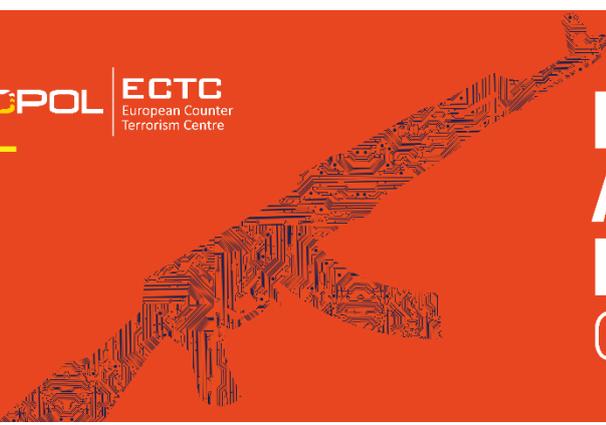


# Islamic State group's experiments with the decentralised web

CONFERENCE PAPER

 **EUROPOL**

**ECTC**  
European Counter  
Terrorism Centre



**ECTC**  
**ADVISORY**  
**NETWORK**  
CONFERENCE

---

AUTHOR  
**Peter King**

---

This paper was presented at the 3<sup>rd</sup> conference of the European Counter Terrorism Centre (ECTC) Advisory Network, 9-10 April 2019, at Europol Headquarters, The Hague. The views expressed are the authors' own and do not necessarily represent those of Europol.

# Peter King

Peter is an Arabic-speaking independent consultant who has been investigating the exploitation of the internet by jihadist groups and their supporters for well over a decade. In 2004, he pioneered the systematic research and analysis of online jihadist media for the British government and went on to lead a dedicated team of experts in the field at the BBC.

A version of this report was published by BBC Monitoring in March 2019.<sup>1</sup>

<sup>1</sup> Peter King, "Analysis: Islamic State's experiments with the decentralised web", BBC Monitoring Insight, 22 March 2019, <https://monitoring.bbc.co.uk/product/c200page>.

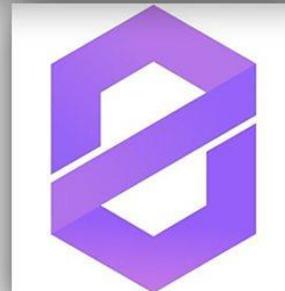
# Contents

<b>First experiments</b>	5
<b>RocketChat</b>	5
<b>ZeroNet</b>	6
<b>Riot</b>	7
<b>Moving on from Telegram?</b>	8
<b>Limitations of decentralised platforms</b>	8

Islamic State (IS) group media distributors have stepped up their experimentation with the so-called decentralised web since late 2018, finding solutions to the problem of online resilience as they face a more intensive clampdown on their favoured platform, Telegram.

The decentralised web gives users more say about where their data is stored, avoiding reliance on the big Internet gatekeepers like Google and Facebook. It is built on network infrastructure that is more resilient against censorship and surveillance and poses additional challenges to law enforcement agencies, restricting their ability to remove content.

Decentralised platforms like RocketChat and ZeroNet have proved attractive for IS media operatives, as the developers of those platforms have no way of acting against content that is stored on user-operated servers or dispersed across the user community. This contrasts with social media giants like Facebook and Twitter and messaging apps like Telegram - all with centralised data stores - which actively target content and accounts associated with jihadists. Telegram itself became popular with jihadists back in 2015 as it offered greater resilience than other platforms. But it stepped up its actions against jihadist content in 2018, culminating in an intense purge of accounts in December that year. This appears to have prompted the latest experiments with decentralised platforms as potential alternatives.



*RocketChat, Riot and ZeroNet have all been used to spread IS content*

In August 2019, over eight months after the IS-affiliated online distributor Nashir News Agency first advertised channels on the decentralised RocketChat platform, IS propaganda was still being disseminated there. Despite a week-long outage in late March 2019, apparently caused by a distributed denial of service (DDoS) attack, the propaganda stream run by IS media operatives using RocketChat technology has since been operating more or less unhindered.

But there is little sign that IS media operatives are ready to abandon Telegram yet in favour of more resilient decentralised platforms, which remain less user-friendly and have a far smaller audience reach.

## First experiments

IS first experimented with the decentralised web in mid-2014 when it was facing a major clampdown by Twitter - the platform of choice for online jihadists at the time.<sup>2</sup>

Shortly after IS declared its “caliphate” in June 2014, the group set up a series of official accounts on three low-profile decentralised platforms - Friendica, Diaspora and Quitter.

But crucially, the jihadist group failed to take advantage of features enabling users to privately host their own installations of the platforms, choosing instead to set up accounts on the platforms’ default servers or servers run by third parties.

This meant IS’s presence on the three platforms remained vulnerable, with accounts on Friendica and Quitter shut down within days. Although accounts on Diaspora survived for longer, they were deactivated within a month after they were used to disseminate a high-profile beheading video of a Western hostage.

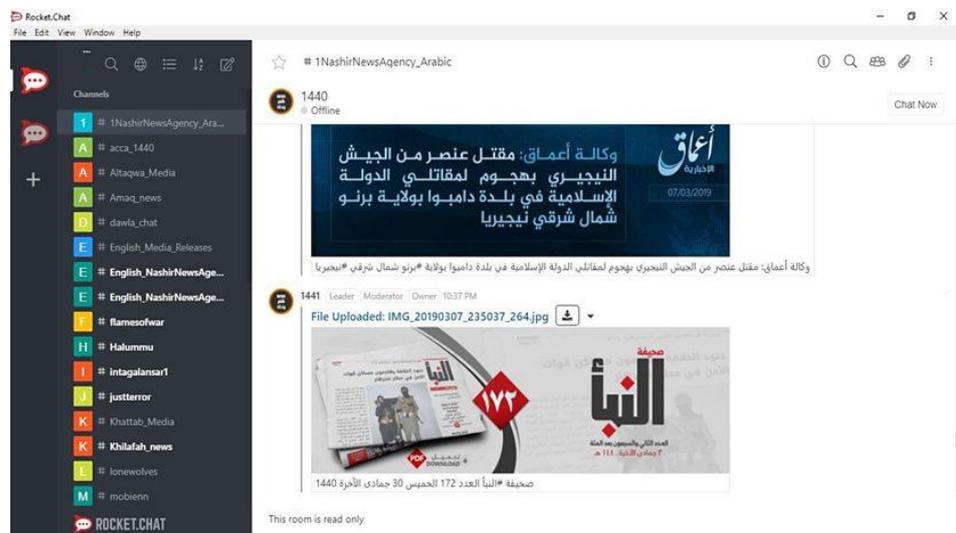
Nashir News Agency and IS’s self-styled “news agency” Amaq made the same mistake three years later, in September 2017, when they set up accounts on another decentralised social media network - Riot.

Instead of setting up their own Riot chat server, the media operatives used the platform’s default server (matrix.org), which deactivated the accounts within a day.

## RocketChat

IS media distributors appeared to have learnt these lessons by the time they next experimented with the decentralised web in late 2018.

Soon after Nashir News Agency announced that it had set up its own RocketChat channels on 14 December, it became clear that media operatives associated with IS were using their own privately-hosted instance of the online collaboration tool.



Nashir News Agency distributes IS propaganda via RocketChat

<sup>2</sup> It also tried setting up a network of accounts around the same time on the mainstream Russian social media platform VKontakte, although these were shortlived.

Supporters were directed to register on a RocketChat server calling itself TechHaven whose directory of channels showed that it was being used almost exclusively for hosting pro-IS content, indicating that IS supporters were almost certainly in control of the server.

While the TechHaven server does not explicitly state that it supports IS, its English-language user guide hints at its jihadist affiliation. Avoiding overtly jihadist language, the guide says it “provides an open forum for discussion, digital privacy and innovation to oppressed users in conflict zones who are targeted for their beliefs by the authoritarian regimes of the West”. It goes on to say it will “never impose restrictions on user content”.

The vulnerabilities of the pro-IS RocketChat server were nevertheless exposed in late March 2019, when it was taken offline, probably due to a DDoS attack. But it was back within a week, re-emerging on a new server at a new domain with its database of messages intact.

The pro-IS chat service, which now has around 50 channels or “rooms” and over 1 400 users, has been operating relatively smoothly ever since. But while the IS media distributors behind the platform are persevering with the experiment, they have become gradually less active in posting the group’s output there.

This likely reflects an acknowledgment of the platform’s limited reach. It also indicates that it is not currently intended to replace Telegram, but rather to serve as a back-up distribution channel that could become more active in the future.

## ZeroNet

Around the same time as Nashir News Agency’s channels were launched on RocketChat, IS media distributors were also experimenting with the ZeroNet network.

While ZeroNet operates in a very different way to RocketChat, they both can be described as decentralised web platforms which offer far greater potential for stability and resilience for terrorist propaganda than platforms that store and control users’ data themselves. Unlike RocketChat, which acts as an online collaboration tool between registered users, ZeroNet is a simple online hosting platform, which IS media distributors are using to run a website offering access to official IS propaganda, including its weekly newspaper al-Naba and videos from Amaq.



IS supporters post a screengrab from ZeroNet showing an IS video

Links to the site were shared in mid-December 2018 by IS supporters, including by the influential and longstanding al-Battar media group. However, it was unclear who was behind the initiative, especially given that the website has not been promoted by the key IS-affiliated distributor Nashir News Agency.

ZeroNet stands out from standard web hosting services because it uses BitTorrent peer-to-peer (P2P) technology. This means people accessing a site on the network also serve (or “seed”) the site and its content to other users, avoiding the need for a central server. The fact that the material is effectively hosted by a decentralised and dispersed network of peers means that it is resilient against attempts to remove the material – a major ongoing challenge for jihadists online – and is not susceptible to DDoS attacks. ZeroNet itself has no control over the content.

In August 2019, more than eight months after it was launched, the pro-IS ZeroNet site is still functioning, although no new propaganda has been posted there since the beginning of March.

## Riot

Since their first failed experiments with the decentralised chat application Riot in September 2017, IS support groups and media distributors have continued experimenting with it.

But use of the platform has been patchy and chat rooms set up there by a range of IS support groups have remained vulnerable to takedowns because they have routinely been set up on Riot’s default server (matrix.org) or on third-party servers.



*Afaq uses its Riot chat room to promote its guide to using the RocketChat platform*

Although Riot allows users to run their own servers, IS supporters have not been observed to exploit this function. For example, even the tech-focused pro-IS media group Afaq, one of the most persistent advocates of the platform, uses a server (tchncs.de) run by an individual based in Germany. A new chat rooms set up by IS propaganda disseminator Caliphate News 24 in October 2018 also used the default matrix.org server.

## Moving on from Telegram?

The decision to promote and go live with the RocketChat and ZeroNet experiments in December 2018 appeared to be prompted by a massive cull of jihadist groups and channels on Telegram earlier that month, when thousands were taken down in a single day. The search for a more resilient platform had also motivated IS media operatives to investigate decentralised platforms and social networks back in 2014, when they turned to Friendica, Diaspora and Quitter as alternatives to Twitter.

But resilience is only one of a number of factors that are likely to dictate whether IS and its supporters eventually decide to move on from Telegram. For example, resilience was certainly a factor in the decision to move to Telegram from Twitter in September 2015, but factors like usability, security and potential reach were equally as important to IS, with Telegram offering a far better user experience and audience base than any decentralised platform.

These advantages still appear to outweigh the drawbacks of a more aggressive Telegram clampdown which jihadists have managed to navigate by experimenting with various mechanisms to exploit loopholes in Telegram's policies and weaknesses in its engagement with illegal content.

While IS needs a stable base from which to disseminate its propaganda on the internet, its media strategy also revolves around reaching out to as wide an audience as possible.

## Limitations of decentralised platforms

Despite the advantages it offers in terms of resilience, RocketChat offers very limited reach. Propaganda distributed via the RocketChat TechHaven server run by IS supporters is currently only capable of reaching the 1 000 or so people who have registered there.

In theory, the pro-IS RocketChat server could link up with other RocketChat servers, potentially opening up its content to RocketChat's 10 million users on 180 000 other servers. But, at the time of writing, there are no signs that this has happened yet.

Riot offers some improvement on this, as anyone registered on the Riot network can already communicate with anyone else on the network. All servers are designed to be interoperable, built on the federated Matrix protocol. It also offers the potential to bridge to other messaging services like Telegram, WhatsApp and Slack. But despite years of development, Riot's user interface remains fairly clunky and the platform has not been taken up seriously by jihadists.

Usability should not be under-estimated as a factor in the take-up of new platforms. If something is clunky and annoying to use or hard to understand and access, it is unlikely to take off. By contrast, if a platform introduces an innovative new functionality, it may well suddenly take off, like Telegram did in September 2015, when jihadists moved there within days of the launch of Telegram's new "channels" functionality.

In terms of resilience, privately hosted servers running RocketChat and Riot are also still potentially vulnerable to attacks, as proved by the outage in March, and are likely to become greater targets if they start playing a more pivotal role in the distribution of jihadist propaganda.

The different technology underpinning ZeroNet sites means they are far more resilient to disruption. But their reach is also currently limited, as users are required to download the ZeroNet client to access them. Unlike Riot and RocketChat, however, registration is not required to access content on the network.

So, while IS media operatives have proved the concept that decentralised web platforms can play a role in the distribution of jihadist content, they are not currently likely to migrate away from Telegram in large numbers.

Factors that could tip the balance would include Telegram introducing automated processes to remove jihadist content in a more systematic fashion or newer platforms addressing usability issues, taking off and gaining reach.

It is possible that the next platform to be exploited aggressively by jihadists has not yet emerged. But IS media operatives have had decentralised platforms in their sights for quite some time and it seems likely that they will continue horizon scanning for new platforms and technologies in this field.