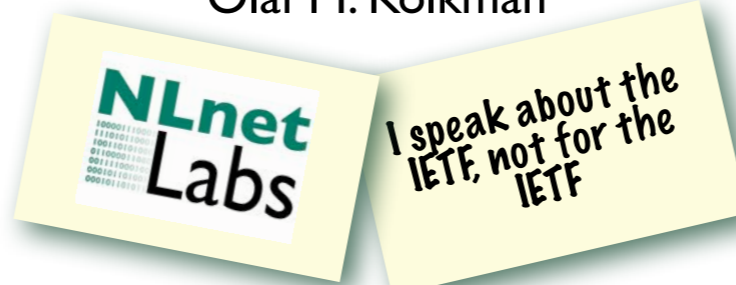


I E T F[®]

Open Standards for an Open Internet

Olaf M. Kolkman



olaf@NLnetLabs.nl

IETF Leadership
present

Eliot Lear

Andrew Sullivan

Benoit Claise



OUTLINE

Open Internet

Open Standards

**The IETF as a
Open Standards
Body**

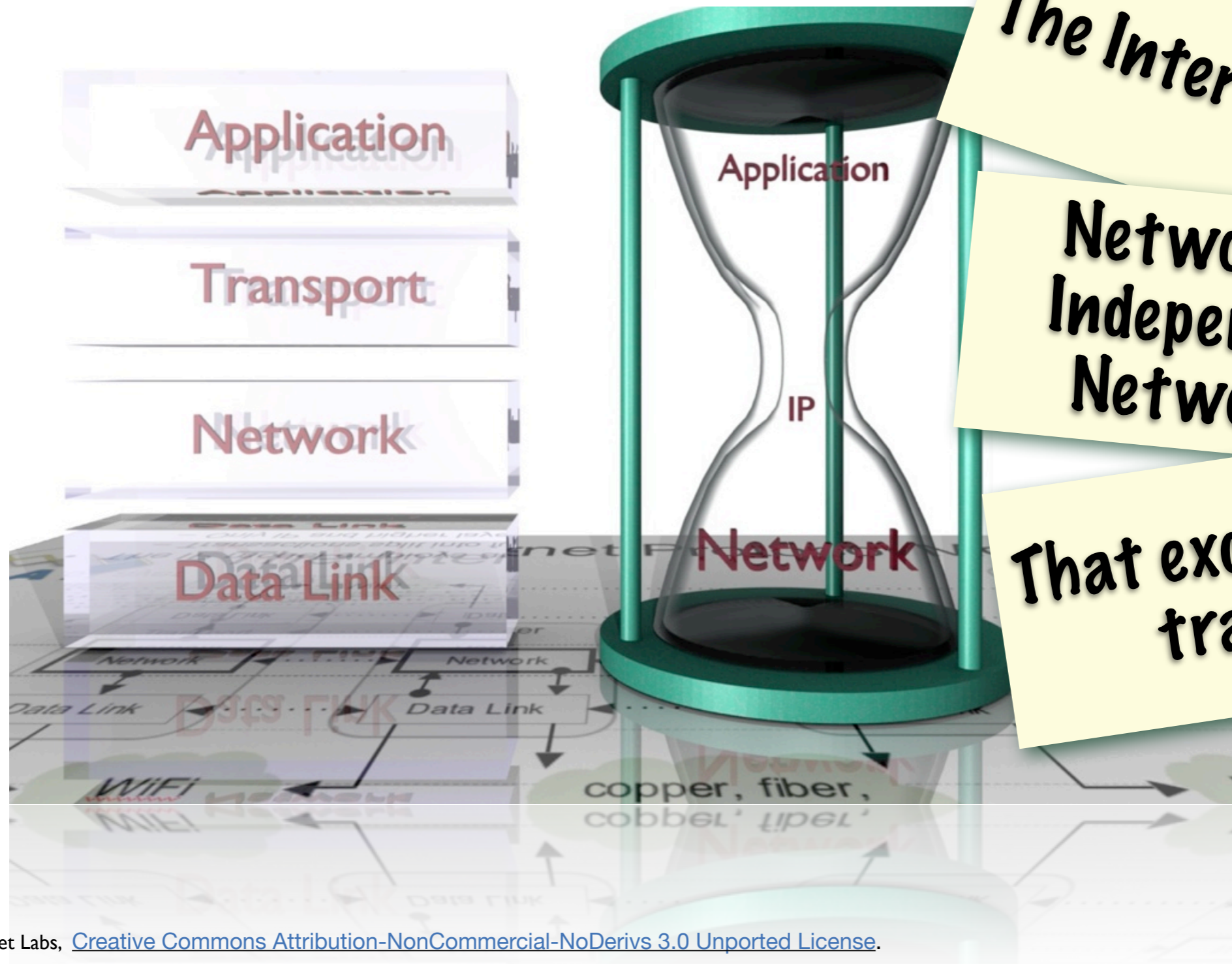
Org Chart

**Working
Methods**

Participation

**Work of Potential
Interest**

Open Internet?

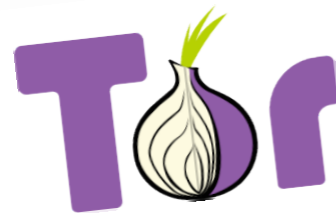


The Internet is a

Network of Independent Networks

That exchange IP traffic

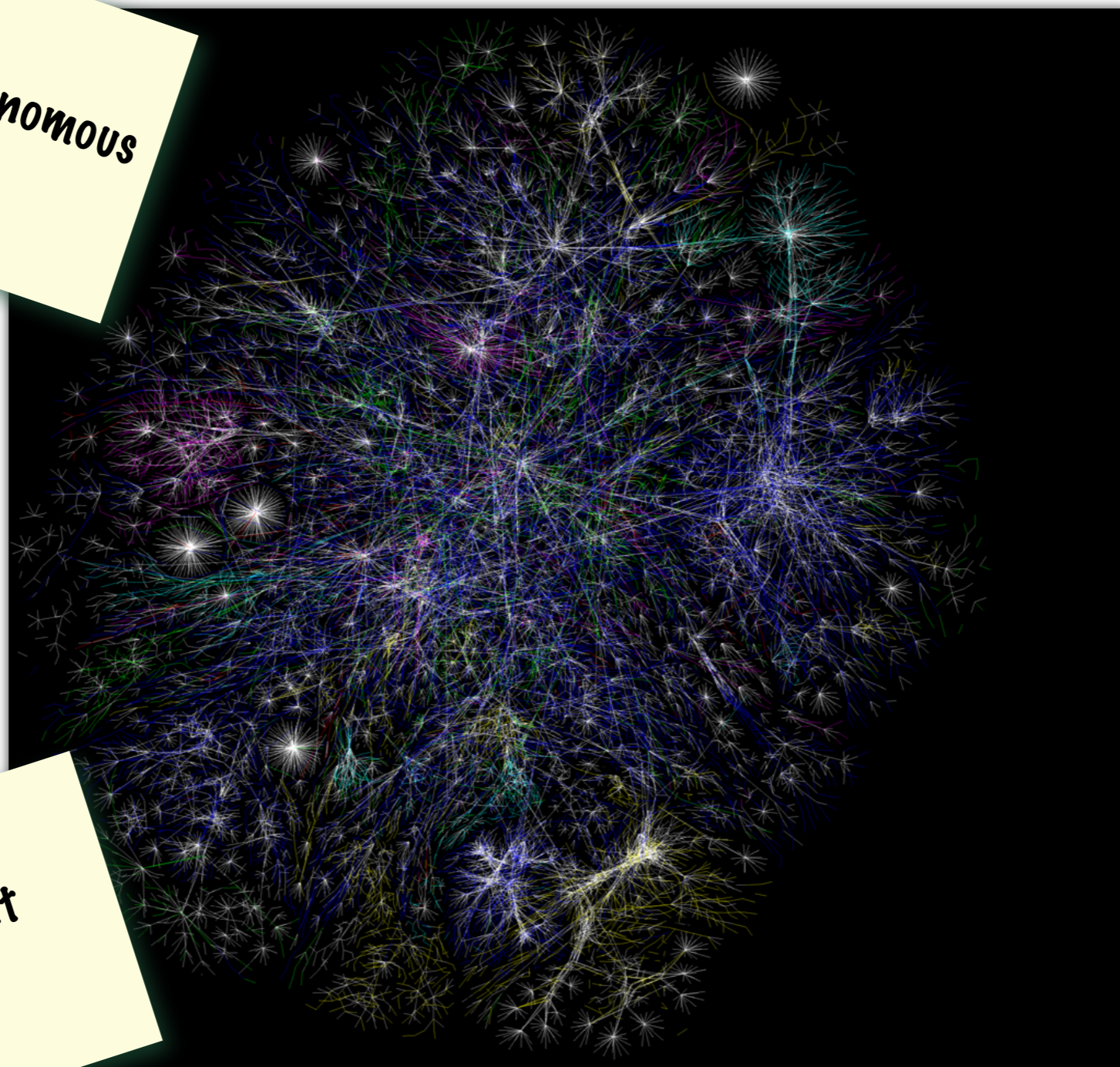
The IP API as the common open interface to the network



Permissionless Innovation

Mini note: HTTP is more and more the de-facto substrate

• **Independent Autonomous
Networks**



• **Serving different
markets**

Highly competitive

Commodity

The Price of Bandwidth, in bulk, per Mbps

A EUR80 fiber cross connect:	\$0.01
Internet Exchange traffic:	\$0.25*
Backbone traffic Western Europe:	\$0.50
Transatlantic traffic, wholesale:	\$1
Internet Transit, wholesale:	\$2
Internet Transit, retail:	\$15
Broadband Internet, consumer:	\$50
National Ethernet service:	\$180
3G mobile data, national:	\$11,400
GSM voice call, national:	\$483,840
3G mobile data, roaming low:	\$834,000
3G mobile data, roaming high:	\$3,127,500
GSM voice call, roaming:	\$3,338,496
SMS Text Messages:	\$210,000,000
SMS Text Messages, roaming:	\$1,166,400,000

Western Europe, early-mid 2011 (based on 10Gbps or 300GB)

Table courtesy of Remco van Mook, Equinix

Open Internet Keywords

**Voluntary
adoption of
technology**

**bottom-up
innovation**

**Functional
Interoperability**

**Different Players
at
Different Layers**

**Global Generic
and Universal**

**Collaboration
where needed**

**Competition
where possible**

How Do Open Standards Play a Role

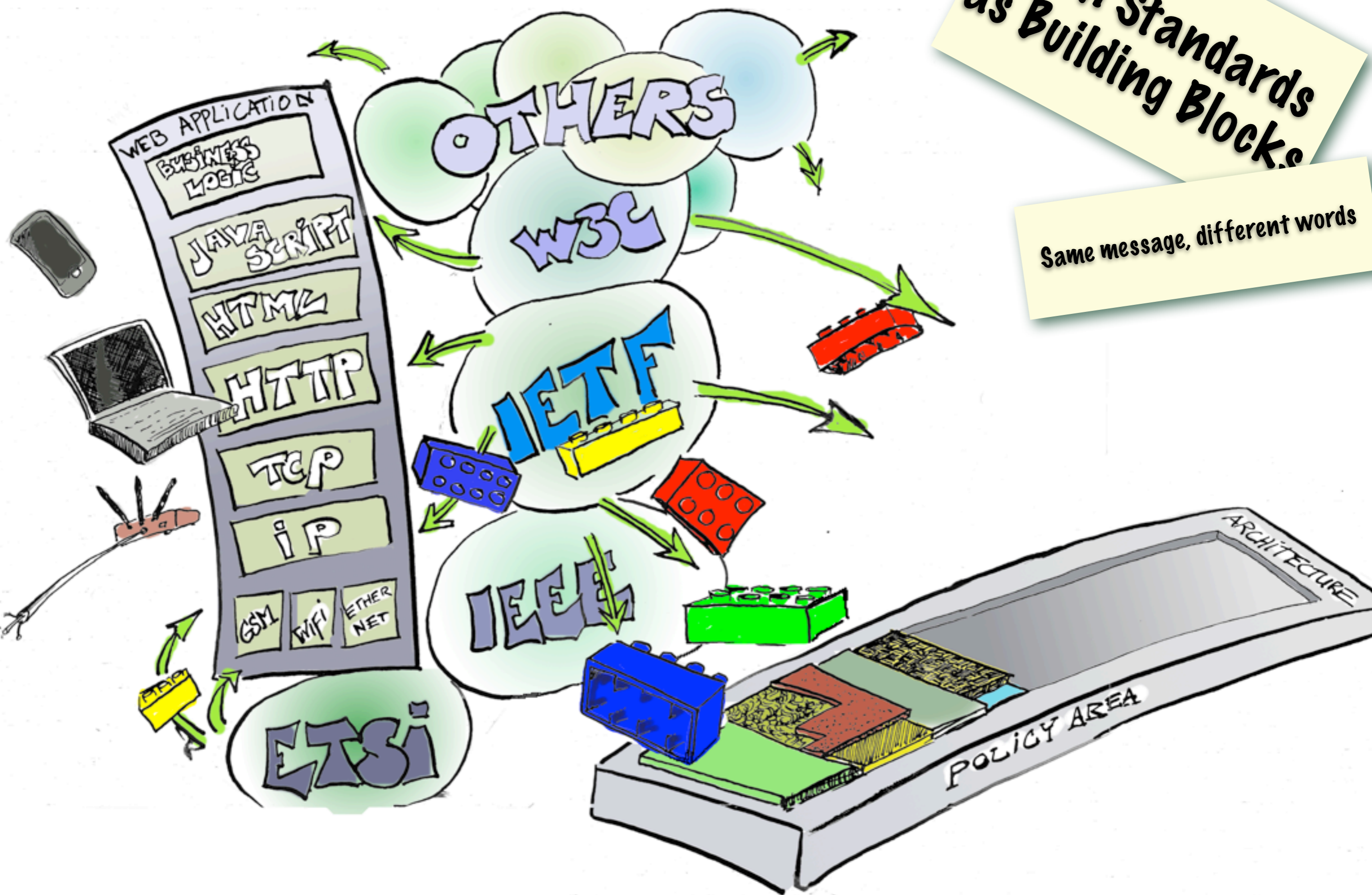
Browsing The Web

802,11	IEEE	TCP/IP	IETF
URI	IETF	BGP	IETF
NAT	No Standard	HTTP	IETF
CSS	W3C	PNG	IETF
HTML	W3C/ISO	MPEG	ISO/IEC
XML	W3C	ADSL	ITU-T

Interoperability

Open Standards
as Building Blocks

Same message, different words



1. Cooperation

Respectful cooperation between standards organizations, whereby each respects the autonomy, integrity, processes, and intellectual property rules of the others.

2. Adherence to Principles

Adherence to the five fundamental principles of standards development:

- **Due process.** Decisions are made with equity and fairness among participants. No one party dominates or guides standards development. Standards processes are transparent and opportunities exist to appeal decisions. Processes for periodic standards review and updating are well defined.
- **Broad consensus.** Processes allow for all views to be considered and addressed, such that agreement can be found across a range of interests.
- **Transparency.** Standards organizations provide advance public notice of proposed standards development activities, the scope of work to be undertaken, and conditions for participation. Easily accessible records of decisions and the materials used in reaching those decisions are provided. Public comment periods are provided before final standards approval and adoption.
- **Balance.** Standards activities are not exclusively dominated by any particular person, company or interest group.
- **Openness.** Standards processes are open to all interested and informed parties.

3. Collective Empowerment

Commitment by affirming standards organizations and their participants to collective empowerment by striving for standards that:

- are chosen and defined based on technical merit, as judged by the contributed expertise of each participant;
- provide global interoperability, scalability, stability, and resiliency;
- enable global competition;
- serve as building blocks for further innovation; and
- contribute to the creation of global communities, benefiting humanity.

4. Availability

Standards specifications are made accessible to all for implementation and deployment. Affirming standards organizations have defined procedures to develop specifications that can be implemented under fair terms. Given market diversity, fair terms may vary from royalty-free to fair, reasonable, and non-discriminatory terms (FRAND).

5. Voluntary Adoption

Standards are voluntarily adopted and success is determined by the market.

Cooperation

Adherence to Principles

Collective Empowerment

Availability

Voluntary Adoption

OUTLINE

Open Internet

Open Standards

We are here

**The IETF as a
Open Standards
Body**

Org Chart

**Working
Methods**

Participation





The Internet Engineering Task Force is a loosely self-organized group of people who contribute to the engineering and evolution of Internet technologies.

It is the principal body engaged in the development of new Internet standard specifications.

RFC4677

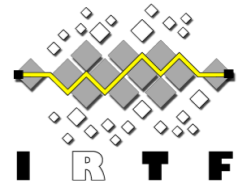


The mission of the IETF is to make the Internet work better by producing high quality, relevant technical documents that influence the way people design, use, and manage the Internet.

IETF Universe



RFC Editor



IETF Secretariat

IASA

IAD

IAOC

IETF Trust

IESG

Area

Area

Area

Area

Area

Area

working group

working group

working group

working group

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INT

About Packets

RTG

About creating the paths for the packets

OPS

About managing the networks

TSV

About the use of the paths to provide the end-to-end experience

SEC

About Security Protocols (cross area)

APS

About Application Protocols used on the Internet

RAI

About Real Time Applications

IESG

Applications
Area
P. Resnick
B. Leiba

Transport
Area
M. Stiernerling

Security
Area
S. Turner
S. Farrell

Routing
Area
S. Bryant
A. Farrell

O&M
Area
B. Claise
J. Jaeggli

RAI
Area
G. Gamarillo
R. Barnes

Internet
Area
B. Haberman
T. Lemmon

GENERAL
AREA
J. Arko

appsawg

core

httpbis

hybi

icardcal

paws

precis

repute

scim

spfbis

urnbis

websec

weirds

alto

behave

cdni

ippm

mptcp

nsfv4

ppsp

rmcat

rmt

storm

tcpm

tsvwg

abfab

dane

emu

ipsecme

jose

kitten

mile

nea

oauth

pkix

tls

bfd

ccamp

forces

i2rs

idr

isis

karp

l2vpn

l3vpn

manet

mpls

nvo3

ospf

pce

pim

pwe3

roll

rtwg

sidr

6renum

adslmib

bmwg

dime

dnsop

eman

grow

ipfix

mboned

netconf

netmod

opsawg

opsec

v6ops

wkops

avtcore

avtext

bfcpbis

clue

codec

cuss

dispatch

drinks

ecrit

geopriv

insipid

mediactrl

mmusic

p2psip

payload

rtcweb

salud

siprec

soc

straw

viper

xmpp

xrblock

6lowpan

6man

ancp

dhc

dmm

dnnext

hip

homenet

intarea

l2tpext

lisp

lwig

mif

mip-4

multimob

netext

ntp

pcp

pppext

savi

softwire

sunset4

tictoc

trill

*last update of this
slide: march 2013*

IETF Standards and RFCs

IETF standards are published as RFCs

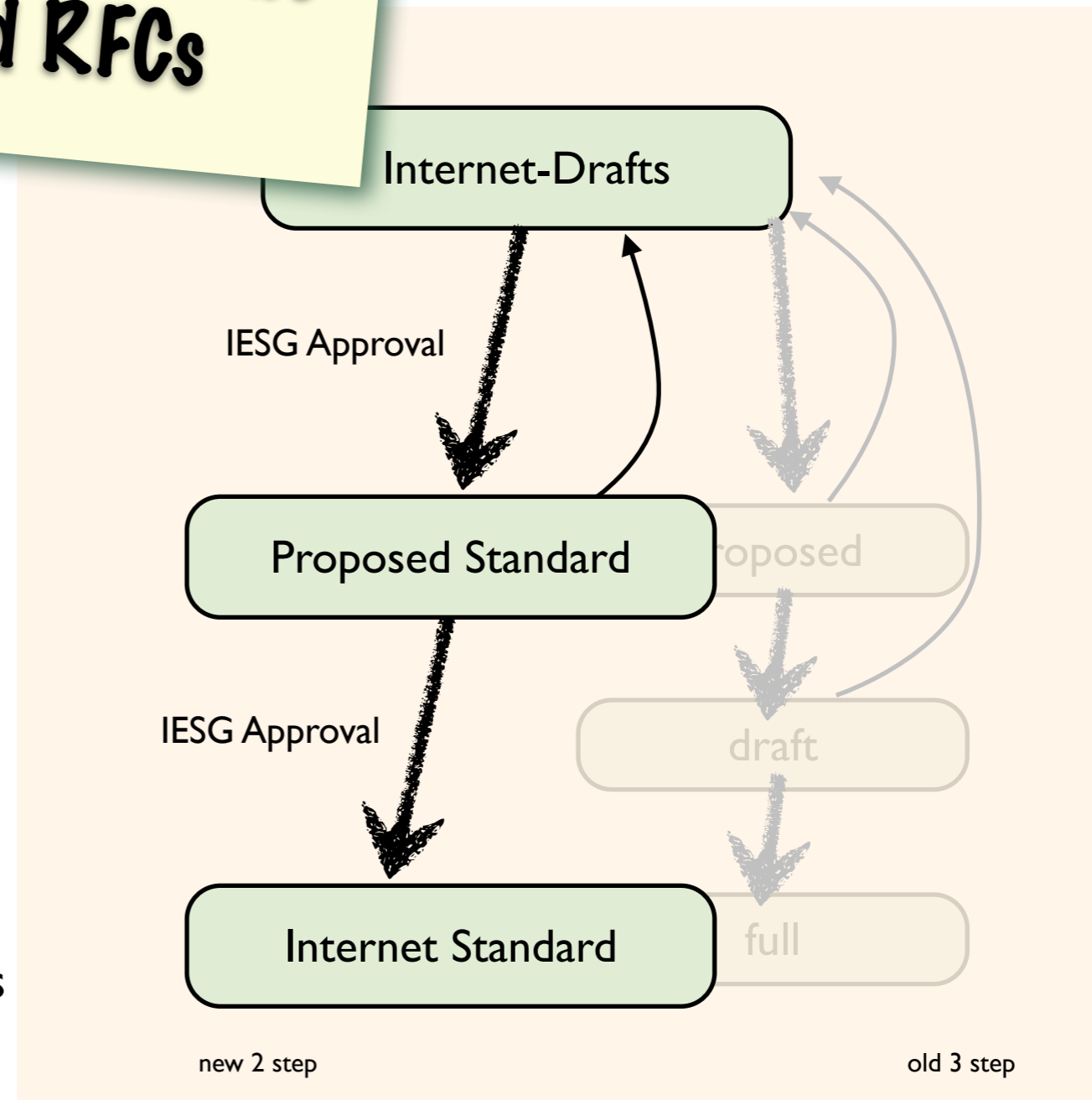
- Standards track
- Best Current Practices (operational)
- Informational and Experimental

RFC series also includes

- IRTF (Internet Research Task Force)
- IAB (Internet Architecture Board)
- Independent contributions

Standards Track documents are maintained by the IETF

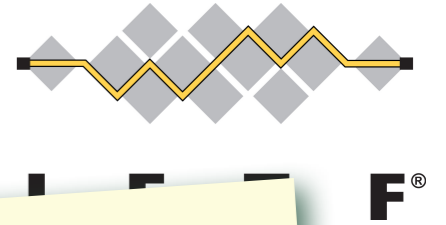
- IESG approval: based on consensus process



Not all RFCs are IETF standards

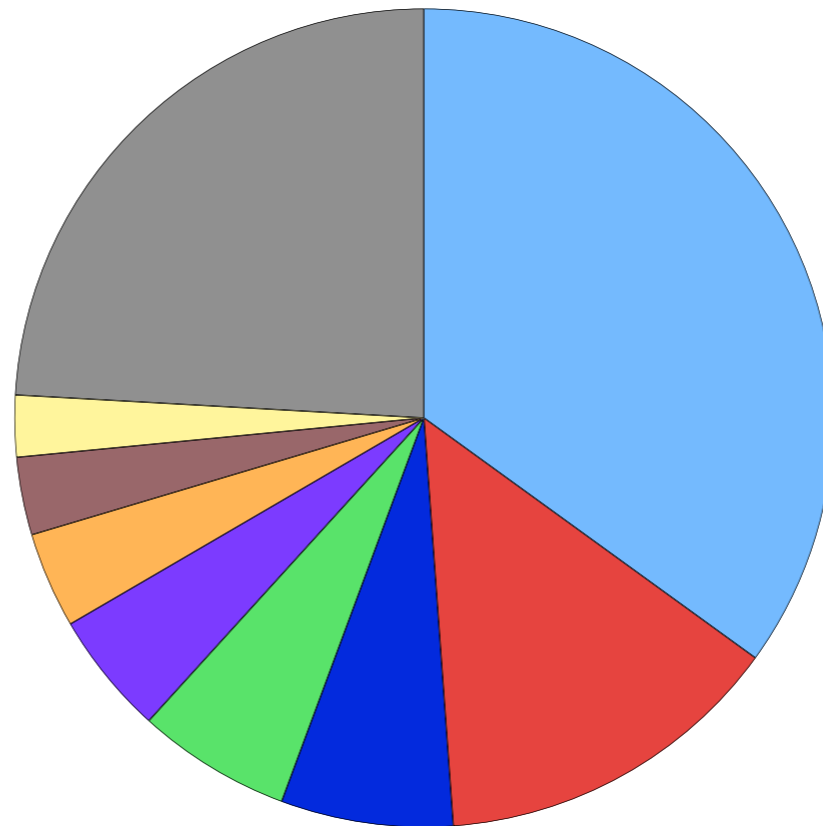
IETF 87 Participation

Who Participates



Berlin Meeting Stats

- 1407 people
 - 316 newcomers
 - IETF 84 (Vancouver) was 1199 people
- 62 countries
 - IETF 84 was 52 countries



IETF comes to town

November 3-8, 2013

Vancouver, CA

March 2-7, 2014

London, UK

July 20-25, 2014

Toronto, CA

November 9-14, 2014

Honolulu, US

March 22-27, 2015

Dallas, US

July 19-24, 2015

Prague, CZ

November 1-6, 2015

Yokohama, JP

Who Pays

IETF 2012 - 2014 Budget			
Revenues	2012 Budget	2013 Advice	2014 Advice
Registration Fees	\$ 2,152	\$ 2,101	\$ 2,119
Meeting Sponsorship	310	290	590
Network/NOC Host	556	555	605
Hotel Commissions	145	150	150
New Revenue	100	125	125
Miscellaneous	0	-	-
Total Revenue	\$ 3,264	\$ 3,221	\$ 3,589
Expenses	2012 Budget	2013 Advice	2014 Advice
RFC Services	900	\$ 933	\$ 933
Secretariat Services	1,775	1,788	1,788
Secretariat Costs (Other)	0	-	-
Meeting Space Costs	350	290	590
Network/NOC Costs	600	555	630
Meeting Operations (Secretariat)	912	828	828
Other Meeting Costs	118	124	124
Subtotal Direct Meeting Costs	1,979	1,796	2,171
Transition Expenses	85	60	60
Special Projects	50	50	50
IT Maintenance	50	75	100
Admin (IASA, IETF, IAB, IRTF, NomCom)	415	424	442
IETF Trust	35	37	39
ISOC G&A	120	125	130
Total Expenses	\$ 5,408	\$ 5,287	\$ 5,713
ISOC Direct Contribution Excluding Development	\$ 2,145	\$ 2,067	\$ 2,124
IT Tools Development	215	50	75
ISOC Direct Contribution Including Development	\$ 2,360	\$ 2,117	\$ 2,199

Public Policy
Objectives

Technology



Tussle in Cyberspace: Defining Tomorrow's Intentions *Must Read*

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Karen R. Sollins
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John Wroclawski
MIT Lab for Computer Science
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Robert Braden
USC Information Sciences Institute
braden@isi.edu

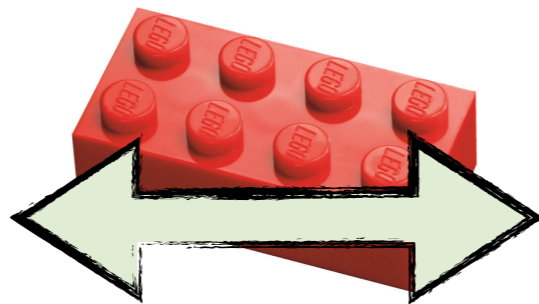
1. INTRODUCTION

Internet was created in simpler times. Its creators shared a common goal—they wanted to build a network that could hook all the computers in the world together. They knew applications could be developed by other designers, and a common

IETF Technology

**Public Policy
Aspects**

**WG
Acronym**



**2 word description of
policy area**

The design of the building blocks is sometimes triggered by policy requirements and sometimes there are identified public policy aspects.

IETF Technology

EXAMPLES

Public Policy Aspects

Stir

Tel. number authorization

Ecrit

Emergency Response

Paws

Spectrum Management

Lmap

Consumer / Universal Service

Mile

ICT trust and security

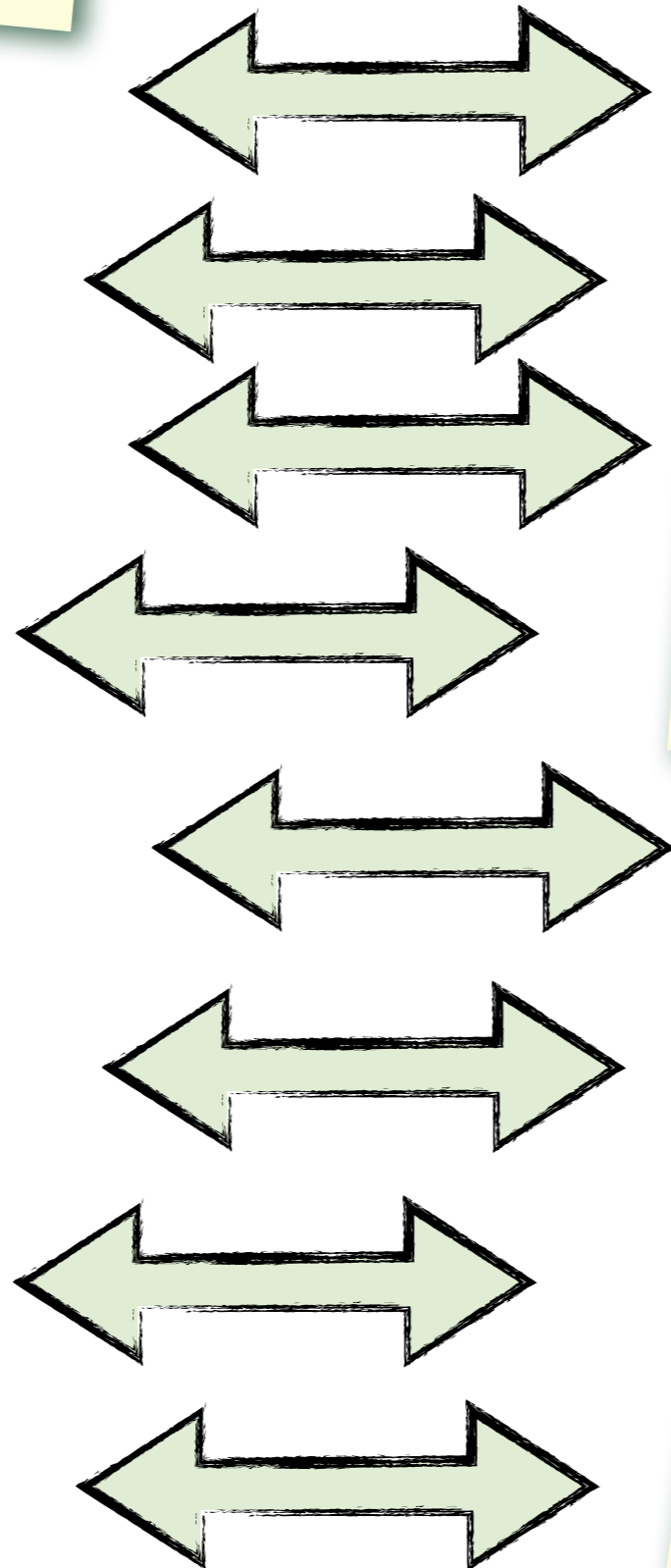
Weirds

law enforcement

Eman

Energy Management

~~**POI'S**~~



Question Time

**What follows are slides
used during Q&A**

Some questions where anticipated

IETF Crypto Support

**IETF uses Crypto,
does not develop
Crypto**

**IETF protocols are
crypto agile**

- IETF creates few obstacles to support of national cryptographic algorithms in IETF protocols
 - Public pointer to algorithm definition required, but the documentation need not be an RFC.
 - Easy to publish specifications on algorithm use with IETF security protocols as Informational RFCs
 - Procedures in place to allocate code points
 - Process already used for publication of RFCs specifying use of US, Korean, Japanese, and Russian cryptographic algorithms

USA – Suite B – RFC 5430, 5647, 6239, 6318, 6379, 6380, etc.

Korea – SEED – RFC 4009, 4010, 4162, 4196, 4269, 5669, 5748

Japan – Camellia – RFC 3657, 3713, 4132, 4312, 5528, 5529, etc.

Russia – GOST – RFC 4357, 4491, 5830, 5993, etc.

May 2000

RFC 2804

IETF Policy on Wiretapping

Abstract

The Internet Engineering Task Force (IETF) has been asked to take a position on the inclusion into IETF standards-track documents of functionality designed to facilitate wiretapping.

This memo explains what the IETF thinks the question means, why its answer is "no", and what that answer means.

SDO	IETF Liaison Manager	IAB Liaison Shepherd
3GPP	Gonzalo Camarillo	Hannes Tschofenig
3GPP2	Charlie Perkins	Marc Blanchet
Broadband Forum	David Sinicrope	Ross Callon
CableLabs	Ralph Droms	Eliot Lear
ICANN Board of Directors	Jonne Soininen	Andrew Sun
ICANN NomCom	Russ Mundy	Eliot Lear
ICANN RSSAC	Peter Koch	Marc Blanchet
IEEE 802.1	Eric Gray	Bernard Aboba
IEEE-SA	Dan Romascanu	Bernard Aboba
ISO/IEC JTC1 SC2	Patrik Fältström	Russ Housley
ISO/IEC JTC1 SC29	Stephan Wenger	Russ Housley
ISO/IEC JTC1 SC6	Allison Mankin	Russ Housley
ISO/TC46	John Klensin	Russ Housley
ITU-T	Scott Mansfield	Ross Callon
ITU-T, MPLS	Deborah Brungard	Ross Callon
ITU-T, SG15 (optical control plane)	John Drake	Ross Callon
Messaging Anti-Abuse Working Group (MAAWG)	Barry Leiba	Hannes Tschofenig
Unicode	Patrik Fältström	Dave Thaler
W3C	Mark Nottingham	Alissa Cooper
WIPO	Patrik Fältström	
ZigBee Alliance	JP Vasseur	

**Formal
Relations**

fin