RFC 3261 20th Anniversary Celebration Panel Discussion - The Past, Present and Future of SIP Technology

Why SIP Forum

This is a real world IETF SIP standards follow up. Dealing from high level SIP concepts to solving operation problems for service providers and products. From academia to engineers to law and governance. There are many participants and the main effort in founding and managing the SIP Forum are *Richard Shockey and Marc Robins*.

The Bigger Picture: The adoption of SIP runs into the common problems in networks, devices, services all the way to national and global regulations and policies.

Privacy Is a Human Right

Yours respectfully cannot help but praising Apple for being 1st to make privacy their competing business model running with its Continuity on all its mobile, wearable and fixed computers. And yes, remember how pleased we were when Steve Jobs was the first to feature SIP on iPhones.

Background on IETF SIP standards

Remember those times? Telephony using circuits switches and the likes of Common Chanel 7 (CCS7) seemed to be the only way in the last century. What the additional geographic incompatible variations at that time the ITU-T organization called standards.

Hugely expensive long-distance telephony and it's signaling flavors were the only options available. The future was to be ISDN and so called then broadband and its planned next generation BISDN running over ATM. Media codecs for voice and video were owned by expensive license holders in the ITU-T world. Mobile telephony had started for luxury cars after being used in tanks and in trucks.

Security and privacy were iffy - the same offense that is monetized today, though by complex technology worldwide by Jurassic Park size monster organizations, down to gangs of individuals in their home. Makes you feel embarrassed to (have been myself) a VoIP engineer.

The Founding Years

During Hurricane Katrina on August 23, 2005, Henning Schulzrinne at Columbia University demonstrated SIP based VoIP using the existing Internet to prove its superior resilience combined with *equal or better quality than the old 3.1 kHz effective bandwidth and RTT better than 250ms. The old habits for 3.1 kHz and 100s of ms are hard to change today by ISPs, even for those who have fiber networks suitable for today's broadband.*

Work at Columbia University

Jonathan Rosenberg, Ph.D. student at Columbia University with Prof. Henning Schulzrinne, contributed both to editing SIP RFC 3261 and acting like a worldwide 7/24 help center. Many other techniques for SIP like NAT and firewall transversal using ICE, STUN, TURN, SIMPLE among other - the more difficult part of SIP technology development that we owe the IETF and Jonathan Rosenberg.

SIP was adopted at the 1st major carrier

It was sponsored by Vint Cerf running *Internet*MCI. One of the chairs of the SIP working group (WG), Dean Willis and other colleagues at MCI such as Alan Johnston, Robert Sparks and many other contributed to making SIP the global VoIP standard for Internet telephony and for key applications such as SIP based multi-party conferencing.

SIP for the IMS ISP Market

Gonzalo Camarillo, IETF

Other companies extended SIP for IP Multimedia Systems in what is called IMS for the ISP market. Due to IMS mobile phones, tablets and watches include SIP at present.

Note at that time the ITU-T oriented literature avoided the word *Internet* and did not care to explain where IP was from and to what degree of interoperability.

IETF and W3C WebRTC includes SIP connectivity

I had the privilege of contributing to the early work on WebRTC led by Harald Alvestrand from Google.
draft-ietf-rtcweb-overview-19
Not only was it the first IETF and W3C joint work regarding real time communications protocols *in the browser, open-source audio and video codecs* but it also used SIP for the signaling protocol option. https://en-academic.com/dic.nsf/enwiki/11858086 . The other great merit Google's WebRTC work was stating clearly why and how the so-called session

border controllers (SBCs) are incompatible with WebRTC since it compromises RTC privacy and security.
Image: Early iconic Cisco SIP phone.

IETF SIP based conferencing

The IETF WG was led by Alan Johnston from MCI and is included today in most industry, academia, and government conferencing systems. The tremendous innovative products are already becoming interoperable. At present most remote workers as well as world governments are heavily dependent on more than one multi-party multimedia conferencing and some also use SIP. Alan Johnston has also done early work on SIP security.

Privacy Is a Human Right

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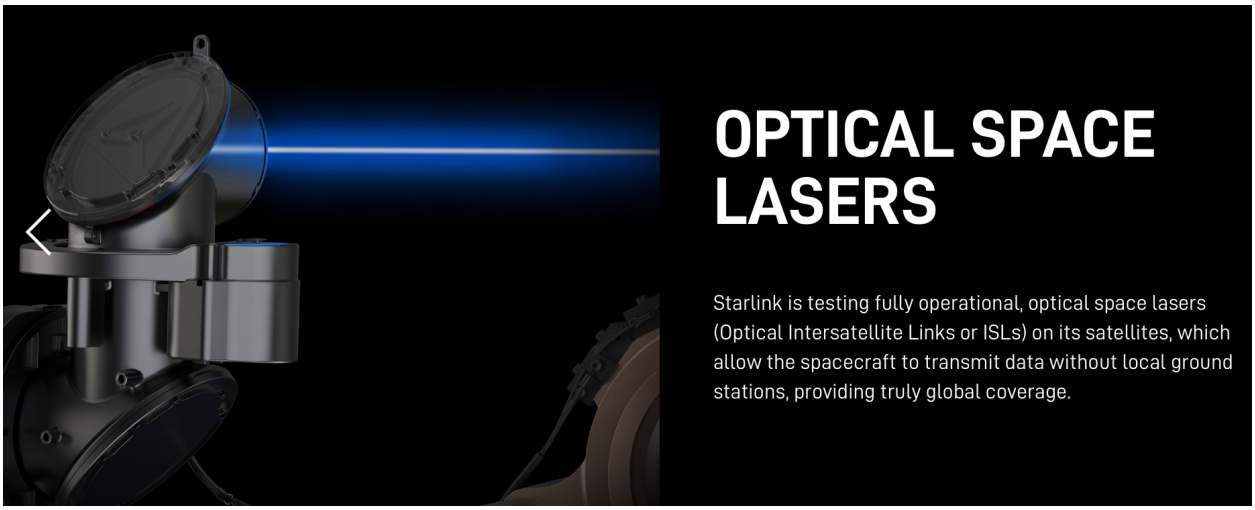
SBCs were only one of the various battles conducted in the SIP oriented IETF WGs mentioned by Jiri Kuthan, such as building SIP PBXs and so-called Soft Switches by the legacy minded circuit switched industry wandering off into IP.

This brings the matters of language to attention. Internet was then and sadly even now another forbidden word, using IP instead just like the 5G marketers would also forbid fiber cables and WiFi to be mentioned. Or perish the thought, starlink.com that is even faster than global fiber networks and have lower latency than mobile 5G by an order of magnitude, in the 10s of milliseconds range at present.



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Future Work

Some of the R&D items to make and keep SIP more effective, secure, and private is done at the SIP Forum. It is not uncommon to have more than one high tech venue. In addition to the present work on SIP, let's hope somebody will also address *concurrency* in RTC networks, especially those using fiber and satellite as mentioned. Also called *glare* in legacy circuit switched telephone networks.

My time us up, so one more thing

Please don't let us forget 20 years later after the IETF SIP RFC 3261 the present-day monster industry that thrives more than ever before by stealing and reselling your data. Led by data brokers without user agreement or recompensing the users.

From the very beginning the IETF SIP WGs were already plagued by so called session border controllers (SBC) promoters designed to spy on users. Few in the industry or in the technical media could foresee what the dark personal data market would bring, like deep packet inspection, data mining, monetizing, defamation, and the effects on children.

As the SIP Forum has successful addressed the real world encountered by SIP based VoIP, texting, video, conferencing bandwidth, delay management and other we discover many problems for all internet-based

apps without which civilized life is not possible, for example privacy and security.

The role of so-called social networks has now so many glaring social and political implications that they are here possibly out of scope, but they concern us all.

Thanks to the SIP Forum for this opportunity,
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References

1. IETF SIP Standard RFC 3261
https://www.ietf.org/rfc/rfc3261.txt

2. CMP Cover Page, June 2001: SIP Ascendant