

Internet Governance: A perpetual “threat”

Scott Bradner
1/15/2015

Some of the Players



Not Players



Don't blame the weatherman
for the weather

3

Governance Issues

regulations, settlements, technology standards, peering, security, emergency use, espionage / monitoring, national boundaries, attribution, societal disruption, business disruption, trademark, copyright, operation of critical infrastructure, censorship, spam, have/have not balance, domain names, resource assignment policies, government roles, network neutrality, exchange point management, market dynamics, subsidies, competition, cybercrime, cyberwar, patents, identification, attribution, ...

4

Playing Fields



5

Example: Protocol Standards

TCP/IP developed in U.S. in early 1970s
 ISO started to develop network standard in 1977
 OSI was offered TCP/IP as base, they declined
 ARPANET adopted TCP/IP in 1983
 OSI published protocol specifications in 1984
 Mandated by many governments (including U.S.)
 But not a success in market (too complex, etc.)
 U.S. relaxed requirement in 1994
 ITU started to develop new net standard in 2004
 Still under development – little deployment
 In November India proposed reengineering the
 Internet protocols & architecture

6

The target of affections

The Internet

Started in the U.S. in 1969 (ARPANET)

Started to support research connectivity

World-wide by mid 1990s

WWW meant that anyone could use it

Ubiquitous transport service

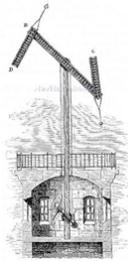
CAN support anything

7

History & State of Telecom Governance

8

Long Distance Communication – P1



1793

WHAT HATH GOD WROUGHT



1844



1858

1875 – 650,000 miles

9

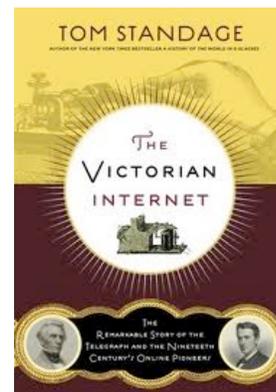
Telegraph System Architecture

State-owned or state-licensed providers confined to a state

Approved services

Revenue source for state

Bilateral interconnect agreements



10

Telegraph Regulations



1865: 20 European governments gathered in Paris
International Telegraph Conference ->
International Telegraph Convention (ITC) ->
International Telegraph Union (ITU)

11

ITC 1865

Tariffs & settlements

Technical standards

Retention requirement

Complaint process

...

Aims included protecting state & morality

Requirement to be able to stop messages that *“may appear dangerous to the safety of the State or which would be contrary to the laws of the country, public order or morality”*

12

Communications Governance V1

Governance by governments

Empowered state regulators

More than just technology

Also protect state, money & morality

Westphalian ideal?

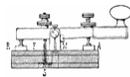


13

ITU

International Telegraph Union ->

International Telecommunication Union



1865



1885



1906



1934



1949

because ITU *“covered all forms of wireline and wireless communication”*

14

Telephone System Architecture

State-owned or state-licensed providers

Confined to a state

Approved services

Significant revenue source for states

Decade long planning cycles

Circuit-based “intelligent network”

QoS & security “guaranteed”

Interconnection under ITU rules

15

Telephone Regulations

Technology

Tariffs

Services

Quality

Interconnection

Numbering (naming)

Undersea cables

...

16

Internet Features

Can use existing physical layers

- No new (or separate) infrastructure required

- Repurposing existing infrastructure

No guarantees

No (in-net) security

Technology end-to-end

- Services not controlled by carriers

Long ignored by incumbent carriers & regulators

- Even though carriers used technology themselves

17

Internet Regulation

What Internet regulation?

In the U.S., the FCC refrained

- Since telephone companies ignored the Internet

An overlay, not a new, network

“Experts”: does not/cannot work



18

Things changed

19

The Internet is IT

Too big to ignore (or disbelieve)

The Internet is more than 5% of the world's GDP

Replacing all existing communication infrastructures

Far cheaper to build & operate

Scares the bejesus out of most governments

e.g. ISIS recruiting via slick social media programs

Scares the bejesus out of most traditional industries

Just ask the newspaper publishers

20

Four Governance Contests

ITU

Network neutrality

IANA function

NETmundial Initiative

21

ITU

22

ITU

The International Telecommunications Union

U.N. treaty organization

the traditional home of telecommunications standards

Originally formed in mid 1800s

Standards voted on by “member states”

Imposed by regulation in some countries



Few ITU standards are relevant to the Internet

Not because they have not tried

H.323 (voice over IP), Next Generation Network (NGN)

23

ITU governance

Every now & then – meet to review treaties

World Conference on International

Telecommunications (WCIT) – 2012, previous in 1988

Every 4 years

World Telecommunication Standardization Assembly
(WTSA) – 2012

Set ITU-T structure and plan for next 4 years

Plenipotentiary Conference (PP) – nov 2014

Set ITU plan for next 4 years

Contribution driven

Thus not always controlled

24

ITU & Internet

The ITU has long recognized that the Internet was intruding on their traditional territory

e.g., shortly before PP-98 (1998)

IETF was approached about submitting IETF standards to ITU-T for review

Every PP since have included proposals to take over some or all of the Internet standards or assignment functions

To date, all blocked, mostly by U.S. coordinated efforts
But some ITU-T contributions request this anyway

25

Why Care?

ITU acts like a vote of the member states empowers it

Even over non government entities such as the IETF, RIRs & ICANN

Ambiguous legal picture in many countries

Revision of Internet settlement regulations could have significant impact on Internet business model

Putting Internet standards under government control could change nature of the standards

Protect incumbents, require backdoors, etc.

26

WCIT 2012

Promise: consensus, no voting

Actual: vote to expand ITU role in Internet



PP 2014

Many submissions

Non-representative: from India

redo addressing & naming to be country based

take over Internet address & name policy development

redo architecture to ensure internal traffic stays in-country

record all Internet transactions

develop new “secure, robust and tamper-proof protocols”

In the end, no substantive directions

After a lot of work (U.S. opinion less of a factor)



28

Network Neutrality

29

Legal factors

Privacy regulation approaches

Regulatory approaches

Carrier's view

Common carriage

Network neutrality

30

Privacy regulations

US: address specific issues

Laws address particular situations

E.g., video tape rental records



New York Times

Most of the rest of the world: holistic, principle-based approach

Laws address all data owners, independent of the type of data or the reason they have the data

As long as the data is “personal information”

31

Regulatory approaches

Openists

Net must be open to enable *innovation commons*

Require *network neutrality*

e.g., power grid does not favor toasters

To let people at edge/end innovate

Dumb pipe must be available & cost effective

Deregulationists

If ‘network is property’ companies will innovate

Note: “property” specifically includes right to exclude

Network owner needs incentive to invest

Mandatory *smart pipe* OK

The Broadband Debate: A User's Guide - Tim Wu
<http://ssrn.com/abstract=557330>

32

Carrier point of view

It's my wire, I'll do what I want with it

Edward E. Whitacre - CEO AT&T

'Google, Vonage & Skype are using my network for free'

William L. Smith - CTO Bell South

'We should be able to charge Yahoo to let their web page load faster than Google.'

Ignore fact that the customer bought the service in order to access Google, etc.

And service is more valuable because of Google & etc.

Pushing to charge sites for "better service"

Small step to making payment required for any useful transport (i.e., a protection racket)

33

Network Neutrality

A neutral network is in the spirit of the original Internet end-to-end architecture

Carriers just transport packets without regard to who sent them, who is to receive them, or what is in them

Enables "permissionless innovation"

But the concept is foreign to traditional carriers
growing issue in U.S.

Somewhat less of an issue elsewhere

34

Information Services

Telecommunications Act of 1996 created a class of “information services”

Not subject to FCC regulation

FCC said that Internet service providers were offering information services

Direct connect ISPs were generally small and not part of telephone or cable providers at the time

Today, almost all residential Internet service is from a telephone or cable provider

ISPs generally respect the e2e principle

35

E2e Abuse

Some ISPs have abused e2e

Blocked VoIP (Madson River), degraded Bit Torrent (Comcast) and degraded Netflix (Cogent)

And they all said they were not doing anything

So, call for FCC to regulate to stop such abuse

FCC has tried multiple times, always overturned in court

With good cause

In the middle of another try

FCC initial proposal got over 4 M, mostly negative, comments

36

More Network Neutrality

Concept: ISPs should treat all Internet traffic equally

Not processing or charging differently because of some factor

e.g., a business relationship

But some carriers want to be able to charge for “better” service

Only works if no payment means worse service

37

Common Carriage

An individual or business that advertises to the public that it is available for hire to transport people or property in exchange for a fee.

A common carrier is legally bound to carry all passengers or freight as long as there is enough space, the fee is paid, and no reasonable grounds to refuse to do so exist. A common carrier that unjustifiably refuses to carry a particular person or cargo may be sued for damages.

West's Encyclopedia of American Law,

38

Common Carriage, contd.

Basic concept: treat customers consistently & fairly

Started with freight carriers

Extended to telecommunications in 1910

Mann–Elkins Act

Does not (currently) include Internet service providers (“Title II”)

U.S. FCC exploring the possibility

39

Title II

Title II is not network neutrality

Title II gives the FCC authority to require a neutral (or non-neutral) network

Title II also gives the FCC the authority to regulate every detail of an ISP & its service offerings

40

White House input

Obama asked FCC to regulate ISPs as “Title II” common carriers

Many activists want Title II but want the FCC to “forebear” from most regulations other than those that block unequal treatment of packets

Risks: courts could require some additional regulations, future FCC could be more supportive of regulation

General agreement: full Title II would hurt Net
FCC to vote in February

Some in Congress will go nutz if ISPs made subject to Title II

41

Other Inputs

Carriers say they will sue to block any regulations except for Comcast, which agreed to some to buy NBC

Carriers threaten to stop investing in infrastructure

National Security Telecommunications Advisory Committee (NSTAC) called for prioritization of emergency and national security traffic

Lots of technical reasons this is a bad idea

Some content owners want free transport of their content (e.g. Netflix)

Others want to regulate ISP peering

42

going dark

The FBI says they want regulations to require back doors in all Internet applications

e.g., to counter Apple's iOS and iMessage locks

Now using All Writs Act (1798) to force compliance

So they can wiretap or get at contents

Never mind that they can not show any example where this would have made a difference

"a child will die"

Note: the real bad guys already have their own tools and are incented to hide

43

IANA function

44

IANA function

3 core Internet coordination functions are performed by the Internet Corporation for Assigned Names and Numbers (ICANN) under contract from the U.S. National Telecommunications and Information Administration (NTIA) – part of the DoC

- Record protocol values

- Allocate IP address blocks to regional registries

- Maintain root zone file for the domain name system

U.S. “control” long resented by many outside the U.S.

45

IANA transition

Last spring, NTIA said they might surrender control if specific conditions were met

- Multistakeholder model, maintain stability of DNS, meet needs of IANA customers & maintain open Internet

NTIA/IANA Stewardship Transition Coordination Group formed

- Which will review proposals

- Proposal from IETF submitted, numbers soon, names may take a while

- Other proposals possible

46

IANA transition, contd.

NTIA has not committed to transition, will evaluate proposals

Many in Congress do not want to “give away the Internet” - December 2014 budget bill:

None of the funds made available by this Act, may be used to relinquish the responsibility of the National Telecommunications and Information Administration during fiscal year 2015 with respect to Internet domain name function functions, including responsibility with respect to the authoritative root zone file and the Internet Assigned Numbers Authority functions.

47

NETmundial Initiative

48

meanwhile

ICANN CEO, Fadi Chehadé, initiated, with the Brazilian President, a NETmundial meeting in Brazil last spring

“Global Multistakeholder Meeting on the Future of Internet Governance”

Claims to not be an ICANN effort

Anger after Snowden revelations part of cause

850 attendees, little solid result



49

NETmundial Initiative

Fadi Chehadé, with the World Economic Forum, have created the NETmundial Initiative

not related to NETmundial meeting

COORDINATION COUNCIL | OVERVIEW

- Bottom-up, transparent self-nomination process
 - Government officials may submit nominations through formal channels.
- 25 total members
 - 5 permanent seats, one for each: CGI.br, WEF, ICANN, I* group, IGF MAG;
 - 20 distributed across the following four sectors and five geographies:
 - Sectors: (1) Academia, Technical Community and Foundations; (2) Civil Society; (3) Governments and Intergovernmental Organizations; (4) Private Sector;
 - Geographies: (1) Africa; (2) Asia & Oceania; (3) Europe; (4) Latin America & Caribbean; (5) North America.
- Deadline for nominations is 6 December 2014

www.netmundial.org

50

NMI, contd.

Not clear what NMI is for

Initial is “a web site” for discussion of Internet governance issues

Hard to see why a 25 member coordination council is needed to manage a discussion web site

51

Not to mention

World Summit on the Information Society (WSIS)

Internet Governance Forum (IGF)

China’s November World Internet Conference

The Internet Society

The copyright industry

Stop the Internet, we want to get off

The EU parliament

Vote to break up Google

The NSA

Destroyed U.S. moral authority relative to the Internet

52

or

The message of the Arab Spring

U.S. DOJ subpoenaing offshore data

Calls for data sovereignty

Law enforcement want ICANN's help in making
Internet sites disappear (e.g., illegal drug sites)

53

Idealists

Some idealists say the Internet does not need
governance

But some of them admit that regulations may still
be useful:

*“any company that handles Internet datagrams
may not read or modify the content, nor infer
intent or meaning for the purpose of deciding
what datagrams to deliver or to not deliver”*

David Reed

54

Review

2014 ended with no significant changes in the Internet governance picture

But we keep getting close to the cliff of government control of the Internet

At least a dozen times in the last dozen years

Will the cliff is always be there?

Likely

The Internet is too important to leave to the people who know how it actually works

55

56