IETF is Different

- IETF creates Internet protocol standards
  - You’ve seen Alvaro’s overview
- But IETF is different than other standards orgs
  - IETF standards are voluntary
  - IETF is open
  - IETF runs by “rough consensus”
  - IETF requires “running code”
- Also will talk about current work of interest
How is IETF different?
IETF Standards are *Voluntary*

- We write interoperability standards
  - Not conformance requirements
  - “If you want to interoperate with others on the Internet, this is how it’s done”
- We are not a government body
  - We don’t make laws or policy
  - We are not the Internet police
  - Some governments refer to our standards
- We are not an industry consortium
  - No agreements between companies to use
  - Sometimes procurements do refer to our standards
IETF is *Open*

- No membership in the IETF
  - Individual participation – No representation
    - No companies or governments have privilege
  - No fees to join
  - Nothing to sign

- Anyone can participate
  - Volunteer organization – Leaders too
  - Newcomers welcome

- You don’t even have to come to meetings
  - Official work is by email
  - Several senior participants never go to meetings
IETF runs by “Rough Consensus”

- No voting in the IETF
  - Who would allowed to vote? No members
  - Voting allows bad ideas to still win votes
  - Votes can be “gamed” (ballot stuffing, trading votes)

- So instead we come to consensus
  - We count “issues”, not people
  - We want to make sure all issues are addressed
  - Sometimes we need engineering compromises

- Only rough consensus
  - Can’t allow unreasonable objection to stop progress
  - If someone keeps objecting, may be “in the rough”

- A “showstopper” can always stop consensus
Strange effects of rough consensus

- Sometimes discussions take time
  - Chairs are supposed to “call consensus”
  - Guiding people to consensus can be hard

- Sometimes we “hum”
  - Chairs need to get a sense of the room sometimes
  - Don’t want to raise hands – Hum “for” or “against”

- Sometimes we flip a coin
  - Doesn’t matter where we start
  - Can still be a “showstopper”

- Even leadership doesn’t vote
  - In IESG, we only “DISCUSS”
IETF requires “Running Code”

- We try to document implementation status
- Sometimes we want code as we work
- Require code for full Internet Standard
  - “Two independent interoperating implementations”
- Both Open Source and Proprietary OK
  - Our processes allow for proprietary
    - You do have to disclose IPR if you participate
  - Many IETFers are Open Source people
  - Open Source good way to get implementations
Open Source and IETF

- OS folks sometimes doesn’t see usefulness
  - If only one codebase, why standardize?
  - If multiple codebases, need interoperability
- OS folks sometimes see standards as slow
  - Just want to write code and ship
  - Especially with consensus, seems very slow
  - We’re getting faster
  - Implementation doesn’t need to wait for standard
Current work of interest
Internet of Things

- Constrained RESTful Environments (CORE)
  - Constrained Application Protocol (CoAP)
  - Simplified HTTP-like protocol
- DTLS In Constrained Environments (DICE)
  - Security protocols for constrained devices
- IPv6 over Networks of Resource-constrained Nodes (6LO)
- IPv6 over the TSCH mode of IEEE 802.15.4e (6TISCH)
“EndyMail”

- Re-architecting of email
  - Privacy, encryption
  - Signing

- New mailing list
  - Perhaps a BOF soon
Discussion starting in DNSOP
How to make DNS request and responses private
Transport Services (TAPS)

- Most applications limited to TCP or UDP
- Transport services difficult for apps to use
  - IETF generally doesn’t do session layer
- Need access to transport services
  - Define the services
  - Specify how applications will get to them
Internet Research Task Force

- Our research brother
- More involvement from academics
- Publications, research prizes
- Current topics
  - Crypto forum
  - Delay Tolerant Networking
  - Congestion Control
  - Information-Centric Networking
  - Network Management
  - Network Coding
  - Software Defined Networking