

What is the IETF..an IPv6 view.

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“The mission of the IETF is to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to ***make the Internet work better.*** These documents include protocol standards, best current practices, and informational documents of various kinds.”

RFC 3935

A Mission Statement for the IETF



standards
global
innovation
Internet
infrastructure
volunteers
researchers
IETF
engineers
OPEN
participation
processes
collaborating
scientists

*No one is in charge,
anyone can contribute
and everyone can
benefit.*



IETF Organization: Areas

General Area (gen)

- ...activities focused on supporting, updating and maintaining the IETF standards development process.

Applications (app)

- ubiquitous application protocols (e.g., email, HTTP, FTP) and protocols used for Internet infrastructure

Internet (int)

- ...IP layer (both IPv4 and IPv6), DNS, mobility, VPNs and pseudowires..., and various link layer technologies.

Operations & Management (ops)

- Network Management, AAA, and various operational issues facing the Internet such as DNS operations, IPv6 operations, operational security and Routing operations.

Real-time Applications and Infrastructure (rai)

- ...develops protocols and architectures for delay-sensitive interpersonal communications...

Routing (rtg)

- ...responsible for ensuring continuous operation of the Internet routing system...

Security (sec)

- ...focused on security protocols...services: integrity, authentication, non-repudiation, confidentiality, and access control...key management is also vital.

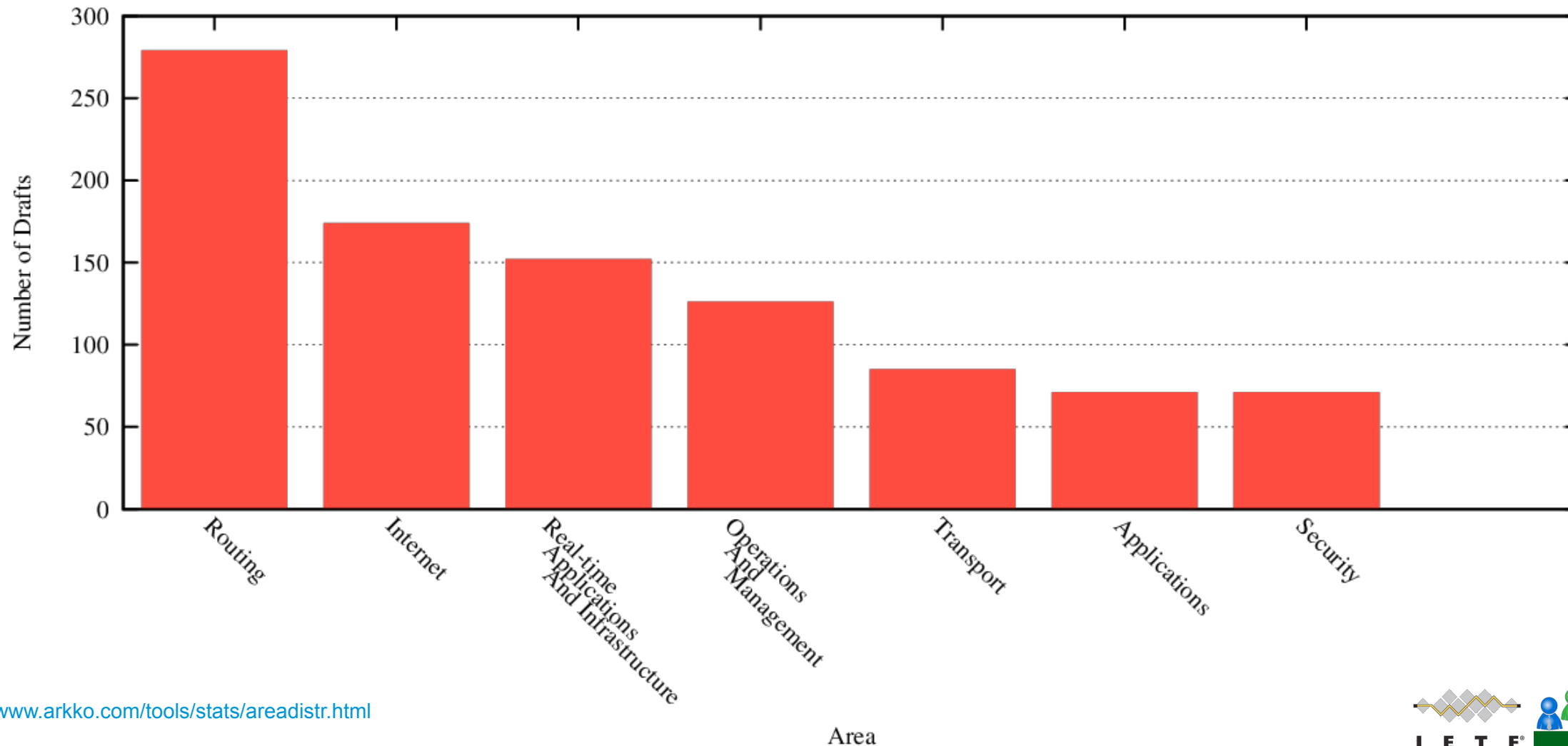
Transport Services (tsv)

- ...works on mechanisms related to end-to-end data transport...



Work Distribution

Number of Drafts per Area



<http://www.arkko.com/tools/stats/areadistr.html>



IPv6-Related Working Groups

Internet Area

...IP layer (both IPv4 and IPv6), implications of IPv4 address depletion, co-existence between the IP versions, DNS, DHCP, host and router configuration, mobility, multihoming, identifier-locator separation, VPNs and pseudowires..., and various link layer technologies.

IPv6 over Networks of Resource-constrained Nodes (6lo)

IPv6 over Low power WPAN (6lowpan)

IPv6 over the TSCH mode of IEEE 802.15.4e (6tisch)

These WGs explore the use of IPv6 over different media.



IPv6 Maintenance (6man)

- RFCs Published in the Last Year

[RFC 6874](#)

Representing IPv6 Zone Identifiers in Address Literals and Uniform Resource Identifiers

[RFC 6935](#)

IPv6 and UDP Checksums for Tunneled Packets

[RFC 6936](#)

Applicability Statement for the Use of IPv6 UDP Datagrams with Zero Checksums

[RFC 6946](#)

Processing of IPv6 "Atomic" Fragments

[RFC 6957](#)

Duplicate Address Detection Proxy

[RFC 6980](#)

Security Implications of IPv6 Fragmentation with IPv6 Neighbor Discovery



IPv6 Maintenance (6man) (2)

- Current Work

Distributing Address Selection Policy using DHCPv6 (draft-ietf-6man-addr-select-opt)

Enhanced Duplicate Address Detection (draft-ietf-6man-enhanced-dad)

Transmission and Processing of IPv6 Extension Headers (draft-ietf-6man-ext-transmit)

Neighbor Unreachability Detection is too impatient (draft-ietf-6man-impatient-nud)

Privacy Considerations for IPv6 Address Generation Mechanisms (draft-ietf-6man-ipv6-address-generation-privacy)

Updates to the IPv6 Multicast Addressing Architecture (draft-ietf-6man-multicast-addr-arch-update)

IPv6 Multicast Address Scopes (draft-ietf-6man-multicast-scopes)

Implications of Oversized IPv6 Header Chains (draft-ietf-6man-oversized-header-chain)

Packet loss resiliency for Router Solicitations (draft-ietf-6man-resilient-rs)

A Method for Generating Semantically Opaque Interface Identifiers with IPv6 Stateless Address Autoconfiguration (SLAAC) (draft-ietf-6man-stable-privacy-addresses)

Significance of IPv6 Interface Identifiers (draft-ietf-6man-ug)



Home Networking (homenet)

- ...focuses on the evolving networking technology within and among relatively small "residential home" networks.
- **General Routing Requirements:**
 - knowledge of the homenet topology ... and that it can pass around more than just routing information
 - inclusion of the PHY layer characteristics in path computation
 - Multi-homing: Multiple upstreams, load-balancing to multiple providers, and failover from a primary to a backup link when available .. support multiple ISP uplinks and delegated prefixes in concurrent use.
 - self-configuring ... determining the boundaries of the homenet.
- **Reading List**
 - IPv6 Home Networking Architecture Principles (draft-ietf-homenet-arch)



Softwires (softwire)

- ...discovery, control and encapsulation methods for connecting IPv4 networks across IPv6 networks and IPv6 networks across IPv4 networks...Softwires Problem Statement, RFC 4925, identifies two distinct topological scenarios that the Working Group will provide solutions for: "Hubs and Spokes" and "Mesh."...specific work areas for this working group are: 1. Developments for Mesh softwires topology...2. Developments for 6rd...3. Developments for Dual-Stack Lite (DS-Lite)...4. Developments for stateless legacy IPv4 carried over IPv6...5. Finalize discovery and configuration mechanisms for a gateway to use DS-Lite or 6rd...

- RFCs Published in the Last Year

- [RFC 6908](#)

- Deployment Considerations for Dual-Stack Lite

- [RFC 6930](#)

- RADIUS Attribute for IPv6 Rapid Deployment on IPv4 Infrastructures (6rd)

- [RFC 7040](#)

- Public IPv4-over-IPv6 Access Network



Softwires (softwire) (2)

- Current Work

IPv4 Residual Deployment via IPv6 - a Stateless Solution (4rd) (draft-ietf-softwire-4rd)

Delivery of IPv4 Multicast Services to IPv4 Clients over an IPv6 Multicast Network (draft-ietf-softwire-dslite-multicast)

Lightweight 4over6: An Extension to the DS-Lite Architecture (draft-ietf-softwire-lw4over6)

Mapping of Address and Port with Encapsulation (MAP) (draft-ietf-softwire-map)

Mapping of Address and Port (MAP) - Deployment Considerations (draft-ietf-softwire-map-deployment)

DHCPv6 Options for configuration of Softwire Address and Port Mapped Clients (draft-ietf-softwire-map-dhcp)

Mapping of Address and Port using Translation (MAP-T) (draft-ietf-softwire-map-t)

Softwire Mesh Multicast (draft-ietf-softwire-mesh-multicast)

Motivations for Carrier-side Stateless IPv4 over IPv6 Migration Solutions (draft-ietf-softwire-stateless-4v6-motivation)



Sunsetting IPv4 (sunset4)

- ...point out specific areas of concern, provide recommendations, and standardize protocols that facilitate the graceful "sunsetting" of the IPv4 Internet in areas where IPv6 has been deployed. This includes the act of shutting down IPv4 itself...
- Current Work
 - Gap Analysis for IPv4 Sunset (draft-ietf-sunset4-gapanalysis)
 - Turning off IPv4 Using DHCPv6 or Router Advertisements (draft-ietf-sunset4-noipv4)



IPv6 Operations (v6ops)

- ...develops guidelines for the operation of a shared IPv4/IPv6 Internet and provides operational guidance on how to deploy IPv6 into existing IPv4-only networks, as well as into new network installations.

- RFCs Published in the Last Year

- [RFC 6877](#)

- 464XLAT: Combination of Stateful and Stateless Translation

- [RFC 6883](#)

- IPv6 Guidance for Internet Content Providers and Application Service Providers

- [RFC 7066](#)

- IPv6 for Third Generation Partnership Project (3GPP) Cellular Hosts

- [RFC 7084](#)

- Basic Requirements for IPv6 Customer Edge Routers



IPv6 Operations (v6ops) (2)

- Current Work

Extending an IPv6 /64 Prefix from a 3GPP Mobile Interface to a LAN link (draft-ietf-v6ops-64share)

Balanced Security for IPv6 Residential CPE (draft-ietf-v6ops-balanced-ipv6-security)

IPv6 Operational Guidelines for Datacenters (draft-ietf-v6ops-dc-ipv6)

Enterprise IPv6 Deployment Guidelines (draft-ietf-v6ops-enterprise-incremental-ipv6)

IPv6 Multihoming without Network Address Translation (draft-ietf-v6ops-ipv6-multihoming-without-ipv6nat)

An Internet Protocol Version 6 (IPv6) Profile for 3GPP Mobile Devices (draft-ietf-v6ops-mobile-device-profile)

Monitoring Dual Stack/IPv6-only Networks and Services (draft-ietf-v6ops-monitor-ds-ipv6)

NAT64 Operational Experiences (draft-ietf-v6ops-nat64-experience)

Implementation Advice for IPv6 Router Advertisement Guard (RA-Guard) (draft-ietf-v6ops-ra-guard-implementation)

Recommendations of Using Unique Local Addresses (draft-ietf-v6ops-ula-usage-recommendations)

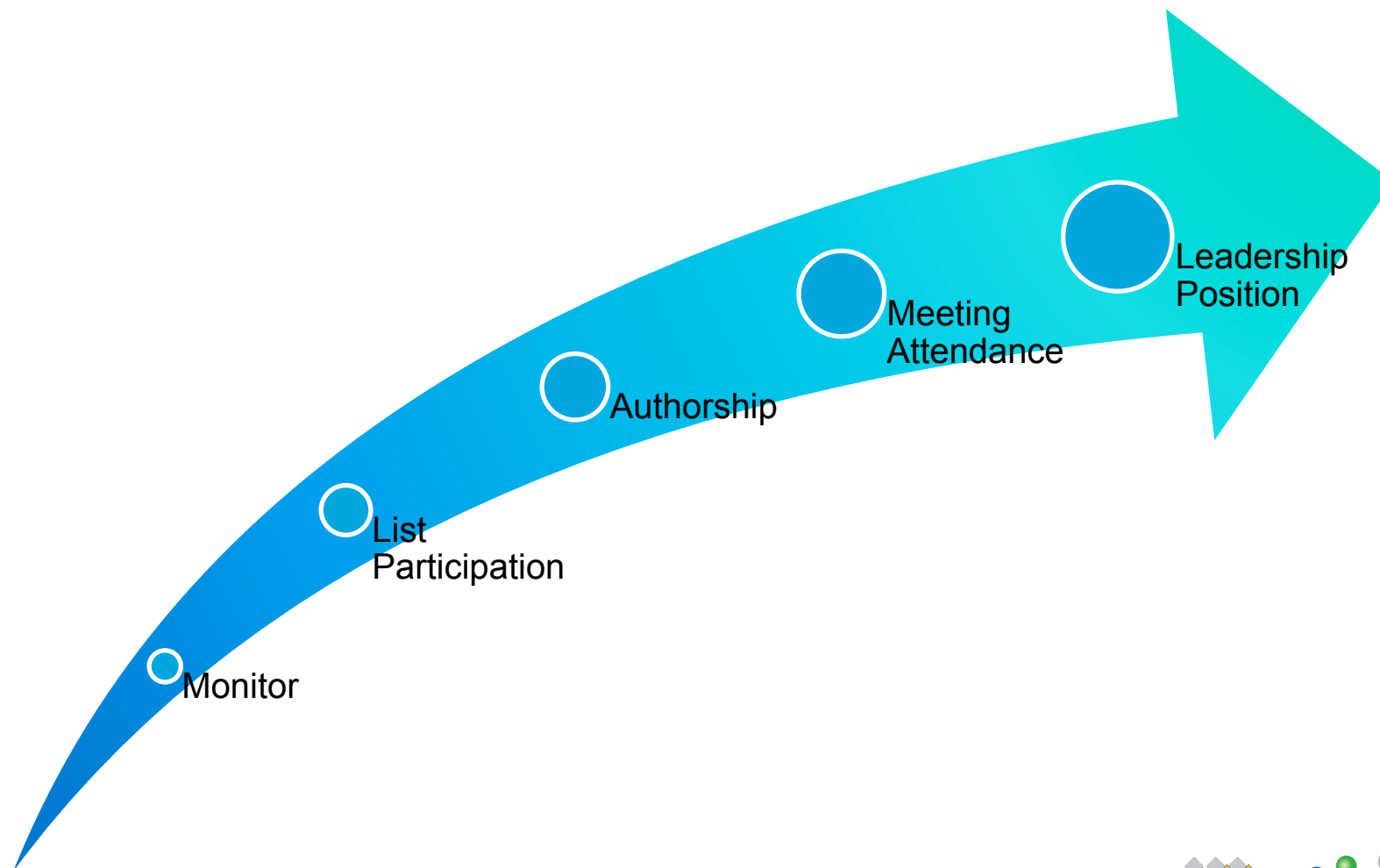


How to Participate in the IETF?

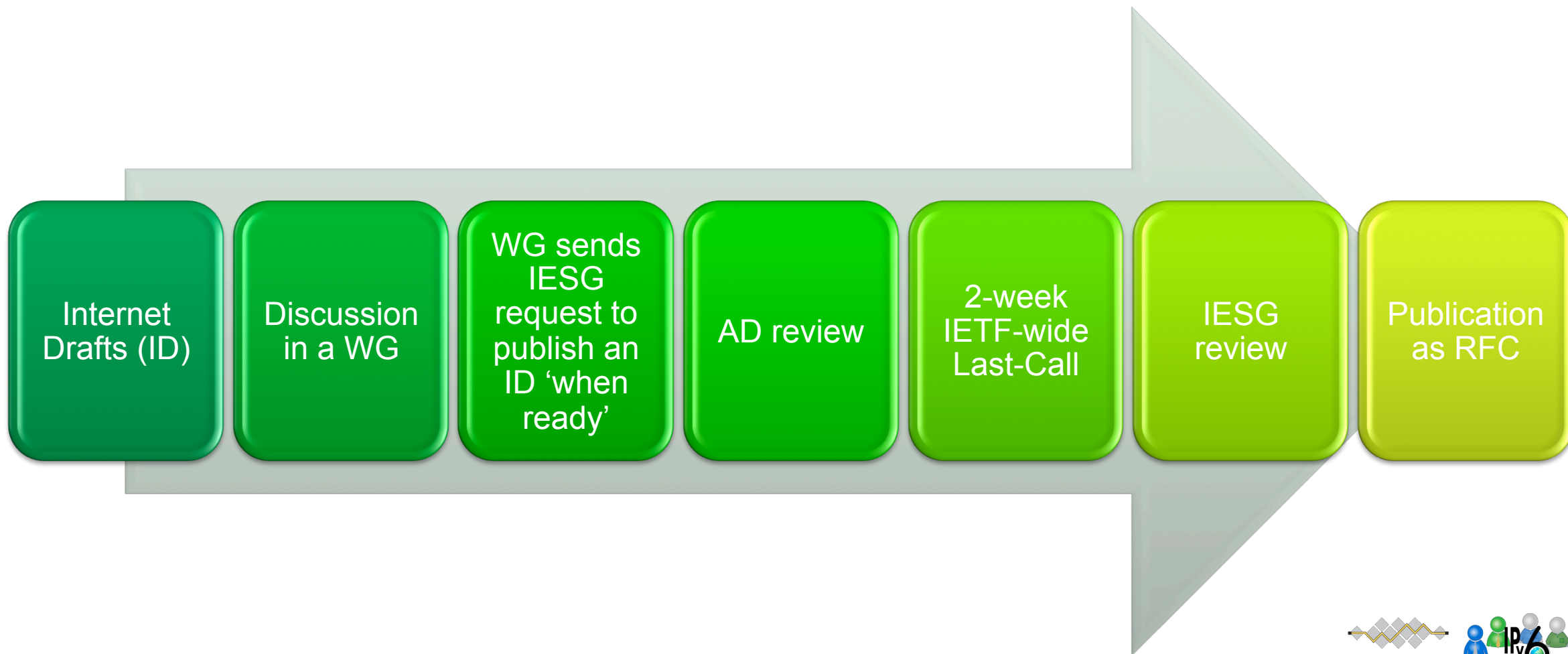


How to Participate in the IETF?

- Join a mailing list..
- ..start contributing!!



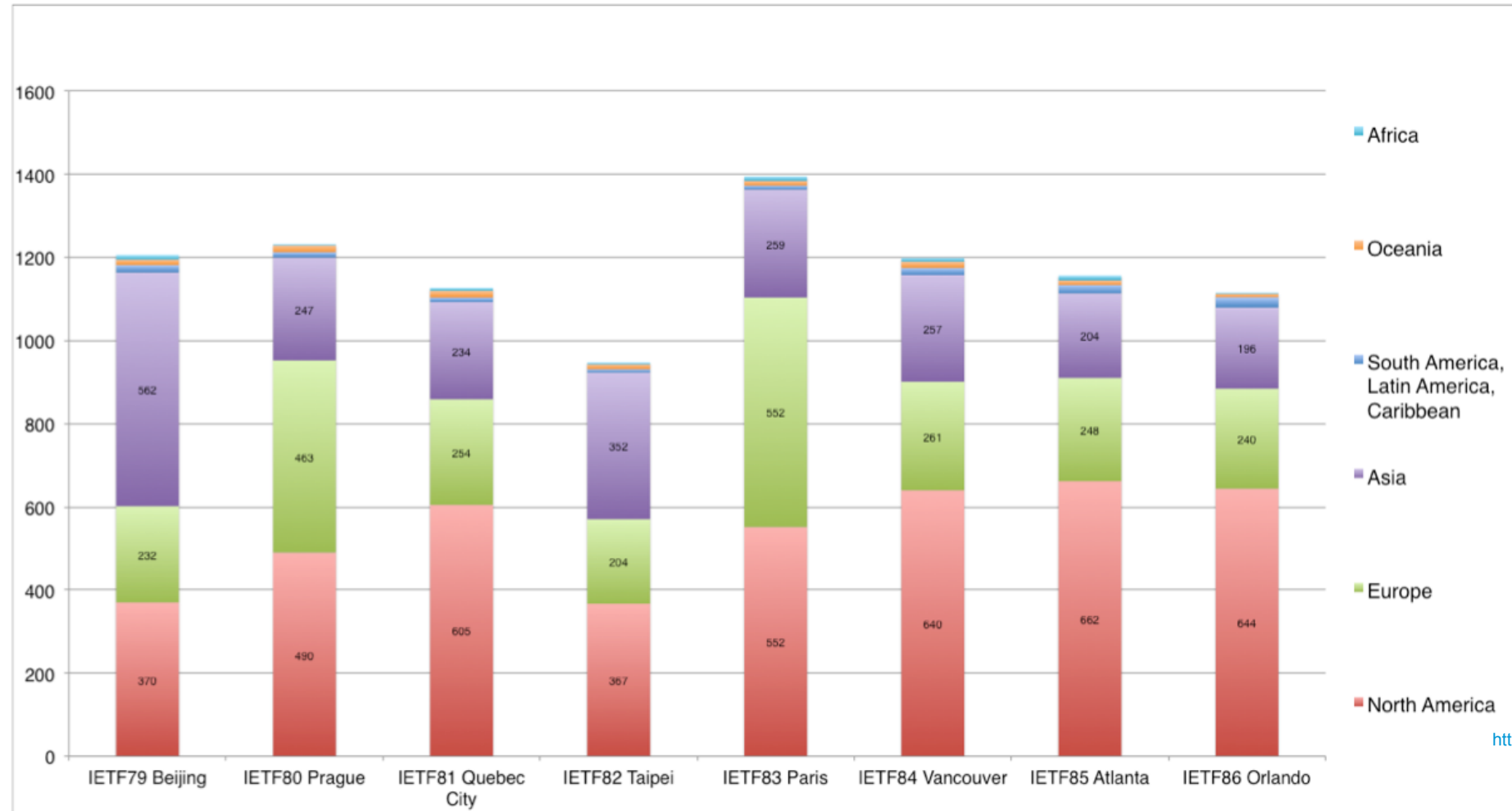
Standards Process



Diversity and Inclusion



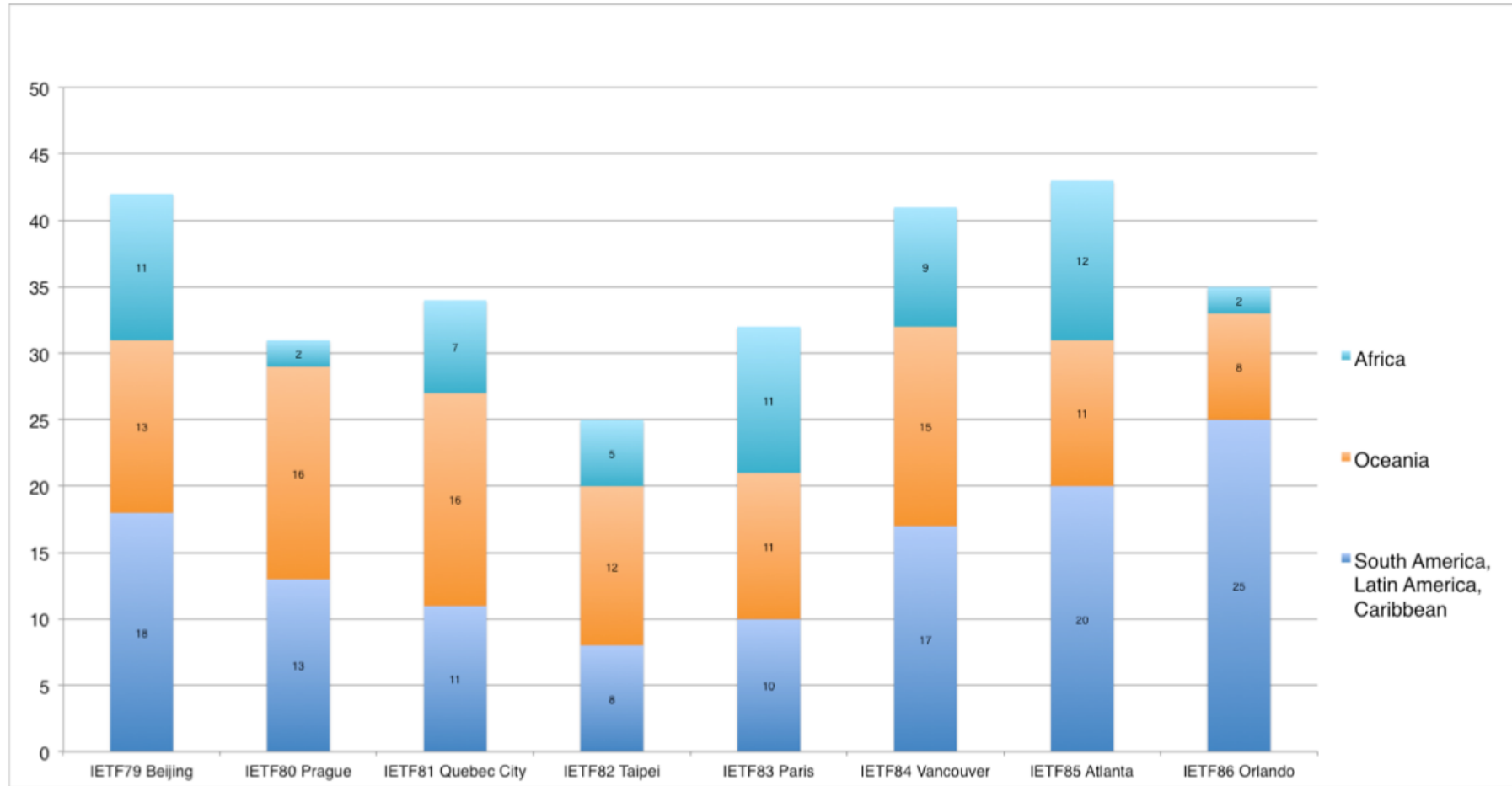
IETF Attendance by Region



<http://www.ietf.org/documents/IETF-Regional-Attendance-00.pdf>



Africa, Oceania, South America/ Latin America/Caribbean



Diversity / Inclusion

- Open Discussions
- Potential IETF Meeting in Latin America
- Diversity Mailing List

The diversity design team will work on identifying diversity related issues that the IETF faces and making practical recommendations that can help in this regard. This mailing list will be used for obtaining input from the community.

<https://www.ietf.org/mailman/listinfo/diversity>

- Emerging Regions Internet Challenges And Solutions (ericas)

This list provides a discussion forum about the various challenges the Internet is facing in emerging regions, and share experiences and proposals to successfully address some of those challenges.

<https://www.ietf.org/mailman/listinfo/ericas>



Diversity / Inclusion

- IETF-LAC Task Force

LACNOG chartered the IETF LAC Task Force with the objective of encouraging the participation of people from the region in IETF processes and discussions. Some of the goals include:

- Being a mechanism for introducing new people to the IETF

- Providing a place where people can discuss drafts in their own language (Spanish, Portuguese, English)

- Providing a place where Latin authors can send their drafts and get feedback from their peers

<http://mail.lacnic.net/mailman/listinfo/ietf-lac>



Next Steps

- Join the IETF Mailing Lists!
- Participate in the Discussions
- Read the ID and Contribute Ideas, Opinions, Solutions
- Collaborate, Build Relationships
- Find Common Ground



Obrigado!

