"Splinternets": Addressing the renewed debate on Internet fragmentation

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RIPE 85
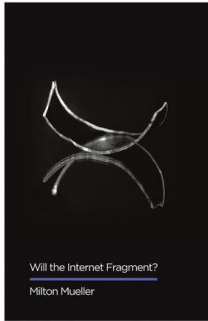
The 'splinternet' is already here

Keith Wright 12:32 AM GMT+1 • March 14, 2019

Will NSA revelations lead to the Balkanisation of the internet?

Will the Internet Fragment?
Milton Mueller

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Future of the Internet Initiative White Paper

Internet Fragmentation: An Overview

COMPUTING
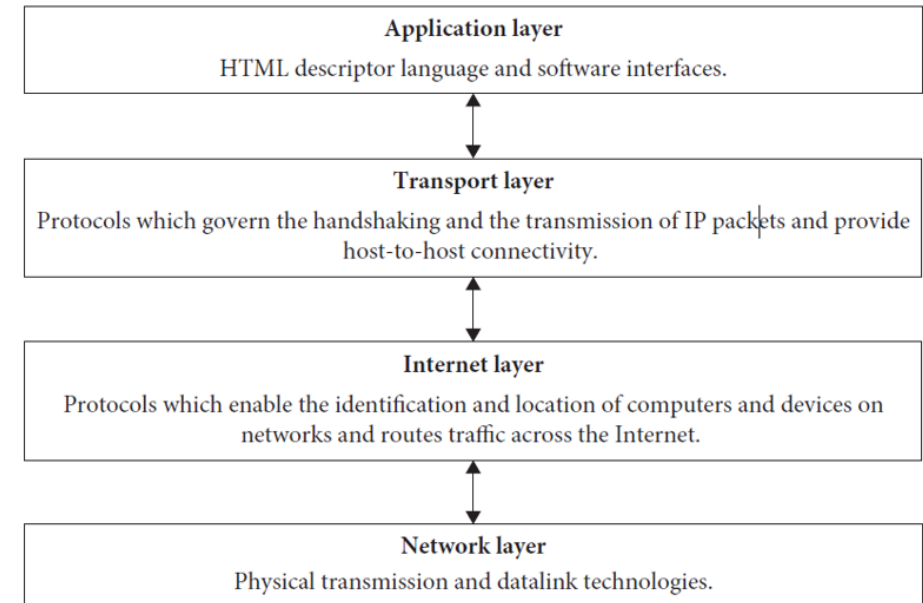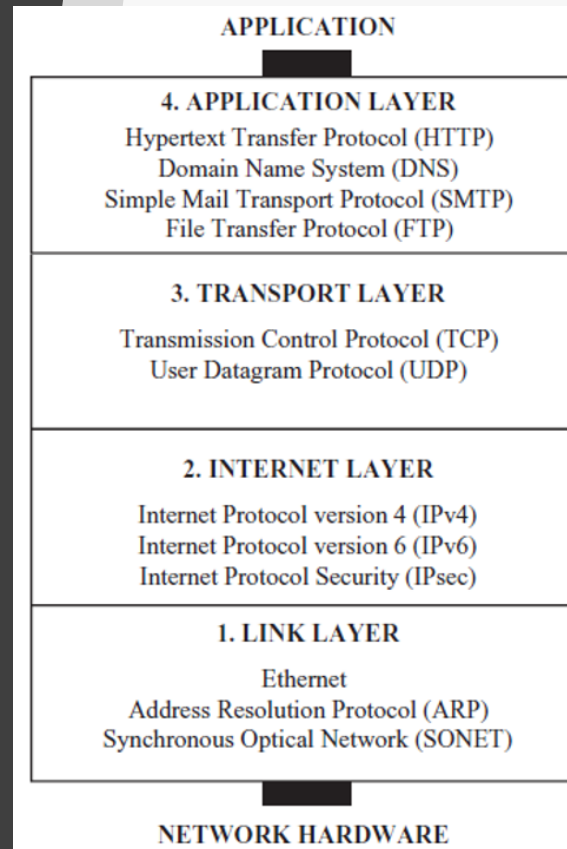Russia is risking the creation of a "splinternet"—and it could be irreversible

• Ball, James (2022) "Russia is risking the creation of a "splinternet"—and it could be irreversible", MIT Technology Reviewe, 17 Mar.

• Brown, Ian (2013) "Will NSA revelations lead to the Balkanisation of the internet?", The Guardian, 1 Nov.

• Drake, William, Vinton Cerf and Wolfgang Kleinwächter (2016) Internet Fragmentation: An Overview, World Economic Forum Future of the Internet Initiative White Paper.

• Mueller, Milton (2017) Will the Internet Fragment?, Hoboken:Wiley

• Wright, Keith (2019), "The 'Splinternet' is already here", TechCrunch, 14 Mar.

The Internet

- Technically:
  - Network of networks
  - Interoperability
  - Packet-switching
  - Ideally: distributed
  - "Best-effort"
- Politically and socially:
 - A public sphere
  - A marketplace

APPLICATION

4. APPLICATION LAYER
Hypertext Transfer Protocol (HTTP)
Domain Name System (DNS)
Simple Mail Transport Protocol (SMTP)
File Transfer Protocol (FTP)

3. TRANSPORT LAYER
Transmission Control Protocol (TCP)
User Datagram Protocol (UDP)

2. INTERNET LAYER
Internet Protocol version 4 (IPv4)
Internet Protocol version 6 (IPv6)
Internet Protocol Security (IPsec)

1. LINK LAYER
Ethernet
Address Resolution Protocol (ARP)
Synchronous Optical Network (SONET)

NETWORK HARDWARE

Application layer
HTML descriptor language and software interfaces.

Transport layer
Protocols which govern the handshaking and the transmission of IP packets and provide host-to-host connectivity.

Internet layer
Protocols which enable the identification and location of computers and devices on networks and routes traffic across the Internet.

Network layer
Physical transmission and datalink technologies.

Sources : DeNardis (2009) and Harcourt et al. (2020)

What is "Fragmentation"?

- No communication whatsoever between two nodes of the network of networks

- Non-uniqueness of the DNS system

- Outages

- Technological silos and application-layer incompatibilities

- Alignment and censorship

- Filter bubbles

- …

The term 'splinternet' designates a part of the Internet that would secede and become inaccessible to the other nodes, due to either technological or political reasons.
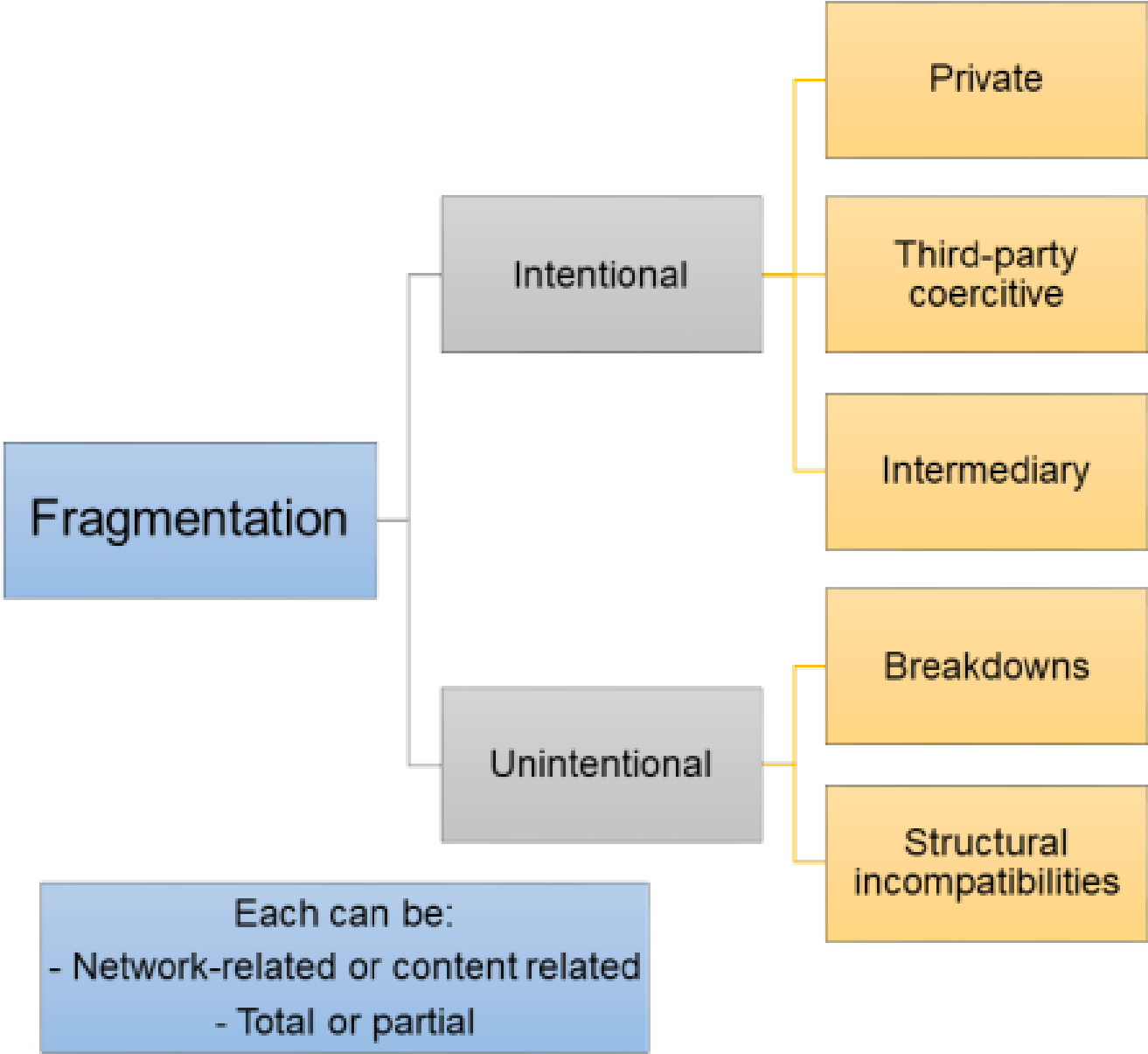
Inspired by: Mueller, 2017
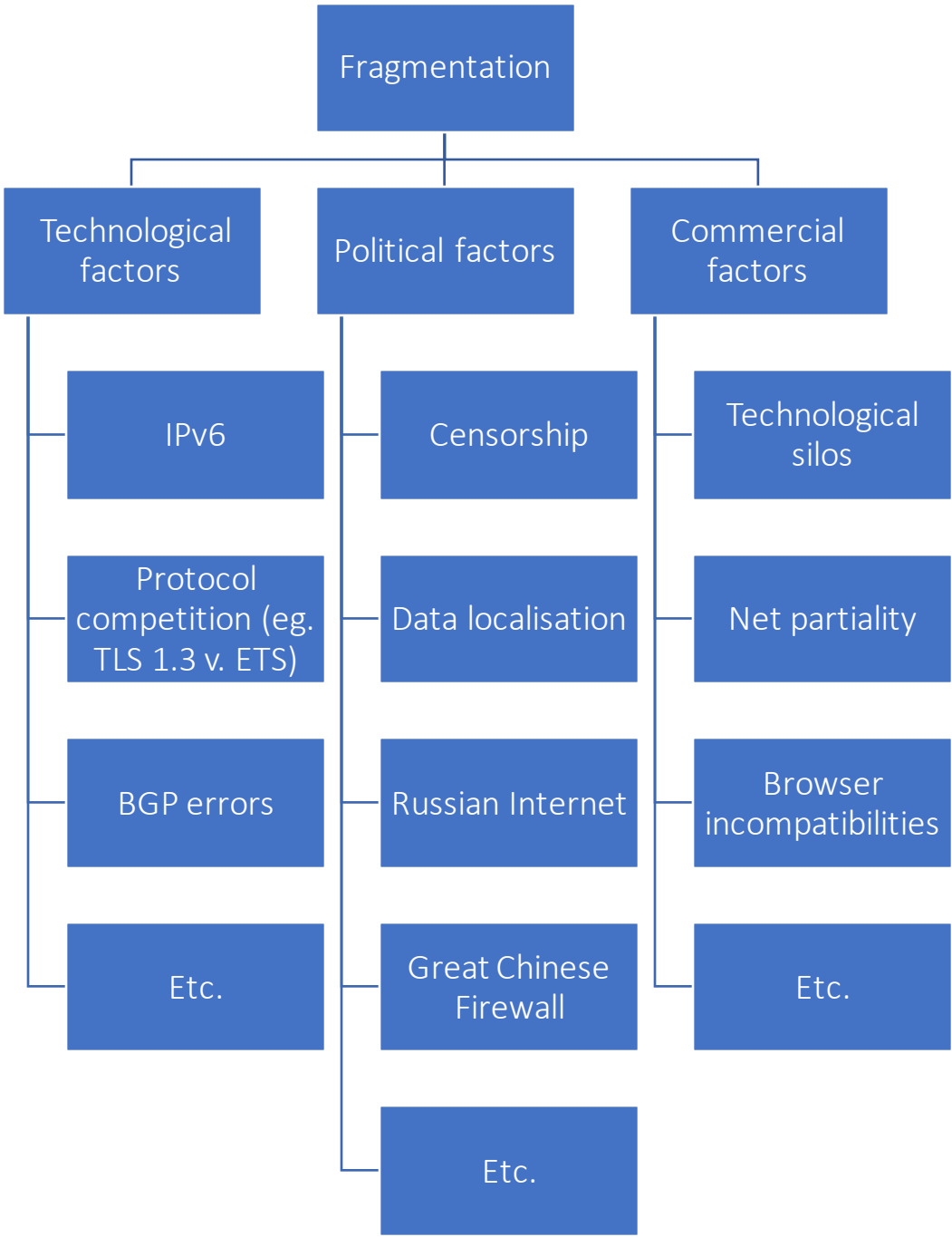
Policy Options

1. Status Quo

- No change in regulatory status quo

2. Embracing Fragmentation

- Imposing standards that may diverge from standard IETF standards
- Imposing Schengen routing
- DNS filtering
- ...

3. Fighting Fragmentation (At All Costs)

- Dropping data localisation requirements
- Imposing strict interoperability requirements
- Extend net neutrality requirements to a wider range of actors
- Use foreign policy tools to foster a united Internet
- ...

4. Towards Fragmentation That Is "Necessary in a Democratic Society"?

- Fragmentation is a limitation to the right to freedom of opinion and expression
- Accessibility and interoperability requirements are strengthened
- Restrictions on the export of certain types of data (i.a. personal data) are kept
- ...

Assessment of Policy Options

1. Status Quo

- Unlikely scenario

2. Embracing Fragmentation

- May infringe on freedom of expression rights
- May restrict the importance of the EU as an online marketplace and global norm exporter

3. Fighting Fragmentation (At All Costs)

- **May collide with obligations under the WTO TBT Agreement**
- May lead to some rights being less protected (i.a. privacy, data protection, intellectual property, consumer rights...)

4. Towards Fragmentation That Is "Necessary in a Democratic Society"?

- Provides a method
- Allows a balance to be found between conflicting interests

Conclusion: towards fragmentation that is "necessary in a democratic society"?

The fourth strategy considers Internet unity to be derived from certain fundamental rights such as the freedom to access information and asserts that any limitation to that right should be, in the words of the European Court of Human Rights (ECtHR), "necessary in a democratic society."

Policy options may include:

- Data localisation requirements and restrictions on data transfers *where necessary*.

- Restrictions on certain technologies, such as the mining of crypto-currencies, *where necessary* on grounds of environmental protection.

- Information society service providers may be subject to certain rules to ensure that their decisions do not fragment the Internet in a way that disproportionately affects fundamental rights.

- Improving accessibility and interoperability requirements to mitigate Internet consolidation, reinforce resilience and combat walled gardens.

Thank you for your attention.