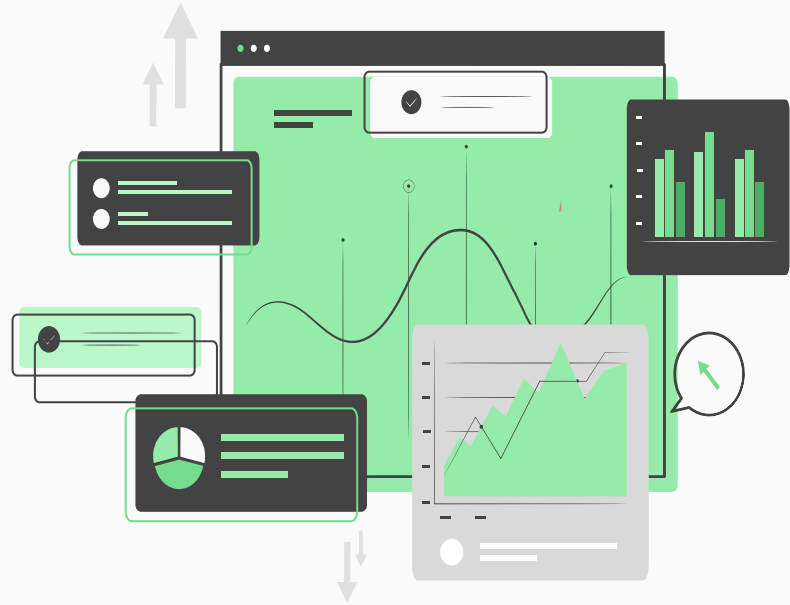


SERVER MONITOR

Monitor Your Server Simply

By: Ibrahim Masri & Rami Theeb



LIST OF CONTENTS

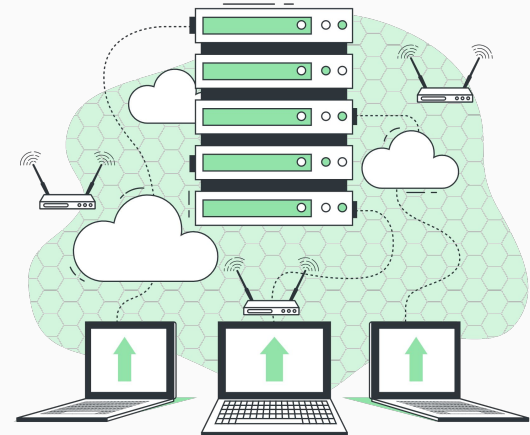
- 1. CLOUD COMPUTING AND SERVER MONITORING**
- 2. SERVER MONITOR**
- 3. TECH STACK**
- 4. ARCHITECTURE**
- 5. SYSTEM MODULES**
- 6. CONCLUSION AND FUTURE WORK**

CLOUD COMPUTING AND SERVER MONITORING

Cloud Computing is the utilization of on-demand remote computing resources.

Why Server Monitoring ?

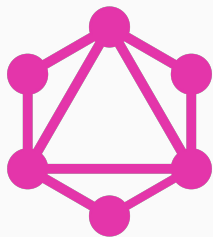
1. Capacity Planning
2. Cost Reduction
3. Troubleshooting
4. Evaluating providers



SERVER MONITOR

- ✓ Tracking System Metrics
- ✓ Web Server Log Analysis
- ✓ Docker Monitoring
- ✓ Alerting
- ✓ Command Chains



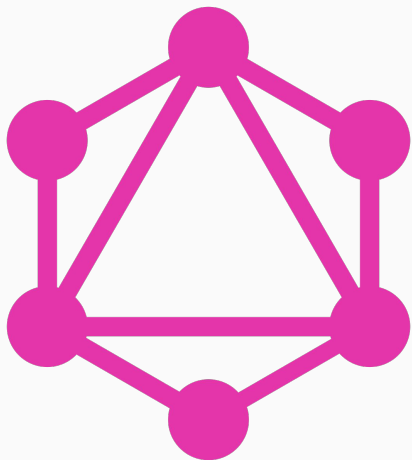


Powered By GraphQL

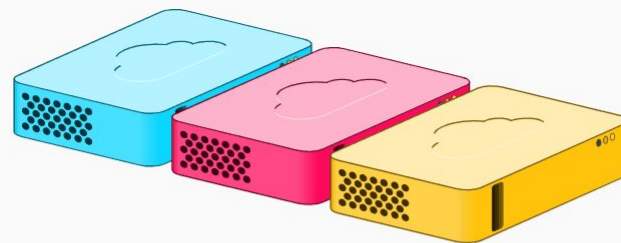
```
1 query {  
2   cpu {  
3     cores  
4     manufacturer  
5   }  
6   MemData {  
7     total  
8     used  
9   }  
10 }
```



```
{  
  "data": {  
    "cpu": {  
      "cores": 1,  
      "manufacturer": "D0-Regular"  
    },  
    "MemData": {  
      "total": 1028968448,  
      "used": 803020800  
    }  
  }  
}
```

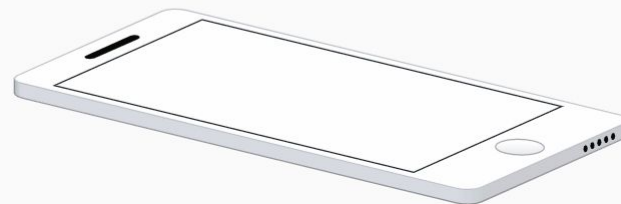


Powered By GraphQL



Why GraphQL ?

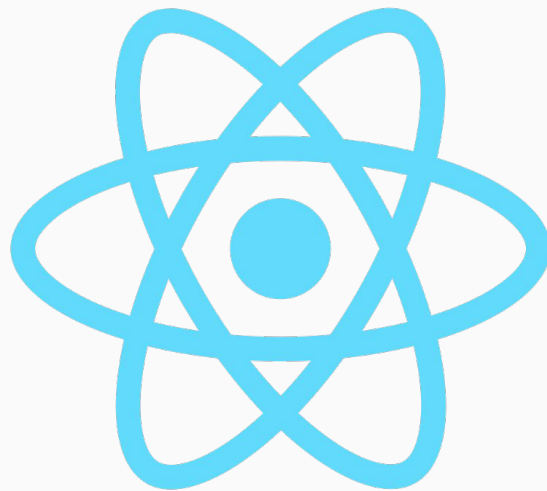
- Minimize Network Latency
- Eliminate Waterfalls In Request
- Strongly Typed
- Control the structure of the requested data



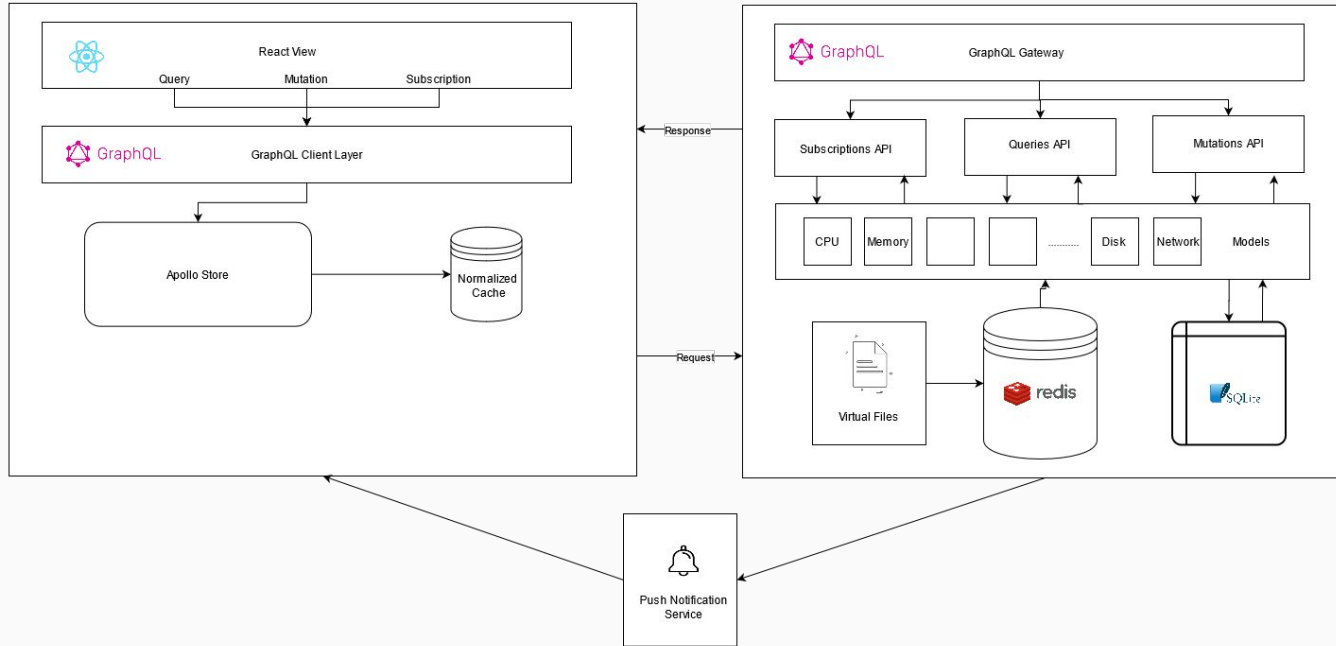
Powered By React

Why React?

- The strongest implementation of virtual dom
- Building highly reusable and composable components
- Strong support and tooling for easy development
- Large community



Architecture



Sampling and Data Recording

NOW

DAY

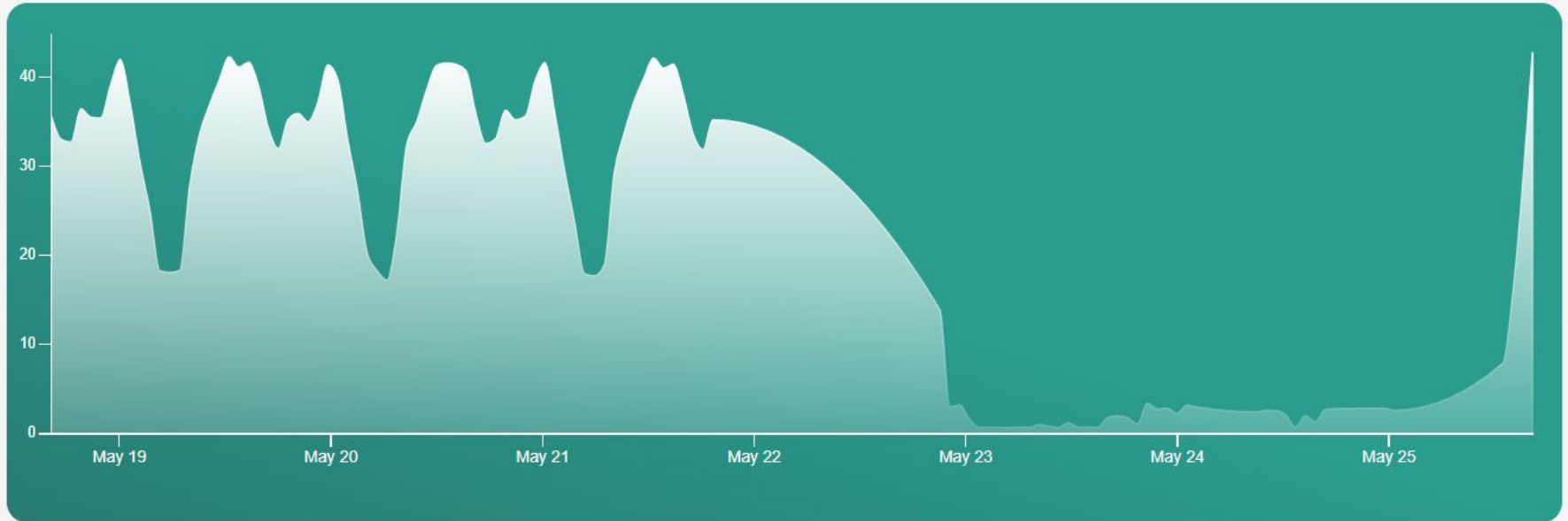
WEEK

MONTH

YEAR

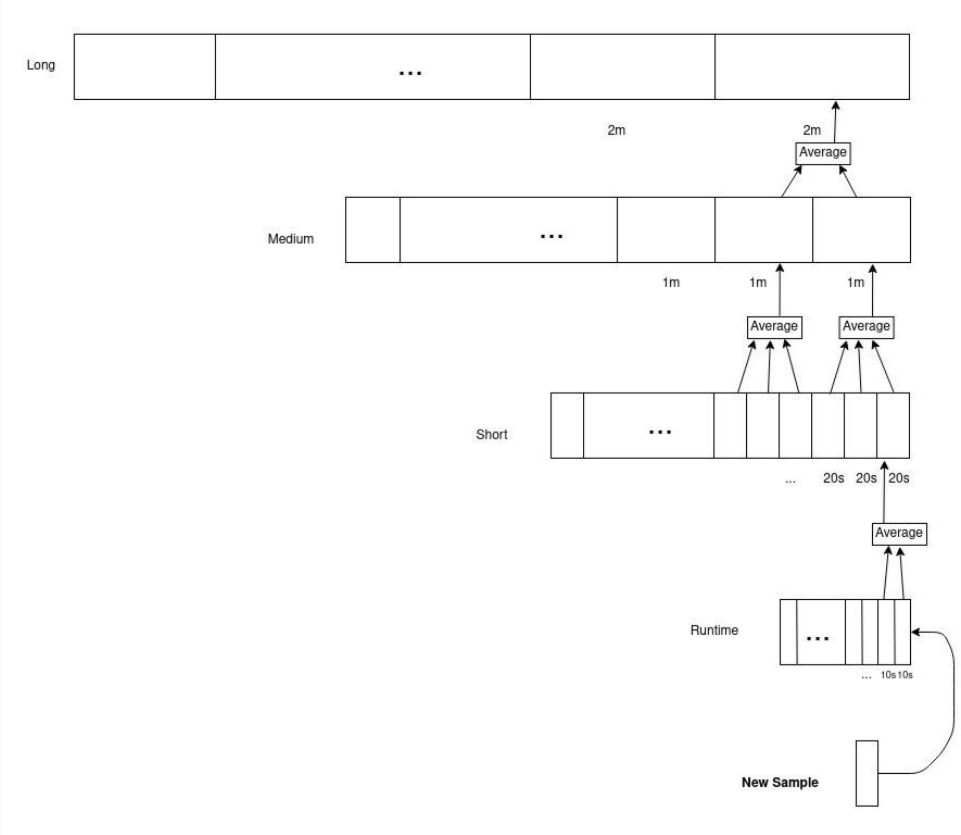
CUSTOM

Show Brush





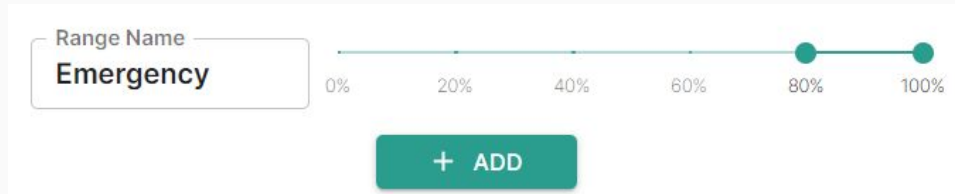
Sampling



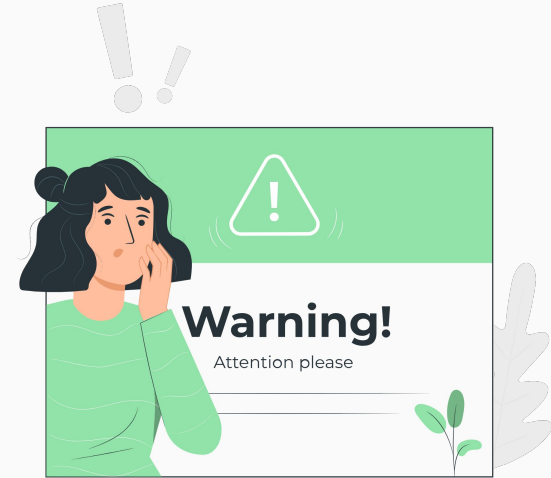
Alerting

Detect anomalies and stay informed by creating :

→ Static Alerts : predefined ranges



→ Dynamic Alerts: adaptive statistical filtering



COMMAND CHAINS

Automate administrative tasks

Add New Chain

Chain Name

Enter your commands here

ADD NEW ARGUMENT

Argument #1:

CANCEL

ADD

DOCKER



Containers: ▶ 1 ⏸ 0 🚫 3

Images: 2

✓ memory Limit

✗ swap Limit

✓ kernel Memory

✓ cpu Cfs Period

✓ cpu Cfs Quota

✓ cpu Shares

✓ cpu Set

✓ ipv4 Forwarding

✓ bridge Nf Iptables

✓ bridge Nf Ip6tables

✗ debug

DOCKER

Images

Image ID	Container	OS	Architecture	Parent	Docker Version
sha256:7e0aa2d69a15321...	8be4461fbc3e2d9d...	linux	amd64		19.03.12
sha256:d1165f2212346b2b...	f5a78ef54769bb849...	linux	amd64		19.03.12

1-2 of 2 < >

BLOCK I/O
4.00 MB / 0 Byte

CPU Percent
0 %

Restart Count
0

Memory Limit
981.00 MB



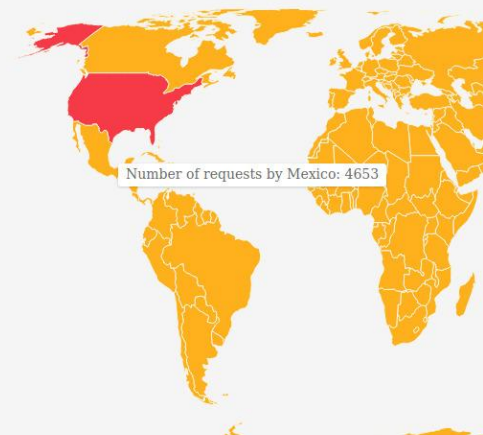
WEB SERVER LOG ANALYSIS

Analysis

- Traffic Monitoring
- Endpoints Requests Analysis
- Demographic Analysis

Country ISO Code	Number Of Requests
US	244062
JP	30570
CA	11091
ZA	4585
DE	20182
CN	53673

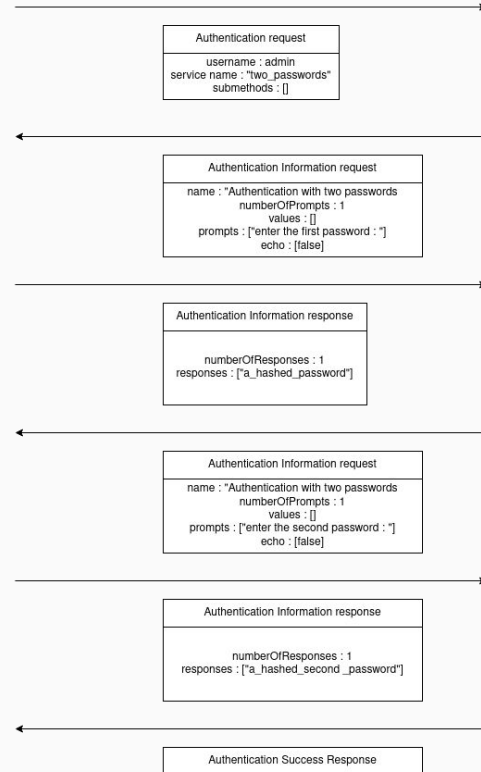
1-6 of 226 < >



AUTHENTICATION

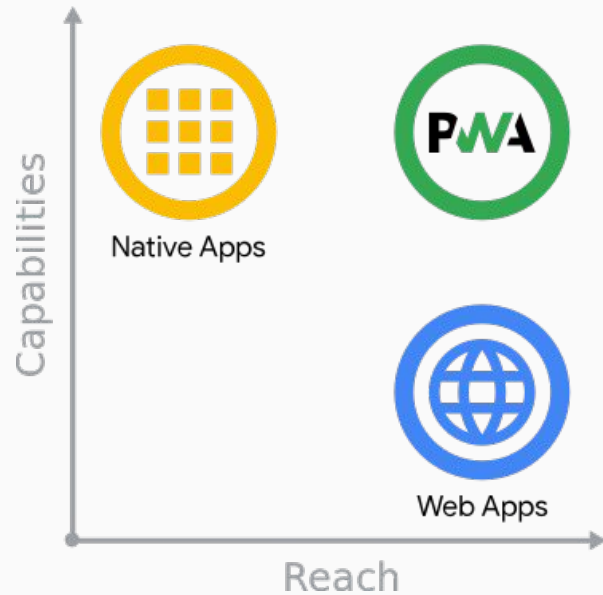
Generic Message Exchange Authentication for the Secure Shell Protocol (SSH)

Key-Pair Authentication

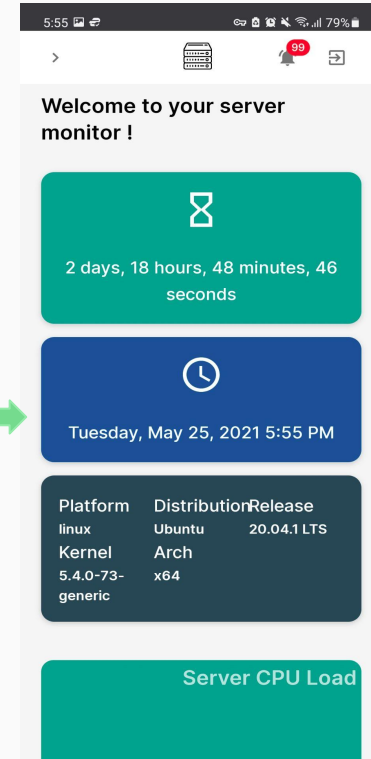
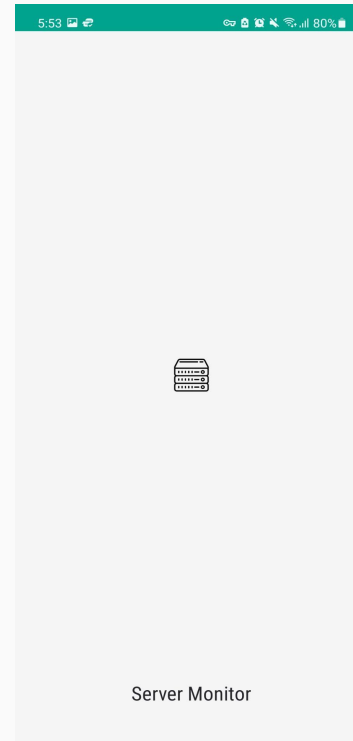
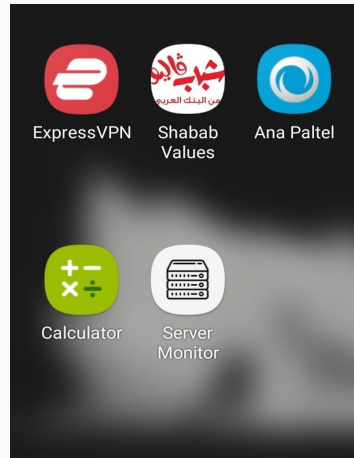
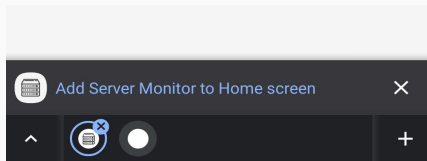


PWA

Progressive Web App



INSTALLABILITY



CONCLUSION

A simple application to monitor
and control cloud-based servers

Future Work

- Run the app at container-orchestration systems level
- Extend web server's log analysis by extracting more information
- Automate installation process for the system
- Implement CPU-intensive tasks in faster languages like GO