

IETF Topics and Internet Evolution



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(IETF)

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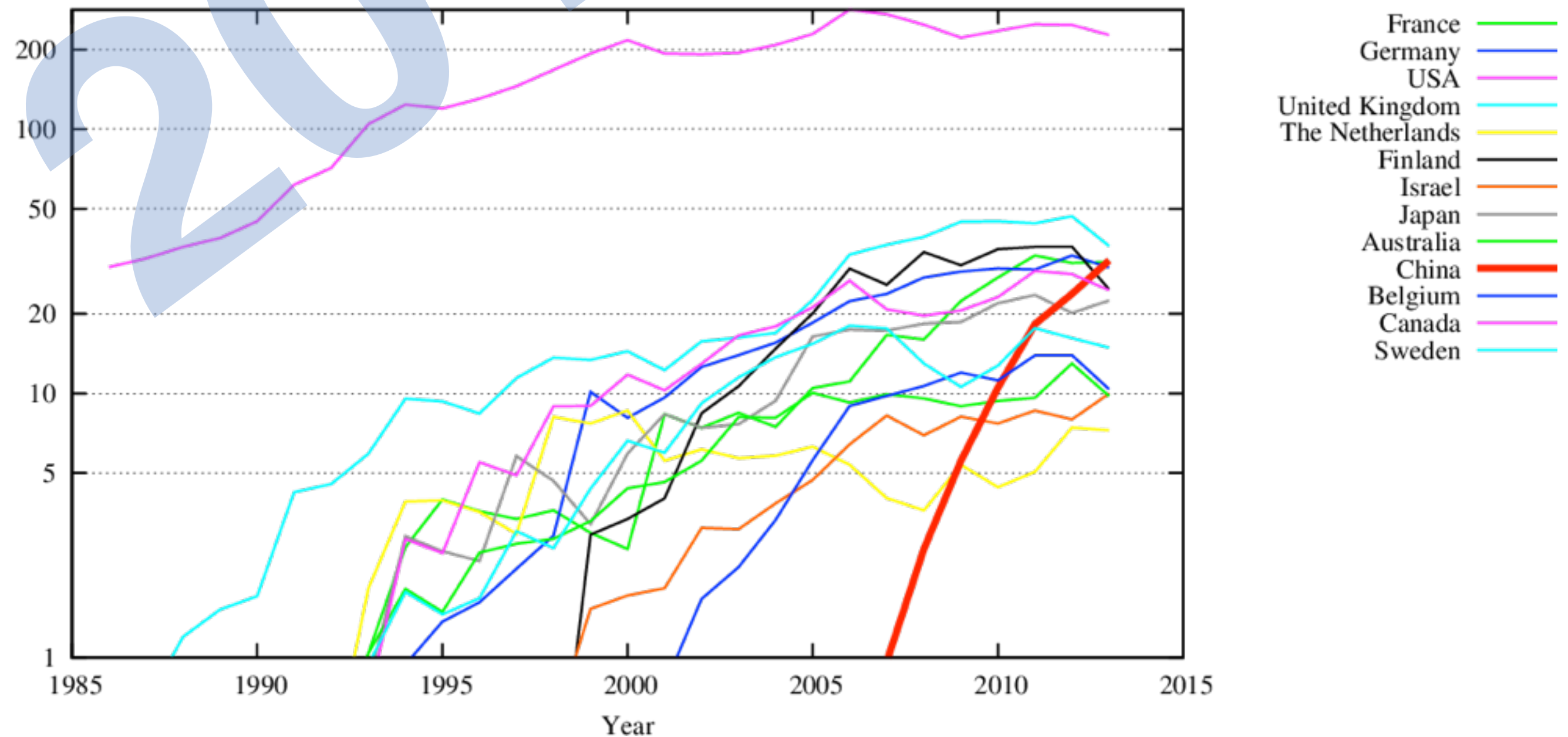
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A slight detour to
2013...

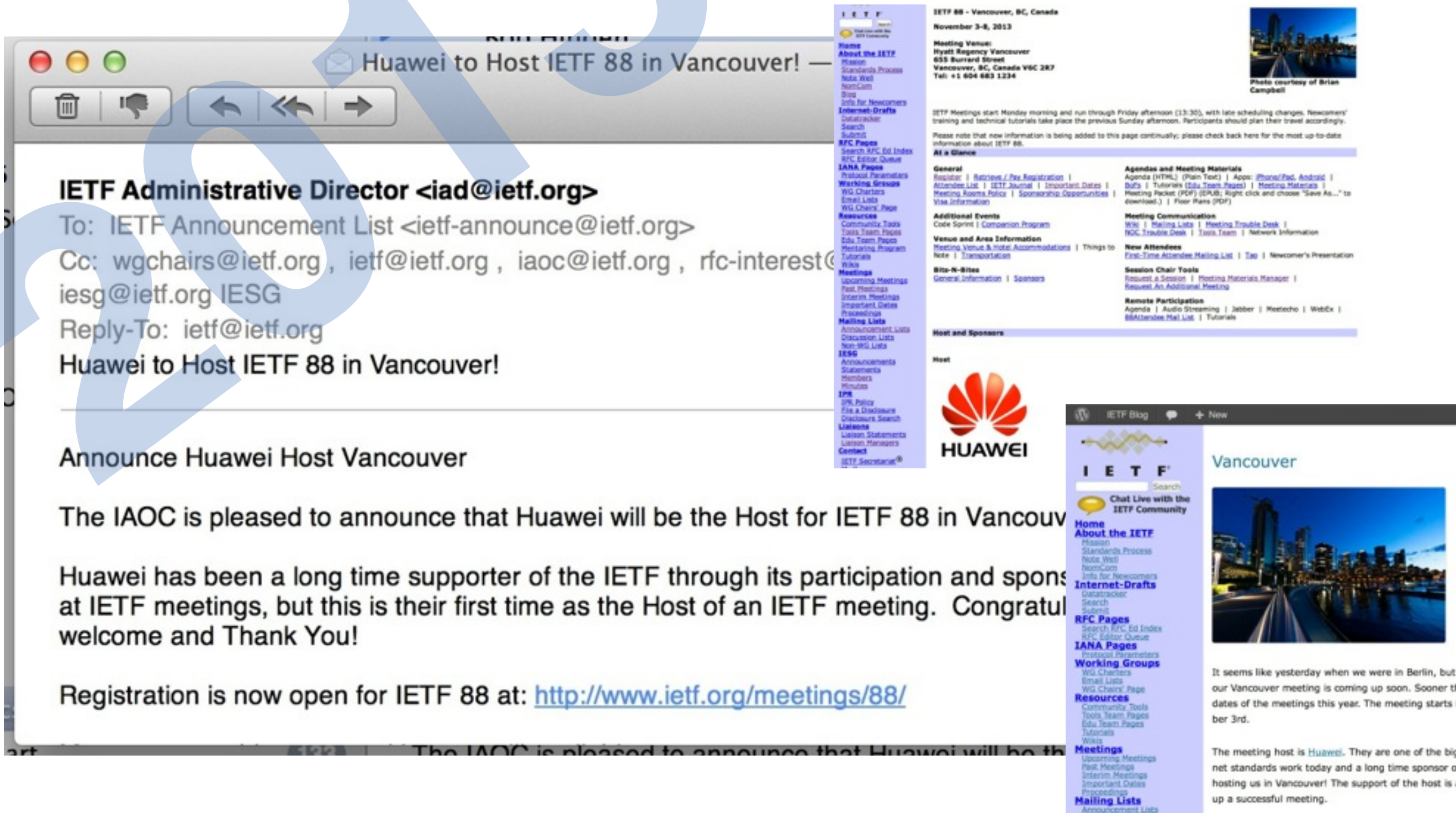
There's a Trend:

RFC Publication Over the Years

Comparison of Countries over the Years



Huawei Hosts IETF-88!



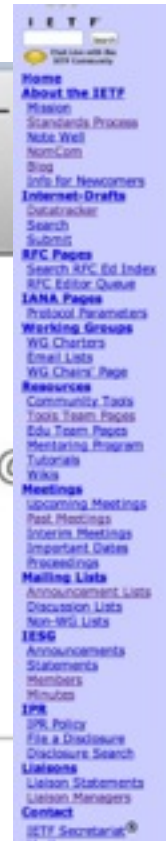
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Huawei to Host IETF 88 in Vancouver!

Announce Huawei Host Vancouver

The IAOC is pleased to announce that Huawei will be the Host for IETF 88 in Vancouver.

Huawei has been a long time supporter of the IETF through its participation and sponsorship at IETF meetings, but this is their first time as the Host of an IETF meeting. Congratulations, welcome and Thank You!

Registration is now open for IETF 88 at: <http://www.ietf.org/meetings/88/>



IETF 88 - Vancouver, BC, Canada
November 3-8, 2013
Meeting Venue:
Hyatt Regency Vancouver
655 Burrard Street
Vancouver, BC, Canada V6C 2K7
Tel: +1 604 683 1234




Photo courtesy of Brian Campbell

IETF Meetings start Monday morning and run through Friday afternoon (13:30), with late scheduling changes. Newcomers' training and technical tutorials take place the previous Sunday afternoon. Participants should plan their travel accordingly.


Please note that new information is being added to this page continually; please check back here for the most up-to-date information about IETF 88.

At a Glance

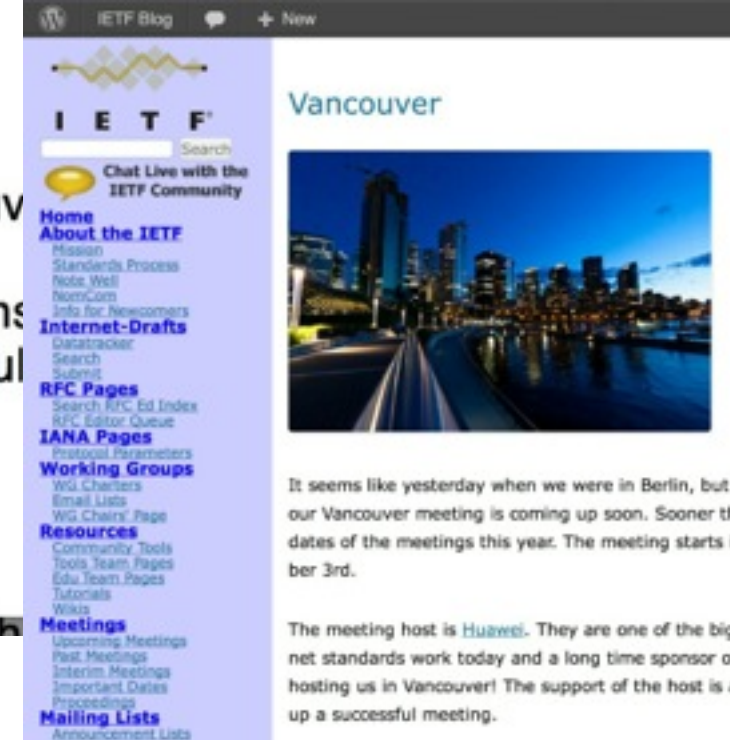
General Register Retrieve / Pay Registration Attendee List IETF Journal Important Dates Meeting Rooms Policy Sponsorship Opportunities Visa Information	Agendas and Meeting Materials Agenda (HTML) (Plain Text) Apps: iPhone/iPad, Android DuTs Tutorials (Edu Team Pages) Meeting Materials Meeting Packet (PDF) (EPUB; Right click and choose "Save As..." to download.) Floor Plans (PDF)
Additional Events Code Sprint Companion Program	Meeting Communication Wiki Mailing Lists Meeting Trouble Desk NGC Trouble Desk Tools Team Network Information
Venue and Area Information Meeting Venue & Hotel Accommodations Things to Note Transportation	New Attendees First-Time Attendee Mailing List Tao Newcomer's Presentation
Bits-N-Bites General Information Sponsors	Session Chair Tools Request a Session Meeting Materials Manager Request An Additional Meeting

Host and Sponsors

Host




HUAWEI



IETF Blog + New

Vancouver



It seems like yesterday when we were in Berlin, but our Vancouver meeting is coming up soon. Sooner than you think, the dates of the meetings this year. The meeting starts in November 3rd.

The meeting host is **Huawei**. They are one of the biggest companies in the Internet standards work today and a long time sponsor of IETF. The support of the host is a key to making up a successful meeting.

Thank You!

Huawei Hosts...



IETF-97! (Seoul)



2016 IETF Hackathons

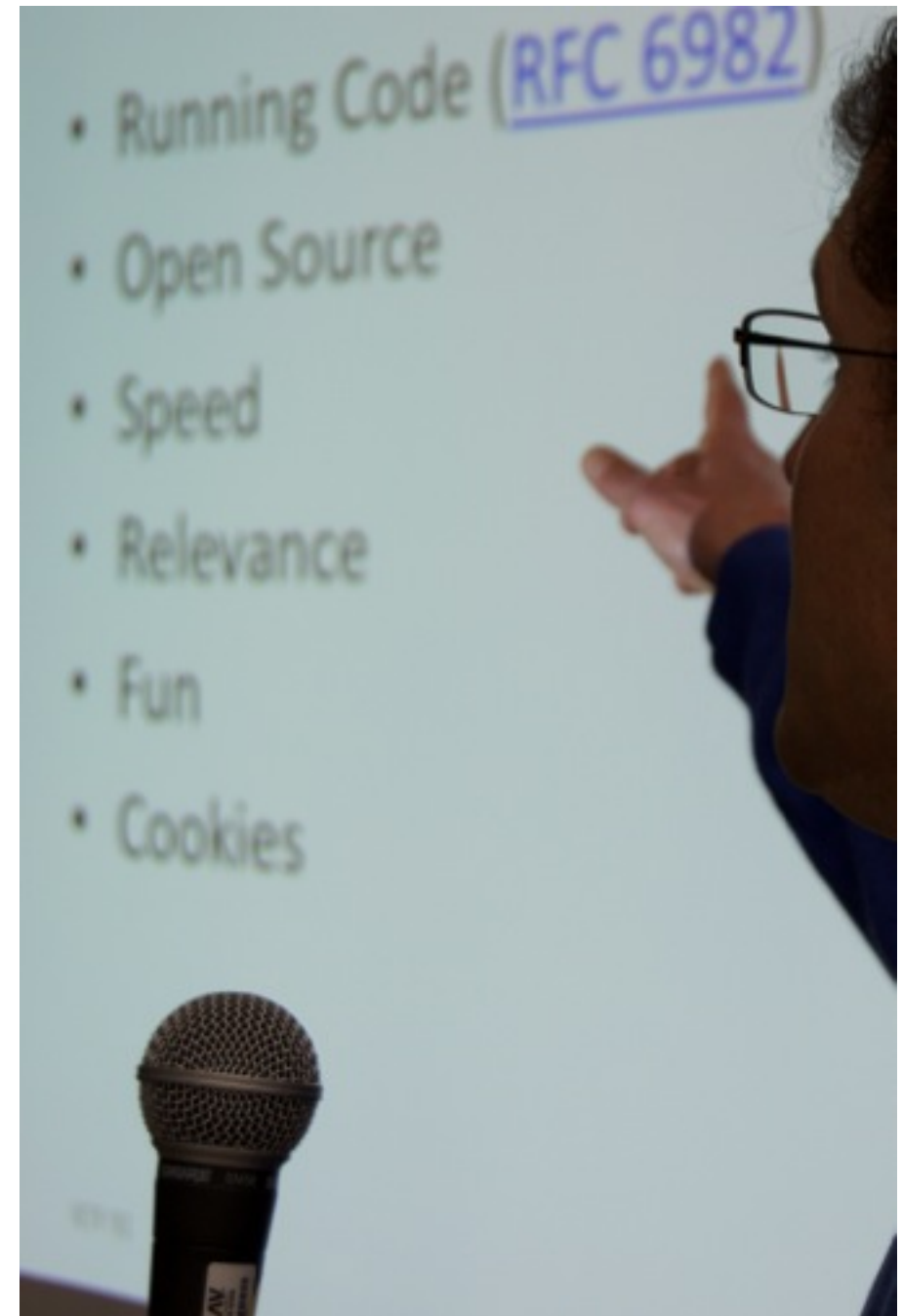
Thank You!

Back to Internet Evolution

Some Areas of Active Work at the IETF



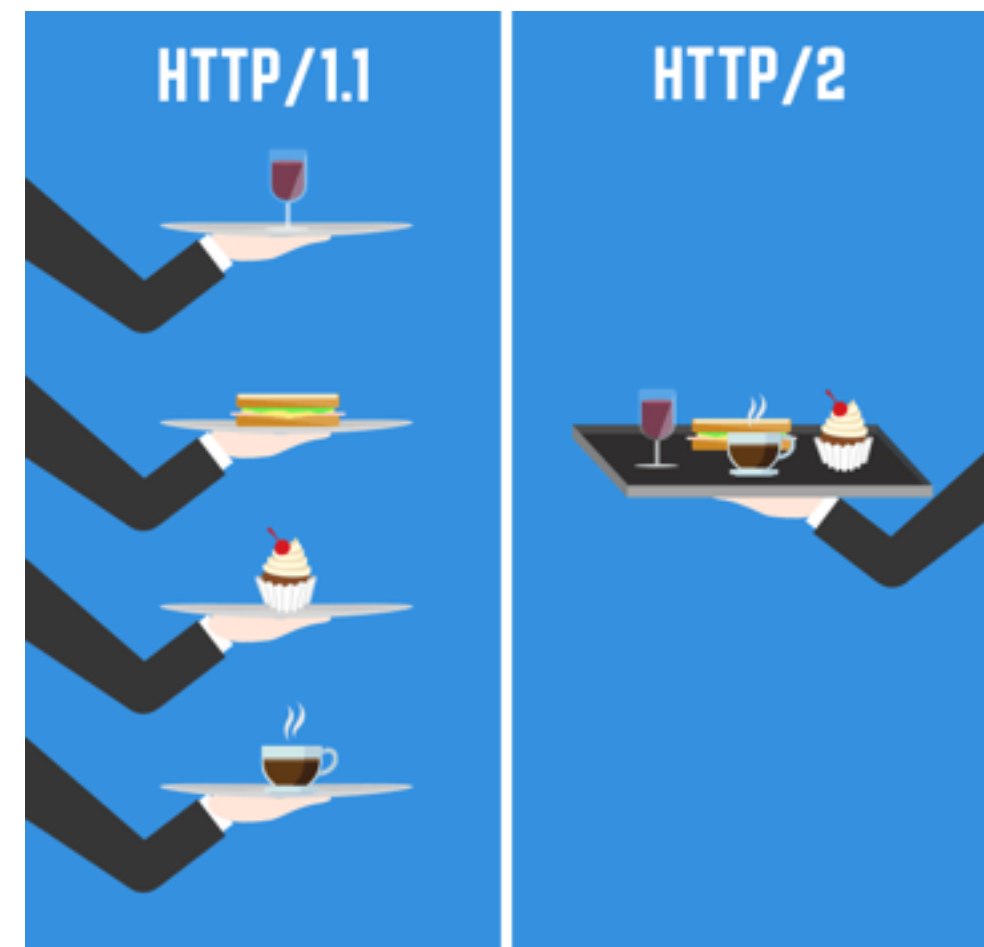
- Web protocols (HTTP2, QUIC)
- Security and privacy (RFC7258, UTA, DPRIVE, TLS1.3)
- Enabling real-time communications from browsers (WebRTC)
- Management, orchestration, virtualisation, and data-model driven networking (NVO, SFC, YANG)
- Internet of Things
- Running code and open source



Web Protocol Stack



- Overall, much change in last few years: HTTP2, certificate pinning, HSTS, webpush, increased use of encryption, WebRTC, TLS 1.3, ...
- Considering even bigger changes: QUIC
- Why is this happening and what does it mean for the Internet?



Background



- We needed all this those things...
- But also, consolidation of Internet services, traffic, OSes and applications plays a role
- Internet architecture and role of endpoints plays a role as well, as does the ease at which software today gets updated

Observations 1



- Prediction: Big shifts so far, even bigger ahead
- Functionality moves to applications & browsers, fast change
 - Encryption change was just an example — others will follow: specialised transports for movie download, etc.
- Applications are firmer in control: e2e security, browsers, now transport

Observations 2



- At the same time, in the network, SDN and virtualisation are driving another change which also enables fast changes
- The networking industry needs to embrace this fast change, as well as to understand how the traffic it carries evolves
- The mobile industry is doing a lot of this in 5G, but are we doing enough?

Internet of Things



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

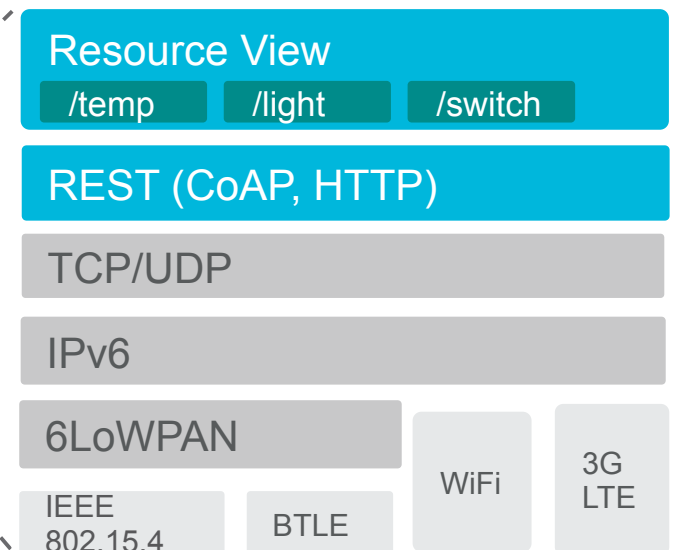
Run IP over <IOT media>	Security for IOT
Routing for lossy & low power networks	Thing-to-Thing communication (IRTF)
Web technology for IOT	Architectural oversight (IAB)

Observations 1



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

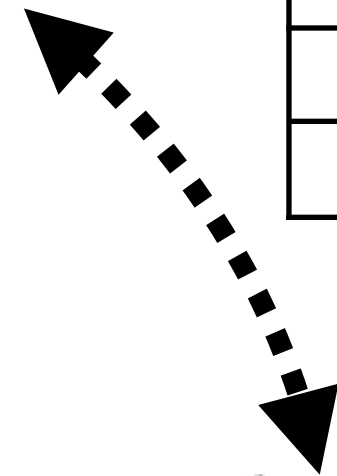
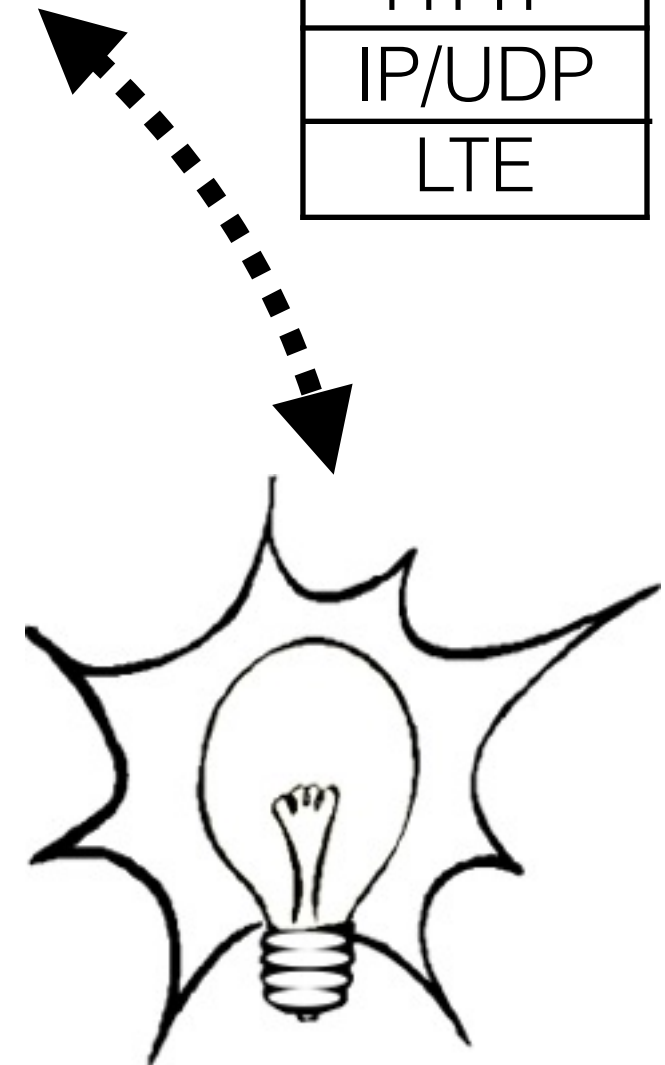
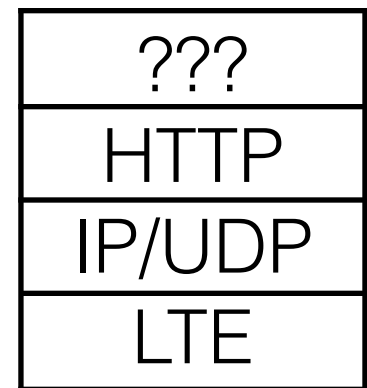
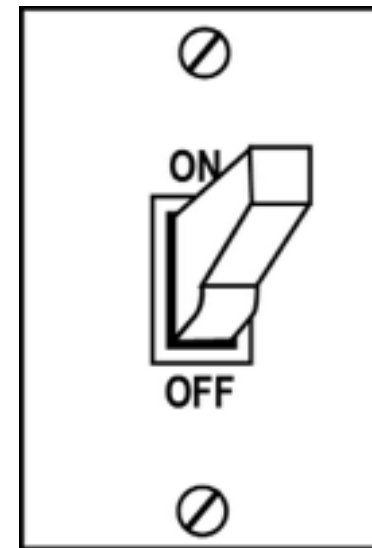
- A shift from devices to thinking about systems, connections between systems, analytics, etc.



- Security & privacy continue to be big challenges
- Management, interoperability, and updatability

Semantic Interoperability

- 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 (needs work!)



Ownership and Control



- Software updates are essential
- But this seemingly simple issue is actually complex — who has the right to update software on a device? Can the manufacturer EOL a device that you own?
- More generally, when you buy, say, a car, are you buying a tangible object, or the rights to use the cloud services that are behind it?



My car from 1992 runs on 10L/100km and uses no cloud services (yet)



... although with the Huawei E5186 router my car may soon be using some cloud services, as well

Observations 2



- Underlying networking details are the bread and butter of IETF's IOT work
- Much work is still needed on that, security in particular
- But as a whole, a lot work remains at the level of systems, how they are connected and controlled, how they interoperate, and so on

Running Code And Open Source



- A big part of today's mainstream networking development happens in open source
- What's the relationship of open source and standards?
- How does this affect organisations like the IETF?

Open Source and Standards



- Both are needed
- There are often multiple open source efforts that need to interoperate

- Need to work together



- The usual patterns of what companies keep proprietary and where they work together in standards and open source still apply

Open Source @ IETF



- Running code always a big part
- IETF Hackathon series
- Our latest run in Berlin was our most successful one to date
- Working groups using open source style collaboration tools
- WGs on open source tech (e.g., BABEL)



Open Source @ IETF



- Future evolution?
 - Culture change in moving more of the IETF to similar collaboration style?
 - IETF hackathons outside IETF meetings?
 - Ability of developers to “drop in to IETF” and publish a spec?
 - <Your ideas here>

Thank You