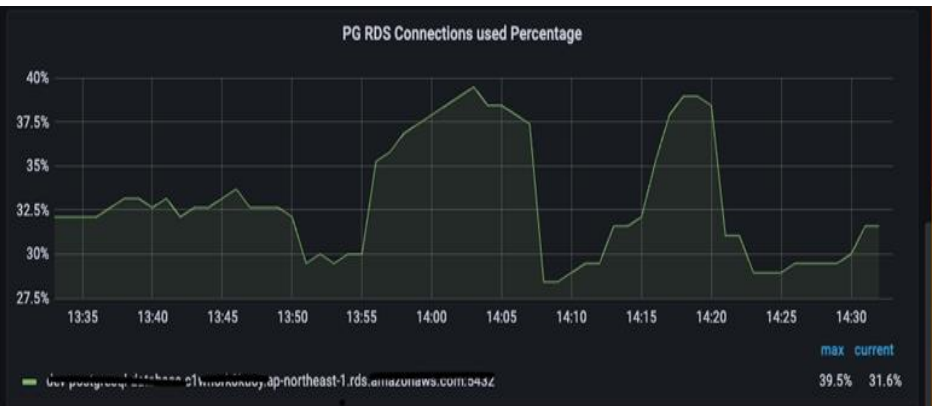
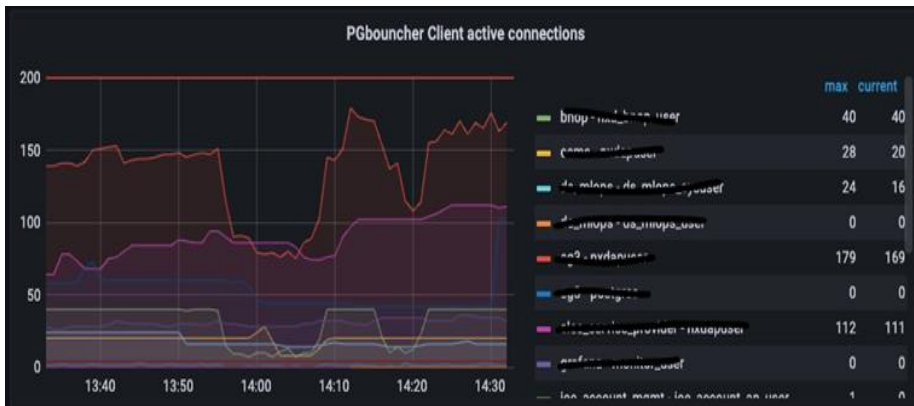
如何知道架構面的問題

- Kubernetes cluster
- Database, queue, logging services
- Networking

Prometheus Exporters

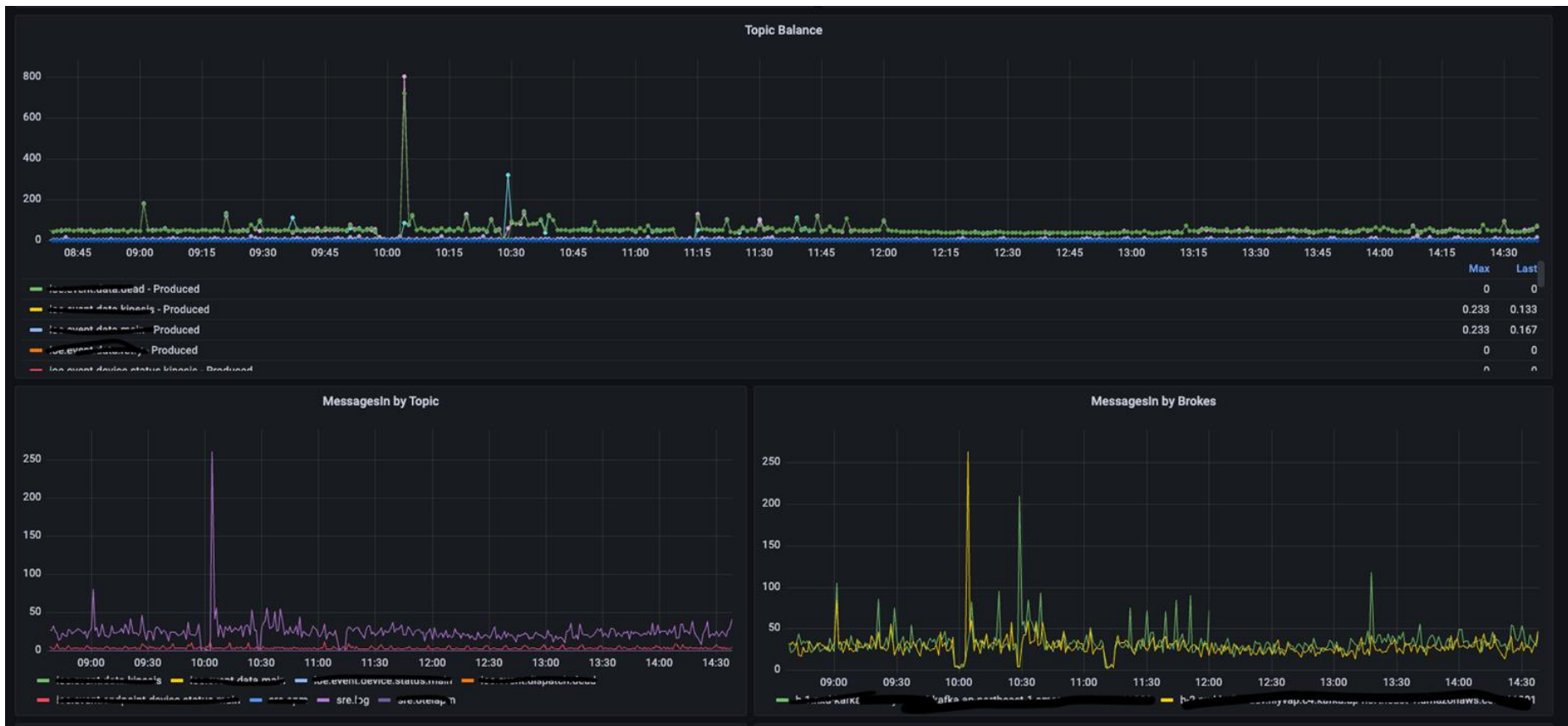
- prometheus operator
- kafka_exporter
- mysqld_exporter
- elasticsearch_exporter

Database

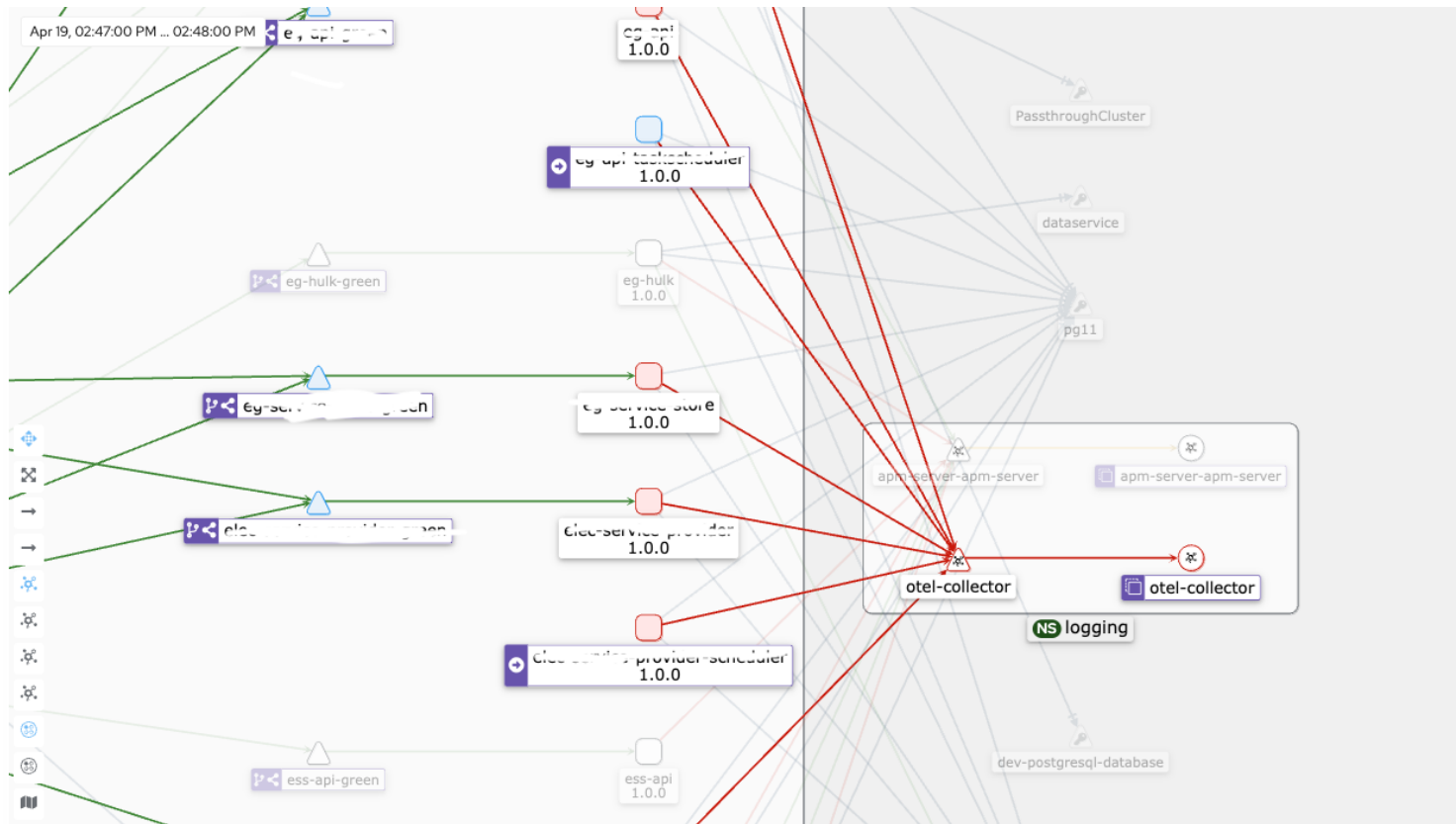




Queue



Networks



 因應

- 解決問題
 - 重啟服務 (Service Restart Engineer)
 - 修復監控到的告警
- 叢集資源調度
- 伺服器資源擴充

如何知道服務面的問題

- Application
- Logs
- Performance

Prometheus Exporters

- JMX_exporter
- prometheus client libraries

JVM metrix

Basic Statistics

Uptime

8.0 hour

Start time

2023-04-19
07:38:56

Heap Used



Non-Heap Used



Process Open Files



CPU Usage



System CPU Usage

Process CPU Usage

min	max	avg	current
0.000388	0.0237	0.00112	0.000462
0	0.0242	0.00114	0.000626

Load Average



Load Average [1m]

CPU Core Size

min	max	avg	current
0.439	3.05	1.25	1.51
4	4	4	4

JVM Statistics - Memory

G1 Eden Space (heap)



min max avg current

G1 Old Gen (heap)



min max avg current

G1 Survivor Space (heap)



min max avg current



Elasticsearch



Time ↓	log
> Apr 19, 2023 @ 15:55:57.277	I0419 07:55:57.276825 1 proxier.go:809] "SyncProxyRules complete" elapsed="192.645904ms"
> Apr 19, 2023 @ 15:55:57.276	I0419 07:55:57.276272 1 proxier.go:809] "SyncProxyRules complete" elapsed="189.641326ms"
> Apr 19, 2023 @ 15:55:57.276	I0419 07:55:57.276075 1 proxier.go:809] "SyncProxyRules complete" elapsed="189.230506ms"
> Apr 19, 2023 @ 15:55:57.259	I0419 07:55:57.259488 1 proxier.go:809] "SyncProxyRules complete" elapsed="182.435266ms" ⊕ ⊖
> Apr 19, 2023 @ 15:55:57.195	I0419 07:55:57.194966 1 proxier.go:809] "SyncProxyRules complete" elapsed="119.876204ms"
> Apr 19, 2023 @ 15:55:57.090	I0419 07:55:57.086569 1 proxier.go:809] "SyncProxyRules complete" elapsed="192.333645ms"
> Apr 19, 2023 @ 15:55:57.090	I0419 07:55:57.086899 1 proxier.go:842] "Syncing iptables rules"
> Apr 19, 2023 @ 15:55:57.087	I0419 07:55:57.087122 1 proxier.go:842] "Syncing iptables rules"
> Apr 19, 2023 @ 15:55:57.086	I0419 07:55:57.086786 1 proxier.go:809] "SyncProxyRules complete" elapsed="193.079519ms"

Elastic apm

Observability APM Services Transactions POST http://[redacted]

Settings Anomaly detection Alerts and rules Add data

Observability

Overview

Alerts

Cases

Logs

Stream

Anomalies

Categories

Metrics

Inventory

Metrics Explorer

APM

Services

Traces

Dependencies

Service Map

Uptime

Monitors

TLS Certificates

User Experience

Dashboard



All transactions Failed transactions

Trace sample < 1 of 60 >

Investigate

View full trace

15 minutes ago 151 ms (100% of trace) POST http://[redacted] 200 OK

Timeline Metadata Logs

Services [redacted] [redacted] [redacted]

0 ms 20 ms 40 ms 60 ms 80 ms 100 ms 120 ms 140 ms 151 ms

2 HTTP 2xx POST /[redacted] 151 ms

1 GET [redacted] 711 ms async

1 HTTP 2xx GET /v1/[redacted] 719 μs

1 GET [redacted] 20 ms async

1 HTTP 2xx GET /v1/[redacted] 9.4 ms

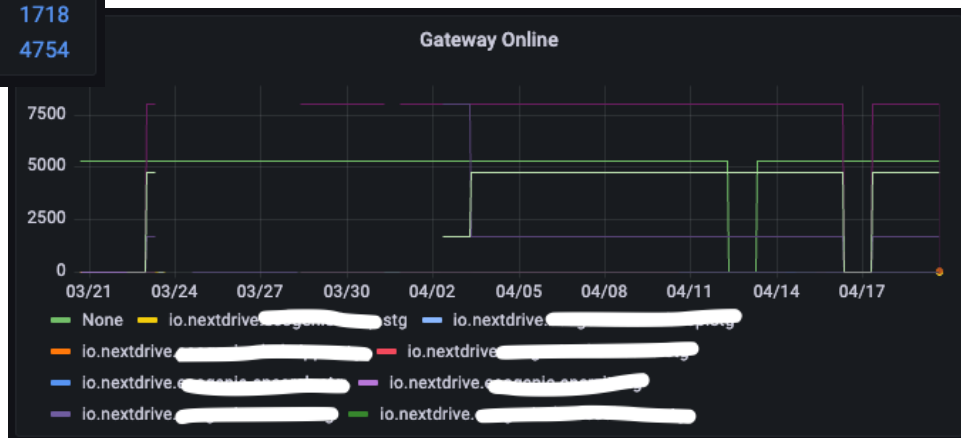
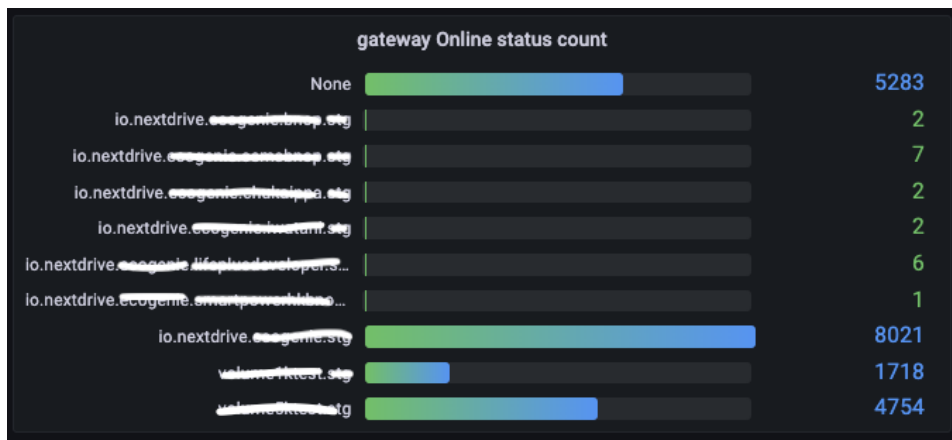
 因應

- 解決問題
 - 看 Log 並確認問題發生原因
 - 找 RD 協助
- 服務資源調配
- 探詢系統延遲發生原因
- 尋找自動擴容的可能

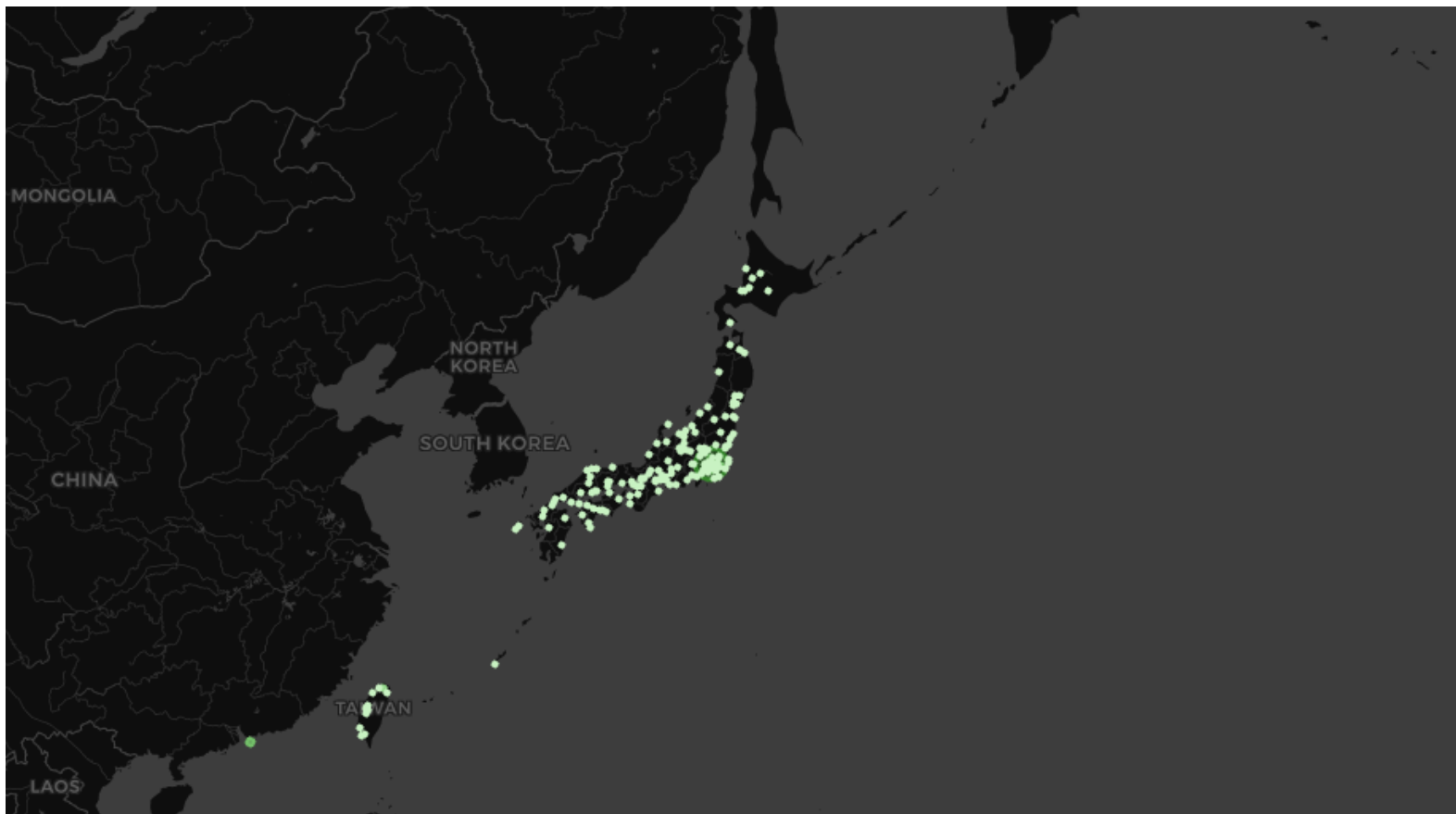
還有沒有其他的問題可以知道

- Devices
- Online / Offline
- Device location

Gateway online count



Gateway Location



 因應

- 根據公司的業務成長速率調整整體資源
- 監看地區性 **online / offline** 狀況

總結



其他考量

- 監控數據量
 - 監控數據的保存
 - 監控數據的抽樣
- 監控目的
 - 為什麼監控
 - 告警後的處置方法
- 成本

About US

NextDrive 的能源物聯網平台提供從能源閘道器、雲端運算、到裝置數據管理平台的完整服務架構；解決方案包括 HEMS 家庭能源管理、CEMS 場域型能源管理系統和 API 資料串接介面，為電力公司、能源業者、企業客戶和終端消費者帶來全方位的新能源應用方案。



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