

Human Rights Protocol Considerations Research Group  
Internet-Draft  
Intended status: Informational  
Expires: 8 September 2022

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7 March 2022

Freedom of Association on the Internet  
draft-irtf-hrhc-association-09

## Abstract

This document explores whether there is a relation between the Internet architecture and the ability of people to exercise their right to peaceful assembly and the right to association online. It does so by asking the question: what are the protocol development considerations for freedom of assembly and association? The Internet increasingly mediates our lives, our relationships, and our ability to exercise our human rights. As a global assemblage, the Internet provides a public space, yet it is predominantly built on private infrastructure. Since Internet protocols and architecture play a central role in the management, development, and use of the Internet, we analyze the relation between protocols, architecture, and the rights to assemble and associate to mitigate infringements on those rights. This document concludes that the way in which infrastructure is designed and implemented impacts people's ability to exercise their freedom of assembly and association. It is therefore recommended that the potential impacts of Internet technologies should be assessed, reflecting recommendations of various UN bodies and norms. Finally, the document remarks that non-interoperable platforms that do not allow for interoperability or data-portability, render users unable to change platforms, therefore leading to a sort of "forced association" that inhibits people to fully exercise their freedom of assembly and association.

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## [1.](#) Introduction

We shape our tools and, thereafter, our tools shape us.

- John Culkin (1967)

Article 21 of the Covenant protects peaceful assemblies wherever they take place: outdoors, indoors and online; in public and private spaces; or a combination thereof.

- General Comment 37 of the Human Rights Committee (2020)

In the digital age, the exercise of the rights of peaceful assembly and association has become largely dependent on business enterprises, whose legal obligations, policies, technical standards, financial models and algorithms can affect these freedoms.

- Annual Report to the UN Human Rights Council by the Special Rapporteur on the rights to freedom of peaceful assembly and of association (2019).

The current draft continues the work started in "Research into Human Rights Protocol Considerations" [[RFC8280](#)] by investigating the impact of Internet protocols on a specific set of human rights, namely the right to peaceful assembly and the right to association. Taking into

consideration the international human rights framework regarding the human right to peaceful assembly and the right to association, the present document seeks to deepen the relationship between this human right and Internet architecture, protocols, and standards. In that way, we continue the work of the Human Rights Protocol Consideration Research Group, as laid out in its charter, where one of the research aims is "to expose the relation between protocols and human rights, with a focus on the rights to freedom of expression and freedom of assembly" [[HRPC-charter](#)]. The conclusions may inform the development of new guidelines for protocol developers in [draft-irtf-hrpc-guidelines](#).

The research question of this document is: what are the protocol development considerations for the right to peaceful assembly and the right to association?

## [2.](#) Vocabulary used

Architecture The design of a structure

Autonomous System (AS) Autonomous Systems are the unit of routing policy in the modern world of exterior routing [[RFC1930](#)].

Within the Internet, an autonomous system (AS) is a collection of connected Internet Protocol (IP) routing prefixes under the control of one or more network operators on behalf of a single administrative entity or domain that presents a common, clearly defined routing policy to the Internet [[RFC1930](#)].

The classic definition of an Autonomous System is a set of routers under a single technical administration, using an interior gateway protocol and common metrics to route packets within the AS, and using an exterior gateway protocol to route packets to other ASs [[RFC1771](#)].

Border Gateway Protocol (BGP) An inter-Autonomous System routing protocol [[RFC4271](#)].

Connectivity The extent to which a device or network is able to reach other devices or networks to exchange data. The Internet is the tool for providing global connectivity [[RFC1958](#)]. Different

types of connectivity are further specified in [[RFC4084](#)]. The combination of the end-to-end principle, interoperability, distributed architecture, resilience, reliability and robustness are the enabling factors that result in connectivity to and on the Internet.

**Decentralization** Implementation or deployment of standards, protocols or systems without one single point of control.

**Distributed system** A system with multiple components that have their behavior co-ordinated via message passing. These components are usually spatially separated and communicate using a network, and may be managed by a single root of trust or authority.  
[[Troncosoetal](#)]

**Infrastructure** Underlying basis or structure for a functioning society, organization or community. Because infrastructure is a precondition for other activities it has a procedural, rather than static, nature due to its social and cultural embeddedness

[PipekWulf] [[Bloketal](#)]. This means that infrastructure is always relational: infrastructure always develops in relation to something or someone [[Bowker](#)].

**Internet** The Network of networks, that consists of Autonomous Systems that are connected through the Internet Protocol (IP).

A persistent socio-technical system over which services are delivered [[Mainwaringetal](#)],

A techno-social assemblage of devices, users, sensors, networks, routers, governance, administrators, operators and protocols

An emergent-process-driven thing that is born from the collections of the ASes that happen to be gathered together at any given time. The fact that they tend to interact at any given time means it is an emergent property that happens because they use the protocols defined at IETF.

**Right to peaceful assembly** 'The right of peaceful assembly protects the non-violent gathering by persons for specific purposes, principally expressive ones.<sup>1</sup> It constitutes an individual right

that is exercised collectively.<sup>2</sup> Inherent to the right is thus an associative element.' [[UNGC37](#)]

Right to association 'The right and freedom of association encompasses both an individual's right to join or leave groups voluntarily, the right of the group to take collective action to pursue the interests of its members, and the right of an association to accept or decline membership based on certain criteria.' [[FoAdef](#)]

### [3.](#) Research question

The research question of this document is: what are the protocol development considerations for freedom of assembly and association?

### [4.](#) Methodology

In this document, we deepen our exploration of human rights and protocols by assessing one specific set of human rights: freedom of association and assembly, abbreviated here as FAA. Our methodology for doing so is the following: first, we provide a brief twofold literature review addressing the philosophical and legal definitions of FAA and how this right has already been interpreted or analyzed concerning the digital. This literature review is not exhaustive nor systematic but aims at providing some lines of questioning that could later be used for protocol development. The second part of our

methodology looks at some cases of Internet protocols that are relevant to the sub-questions highlighted in the literature review, and analyze how these protocols facilitate and inhibit the right to peaceful assembly and association.

### [5.](#) Literature Review

#### [5.1.](#) FAA definition and core treaties

The rights to peaceful assembly and the freedom of association are defined and guaranteed in national law and international treaties, however, in this document we limit ourselves to international treaties. Article 20 of the Universal Declaration of Human Rights [[UDHR](#)] states that "Everyone has the right to freedom of peaceful assembly and association" and that "No one may be compelled to belong

to an association". Article 23 further guarantees that "Everyone has the right to form and to join trade unions for the protection of his interests". In the International Covenant on Civil and Political Rights [[ICCPR](#)], article 21 stipulates that "The right of peaceful assembly shall be recognized" and that "No restrictions may be placed on the exercise of this right other than those imposed in conformity with the law and which are necessary in a democratic society in the interests of national security or public safety, public order (ordre public), the protection of public health or morals or the protection of the rights and freedoms of others" while article 22 states that "Everyone shall have the right to freedom of association with others, including the right to form and join trade unions".

General Comment No. 37 on the right of peaceful assembly by the United Nations Human Rights Committee affirms that the right of peaceful assembly protects non-violent online gatherings: "associated activities that happen online or otherwise rely upon digital services [...] are also protected" [[UNGC37](#)]. Interference with emerging communications technologies that offer the opportunity to assemble either wholly or partly online or play an integral role in organizing, participating in and monitoring physical gatherings are assumed to impede assemblies which are protected by this right. Moreover, any restriction on the 'operation of information dissemination systems' must conform with the tests for restrictions on freedom of expression (see below).

Other treaties are sometimes cited as the source and framework to the right to freedom of association and assembly. An example of this is Article 5 of the International Convention on the Elimination of All Forms of Racial Discrimination [[CERD](#)] which stipulates freedom of peaceful assembly and association should be guaranteed "without discrimination as to race, colour, national or ethnic origin"; Article 15 of the Convention on the Rights of the Child [[CRC](#)] which

recognises to child pending the restrictions cited above; and Article 21 of the Convention on the Rights of Persons with Disabilities [[CRPD](#)] which insist on usable and accessible formats and technologies appropriate for persons with different kinds of disabilities. The freedoms of peaceful assembly and association are also protected under regional human rights treaties: article 11 of the European Convention on Human Rights, articles 15 and 16 of the American Convention on Human Rights, article 10 and 11 of the African Charter

on Human and Peoples' Rights.

From a more philosophical perspective, Brownlee and Jenkins [Stanford] make some interesting distinctions in particular regarding the concepts of association, assembly and interaction, deviating somewhat from what is established in interpretations of international human rights law. "Interaction" refers to any kind of interpersonal and often incidental engagements in daily life, like encountering strangers on a bus. Interaction is seen as a "prerequisite" for association. Assembly, according to Brownlee and Jenkins has a more political connotation and is often used to refer to activists, protesters, or members of a group in a deliberating event. The authors refer to association as more "persistent connections" and distinguish between intimate associations, like friendship, love, or family, and collective association like trade unions, commercial business, or "expressive associations" like civil rights organizations or LGBTQIA associations. For Brownlee and Jenkins [Stanford], the right to association is linked to different relative freedoms: permission (to associate or dissociate), claim-right (to oppose others interfering with our conduct), power (to alter the status of our association), immunity (from other people interfering in our right). Freedom of association thus refers both to the individual right to join or leave a group and to the collective right to form or dissolve a group.

Freedoms of association and peaceful assembly, however, are relative and not absolute. Excluding someone from an association based on its sex, race or other individual characteristic is also often contentious if not illegal. As mentioned above, international human rights law provides the framework for legitimate restrictions on these rights, as well as the right to privacy and the right to freedom of expression and opinion. Restrictions can be imposed by states, but only if this is lawful and proportionate. States must document how these limitations are necessary in the interests of national security or public safety, public order, the protection of public health or morals, or the protection of the rights and freedoms of others. Finally, states must also protect participants against possible abuses by non-state actors.



associated activities online or reliant upon digital services, that are also protected under article 21, and stipulates that "States parties must not, for example, block or hinder Internet connectivity in relation to peaceful assemblies. The same applies to geotargeted or technology-specific interference with connectivity or access to content.". Additionally, "States should ensure that the activities of Internet service providers and intermediaries do not unduly restrict assemblies or the privacy of assembly participants." [[UNGC37](#)].

Interpreting international law, the right to freedom of peaceful assembly and the right to freedom of association protects any collective, gathered either permanently or temporarily for "peaceful" purposes, online and offline. It is important to underline the property of "freedom" because the right to freedom of association and assembly is voluntary and uncoerced: anyone can join or leave a group of choice, which in turn means one should not be forced to either join, stay or leave. An assembly is an "intentional and temporary gathering of a collective in a private or public space for a specific purpose: demonstrations, indoor meetings, strikes, processions, rallies, or even sits-in" [[UNGA](#)]. Association has a more formal and established nature and refer to a group of individuals or legal entities brought together in order to collectively act, express, promote, pursue, or defend a field of common interests [[UNSRFOAA2012](#)]. Think about civil society organizations, clubs, cooperatives, NGOs, religious associations, political parties, trade unions, or foundations.

When talking about the human right of freedom of association and assembly, one should always take into account that 'all human rights are indivisible, interrelated, unalienable, universal, and mutually reinforcing' [[ViennaDeclaration](#)]. This means that in the analysis of the impact of a certain variable on freedom of association and assembly one should take other human rights into account too. When devising an approach to mitigate a possible negative influence on this right, one should also always take into account the possible impact this might have on other rights. For example, the following rights are often impacted in conjunction with freedom of association and assembly: the right to political participation, the right to (group) privacy, the right to freedom of expression, and access to information. For instance, when the right to political participation is hampered, this often happens in conjunction with a limitation of the freedom of association and assembly because political participation is often done collectively. When the right to privacy is hampered, this privacy of particular groups is also impacted (so-called 'group privacy' [[Loi](#)], which potentially has consequences for the right to association and assembly. Where the freedom of

expression of a group is hampered, such as in protests or through Internet shutdowns, this both hampers other people's ability to receive the information of the group, and impact the right to assembly of the people who seek to express themselves as a group [[Nyokabi](#)].

Finally, if the right to association and assembly is limited by national law, this does not mean it is consistent with international human rights law. In such a case, the national law would therefore not be legitimate [[Glasius](#)].

## [5.2](#). FAA in the digital era

Before discussing freedom of association and assembly as it pertains to digital environments, we must first recognize that the United Nations Human Rights Council adopted resolutions on the promotion, protection and enjoyment of human rights on the Internet in 2012, 2014, 2016 and 2018, affirming and reaffirming "... that the same rights that people have offline must also be protected online ..." [[UNHRC2018](#)]. Therefore the digital environment is no exception to application of this right by any means. Various other resolutions and report have established the online applicability of the freedoms of association and assembly, most recently and authoritatively by the Human Rights Committee in General Comment 37 (2020) [[UNGC37](#)]. The questions that remain, however, are how these rights should be conceptualized and implemented in different parts and levels of digital environments.

The right to freedom of assembly and association online is the subject of increasing discussions and analysis. Especially since social media played an important role in several revolutions in 2011, which has led to increasing and ever more sophisticated attacks by autocratic governments on online communities and other associational activities occurring on the Internet [[RutzenZenn](#)]. In 2016, the Council of Europe published a report, "Report by the Committee of experts on cross-border flow of Internet traffic and Internet freedom on Freedom of assembly and association on the Internet" [[CoE](#)] which noted that while the Internet and technologies are not explicitly mentioned in international treaties, these treaties nevertheless apply to "the online environment". The report argue the "Internet is the public sphere of the 21st century", something demonstrated by the fact that informal associations can be gathered at scale in a matter of hours on the Internet, and that digital communication tools often serve to facilitate, publicize or otherwise enable presential associations or assemblies, like a protest or demonstration. They note, on the other hand, the negative ways in which the Internet can

also be used to promote or facilitate terrorism, urban violence and hate speech, thus insisting on the "extremely important and urgent"

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need to fight online terrorist activities such as recruitment or mobilization, while at the same time respecting the right to peaceful assembly and association of other users. The report mentions the following examples that could be help further our reflection:

- \* Instances of network shutdowns in the Arab Spring, to prevent people from organising themselves or assembling
- \* California's Bay Area Rapid Transit (BART) shutdown of mobile phone service, to prevent potential property destruction by protesters and disruption of service
- \* The wholesale blocking of Google as a violation of freedom of expression
- \* Telus, a telecom company which blocked customers' access to websites critical of Telus during a Telecommunications Workers Union strike against it
- \* The targeting of social media users who call for or organise protests though the Internet in Turkey's Gezi Park protests
- \* Mass surveillance or other interferences with privacy in the context of law enforcement and national security
- \* Use of VPNs (Virtual Private Networks) and the Tor network to ensure anonymity
- \* Distributed Denial of Service attacks (DDoS) as civil disobedience.

In 2019 the UN Special Rapporteur on the rights to freedom of peaceful assembly and of association, notes the opportunities and challenges posed by digital networks to the rights to freedom of peaceful assembly and of association [[UNSRFAA2019](#)]. The report recommends that international human rights norms and principles should also be used as a framework "that guides digital technology companies' design, control and governance of digital technologies". The report states that "technical standards" in particular can affect

the freedom of association and assembly, and makes some recommendations which could be relevant, including:

- \* "[Undertake] human rights impact assessments which incorporate the rights to freedom of peaceful assembly and of association when developing or modifying their products and services,"
- \* "increase the quality of participation in and implementation of existing multi-stakeholder initiatives,"

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- \* "collaborate with governments and civil society to develop technology that promotes and strengthens human rights,"
- \* "support the research and development of appropriate technological solutions to online harassment, disinformation and propaganda, including tools to detect and identify State-linked accounts and bots," and
- \* "adopt monitoring indicators that include specific concerns related to freedom of peaceful assembly and association."

In one of their "training kits" [[APCtraining](#)], the Association of Progressive Communications addressed different impacts of the internet on association and assembly and raised three particular issues worthy to note here:

1. Organization of protests. Internet and social media are enablers of protests, such as it was seen in the "Arab Spring". Some of these protests - like online petitions or campaigns - are similar to offline association and assembly, but other protest forms are inherent to the Internet capacity like hacking, DDOS and are subject to controversy within the Internet community, some people finding it legitimate, and others not.
2. Surveillance. While the Internet facilitates association, the association in turn leaves a lot of traces that can be used in turn for law enforcement but also for repressing political dissents. As they note, even the threat of surveillance can have deter facilitation.
3. Anonymity and pseudonymity can be useful protection mechanism for those who'd like to attend legitimate association without facing

retribution. On the other hand, anonymity can be used to harm society, such as in online fraud or sexual predation.

Online association and assembly are the starting point of civic mass-mobilization in modern democracies, and even more so where physical gatherings have been impossible or dangerous [[APC](#)]. Throughout the world -from the Arab Spring to Latin American student movements and the #WomensMarch- the Internet has played a crucial role by providing means for the fast dissemination of information otherwise mediated by the press, or even forbidden by the government [[Pensado](#)]. According to Hussain and Howard the Internet helped to "build solidarity networks and identification of collective identities and goals, extend the range of local coverage to international broadcast networks" and as platform for contestation for "the future of civil society and information infrastructure" [[HussainHoward](#)]. The IETF itself, defined as an 'open global community' of network designers,

operators, vendors, and researchers [[RFC3233](#)] is also protected by freedom of assembly and association. Discussions, comments and consensus around RFCs are possible because of the collective expression that freedom of association and assembly allow. The very word "protocol" found its way into the language of computer networking based on the need for collective agreement among a group of assembled network users [[HafnerandLyon](#)].

[RFC8280] is a paper by the Human Rights Protocol Consideration Research Group in the Internet Research Taskforce on internet protocols and human rights that discusses issues of FAA, specifically:

- \* The expansion of DNS for generic namespace as an enabler of association for minorities. The paper argues that specifically the expansion of the DNS to allow for new generic Top Level Domains (gTLDs) can have negative impacts on freedom of association because of restrictive policies by some registries and registrars, on the other hand could gTLDs could also enable communities to build clearly identifiable spaces for association (such as .gay).
- \* The impact of Distributed Denial of Service attacks on freedom of association. Whereas DDoS has been used as a tool for protest, in many cases this is infringing on other parties freedom of

expression. Furthermore, often devices (such as IoT devices and routers) are inscribed in such DDoS attacks whereas the owner or user did not consent to this. Thus they do not have the possibility to exit this assembly. Therefore the draft concluded that that IETF "should try to ensure that their protocols cannot be used for DDoS attacks"

- \* The impact of middleboxes on the ability of users to connect to the Internet and therefore their ability to exercise their right to freedom of association and assembly. Lack of connectivity can significantly impact freedom of assembly and association of a user. Especially if the user cannot retrieve the reason for their inability to connect, and if there thus is no possibility to for the user to have access to due process to dispute the lack of (secure or private) connectivity in general or to a specific service.

In June 2020, the United Nations High Commissioner for Human Rights concluded that technologies can be enablers of the exercise of FAA, but technology is also significantly used to interfere with the ability of people to exercise their right to freedom of association and assembly. Specifically, the report mentions network shutdowns, the usage of technology to surveil or crack down on protesters,

leading to human rights violations. This includes facial recognition technology, and the uses of other ways to violate the (group) privacy of people engaged in an assembly or association. The report makes it explicit that companies play a significant role enabling, for instance by developing, providing or selling the technology, but also by directly exercising these violations [[UNHRC2020](#)].

### [5.3](#). Specific questions raised from the literature review

Here are some questions raised from the literature review that can have implications for protocol design:

1. Should protocols be designed to enable legitimate limitations on association in the interests of "national security or public safety, public order (ordre public), the protection of public health or morals or the protection of the rights and freedoms of others", as stated in the ICCPR article 21 [[ICCPR](#)]? Where in the stack do we care for FAA?

2. Can protocols facilitate agency of membership in associations, assemblies and interactions?
3. What are the features of protocols that enable freedom of association and assembly?
4. Does protocol development sufficiently consider usable and accessible formats and technologies appropriate for all persons, including those with different kinds of abilities?
5. Can a protocol be designed to legitimately exclude someone from an association?

In the following sections we attempt to answer these questions with specific examples of standardized protocols in the IETF.

## [6.](#) Analysis

As the Internet mediates collective action and collaboration, it impacts on freedom of association and assembly. To answer our research question regarding how internet architecture enables and/or inhibits such human rights, we researched several independent and typical cases related to protocols that have been either adopted by the IETF, or are widely used on the Internet. Our goal is to figure h they facilitate freedom of assembly and association, or how they inhibit it through their design or implementation.

We are aware that some of the following examples go beyond the use of Internet protocols and flow over into the application layer or examples in the offline world whereas the purpose of the current document is to break down the relationship between Internet protocols and the right to freedom of assembly and association. Nonetheless, we do recognize that in some cases the line between them and applications, implementations, policies and offline realities are often blurred and hard -if not impossible- to differentiate.

We use the literature review to guide our process of inquiry for each case, and to dive deeper in what can be found interesting about each

case as it relates to freedom of association.

#### [6.1.](#) Got No Peace: Spam and DDoS

Should protocols be designed to enable legitimate limitations on association in the interests of “national security or public safety, public order (ordre public), the protection of public health or morals or the protection of the rights and freedoms of others”, as stated in the ICCPR article 21 `{{ICCPR}}`? Where in the stack do we care for FAA?

The 2020 report by the United Nations Special Rapporteur on Human Rights [\[UNHRC2020\]](#) described how technology is often used to limit freedom of assembly and association, such as for instance through network shutdowns and the surveillance of groups. Because access to the Internet is crucial not only for freedom of association and assembly, but also for the right to development, and the right to freedom of expression and information [\[Nyokabi\]](#), the United Nation Special Rapporteur argues that:

(b) Avoid resorting to disruptions and shutdowns of Internet or telecommunications networks at all times and particularly during assemblies, including those taking place in electoral contexts and during times of unrest;

Whereas the states have the obligation to protect human rights, there has been an increasing call for non-state actors, such as companies, to respect human rights [\[UNGPBHR\]](#). The UN adopted guiding principles on business and human rights [\[UNGPBHR\]](#) and talks within the HRC are



ongoing about an international legally binding instrument to regulate the activities of transnational corporations and other business enterprises. This includes a chain-responsibility of actors, which means that not just the company's own processes should not negatively impact human rights, but they should also engage in due diligence processes, such as human rights impact assessments. This includes an assessment of whether the products that are sold, or the services that are provided, can be used to engage in human rights violations, or whether human rights violations occur in any stage of the supply chain of the company. If this is the case, measures should be taken to mitigate this.

In the case of dual-use technologies, this means that technology could be used for legitimate purposes, but could also be used to limit freedom of association or assembly, it might mean that producers or sellers should limit the parties they sell to, or even better, ensure that the illegitimate use of the technology is not technically possible anymore, or made more difficult.

#### 6.1.1. Spam

In the 1990s as the internet became more widely adopted, spam came to be defined as irrelevant or unsolicited messages that were posted many times to multiple news groups or mailing lists [[Marcus](#)]. Here the question of consent, but also harm, are crucial. In the 2000s a large part of the discussion revolved around the fact that certain corporations, protected by the right to freedom of association, considered spam to be a form of "commercial speech", thus encompassed by free expression rights [[Marcus](#)]. Yet spam can be not only a nuisance, but a threat to systems and users.

This leaves us with an interesting case around spam mitigation: spam is currently handled mostly by mail providers on behalf of the user. Next to that, countries are increasingly adopting regulatory opt-in regimes for mailing lists and commercial e-mail, with a possibility of serious fines in case of violation. Yet many ask is spam not the equivalent of the fliers and handbills ever present in our offline world? The big difference between the proliferation of such messages offline and online is the scale. It is not hard for a single person to message a lot of people online, whereas if that person needed to go house by house the scale and impact of their actions would be much smaller. Inversely if it were a common practice to expose people to unlimited unwanted messages online, users would be drowned in such messages. This puts a large burden on filtering, and in both

filtering and sifting through many message, other expressions would be drowned out and would be severely hampered. Allowing illimited sending of unsolicited messages would be a blow against freedom of speech: when everyone talks, nobody listens.

Here the argument is very similar to DDoS attacks, considered next: Legitimate uses of online campaigning, or online protesting, are drowned out by a malicious use which constitutes an attack on the internet infrastructure and thus the assembly or association itself.

#### [6.1.2.](#) DDoS

Distributed Denial of Service attacks are leveled against a server or service by a controller of a host or multiple hosts by overloading the server or service's bandwidth or resources (volume-based floods) or exploit protocol behaviours (protocol attacks). DDoS attacks can thus stifle and complicate the rights to assemble online for media and human rights organisations whose websites are the target of DDoS. At the same time there are comparisons made between DDoS attacks and sit-in protests [[Sauter](#)]. However the main distinction is significant: only a small fragment of "participants" (from controllers to compromised device owners) in DDoS attacks are aware or willing [[RFC8280](#)]. Notably DDoS attacks are increasingly used to commit crimes such as extortion, which infringe on others' human rights.

Because of the interrelation of technologies, it cannot be said that there is one point in the technical stack where one can locate the characteristics of "peaceful" or "non-peaceful" association visible to protocol developers. In the cases of spam blocking and DDoS mitigation, "peaceful or non-peaceful" is not a meaningful heuristic, or even characteristic, of problematic content. If anything, their commonality is their unrequested and nature, next to scale and volume. This allows us to draw the conclusion that DDoS and spam are not examples of freedom of association or assembly.

#### [6.2.](#) Holistic Agency: Mailing Lists and Spam

Can protocols facilitate agency of membership in associations, assemblies and interactions?

##### [6.2.1.](#) Mailing lists

Since the beginning of the Internet mailing lists have been a key site of assembly and association [[RFC0155](#)] [[RFC1211](#)]. In fact, mailing lists were one of the Internet's first functionalities [[HafnerandLyon](#)].

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In 1971 four years after the invention of email, the first mailing list was created to talk about the idea of using Arpanet for discussion. What had initially propelled the Arpanet project forward as a resource sharing platform was gradually replaced by the idea of a network as a means of bringing people together [[Abbate](#)]. More than 45 years after, mailing lists are pervasive and help communities to engage, have discussions, share information, ask questions, and build ties. Even as social media and discussion forums grow, mailing lists continue to be widely used [[AckermannKargerZhang](#)] and are still a crucial tool to organise groups and individuals around themes and causes [[APC3](#)].

Mailing lists' pervasive use are partly explained because they allow for "free" association: people subscribe (join) and unsubscribe (leave) as they please, and it functions on low bandwidth connections. Mailing lists also allow for association of specific groups on closed lists. This free association online enables agency of membership, a key component of freedom of association and assembly.

#### [6.2.2.](#) Spam

As we mentioned before, there are interesting implications for freedom of association and assembly when looking at spam mitigation. Here we want to specifically note that if we consider that the rights to assembly and association also mean that "no one may be compelled to belong to an association" [[UDHR](#)], spam infringes both rights if an opt-out mechanism is not provided and people are obliged to receive unwanted information, or be reached by people they do not know.

#### [6.3.](#) Civics in Cyberspace: Messaging, Conferencing, and Networking

What are the features of protocols that enable freedom of association and assembly?

Civic participation is often expressed as the freedom to associate and assemble, along with a whole other set of enabling rights such as freedom of expression and the right to privacy. Former UN Special Rapporteur David Kaye established a strong relationship between technology that allows anonymity and uses encryption have positive effects on freedom of expression [[Kaye](#)]. Here we look at messaging,

such as email, mailing lists and internet relay chat; video conferencing and peer-to-peer networking protocols to investigate the common features that enable freedom of association and assembly online.

### [6.3.1.](#) Email

Similarly to freedom of expression's enabling and universal right to impart one's ideas openly, "the right to whisper", or confidentiality, is the ability to limit to whom one imparts one's ideas. An encrypted email project, the LEAP Encryption Access Project, says, "like free speech, the right to whisper is a necessary precondition for a free society. Without it, civil society languishes and political freedoms are curtailed. As the importance of digital communication for civic participation increases, so too does the importance of the ability to digitally whisper." [[LEAP](#)]

### [6.3.2.](#) Mailing lists

Not only are mailing lists a good example of how protocols can facilitate the necessary ingredient of agency in freedom of association, mailing lists are an example of messaging technology that has other features that enable freedom of association and assembly.

The archival function of mailing lists allows for posterior accountability and analysis. The ubiquity and interoperability of email, and by extension email lists, provides a low barrier to entry to an inclusive medium.

Association and assembly online can be undermined when right to privacy is at risk. And one of the downsides of mailing lists are similar to the privacy and security concerns generally associated with email. At least with email, end-to-end encryption such as OpenPGP [[RFC4880](#)] and S/MIME [[RFC5751](#)] can keep user communications authenticated and confidential. With mailing lists, this protection is not as possible because with many lists the final recipients are typically not known by the sender. There have been experimental

solutions to address this issue such as Schleuder [[Schleuder](#)], but this has not been standardized or widely deployed.

### [6.3.3.](#) IRC

Internet Relay Chat (IRC) is an application layer protocol that enables communication in the form of text through a client/server networking model [[RFC2810](#)]. In other words, a chat service. IRC clients are computer programs that a user can install on their system. These clients communicate with chat servers to transfer messages to other clients. Features of IRC include: federated design, transport encryption, one-to-many routing, creation of topic-based "channels", and spam or abuse moderation.

For the purposes of civic participation and freedom of association and assembly in particular it is critical that IRC's federated design allows many interoperable, yet customisable, instances and basic assurance of confidentiality through transport encryption. We investigate the particular aspect of agency in membership through moderation in the section 'Block Together Now: IRC and Refusals' below.

### [6.3.4.](#) WebRTC

Multi-party video conferencing protocols like WebRTC [[RFC6176](#)] [[RFC7118](#)] allow for robust, bandwidth-adaptive, wideband and super-wideband video and audio discussions in groups. However, it comes with many different configuration options, which can leave users open to unexpected privacy leakages:

‘The WebRTC protocol was designed to enable responsive real-time communications over the Internet, and is instrumental in allowing streaming video and conferencing applications to run in the browser. In order to easily facilitate direct connections between computers (bypassing the need for a central server to act as a gatekeeper), WebRTC provides functionality to automatically collect the local and public IP addresses of Internet users (ICE or STUN). These functions do not require consent from the user, and can be instantiated by sites that a user visits without their awareness. The potential privacy implications of this aspect of

WebRTC are well documented, and certain browsers have provided options to limit its behavior.’ {{AndersonGuarnieri}}

Even though some multi-party video conferencing tools facilitate freedom of assembly and association, their own configuration might pose concrete risks for those who use them. On the one hand WebRTC is providing resilient channels of communications, but on the other hand it also exposes information about those who are using the tool which might lead to increased surveillance, identification and the consequences that might be derived from that. This is especially concerning because the usage of a VPN does not protect against the exposure of IP addresses [[Crawford](#)].

The risk of surveillance is also exists in an offline space, but this is generally slight easier to analyze for the end-user. Security and privacy expectations of the end-user could be either improved or made explicit. This in turn would result in a more secure and/or private exercise of the right to freedom of assembly or association.

#### [6.3.5](#). Peer-to-peer networking

At the organizational level, peer production is one of the most relevant innovations from Internet mediated social practices. According to [[Benkler](#)] these networks imply 'open collaborative innovation and creation, performed by diverse, decentralized groups organized principally by neither price signals nor organizational hierarchy, harnessing heterogeneous motivations, and governed and managed based on principles other than the residual authority of ownership implemented through contract.' [[Benkler](#)].

In his book *The Wealth of Networks*, [[Benkler2](#)] significantly expands on his definition of commons-based peer production. In his view, what distinguishes commons-based production is that it doesn't rely upon or propagate proprietary knowledge: "The inputs and outputs of the process are shared, freely or conditionally, in an institutional form that leaves them equally available for all to use as they choose at their individual discretion." [[Benkler2](#)]. To ensure that the knowledge generated is available for free use, commons-based projects

are often shared under an open license

Peer-to-peer (P2P) is essentially a model of how people interact in real life because "we deal directly with one another whenever we wish to" [Vu]. Usually if we need something we ask our peers, who in turn refer us to other peers. In this sense, the ideal definition of P2P is that "nodes are able to directly exchange resources and services between themselves without the need for centralized servers" where each participating node typically acts both as a server and as a client [Vu]. [RFC5694] has defined it as peers or nodes that should be able to communicate directly between themselves without passing intermediaries, and that the system should be self-organizing and have decentralized control [RFC5694]. With this in mind, the ultimate model of P2P is a completely decentralized system, which is more resistant to speech regulation, immune to single points of failure and has a higher performance and scalability. Nonetheless, in practice some P2P systems are supported by centralized servers and some others have hybrid models where nodes are organized into two layers: the upper tier servers and the lower tier common nodes [Vu].

Since the ARPANET project, the original idea behind the Internet was conceived as what we would now call a peer-to-peer system [RFC0001]. Over time it has increasingly shifted towards a client/server model with "millions of consumer clients communicating with a relatively privileged set of servers" [NelsonHedlun].

Whether for resource sharing or data sharing, P2P systems are enabling freedom of assembly and association. Not only do they allow for effective dissemination of information, but they leverage

computing resources by diminishing costs allowing for the formation of open collectives at the network level. At the same time, in completely decentralized systems the nodes are autonomous and can join or leave the network as they want -a characteristic that makes the system unpredictable: a resource might be only sometimes available, and some other resources might be missing or incomplete [Vu]. Lack of information might in turn makes association or assembly more difficult.

Additionally, when architecturally assessing the role of P2P systems we could say that: "the main advantage of centralized P2P systems is that they are able to provide a quick and reliable resource locating.

Their limitation, however, is that the scalability of the systems is affected by the use of servers. While decentralized P2P systems are better than centralized P2P systems in this aspect, they require a longer time in resource locating. As a result, hybrid P2P systems have been introduced to take advantage of both centralized and decentralized architectures. Basically, to maintain the scalability, similar to decentralized P2P systems, there are no servers in hybrid P2P systems. However, peer nodes that are more powerful than others can be selected to act as servers to serve others. These nodes are often called super peers. In this way, resource locating can be done by both decentralized search techniques and centralized search techniques (asking super peers), and hence the systems benefit from the search techniques of centralized P2P systems." [Vu].

#### [6.4.](#) Universal Access: The Web

Does protocol development sufficiently consider usable and accessible formats and technologies appropriate for persons with different kinds of abilities?

The W3C has done significant work to ensure that the Web is accessible to people with diverse physical abilities [W3C]. The implementation of these accessibility standards for instance help people who have issues with seeing or rendering images to understand what the image actually contains. Making the web more accessible for people with diverse physical abilities enables them to exercise their right to online assembly and association. While there are accessibility standards implemented for the web, this is less the case for the Internet.

The IETF uses English as its primary working language, both in its documentation and in its communication. This is also the case for reference implementations. It is estimated that roughly 20% of the Earth's population speaks English, whereas only 360 million speak English as their first language. [RFC2277] describes that "Internationalization is for humans. This means that protocols are

not subject to internationalization; text strings are.", this implies that protocol developers, as well as people that work with protocols, are not people, or that protocol developers are all in command of the English language. This means that it is significantly easier for people who have a command of the English language to become a



protocol developer - and it might lead to the development of separate protocols that are developed within large language communities that are not using the English language or the Latin script. This makes it harder for people who seek to shape their own space of association and assembly on the Internet to do so. And is thus driving these communities into, often proprietary and non-interoperable services such as Facebook.

When Ramsey Nasser developed the Arabic programming language [Qalb, Qlb and Alb](#) [Nasser] he called it 'engineering performance art' instead of engineering, because he knew that his language would not work. In part this is because all modern programming tools are based on the ASCII character set, which encodes Latin Characters and was originally based on the English Language. This highlights cultural biases of computer science and engineering. Despite long significant efforts, it is still largely impossible to register an email address in a language such as Devanagari, Arabic, or Chinese. Even if it is possible - it is to be expected that there will be a significant failure rate in sending and receiving emails with other services. This makes it harder for people who do not speak English and/or don't use the written Latin script to exercise their freedom of association and assembly.

#### [6.5](#). Block Together Now: IRC and Refusals

Can a protocol be designed to legitimately exclude someone from an association?

Previously we spoke about the privacy protecting features of IRC that enable freedom of association and assembly, including transport security. But now we turn to the ability to block users and effectively moderate discussions on IRC as a key feature of the technology that enables agency in membership, a key aspect of freedom of association and assembly.

For order to be kept within the IRC network, special classes of users become "operators" and are allowed to perform general maintenance functions on the network: basic network tasks such as disconnecting (temporary or permanently) and reconnecting servers as needed [[RFC2812](#)]. One of the most controversial power of operators is the ability to remove a user from the connected network by 'force', i.e., operators are able to close the connection between any client and server [[RFC2812](#)].

IRC servers may deploy different policies for the ability of users to create their own channels or 'rooms', and for the delegation of 'operator'-rights in such spaces. Some IRC servers support SSL/TLS connections for security purposes [[RFC7194](#)] which helps stop the use of packet sniffer programs to obtain the passwords of IRC users, but has little use beyond this scope due to the public nature of IRC channels. TLS connections require both client and server support (that may require the user to install TLS binaries and IRC client specific patches or modules on their computers). Some networks also use TLS for server to server connections, and provide a special channel flag (such as +S) to only allow TLS-connected users on the channel, while disallowing operator identification in clear text, to better utilize the advantages that TLS provides.

## 7. Conclusions: Can we learn anything from the previous case studies?

Communities, collaboration and joint action lie at the heart of the Internet. Even at a linguistic level, the words "networks" and "associations" are closely related. Both are groups and assemblies of people who depend on "links" and "relationships" [[Swire](#)]. Taking legal definitions given in international human rights law and related normative documents, we could assert that the rights to freedom of assembly and association protect collective activity online. These rights protect gatherings by persons for a specific purpose and groups with a defined aim over time for a variety of peaceful, expressive and non-expressive, purposes,. It is voluntary and uncoerced.

Given that the Internet itself was originally designed as a medium of communication for machines that share resources with each other as equals [[RFC0903](#)], the Internet is now one of the most basic infrastructures for the right to freedom of assembly and association. Since Internet protocols and the Internet architecture play a central role in the management, development and use of the Internet, we established the relation between some protocols and the right to freedom of assembly and association.

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After reviewing several cases representative of FAA considerations inherent in protocols standardized at the IETF, we can conclude that the way in which infrastructure is designed and implemented impacts people's ability to exercise their freedom of assembly and association. This is because different technical designs come with different properties and characteristics. These properties and characteristics on the one hand enable people to assemble and associate, but on the other hand also add limiting, or even potentially endangering, characteristics. More often than not, this depends on the context. A clearly identified group for open communications, where messages are sent in cleartext and where people's persistent identities are visible, can help to facilitate an assembly and build trust, but in other contexts the same configuration could pose a significant danger. Endangering characteristics should be mitigated, or at least clearly communicated to the users of these technologies. It is therefore recommended that the potential impacts of Internet technologies should be assessed, reflecting recommendations of various UN bodies and norms.

Lastly, the increasing shift towards closed and non-interoperable platforms in chat and social media networks have a significant impact on the distributed and open nature of the Internet. Often these non-interoperable platforms are built on open-protocols but do not allow for interoperability or data-portability. The use of social-media platforms has enabled groups to associate, but it has also rendered users unable to change platforms, therefore leading to a sort of "forced association" that inhibits people to fully exercise their freedom of assembly and association.

## [8.](#) Acknowledgements

- \* Fred Baker, Jefsey, and Andrew Sullivan for work on Internet definitions.
- \* Stephane Bortzmeyer, ICNL, and Lisa Vermeer for several concrete text suggestions that found their way in this document.
- \* Mark Perkins and Gurshabad for finding a lot of typos.
- \* Gurshabad Grover, an anonymous reviewer, ICNL, Lisa Vermeer, and Sandra Braman for full reviews.

- \* The hrpc mailinglist at large for a very constructive discussion on a hard topic.

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## 9. Work Space

Current work on this draft is happening at: <https://github.com/IRTF-HRPC/draft-association> Pull requests and issues are welcome.

## 10. Security Considerations

As this draft concerns a research document, there are no security considerations.

## 11. IANA Considerations

This document has no actions for IANA.

## 12. Research Group Information

The discussion list for the IRTF Human Rights Protocol Considerations Research Group is located at the e-mail address [hrpc@ietf.org](mailto:hrpc@ietf.org) (<mailto:hrpc@ietf.org>). Information on the group and information on how to subscribe to the list is at

<https://www.irtf.org/mailman/listinfo/hrpc>  
(<https://www.irtf.org/mailman/listinfo/hrpc>)

Archives of the list can be found at: <https://www.irtf.org/mail-archive/web/hrpc/current/index.html> (<https://www.irtf.org/mail-archive/web/hrpc/current/index.html>)

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