Cloud Computing Basic
Cloud-Based File Storage System

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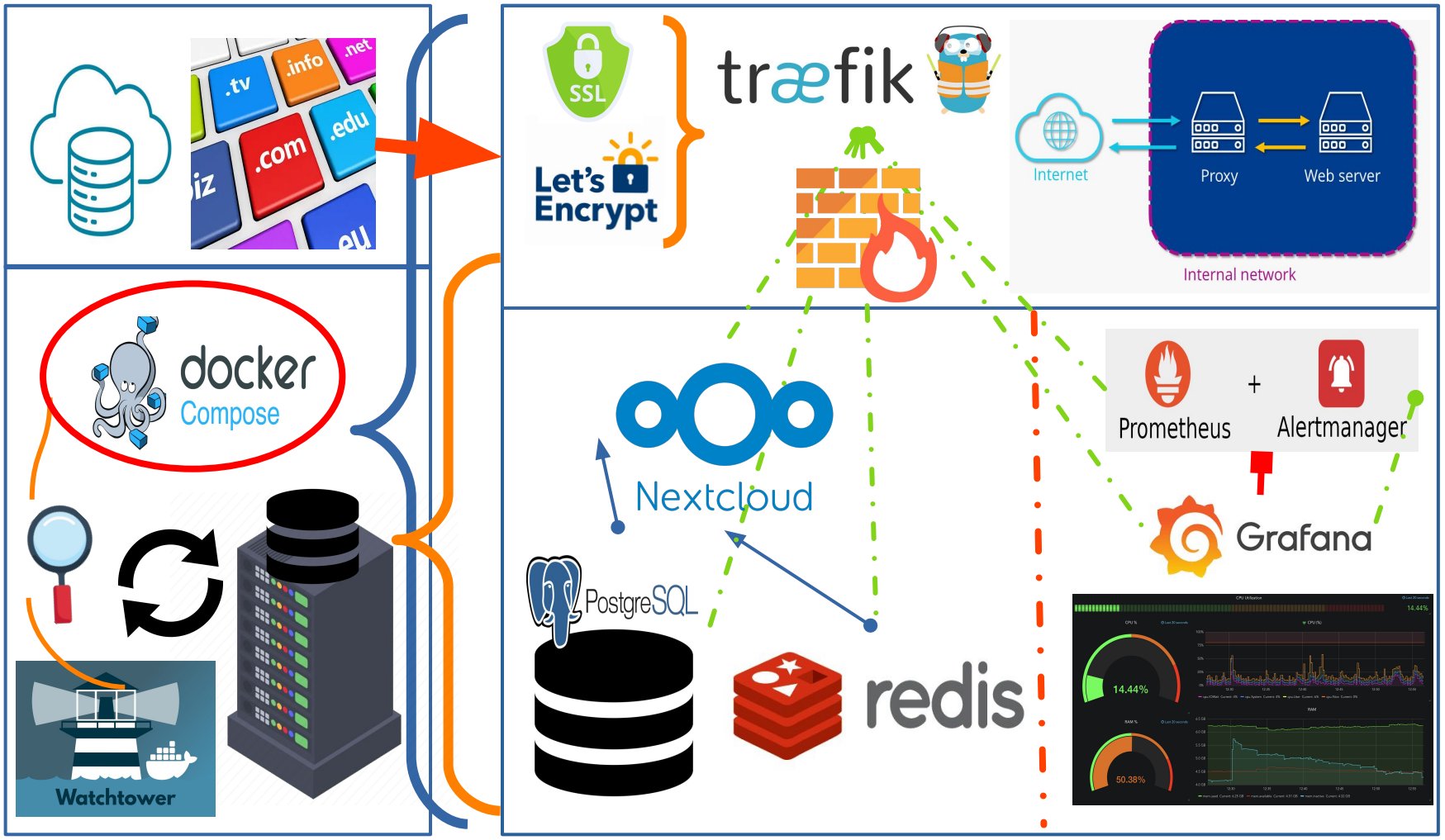
Design

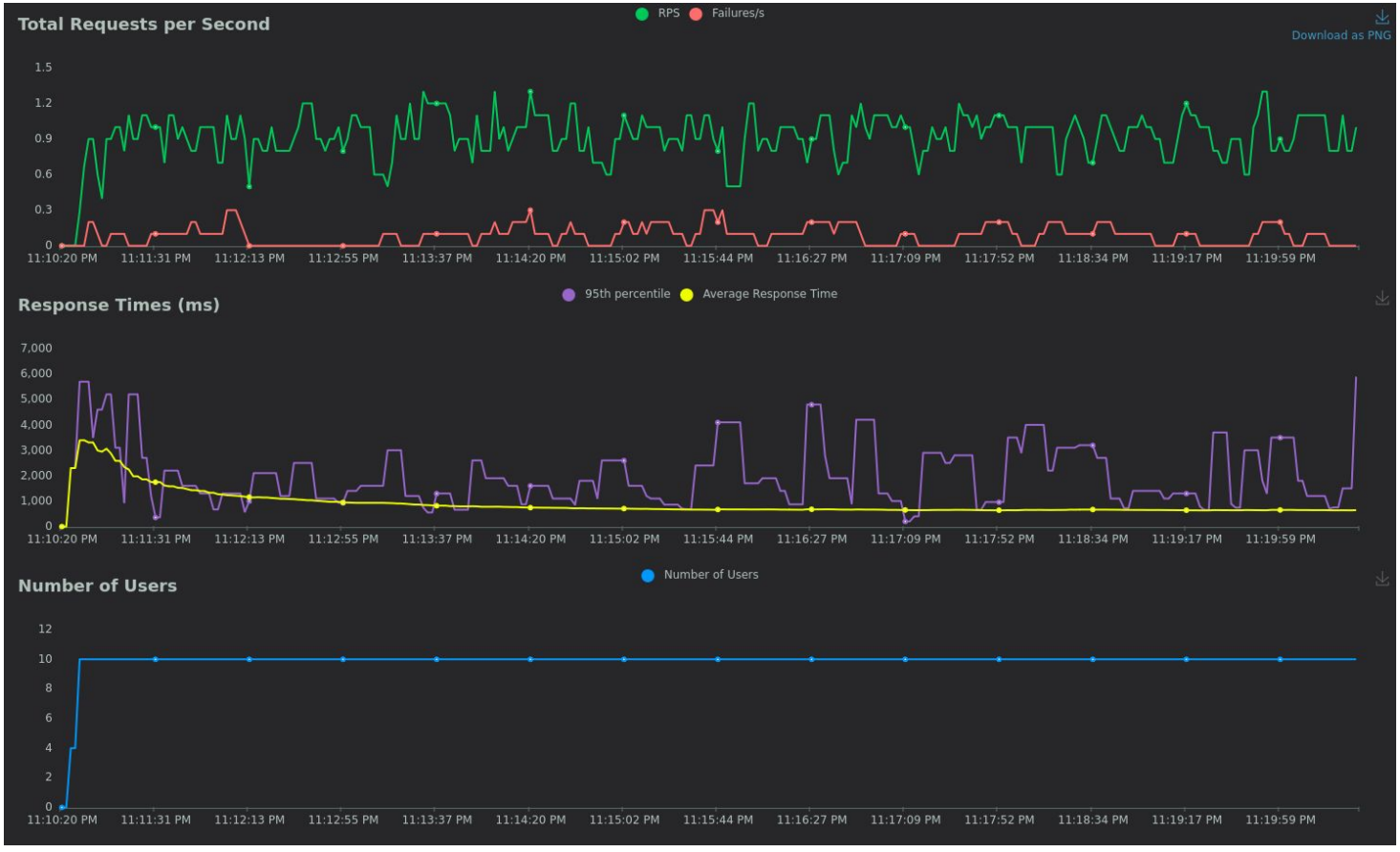

.tv
.info
.net
.com
.edu
.biz
.eu
SSL
Let's Encrypt
træfik
Internet
Proxy
Web server
Internal network
docker
Compose
Watchtower
Nextcloud
PostgreSQL
redis
Prometheus
+
Alertmanager
Grafana
14.44%
50.38%

Cost-Efficiency

- All the components were carefully chosen.
- The design aims for robustness, performance and scalability, and security.
- Security measures may add overhead, they significantly bolster the system's robustness. Redis enhances data access speed and reduces the load on backend servers.
- Monitoring tools ensure the system's proper functioning, making them indispensable components.
- Locust aids in load testing to promote cost efficiency and ensure optimal resource utilization. Once.
- To enhance cost efficiency, thorough analysis of the system's usage might be necessary.

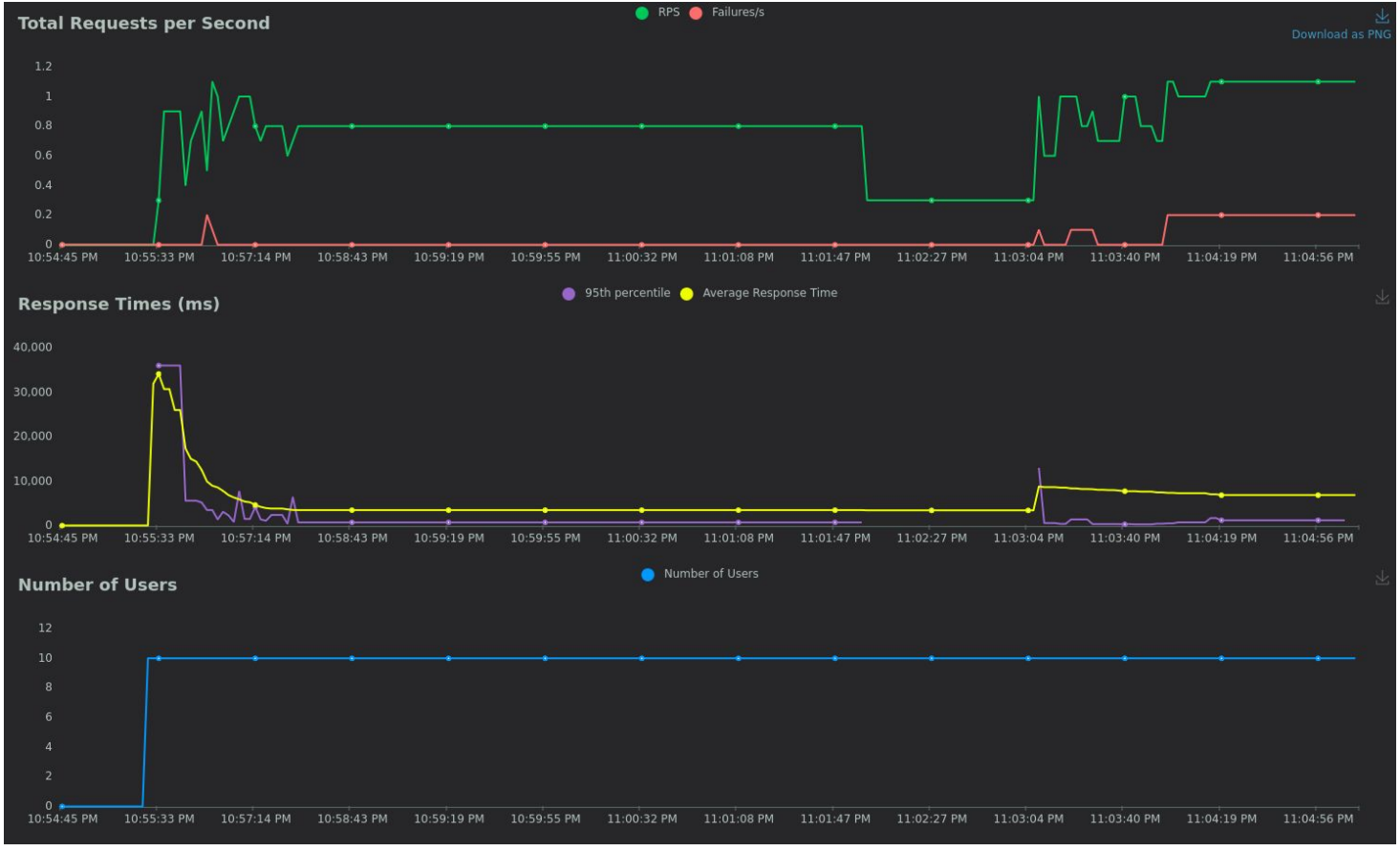
Load Testing Results

data size: 1MB
users: 30
upload frequency: 10



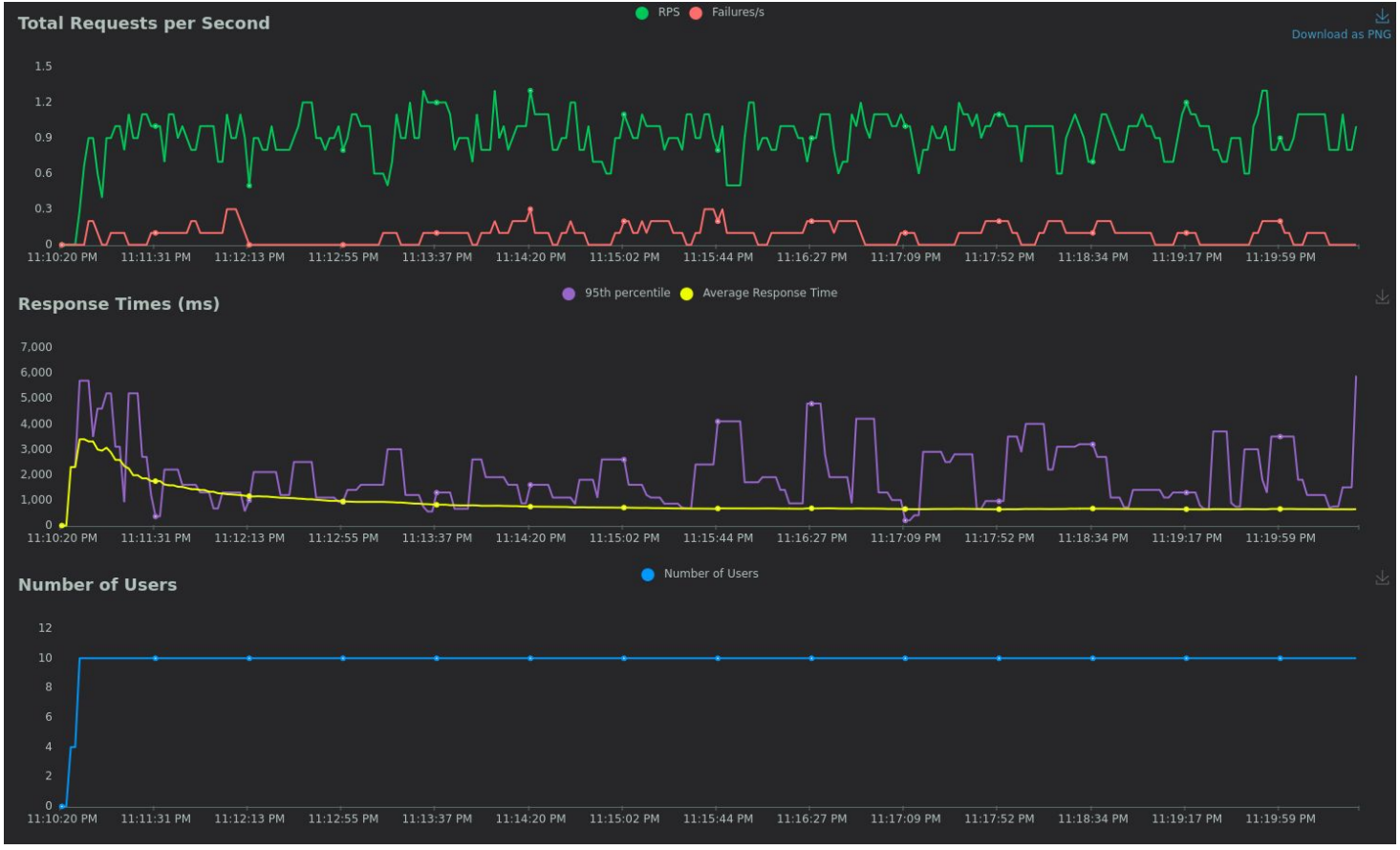
Load Testing Results

data size: 1GB
users: 10
upload frequency: 1



Load Testing Results

data size: 1MB
users: 10
upload frequency: 1



Cloud-Based Deployment Software Stack

docker
Compose

Nextcloud

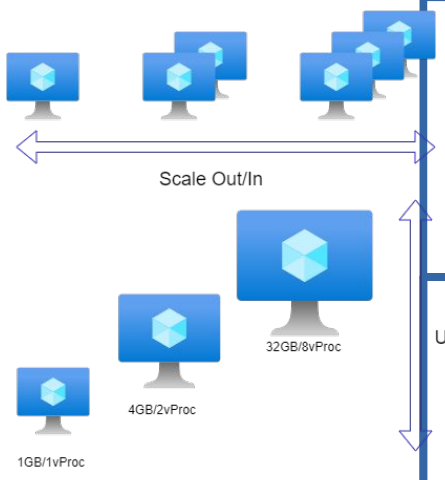
AWS

ORACLE
Cloud
Free Tier

+

HDD

Scaling



docker Compose

Nextcloud

Scale Up/Down

AWS

ORACLE Cloud Free Tier

+

HDD

Conclusions

- Nextcloud served well as a foundational platform for the file storage system.
- Further improvements, potentially in a cloud-based deployment, are necessary to properly monitor the system and enhance its performance.
- Load testing showed similar performance for files of 1KB and 1MB, and a reduction of 10 times in terms of average response time.