Open Call 3

fairteam
Deliverable 3: Experiment Results and Final Report

Authors	Roland Alton-Scheidl, roland.alton@fairkom.eu
	Andrea Plischke andrea.plischke@fairkom.eu
Due Date	30.06.2021
Submission Date	30.06.2021
Keywords	team feature, rocket.chat, open-source, work facilitation

Deliverable 3: Part I

Analysis, results, and wider impact

1. Abstract

Organizing objects or channels by teams is a common feature of workstream collaboration platforms. Rocket.Chat is a market leading and feature rich open source messenger. It offers various ways to cluster teams, such as federation between instances, grouping users in departments through omnichannel or tagging channels using the API. Within the fairteam project we will be testing in close cooperation with the Rocket.Chat development and UX team various functionalities and interfaces for assigning chat groups to teams.

2. Project Vision

Both the Rocket.Chat and fairkom team are players in the open source world and promote and live openness. Global and fair cooperation on a professional level is part of our common business ethics. We offer cloud based tools that can compete with closed source services and pave the way for organisations to escape from proprietary software usage by migrating to open source software stacks.

This usually consists of SingleSignOn identity management, a collaborative file, contacts and calendar suite and a powerful messenger. The open source messenger from Rocket.Chat is

an important tool to organize collaboration within organizations, institution, association, companies or privates. Through the NGI experiments, the fairteam would like to detect further user hassle in respect to team function, synchronization or roles and permissions. Thereby we deliver a contribution towards a better mapping of real working environment to the non-proprietary network.

Through the NGI initiative, the fairteam got the big opportunity to improve the transatlantic network and collaboration. This enables both sides to focus on individual strength, share work and benefit from the usage of available resources. In the frame of this experiments, our vision is to detect issues, find solutions, implement them as open source code and pass them on to the community. Millions of daily users of rocket.chat now benefit from the enhanced team feature, which we had specified and tested in this transatlantic project.

3.   Details on participants (both EU and US)

Company	Name	Position	Qualification	Experience
fairkom (Austria)	Dr. Roland Alton	CEO, Member of the board Project role: supervisor	IT professional with focus on management of open source projects, Lecturer at Vorarlberg University of Applied Sciences.	27 years
Fairkom (Austria)	Andrea Plischke	Project role: experiment management and documentation	Business Administration, Marketing and technical Sales expert	20 years
fairkom (Austria)	Armin Felder	CTO Project role: technical consulting, groups mapping in ID management systems	IT professional with focus on programming, large scale deployments, identity management systems	12 years
fairkom (Austria)	Dimitri Hofer	Project role: experiments coordination	Technical support Key Account Management	2 years
fairkom (Austria)	Christian Fischer	Project role: User Interface Design	UX specialist	11 years
fairkom (Austria)	Florian Koller	Project role: User experience evaluation	Business Administration	3 years
Rocket.Chat (US)	Sing Li	Chief Opportunities Officer Project role: supervisor	Open source software leader with focus on communication s platform innovation	35 years
Rocket.Chat (US)	Milton Rucks	Product manager of Rocket.Chat's team collaboration vertical	Product Manager	4 years

Rocket.Chat (US)	Rodrigo Nascimento	CTO Project role: core developer	Developer	14 years
Rocket.Chat (US)	Renato Becker	Product Manager B2C Customer Service Solutions Project role: supervisor	Product Manager Omnichannel B2C	15 years
Rocket.Chat (US)	Gabriel Engel	Rocket.Chat Founder Project role: approver	Developer	5 years
Rocket.Chat (US)	Tiago Paixão	IT Governance Manager Project role: resources collaboration & backlog management	Degree in system analysis, post degree in tech governance PMP, CSM, ITIL and Six Sigma certified Extension in innovation at MIT	15 years

4. Results

The initial plan was to conduct one round of experiments with two testbed partners, wechange and Energieinstitut. The Deliverable 2 describes the set-up, the implementation and the results of this first round of experiments in details. They were conducted in November 2020 - January 2021

During these experiments in round one, the fairkom team analysed various usability problems when working and communicating in multiple team contexts. We wanted to map the team semantics to open-source tools in use at the experiment partners. After an intense specification phase, the rocket.chat developer team was able to implement team channels for better collaboration with the RC 3.13.0 release in March 2021. Meanwhile, the new teams feature is also well documented on https://docs.rocket.chat/ as described below:
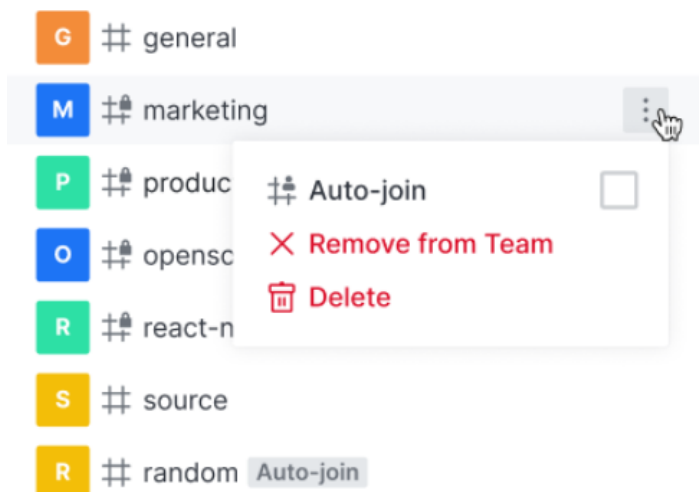
Teams
You can easily group your users as Teams on Rocket.Chat. The feature takes the hassle out of managing multiple users one by one and allows you to handle them at the same time efficiently.

- Teams can be public or private and each team can have its own channels, which also can be public or private.
- It's possible to add existing channels to a Team or create new ones inside a Team.
- It's possible to invite people outside a Team to join Team's channels.
- It's possible to convert channels to Teams
- It's possible to add all team members to a channel at once
- Team members have roles

Quickly onboard new users with Autojoin channels

Teams can have Auto-join channels – channels to which the team members are automatically added, so you don't need to go through the manual process of adding users repetitively.

Instantly mention multiple members at once (available in EE)

With Teams, you don't need to remember everyone's name to communicate with a team quickly. Just mention a Team — @engineers, for instance — and all members will be instantly notified."[1]

During the specification phase of the teams feature extension we have sent out an online survey to some power users to investigate further potential improvements and to see what kind of interoperability has to be looked at.

Experiments round 2

A second round of experiments was set in place to review the applicability of the release and post release testing End of April 2021.

Experiment partner *WECHANGE* has immediately after the availability of RC 13.3.0 tested the new team feature on their rocket.chat on premise instance. Users in WECHANGE are often members in several groups. The new team feature now offered a long desired way to group groups. As groups are managed flat on the WECHANGE portal, the new team channel feature now allows any team manager to easily add one level of membership. A flat group structure with one level of hierarchy is usually good enough for sociocratically governed teams, which is the default on the WECHANGE platform.

Experiment partner *Energieinstitut Vorarlberg* needs often to be able to add external users, who are not staff members to groups. This is now possible due to the oAuth sync feature in rocket.chat, which also works for teams. As both Rocket.Chat and nextcloud require users first to sign up, until they can receive chat messages or get a document shared with, we had to communicate that kind of process. They have not been fully satisfied and wish to have a more transparent way to create those shadow users as a background process. This issue is related to identity management and not specific to team handling. It is something we definitely will have a closer look even after the NGI atlantic project.

Screenshots and selected notes of the second round of experiments can be found in the appendix.

5.   Discussion and Analysis on Results

Making a service available for independent teams is usually happening at a mature level of a product stage. 2018 Rocket.Chat already supported federation of instances in 2019. This perfectly covered the use case of connecting chat groups between instances. Rocket.Chat
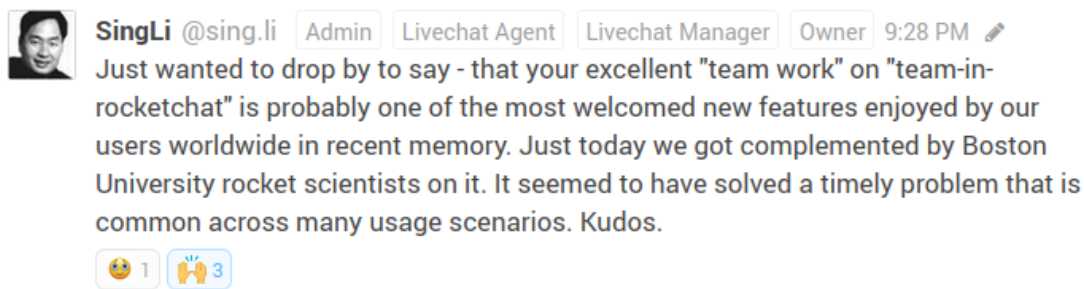
---

[1] https://github.com/RocketChat/Rocket.Chat/pull/20966, 21/06/24

introduced "discussions" in 2020, which allows to inherit team members of a chat group. However, within an organisation that used Rocket.Chat for internal and/or external communication, it was not possible to assign some chat groups to a team as well. Several options have been discussed in Rocket.Chat issue 658 since the very early stages in 2015, but none has been satisfying user expectations until we started to put a focus on this feature within this NGI Atlantic project.

We had started with an intense discussion phase on a dedicated group channel with the user interface and developer team at rocket.chat. Various use case scenarios have been analysed, integrating the feedback from the round 1 experiment of the NGI Atlantic project. When it got clear that additional coding was necessary a 30 pages specification document has been worked out, including screen designs and API definitions. The developer team could finally release a first version of the team feature in March 2021 with rocket.chat 3.13. Some minor improvements (e.g. pagination of channels to a team) have been added in subsequent releases. The response of the community was overwhelming, according to SingLi, Chief Opportunities Manager at rocket.chat.

SingLi @sing.li [Admin] [Livechat Agent] [Livechat Manager] [Owner] 9:28 PM ✏️
Just wanted to drop by to say - that your excellent "team work" on "team-in-rocketchat" is probably one of the most welcomed new features enjoyed by our users worldwide in recent memory. Just today we got complemented by Boston University rocket scientists on it. It seemed to have solved a timely problem that is common across many usage scenarios. Kudos.

😄 1   🙌 3

The round 2 experiments within the NGI Atlantic project also revealed that we were matching an important demand of organisations, especially with flat hierarchies and a high level of self-organisation of teams.

6.   Present and Foreseen TRL

We have been starting with a laboratory set-up to be classified as TRL 4 and were moving on to a TRL 5 simulation of a real world setting in the specification phase for the team feature. Experiment round 1 is to be classified as a demonstration of a relevant environment (TRL 6) whilst experiment round 2 is a system prototype demonstration in operational environment (TRL 7). After the completion of this project, we seem to be able to enter TRL 8 and qualify the results as system complete to be applied also in customer projects.

7.   Exploitation, Dissemination and Communication Status

Thanks to the Open Call of the NGI Atlantic.eu initiative, the partners had the opportunity to perform the previously described experiments. The positive and successful output is and will be exploited, disseminated and communicated as outlined below:

- **Press release of transatlantic cooperation:** fairkom and Rocket.Chat will communicate their transatlantic cooperation with a press release in their own communication channels.
- **Approved pull request** incooperating the experiment results was published in Github https://github.com/RocketChat/Rocket.Chat/pull/20966
- **Integration of team feature** in the community and enterprise version of Rocket.Chat
- **Internal tests** for detection of further agile working methods and features based on the experiment results
- **Work facilitation** (e.g. onboarding of new members) by exploiting the new team feature
- **Networking:** the wide range of NGI activities and workshops gave us several possibilities to connect to other institutions, companies and people.
- **Exploitation** opportunities as the team feature got an important feature set
- **Open** to the open-source community

Furthermore we would like NGI to support promoting the vertical integration of market leading open source framework to manage and synchronize teams. We expect nextcloud + Rocket.Chat + keycloak could be a feature-rich and hands-on open source stack combination. Therefore fairkom will offer the team feature as an extension to its portfolio of SaaS and consulting services.

8. Impacts

Impact 1: Enhanced EU – US cooperation in Next Generation Internet, including policy cooperation.

Through the NGI project, the fairteam project offered the great opportunity to create more trust in our mutual transatlantic work. We were able to deepen our technical cooperation. This can be recognized, for example, by the fact that we continue to report issues on GitHub. or submit pull requests to enhance the funtionality e.g. with SingleSignOn or the RocketChat app.

Furthermore, the fairteam cooperation was a door opener for a beginning exploration of opportunities in respect to commercial cooperation. We are discussing several business opportunities with our US partner and hope to work more closely together in future. fairkom for example is an expert in providing BigBlueButton and Jitsi services, such as installation, hosting or development of features. A BigBlueButton or Jitsi server can be configured as a

video conferencing tool in Rocket.Chat. We expect a closer collaboration in this field in future.

Regarding policy cooperation fairkom can offer Rocket.Chat hosting on its kubernetes Cluster to customers that need GDPR compliant hosting in the EU.

Impact 2: Reinforced collaboration and increased synergies between the Next Generation Internet and the Tomorrow's Internet programmes.

Collaboration is really critical for knowledge and data sharing as well as in advancing research. Our fairapps ecocystem allows for the seamless management of teams in different systems. For example, "circle admin service" allows the seamless self-management of teams in both nextcloud and Rocket.Chat. Moreover, an increasing number of governmental agencies and civilian organizations throughout the EU and US are already actively using Rocket.Chat for their own internal collaboration and communications needs. With the result of this experiment we contribute to improve the users' ability to collaborate with one another, explicitly or anonymously, across the US and EU, via the ad-hoc federation of Rocket.Chat servers and the dynamic formation of distributed teams.

Team work at its best results in a synergy that can be very productive. With the seamless amalgamation of Rocket.Chat & NextClouds circles and groups and keycloak as an IDM, a more productive ecosystem ensues, giving leverage to users to easily automate and manage communication between individuals and groups.

Impact 3: Developing interoperable solutions and joint demonstrators, contributions to standards.

With the current migration to automated, open and cloud-based services, the need for high levels of adaptability also emerges. This should enable users to adjust their networks and systems dynamically to address new services and other revenue opportunities. The vertical and horizontal integration of Rocket.Chat and NextCloud Circles brings about interoperability allowing for self-management of public, closed or hidden groups.

One major contribution of these experiments is the promotion and standardization of cloud-native architectures as well as multivendor interoperability which maximize the effects of automation.

Impact 4: An EU - US ecosystem of top researchers, hi-tech start-ups / SMEs and Internet-related communities collaborating on the evolution of the Internet

Rocket.Chat Ltd's engineering team has experience in creating secure and private messaging platform for team collaboration over the last 5 years. Rocket.Chat also has expertise in

deployment, tuning, and adaptation of such systems over diverse network and hardware topologies from the smallest Raspberry Pi deployment to large cluster of distributed servers servicing millions of global users. Project management staff in Rocket.Chat has accumulated experience in managing large projects involving globally distributed teams. During the hottest phase of this NGI Atlantic project, Rocket.Chat raised a Series A funding of $19M in February 2021. The evolving team feature probably was an important asset in convincing the investors.

fairkom is running its own server infrastructure, virtualized with KVM and partially containered with Docker and on a high availability and scalable kubernetes cluster. In 2018, we have made part of our favorized open source tools, which we use for internal communication and customer coordination available as a public service with the brand "fairapps". All services are available via fairlogin, our identity provider for Single-Sign-On based on keylcoak. On fairapps.net, we are offering a suite of open source based solutions, available for testing or for free for any inteersted, and offering packages or integration to existing IT infrastructures. Working with the maintainers as we did within this NGI Atlantic of great open source projects is indeed a USP when talking to potential customers.

9.   Conclusion and Future Work

The collaboration between fairkom and Rocket.Chat was a great success. The NGI Atlantic program allowed us to focus on enhancing team funtionalities, which can be considered as mature and production ready at the end of this project. Experiemnts in two round with two committed partners helped us to define the use cases and refine requirements. A (originally not foreseen) specification and implementation phase helped to bootstrap and present the features really needed. The feedback both from the experiment partners and customers was good and they make already heavily use of the team feature implemented into RocketChat and available since the March 2021 release 3.13.

Future work will be on fine tuning the Team channels mapping for various IDM scenarios. Currently we have been looking at keycloak and oAuth, but we may be confronted with other settings when it comes to real world deployments at customers.

During our meetings with Rocket.Chat we have identified also potential new fields for collaboration. fairkom is hosting a Jitsi Meet cluster and offers white labelled video conferencing services. Rocket.Chat is in need of a partner, who offers that kind of service independently of 8x8.com (maintainers of Jitsi Meet). We agreed to continue talking on potential collaboration on this service element, that can be easily integrated into RocketChat. Furthermore, as fairkom is also an active maintainer of BigBlueButton, we will be looking into making this second video conferening tool a better user experience for rocket.chat users.

Besides the above mentioned experiments and outputs we have taken advantage of the wide range of opportunities within the NGI networt. We have attented the NGI Tetra boot camp in March 2021. Thanks to the camp we could gather and improve our ideas and bring them on a higher level. This process is still ongoing due to the boot camp coaching sessions we were offered.

10. References (optional)

- NGI Atlantic program https://ngiatlantic.eu/
- fairkom Homepage: https://fairkom.eu/
- WECHANGE platform: https://wechange.org
- Energieinstitut chat (internal or on invitation only): https://chat.energieinstitut.at
- keycloak documentation: https://www.keycloak.org/documentation.html
- nextcloud Homepage: https://nextcloud.com/
- Rocket.Chat Homepage: https://rocket.chat/
- Rocket.Chat   Documentation https://docs.rocket.chat/guides/user-guides/teams/teams-channels
- wechange platform https://wechange.de/cms/?lang=en
- Alton, Roland (2019): Jugendapp Chat - Technical Architecture Scenarios. Internal working paper on implementing team functionality for jugendarbeit.digital using Rocket.Chat.

11. Glossary (preferably in tabular form like below)

|	
5G	Fifth Generation (mobile/cellular networks)
NGI	Next Generation Internet
R&D	Research and Development
SaaS	Software as a Service
SDN	Software Defined Networks
TRUST-IT	TRUST-IT (Project Partner)
VNF	Virtual Network Function
WIT	Waterford Institute of Technology (Coordinating Partner)

Appendix
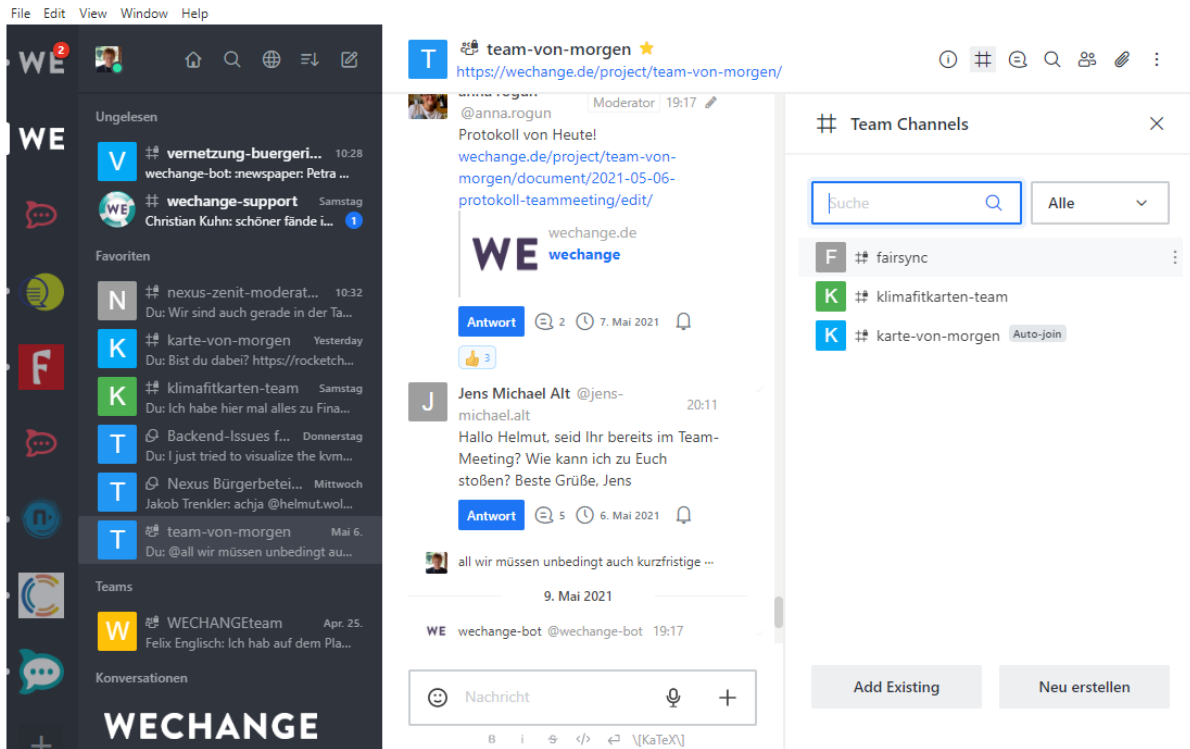
Experiment partner WECHANGE, 2nd round of experiments: using the new team feature -> different channels were allocated to a team
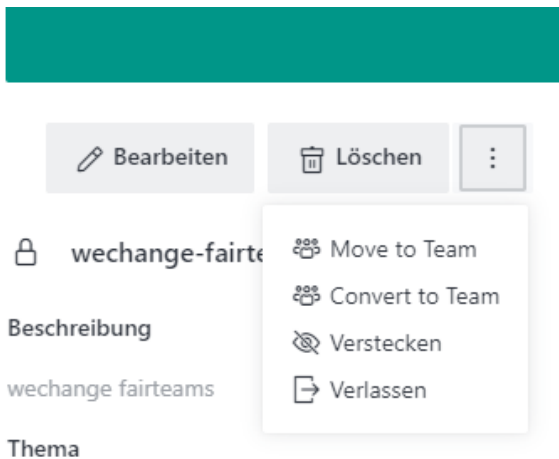
Experiment partner WECHANGE, 2nd round of experiments: converting channels into a team
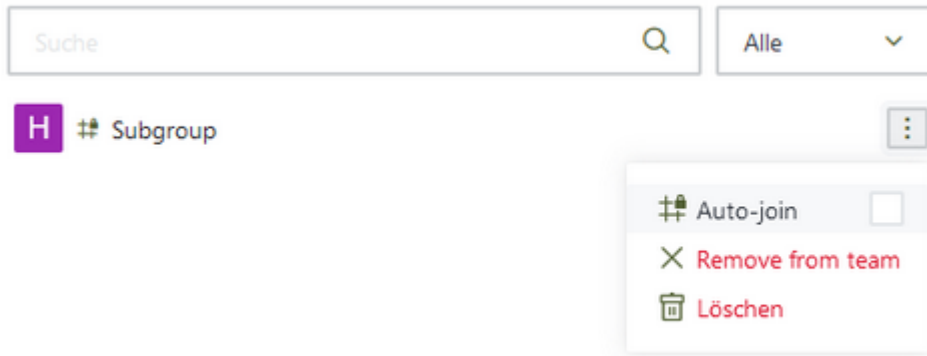
Experiment partner WECHANGE, 2nd round of experiments: auto-join possibility in channel setting

Experiment partner Energieinstitut: Team handling will be one of the next issue in future