Nextcloud
Enterprise

Nextcloud Talk

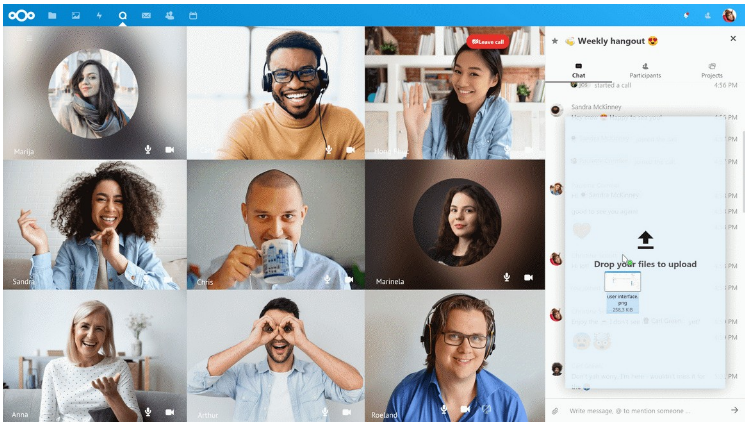
Product overview

Nextcloud Talk is a fully on-premise audio/video and chat communication service. It features Web and mobile apps and is designed to offer the highest degree of security while being easy to use.

Nextcloud Talk protects your communication better than other team collaboration platforms like Microsoft Teams or Slack, making sure your data stays on your servers. Nextcloud Talk goes further than other encrypted communication technologies by keeping even metadata from leaking. This ensures you stay in complete control of communications.

Capabilities

- Group and one-on-one calls
- Private and public web meetings
- Individual and group chat
- Easy screen and file sharing
- Mobile calls & chat push notifications
- Automatic video quality adjustments
- Encrypted calls
- Scaling to millions of users
- SIP bridge: dial in by phone
- Matterbridge integration, enabling the connection of Talk rooms to one or more channels on other services like IRC, Slack, Microsoft Teams and many more



Web meeting with 9 participants

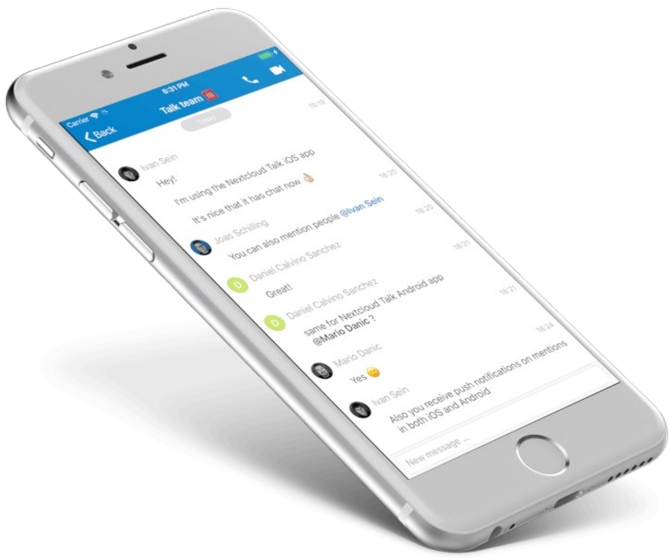
Benefits

- ✔ Super easy internal and external communication
- ✔ Fully on-premise, 100% open source
- ✔ No leaking of (meta) data to third parties
- ✔ Well integrated with Nextcloud Files and Nextcloud Groupware

Mobile and web interface

Our Nextcloud Talk mobile apps for iOS and Android make it possible to pick up calls either through the web interface or the Nextcloud Talk apps. Push notifications are also received on your mobile.

Nextcloud Talk makes it easy to call customers and partners in one-to-one or group scenarios, no matter where you are.



Enterprise ready

Dial-in anywhere

Let your participants join through their mobile phones or via Web client – wherever they are.

No limitations

Improved connectivity behind firewalls, restrictive networks and more participants per call.

Quickstart

With remote installation support from a certified Nextcloud engineer you're good to go!

Scalability

Nextcloud Talk High Performance Back end (HPB)

The Nextcloud Talk High Performance Back end offers large organizations the capacity, reliability and features enterprises need to conduct their business privately, securely and efficiently.

It consists of four separate applications running on one or more dedicated servers in need of a fast network connection:

STUN/TURN services to vastly improve connectivity through firewalls and restrictive networks.

WebRTC gateway to increase the number of participants in a call and handle moderation.

Conferencing signaling server to ensure instant notifications.

SIP bridge, allowing dial-in through a SIP provider (optional).

Multiple High Performance Back ends can be configured so that Nextcloud Talk can distribute the rooms on the HPB. Real server-side clustering is also possible, where users within the same room can connect to different High Performance Back ends which improves the overall scalability.

The Nextcloud Talk High Performance Back end installation and configuration is supported by Nextcloud consultants.

STUN/TURN server

STUN helps users connect through a typical NAT firewall during connection establishment.

TURN is for the “hard” case where the firewall keeps blocking communications. TURN sits between the clients and thus handles a lot of traffic. It needs a good internet connection and uses bandwidth proportional to the number of users.

WebRTC gateway

All incoming and outgoing media streams (audio/video/screen sharing) get routed through the WebRTC gateway’s Selective Forwarding Unit (SFU). Using a SFU saves bandwidth, especially upstream, by only sending and receiving media feeds to/from a single location (the gateway), instead of having to connect to every participant of the call via peer to peer.

Signaling server

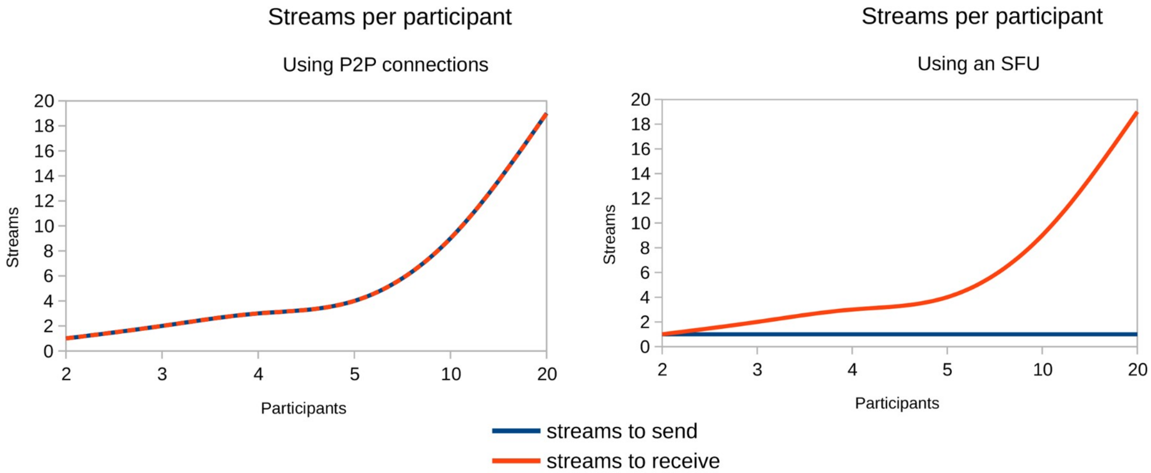
The stand-alone Signaling Server provides the communication back end for Nextcloud Talk, allowing the different clients to connect to each other, negotiate speed, who is talking or muted and other metadata. The Signaling Server allows the clients to use WebSockets for efficient communication with the server and instant notifications, rather than polling the server. This enables the Signaling Server to handle larger numbers of participants more efficiently than the PHP signaling back end built into Nextcloud Talk.

SIP bridge

The SIP bridge connects Nextcloud Talk to a SIP provider, either the provider already used by your organisation, a third party or one provided by Struktur AG as an option. It provides the mapping to the telephone network, allowing users to dial in to Talk meetings by phone. Each meeting room gets an ID which users have to enter when dialling in. The dial in workflow can be customized on request with different voices, languages, questions and key handling. This is an additional option.

Comparison

Peer-to-peer streams vs. using a SFU (Selective Forward Unit)



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Technical specifications

Minimum system requirements

- 8 GB RAM
- 4 CPU Cores i7/Xeon
- 32 GB free disk space (for caching, no data will be stored)
- Ubuntu Linux (LTS), 14.04., 16.04., 18.04, 20.04 (packaging for other Linux distributions possible)

Bandwidth requirements

Every stream per user is limited to 1 Mbit/s (audio/video) and 2 Mbit/s (screen sharing). This is configurable. Audio-only streams (without video enabled) use only about 50 kbit/s.

The calculation formula for the bandwidth is:

Backend server	Clients
up: 1 Mbit/s * participants * (participants-1) down: 1 Mbit/s * participants	up: 1 Mbit/s down: 1 Mbit/s * participants-1

Examples

	Backend server		Clients	
4 participants	up:	12 Mbit/s	up:	1 Mbit/s
	down:	4 Mbit/s	down:	3 Mbit/s
8 participants	up:	56 Mbit/s	up:	1 Mbit/s
	down:	8 Mbit/s	down:	7 Mbit/s
32 participants	up:	992 Mbit/s	up:	1 Mbit/s
	down:	32 Mbit/s	down:	31 Mbit/s

Example 1: Webinar
100 participants (1 video publisher, 99 audio streams)

1 Mbit/s incoming traffic to the server (publisher)
100 Mbit/s outgoing traffic (to the participants) or 300 Mbit/s when screen sharing is used (2 Mbit/s for the screen, 1 Mbit/s for the webcam)

Example 2: Multiple sessions
500 meetings in parallel, 3 participants each

1,5 Gbit/s incoming traffic to the server (every participant sends their stream)
3 Gbit/s outgoing traffic (every participant subscribes to two streams)

Example 3: Team meeting
One single meeting with 50 participants, everyone has enabled their video

50 Mbit/s incoming traffic to the server (every participant sends their stream)
2,45 Gbit/s outgoing traffic to the participants

Note: Each participant receives 50 Mbit/s, which would likely get to the limit of what most private internet connections can comfortably sustain. Video is disabled by default which decreases bandwidth use by factor 20 and would make this scenario far more likely to be smooth.

Security notes

The Nextcloud Talk High Performance Back end features industrial strength high-security. All communication is secured by digital certificates issued by a trust centre authority. The data is encrypted using modern state-of-the-art AES-256 encryption and 2048-bit secured key exchange.

The STUN/TURN and signaling servers do not have access to the contents of audio and video streams but are able to log meta data like the time, duration and IP addresses involved in a call. The WebRTC gateway has access to the unencrypted streams as it receives the streams to decrypt and re-encrypt them for the different recipients. The customer is advised to ensure adequate security protection for these servers.

Supported apps in Nextcloud Talk

Talk:	Audio/video and chat communication server and web interface

Supported client applications

Browser:	Google Chrome Mozilla Firefox Microsoft Edge
Mobile Apps:	iOS 12+ Android 5+