# IETF an overview and a few work items...

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Contains material from Lars Eggers, Scott Bradner, and others

NLnet Labs

# IETF
# (a quick overview)

# IETF


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

# In other words

The IETF is an open, international community
  Network designers, operators, vendors and researchers

Goal: evolution of the Internet architecture and smooth operation of the Internet

Open to any interested individual "people, not companies"

Produces Internet standards (and other documents)

# IETF Universe

Internet Society

IAB

IRTF

IASA

IAD | IAOC

IETF Trust

IETF Secretariat

RFC Editor

iana
Internet Assigned Numbers Authority

IESG

| Area | Area | Area | Area | Area | Area |
|---|---|---|---|---|---|
| working group | working group | working group | working group | working group | working group |
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| working group | working group | working group | working group | working group | working group |
| working group | working group | working group | working group | working group | working group |

Meeting Place Date

# IETF in detail

Internet Architecture Board (IAB)

13 Members

Internet Research Task Force

- asrg
- cfrg
- dtnrg
- end2end
- hiprg
- iccrg
- mobopts
- nmrg
- p2prg
- pkng
- rrg
- samrg
- tmrg

**Applications Area**
L. Dusseault
A. Melnikov

- alto
- calsify
- eai
- httpbis
- idnabis
- lemonade
- ltru
- morg
- oauth
- sieve
- vcarddav
- yam

**Transport Area**
L. Eggert
M. Westerlund

- behave
- dccp
- fecframe
- ippm
- ledbat
- nfsv4
- nsis
- pcn
- rmt
- rohc
- storm
- tcpm
- tsvwg

**Security Area**
P. Eronen
T. Polk

- btns
- dkim
- emu
- hokey
- ipsecme
- isms
- keyprov
- kitten
- krb
- ltans
- msec
- nea
- pkix
- sasl
- smime
- syslog
- tls

**Routing Area**
R. Callon
A. Farrell

- bfd
- ccamp
- forces
- idr
- isis
- l3vpn
- manet
- mpls
- ospf
- pce
- pim
- roll
- rtgwg
- sidr
- vrrp

**O&M Area**
R. Bonica
D. Romascanu

- adslmib
- bmwg
- capwap
- dime
- dnsop
- grow
- ipfix
- mboned
- netconf
- netmod
- opsawg
- opsec
- pmol
- radext
- v6ops

**RAI Area**
C. Jennings
R. Sparks

- avt
- bliss
- dispatch
- drinks
- ecrit
- enum
- geopriv
- mediactrl
- mmusic
- p2psip
- simple
- sipcore
- speechsc
- speermint
- xcon
- xmpp

**Internet Area**
J. Arkko
R. Droms

- 16ng
- 6lowpan
- 6man
- ancp
- autoconf
- csi
- dhc
- dna
- dnsext
- hip
- ipdvb
- l2tpext
- l2vpn
- lisp
- mext
- mif
- mip4
- mipshop
- netext
- netlmm
- ntp
- pana
- pppext
- pwe3
- savi
- shim6
- softwire
- tictoc
- trill

**GENERAL AREA**
R. Housley

Internet EngineeringSteering Group (IESG)

15 Area Directors

# People

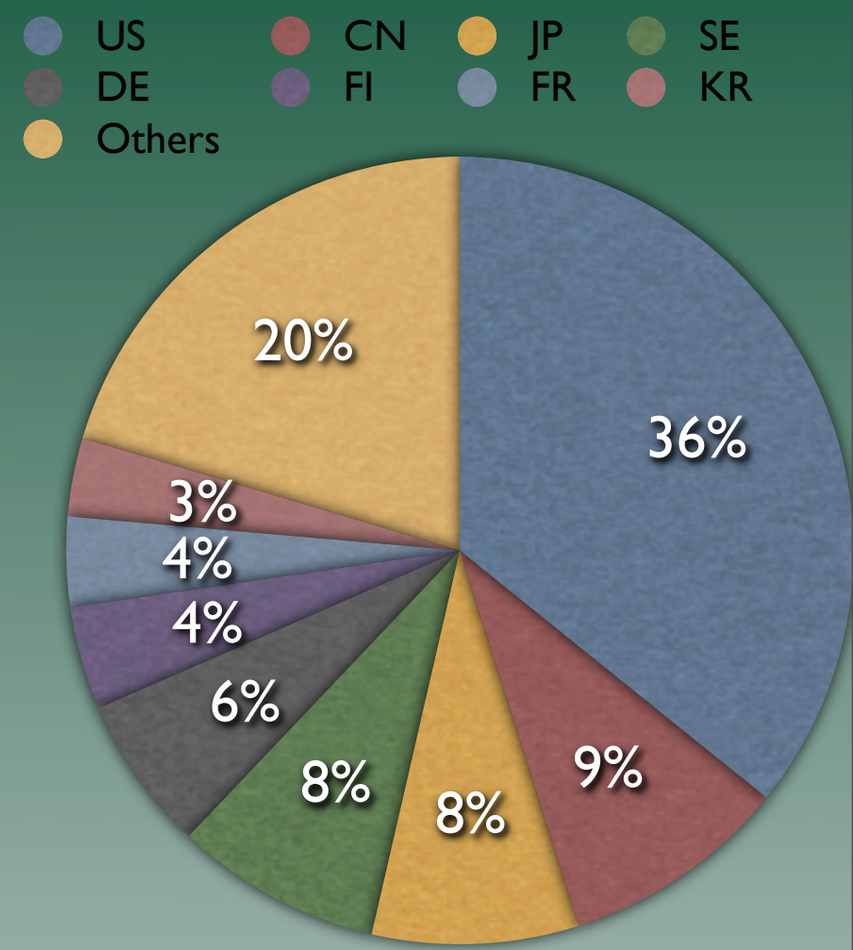
1K-2K people at 3 meetings/year
from ca. 40-50 different countries
Many, many more on mailing lists

~120 Working Groups (WGs)
~2 WGs chairs each

8 Areas with 15 Area Directors (ADs)

More than 5500 RFCs published
Internet Standards and informational documents

More than 50000 Internet Draft revisions submitted




Participants at IETF-75
Stockholm, July 2009
1084 total, 50 countries




NLnet Labs

# Documents...

Internet Draft (I-D)

Active working documents

Not finalized! Not stable!

Anyone can submit
draft-yourname-...

Only some IDs are WG documents!
draft-ietf-wgname-...

Request For Comment (RFC)

Archival publications
Never change once published

Not all RFCs are standards!
Standards track:
Proposed Standard
Draft Standard
Full Standard
Other types:
Informational
Experimental
Best-Current-Practice (BCP)
In fact:
Not all RFCs are IETF documents

# An overview of the Areas

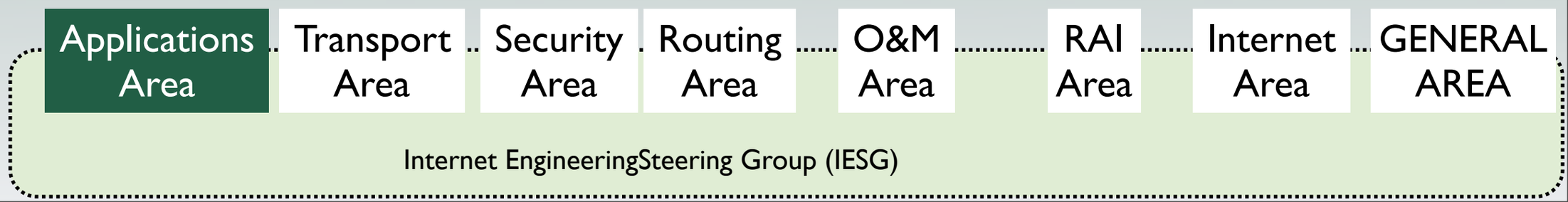
# The overview

- Outlining the areas
- Touching on working groups that may be relevant to this audience
- not going into any technical detail

# Application (APP)

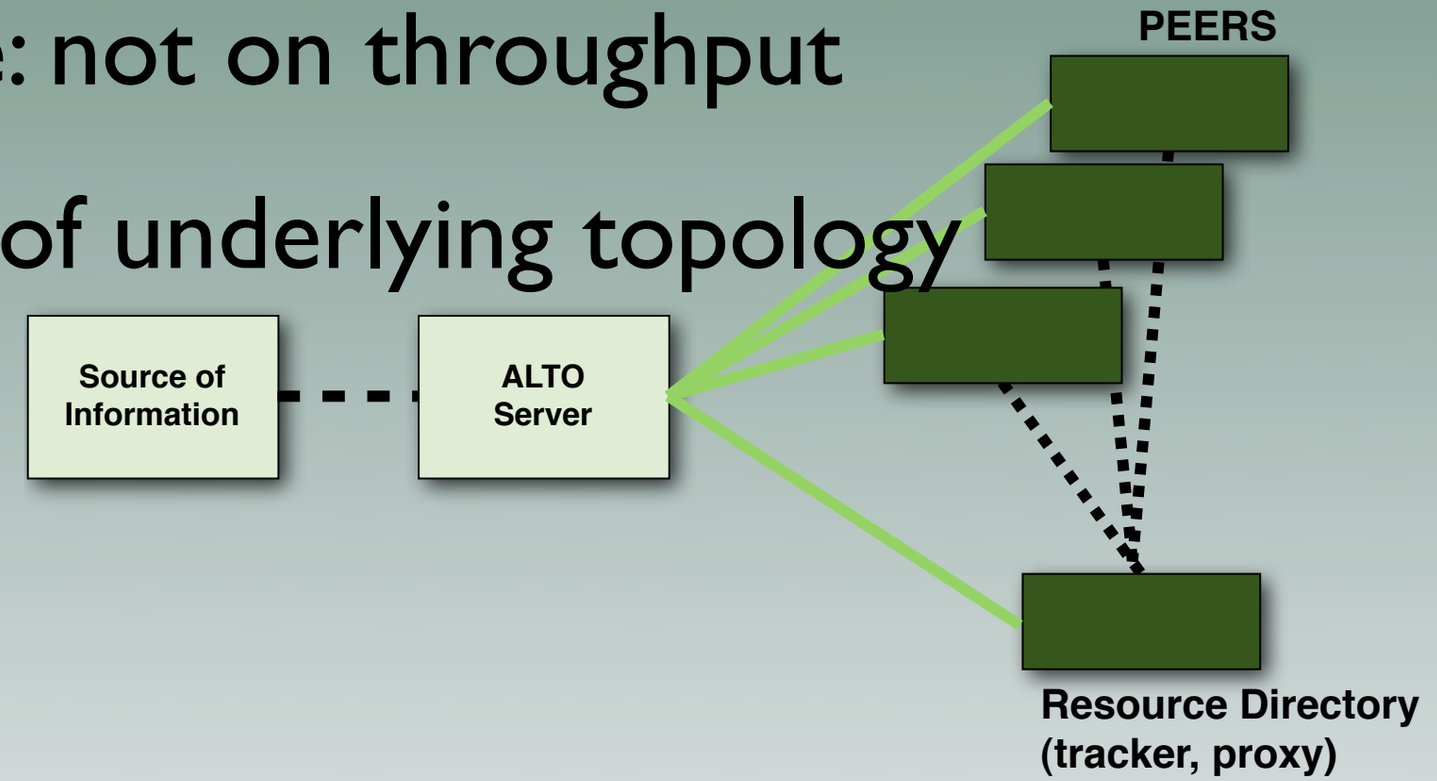
- Focus on applications and application-layer protocols
- Current work items:
  - Email, calendaring, web
  - Directories, registries
  - Internationalization

alto
calsify
eai
httpbis
idnabis
lemonade
ltru
morg
oauth
sieve
vcarddav
yam



# Application-Layer Traffic Optimization (ALTO)

- Peer-to-Peer networks exchange massive amounts of data
- Optimal path selection often based on round-trip-time: not on throughput
- No knowledge of underlying topology



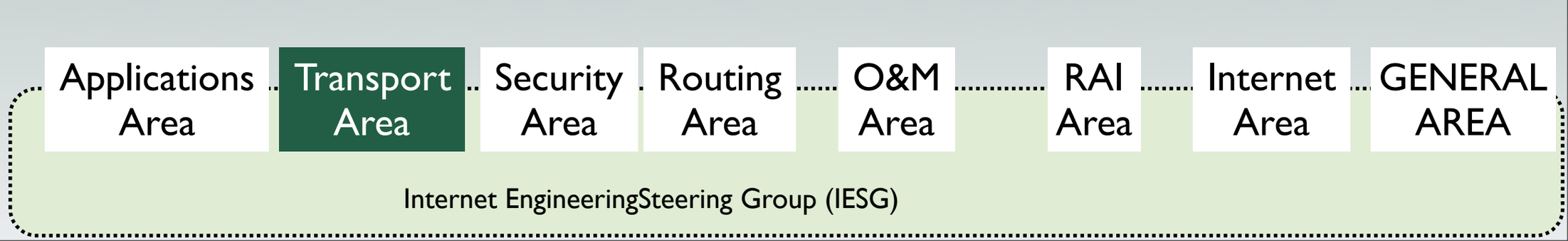

Applications Area | Transport Area | Security Area | Routing Area | O&M Area | RAI Area | Internet Area | GENERAL AREA

Internet EngineeringSteering Group (IESG)

# Transport (TSV)

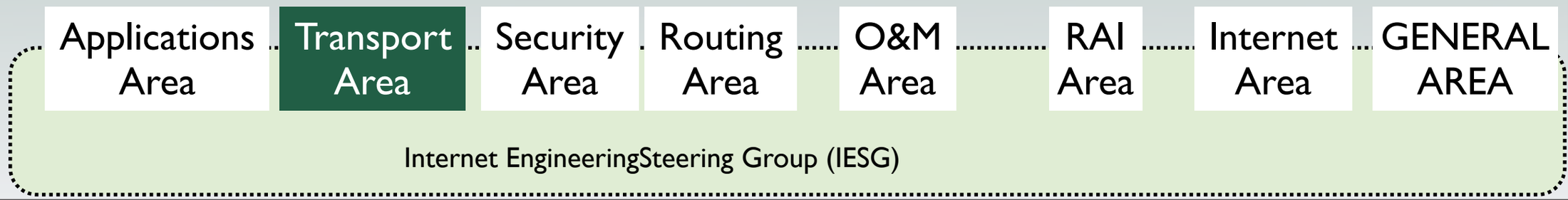
- Focus on layer-4 transport protocols and services
  - TCP, UDP, SCTP, DCCP
  - Congestion control
  - Multicast, signaling
  - NAT regularization
  - IP storage and NFS

behave
dccp
fecframe
ippm
ledbat
nfsv4
nsis
pcn
rmt
rohc
storm
tcpm
tsvwg

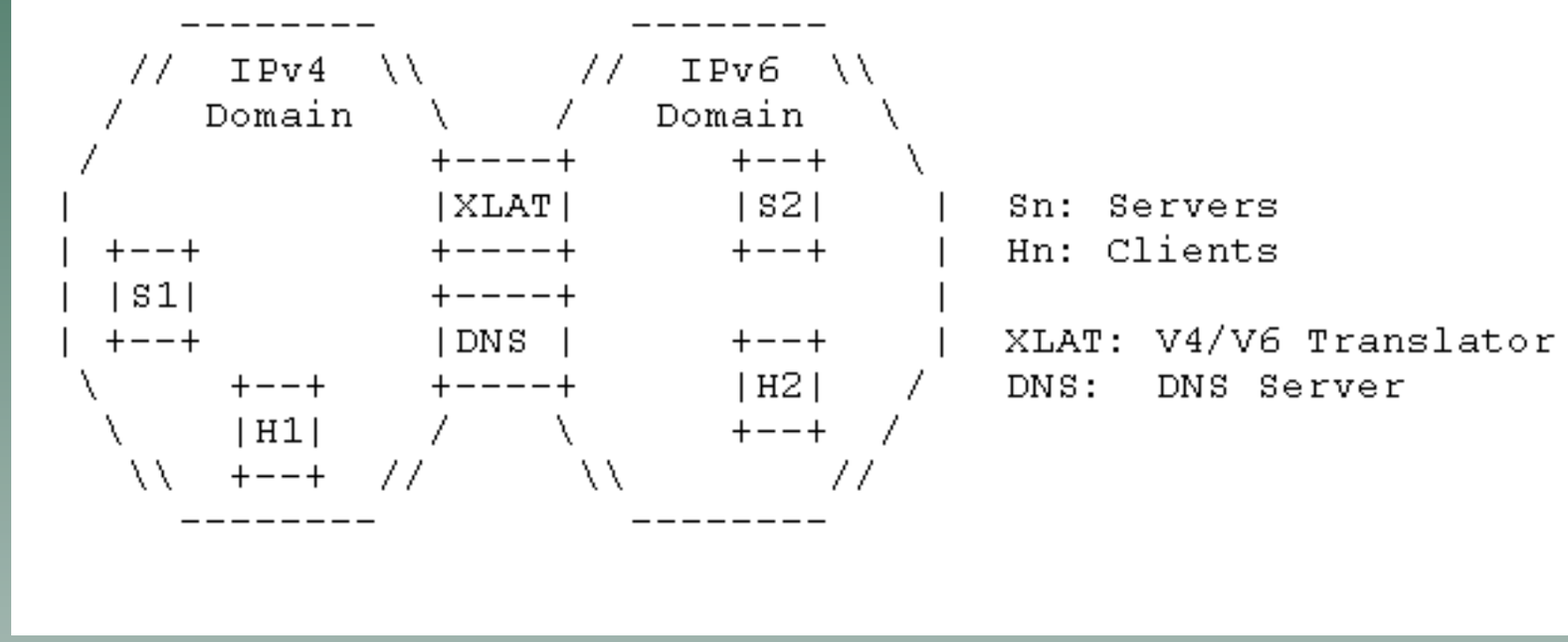


# BEHAVE

- Working group focused on Network Address Translator traversal
  - IPv6 network to IPv4 Internet
  - IPv6 Internet to IPv4 Network
  - IPv4 network to IPv6 Internet
  - IPv4 Internet to IPv6 Network
- Coexistence and Transition, not for long term



# Behave



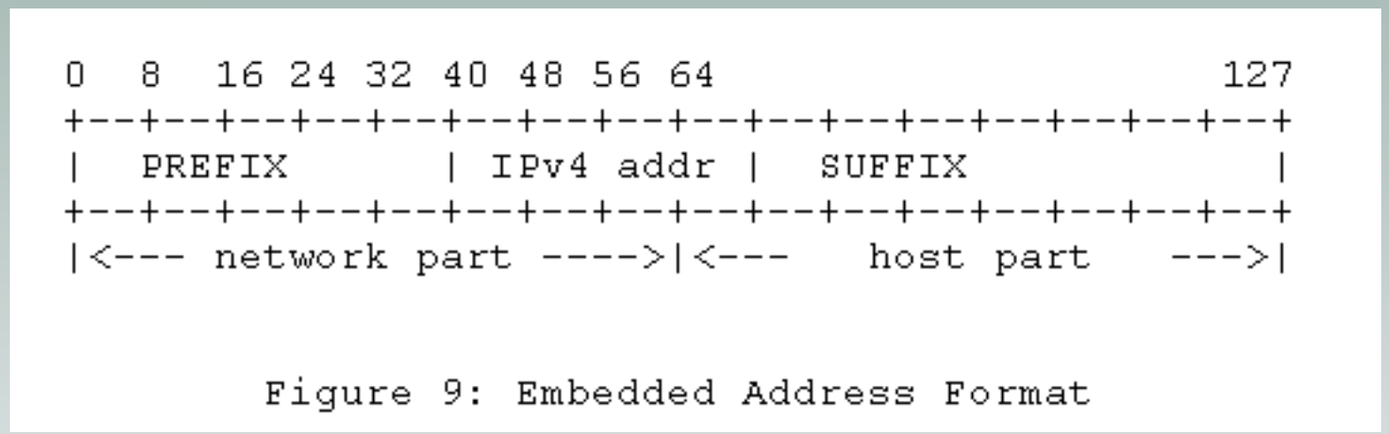




Figure 9: Embedded Address Format

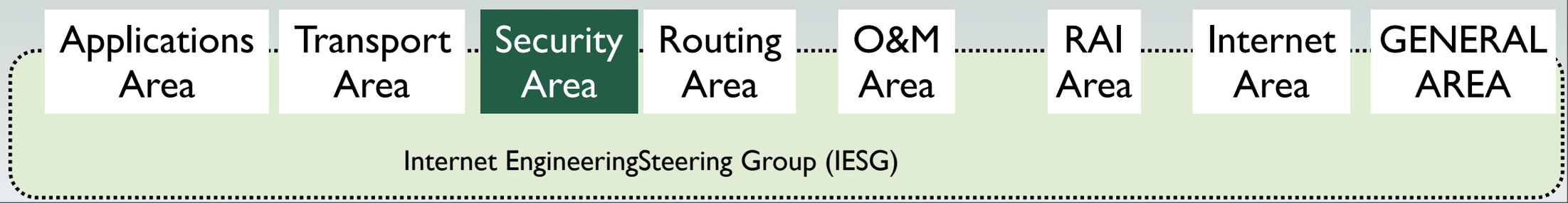
# IPv6 work in the IETF

- Behave: Deals defines translation mechanisms to connect IPv4 to IPv6 networks
- Softwires: Provides tunneling mechanisms to connect islands of address families (see RFC4925)
- 6man: Fixes ‘bugs’ in the IPv6 specification
- v6ops: Operational guidance and more
- SAVI: improvement of validation of sources of IP traffic on a link (v4 and v6)
- CSI: Reviewing secure neighbor discovery (SEND)

# Security (SEC)

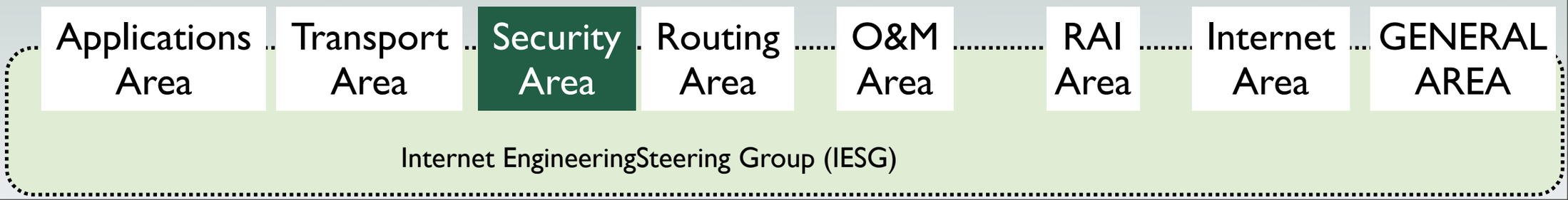
- Focus on security protocols and services for integrity, authentication, non-repudiation, confidentiality and access control
- IPsec, TLS
- Kerberos, SASL
- S/MIME

btns
dkim
emu
hokey
ipsecme
isms
keyprov
kitten
krb
ltans
msec
nea
pkix
sasl
smime
syslog
tls



# DNSOP

- DNSSEC work
  - RFC4641bis
  - dnssec key timing
  - trust history
- DNS work
  - DNS redirect
  - reverse DNS or IPv6



# Routing (RTG)

- Focus on layer-3 routing protocols
  - Forwarding for unicast, multicast and MPLS
  - Routing and signaling protocols (OSPF, IS-IS, BGP), MPLS
- Routing security

bfd
ccamp
forces
idr
isis
l3vpn
manet
mpls
ospf
pce
pim
roll
rtgwg
sidr
vrrp

# SIDR

- Architecture base on a PKI representing address and AS hierarchy
- Route Origination Authorizations
  - Attestation that a certain address prefixes can be originated by an AS
- RIRs will be maintaining CAs for the address space they maintain
- http://tools.ietf.org/html/draft-ietf-sidr-arch

# Operations and management (O&M)

- Focus on network management and operation
  - AAA, DNS, IPv6 & routing operations
  - Management (SNMP, NetConf, CAPWAP)

adslmib
bmwg
capwap
dime
dnsop
grow
ipfix
mboned
netconf
netmod
opsawg
opsec
pmol
radext
v6ops

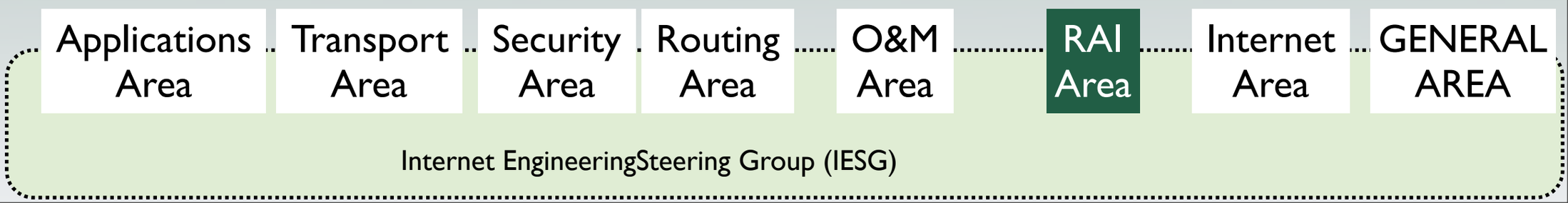
# DNSOP

- Various operational issues for DNS and DNSSEC related work
  - RFC4641-bis
  - Trust History
  - DNS redirection?
  - IPv6 reverse zones and their necessity

# Real-Time Applications and Infrastructure (RAI)

- Focus on delay-sensitive applications + services
  - Voice & video over IP
  - Instant messaging and presence
  - SIP and RTP
  - IP telephony & services

avt
bliss
dispatch
drinks
ecrit
enum
geopriv
mediactrl
mmusic
p2psip
simple
sipcore
speechsc
speermint
xcon
xmpp



# Dispatch

- WG that helps to identify where work can be done within the RAI area

draft-avasarala-dispatch-comm-div-notification-01
draft-boucadair-dispatch-ipv6-atypes-00
draft-drage-dispatch-sub-data-00
draft-elwell-dispatch-identity-reqs-00
draft-haluska-dispatch-isup-oli-00
draft-holmberg-dispatch-cbus-00
draft-ivov-dispatch-slic-ps-00
draft-jain-dispatch-session-recording-protocol-req-00
draft-jain-dispatch-sip-transport-connection-reuse-00
draft-jesske-dispatchspatch-reason-in-responses-00
draft-johnston-dispatch-sip-cc-uui-00
draft-kaplan-dispatch-sip-implicit-registrations-00
draft-kuthan-dispatch-diagrevived-00
draft-loreto-dispatch-disaggregated-media-00
draft-mdolly-dispatch-oma-push-00
draft-vanelburg-dispatch-private-network-ind-00

RAI Area ..... Internet Area ... GENERAL AREA

Internet EngineeringSteering Group (IESG)

# Internet (INT)

- Focus on layer-3 architecture and protocols
  - IPv4 and IPv6
  - VPNs and MPLS
  - DNS and DHCP
  - Mobility & multihoming
  - Network access control

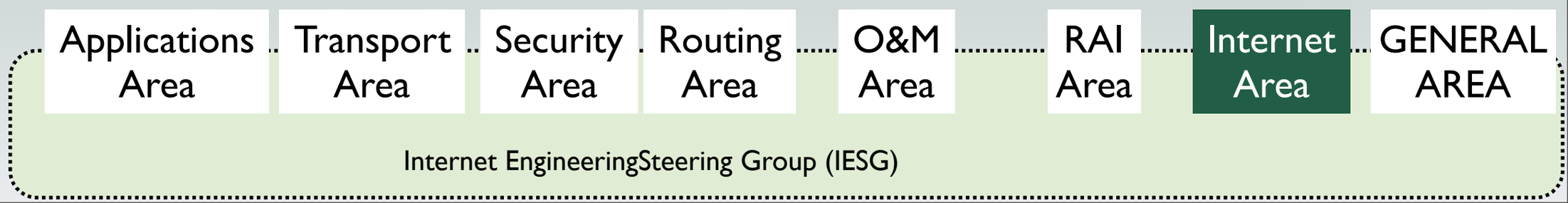
16ng
6lowpan
6man
ancp
autoconf
csi
dhc
dna
dnsext
hip
ipdvb
l2tpext
l2vpn
lisp
mext
mif
mip4
mipshop
netext
netlmm
ntp
pana
pppext
pwe3
savi
shim6
softwire
tictoc
trill

Applications Area | Transport Area | Security Area | Routing Area | O&M Area | RAI Area | **Internet Area** | GENERAL AREA

Internet EngineeringSteering Group (IESG)

# DNSEXT

- DNSSEC maintenance
  - minor protocol clarifications and such
- Non-DNSSEC cache poisoning protection methods
- DNS transport issues; PMTU, fragmentation, EDNS0, and DNSSEC



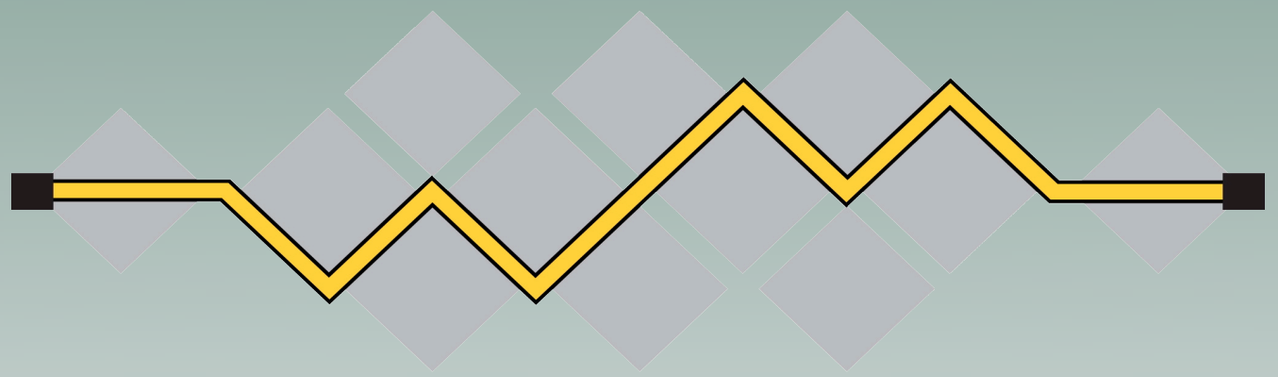
# LISP

- Set out to document an experimental architecture for a Locator-Identity split.
- IP addresses currently serve two purposes: splitting may have benefits
- LISP is only one approach (also see the routing research group)
  - Incremental deployment, no changes to end hosts
  - Running code: a lot can be learned even when this might not be the final solution

# Some Links

- http://www.ietf.org/
- http://tools.ietf.org/
- http://www.ietf.org/tao.html
- http://tools.ietf.org/html/<partial-draft-name>

# Next: IETF 76
# Hiroshima
# 8-13 November 2009



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