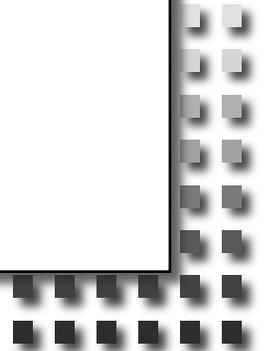


IETF Structure and Internet Standards Process

***Scott Bradner
57th IETF
Vienna, Austria***





Note Well

All statements related to the activities of the IETF and addressed to the IETF are subject to all provisions of Section 10 of RFC 2026, which grants to the IETF and its participants certain licenses and rights in such statements.

Such statements include verbal statements in IETF meetings, as well as written and electronic communications made at any time or place, which are addressed to:

- the IETF plenary session,
- any IETF working group or portion thereof,
- the IESG, or any member thereof on behalf of the IESG,
- the IAB or any member thereof on behalf of the IAB,
- any IETF mailing list, including the IETF list itself, any working group or design team list, or any other list functioning under IETF auspices,
- the RFC Editor or the Internet-Drafts function

Statements made outside of an IETF meeting, mailing list or other function, that are clearly not intended to be input to an IETF activity, group or function, are not subject to these provisions.

being worked on: more later



The IETF

Internet Engineering Task Force
formed 1986

other standards groups cooperate with, imitate or
fear the IETF (but some still ignore it)

not important enough for a long time - good!!

not government approved - great!!

people not companies

“rough consensus and running code”



IETF: Meta View

Internet standards R us

does not exist, **no** members, **no** voting

1,200 to 2K at 3/year meetings, **NK** on mail lists

1,570 & 1679 last 2 meetings

130ish **working groups** (where the stuff happens)

8 **areas** (for organizational convenience) with **ADs**

APS, GEN, INT, O&M, RTG, SEC, SUB, TSV

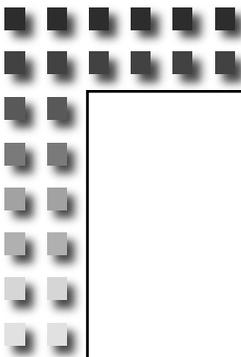
management: **IESG** (ADs, chosen by community)

architectural guidance & liaisons: **IAB**

produces **standards**



I E T F



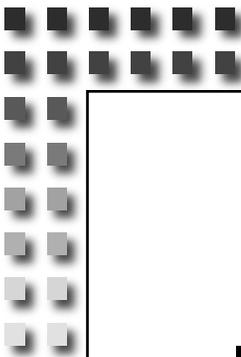
IETF “Standards”

standards only when people **use** them

no formal recognition

no submitting to “traditional” bodies

some keep trying to help



Relationships:

liaisons / representatives

ITU-T, ISO study groups, ATM Forum ...

share people with other organizations

more effective than formal liaisons

but confuse other standards organizations

growing area but culture clash

IETF is mostly bottoms up

can have competing architectural models

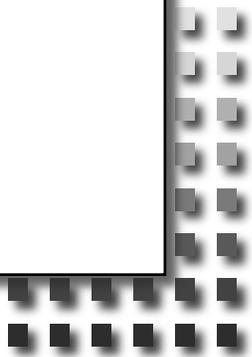
new-work mailing list

to pre announce new working groups and BOFs

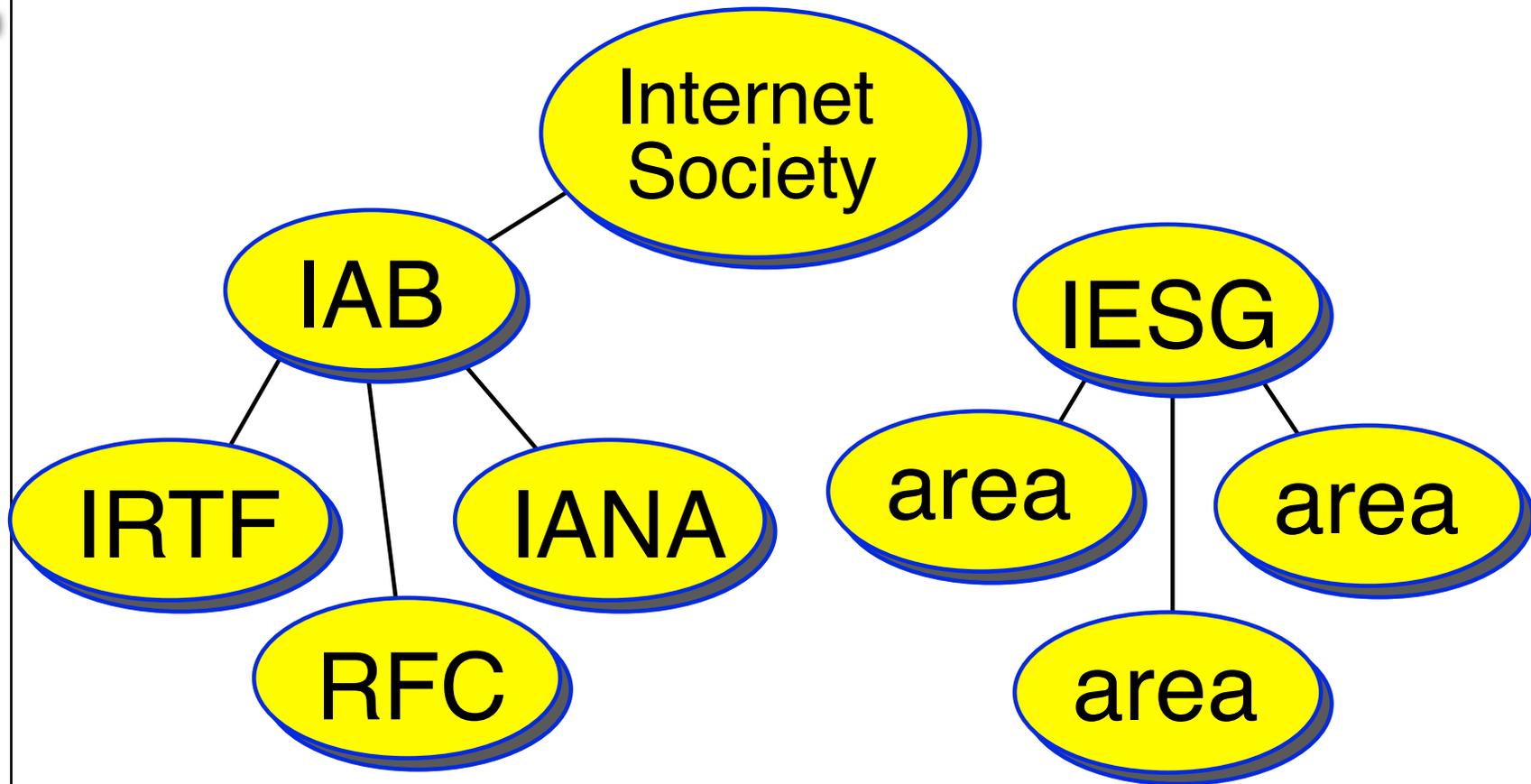
for representatives of other standards groups

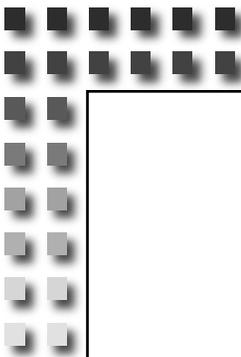


working on liaison statement process



Organization of the IETF





Internet Society (ISOC)

non-profit, non-governmental, international,
professional membership organization

150 organization and 14,000 individual members in
over 180 nations

provides legal umbrella & insurance

ISOC BoT part of appeal chain

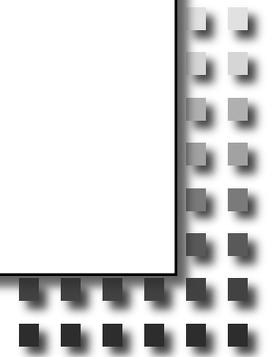
ISOC president appoints chair of nomcom

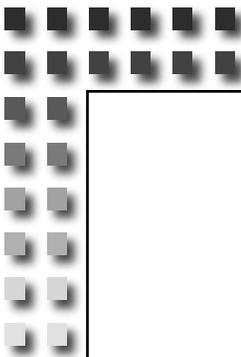
IAB chartered by ISOC

ISOC president is on the IAB list & calls

IETF (through IAB) appoints 3 ISOC trustees

join at www.isoc.org





Internet Research Task Force (IRTF)

focused on **long term** problems in Internet

Anti-Spam

Authentication Authorization Accounting Architecture

Crypto Forum

Delay-Tolerant Networking

End-to-End

Group Security

Internet Measurement

Network Management

NameSpace

Peer-to-Peer

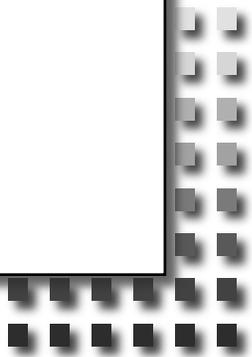
Routing

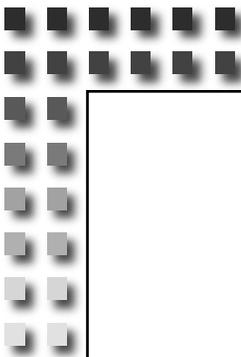
Searchable Internet Resource Names



Services Management

I E T F





Internet Architecture Board (**IAB**)

provides overall **architectural advice**

to IESG, IETF & ISOC

advises IESG on IETF working group formation

deals with IETF external liaisons

appoints IRTF chair

selects IETF-IANA

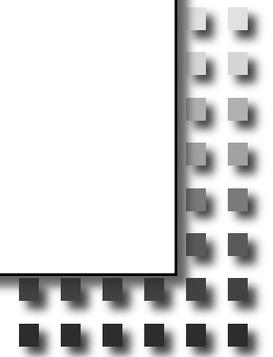
oversees RFC Editor

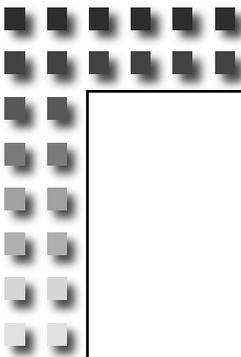
hosts workshops

chartered by ISOC



I E T F





Internet Assigned Number Authority (**IANA**)

assigns parameters and keeps them from colliding

protocol numbers

IP addresses

mostly delegated to IP Address registries

domain names

mostly delegated to DNS name registries

functions split with the creation of **ICANN**

Internet Corporation for Assigned Names and Numbers

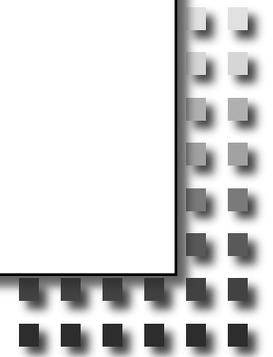
independent corporation to take over IANA functions

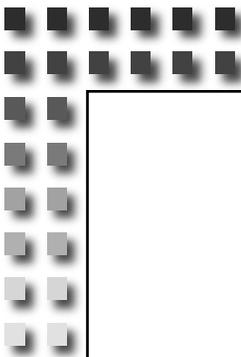
contract with US government

now **IETF-IANA** and non-IETF-IANA



I E T F





RFC Editor

was Jon Postel et al

now et al

rfc-editor@rfc-editor.org

funded by the Internet Society

semi-independent

gets requests to publish IETF IDs from IESG

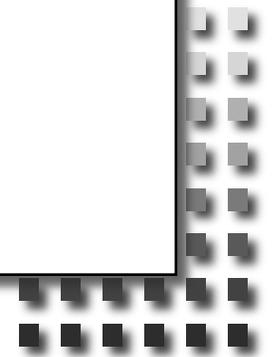
also gets requests to publish independent IDs for info or exp RFCs

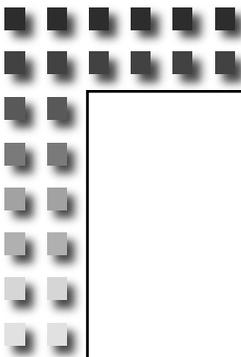
asks IESG for advice on publishing independent RFCs

but can exercise own discretion

presumption is to publish technically competent IDs

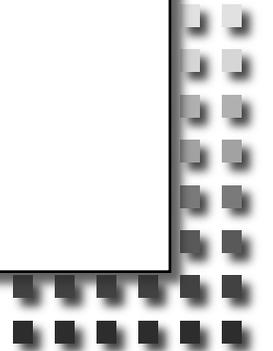
which sometimes is a conflict with IESG

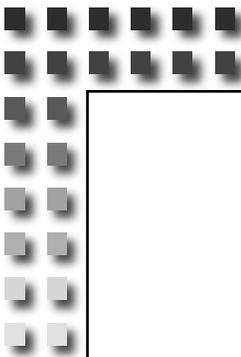




IETF Chair

also chair of **IESG**
selected by nomcom
director of **General Area**
ex officio member of **IAB**
“Chief Talking (and traveling) Officer”





Area Directors (ADs)

selected by nomcom

most Areas have 2 ADs

responsible for **setting direction** in Area

responsible for managing process in Area

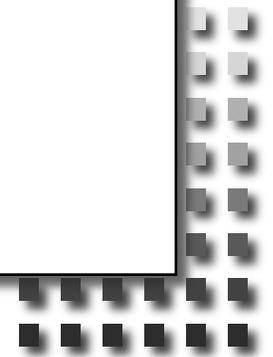
approve BOFs & working groups

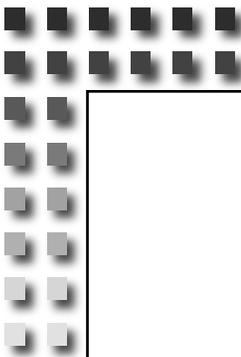
then go to IESG & IAB for final approval

reviews working group documents



I E T F





Internet Engineering Steering Group (**IESG**)

ADs + IETF Chair

IETF process management and approval body

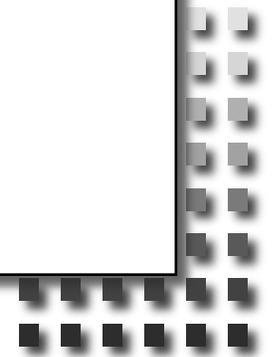
approves WG creation

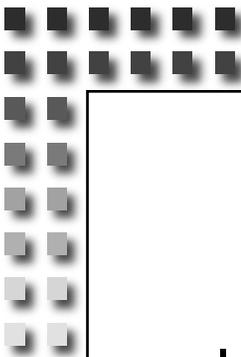
reviews & approves publication of IETF documents

reviews and comments on non-IETF submissions

multi-disciplinary technical review group

IESG plenary session





IETF Secretariat

located physically

Foretec - Reston Virginia

funded from IETF meeting fees

runs

plenary meetings

mailing lists

Internet-Draft directory

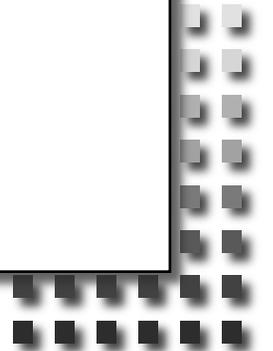
IESG teleconferences

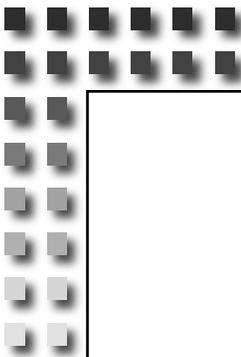
coordinates

day to day work of IESG and working groups



I E T F





Selecting IETF Management

IESG & IAB members normally have 2-year terms
picked by a nominations committee (**nomcom**)

nomcom chair appointed by ISOC president

members selected **randomly** from list of volunteers

volunteers have to have been at 2 of last 3 IETF meetings

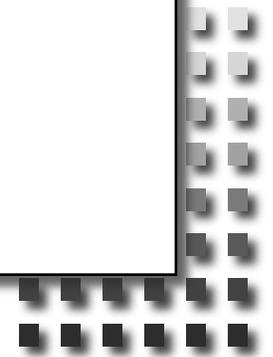
very random selection process (RFC 2777)

get list of jobs to fill

IETF chair, IESG & IAB members

nominate one person for each job

IESG approved by IAB, IAB approved by ISOC BoT

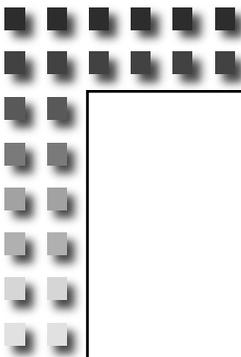


Dots

-  IAB member (red)
-  IESG member (yellow)
-  Working Group chair (blue)
-  nomcom (orange)
-  local host (green)



I E T F



Working Groups

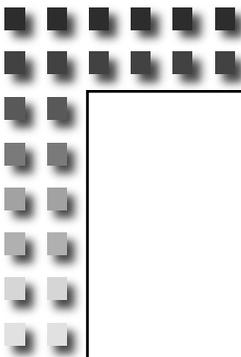
this is where the IETF primarily get its work done
working group focused by charter agreed between
chair and area director

restrictive charters with **milestones**

working groups **closed** when their work is done

charter approved by IESG with IAB advice

AD with IESG has final say on charter & chair(s)



Working Groups

(continued)

“**Rough consensus** and running code...”

no formal voting

can do show of hands or hum - but **no** count

does **not** require unanimity

disputes resolved by discussion

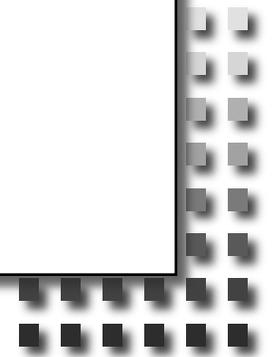
mailing list and face-to-face meetings

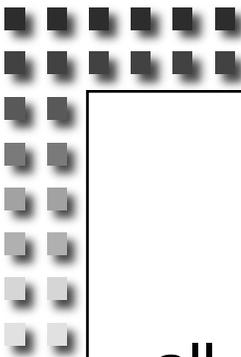
final decisions must be verified on mailing list

taking into account face-to-face discussion



I E T F





IETF Documents

all **open**

Internet-Drafts

anyone can submit - “expire” in 6 months

some I-Ds are working group documents

RFCs (stands for “RFC”)

archival publications (never changed once published)

different types: (not all RFCs are standards!)

informational, experimental, BCP, standards track, historic

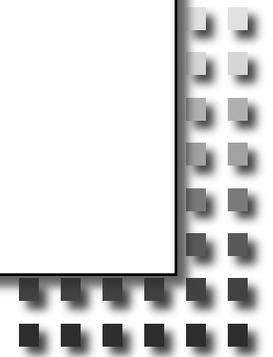
3-step standards track

Proposed Standard, Draft Standard, Internet Standard

interoperability not conformance



I E T F



What is a **RFC**?

RFC used to stand for Request for Comments

now just a name

tend to be more formal documents than early RFCs

IETF document publication series

RFC 1 *Host Software* - Apr 7 1969

now over 3400 RFCs

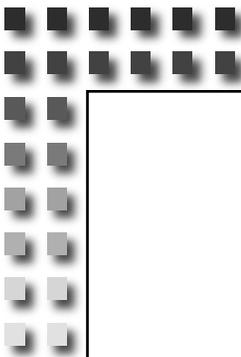
not all RFCs are standards!

see RFC 1796

though some vendors imply otherwise

many types of RFCs





RFC Repository Contains:

standards track

OSPF, IPsec

obsolete Standards

RIPv1

requirements

Host Requirements

policies

Classless InterDomain Routing

April fool's day jokes

IP on Avian Carriers

poetry

'Twas the night before startup

white papers

On packet switches with infinite storage

corporate documentation

Ascend multilink protocol (mp+)

experimental history

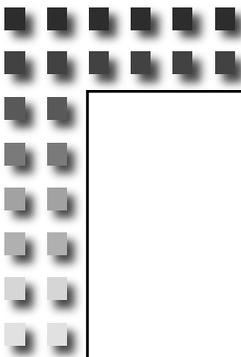
Netblt

process documents

IETF Standards Process



I E T F



Working Papers

Internet-Draft

random or non-random thoughts

input to the process or for information

no admissions control other than boilerplate (see IPR)

zapped from IETF directory after 6 months

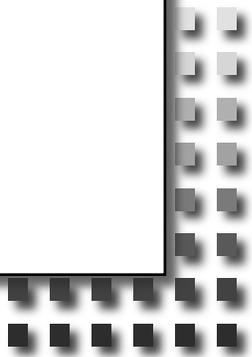
but many mirrors exist

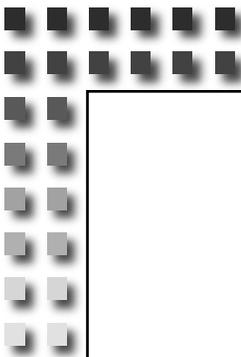
all RFCs must pre-exist as IDs

other than some IANA or RFC Editor created ones



I E T F





Standards Track RFCs:

Best Current Practices (**BCP**)

generally policies or procedures (best way we know how)

Proposed Standard (**PS**)

good idea, no known problems

Draft Standard (**DS**)

stable

multiple interoperable implementations

note IPR restriction

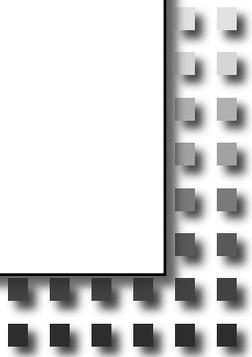
Internet Standard (**STD**)

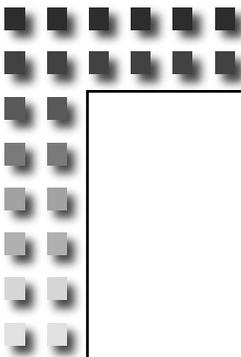
wide use



I E T F

but this is theory





IETF Standards Process

specification published as Internet Draft

discussed in a working group - creates revised IDs

ID sent to IESG after working group consensus

IESG issues IETF “**Last-Call**” (2 weeks)

- anyone can comment

- IESG considers comments and its own review

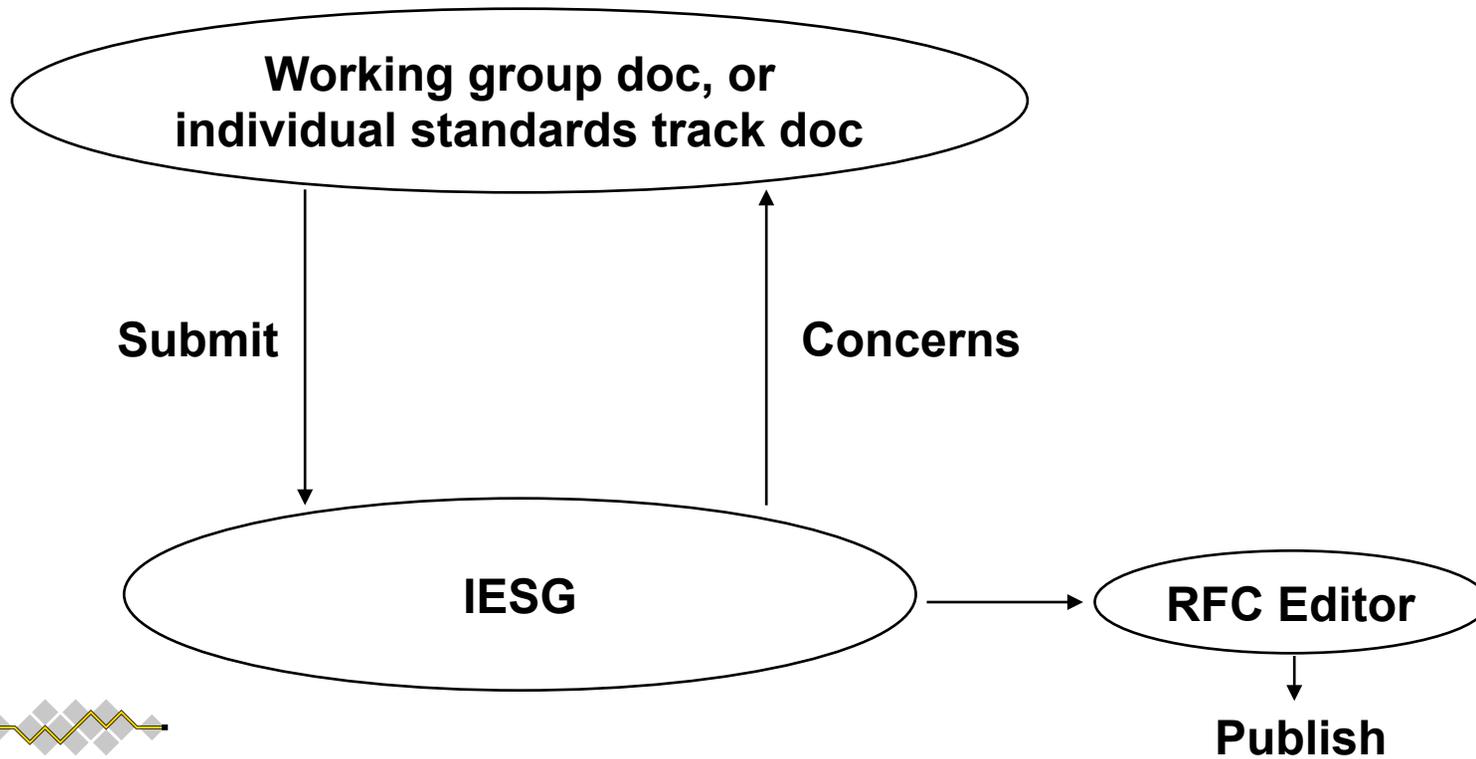
 - may approve publication as standards track RFC

 - may point out issues to working group & return ID

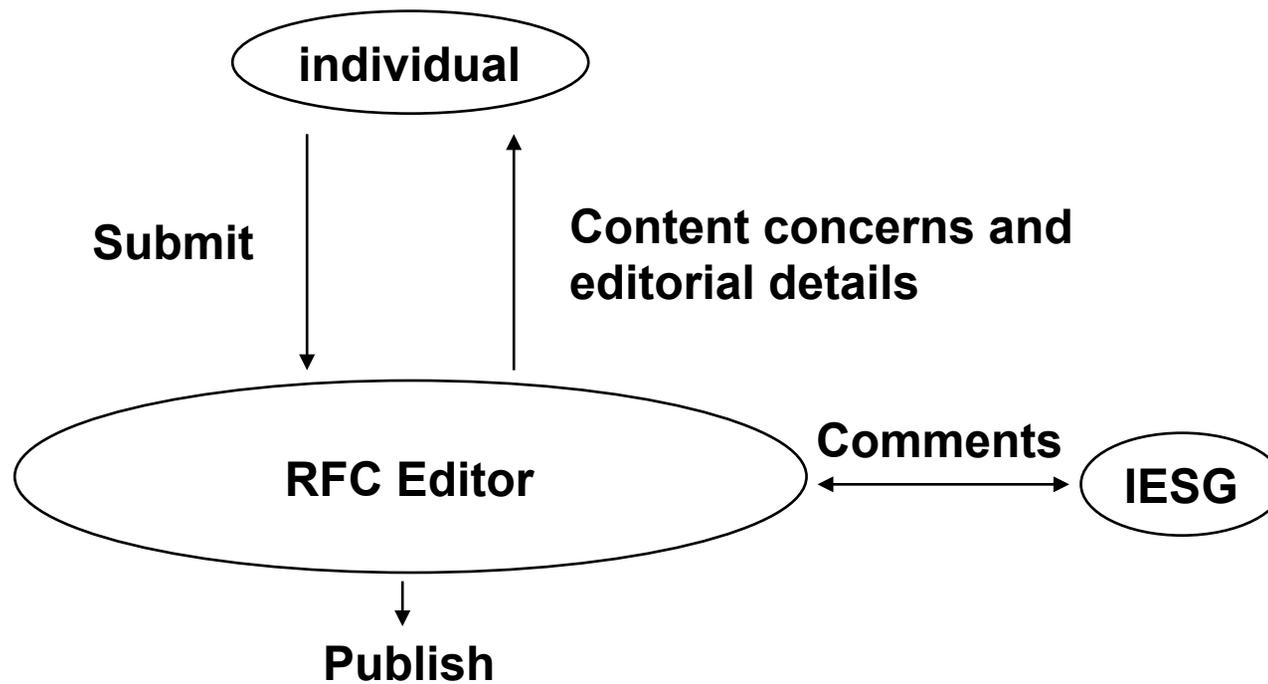
also process for non-WG proposals (but 4-week LC)



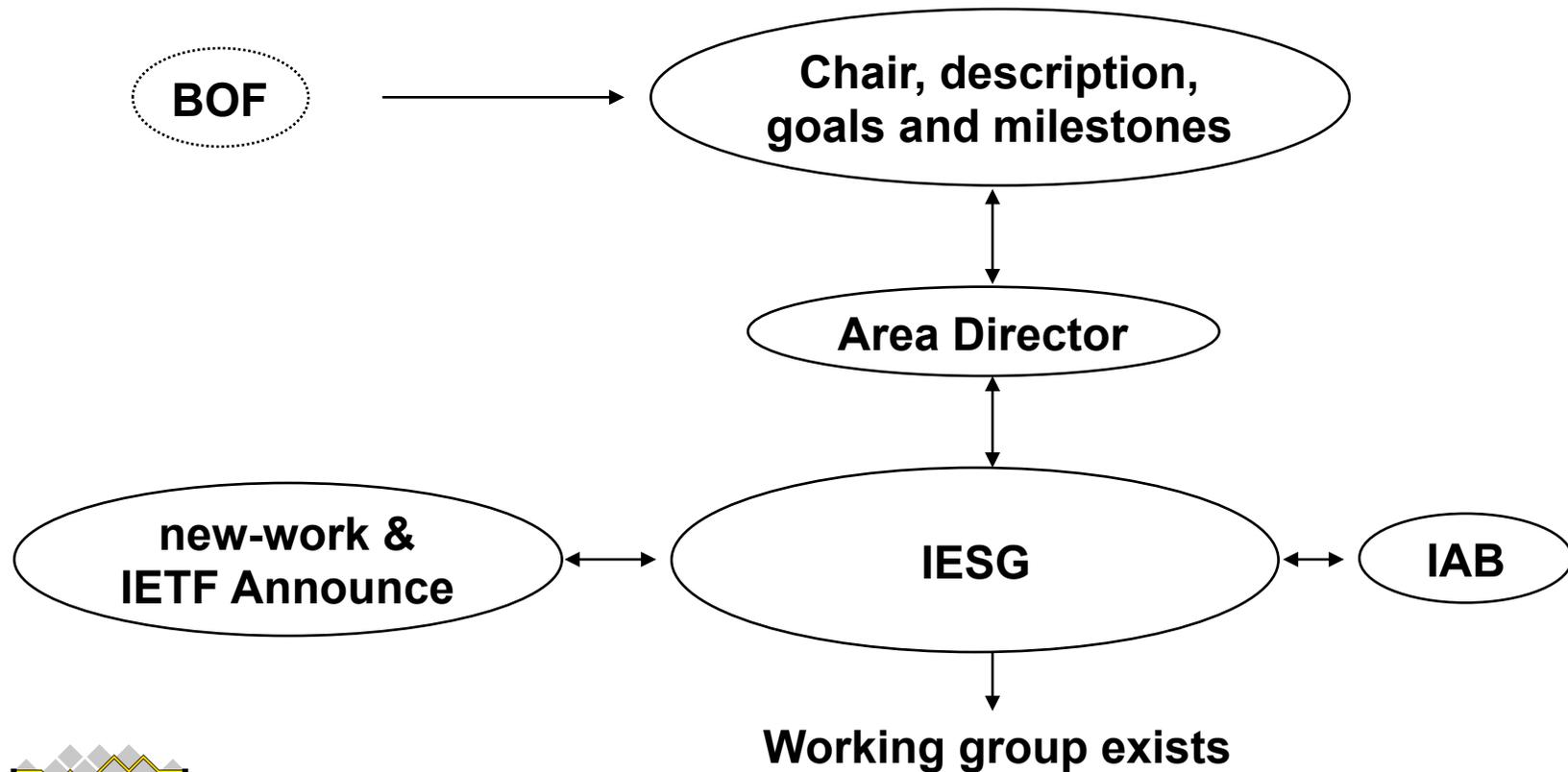
IETF Submissions



Non-IETF Submissions



Working Group Creation



Appeals Process

IETF decisions can be appealed

start appeal at level above issue

1st to WG chair

then to Area Director

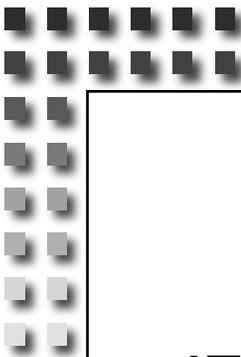
then to IESG

then to IAB

if claim is that the process (**and not the implementation of the process**) is broken, then an appeal can be made to the ISOC Board



I E T F



IPR (patents)

IETF IPR rules in RFC 2026 Section 10
currently working on **clarifying** these rules
in ipr working group

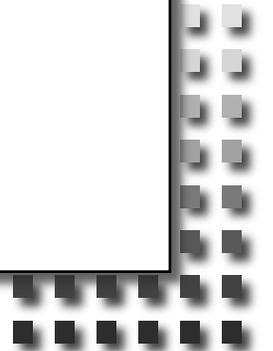
current IETF rules

require **disclosure** of own IPR in
own submissions
submissions of others

“**reasonably and personally**” known IPR

WG takes IPR into account when choosing technology
push from open source people for RF-only process

consensus to not change to RF-only
but WGs **tend** to want RF or IPR-free



Copyright

author(s) need to give publication rights to ISOC (IETF) if to be published at all

but **authors retain** most rights

mandatory ID boilerplate statement

1/ subject to RFC 2026 Section 10

2/ above but no right to produce derivative works

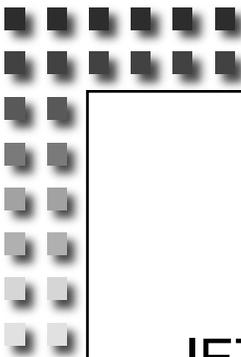
3/ just publish as ID

IPR WG will clarify copyright rules also

draft of changes about to given IETF Last-Call



I E T F



IETF Areas

IETF Chair & AD for General Area

Harald Alvestrand <chair@ietf.org>

Applications (app)

Ned Freed <ned.freed@mrochek.com>

Ted Hardie <hardie@qualcomm.com>

Internet (int)

Thomas Narten <narten@us.ibm.com>

??

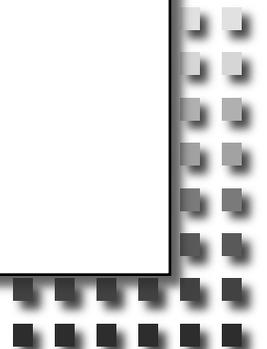
Operations & Management (ops)

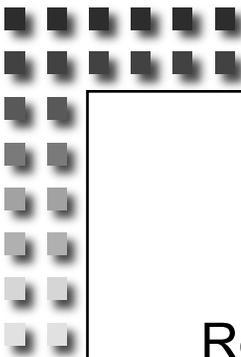
Randy Bush <randy@psg.com>

Bert Wijnen <bwijnen@lucent.com>



I E T F





IETF Areas (cont.)

Routing (rtg)

Bill Fenner <fenner@research.att.com>

Alex Zinin <zinin@psg.com>

Security (sec)

Steve Bellovin <smb@research.att.com>

Russ Housley <housley@vigilsec.com>

SUB-IP (sub) - Ad Hoc Area

Bert Wijnen <bwijnen@lucent.com>

Alex Zinin <zinin@psg.com>

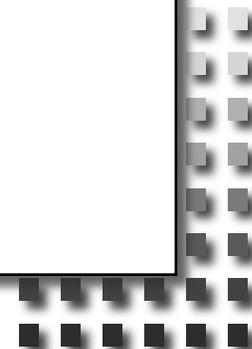
Transport Services (tsv)

Allison Mankin <mankin@psg.com>

Jon Peterson <jon.peterson@neustar.biz>



I E T F



go forth and participate!



I E T F