

Network Neutrality Federal Non-Legislation?

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Internet Architectural Principle

e2e

let the ends do it
(or control it)

let the user decide
(a.k.a., The Stupid Network)

End-to-End Arguments in System Design - Saltzer, Reed & Clark

<http://web.mit.edu/Saltzer/www/publications/endtoend/endtoend.txt>

The Rise of the Stupid Network - David Isenberg <http://www.isen.com/stupid.html>

But!

no QoS!

no business model!

where is security?

QoS

can you sell better QoS at a higher price?

multiple levels per customer

multiple levels per application service provider

“the Internet is not reliably crappy enough”

S. Bradner

“It fails to fail often enough so it looks like it works.”

Mike O'Dell

ISP Business Model

service can be provided by 3rd parties - not just by carriers

a quote from an IETF mailing list

Hi Roy,

I still don't understand why it is a "users" choice where the "services" are executed - I would have thought that this would be networks choice

and ISP does not profit from applications using network - i.e., Internet is a commodity

“We do not know how to route money”

Dave Clark

Internet Security

e2e means security is an end system responsibility

end systems under relentless attack

worms, versus, spyware, ...

Internet infrastructure under occasional attack

DNS root servers, routers, management systems, ...

Internet does not protect end system

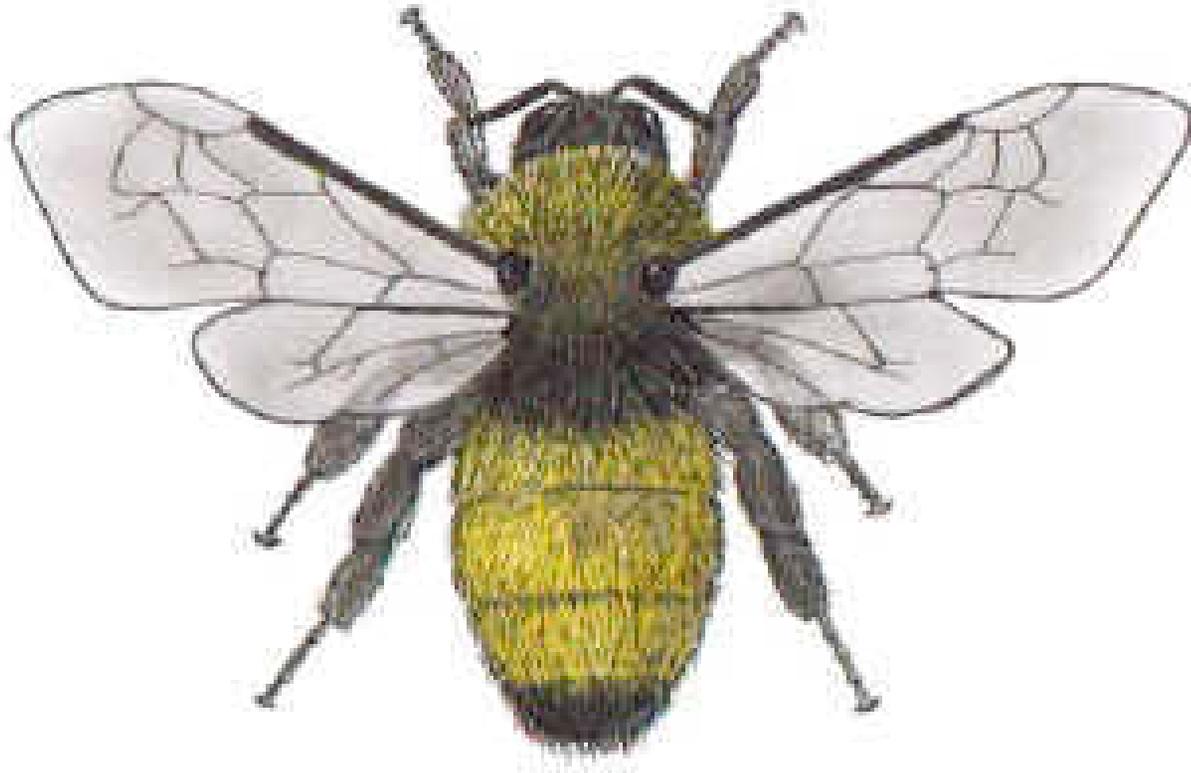
makes sure the worm is delivered promptly

end users & regulators may demand that “the Internet” protect the users

carriers may leap to help

same tools can access to content providers

Thus



Internet & IP networks

by definition - to traditional networking folk

What Did It Give Us

e2e Internet, and open computer operating systems, are *generative*

enable innovation by others

impact society by moving or eliminating control points

The Internet is a “parent revolution”

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

deregulationists

if network is property then companies will innovate

note: “property” specifically includes right to exclude

network owner needs incentive to invest

forced *smart pipe* OK

The Broadband Debate: A User's Guide - Tim Wu

<http://ssrn.com/abstract=557330>

FCC

4 “principles” (5 August 2005)

*consumers are entitled to access the **lawful** Internet content of their choice*

*consumers are entitled to run applications and use services of their choice, **subject to the needs of law enforcement***

*consumers are entitled to connect their choice of **legal** devices that **do not harm the network***

consumers are entitled to competition among network providers, application and service providers, and content providers

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf

FCC: CALEA

Internet & interconnected VoIP providers subject to CALEA (wiretapping) law

VoIP provider "*must necessarily use a router or other server*" thus is facilities-based

logic in FCC Order & principles logically leads to a requirement that the FBI pre-approve applications

something they requested

Why e2e is(was) Important

customer freedom to access information & content

psychology important - not clear economically vital

allows widespread innovation activity

dramatic (and chaotic) innovation using Internet

(chaos does bother some people)

non-transparent net restricts ability to innovate

must get permission of block owner or hide in HTTP

CDA testimony - Bradner - <http://www.sobco.com/papers/index.htm>

The Future and its Enemies - Postrel - <http://www.dynamist.com/tfaie/>

e2e

convinced that the e2e principle is important?

Google & Skype are

can you get e2e these days?

maybe

Reality

IP-level end-to-end is gone for the average user
enterprise firewalls, ISP firewalls, personal NATs,
wiretapping...

IP-level end-to-end for enterprises is still here
at least for now

because ISPs provide e2e service (edge-2-edge)
thus enterprise sanctioned IP-level innovation
can happen

but, gone are the days of IP-level e2e being the
normal case for the Internet user

Net Neutrality

Senate Commerce Committee hearing 2/7/06

Vint Cerf et al vs. TIA et al

Cerf

described e2e concept & power of Internet

asked Senators to not let carriers destroy it

Walter McCormick, Jr for US Telecom Industry
Association

would never "*block, impair, or degrade content,
applications or services.*"

but do not make any rules to stop us

Net Neutrality, contd.

Vint's reason

carriers could make it so carrier permission (or payment) is required for new applications

block new app development - destroy generative effect

TIA's reason

if Internet is a commodity then carrier is not assured a return on investment

(note - did not say what they would actually do - disavowed AT&T etc CEO statements

<http://commerce.senate.gov/hearings/witnesslist.cfm?id=1705>

Carrier 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**'*

"AT&T will not block or degrade traffic, period, and we won't change (our position) no matter what sky-is-falling rhetoric you hear. Markets work best when consumers have choices."

William L. Smith - CTO Bell South

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

- pushing to charge services for "better service"
small step to making payment required for any useful transport (i.e., a protection racket)

Should the Carrier Dictate?

“One does not allow the plumbers to decide the temperature, depth and timing of a bath.”

Jack Gould Aug 1966

declaring that “old line carriers” such as AT&T should not be allowed to dominate national communications

Ball now in Washington

ball is now in the hands of congress & FCC
legislation pending in DC to update '93 telcom
act

proposals on table gut the Internet e2e concept
in order to protect incumbent carriers

outcome TBD

