

Internet of Things and Standards



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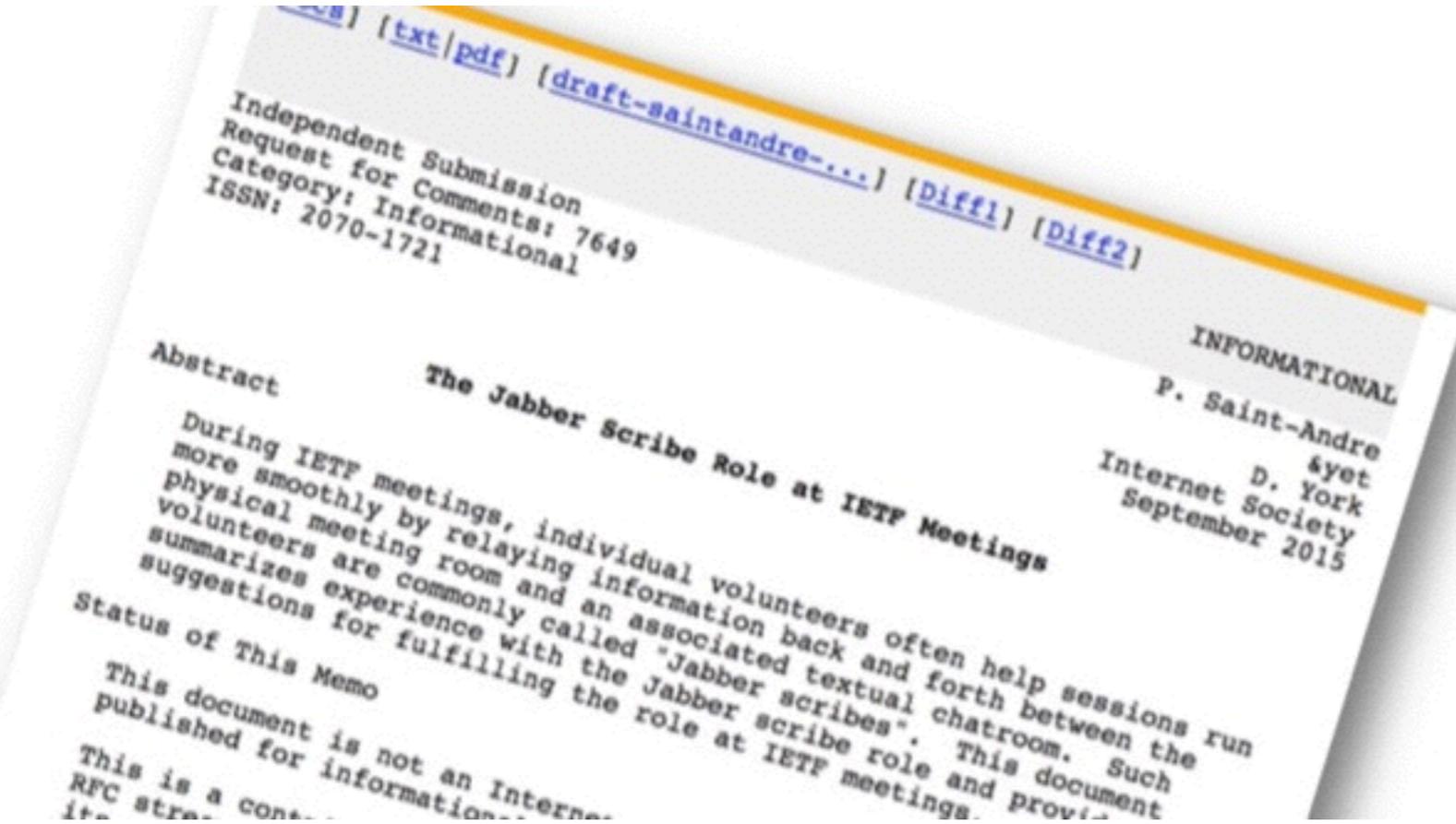


ERICSSON



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. *(RFC 4677)*



The mission of the IETF is to make the Internet work better by producing high quality, relevant technical documents that influence the way people design, use, and manage the Internet.

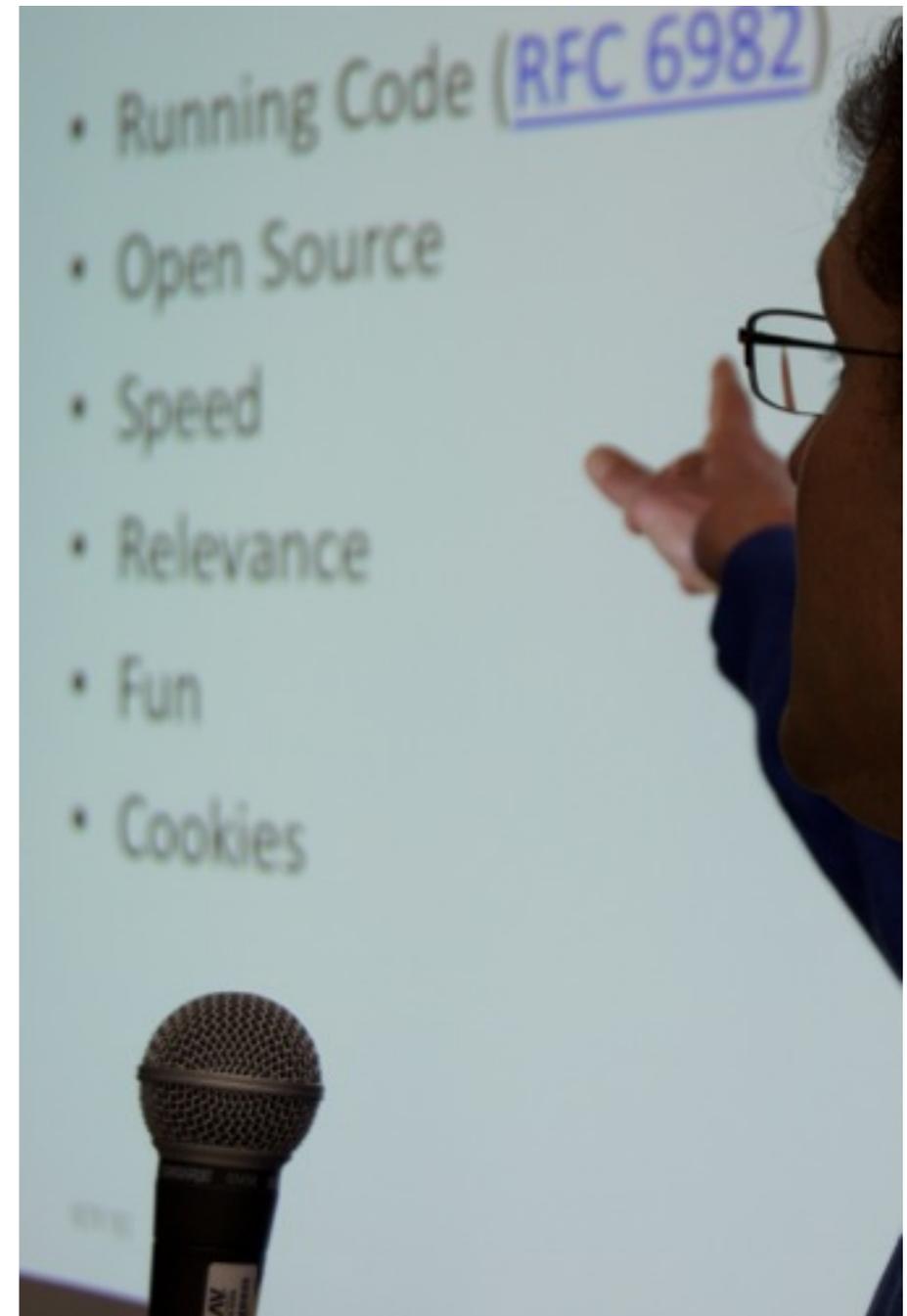
(RFC 3935)



Some Recent Areas of Work



- Web protocols (HTTP2)
- Security and privacy (RFC7258, UTA, TLS1.3)
- Enabling real-time communications from browsers (WebRTC)
- Management, orchestration, virtualisation, and data-model driven networking (NVO, SFC, YANG)
- Internet of Things
- Running code and open source



Internet of Things



- Why are we doing this?
- How is it going? What are the challenges?
- IETF work on Internet of Things
- Semantic interoperability



Why Work on the Internet of Things?

- Because the IETF community wants to work on it
- Example: the Ericsson vision is a networked society, where things, places, and real-world processes are first-class citizens in the Internet — and they network, for the benefit of society, life, and business

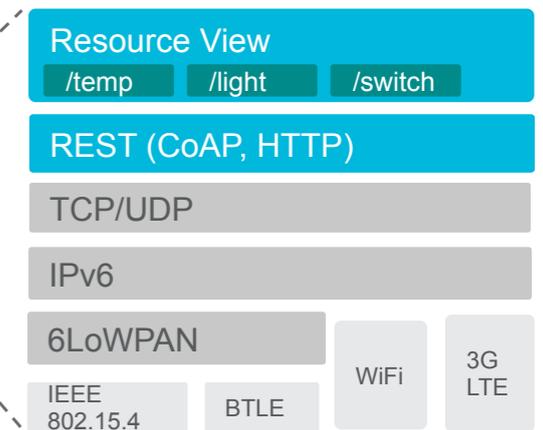


Some Observations



- A shift from closed, vertical solutions to open, general networking solutions (IP, IPv6, mobile networks, WLAN, web)
- Internet technology underneath most solutions

- A shift from devices to thinking about systems, connections between systems, analytics, etc.



- Security continues to be a big challenge
- Privacy is an even bigger challenge; can you choose what cloud a gadget sends data to?
- Management, interoperability, and updatability

IETF and IOT Work



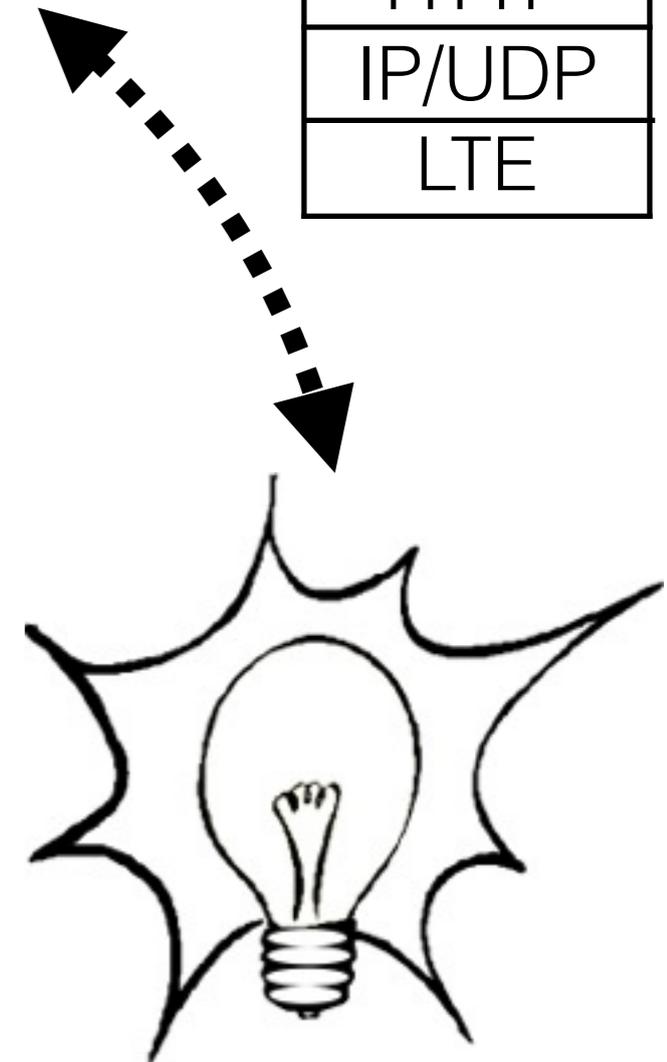
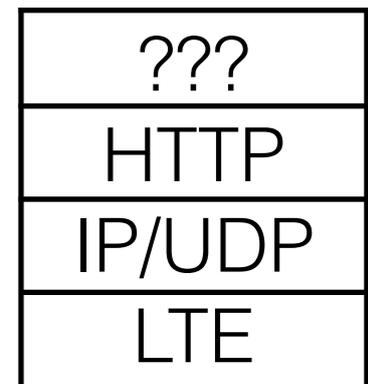
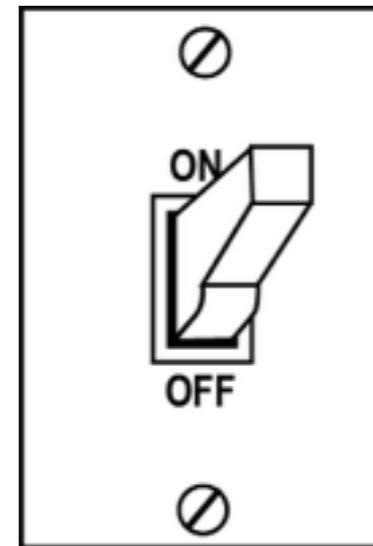
- Our role: Specify the underlying, fundamental Internet technologies
- “Permissionless innovation” — others can build on top

Run IP over <IOT media>	Security for IOT
Routing for lossy & low power networks	Thing-to-Thing communication (IRTF)
Web technology for IOT	Architectural oversight (IAB)

The IAB Workshop on IOT Semantic Interoperability (IOTSI)



- Most systems run on standard L2, on IP, and on top of the web protocols
- Good interoperability from a network perspective
- But is there application-level interoperability?
- Different applications, different data models across the industry





- Workshop goals: facilitate interaction, discuss how to interop/map, identify collaboration opportunities
- 66 submissions (42 accepted)
 - From 14 standards organisations, and vendors, operators, research organizations
- Several meetings co-located and many joint meetings
- Public mailing list open and a report in the works



Final Thoughts



- The Internet of Things has and will have a big effect on the world, but much work remains!
- Build for ability to choose, compose, and compete
 - Interoperability
 - Role of standards (and open source!)
- Co-operation and broad awareness needed in the relevant organisations
- A global market needs global solutions

Thank You