Fragmentation Of The Internet

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Thesis

• What we perceive today as a unified global network is going to be divided by an increasing number of barriers, toll-gates, disparate name and address spaces, and restricted protocols.
  - Sometimes this will be a good time, sometimes it will be a bad thing.
  - Most users won't notice.
  - We could lose the End-to-End principle.
The End-to-End Principle

• At the heart of the internet is a most precious thing: the End-to-End principle.
  - Any two devices at the edges of the net may exchange packets subject only to the constraints of a best-effort packet delivery service and security.
• Loss or damage to the End-to-End principle would be a catastrophe.
The End-to-End Principle Makes The Internet Special

• The End-to-End principle gives the power to innovate to users at the edge.
  - It is not necessary to obtain permission.
• Without the End-to-End principle the internet could come to have the same lack innovation as the telephone system of the 1950s.
• Certain kinds of fragmentation erode or destroy the End-to-End principle.
**Innovation Usually Causes Fragmentation**

- Those who do not adapt are left behind.
- Many kinds of innovation and fragmentation do not damage the End-To-End principle.
- We must distinguish between innovation that damages the principle and that which does not.
  - The distinctions are subtle.
  - This will be a major challenge for policymakers.
Forces Driving Fragmentation
(1 of 2)

• The desire to control behavior or coerce money has created a rush to locate and control Internet choke points.

• Resource resource limitations (or scarcity) is driving people to look for new pastures.

• Network rot is making some existing internet resources unpalatable or unusable.
Forces Driving Fragmentation
(2 of 2)

• Social or cultural communities and national governments want to define their own internet landscapes.
• Overbearing, burdensome, or expensive internet regulation (e.g. ICANN) is driving people to seek “new worlds”.
Factors Facilitating Fragmentation

• Shift of perception of what the internet is:
  - Less of a communications medium.
  - More of an applications platform.

• NATs (Network Address Translators) make it seem easy and safe.
Factors Resisting Fragmentation

- Inertia
- Fear
- Lack of imagination
- Techno dogma

These obstacles will erode, they won't last forever.
Our Challenge As Lawyers and Policymakers

• We must come to understand the End-to-End principle.
  – This isn't as easy as it sounds.
• We must learn to distinguish between fragmentation is is merely inconvenient to incumbents and users and that which damages the End-to-End principle.
• Let me suggest the following:
The First Law of The Internet

• Every person shall be free to use the Internet in any way that is privately beneficial without being publicly detrimental.
  - The burden of demonstrating public detriment shall be on those who wish to prevent the private use.
  • Such a demonstration shall require clear and convincing evidence of public detriment.
  - The public detriment must be of such degree and extent as to justify the suppression of the private activity.
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