What does internet fragmentation mean to you ?
Identifying fragmentation and key stakeholders.   PNIF Webinar, 15 September 2022

Highlights

- The PNIF aims to further multistakeholder discussion on Internet fragmentation - the concept, causes and effects - and explore ways to address fragmentation.

- A fragmented internet is an internet that is not the interoperable single internet we have today. The open, interoperable internet that respects human rights and allows for critical access is an ideal that hasn't been achieved before but is at risk of being undermined even more. The internet has never been not fragmented. Varying levels of fragmentation are consistent with the internet's development. However, there are concerns that severe fragmentation might cause malfunctioning or breaking of the internet.

- Fragmentation can be caused by technical, governmental, or commercial practices. Controlling what people can say and see online and legitimate attempts to address harms associated with internet use are driving forces behind policies that (intended or unintended) lead to internet fragmentation. IPv4/IPv6 is a cautionary tale and shows the time and effort needed to manage fragmentation caused by incompatible technical protocols.

- Some questioning of the unifying discourse defending open and inclusive, multistakeholder and human rights oriented internet governance underpinning an open and interoperable internet could be a sign of a looming fragmentation or multi-polarisation of internet governance.

- The narrative of fragmentation is becoming a mainstream narrative in international relations, and risks replacing the narrative of an ideal open interoperable inclusive neutral internet, and security issues and international competition policy issues are added into the fragmentation discourse, increasing pressure for localisation policies and competition policies connected to localisation. This worrying evolution may impact multilateral cooperation and the involvement of states in the multistakeholder model.

- Both multilateral and multistakeholder spaces are relevant and the multilateral system could react by agreeing on minimal denominators. Limiting collaboration to like-minded trusted nations that share similar values, might lead to a discrimination and affect the connectivity of people living in those countries. Human rights or climate change frameworks can provide lessons on how the international community coordinates actions around common minimal denominators.

- Any layered approach to internet fragmentation must acknowledge the layer-specific governance mechanisms, actors and consensus building mechanisms. It is important to

focus on the critical properties of the internet and how they are affected and the availability of alternatives should be considered when assessing fragmentation and prioritising action.

● The GDC is an opportunity to insert certain common principles all stakeholders agree about. Of equal importance is the need for further and more precise discussion about fragmentation, practices and what should or shouldn't be done, including a dialogue with policy makers on how legitimate goals can be achieved without interfering with the internet's interoperability.

Introduction - IGF Policy Network on Internet Fragmentation

The Policy Network on Internet Fragmentation (PNIF) is an intersessional activity of the Internet Governance Forum (IGF), ahead of the 17th annual meeting of the IGF from 28 November to 2 December in Addis Ababa, Ethiopia.

The PNIF was set up to further multistakeholder discussion on Internet fragmentation and offer understanding of what Internet fragmentation is, of its causes and effects, and explore ways to address fragmentation. Avoiding fragmentation of the Internet is one of the *complex digital issues* the UN Secretary-General, in his report *Our Common Agenda,* recommends addressing in a Global Digital Compact.

Internet fragmentation is being discussed in different places by different stakeholders. The IGF as an unique space and multistakeholder platform allows opening the conversation and bringing in different perspectives. The PNIF is open to all interested stakeholders. Its activities are steered by a Multistakeholder Working Group of experts and led by two Co-facilitators, supported by the IGF Secretariat.

Webinar 1 - What does internet fragmentation mean to you ? - Identifying fragmentation and key stakeholders.

This report summarises the first of two webinars organised by the Policy Network on Internet Fragmentation (PNIF). The webinar aimed at gaining insight in how the concept of internet fragmentation is understood and used in different ways, and identifying key stakeholders. The first webinar is intended to lay a basis for further discussion about mitigating and avoiding fragmentation.

The webinar was structured in three thematic blocs (1) examples of fragmentation and definitions; (2) impact of fragmentation on the Internet; (3) how to respond and what kind actions can avoid fragmentation. For each section pre-defined discussants were invited to share initial thoughts, followed by an open discussion.

The summary paraphrases the main thoughts as expressed during the webinar.
A recording of the meeting is available at https://youtu.be/dhVaovkSq0o .

(1) Internet Fragmentation: Examples, definitions and concepts

Discussion moderator: Ms Sheetal Kumar.
Discussants: Ms Allie Funk, Mr Konstantinos Komaitis.

Questions: There are different ways to approach, define and classify fragmentation and for policy makers it is important to understand concerns. What are examples where technical, commercial or policy measures lead to fragmentation of the Internet? How does this measure or practice lead to fragmentation (i.e. what layer does it affect)? Why are these examples of concern? How does this impact people's experience with the Internet? What are further-reaching impacts, e.g. on society?

Ms Sheetal Kumar opened the first discussion round by stating that although the term internet fragmentation is being used frequently, there is no common definition or shared understanding of what internet fragmentation is, and invited participants to share, with examples, what they see as internet fragmentation.

Ms Allie Funk, Research director for technology and democracy at Freedom House, noted that the variety in concepts of fragmentation adds nuance and creates possibilities for policy responses. Freedom House, concerned about issues related to cross border data transfer, surveillance and censorship, meaning it may analyse fragmentation differently than stakeholders focussing on the fragmentation of the technical underpinnings of the internet because it isn't as focused on internet architecture.

Government policies and practices might be driving the fragmentation of the global internet and creating so-called 'domestic networks' or networks that are more easily controlled. The intentions why governments pursue these policies can be situated on a spectrum between (control of what information is available and what people can see and post, control of the flow of information and data traffic within a country and flowing in and out of a country) and addressing online harms (disinformation, harassment).

However, applying a strict dichotomy is not helpful, other intentions might be interwoven, governments are not monolithic, and well intentioned laws and measures can include provisions that make them problematic. For example, attempts to create a more diverse online environment and incentivise diversity across and accountability of platforms and big tech may include provisions that increase surveillance or censorship.

Data localisation requirements and increased censorship are recent trends that impact human rights. The EU GDPR started a race to the top for data protections that incentivised countries around the world to pass data protection laws and align with adequacy agreements in order to get the benefits of cross-border data flows. However, data protection laws may include provisions that require **data localisation** and data storage on local servers, which makes the data more accessible to law enforcement and security agencies, and is problematic if there are no safeguards for due process or strong independent judiciary.

Censorship policies and internet shutdowns, including blocking of websites and blogs based abroad and foreign news outlets, prevent collecting information and evidence during elections or protests (for example by journalists and activists), cut off communities from information available abroad and prevent sharing information to form transborder solidarity. They are forms of fragmentation that impact free speech and human rights.

Mr Konstantinos Komaitis, Independent consultant and researcher, commented that the loaded and widely used concept 'internet fragmentation' asks for synchronisation and mutual understanding of what is being discussed.

Policies, globally, even in democracies, intentionally or unintentionally contribute to fragmentation. Internet fragmentation is no longer the condensed term used to point at actions and policies by a few countries (e.g. China, Russia were taking actions that were showing elements of fragmentation).

There are three categories of fragmentation - technical, governmental, or commercial - depending on the type of practice or measure that causes the fragmentation. Its occurrence can provoke reactions leading to more fragmentation across categories. For example 'walled gardens', a form of commercial fragmentation, create a concentration of power which can provoke governments to react with policies that create fragmentation as well.

Technical fragmentation = conditions that impede the infrastructure from efficiently interoperating and exchanging data as is designed. For example, IPv4 / IPv6 incompatibility, routing corruption or blocking of domain names or entire TLDs. Also the creation of alternative DNS routes raises concerns, but whether they lead to fragmentation depends on design and implementation.

Governmental fragmentation = government policies that restrict, limit or interfere with information exchanges. For example, Internet shutdowns, social media restrictions, data localisation laws, efforts to force browsers to recognise qualified websites based on certain identification certificates.

Commercial fragmentation = commercial practices that prevent or constraint people's internet experience. For example, market concentration and walled gardens that create closed systems in which users operate, app stores in a walled garden environment, single points of infrastructure failure (e.g. the impact when an important global provider is down).

Open discussion and feedback
Ms Anriette Esterhuysen commented that the Internet has never been not fragmented. Walled gardens, censorship and attempts to control are not new phenomenons. Also the typical discourse on frangementation does not reflect the situation of those who lack connectivity, lack devices, and have no access to affordable data. There are and have been small efforts to fragment bits of the internet, but overall technically the internet has proven to be very robust.

The layered model may not be the best suitable framework to approach internet fragmentation. It can be more helpful to focus on the interaction/interplay between fragmentation driven by policy considerations or idiologie (ic fragemention introduced through regulatory responses and controls) and fragmentation at the technical level. Asking why there is an emphasis on fragmentation and how this discourse of fragmentation has become so prominent recently are relevant questions.

The current discourse reveals a concerning trend towards 'internet governance fragmentation' and a diminishing support for the notion of inclusive internet governance and multistakeholder collaborative policy making. There are signs of a growing polarisation around particular visions of what a unified unfragmented internet is. For example, the Declaration on the Future of the Internet promotes one particular vision of internet and internet policy, treating other visions as leading to fragmentation. This ideological polarising discours risks to produce and reproduce fragmentation by itself.

The unifying discourse defending an open and inclusive internet governance that is multistakeholder and human rights oriented seems to diminish, while it could play a similar role as the human rights discourse that focuses on bringing together and reinforcing the idea of the universality of human rights.

Mr Chris Buckridge made the observation that putting qualitatively different things under the same label fragmentation and the notion of opposite to good for the internet - different parties use the term to point at what they fight against - makes building consensus difficult. This doesn't imply that there should be a preference or importance of some issues over the other, but putting them all in the same bucket leads to discussions where everyone is defending the own definition of fragmentation.

IPv4/IPv6 is a cautionary tale, an example of how it takes internet operators decades to manage the fragmentation caused by two incompatible protocols. While the transition In a way, this and the need to find ways to work around it, has made the internet a less usable tool. Nevertheless, technical advances have continued to progress the internet.

Fragmentation is not binary - the internet is not either fragmented or not fragmented. There are levels and degrees of fragmentation. New things fragment what ideally should be a more cohesive and unified internet and make things more difficult, however, this is consistent with the development of the internet and does not necessarily mean its end.

The key question - certainly from a technical perspective - is how to make the internet work for as many people as possible, people in different situations, with different equipment, different levels of connectivity, an internet that can facilitate as much and easy as possible communication between whoever has an IP address.

Mr Veni Markovski noted that in the current context of the interoperable single internet (of networks that use the same internet protocols and DNS) fragmentation means an internet that is no longer single and interoperable. When people talk about fragmentation, it is important to first understand what they mean and at what level they see this fragmentation, and if what they understand as fragmentation is at the level of not having the interoperable single internet.

Mr Madhavan Pallan saw similarities between the internet fragmentation discussion and discussions in the context of machine learning and data sharing. Regardless of the context, it is important to understand why some suggest abandoning existing systems, services or practices.

Mr Raul Echeberria commented that the word fragmentation is well chosen as it describes something that is broken. If the internet continues to fragment, it ultimately will break, and thus, fragmentation should be considered as something bad.

Overall, governments and policy makers lack a good understanding of how the internet works and underestimate the complexity of blocking or filtering content. Policy measures that instruct content filtering may oblige actors responsible for different components of the network to take different measures which together may cause malfunctioning or breaking of the network.

(2) Internet Fragmentation: Challenges and Impact on the different layers of the internet

Discussion moderator: Ms Timea Suto.
Discussants: Ms Farzaneh Badii, Mr Kevin Kohler.

> Question: What challenges are happening in the different layers of the internet ? Which parts or layers of the Internet are facing the greatest threat?

Ms Timea Suto moderated the second discussion on the impact of fragmentation, and on whether its focus should be on *where* fragmentation occurs (layered approach) or on the *actors* whose actions might cause fragmentation, as suggested in the previous discussion.

A layered approach, as mentioned in the PNIF proposal, differentiates between challenges happening in the different layers of the internet. For example, changes at infrastructure level that impede systems to work together (technical/backbone layer), physical changes in the network or access layer that prevent people from meaningfully connecting or the internet to function properly, or in the content or application layer, measures, policies and actions that prevent users from using or accessing certain platforms and services.

Ms Farzaneh Badii, founder of Digital Medusa, said that preserving the global and interoperable internet so that everyone, indiscriminately, can have access to the internet regardless nationality, gender, etc., is the key reason for having a conversation on fragmentation.

Territorialisation of the internet is not compatible with the vision of global access to the internet. This is access to services online, as well as - as the Internet Society defines - access to the essential or critical properties of the internet (e.g. IP addresses). Lack of access to the internet only because of a lack of physical infrastructure should not be considered as a form of internet fragmentation. Assessments should take into account the availability of alternatives. If there are no alternatives - e.g. in the case of access to IP addresses - no access is possible. Another example are barriers preventing or limiting IXPs to exchange traffic. There are various levels of diminished access, and not having access to the critical internet properties among the most extreme. The internet governance organisations have managed to preserve the access to the critical properties.

Recent measures and sanctions - not related to the internet - may hinder the allocation of new IP addresses to certain countries. Fortunately, already allocated IP address blocks have not been confiscated, but this situation must be monitored.

Recent developments - such as the Declaration on the Future of the Internet - where states, driven by good intentions to preserve the open and interoperable internet, limit collaboration to like-minded trusted nations, might lead to discrimination and affect the connectivity of people living in states that don't share the same values. It is important that the international community makes sure that there is minimal accesses to the internet, also for people living in authoritarian countries like Afghanistan

Mr Kevin Kohler, Senior Researcher at the Center for Security Studies (CSS) at ETH Zurich, prefers limiting the use of fragmentation to the context of connectivity restrictions, intentional, permanent or semi-permanent, imposed by nation states to get more control over the information on the content layer. For example, shutdowns, firewalls, deep packet inspection. Investing in a national DNS root and domain space, could, instead, be driven by concerns of getting disconnected. The evolution

at the layer of network and technologies is rather a dynamic of bifurcation and a clash of ecosystems, not individual nations trying to have more domestic control.

For example, theoretically, a future with 200 national DNS roots or 200 different firewalls, it is easier to imagine than 200 chip suppliers working with their own different standards.

Open discussion and feedback

Mr Sivasubramanian Muthusamy asked what organisations managing the internet's core infrastructure could do to prevent or fix fragmentation. In a reaction, *Mr Veni Markovski* stressed the importance of supporting the multistakeholder model for internet governance and of remaining alert for potential top-down changes to this model.

Mr Marek Blachut added that, if a layered framework of internet fragmentation is developed, it is important to take into account the governance dimension across the different layers. Each of the technology based layers have different policy mechanisms with institutions such as ICANN, IETF, and other standard setting bodies, and also the IGF, all of which play a role in promoting consensus and shared approaches. The health and effectiveness of these organisations and institutions at the global level, and cooperation with national level institutions and regulators, can prevent or seal around fragmentation. However, these institutions are at risk of being ignored when the behaviour of stakeholders or other external circumstances lead to organisations being undermined or abused.

(2) Internet Fragmentation: Challenges and Impact on the different layers of the internet

Discussion moderator: Ms Sheetal Kumar.
Discussants: Ms Carolina Hippolito vor der Weid, Ms Anriette Esterhuysen.

> *Question:* What kind of response is needed from policymakers and other stakeholders? Who should be doing what ? What are the possible actions required of different stakeholders (Governments, Private sector, Technical community, Academia, Civil Society, International Treaty Organisations)? What kind of guiding principles are needed?

Ms Sheetal Kumar invited participants to make use of the third discussion to brainstorm what kind of response can help to avoid internet fragmentation and what action could be expected from the different stakeholders.

Ms Carolina Hippolito vor der Weid, Head of the Digital Affairs Division of the Ministry of Foreign Affairs in Brazil, stressed the importance of the question of internet fragmentation against the context of ongoing and forthcoming discussions on Our Common Agenda, the Global Digital Compact, and the 2025 WISIS Review.

The narrative of fragmentation becomes a mainstream narrative in international relations, and replaces the narrative of an ideal open interoperable inclusive neutral internet. On top of that, some important actors add security issues and international competition policy issues into the fragmentation discourse, increasing pressure for localisation policies and competition policies connected to localisation. This worrying evolution may impact multilateral cooperation and the involvement of states in the multistakeholder model.

The multilateral system, until today, hasn't been able to effectively address issues around fragmentation, and the IGF, while being a brilliant place for discussions and expert exchanges, is lacking the weight to do so. The fact that the multilateral system hasn't been able to address these

issues might have contributed to the current situation where governments legislate territoriality effects and, as such, may induce more fragmentation. Agreeing on a common denominator would provide some safeguards to avoid more drastical fragmentation in the operational layers.

The authority on internet public policy remains with the governments, hence governments and the multilateral system are relevant and should be effectively on board. It can be valuable to look at how the international community addresses issues - unrelated to the internet - that require better coordination and policy. Climate and environmental issues, for example, have been on the agenda since the 60ies and 70ies, and since the 90ies have been gradually addressed at the international level through conferences and making commitments. The climate and environmental example learns us the importance of having a common minimal denominator.

Ms Anriette Esterhuysen, Senior Advisor APC , Internet Governance, pointed out that while there is some consensus around the issue of fragmentation, agreeing on how to move forward is more complex.

There is a vacuum when it comes to <u>principles</u> to adhere to, build on, and work with in multilateral and multistakeholder spaces. The GCSC's principle on the Public Core of the internet, for example, is powerful but should be complemented by a shared common understanding of what is meant with 'public core' (interoperability?, the Internet Protocol?) developed through further discussion in multistakeholder and multilateral spaces. This lack of consensus, at a principal and normative level, makes it difficult to move forward because it is not clear what should be protected as public and cannot be fragmented. The fragmentation discussion could learn from how norms and principles on human rights serve as a powerful base and give states the responsibility to nationally uphold principles that were made globally/internationally.

Existing <u>norms packages</u>, such as the UN Norms of responsible state behaviour in cyberspace or the NETmundial principles, are not consolidated and socialised across multilateral and multistakeholder spaces.

Both the <u>multilateral and multistakeholder</u> approach is needed. Discussions should move away from polarising between both models and focus on inclusive governance and policy making. (Both models can be used or abused at any level, one can have non inclusive multilateral as well as non inclusive multistakeholder spaces). It is possible to have national- or regional-level internet policy and regulation and a global interconnected non-fragmented internet. Governments must be persuaded to refrain from regulating the internet in a way that fragments, and to respect global norms of interoperability as well as global norms of human rights and freedoms.

The growing number of internet governance <u>institutions</u> and initiatives, each with their own role and responsibility (e.g. ICANN, the Internet Society, the United Nations, multilateral spaces such as the OEWG, the Summit of the Future and the GDC), should focus on building norms and principles that can unify the evolving distributed internet governance system. The GDC could be a powerful starting point, but, as the NETmundial experience shows, it will be as important to continue to move.

Open discussion and feedback
Mr Jorge Cancio advised to define fragmentation and related developments more precisely, and avoid immediate and value intensive condemnation of what might be fragmentation. The internet has become a mirror of society with economic, geopolitical and other policy issues that require regulation (which is per definition state or region based). There is the expectation that policy and lawmakers align with democratic legitimacy principles and respect for human rights. Similarly, regulatory measures on the internet should not interfere with the main aspects of interoperability, of

end-to-end communication of the global internet. Awareness among policy makers in some regions is increasing, but the dialogue must continue and stakeholders, in particular the technical community, should show how policy makers can reach their goals without interfering with the interoperability. Such an approach is more promising than dismissing any regulation effort as stupid or comming from people that don't understand the internet.

A more precise and more sophisticated narrative that avoids binary thinking and commits to the multistakeholder approach, still allows suggesting improvements to the multistakeholder model, to make it more inclusive, respectful of diversity, enabling more meaningful participation. In this context the discussions, from around 2018, on a 'regime of immunities', elements of the management of critical internet resources, including elements of the ICANN policy making, that would require some sort of protection, an international framing, where the international community would actively abstain from interfering might be worth revisiting.

Mr Veni Markovski noted that there is a tendency to discuss who is and who should be doing what in the internet ecosystem instead of focussing on defining internet fragmentation.

Ms Sheetal Kumar reacted that a conversation that wants to understand how people see and define fragmentation naturally moves into talking about actions and responsibilities. The webinar, so far, showed that there is some level of agreement about fragmentation being the result of actions (intended or not). This immediately raises the question about the actors behind the actions, and who is doing what in the ecosystem. There is a clear link between the question of what can be done and who is doing what (can take the action). If the aim of the conversation is to identify and agree on solutions, it will be necessary to identify who is and can be doing what.

Mr Pedro de Perdigão Lana added - based on the experience of ISOC Brazil with trying to define the concept of digital sovereignty and fragmentation - that having people and organisations share what they experience as fragmentation is an excellent way to move forward and try to find a common denominator. This common denominator is not about agreeing on the concept itself, but about what can be done to avoid internet fragmentation. Because people understand and use the concept of fragmentation differently - throughout the world and throughout different sectors of society - forcing a unique concept won't work very well. It is more fruitful to start from what everyone is doing.

Ms Anriette Esterhuysen commented that the PNIF effort on the concept of fragmentation is extremely useful but the real challenge remains to understand what we want the internet to be and that we want the internet not to be different in different parts of the world. Building such a common understanding in a global context is extremely difficult as it is interwoven with broader cultural and political views (e.g. regarding the role of the state, the free market).

Meeting recording https://youtu.be/dhVaovkSq0o