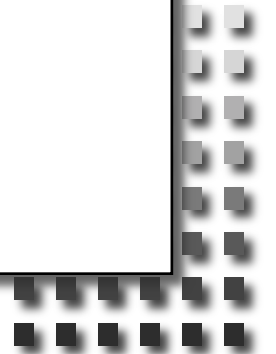




# **IETF Structure and Internet Standards Process**

*Spencer Dawkins/Changhoon Kim*  
*59th IETF*  
*Seoul, Republic of Korea/Han-gook*



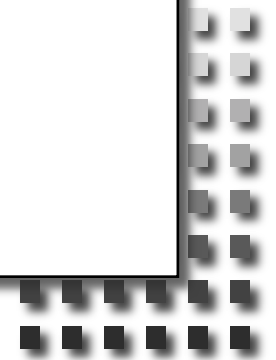


# Note Well (1)

The “Note Well” statement shows up a lot at the IETF.  
Mailing lists, registration, meeting openings, etc.

“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.”

*... continued ...*





## Note Well (2)

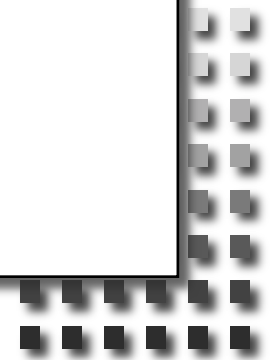
“Such statements include verbal statements in IETF meetings, as well as written and electronic communications made at any time or place, which are addressed to:

- 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 (except for RFC Editor Contributions).”

*... continued ...*



**I E T F**



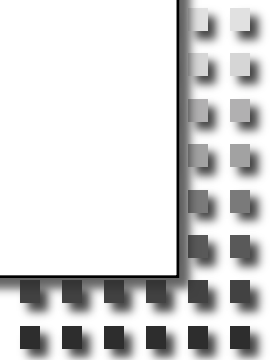


## Note Well (3)

“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.”

**Clearer statement of IETF IPR policy  
now available in RFC 3667, 3668**

**Announced 2004/02/18**





# The IETF

Internet Engineering Task Force  
formed 1986

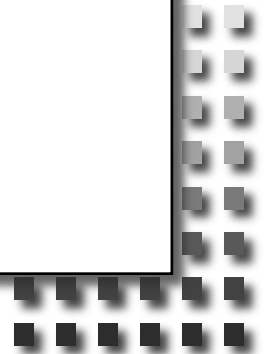
other standards groups cooperate with, imitate or  
fear the IETF (but some still ignore it)

not important enough for a long time - good!!

not government approved - great!!

**people not** companies

*“rough consensus and running code”*



# IETF: Meta View

“IETF does not exist” - **no** members, **no** voting  
1,200 to 2000 at 3/year meetings, **more** on mail lists  
1304 & 1201 at last 2 meetings (Vienna & Minneapolis)  
130ish **working groups** (where real work happens)  
if it matters to the Internet, standardizing it matters to us  
8 **areas** (for organizational convenience) with **ADs**  
APS, GEN, INT, O&M, RTG, SEC, SUB, TSV  
SUB “temporary” since 2001, almost finished now  
management: **IESG** (ADs, chosen by community)  
architectural guidance & liaisons: **IAB (also chosen)**  
produces **standards**





# IETF “Standards”

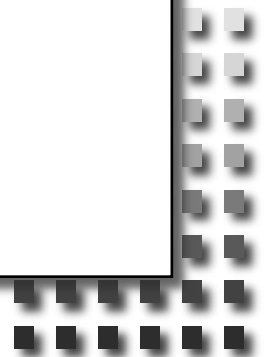
IETF standards not standards “because we say so”

only standards when people **use** them

**no** formal recognition

**no** submitting to “traditional” standards bodies

some of them 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 bottom-up, loosely managed

can have competing architectural models

new-work mailing list – *new-work-request@ietf.org*

to pre-announce new working groups and BOFs

for representatives of other standards groups

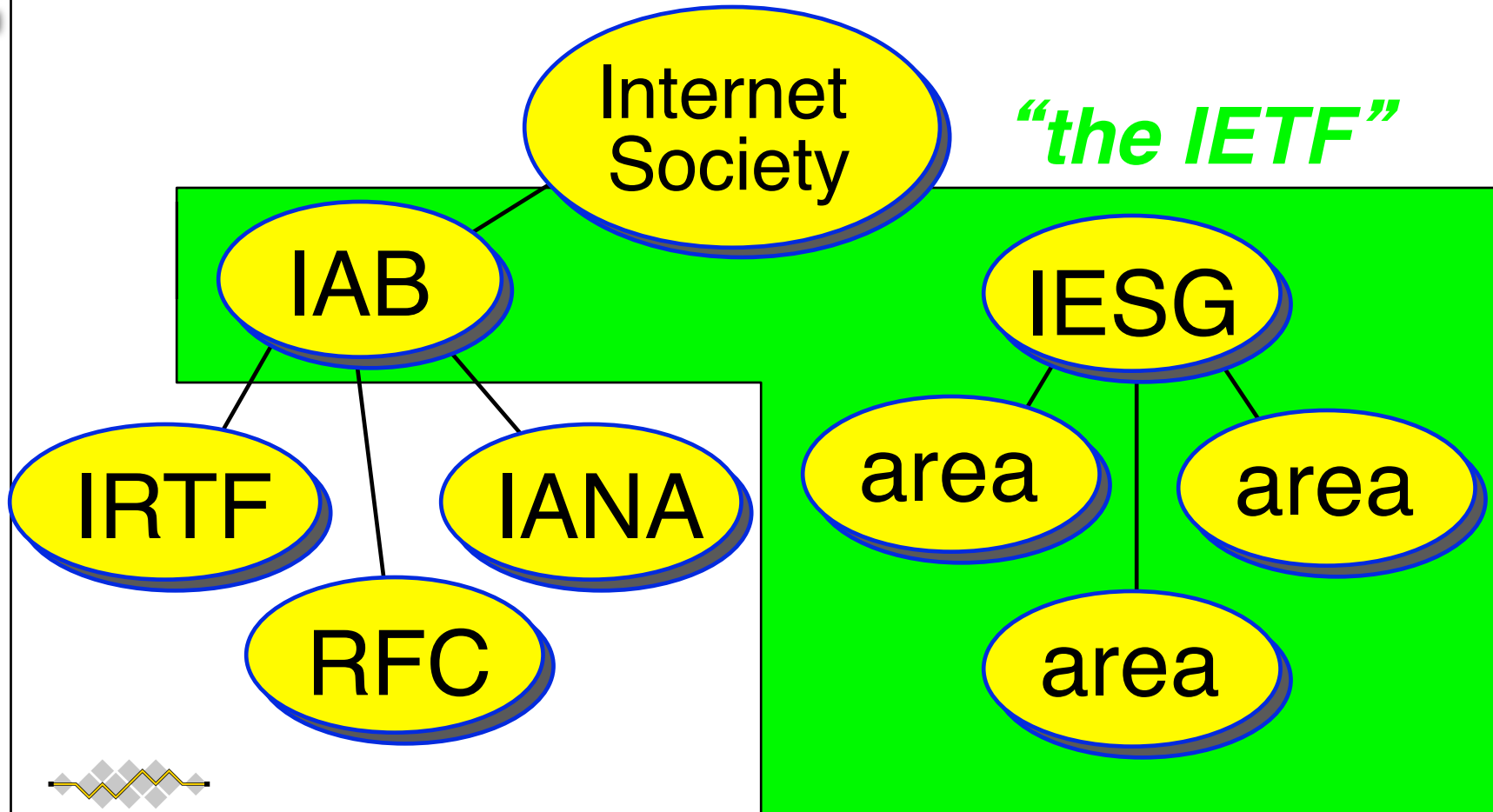


**working on liaison statement process**





# Organization of the IETF





# Internet Society (**ISOC**)

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

150 organization and 16,000 individual members in  
over 180 countries

provides legal umbrella & insurance for IETF

ISOC BoT part of IETF appeal chain

ISOC president appoints chair of IETF nomcom

IAB chartered by ISOC

ISOC president is on the IAB mailing list & calls

IETF (through IAB) appoints 3 ISOC trustees



**join at [www.isoc.org](http://www.isoc.org)**





# Internet Research Task Force (IRTF)

focused on **long term** problems in Internet

Anti-Spam

Authentication Authorisation Accounting Architecture

Crypto Forum

Delay-Tolerant Networking

End-to-End

Group Security

Internet Measurement

IP Mobility Optimizations

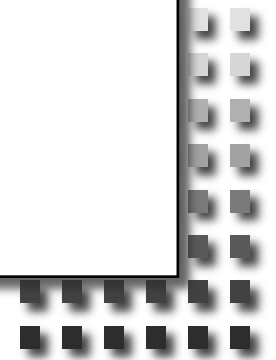
Network Management

Peer-to-Peer

Routing (including Ad Hoc Network Scaling Research  
Subgroup)

Searchable Internet Resource Names

Services Management





# 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

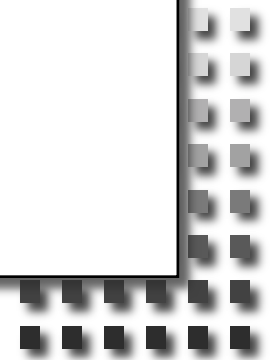
selects IETF-IANA

oversees RFC Editor

hosts workshops

chartered by ISOC

IAB plenary session Wednesday night





# 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

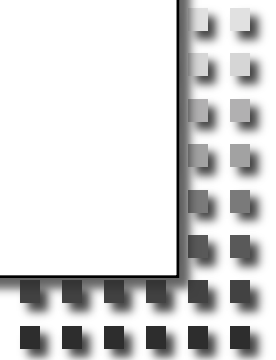
independent corporation to take over IANA functions

contract with US government

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



**I E T F**





# RFC Editor

was Jon Postel and helpers

now (sadly) just “the RFC Editor”

[rfc-editor@rfc-editor.org](mailto:rfc-editor@rfc-editor.org)

funded by the Internet Society

semi-independent

gets requests to publish IETF IDs from IESG

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



I E T F

# IETF Chair

Harald Alvestrand

also chair of **IESG**

also director of **General Area**

also ex officio member of **IAB**

nominated by IETF community - this includes you

selected by nomcom

IETF's "CTO" - "Chief Talking (or Traveling)  
Officer"



**I E T F**



# Area Directors (**ADs**)

nominated by the community – this includes you  
selected by nomcom

responsible for **setting direction** in Area

responsible for **managing process** in Area

approve BOFs & working group charters

then go to IESG & IAB for final approval

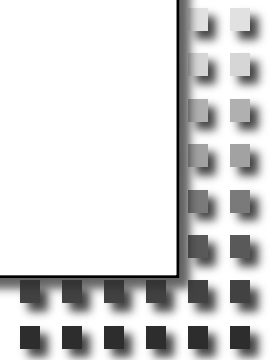
**reviews** working group documents

most Areas have 2 ADs

all but General Area



**I E T F**







# Internet Engineering Steering Group (**IESG**)

IETF Chair + rest of ADs

IETF **process management and RFC approval** body

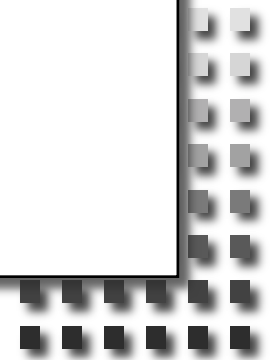
approves WG creation

reviews & approves publication of IETF documents

reviews and comments on non-IETF submissions

**multi-disciplinary technical review** group

subject of IESG plenary session Wednesday night





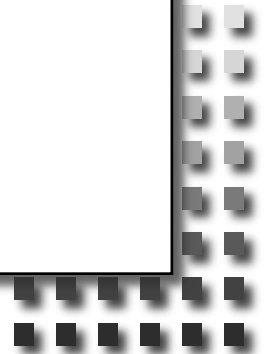
# IETF Secretariat

## runs

- plenary meetings
- mailing lists hosted by IETF
- Internet-Draft directory
- IESG teleconferences

## coordinates

- day to day work of IESG and working groups
- located physically
  - Foretec – Reston, Virginia
- funded from IETF meeting fees





# Selecting IETF Management

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

nomcom chair appointed by ISOC president

nomcom selects community nominees for each job

reviews one half IESG, half IAB each year

includes IETF chair

IESG approved by IAB, IAB approved by ISOC BoT







nomcom selected **randomly** from list of volunteers

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

**very** random selection process (RFC 2777 describes “random”)



# Dots

-  IAB member (red)
-  IESG member (yellow)
-  Working Group chair (blue)
-  nomcom (orange) – they came to listen to you...
-  local host (green)
-  others, maybe even drums and ornaments ...



**I E T F**



# Working Groups

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

**restrictive** charters with deliverables and **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

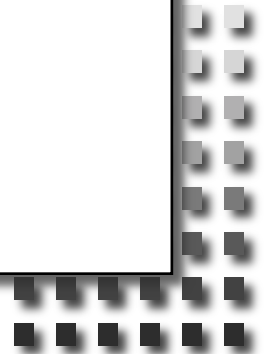
most work happens on mailing lists

all decisions must be verified on mailing list

face-to-face discussion to resolve disagreements



I E T F





# IETF Documents

all **open** - no “confidential contributions”

developed as Internet-Drafts

**anyone** can submit - “expire” in 6 months

**some** I-Ds are working group documents

**published as RFCs**

archival publications (never changed once published)

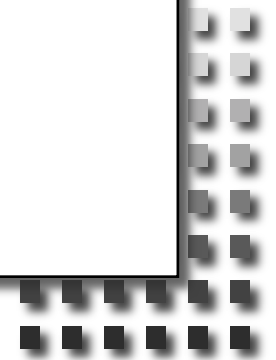
different types: (not all RFCs are standards!)

informational, experimental, BCP, standards track, historic

3-stage standards track, under review in NEWTRK

Proposed Standard, Draft Standard, Internet Standard

**interoperability** not conformance





# What is a RFC?

IETF document publication series

RFC used to stand for Request for Comments

now just a name

now tend to be more formal documents than early RFCs

now nearly 3700 RFCs

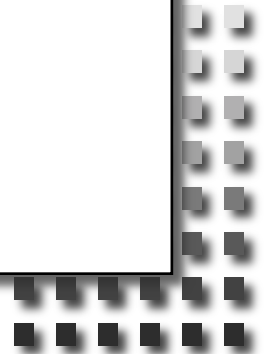
RFC 1 *Host Software* - Apr 7 1969

“**not all** RFCs are standards”

see RFC 1796

though some vendors imply otherwise

**many** types of RFCs







# RFC Repository Contains:

## standards track

OSPF, IPv6, IPsec ...

## obsolete Standards

RIPv1

## requirements

Host Requirements

## policies

Classless InterDomain Routing

## April fool's day jokes

IP on Avian Carriers ...



**I E T F**

... updated for QoS

## 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





# Working Papers

## Internet-Draft

random or non-random thoughts

input to the process or for background information

**no admissions control** other than IPR statements

anyone can submit an ID

**zapped** from IETF directory after 6 months

but many mirrors exist

almost all RFCs must pre-exist as IDs

some RFCs created by IANA or RFC Editor - exceptions



# Standards Track RFCs:

start at Proposed Standard (**PS**)

good idea, no known problems

implementation required at AD discretion

advance to Draft Standard (**DS**)

stable Proposed Standard specification

multiple interoperable implementations

note IPR restriction

advance again to Internet Standard (**STD**)

Draft Standard with wide deployment and use

Best Current Practices (**BCP**)

generally policies or IETF procedures

 (best way we know how)

I E T F





# 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)

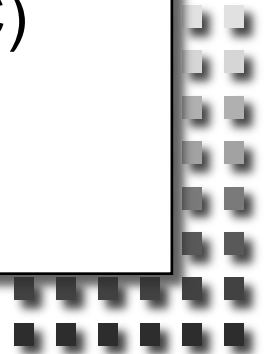
- anyone can comment

- IESG considers comments and its own review

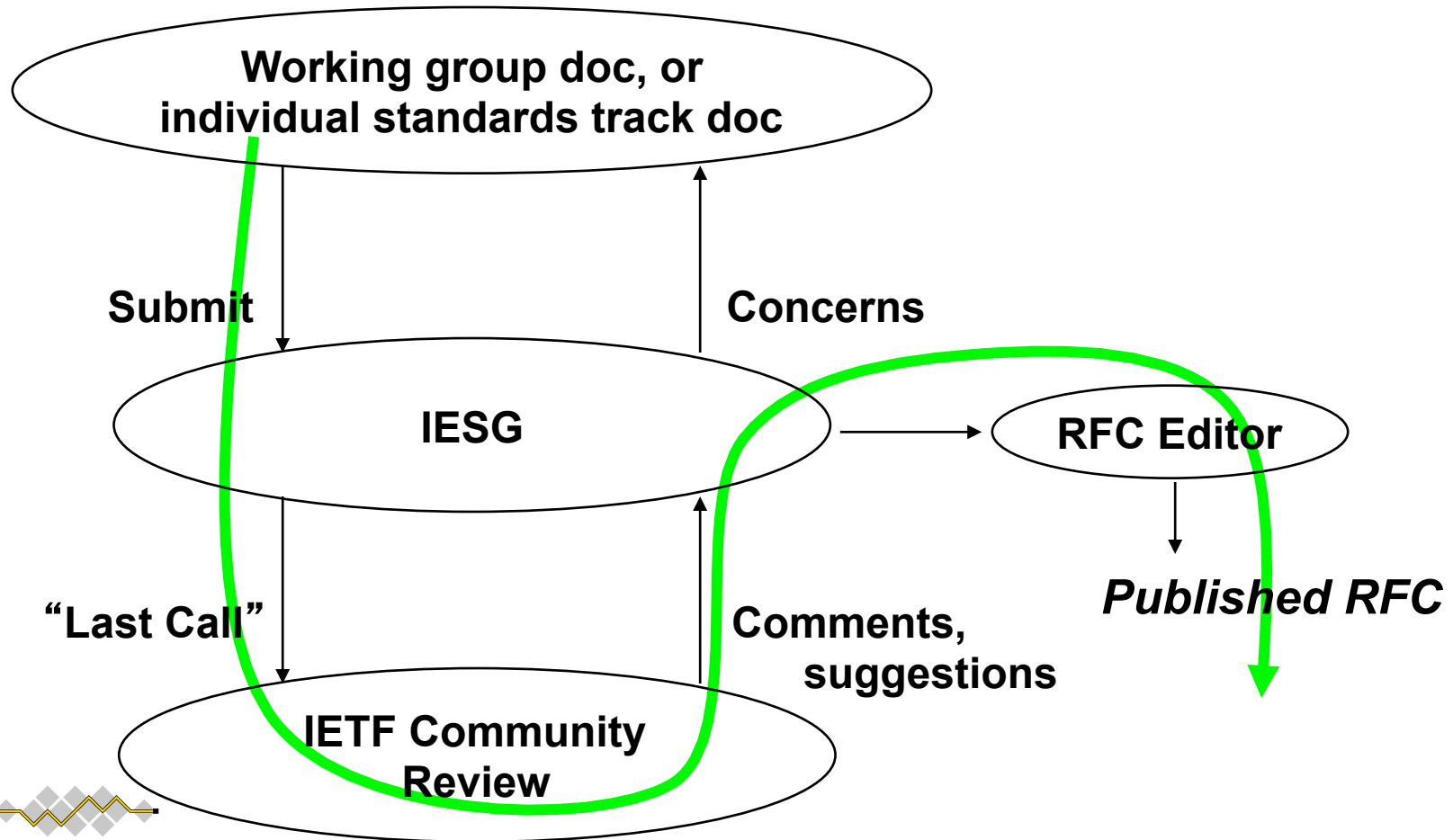
  - may approve publication as standards track RFC

  - may point out issues to working group & return ID

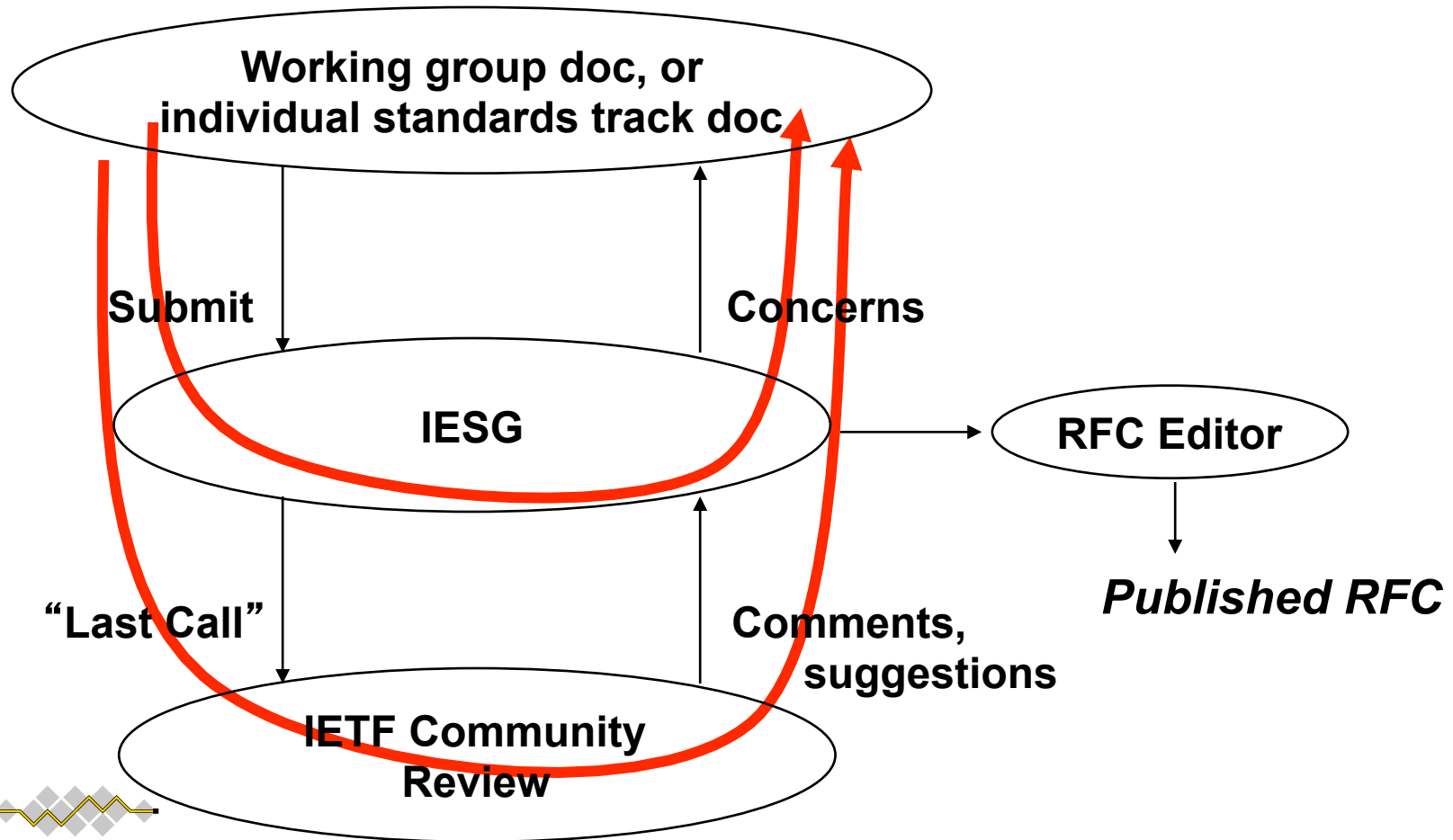
similar process for non-WG drafts (with 4-week LC)



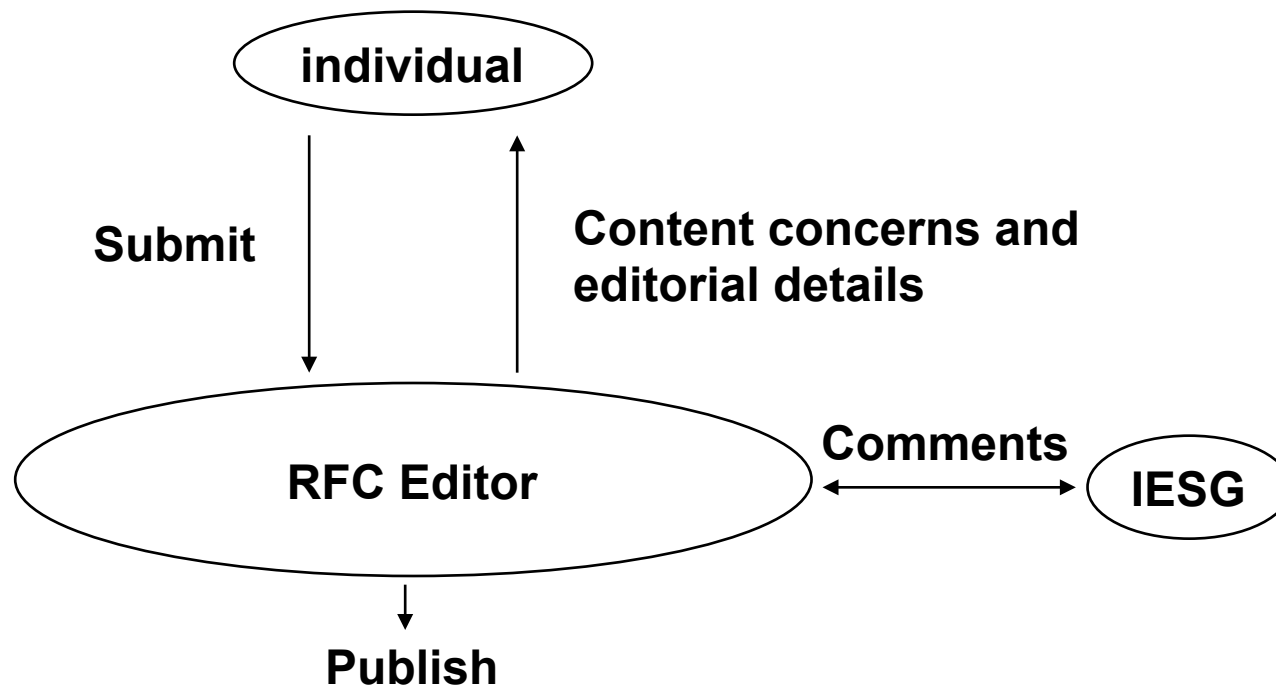
# IETF Submission the right way



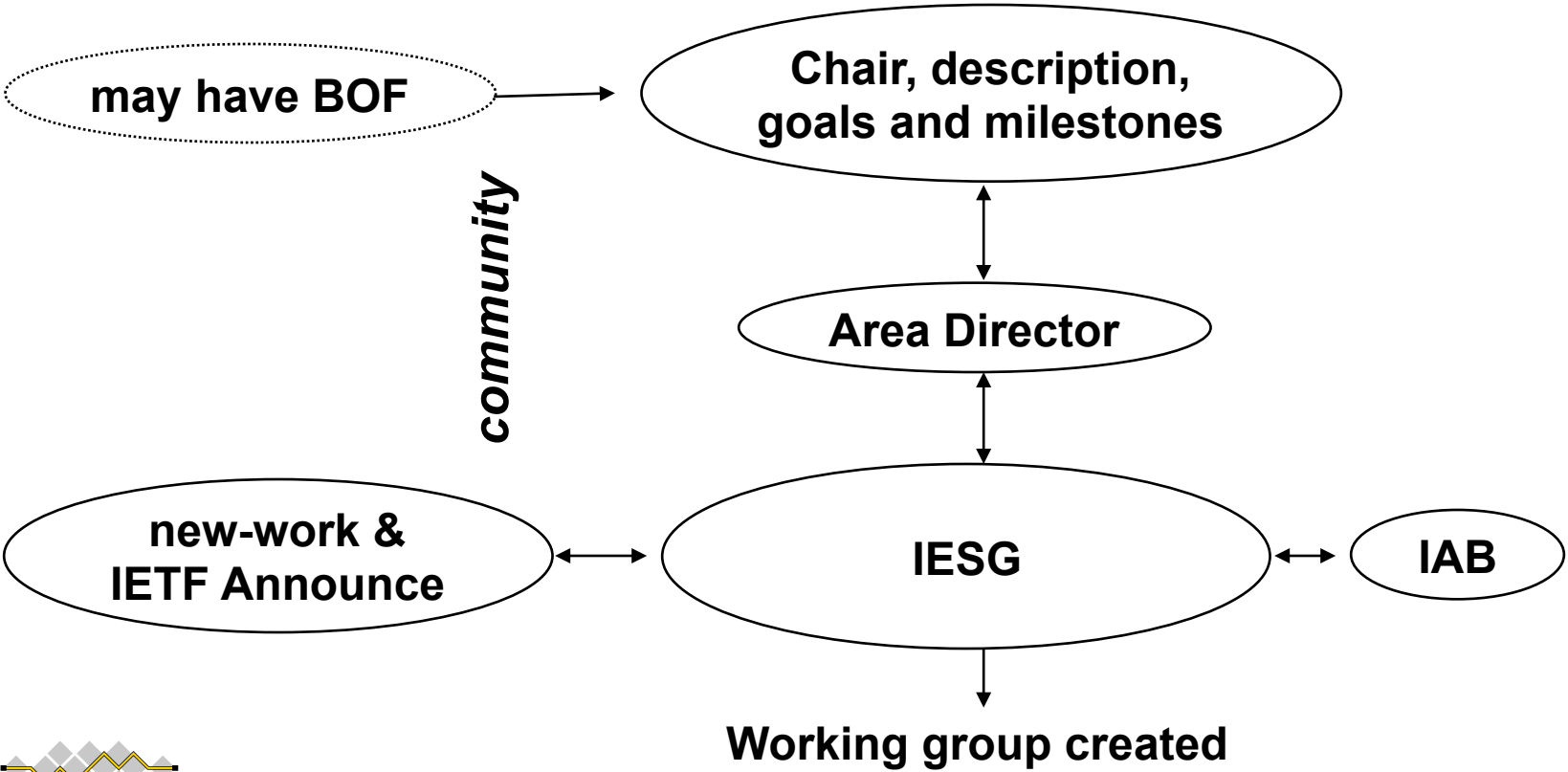
# IETF Submission the other way



# Non-IETF Submissions



# Working Group Creation







# Appeals Process

IETF decisions can be appealed

**start appeal** at level above decision being appealed

1st to WG chair

only then to Area Director

only then to IESG

only then to IAB

if claim is that **the process** has not been followed,

only then an appeal can be made to the ISOC Board

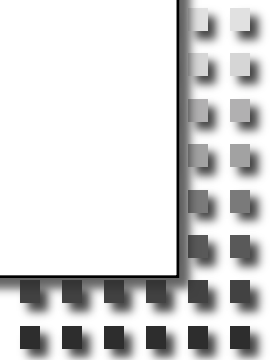
it is OK to appeal decisions – people do

but appeals are not quick

starting “low” is the right thing to do



I E T F





# IPR (Patents)

IETF IPR rules in RFC 3667, 3668

current IETF rules

- require **disclosure** of your own IPR in
  - your own submissions & submissions of others
- “**reasonably and personally**” known IPR
- no patent search required

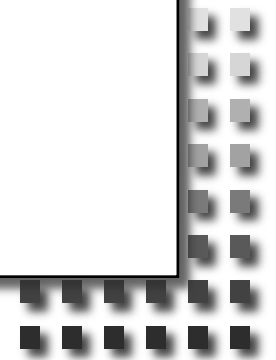
**WG** takes IPR into account when choosing technology

New RFC 3669 gives background and guidance

push from open source people for RF-only process

consensus to not change to mandatory RF-only

but many WGs **tend** to want RF or IPR-free





# IPR (Copyright)

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

but **authors retain** most rights

mandatory ID statement

1/ subject to RFC 3667

2/ above but no right to produce derivative works

3/ just publish as ID

recent RFC 2026 updates also clarified copyright

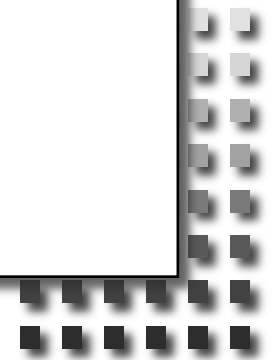
see RFC 3668

Standards track requires IETF change control

“subject to RFC 3667” with no other restrictions



I E T F





# IETF Areas

## IETF Chair & IESG Chair & AD for General Area (gen)

Harald Alvestrand <chair@ietf.org>

## Applications (app)

Scott Hollenbeck <shollenbeck@verisign.com> (new since IETF 58)

Ted Hardie <hardie@qualcomm.com>

## Internet (int)

Thomas Narten <narten@us.ibm.com>

Margaret Wasserman <margaret.wasserman@nokia.com>

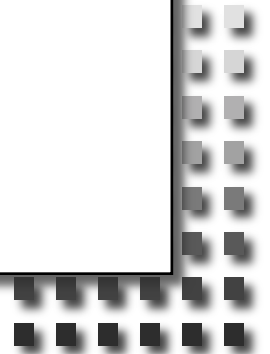
## Operations & Management (ops)

David Kessens <david.kessens@nokia.com> (new since IETF 58)

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>

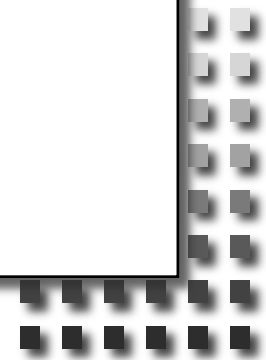
## Transport Services (tsv)

Allison Mankin <mankin@psg.com>

Jon Peterson <jon.peterson@neustar.biz>



**I E T F**





# IAB Members

Bernard Aboba

Rob Austein

Harald Alverstrand

IETF Chair

Leslie Daigle

IAB chair

Patrik Fältström

Sally Floyd

Mark Handley

Bob Hinden

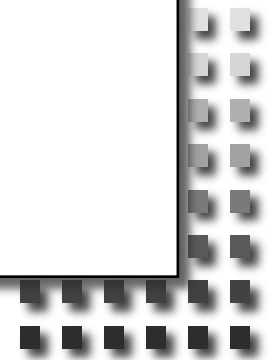
Geoff Huston

Jun-ichiro Itojun  
Hagino

Eric Rescorla

Pete Resnick

Jonathan Rosenberg





# Other IETF Training/Tutorials

*provided by EDU-Team at each IETF*

*see details at <https://www1.ietf.org/mailman/listinfo/edu-discuss>*

*1300-1500 Editor's Training - Gardenia A-2*

*1300-1500 Intro WG Chairs Training – Astor*

*1500-1700 Security Tutorial - Sapphire 4*

*1700-1900 Welcome Reception - Crystal Ballroom*

*(talking to IETF people is always an education!)*



**I E T F**





# What next?

*Join mailing lists*

*This is where the work happens*

*Read the drafts*

*Don't be shy*

*Talk to people*

*Look for common ground*

*Help people*

*Don't settle for second-rate*



**I E T F**





# Questions



**I E T F**