Internet Technical Standardization: Low public visibility, high public policy impact.

Lecture Notes for a Guest Lecture
in the context of the course
“Internet Governance”

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1. Disclosures

In any effort aimed at explaining matters of public policy (which can reasonably be seen as matters of politics) it is important for the person who is speaking to start by explaining their particular background and perspective.

Hence I declare myself as follows:

- I have come to the whole topic area of Internet Governance originally with a very much technical perspective, involving for example in-depth interest in the technical standards for email.
- Over time I have however become more and more interested in the social, economic and political dimensions, becoming active in the civil society activities of in particular the Swiss Open Systems User Group /ch/open and Just Net Coalition. One of my major concerns is that what is happening and not happening in Internet governance must not be allowed to undermine democracy.
- More generally, I'm looking for solutions to organize business and global governance in a sustainability oriented way.

2. Brief historical overview of the Internet success story

The ways in which Internet Technical Standardization is conducted today are very much related to the work of the technical pioneers who have very significantly shaped these processes.

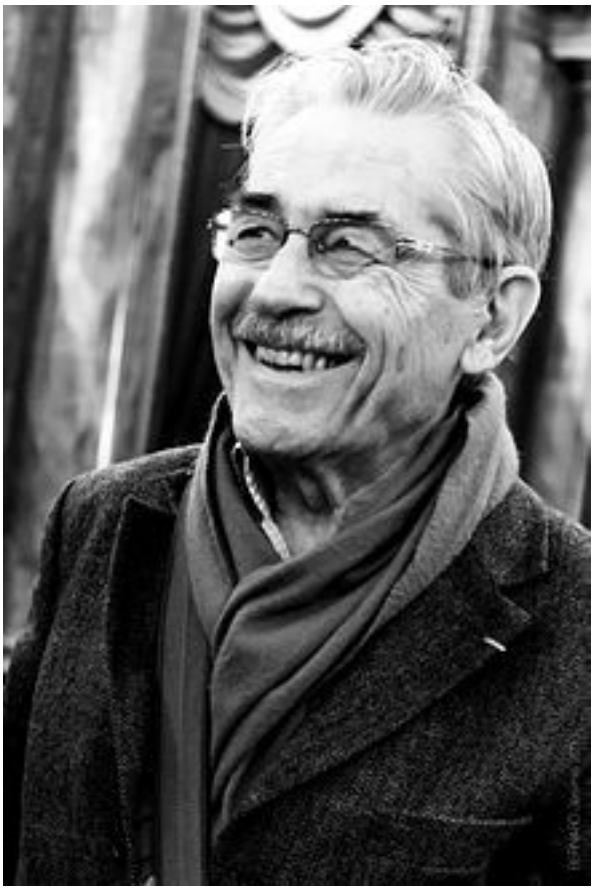
We therefore start with a historical overview with a focus on (what are from my perspective at least) the key technical pioneers.

2.1 Louis Pouzin (*1931)

The key technical innovation at the basis of the Internet was the invention of the "datagram", and thereby the concept of "packet switching networks", by Louis Pouzin, a Frenchman.

This means that in order to allow two computers to communicate, it is no longer necessary to connect them with a dedicated physical connection such as a telephone circuit. Rather, the streams of data are decided into data packets, "datagrams", which each carry a source address and a destination address. Network infrastructure is responsible for routing these packets to their destination.

Louis Pouzin is still highly active in the Internet governance discourse, for example as a member of Just Net Coalition.



Louis Pouzin (2013)

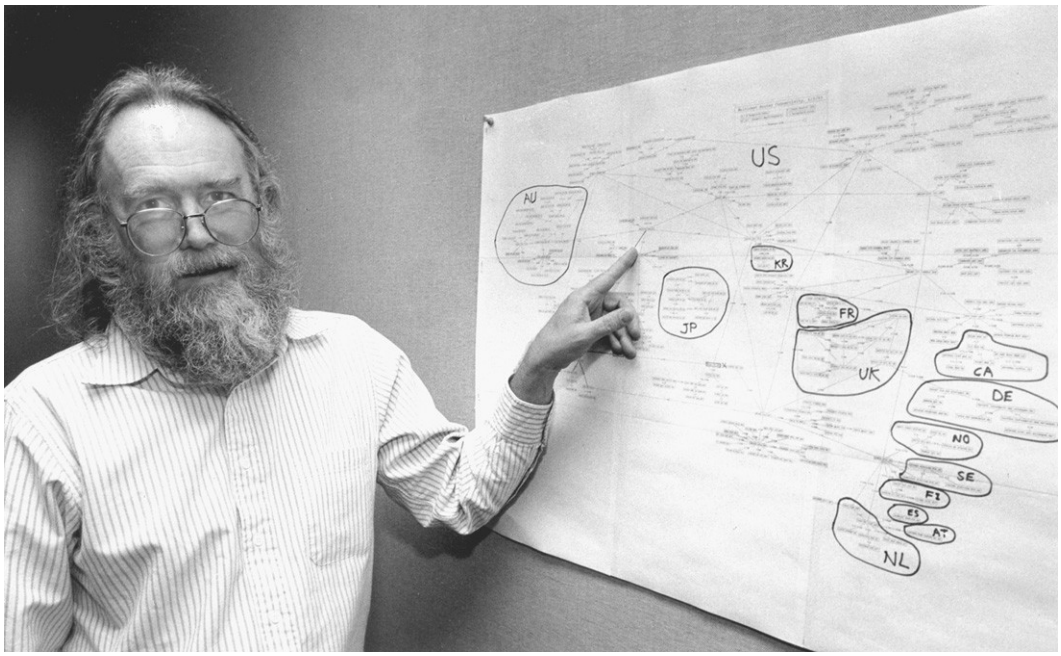
(Photo credits: Jérémie Bernard, photo licensed CC BY-SA 3.0)

2.2 Jon Postel (1943-1998)

The key socioeconomic innovation was the invention of the “Request For Comments” (RFC) process by Jon Postel, who very strongly contributed to making early Internet development a very integrative and consensus-oriented process.

It needs to be remarked however that these processes are only inclusive of people who are able to communicate fluently in English, and who are able to speak very specifically to the nitty-gritty of technical details.

Although the the development of the Internet was since it's beginning an international collaboration, the socioeconomically central people such as Jon Postel were based in the US. (He was at the University of Southern California, USC.) This has resulted in Internet standards being initially being designed on the basis of a very US-centric perspective. For example, the initial Internet standards were all based a character set which does not provide for letters with accents or umlauts, nor for non-Latin scripts.



Jon Postel (1994)

(Photo credits: Irene Fertik, USC News Service. Copyright 1994, USC. Permission.)

2.3 Vint Cerf (*1943) and Bob Kahn (*1938)

The breakthrough to practical success of the “packet switching network” idea came with the development of the TCP/IP protocols in the 1970s by Vint Cerf and Bob Kahn at Stanford University in the US.

Vint Cerf is today employed by Google as “Chief Internet Evangelist”, and he is a highly active participant in the Internet governance discourse.

Vint Cerf (2010)

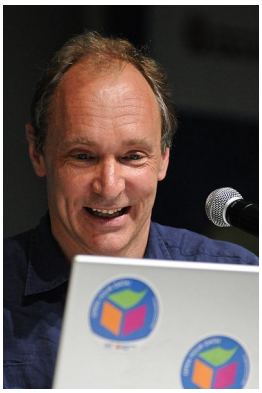
Bob Kahn (2013)

(Photo credits: Both photos by Veni Markovski, licensed CC BY-SA 3.0)

2.4 Tim Berners-Lee (*1955)

The “World Wide Web” was invented by the British physicist and computer scientist Tim Berners-Lee at CERN in Geneva, Switzerland.

He is still the ultimate decision-maker (who can be called upon to decide issues on which no consensus can be reached) at the “web standards” consortium W3C, and he is also otherwise influential, for example through the World Wide Web Foundation.



Tim Berners-Lee (2009)

(Photo credits: Silvio Tanaka, licensed CC BY 2.0)

3. Internet standards processes today

Governance of Internet standards at the protocol layers starting at the TCP/IP protocol and above, but with the exception of “web standards”, “document format” standards, etc.) is still done very much according to the very inclusive, bottom up processes at the Internet Engineering Task Force. This is a significant part of the legacy of Jon Postel. (In regard to another part of what Jon Postel was doing, the administration of Internet names and numbers, it can be said that the creation of ICANN in 1998 was in reaction to the realization that Jon Postel, who had been coordinating those matters as well until then, would not live forever.)

By contrast “web standards”, the technical standards governing web browsers and what people can do with them in an interoperable manner, are developed and maintained at the World Wide Web Consortium which has a less inclusive, fee based membership structure, and where in addition Tim Berners-Lee has very significant decision-making power.

Both processes have in common that they are strongly biased against accepting patent-encumbered technologies in standards. This is crucially important for a number of reasons, including in regard to ensuring that it is possible to freely implement the standards not only in proprietary software but also in Free and Open Source Software (FOSS).

We may ask why very non-democratic decision-making processes such as those of W3C are accepted for example by the UN. The answer probably has to do with the relatively low visibility of the standardization processes and of the way in which they exert a very significant public policy impact. In the international Internet governance discourse ICANN and the relatively limited oversight role of the US government have been a huge issue. For example the language about a process of “enhanced cooperation” in the Tunis Agenda, the outcome document of the World Summit on Information Society, was creatively ambiguous diplomatic language for addressing this issue. The matters of technical standardization have attracted far less political attention, even though they are in fact very influential, in their effects public policy processes that quite significantly contribute to shaping the future of human societies.

I would claim that the the public policy impacts of the *technical architectures* which are defined through technical standardization is far greater than the public policy impacts of ICANN's policies, or of pretty much anything that gets discussed in national parliaments.

4. Some current standardization processes at W3C

We have used the remaining time to discuss two concrete examples of current standardization processes at W3C and their potential public policy impacts:

4.1 “Encrypted Media Extensions” for HTML

The current draft specification is at https://dvcs.w3.org/hg/html-media/raw-file/tip/encrypted-media/encrypted-media.html

This is about “Digital Rights Management” / “Digital Restrictions Management” (DRM) for web-based access to video content. In practical terms, the objective is to allow people to access DRM-restricted video content by means of any web browser (including FOSS browsers such as Mozilla Firefox) as long as the browser runs on a proprietary operating system (from Microsoft, Apple or Google) which implements the heart of the DRM scheme.

FOSS operating systems like GNU/Linux would not likely be usable for viewing such video streams. Even if in the context of general-purpose environments (where viewing videos would be one among many activities that the users would like to undertake), FOSS operating systems currently have a low market share in comparison to proprietary operating systems, their presence as potential competitors has a significant impact on the overall market. It would certainly not be in the public interest to kill this competition.

Many FOSS advocates including myself consider the decision of Tim Berners-Lee to declare this standardization effort “in scope” to be highly inappropriate and very dangerous.

That said, this controversial decision is in fact based on a generally valid argument, which claims that a public and formal standardization process is in any case better for the public interest than the same kinds of technologies being developed by means pf a less open process. Furthermore, the “open web”, in the sense of what gets standardized at W3C, is constantly threatened by non-standardized platforms like Facebook. Saying yes to the standardization of DRM as part of the “open web” makes the “open web” less open, but saying no to the standardization of DRM as part of the “open web” would involve a risk of a significant application not being based on the “open web” in the future.

These arguments may be valid in many contexts, but I don't agree that they apply to this particular context, since it is highly doubtful that anything like the “Encrypted Media Extensions” could have been developed successfully outside of W3C.

4.2 Web payments

The idea of “web payments” is that standardizing payment transactions will allow to get rid of the need for “payment processor” intermediaries like Paypal and the credit card companies in processing web-based payments. Anyone will be able to set up a Paypal-like “pay” button.

This work is currently at a late “community group” stage at W3C, see http://www.w3.org/community/webpayments/ and it is expected that formal standardization work will be started soon. For some technical details see https://web-payments.org/specs/source/web-payments/ .

Again there are crucial public policy issues in relation to what is baked into this architecture. In particular, it is in many contexts crucial for legitimate police purposes that the police should be able to “follow the money” to a criminal enterprise, for example a fraudster or a vendor of child abuse pictures (“child pornography”). On the other hand, the privacy of payment related personal data needs to be protected from abuse by corporations and other actors. In some cases, vendors of picture or video material may for quite legitimate reasons want to be able to receive payments in a way that cannot be traced to their location or identity. This would for example apply in the context of reporting from civil war zones.

5. Concluding questions

Is it really appropriate for this kind of issues to be decided to a large extent in a technical standardization group, by people who are technical experts but not experts in human rights law, and not by any kind of formal democratic process in which human societies as a whole would be democratically represented?

In fact, in standardization processes generally the majority of participants represent business interests. While the principle that standardization processes are consensus-based makes it possible for civil society representatives to engage effectively and have a significant influence, this happens only very rarely, in part because the low visibility of the standardization processes makes fund-raising for professional civil society engagement in this area very hard. Does this mean that we are moving away from democratic societies to societies where key governance decisions which shape the future of our societies are made mainly from perspectives of business interests?