The Internet at Risk

Vinton G. Cerf • Google

The Internet celebrated its 30th operational anniversary on 1 January 2013. It was switched on, on the ARPANET, on 1 January 1983. It’s also under duress in several dimensions: on the policy front from attempts at intergovernmental control under the rubric of “governance;” on the technical front through a variety of attack surfaces and methods for various reasons; and on the usage front by bad actors seeking to harm or defraud users of this global information system.

In some ways, the most pernicious proposals to limit the Internet’s openness to users and applications come from some of the member states of the International Telecommunication Union (ITU) that just held its World Conference on International Telecommunications (WCIT) in Dubai in December. The ITU asserted that the International Telecommunication Regulations (ITRs), last updated in 1988, were in need of revision to reflect the reality of today’s telecommunications environment. That environment includes mobile telephony, which has emerged explosively in the past 20 years. In the same time period, the Internet has also emerged, and, to make things more complex, “smart” mobiles and the Internet have become intertwined in powerful and mutually reinforcing ways.

The ITRs have historically been about interconnection regimes of telephonic communications networks. They also dealt with practices reflecting payment for all aspects of a telephone call by the caller to all parties involved in completing the call. But this WCIT was different. In 2012 (and now 2013), the Internet has become a powerful component of international communication comprising both the underlying resources for effecting packet-switched data communication and the computing resources and their content contributed to and used by billions around the world.

The ITU’s leadership insisted that this conference to revise the ITRs wasn’t about the Internet, and that consensus would determine what revisions were incorporated into the final treaty text. The process and outcome differed from these assumptions and predictions. Of the 144 member states attending, 89 chose to sign the treaty specifying the revised ITRs and 55 did not. Some of those 55 that didn’t sign asserted that they needed to return to their national leadership for consultation and might perhaps sign later. Others — notably in North America, Europe, Africa, and Asia — were strongly opposed to language in the treaty referencing content or to the “nonbinding” resolution that mentioned the Internet explicitly.

Many concepts were at stake and at odds in this meeting. Some member states were strongly committed to a very open Internet in which users exercise substantial freedom of expression, reach, and ability to invent and use new applications. They resisted strongly any language that would commingle the ITR provisions with content and applications. In simplistic terms, the tussle at WCIT could be seen as a battle between states seeing a relatively unfettered Internet as important to economic growth and democratic principles and states believing that much more national and international control over the Internet’s uses should be agreed on among the WCIT participants. The appearance of the term “spam” in some proposals triggered immune reactions among some parties because this is an application-level issue; it involves content, and the definition of spam or its euphemisms (such as “unsolicited commercial electronic mail”) isn’t clear. One person’s spam might be another person’s interest. Many participants argued that content had never been a consideration in earlier versions of the ITRs, and shouldn’t be in this revised version either.
A subtext in this debate was the primacy of states versus the belief that Internet governance discussions should be conducted in a multi-stakeholder setting in which nation states, civil society, the private sector, and the technical community participate equally. Despite claims to the contrary, decision-making in the ITU is delegated to member states only. Member states are free to draw on other nonstate parties, but this is left to each member state’s discretion.

In terms of the effect of the 1988 treaty and the 2012 modifications, the ITU can’t really enforce the treaty. Signatories generally choose to abide by treaty terms voluntarily. Member states only. Member states that didn’t sign are not obligated to follow the modified treaty terms. The telecommunications arm of the ITU — the so-called “ITU-T” — creates instruments, including standards recommendations, that are purely voluntary. However, we can easily imagine a signatory to the revised treaty referring to it as justification when adopting domestic policies that might prove inimical to an open Internet. Moreover, some of the proposals (for example, for reintroducing settlement rate procedures) posed a risk that adoption by some countries might lead to attempts to force nonadopters to make payments in exchange for interconnection (which is also, at present, voluntary and typically negotiated by the Internet’s ISP operators).

Although the ITU secretariat made strong representations that the treaty modification process would adopt changes only through consensus, at least one proceeding appeared to transform a “straw poll” into a declaration that the “majority” favored some of the proposed modifications and this was, therefore, a consensus. Not all members agreed with this conclusion, and this division contributed to the schism between those member states that signed and those that did not. As should be apparent, nation states are already exercising a variety of interventions in the Internet’s operation on a domestic basis independent of any terms and conditions in either the 1988 or the 2012 versions of the ITRs.

The question of the role that states and other stakeholders play in governing the Internet writ large wasn’t resolved at this conference.
If anything, the question of the role for nonstate entities in the Internet’s legal, technical, economic, and operational aspects was thrown into sharp relief. The debate will continue in future meetings such as the ITU World Telecommunication Policy Forum (Geneva, May 2013), the UNCSTD Working Group on Enhanced Cooperation (Geneva, June 2013), the World Summit on the Information Society Plus Ten (Paris, February 2013), the 68th UN General Assembly (New York, October 2013), the 8th Internet Governance Forum (Bali, November 2013), the ICANN meetings in 2013 (Beijing, Durban, and Buenos Aires), and the G8 and G20 meetings (Lough Erne and St. Petersburg), among many others.

Two useful summaries of the WCIT proceedings are available at www.circleid.com/posts/20130103_internet_governance_outlook_2013/ and www.potaroo.net/ispcol/2012-12/stumps.html.

In the end, this debate will revolve around the ways in which the many stakeholders with an interest in Internet operation, use, and governance will ultimately fashion some allocation of responsibility in an increasingly connected world. Some of us, including this writer, hope for a richly open environment in which the freedom to innovate and share information is balanced by protection from potential harm that can be visited upon the users of the ever-evolving Internet.

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Greg Goth, in the closing paragraph of “Next-Generation Wi-Fi: As Fast as We’ll Need!” (IEEE Internet Computing, vol. 16, no. 6, 2012) quotes Craig Mathias:

“No one, in the early days of 802.11, conceived where we were going over time. They really looked at it as a short range, peer-to-peer, no-access-point technology, and for it to do what it does today is utterly astonishing….”

This is only partially correct and significantly mischaracterizes the vision of the founders on IEEE 802.11. When Victor Hayes, I, and other members of NCR management first discussed offering the NCR WaveLAN product design to IEEE 802 as a starting-point contribution for a wireless LAN project (more than a year before we drafted the Project Authorization Request, or PAR, that became the founding document for the IEEE 802.11 Wireless MAC Working Group, with Hayes as the WG Chair), WaveLAN access point designs were under test in my development lab. Yes, WaveLAN and other fledgling wireless LAN commercial offerings in the late 1980s were initially promoted as a peer-to-peer technology, and those designs had a typical useful range of about 100 meters (similar to that of UTP wired LANs); however, access point configurations and bridging of wireless access into the IEEE 802 environment (at the time, consisting of CSMA/CD, Token Bus, and Token Ring MACs) was very much at the forefront of our thought (and demonstrations of prototypes at networking conferences).

True, neither Hayes nor I foresaw the rapid adoption or the extraordinarily diverse application of IEEE 802.11 family devices. Similarly, in 1963, I and other founders of the University of Maryland Computing Center in our brainstorming sessions about “how could anyone ever make use of a computer in the home” grossly underestimated the impact of the now ubiquitous PC and other personal computing devices. But in both cases, a lot was hypothesized or intuited that actually came to pass, as well as a lot that either died on the vine or withered away, just as have Thick Cable Ethernet, Token Bus, Token Ring, IsoEthernet, AnyLAN, and many others; my limited predictive powers are one reason that I’m not a multimillionaire!

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These comments represent my personal experience and knowledge and are not made as a representative of the IEEE or any of its constituent entities.

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