



2STON™ EdgeCloud

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2IP R & D Center

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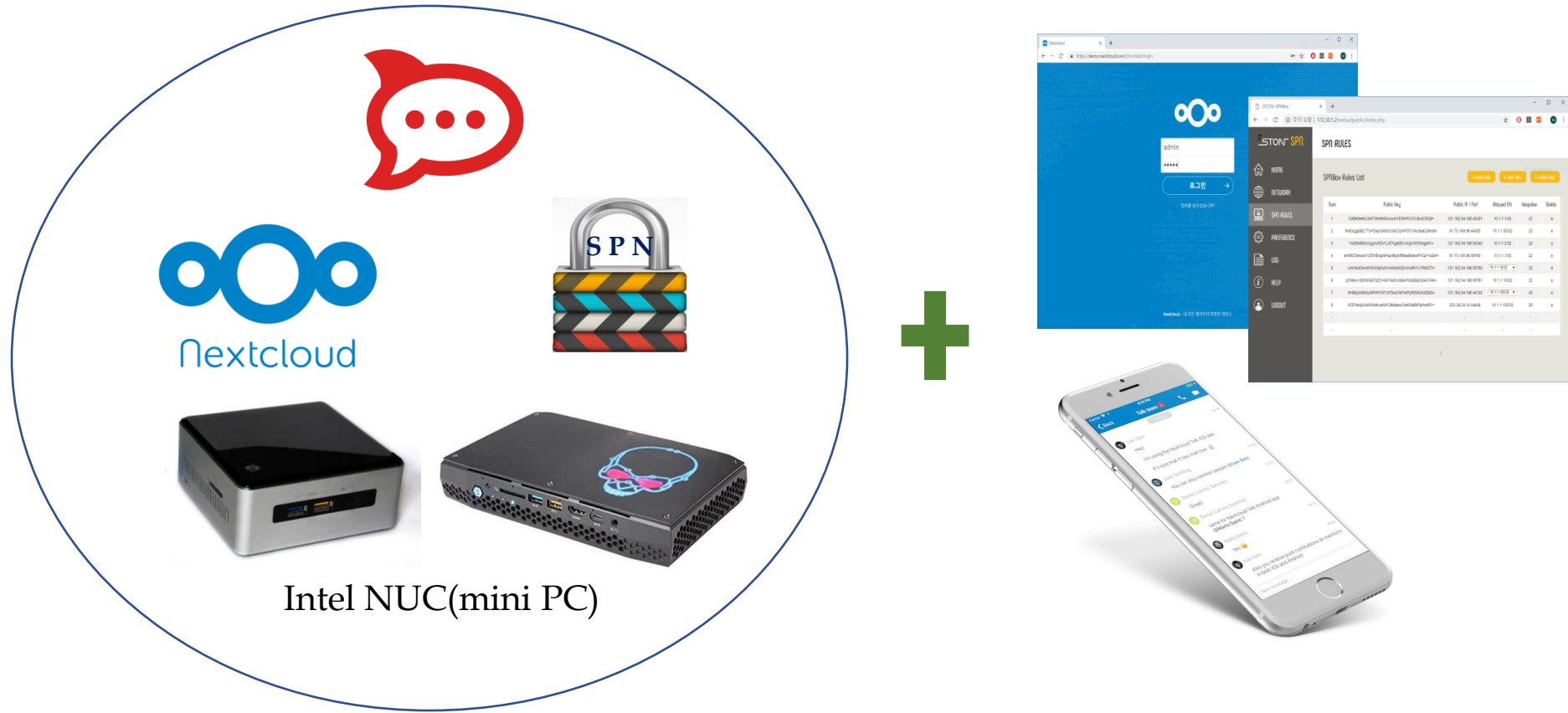


nextcloud



1. 2STON EdgeCloud(1) - Overview

2STON™ EdgeCloud는 NextCloud와 SPN 서버 S/W가 탑재된 Private Cloud Box 입니다.



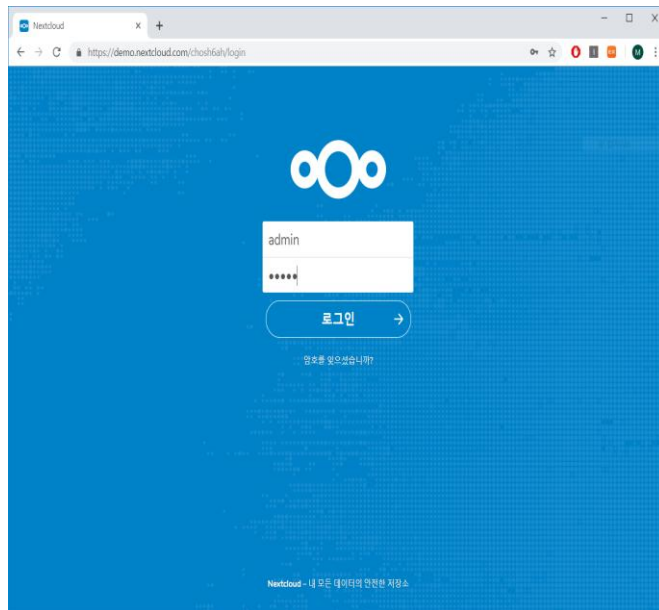
2STON Series 2nd Product

1. 2STON EdgeCloud(2) - 정의

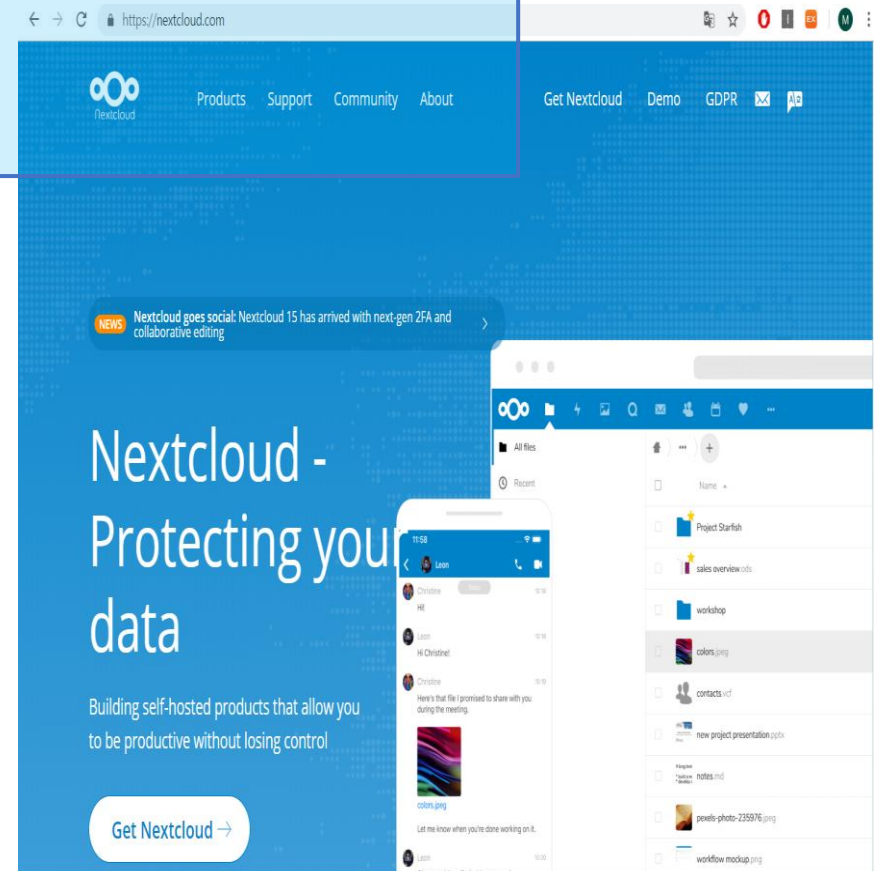
- 1. 2STON™ EdgeCloud는 NextCloud를 중심으로 하는 소형 Cloud 제품입니다.
- 2. 2STON™ EdgeCloud는 Gateway 형태의 제품(SPNBox)이 아니라, 서버 일체형 제품입니다.
- 3. 2STON™ EdgeCloud는 Windows/macOS 등과 같은 desktop 환경에서는 Web Browser로 접속 가능하며, Mobile 환경(Android/iOS)에서는 mobile app을 이용할 수 있습니다.
- 4. NextCloud는 기본 통신 Protocol로 HTTPS를 사용합니다. 이때 사용하는 인증서(x.509)는 Let's Encrypt(공인인증 기관, CA)가 발급한 것을 활용합니다.
- 5. 2STON™ EdgeCloud에 탑재된 SPN S/W는 HTTPS와 더불어 2중 보안을 위해 사용될 수 있으며, 비 NextCloud 통신(예: FTP, Samba, HTTP) 시 안전한 데이터 전달을 위해서도 사용될 수 있습니다.
- 6. 2STON™ EdgeCloud는 사무실 내부망(방화벽 안 쪽)이나, 외부망(예: IDC)에 설치 가능합니다. 외부에서 HTTPS로 접근 가능하도록 하기 위해서는 반드시 domain name이 있어야 합니다.
- 7. 2STON™ EdgeCloud는 기본적으로 Intel NUC(mini PC) 위에 탑재됩니다. 하지만, 그 보다 성능이 우수한 서버에 탑재될 수도 있습니다.

2. NextCloud(1) - Overview

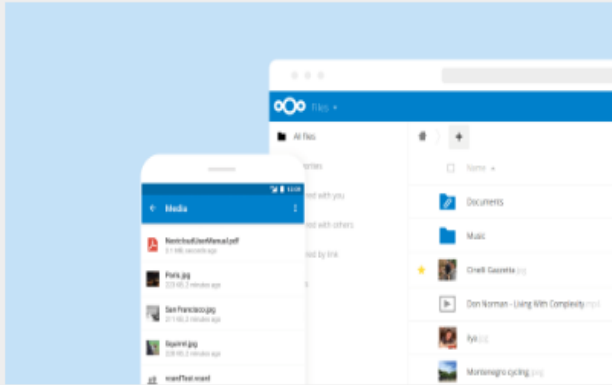
- NextCloud란 ?
 - 개인용 Cloud Platform
 - File 관리/Talk(messenger, video conferencing, screen sharing, SIP)/Groupware(calendar, contacts, mail)
 - Open source project, version 16.x
 - 서버: Linux
 - Clients: Web browser PC(windows/MacOSX/Linux), Android/iOS app
 - 보안: HTTPS(TLS, DTLS 1.x)
 - 기타 사항: WebRTC/TUN 서버 지원 등



<https://nextcloud.com/>

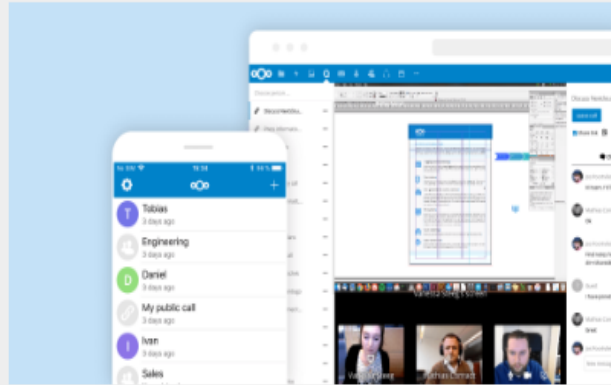


2. NextCloud(2) – 주요 기능



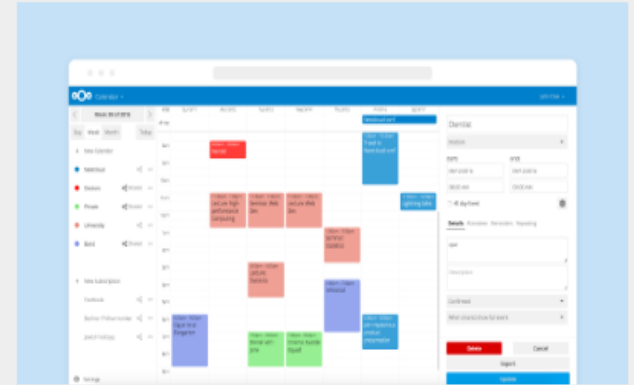
Nextcloud Files
Enterprise File Sync and Share

Nextcloud Files offers an on-premise Universal File Access and sync platform with powerful collaboration capabilities and desktop, mobile and web interfaces.



Nextcloud Talk
Calls, chat and web meetings

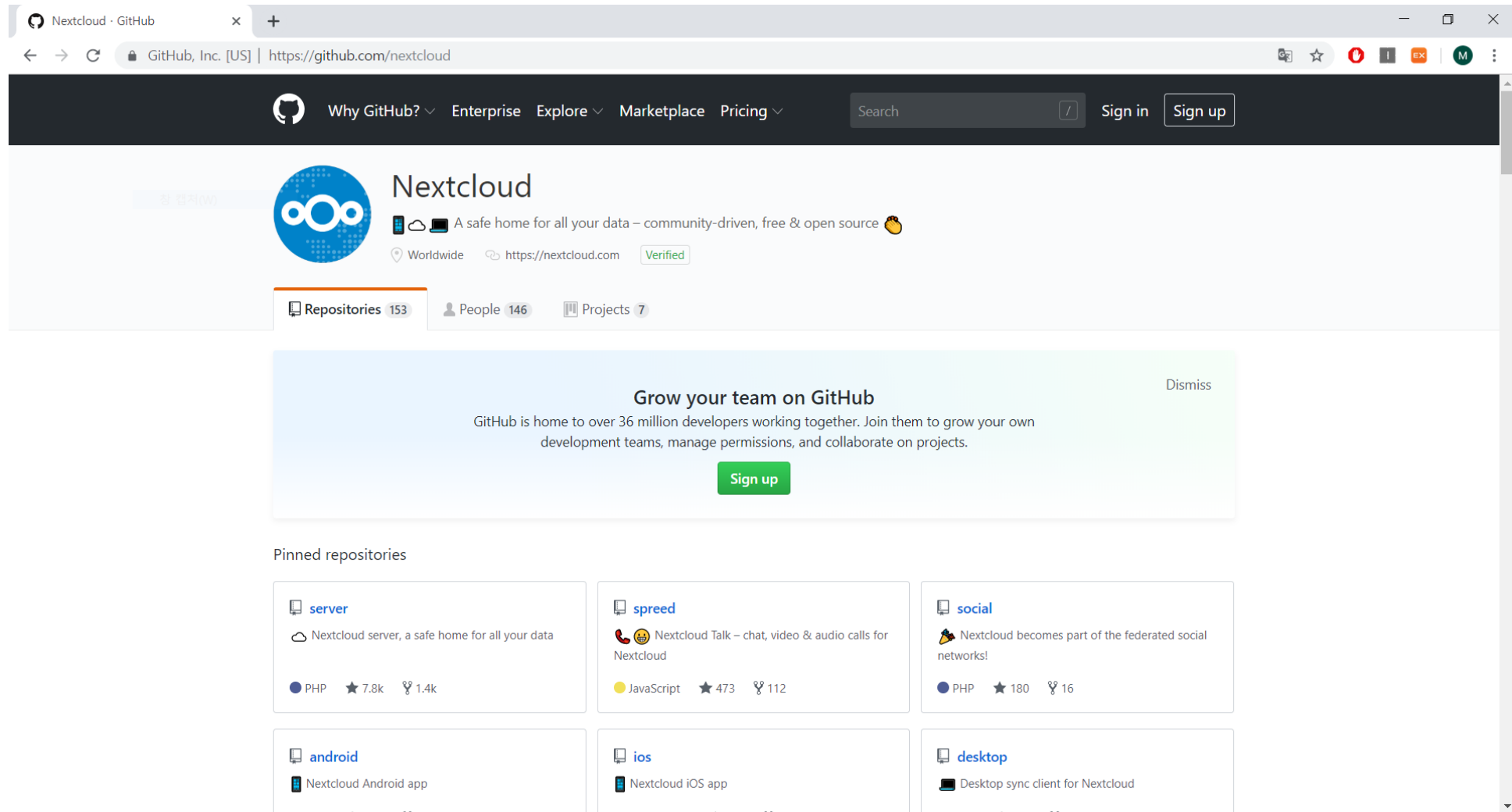
Nextcloud Talk delivers on-premises, private audio/video conferencing and text chat through browser and mobile interfaces with integrated screen sharing and SIP integration.



Nextcloud Groupware
Calendar, Contacts & Mail

Nextcloud Groupware integrates Calendar, Contacts, Mail and other productivity features to help teams get their work done faster, easier and on your terms.

2. NextCloud(3) – Open Source



The screenshot shows the GitHub profile page for Nextcloud. The header includes the GitHub logo, navigation links (Why GitHub?, Enterprise, Explore, Marketplace, Pricing), a search bar, and 'Sign in' and 'Sign up' buttons. The main section features the Nextcloud logo, a description 'A safe home for all your data – community-driven, free & open source', and a 'Verified' badge. Below this, statistics show 153 Repositories, 146 People, and 7 Projects. A large green banner promotes 'Grow your team on GitHub' with a 'Sign up' button. The 'Pinned repositories' section displays six projects: 'server' (Nextcloud server), 'spread' (Nextcloud Talk), 'social' (Nextcloud social networks), 'android' (Nextcloud Android app), 'ios' (Nextcloud iOS app), and 'desktop' (Desktop sync client). Each repository card shows its name, description, programming language, star count, and fork count.

Repository Name	Description	Language	Stars	Forks
server	Nextcloud server, a safe home for all your data	PHP	7.8k	1.4k
spread	Nextcloud Talk – chat, video & audio calls for Nextcloud	JavaScript	473	112
social	Nextcloud becomes part of the federated social networks!	PHP	180	16
android	Nextcloud Android app	-	-	-
ios	Nextcloud iOS app	-	-	-
desktop	Desktop sync client for Nextcloud	-	-	-

모든 source code는 open되어 있습니다.

2. NextCloud(4) - User & Group 관리

사용자 - Nextcloud

https://ap03spnbox.ddns.net:7443/nextcloud/index.php/settings/users

+ New user

+ 그룹 추가

모두

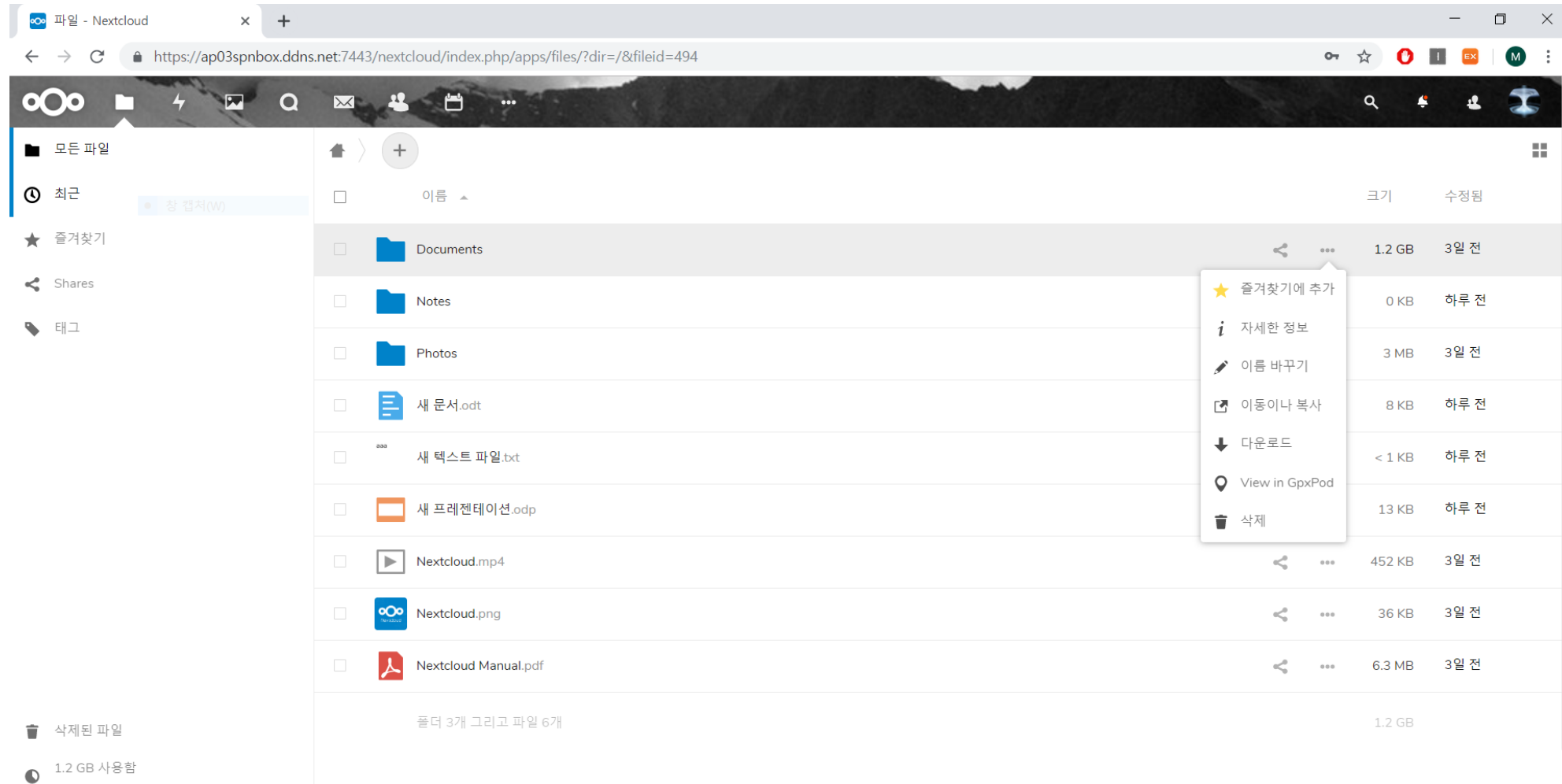
관리자

사용자 이름	Display name	암호	이메일	그룹	할당량
amanda	amanda	새 암호	amanda@2ipco.com	Add user in group	무제한
angela	angela	새 암호	angela@2ipco.com	Add user in group	무제한
briz	briz	새 암호	briz@2ipco.com	Add user in group	무제한
drake	drake	새 암호	drake@2ipco.com	Add user in group	무제한
james	james	새 암호		admin	무제한
leo	leo	새 암호	leo@2ipco.com	Add user in group	무제한
lucca	lucca	새 암호	lucca@2ipco.com	Add user in group	무제한
michael	michael	새 암호	michael@2ipco.com	admin	무제한
steven	steven	새 암호	steven@2ipco.com	Add user in group	무제한
tadd	tadd	새 암호	tadd@2ipco.com	Add user in group	무제한
thomas	thomas	새 암호	jylee@2ipco.com	Add user in group	무제한

설정

사용자와 그룹별로 관리가 가능합니다.

2. NextCloud(5) – File Storing & Sharing

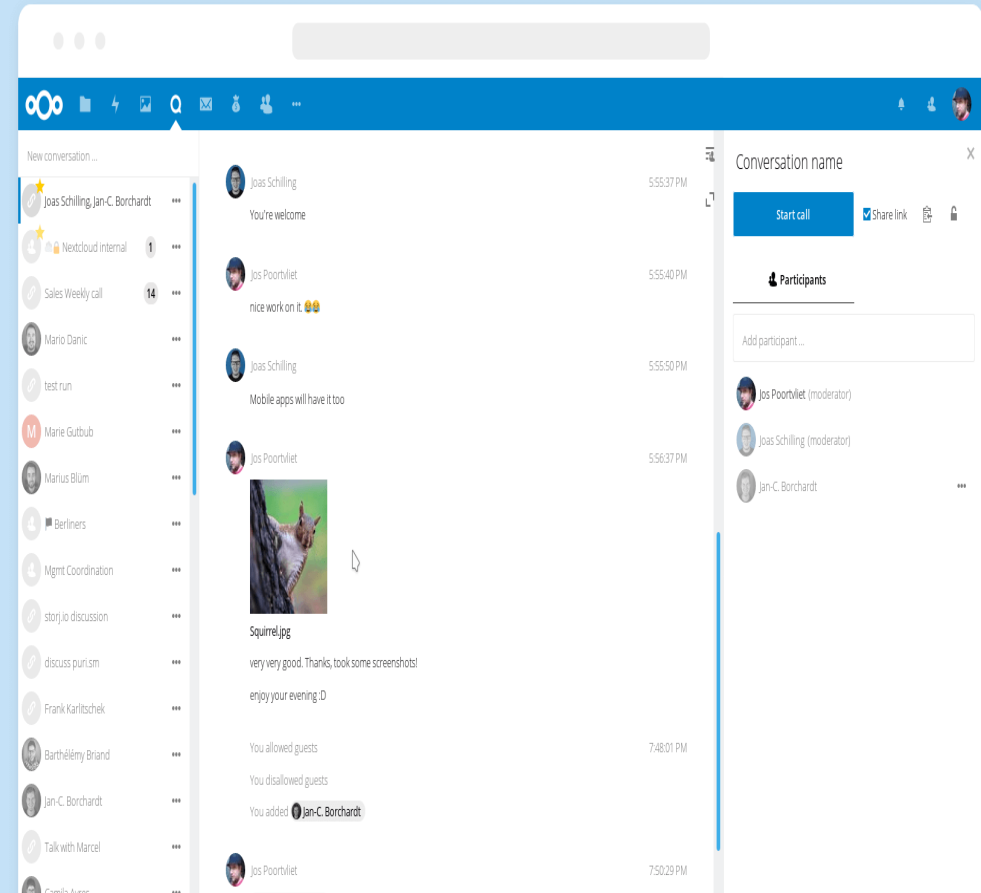
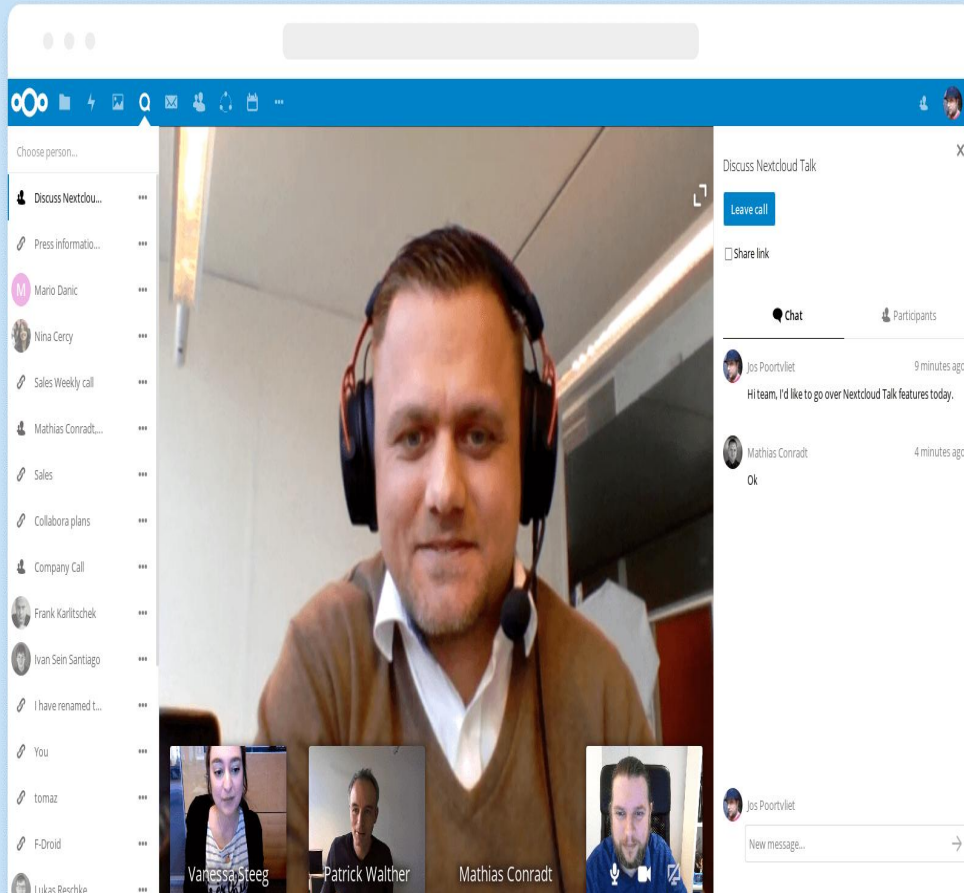


자신만의 파일을 올리고, 이를 다른 사용자에게 공유할 수 있습니다.

<https://ap03spnbox.ddns.net:7443/nextcloud/index.php/apps/files/?dir=/&fileid=494#>

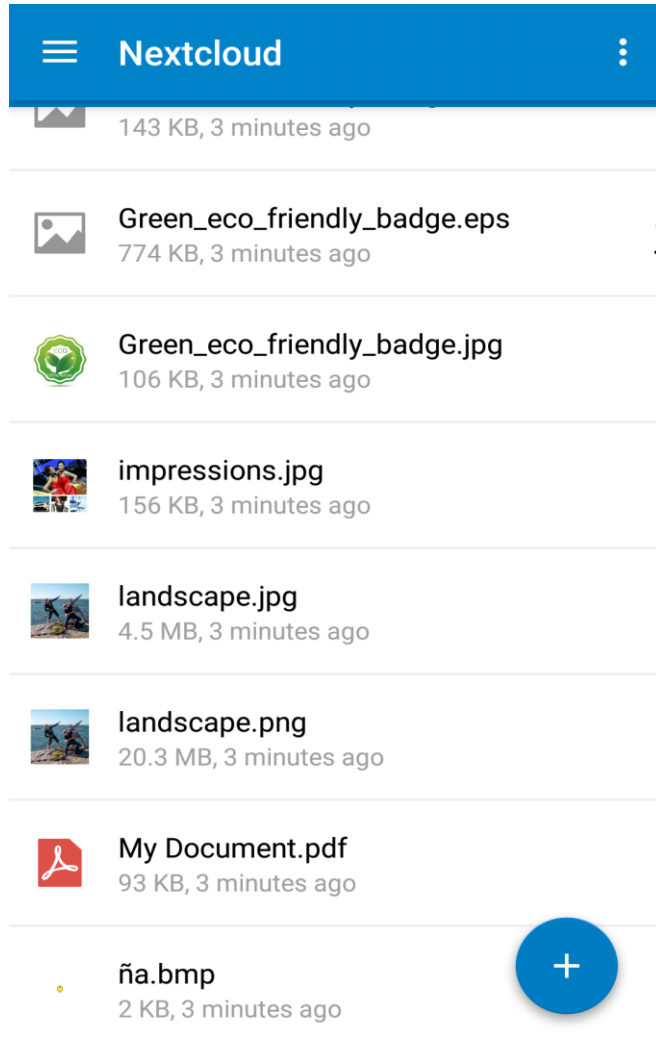
2. NextCloud(6) – Talk(1)

Web browser를 이용한 talk



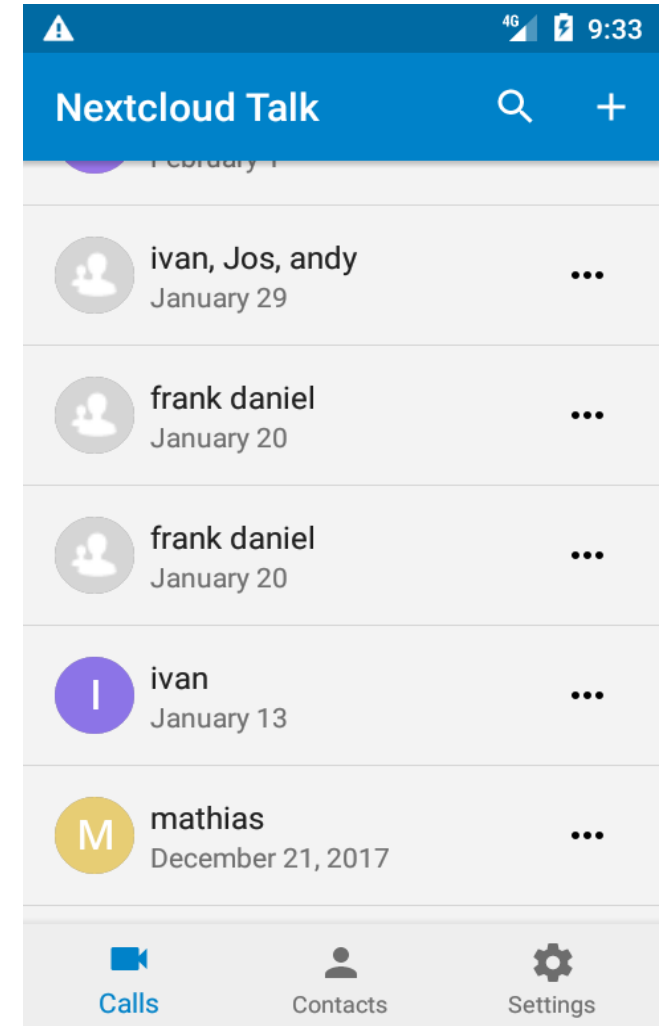
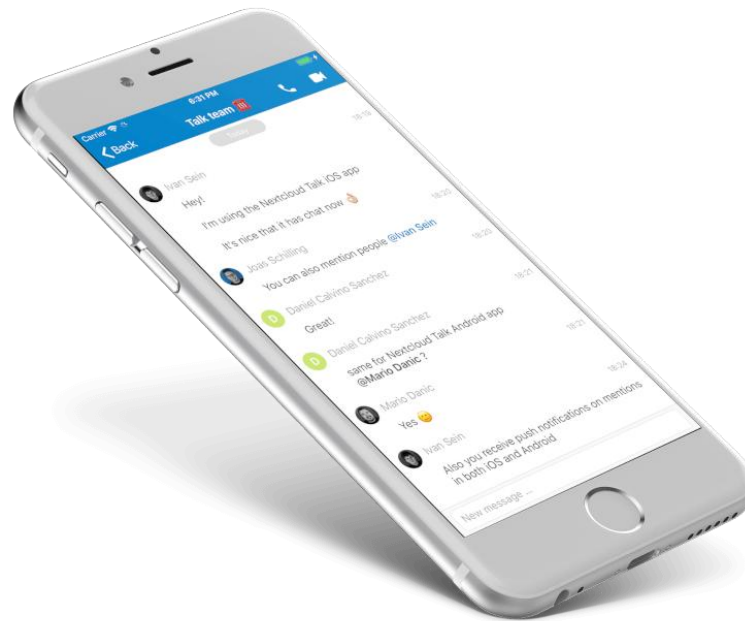
채팅, 1 대 1일은 물론 다 대 다 화상 통신도 가능합니다.

2. NextCloud(6) - Talk(2)



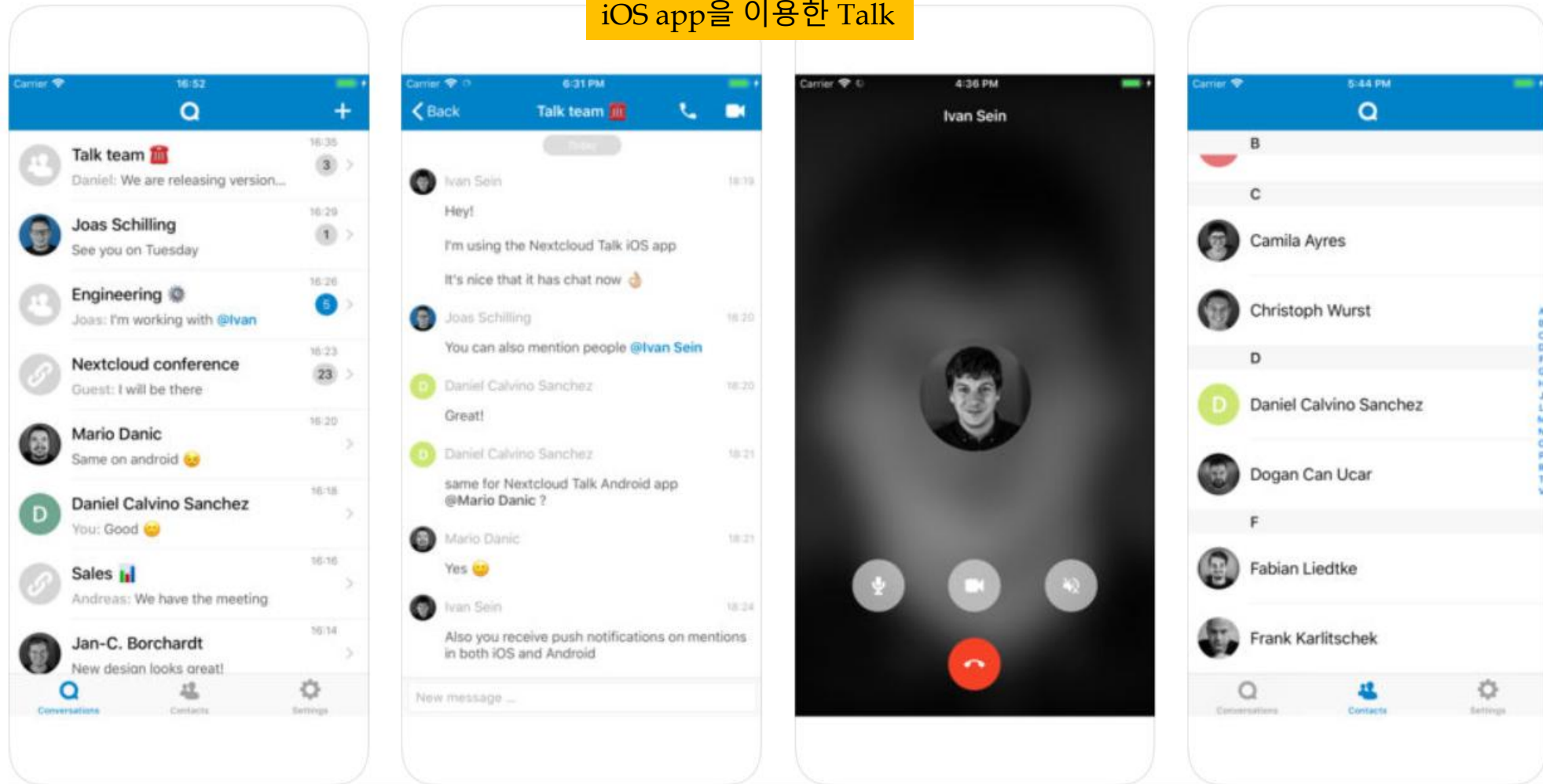
Android app을 이용한 Talk

파일도 올리고, talk도 할 수 있습니다.



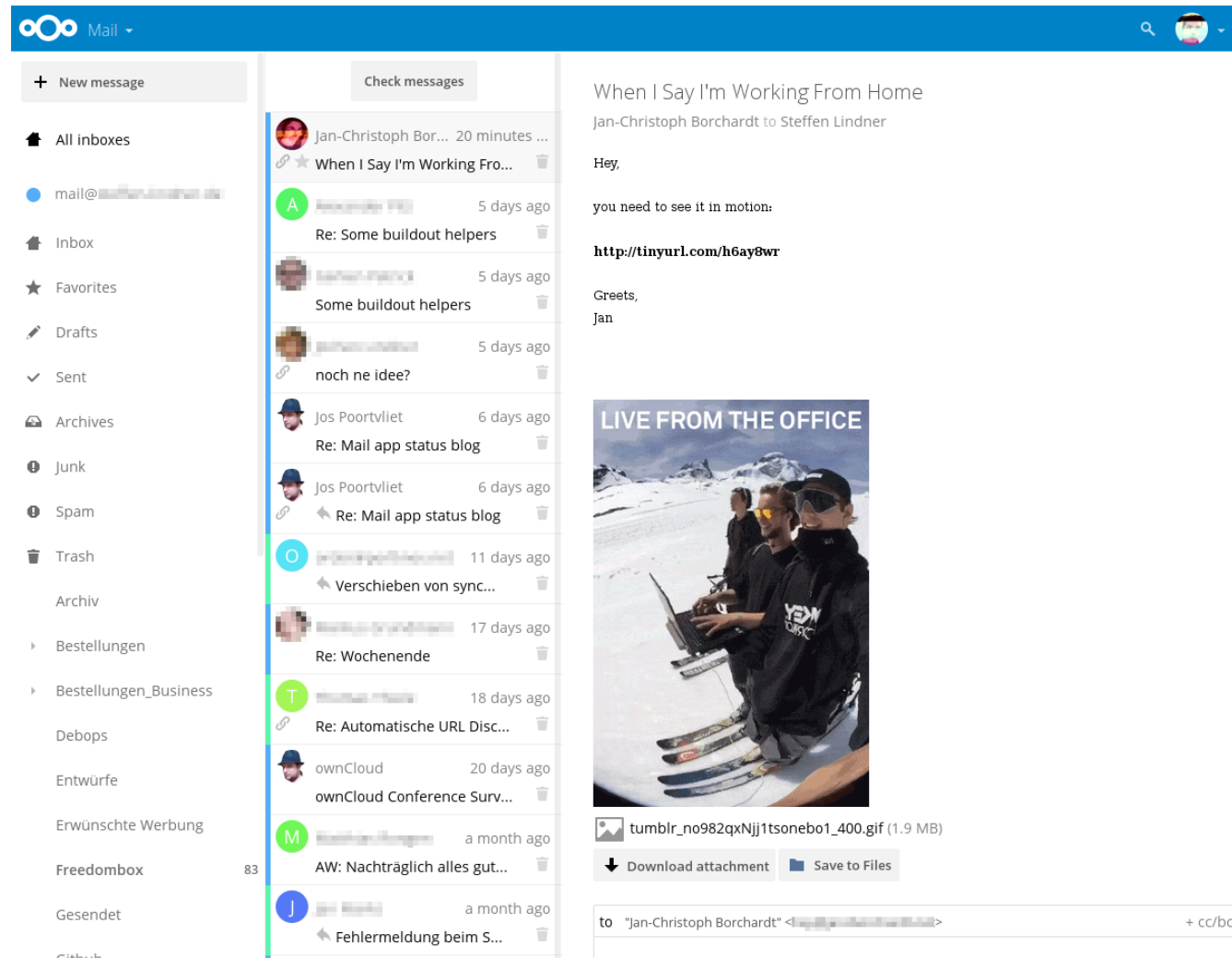
2. NextCloud(6) - Talk(3)

iOS app을 이용한 Talk



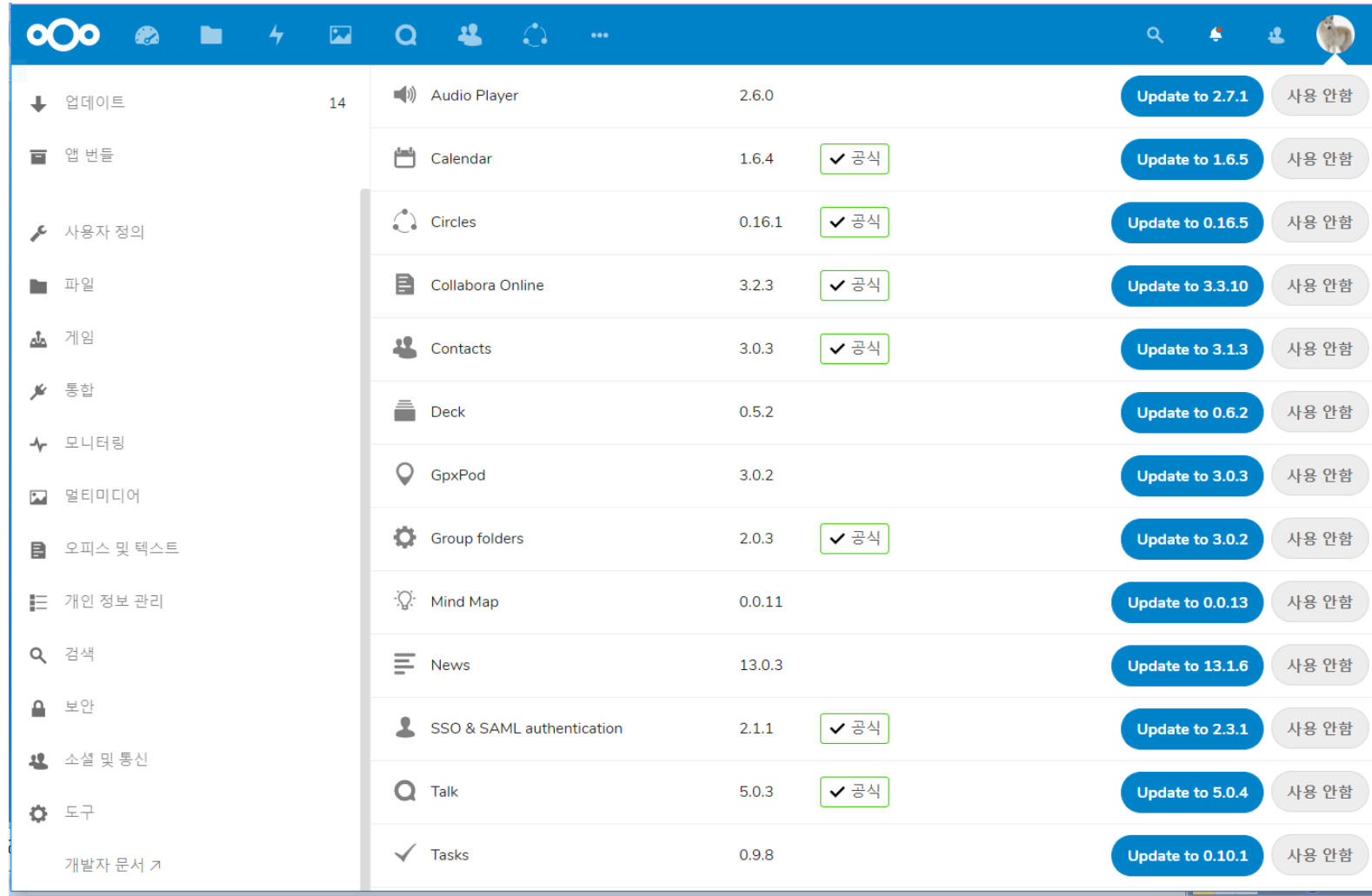
화상통화도 가능합니다.

2. NextCloud(7) - Mail



메일도 보내고 받을 수 있습니다.

2. NextCloud(8) – NextCloud Apps(1)



The screenshot displays the NextCloud web interface's 'Apps' section. On the left is a sidebar with navigation icons and labels in Korean. The main area shows a table of applications. Each row includes an icon, the app name, its current version, a status indicator (a green box with a checkmark and the text '공식' for official apps), an 'Update to' button with the target version, and a '사용 안함' (Disable) button. The top of the page features a blue header with the NextCloud logo and various utility icons. The bottom of the page has a footer with the text '개발자 문서' (Developer Docs).

업데이트	14	Audio Player	2.6.0		Update to 2.7.1	사용 안함
앱 번들		Calendar	1.6.4	✓ 공식	Update to 1.6.5	사용 안함
사용자 정의		Circles	0.16.1	✓ 공식	Update to 0.16.5	사용 안함
파일		Collabora Online	3.2.3	✓ 공식	Update to 3.3.10	사용 안함
게임		Contacts	3.0.3	✓ 공식	Update to 3.1.3	사용 안함
통합		Deck	0.5.2		Update to 0.6.2	사용 안함
모니터링		GpxPod	3.0.2		Update to 3.0.3	사용 안함
멀티미디어		Group folders	2.0.3	✓ 공식	Update to 3.0.2	사용 안함
오피스 및 텍스트		Mind Map	0.0.11		Update to 0.0.13	사용 안함
개인 정보 관리		News	13.0.3		Update to 13.1.6	사용 안함
검색		SSO & SAML authentication	2.1.1	✓ 공식	Update to 2.3.1	사용 안함
보안		Talk	5.0.3	✓ 공식	Update to 5.0.4	사용 안함
소셜 및 통신		Tasks	0.9.8		Update to 0.10.1	사용 안함
도구						
개발자 문서						

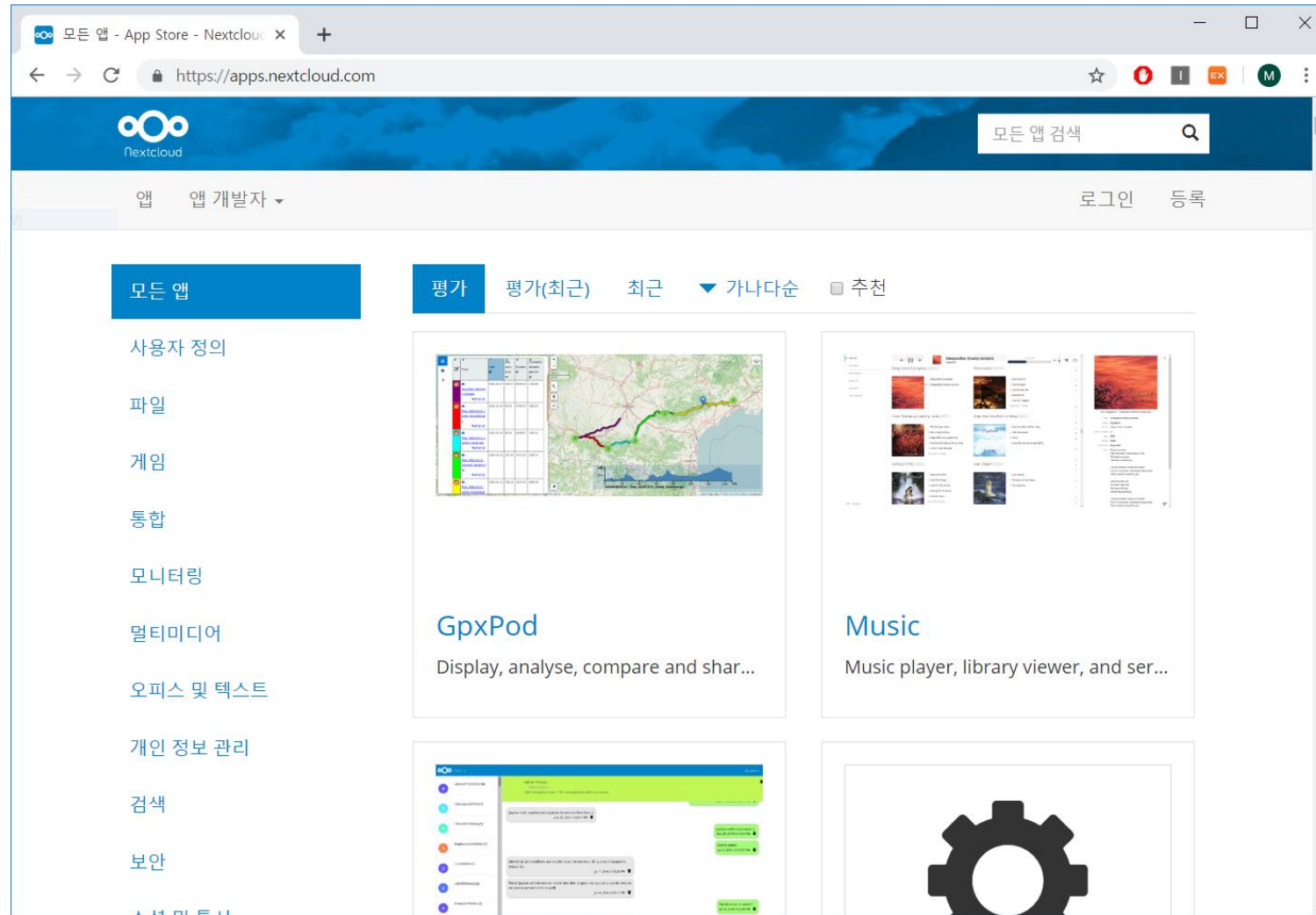
이 밖에도 다양한 app을 사용할 수 있습니다.

2. NextCloud(8) – NextCloud Apps(2)

The screenshot shows the NextCloud web interface with the following elements:

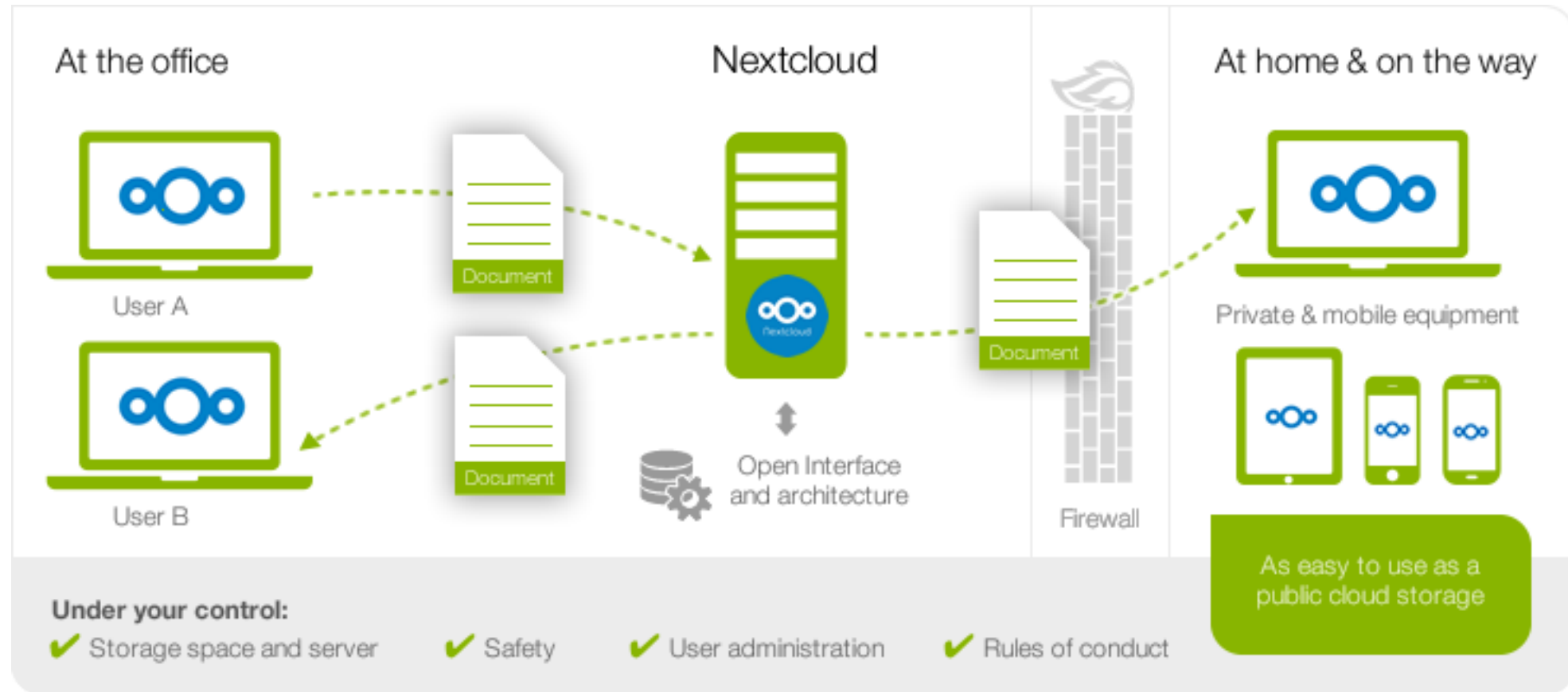
- Top Bar:** Contains icons for NextCloud logo, home, files, lightning bolt, image, search, users, and a menu.
- Left Sidebar:** Contains navigation links in Korean: 업데이트 (14), 앱 번들, 사용자 정의, 파일, 게임, 통합, 모니터링, 멀티미디어 (highlighted), 오피스 및 텍스트, 개인 정보 관리, 검색, 보안, 소셜 및 통신, 도구, and 개발자 문서.
- Main Content Area:** Displays six app cards in a grid:
 - Audio Player:** Preview shows a laptop and smartphone. Description: "Audio Player for Nextcloud and ownCloud". Rating: 4 stars. Buttons: "Update to 2.7.1" and "사용 안함".
 - GpxPod:** Preview shows a map with a green track. Description: "Display, analyse, compare and share GPS track files". Rating: 5 stars. Buttons: "Update to 3.0.3" and "사용 안함".
 - News:** Preview shows a list of news items. Description: "An RSS/Atom feed reader". Rating: 5 stars. Buttons: "Update to 13.1.6" and "사용 안함".
 - Talk:** Preview shows a video conference. Description: "Video & audio-conferencing using WebRTC". Rating: 5 stars, marked as "공식" (Official). Buttons: "Update to 5.0.4" and "사용 안함".
 - Camera RAW Previews:** Preview shows a file named "RAW_FUJI_FINEPIX_X100.RAF". Description: "Preview and show camera RAW files in Nextcloud/ownCloud". Rating: 4 stars. Button: "Download and enable".
 - DICOM Viewer:** Preview shows a medical scan image. Description: "Digital Imaging for Medicine". Rating: 5 stars. Button: "Download and enable".

2. NextCloud(8) – NextCloud Apps(3)



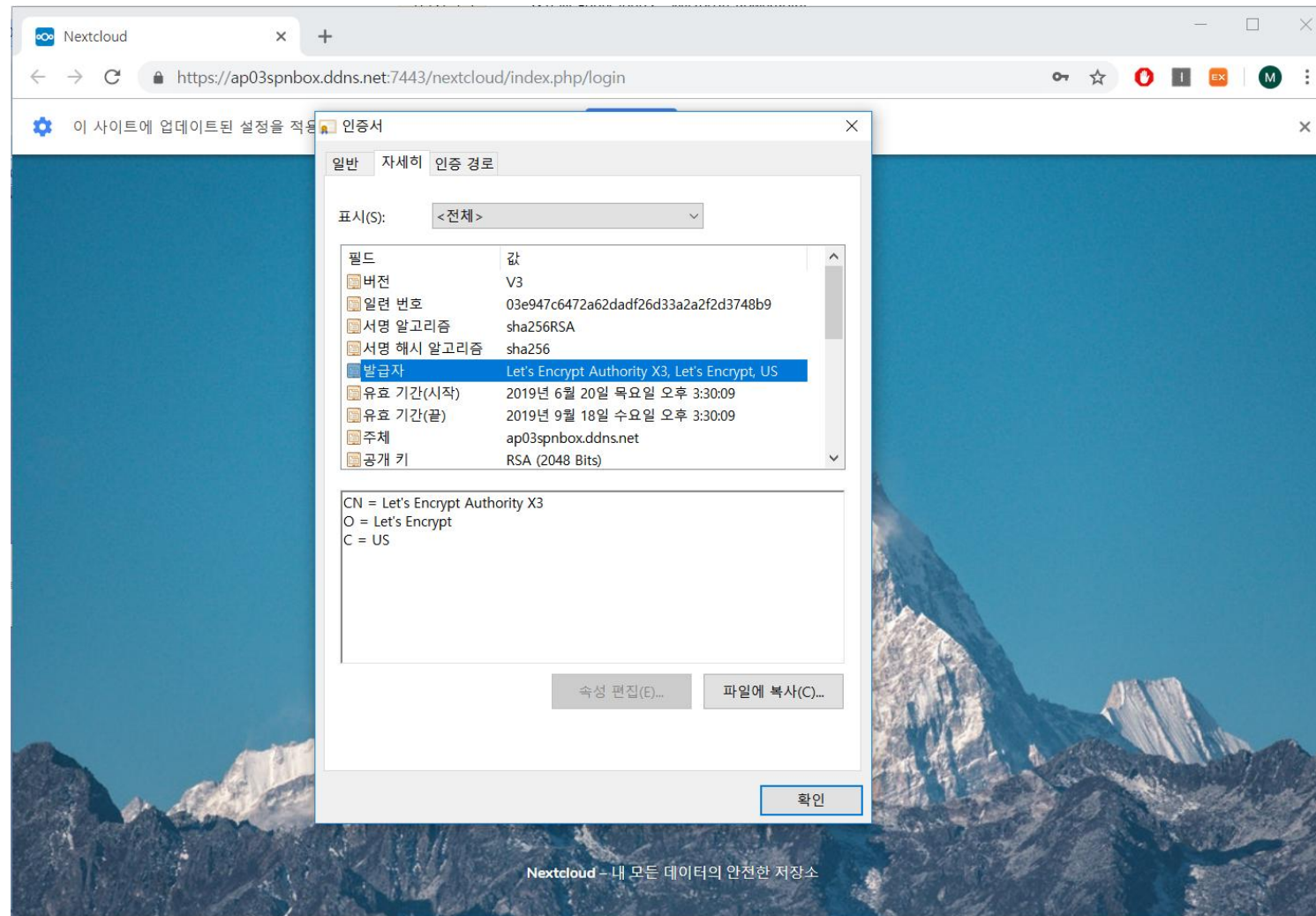
Google Play Store 처럼 nextcloud app store가 있습니다.

2. NextCloud(9) - 네트워크 구성






























NextCloud는 방화벽 안쪽에 안전하게 위치할 수 있습니다.

2. NextCloud(10) - 보안 통신




NextCloud는 Let's Encrypt(공인인증 기관)가 발급한 인증서(certificate)를 통해 상호 인증합니다.


2. NextCloud(11) - 경쟁 제품 비교

<div>Comparison - Nextcloud</div> <div>https://nextcloud.com/compare/</div>									
									
LICENSE	Open Source	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary
UNLIMITED STORAGE	✓	✓	✓	✓	Varies per plan	✗	Varies per plan	max 10 TB	✓
LARGE FILE SUPPORT	✓	✓	10GB	✓	5GB	10GB	20GB	✓	2G
SELF HOSTED/ON PREMISES	✓	✗	✗	✓	✗	✓	✗	✗	✓
CLIENTS									
MOBILE CLIENTS									
AUTO UPLOAD IMAGES/VIDEO	✓	✓	✓	✓	\$	\$	\$	✗	✗
DESKTOP CLIENTS									

3. Rocket.Chat(1)



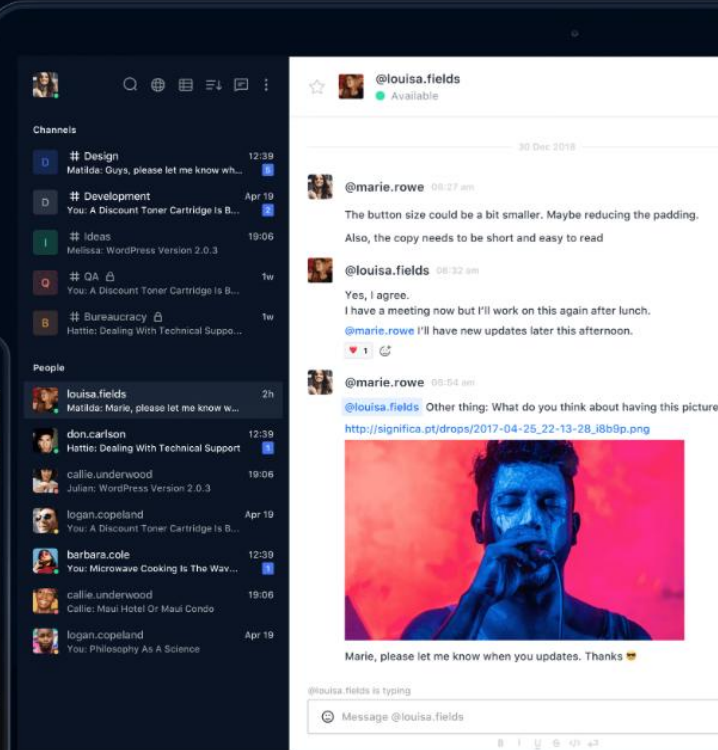
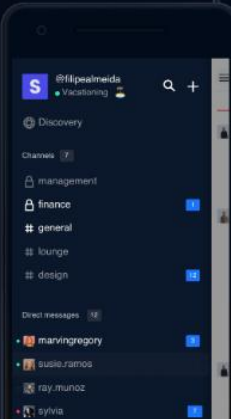
[Install](#)[Pricing](#)[Community](#)[Docs](#)[Blog](#)[Contact](#)[Try now](#)

Moving from Atlassian?  **Welcome to Rocket.Chat!**

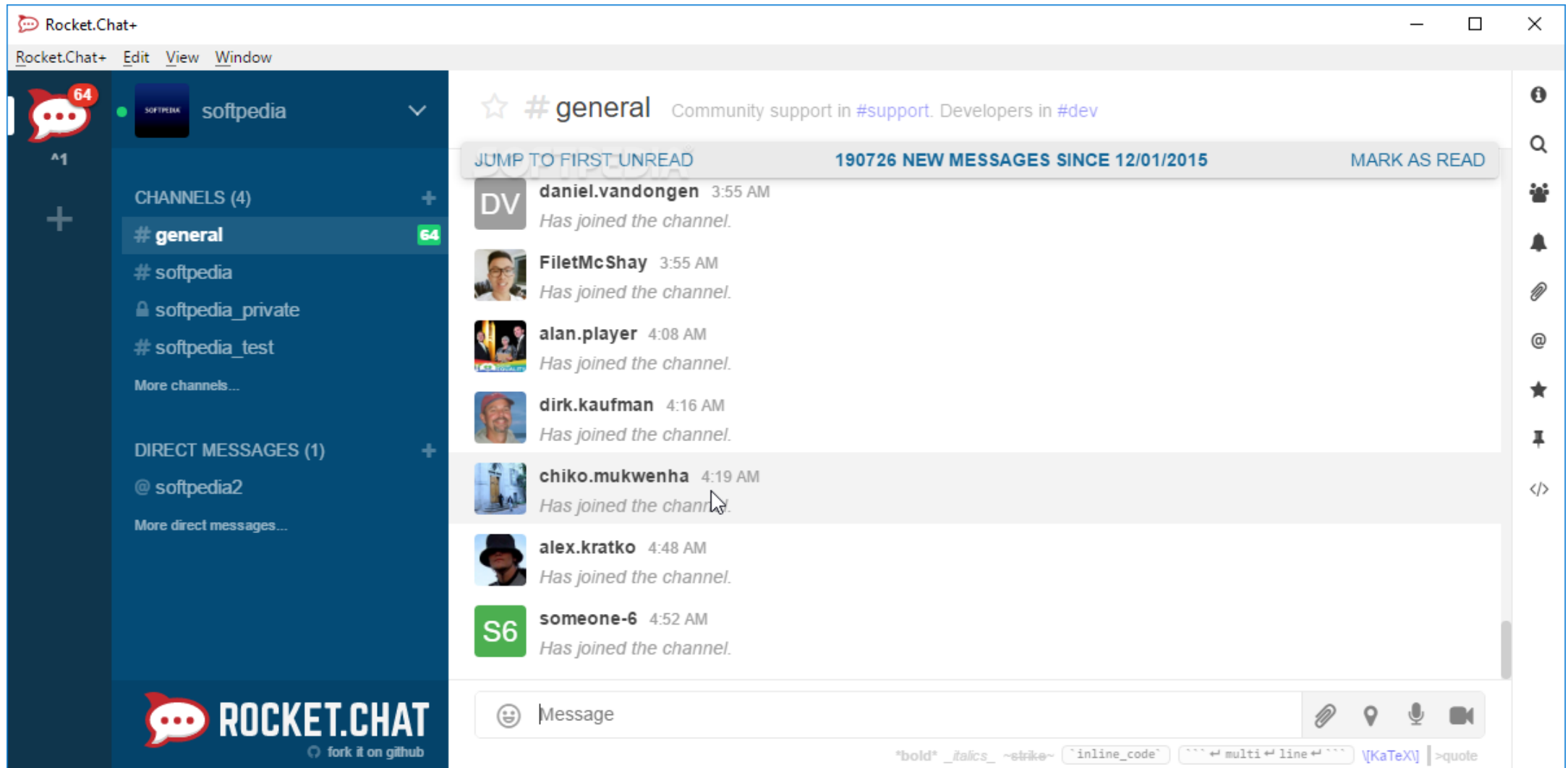
Open Source Team Communication

Rocket.Chat is free, unlimited and open source.
Replace email, HipChat & Slack with the
ultimate team chat software solution.

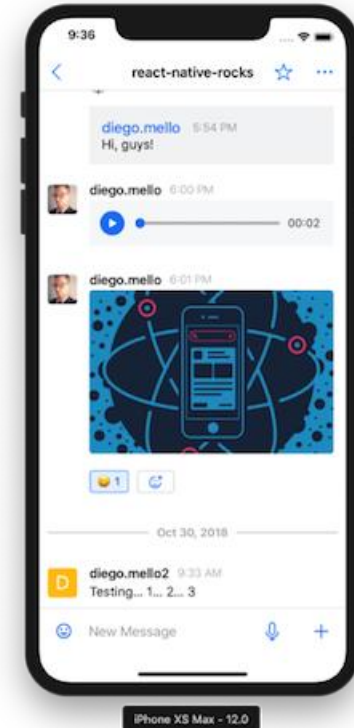
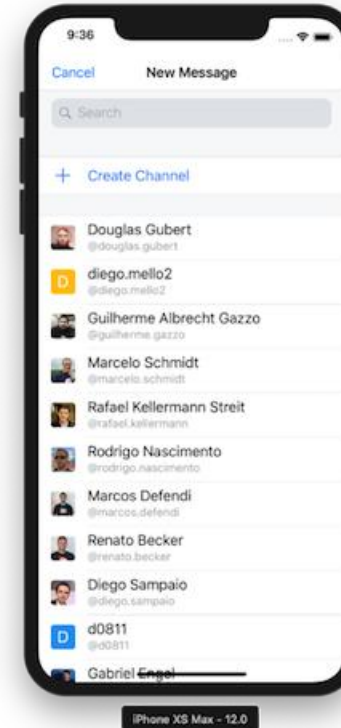
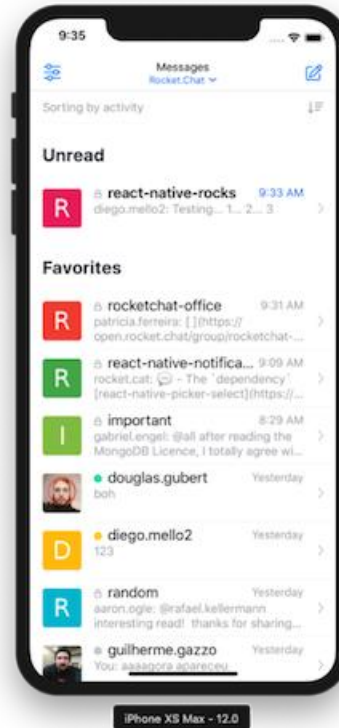
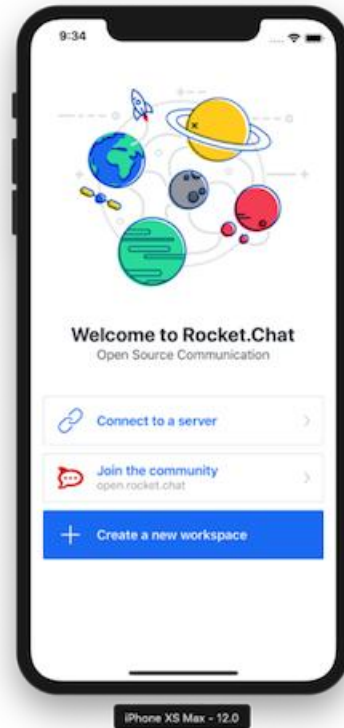
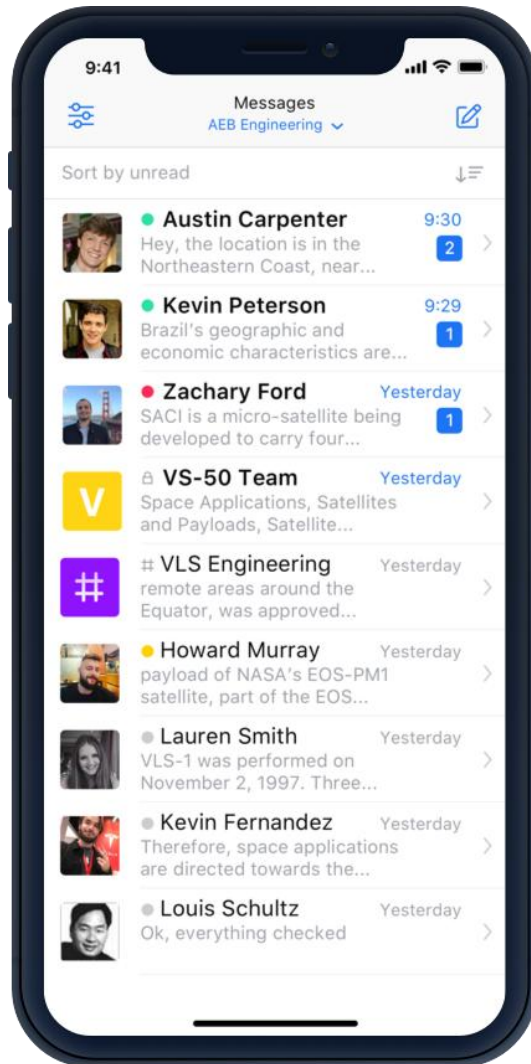
[Start cloud trial](#)[Install own server](#)



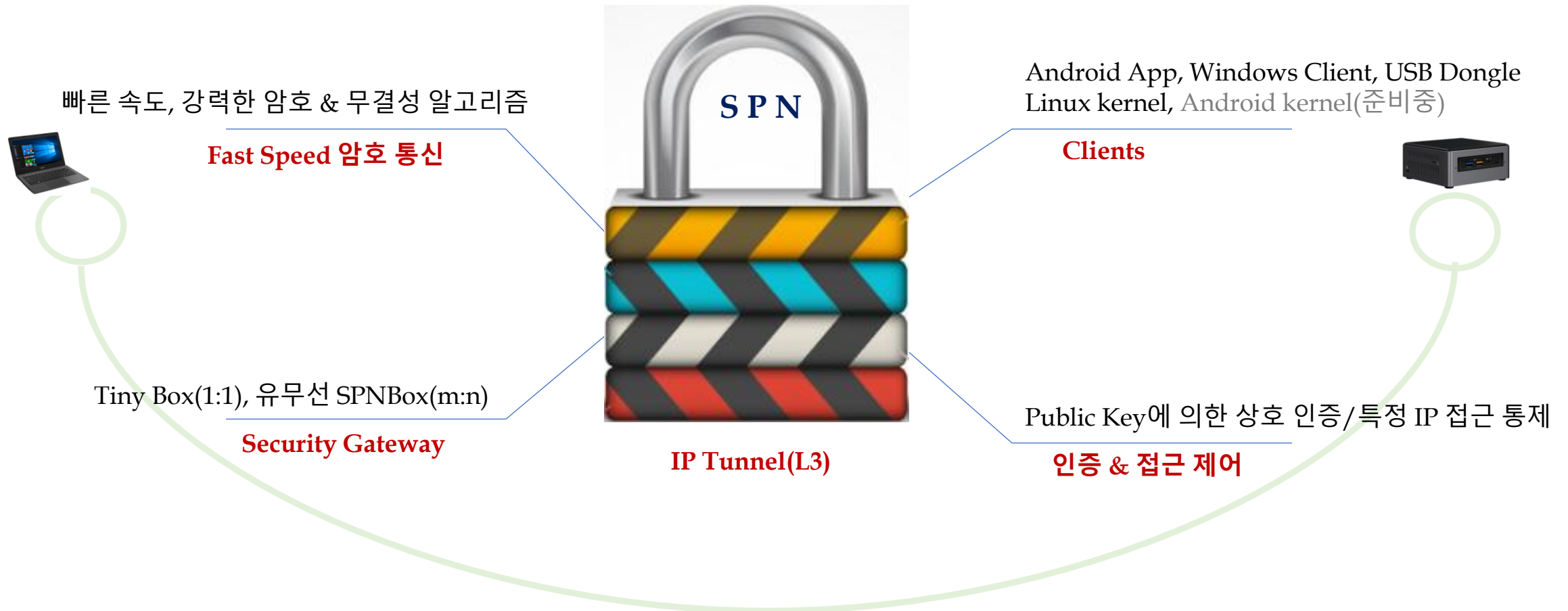
3. Rocket.Chat(2)



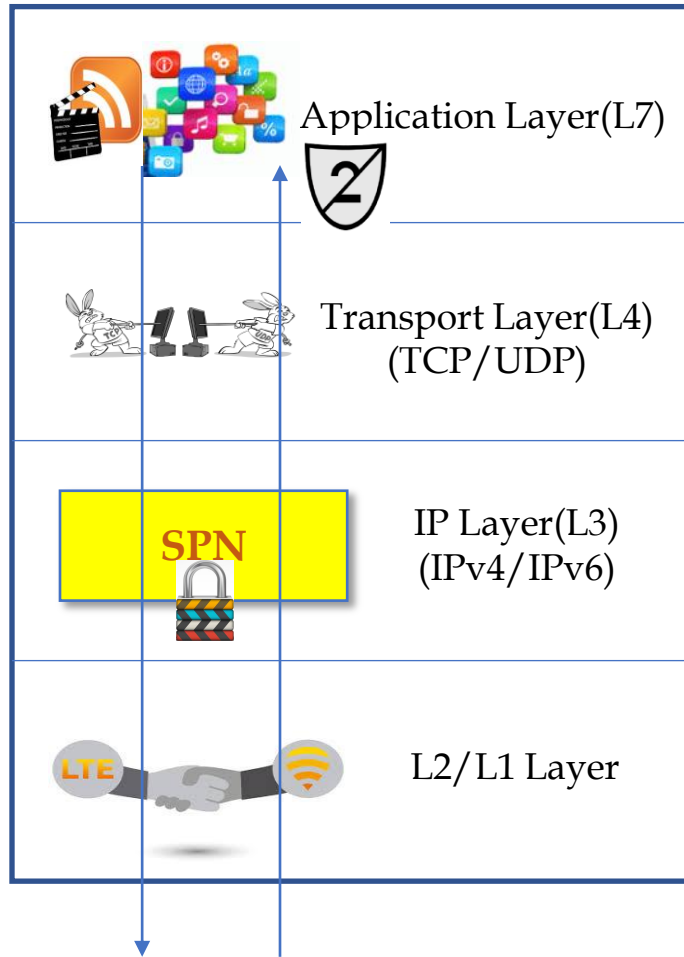
3. Rocket.Chat(3)



4. SPN S/W(1) - Overview

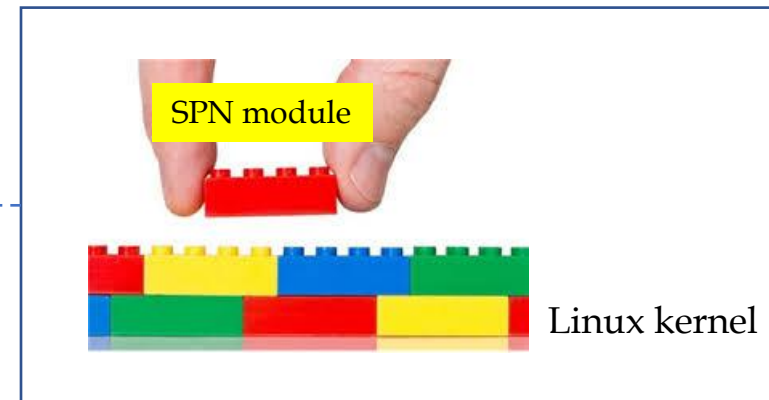


4. SPN S/W(2) - Architecture(1)

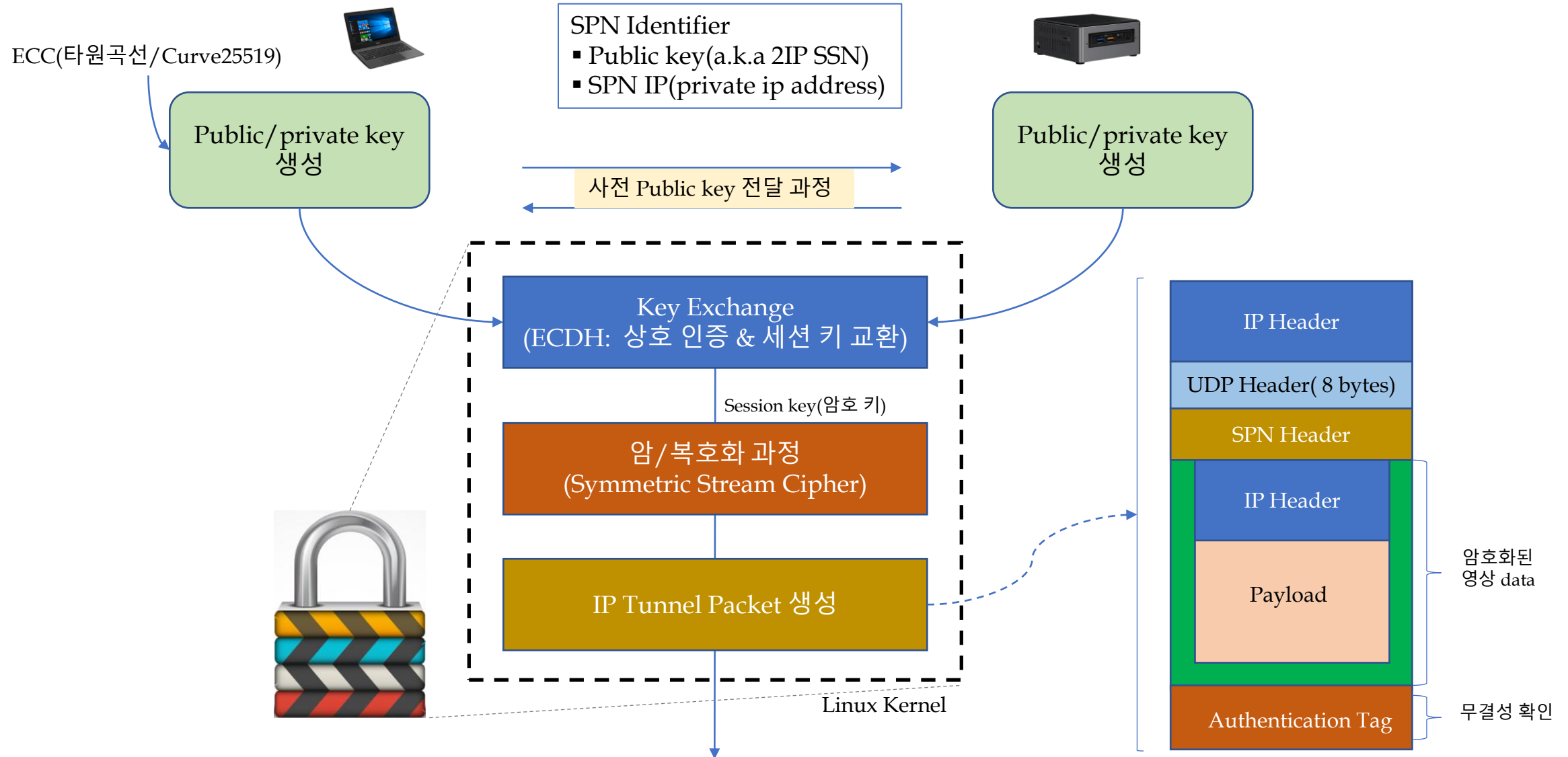


암호화된 패킷(Host mode)

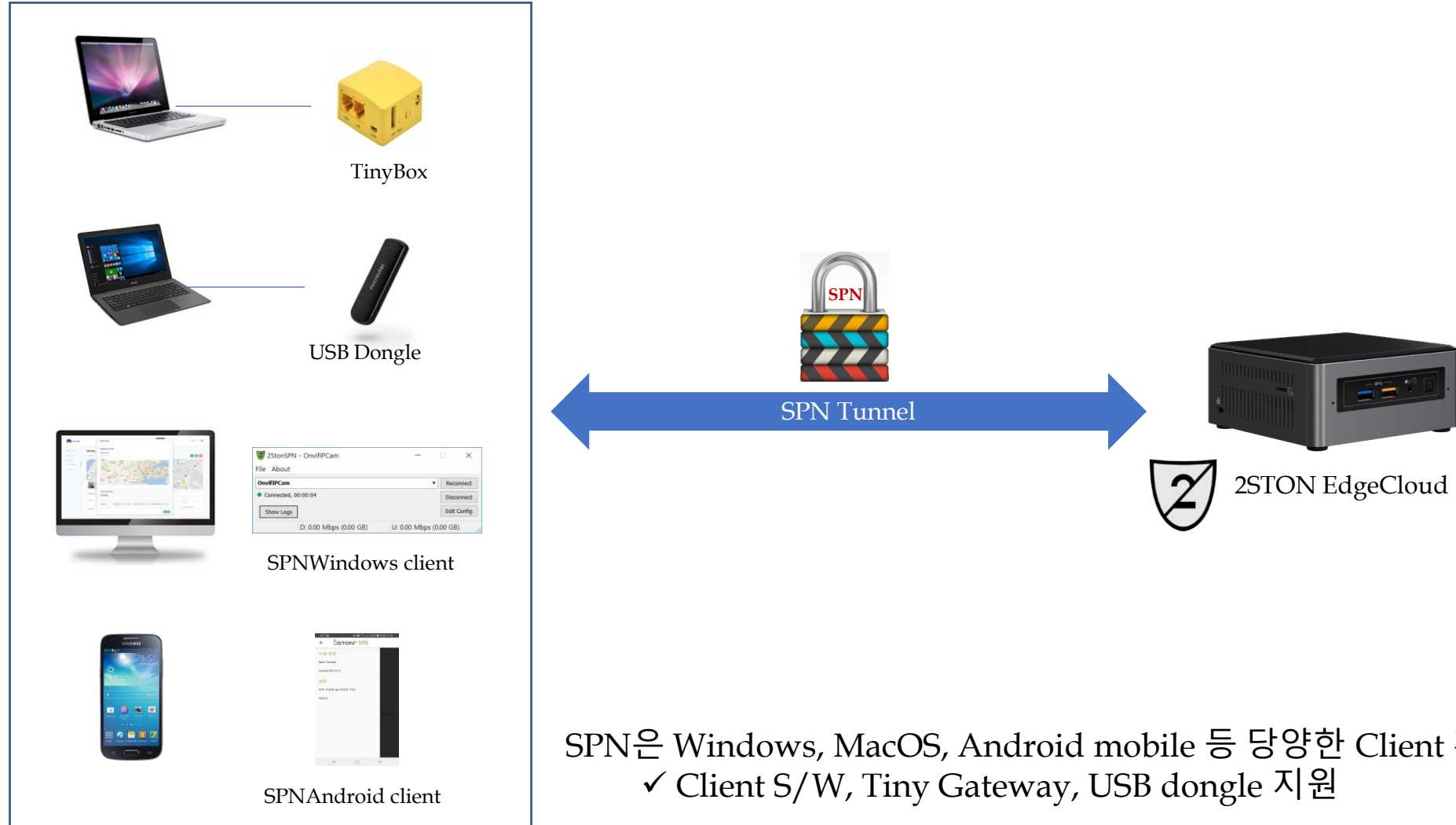
- 특정 Application에 대한 구분 없이 모든 TCP/IP 패킷에 대해 SPN 적용
- Application은 암호화를 위해 특별히 해야할 일이 없음.
✓ 하나가 있다면, target IP를 SPN IP로 지정해 주어야 하는 것 뿐임.
- 참고: SPN Kernel module을 제어(설정)하기 위한 별도의 Application 필요함.
- Linux kernel 수준에서 상호인증/키교환/암복호화 과정수행
- 이 모든 작업은 linux kernel에 최적화되어 있음(예: 암호 알고리즘은 Assembly로 구현)



4. SPN S/W(2) - Architecture(2)



4. SPN S/W(3) - Client S/W or TinyBox



SPN은 Windows, MacOS, Android mobile 등 다양한 Client 환경을 제공합니다.
✓ Client S/W, Tiny Gateway, USB dongle 지원

5. EdgeCloud Boxes(1) – Intel NUC



5. EdgeCloud Boxes(2) – Intel Celeron

← → ↻ <https://www.newegg.com/global/kr-en/intel-boxnuc5ppyh/p/N82E16856102141>

ALL PRODUCTS ▾ Keywords, Model # or Item #

Home - South Korea > Components > Barebone / Mini Computers > Mini-PC Barebone > Intel > Item#: 9SIA6ZP8K65294

Hurry Up
Eligible PC Gadgets Shipped for Free [Check It Out ▶](#)



Intel NUC NUC5PPYH, HDMI, VGA, Intel HD Graphics, USB 3.0

★★★★☆ (28) [Write a Review](#) [SHARE](#)

In stock. Ships from United States. Most customers receive within 8-18 days.

Sold and Shipped by [NothingButSavings.com](#) ⓘ




- Intel Pentium N3700 processor
- Intel HD Graphics
- DDR3L SODIMM, 1.35V, 1333/1600 MHz, 8GB maximum
- 802.11ac Wireless
- Internal support for 2.5" HDD or SSD
- SD Card Slot
- Consumer Infrared sensor



<https://www.newegg.com/global/kr-en/intel-boxnuc5ppyh/p/N82E16856102141>

5. EdgeCloud Boxes(3) – Intel Core i5

← → ↻ <https://www.newegg.com/global/kr-en/intel-boxnuc7i5bnh/p/N82E16856102179>



사각형 캡처(R)



Intel NUC (Next Unit of Computing) BOXNUC7I5BNH Black Barebone Systems - Mini / Booksize

★★★★★ (9) [Write a Review](#) [SHARE](#)

In stock. Ships from United States. Most customers receive within 8-18 days.
Sold and Shipped by [NothingButSavings.com](#)

CPU Type: Intel Core i5

Intel Celeron Intel Core i3 **Intel Core i5** Intel Core i7

Group: M.2 SSD / 2.5" HDD

2.5" HDD **M.2 SSD** **M.2 SSD / 2.5" HDD**

Option: Thunderbolt 3.0

N/A **Thunderbolt 3.0**

Memory installed: No Memory

16GB Optane Pre-Installed **No Memory**

- 7th Generation Intel Core i5-7260U
- 2.2 GHz up to 3.4 GHz Turbo, Dual Core
- 4MB cache, 15W TDP
- Intel Iris Plus Graphics 640
- 2 x 260Pin SO-DIMM DDR4 2133

2 New from ₩508,565

<https://www.newegg.com/global/kr-en/intel-boxnuc7i5bnh/p/N82E16856102179>


5. EdgeCloud Boxes(4) - Intel Core i7(1)


← → ↻ <https://www.newegg.com/global/kr-en/intel-boxnuc8i7hvk1/p/N82E16856102201>

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 **Intel NUC 8 Premium VR Capable Mini PC Kit NUC8i7HVK**

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- Intel 100W Core i7-8809G, 8M Cache, up to 4.20 GHz
- 2 x 260Pin SO-DIMM DDR4 2400+
- Unlocked & VR-Capable
- 2 x USB-C Thunderbolt 3 (USB 3.1 G2)
- 2 x HDMI 2.0a
- 2 x Mini-DP 1.2
- For Multiple Monitors

2 New from ₩1,237,869

http://shopping.interpark.com/product/productInfo.do?prdNo=5752123203&gclid=EAIaIQobChMI3b67jY3_4gIVGnZgCh2hwgB8EAQYAiABEgJ-W_D_BwE

5. EdgeCloud Boxes(4) - Intel Core i7(2)

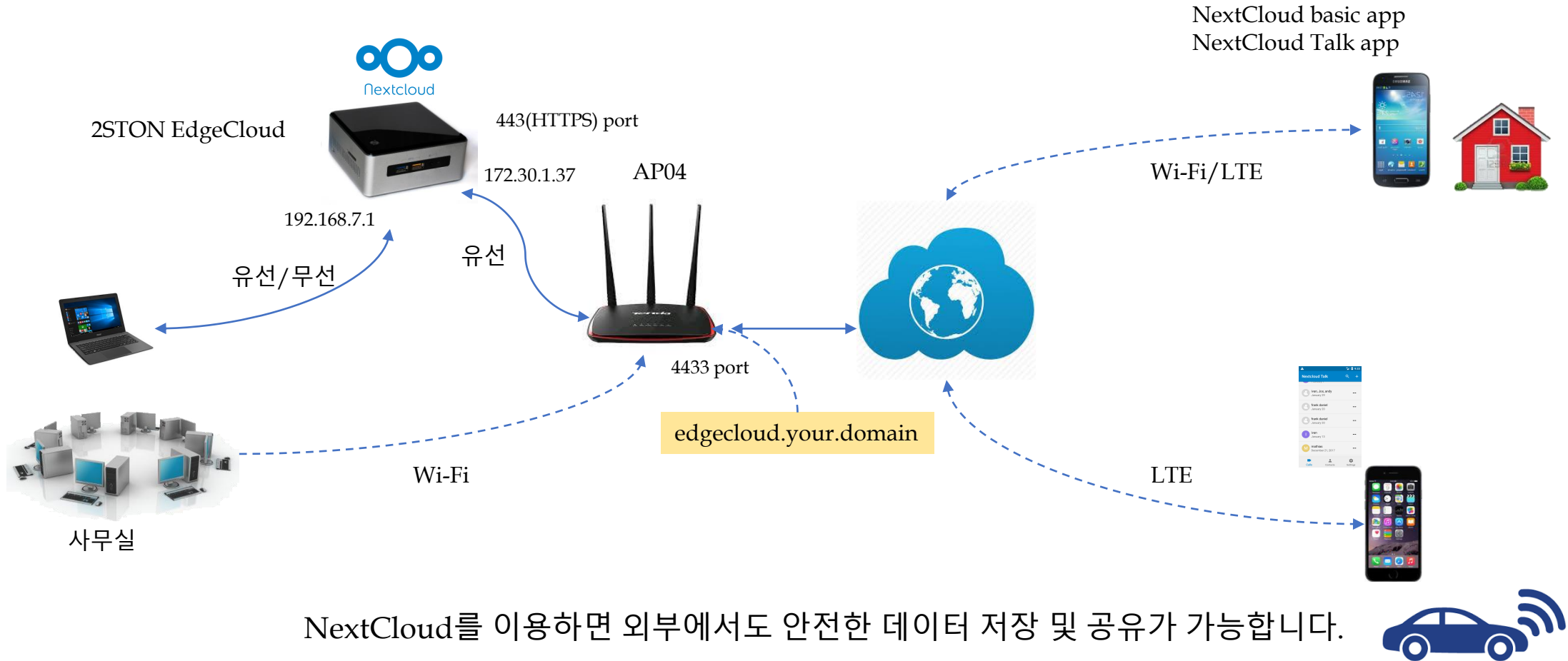
2018 Intel Hades Canyon NUC

Recorded on [Amazon USA](#) priced at **\$699.99**. Lowest ever!

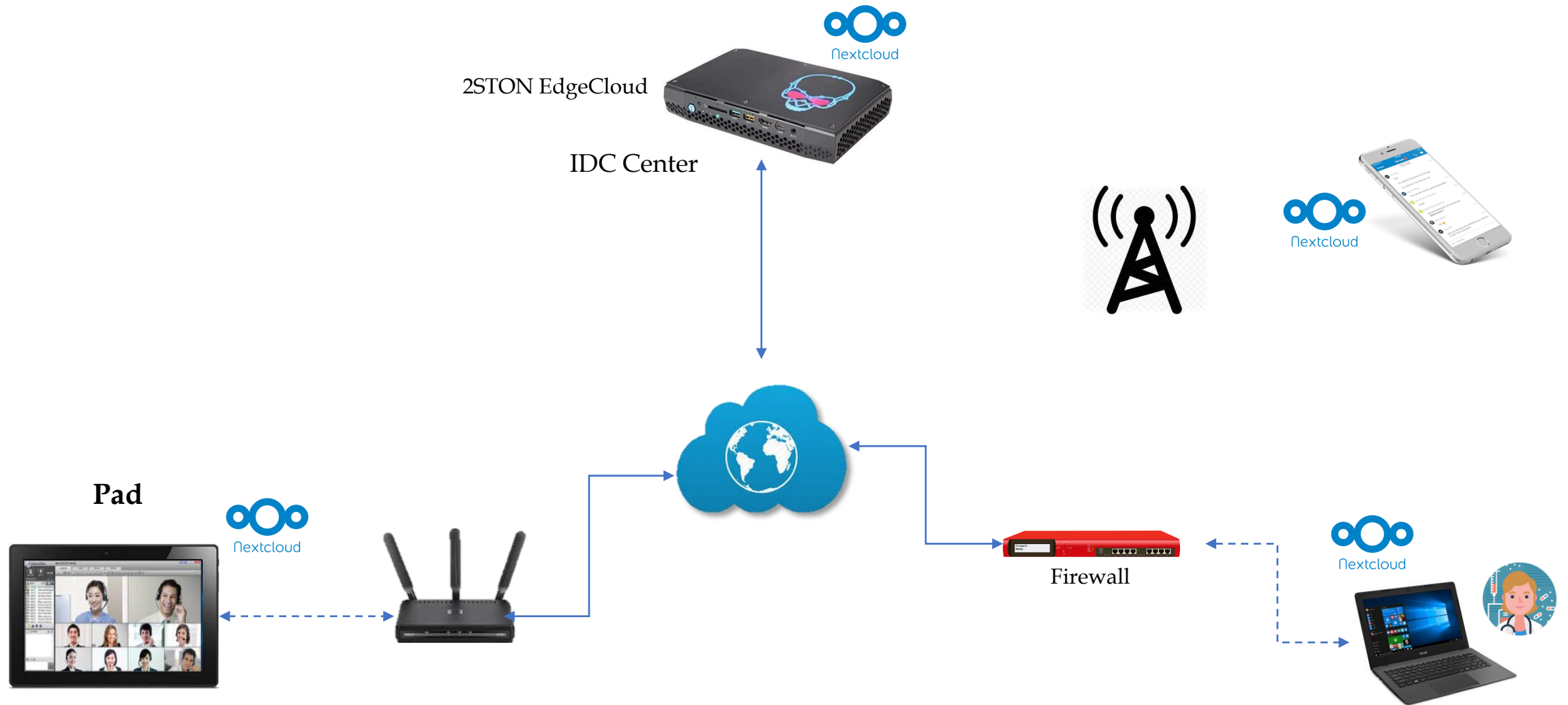
Intel has introduced the **NUC8i7HVK** follow-up to the [Skull-Canyon NUC](#), sporting an **i7-8809G** CPU+GPU. It's basically a 4-core processor (3.1GHz-4.2GHz), combined with AMD Radeon RX Vega M GH graphics (1.063GHz-1.19GHz) strapped with 4GB HBM2. And it is rated at 100W...yep, toasty.



6. Use Cases(1) - 파일 서버 & GroupWare

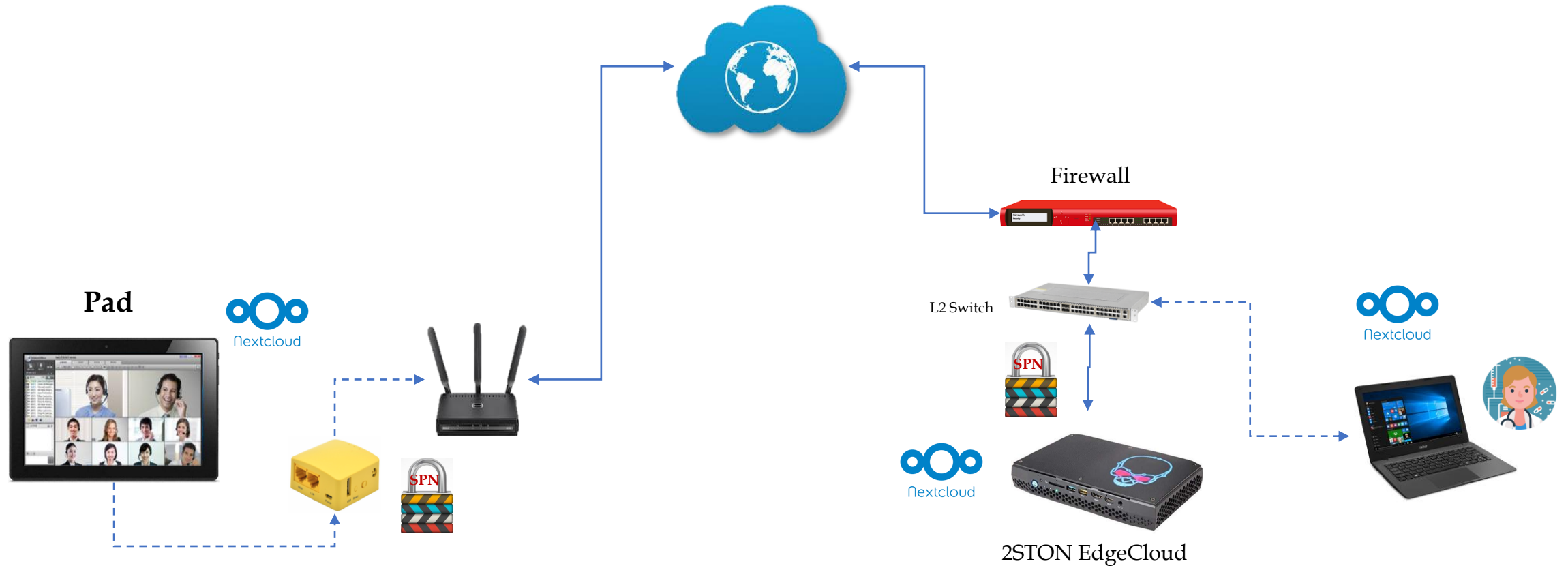


6. Use Cases(2) - 영상 통화(1)



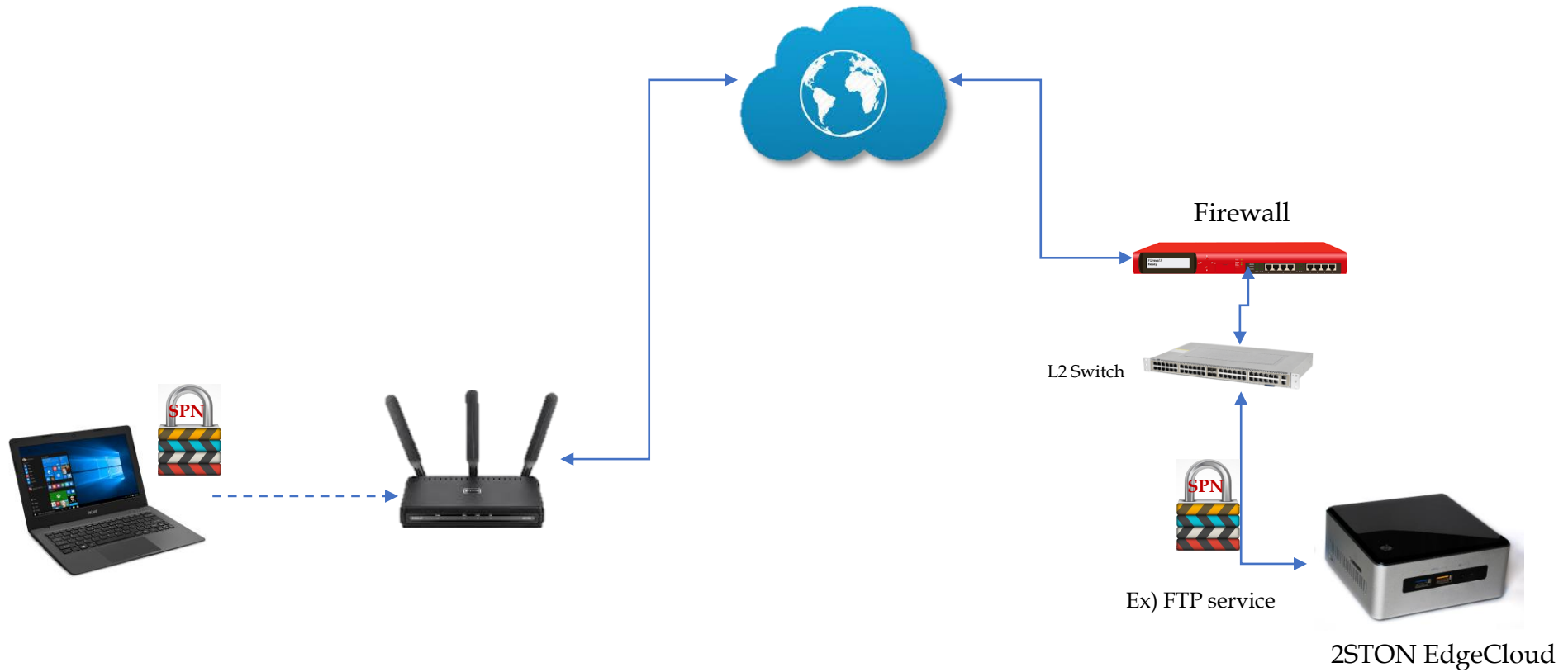
NextCloud를 이용하면 안전한 화상 통신이 가능합니다.

6. Use Cases(2) - 영상 통화(2)



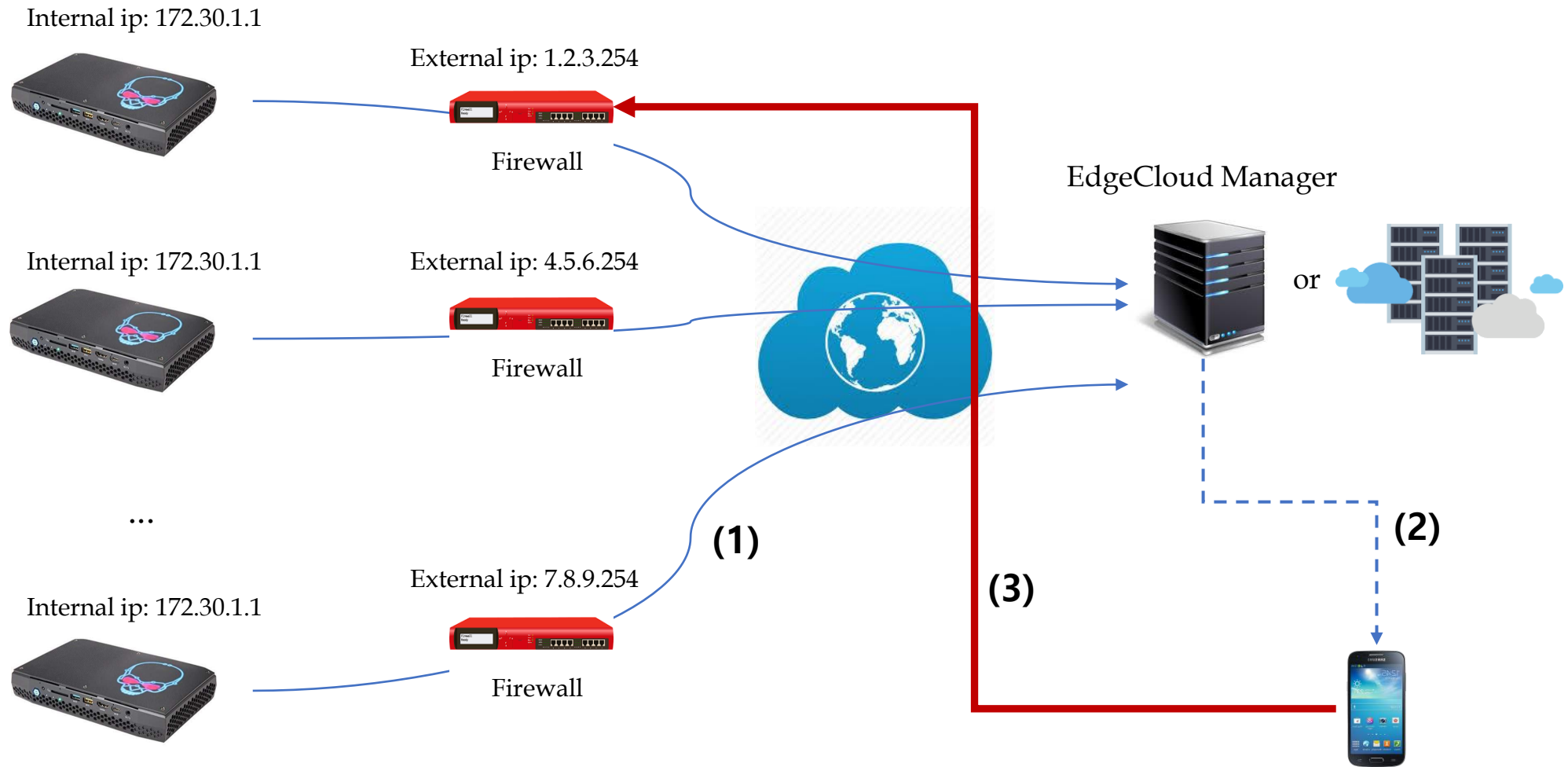
SPN을 사용하면 HTTPS 보다 안전한 통신을 할 수 있습니다.

6. Use Cases(3) - 비 NextCloud 서비스



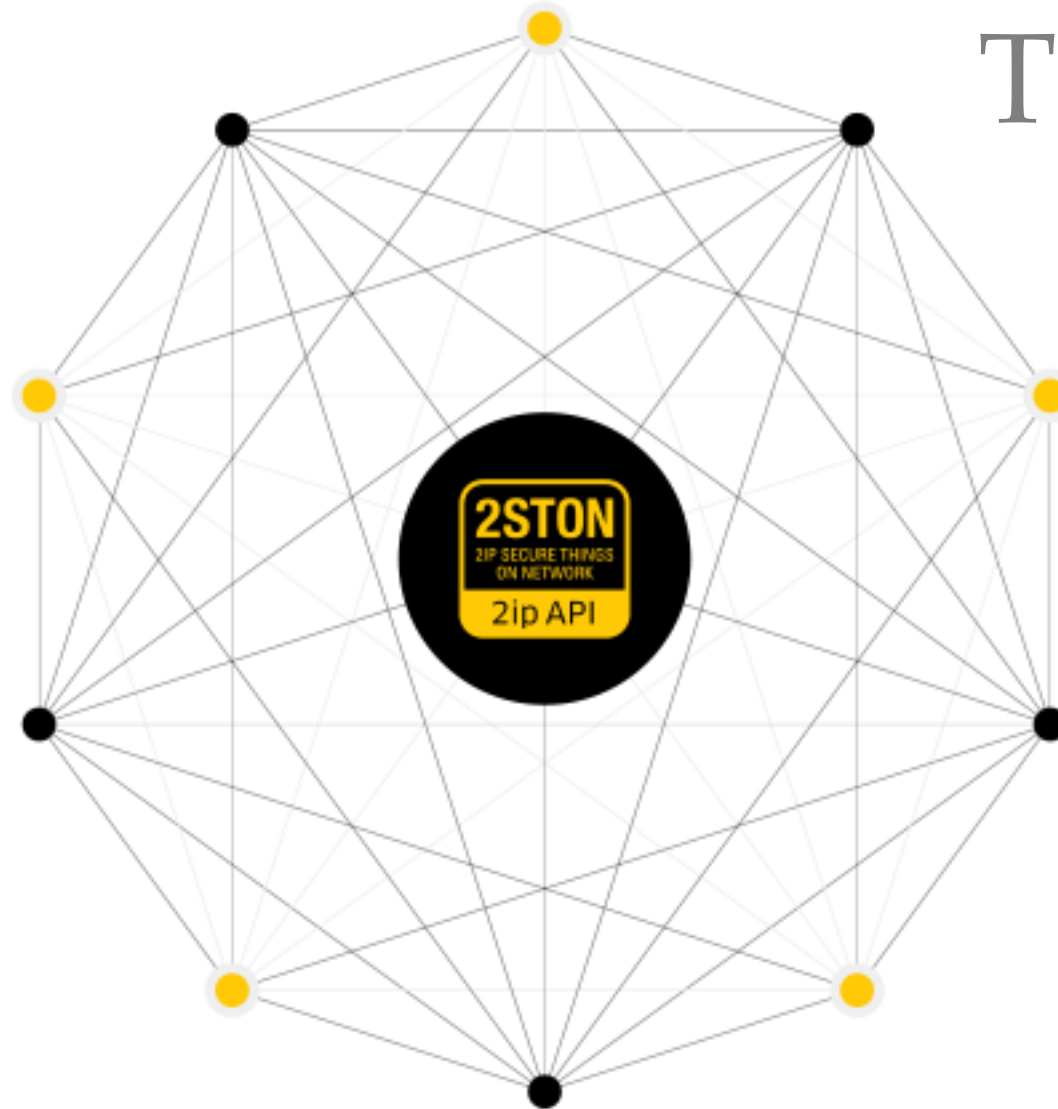
비 NextCloud 서비스의 경우는 SPN를 통해 안전하게 통신할 수 있습니다[기능 발굴해야 함].

6. Use Cases(4) - Multiple EdgeCloud(v2.0)



복수개의 EdgeCloud에 자유롭게 연결할 수 있습니다.

Thank You



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