



# 작고 귀여운 홈 서버와 친해지기

UbuCon Korea 2025 - Seungwoo Yoo

# Speaker



## Seungwoo Yoo

Cloud MSP Partner @AhnlabCloudMate

Email: seung9721@naver.com



- 2023-04 ~ Ing : Cloud Engineer
- 2020-11 ~ 2023-03: .NET Web Developer (Blazor App)

- 
- 2020 ~ Ing: Home Server Build & operating
  - 2013 ~ Ing: PC Build & Troubleshooting



# Agenda

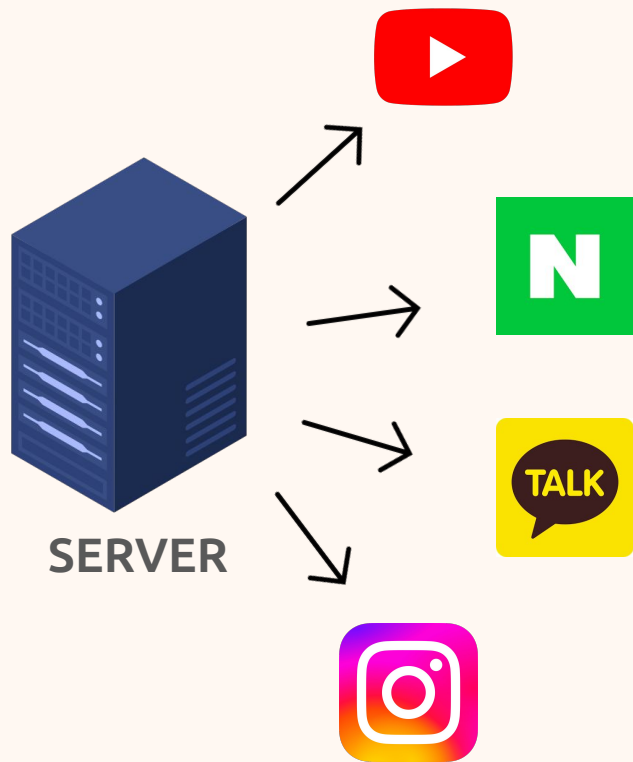


1. 홈 서버..? 그게 뭐예요?
2. 그럼 어떤걸 해보면 좋을까요?
3. 내 서버를 훌륭하게 키우는 방법들
4. 마치며

홈 서버..? 그게 뭐예요?



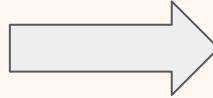
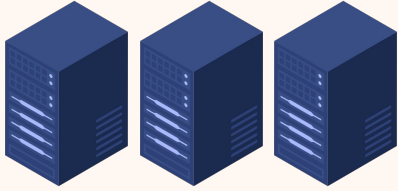
# What is Server ?



## 서버

“어떠한 서비스를 제공하는 것”

# Home Server ?



?



# Hardware



Home Router



Raspberry-Pi



Mini PC



NAS



PC & Laptop

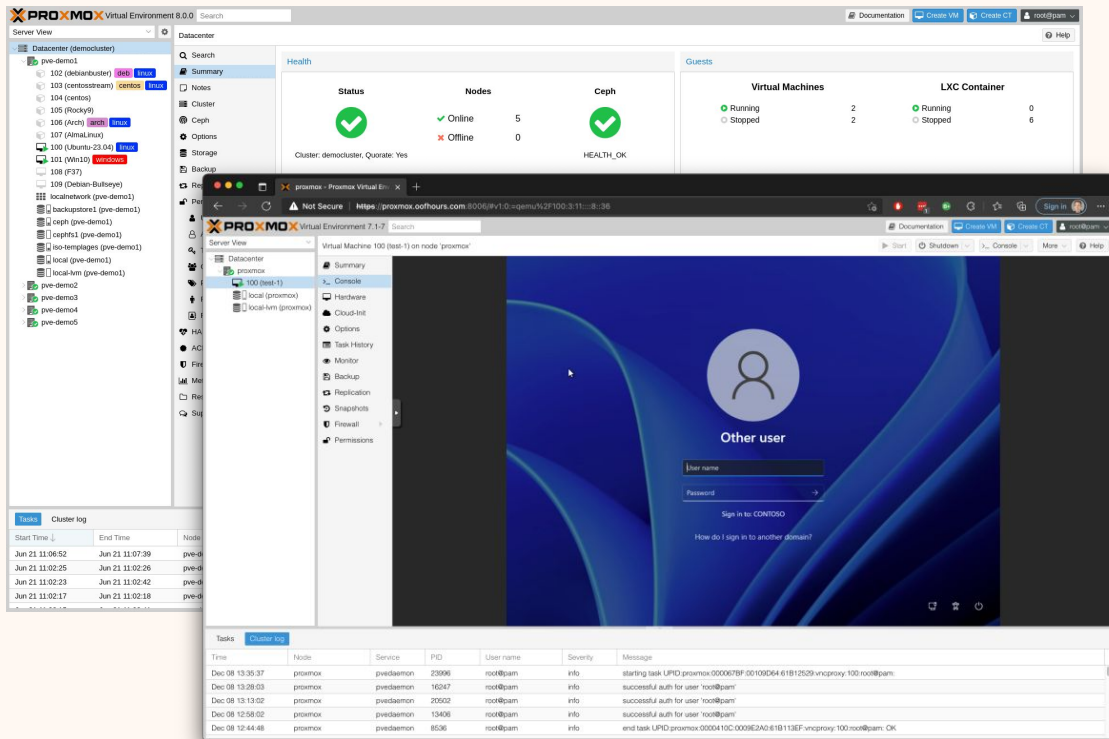
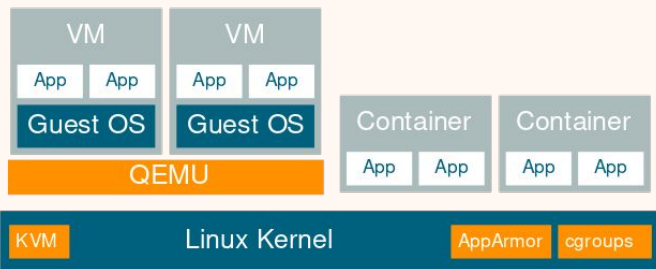


REAL SERVER

# Operating System



# Prxoxmox VE



그럼 어떤걸 해보면 좋을까요?

# Why use Cloud ?



iCloud



Google Drive



MYBOX

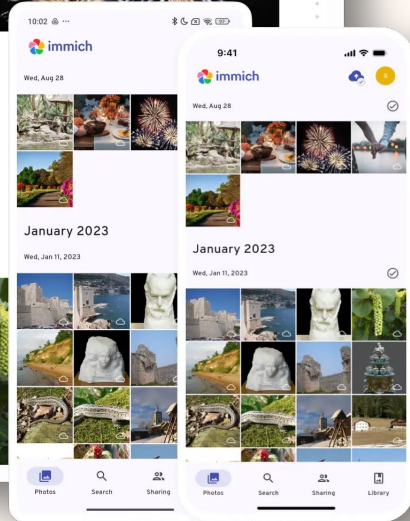
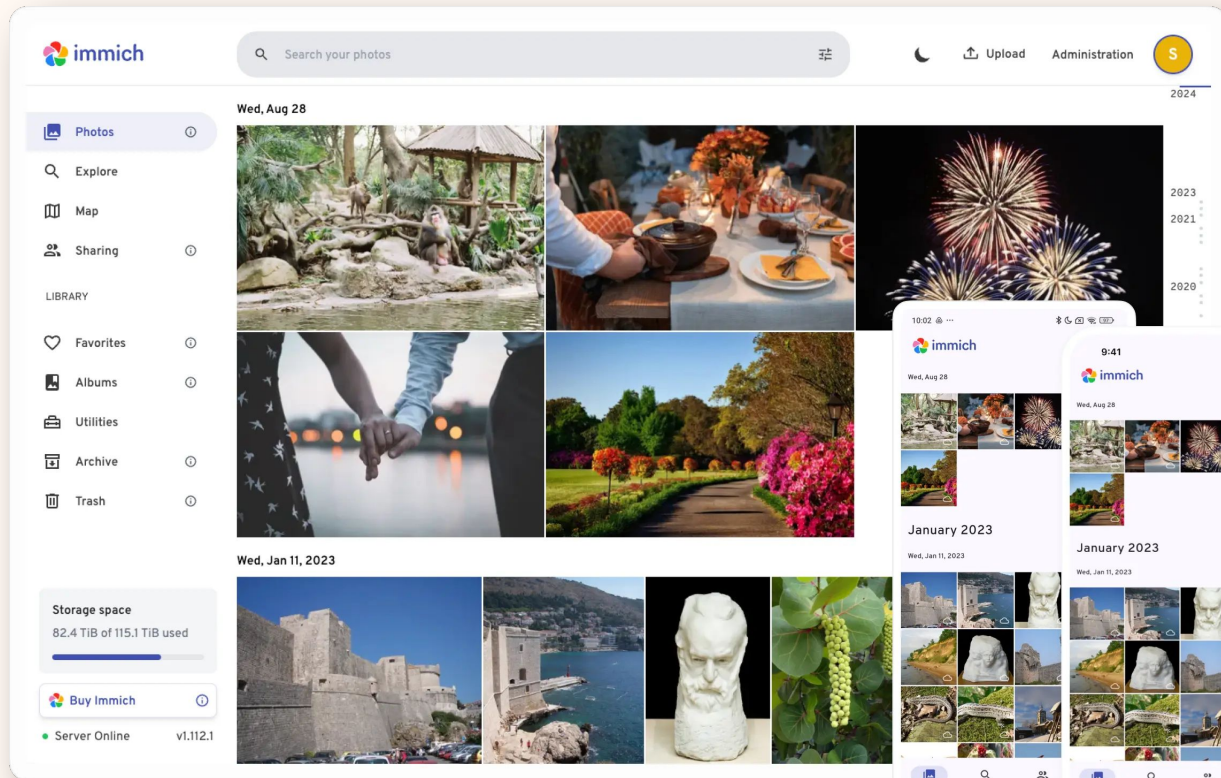


Included <b>5GB</b>	Good for safely storing all the basics, like contacts, calendars, and notes.	Free
Most Popular <b>50GB</b>	Recommended for storing your photos, videos, files, and apps and backing up your device.	\$0.99/month
Lots of Photos <b>200GB</b>	Good for families or one person with lots of photos and videos.	\$2.99/month
Great for Families <b>2TB</b>	A lifetime of photos, videos, and everything else for you and up to five family members. Ideal for families to share.	\$9.99/month



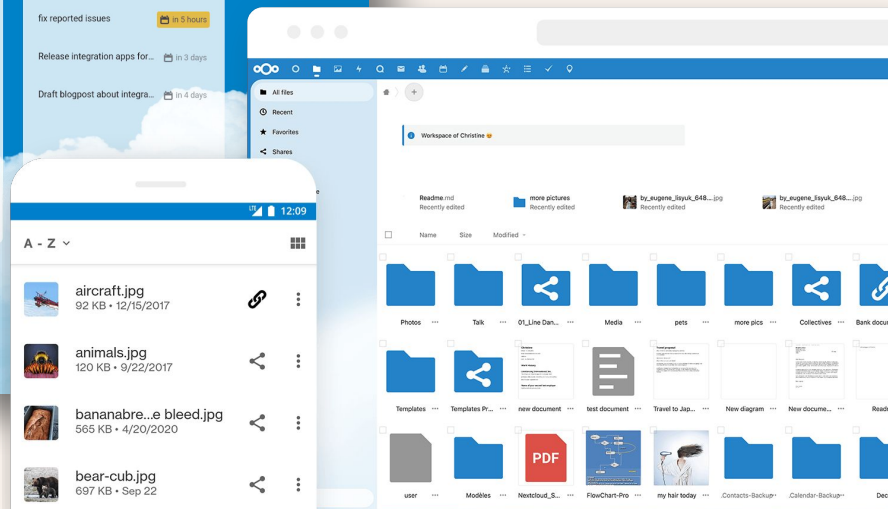
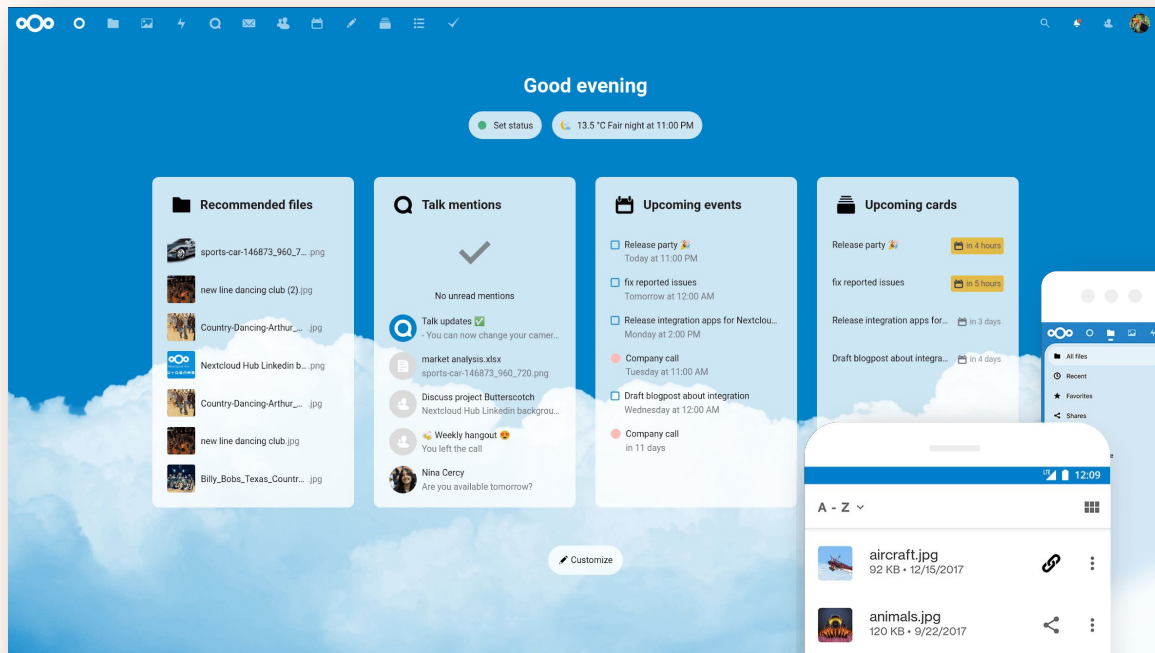
Google Cloud

# Photo Apps

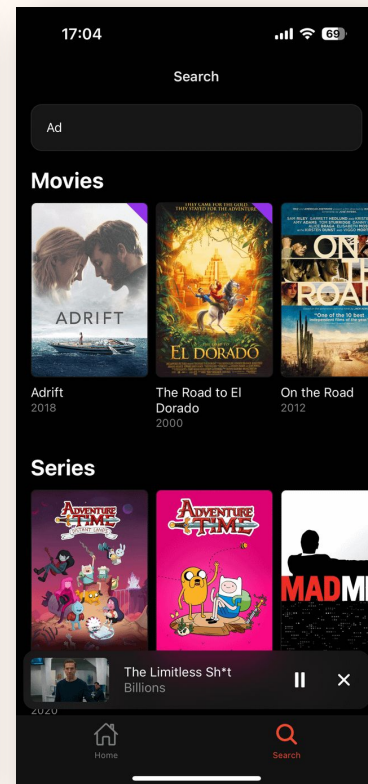
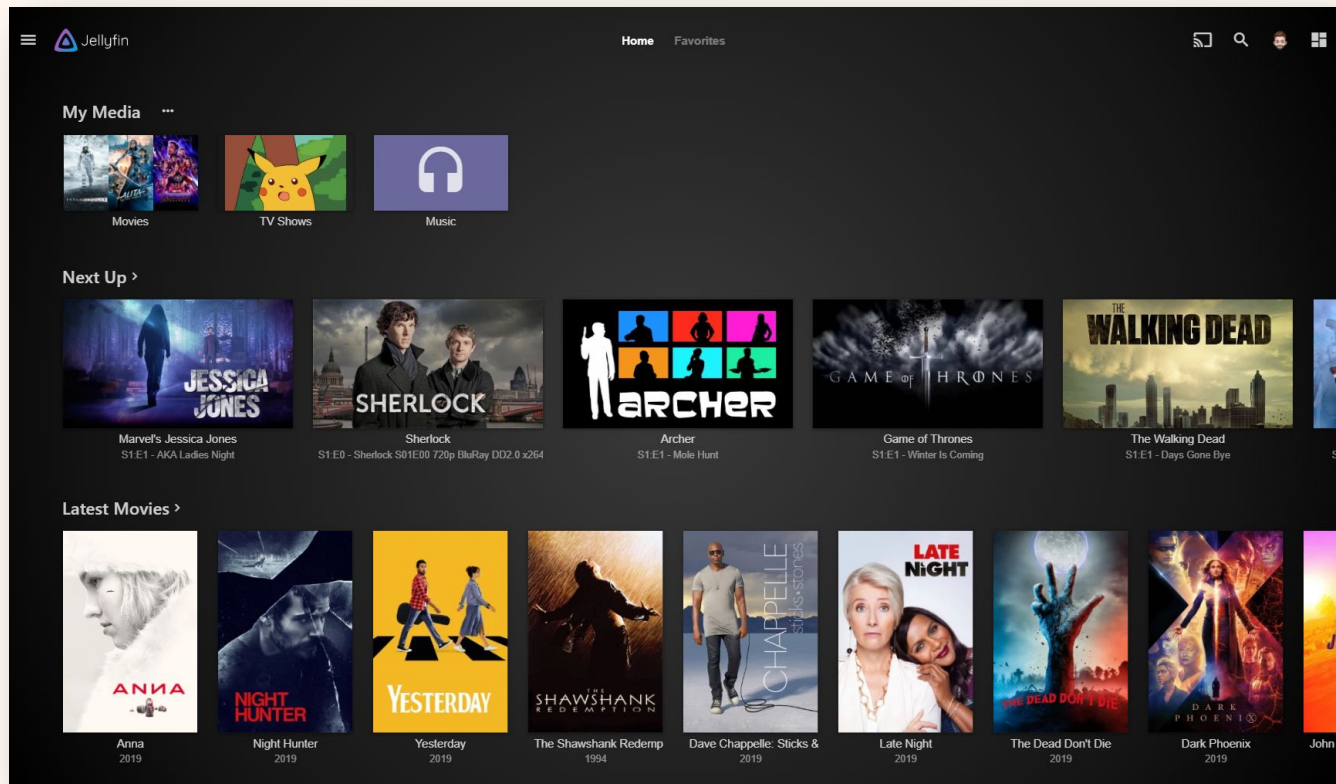




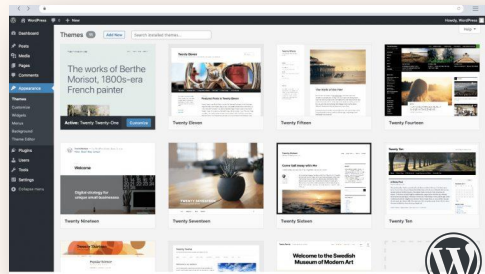
# Cloud Apps



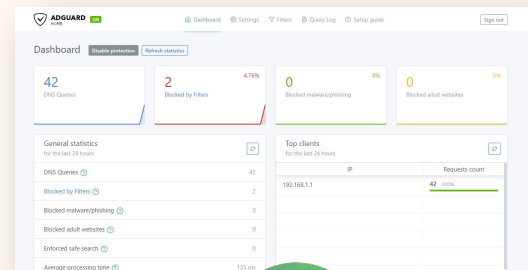
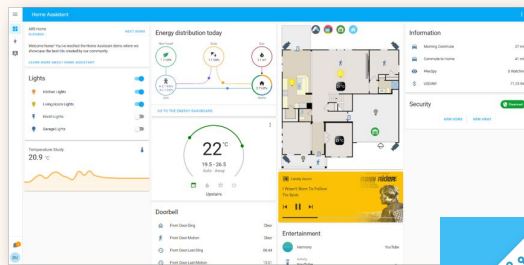
# Streaming Apps



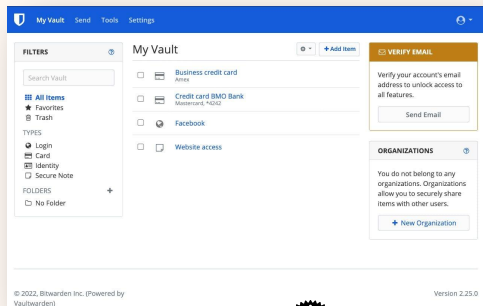
# Other Apps



WORDPRESS



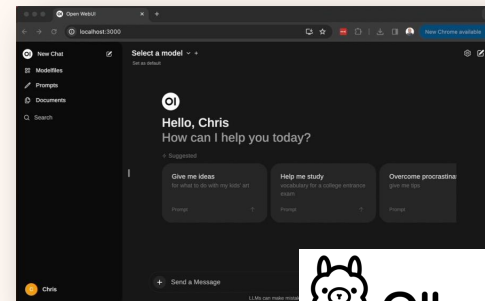
ADGUARD



Vaultwarden



MINECRAFT

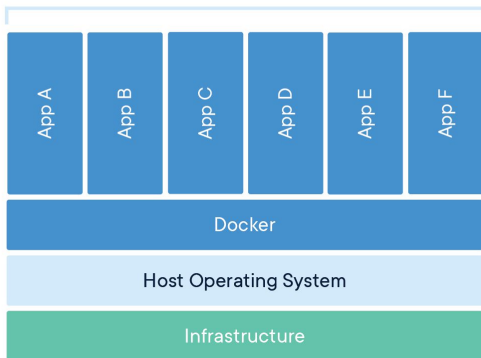


Ollama

# Build with Docker

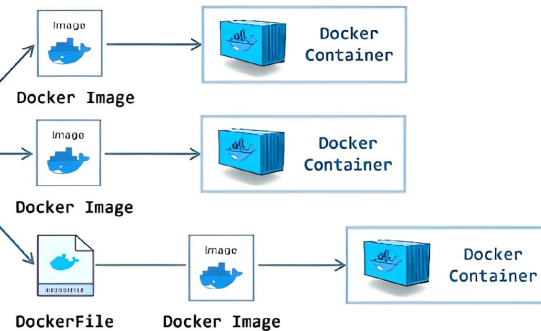


Containerized Applications

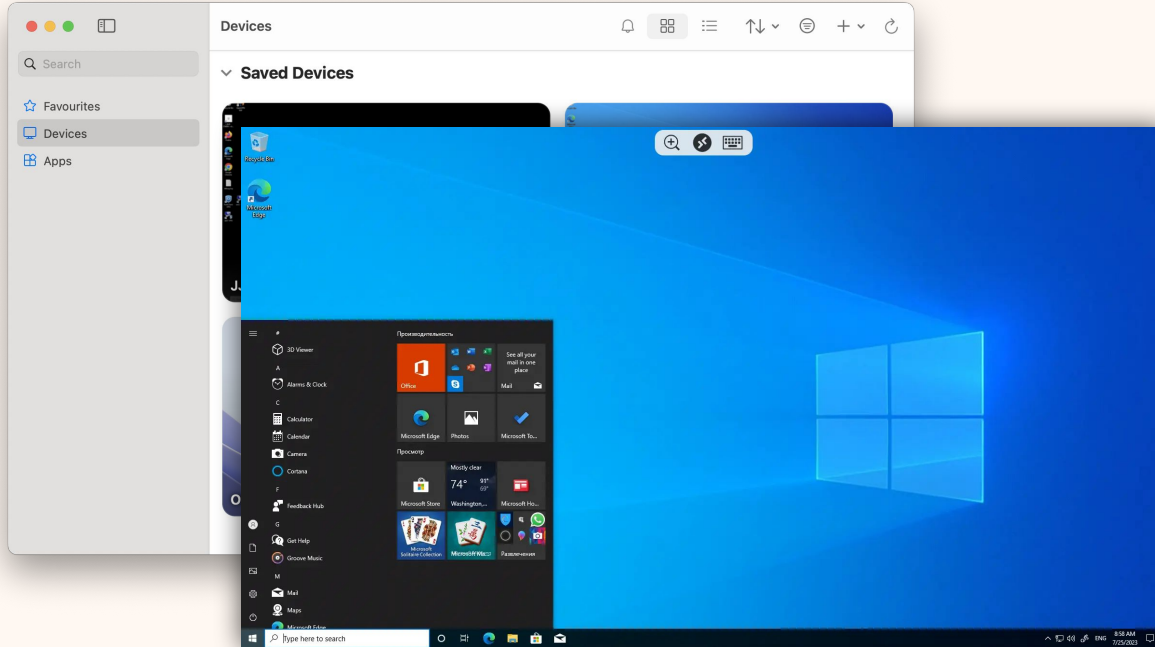


docker-compose.yml

```
### docker-compose.yml
version: '3.7'
services:
  db:
    image: mysql:5.6.19
    restart: always
    environment:
      - MYSQL_DATABASE=example
      - MYSQL_ROOT_PASSWORD=password
  app:
    build: .app
    restart: always
  web:
    build: .web
    restart: always
    ports:
      - 80:80
```



# Private Workspace



```
ec2-user@ip-172-31-34-128:~  
~/rsa$ chmod 400 myrsa.pem  
~/rsa$ ssh -i "myrsa.pem" ec2-user@ec2-3-138-190-245.us-east-2.compute.amazonaws.com  
Last login: Thu Dec 23 10:48:00 2021 from 222.232.244.84  
  
_!_ _!_ )  
_!_ ( _/  Amazon Linux 2 AMI  
_!_/_!_/_!  
  
https://aws.amazon.com/amazon-linux-2/  
6 package(s) needed for security, out of 16 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-34-128 ~]$
```

# 내 서버를 훌륭하게 키우는 방법들





# Backup Plan



## 3-2-1 Backup Strategy

3x Copies



2x Storage Media



1x Offsite Copy





# Backup Plan



**PROXMOX** Virtual Environment 7.2-3 Search

Server View

Datacenter (cluster-test-13)

proxmox

Search

Summary

Notes

Cluster

Ceph

Options

Storage

Backup

Add Remove Edit Job Details

Enabled Node Schedule

**Create: Backup Job**

General Retention Note Template

Node: proxmox Send email to:

Storage: local Email: Notify always

Schedule: Editable Compression: ZSTD (fast and good)

Selection mode:

- Every 30 minutes
- Every two hours
- Every day 21:00
- Every day 02:30, 22:30
- Monday to Friday 00:00
- Monday to Friday: hourly
- Monday to Friday, 07:00 to 18:45: Every 15 minutes
- Sunday 01:00
- Every first day of the Month 00:00
- First Saturday each month 15:00
- First day of the year 00:00

Job Comment:

ID	Name	Node	Status	Type
100	pi	proxmox	stopped	qemu
101	pi	proxmox	stopped	qemu
102	pi	proxmox	stopped	qemu
103	pi	proxmox	stopped	qemu
104	pi	proxmox	stopped	qemu
105	pi	proxmox	stopped	qemu
106	pi	proxmox	stopped	qemu
107	pi	proxmox	stopped	qemu
108	pi	proxmox	stopped	qemu
109	pi	proxmox	stopped	qemu
110	pi	proxmox	stopped	qemu

**Edit: Backup Job**

General Retention Note Template

☐ Keep all backups

Keep Last: Keep Hourly:

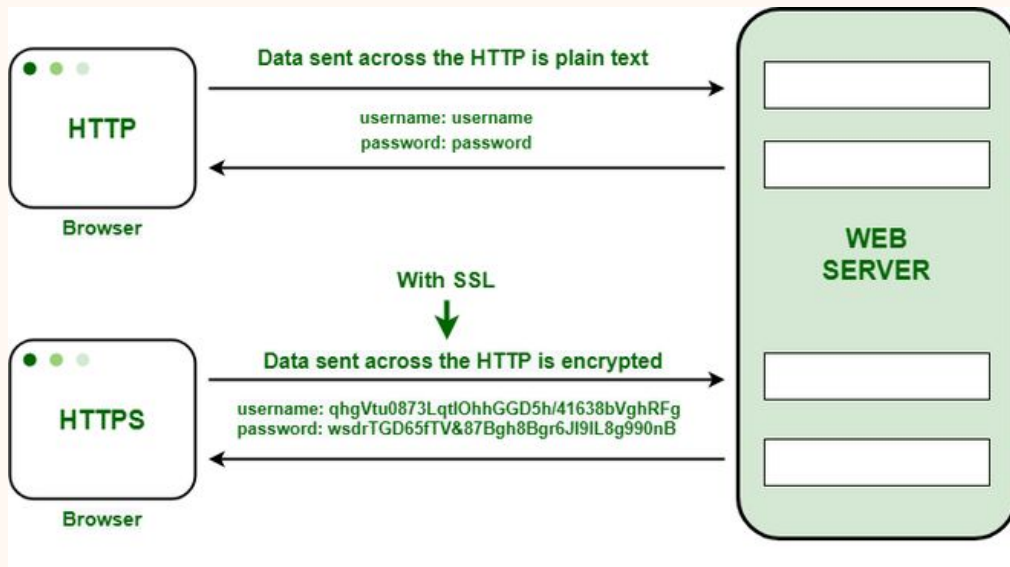
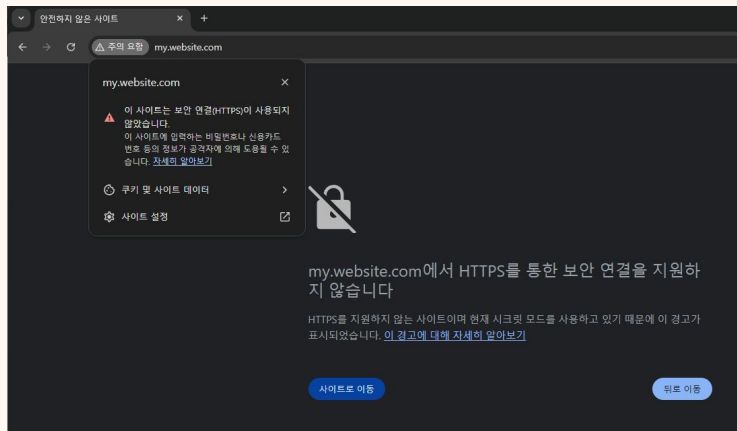
Keep Daily: 7 Keep Weekly:

Keep Monthly: 6 Keep Yearly:

Help Advanced ☒ OK Reset

Create

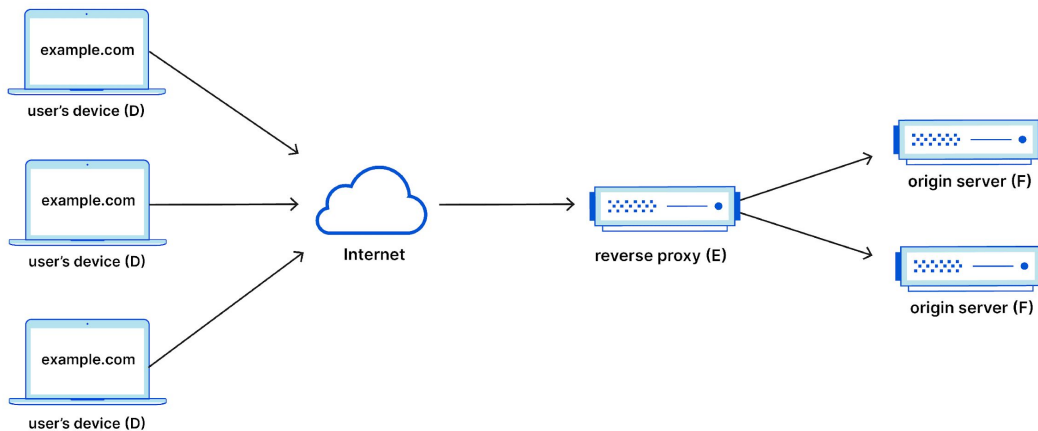
# SSL Encryption



# Reverse Proxy



Reverse Proxy Flow



```
nginx.conf
1  server {
2    listen 80;
3    server_name example.com;
4    location / {
5      proxy_pass http://backend server;
6      proxy_set_header Host $host;
7      proxy_set_header X-Real-IP $remote_addr;
8      proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
9      proxy_set_header X-Forwarded-Proto $scheme;
10   }
11 }
```

# Nginx Proxy Manager



NGINX  
PROXY MANAGER



Nginx Proxy Manager interface showing a list of Proxy Hosts.

SOURCE	DESTINATION	SSL	ACCESS	STATUS
ci.jc21.com Created: 24th August 2018	http://example.internal:8975	Let's Encrypt	Public	Online
confluence.jc21.com Created: 24th August 2018	http://192.168.0.10:8090	Let's Encrypt	Public	Online
gateway.jc21.net.au Created: 24th August 2018	http://192.168.0.10:81	Let's Encrypt	Public	Online
goproxy.jc21.net.au Created: 22nd May 2019	http://example.internal:8159	HTTP only	Public	Online
homeassistant.jc21.net.au Created: 16th January 2019	http://rpi.internal:8123	Let's Encrypt	Public	Online
juxtapose.jc21.net.au Created: 24th August 2018	http://example.internal:3001	Let's Encrypt	Public	Online

New Proxy Host

Details Custom locations SSL Advanced

Domain Names \*

static.example.com

Scheme \* Forward Hostname / IP \* Forward Port \*

http minio 9000

☐ Cache Assets ☒ Block Common Exploits

☐ Websockets Support

Access List

Publicly Accessible

Cancel Save

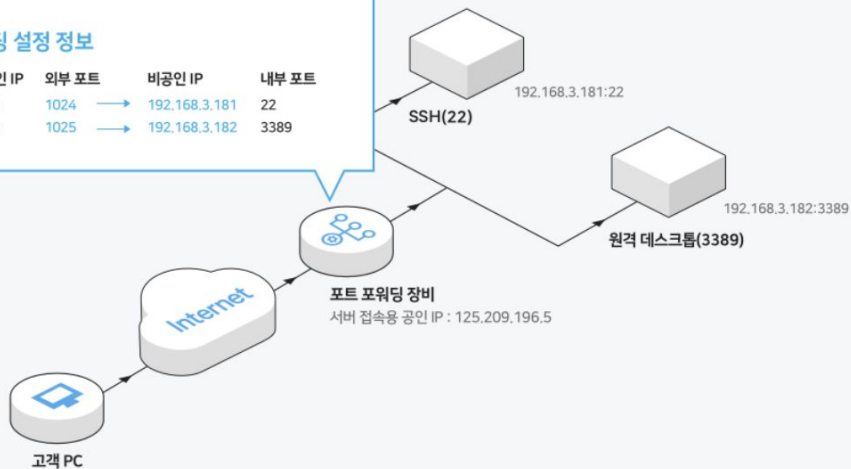


# VPN

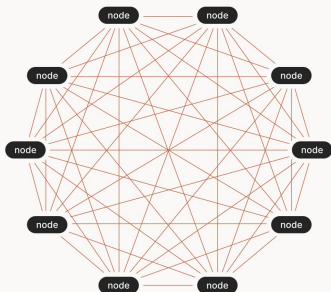


## 포트 포워딩 설정 정보

서버 접속용 공인 IP	외부 포트	비공인 IP	내부 포트
125.209.196.5	1024	192.168.3.181	22
125.209.196.5	1025	192.168.3.182	3389



# VPN



$n(n-1) = 90$  WireGuard endpoints (for 45 connections)



## Machines

attribute:tailscale-ssh managedby:server version:<1.26.2

Filters

Attribute: Tailscale SSH

Managed by: tag:server

Version: Older than 1.26.2

2 machines

MACHINE	ADDRESSES	VERSION	LAST S
<b>server-3</b> tag:server Expiry disabled SSH	100.111.22.333	1.26.0 Linux	Jul 2
<b>website-1</b> tag:server Expiry disabled SSH	100.111.33.444	1.26.0 Linux	Con

## Personal

For individuals who want to securely connect personal devices, for free.

\$0 Free forever

Get started for free

No credit card required

✓ Limited to 3 users

✓ 100 devices

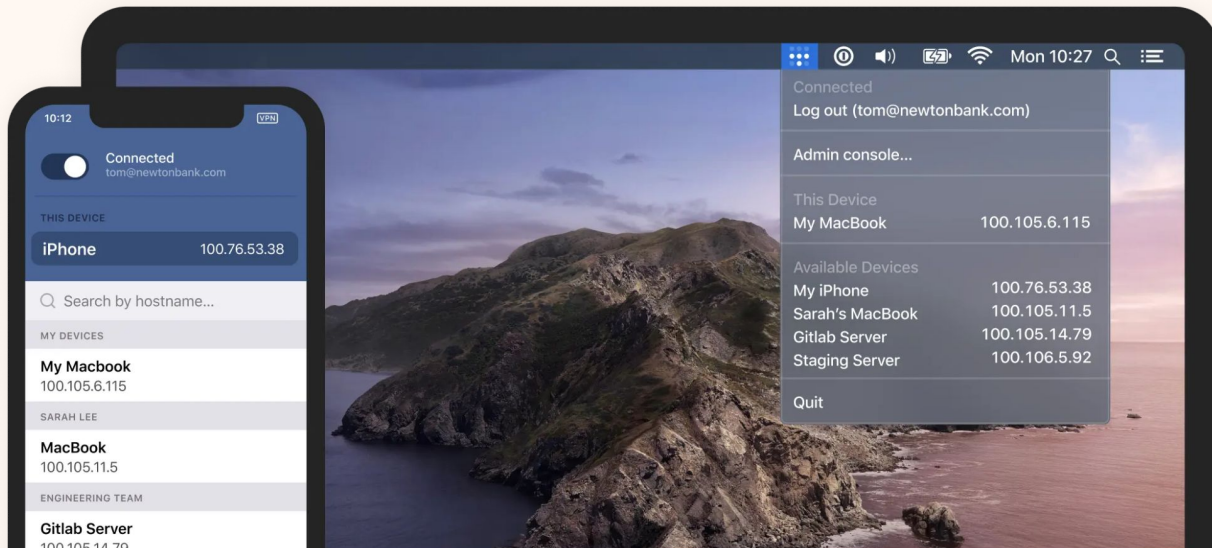
✓ Access nearly all of Tailscale's features

✓ Use Tailscale for free, indefinitely

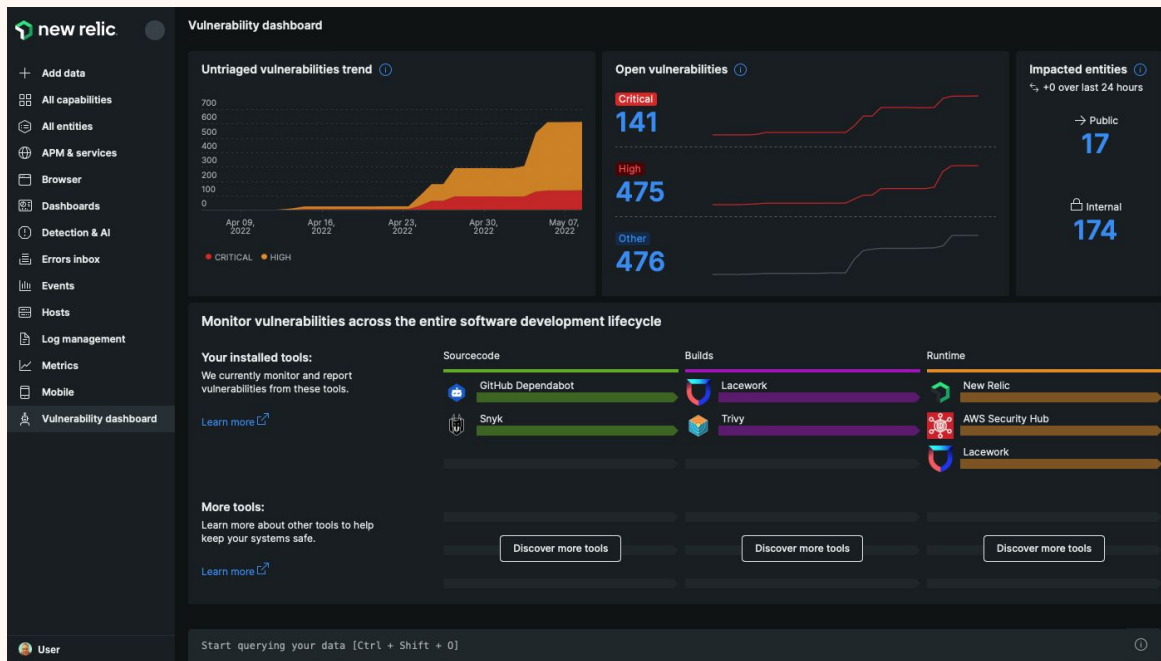
✓ Add-on devices for \$0.50 each per month

# VPN

 tailscale



# Monitoring



**STANDARD**

**100 GB free/month**  
\$0.30 per additional GB/month

Pay as you go each month

Upgrade to Standard

**Unlocks**

- ✓ First full user \$10, \$99/full user <sup>①</sup> after that – up to 5 full users.)
- ✓ Core users (\$49/core user) <sup>①</sup>
- ✓ 10k synthetic checks
- ✓ 250k correlated and enriched alerts
- ✓ 8+ days data retention
- ✓ SSO/SAML
- ✓ 48-hour response SLA



# Monitoring



```
Processing triggers for systemd (237-2) ...
Processing triggers for libc-bin (2.36-9ubuntu1) ...
root@proxmox:~# sudo curl -s https://download.newrelic.com/install/newrelic-cli/scripts/install.sh | bash && sudo NEW_RELIC_API_KEY=9800-EXPL
1700P031189CZEAUV980W NEW_RELIC_ACCOUNT_ID=773837 /usr/local/bin/newrelic install
Installing New Relic CLI v9.99.0
Installing to /usr/local/bin

New Relic
Welcome to New Relic. Let's set up full stack observability for your environment.
Our Data Privacy Notice: https://newrelic.com/termsandconditions/services-notice

Connecting to New Relic Platform
Connected

Installing New Relic
--- Installing Infrastructure Agent
Detecting available SSL ciphers...
- TLSv1
- TLSv1.1
- TLSv1.2
Get:1 http://security.debian.org bookworm-security InRelease [48.8 kB]
Get:2 http://security.debian.org bookworm-security/main amd64 Packages [271 kB]
Get:3 http://security.debian.org bookworm-security/main Translation-en [182 kB]
Get:4 http://ftp.br.debian.org/debian bookworm InRelease
Get:5 http://ftp.br.debian.org/debian bookworm-updates InRelease [50.4 kB]
Get:6 http://download.proxmox.com/debian/pve bookworm InRelease
Fetched 337 kB in 2s (231 kB/s)
Reading package lists...
Get:1 http://security.debian.org bookworm-security InRelease
Get:2 http://ftp.br.debian.org/debian bookworm InRelease
Get:3 http://ftp.br.debian.org/debian bookworm-updates InRelease
Get:4 https://download.newrelic.com/infrastructure_agent/linux/apt bookworm InRelease [10.4 kB]
Get:5 https://download.newrelic.com/infrastructure_agent/linux/apt bookworm/main amd64 Packages [61.4 kB]
Get:6 http://download.proxmox.com/debian/pve bookworm InRelease
Fetched 72.2 kB in 0s (22.9 kB/s)
Reading package lists...
Package lists not modified. Installing newrelic-infra...
Selecting previously unselected package libpq5:amd64.
(Reading database ... 8417 files and directories currently installed.)
Preparing to unpack .../libpq5_15.13-0deb12u1_amd64.deb ...
Unpacking libpq5:amd64 (15.13-0deb12u1) ...
Selecting previously unselected package fluent-bit.
Preparing to unpack .../fluent-bit_1.2.18_amd64.deb ...
Unpacking fluent-bit (1.2.18) ...
Selecting previously unselected package newrelic-infra.
Preparing to unpack .../newrelic-infra_1.65.1_amd64.deb ...
Unpacking newrelic-infra (1.65.1) ...
Setting up libpq5:amd64 (15.13-0deb12u1) ...
Setting up newrelic-infra (1.65.1) ...
Created symlink /etc/systemd/system/newrelic-infra.service → /etc/systemd/system/newrelic-infra.service.
Setting up fluent-bit (1.2.18) ...
Processing triggers for systemd (237-2) ...
Running agent status check attempt...
Agent status check ok.
Infra key: pve.kazusama.com
Download Infrastructure Agent
Installing
--- Installing Logs Integration
```



# new-relic

2025년 6월 22일

New Relic 2025-06-22 오후 1:35

Signal lost for 1 minutes on 'Health Check'

A new alert has been triggered in New Relic.

Issue ID  
645ab22f-3b40-4c5c-a0f6-ca2a4e460b16

Priority  
CRITICAL

Impacted Entities  
erabica

Total Incidents  
1

State  
ACTIVATED

Trigger Event  
STATE\_CHANGE

Is Correlated  
false

Created At  
2025-06-22 00:35:54 EDT

Updated At  
2025-06-22 00:35:54 EDT

Sources  
newrelic

Alert Policy Names  
Golden Signals

Alert Condition Names  
Health Check

Workflow Name  
Policy: 5690689 - Golden Signals (Migrated)

New Relic 2025-06-22 오후 3:06

#new-relic에 메시지 보내기

Critical priority issue is closed

## Signal lost for 1 minutes on 'Health Check'

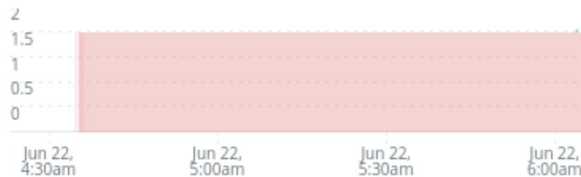
Issue duration: 90 minutes

[Go to issue](#)

### 1 incidents

- Signal lost for 1 minutes on 'Health Check'

Since 32 minutes ago until 2 minutes ago



## Alert Policy

Policy Name	Golden Signals
Condition	Health Check
NRQL	SELECT count(cpuPercent) FROM SystemSample FACET entityName
Custom Violation Description	서버 주정서!!

# DNS Update



exmple.com

IP: 123.123.123.123



IP: 124.124.124.124



## API Tokens

Edit zone DNS API token was successfully created

Copy this token to access the Cloudflare API. For security this will not be shown again. [learn more](#)

ZzMMcAzr74uWp9eW2O41c Copy

### Test this token

To confirm your token is working correctly, copy and paste the below CURL command in a terminal shell to test.

```
curl -X GET "https://api.cloudflare.com/client/v4/user/tokens/verify" \
-H "Authorization: Bearer ZzMMcAzr74uWp9eW2O41c" \
-H "Content-Type:application/json"
```

## About

⚙️ A small, feature-rich, and robust Cloudflare DDNS updater

[go](#) [dns](#) [docker](#) [golang](#) [ipv6](#)  
[docker-compose](#) [docker-image](#) [ddns](#)  
[selfhosted](#) [dynamic-dns](#) [cloudflare](#)  
[ddns-client](#) [healthchecks](#) [dns-over-https](#)  
[ddns-updater](#)

📖 Readme

📄 Apache-2.0 license

📄 Code of conduct

📄 Security policy

🔄 Activity

⭐ 1.8k stars

👁 8 watching

🍴 71 forks

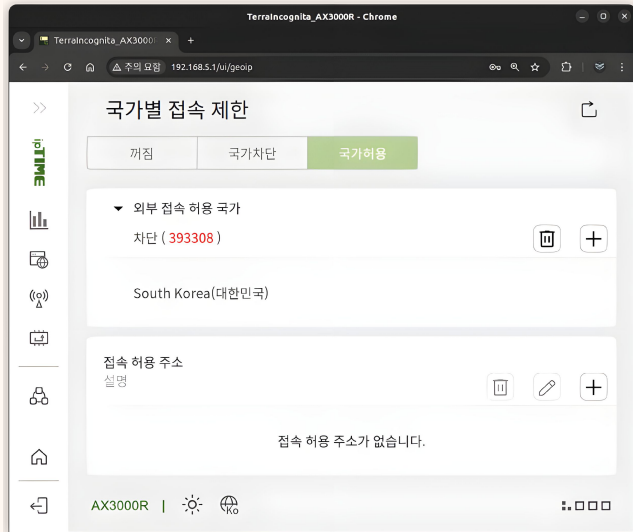
Report repository

## Releases 34

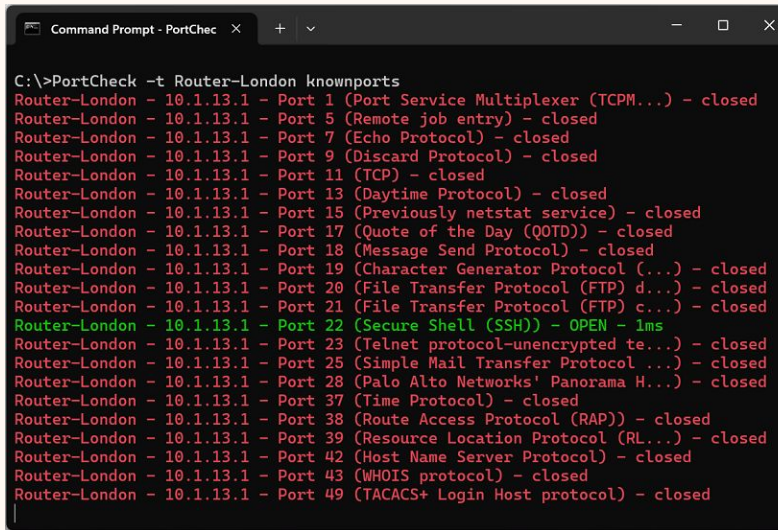
📦 1.15.1 Latest  
on Dec 16, 2024

+ 33 releases

# Security Tips



Geo Blocking / ACL

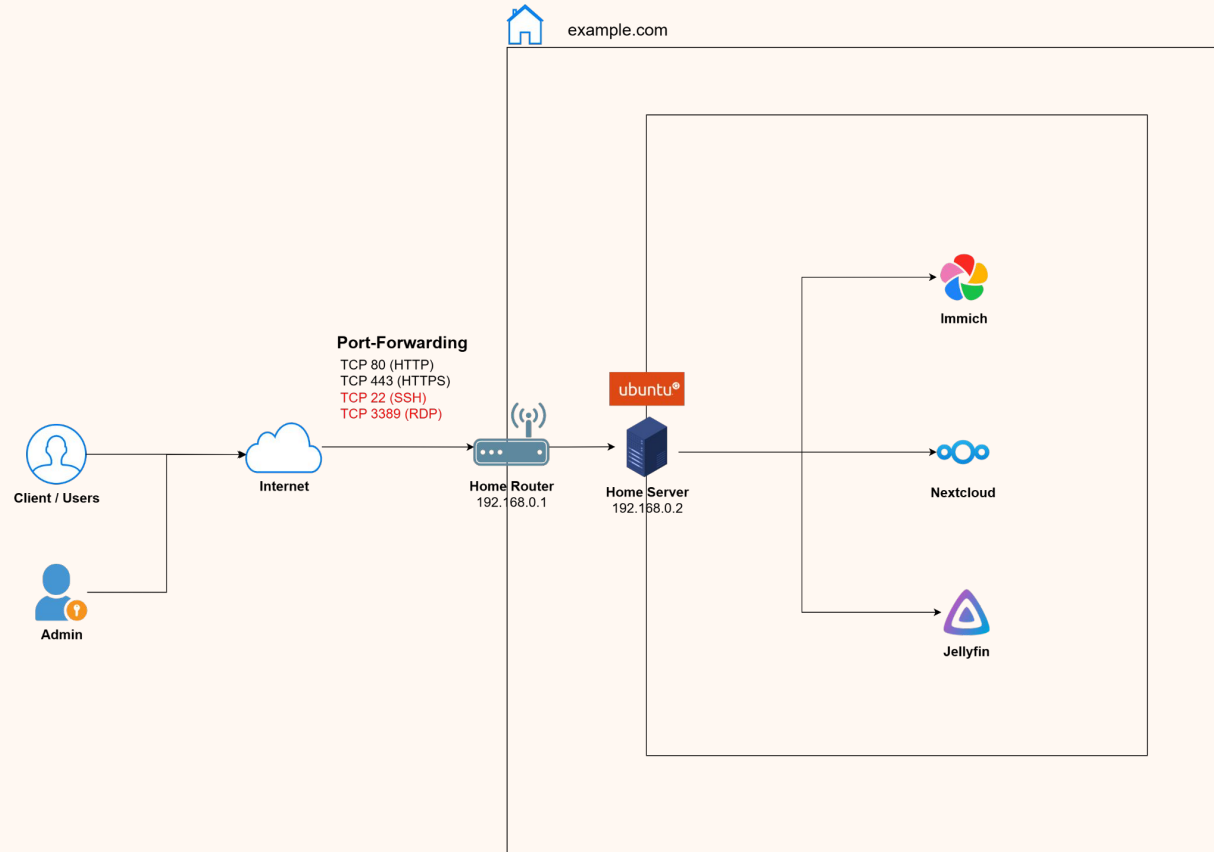


Well-known Port/Password

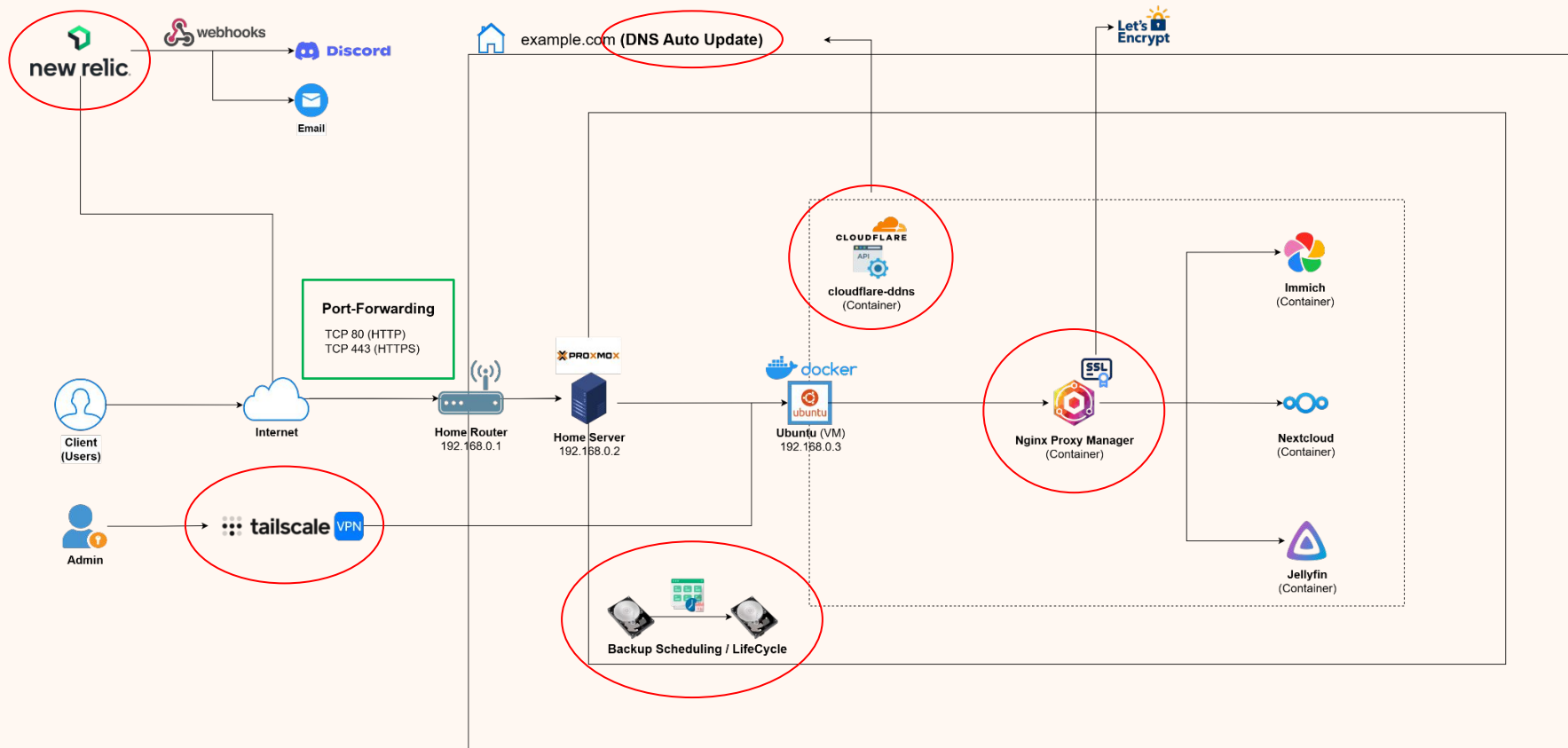
Password Popularity - Top 20

Rank	Password	Number of Users with Password (absolute)
1	123456	290731
2	12345	79078
3	123456789	76790
4	Password	61958
5	iloveyou	51622
6	princess	35231
7	rockyou	22588
8	1234567	21726
9	12345678	20553
10	abc123	17542

# Architecture



# Architecture



마치며

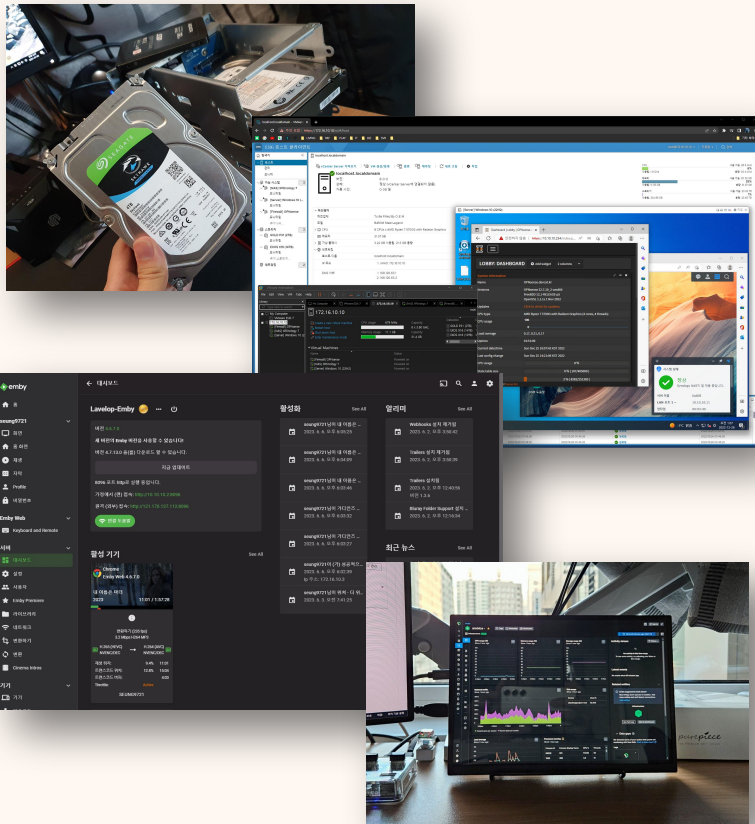
# 마치며



회사가 아닌 나만의 **Cloud** 운영을 시작하세요!

커뮤니티와 **AI** 도움으로 쉽게 구축할 수 있어요!

작고 귀여운 반려 서버로 **IT**와 친해질 수 있습니다!



# 감사합니다!

QnA