



KEEPING THE INTERNET
OPEN • INNOVATIVE • FREE

www.cdt.org

1634 I Street, NW
Suite 1100
Washington, DC 20006

P +1-202-637-9800

F +1-202-637-0968

E info@cdt.org

ETNO PROPOSAL THREATENS TO IMPAIR ACCESS TO OPEN, GLOBAL INTERNET

June 21, 2012

The International Telecommunication Union plans to consider revisions to its International Telecommunication Regulations this December at a world conference in Dubai. Concerns are growing that some Member States will seek to assert regulatory authority over the Internet through the ITU, and that such states might use any such authority to adopt policies harmful to the development and global reach of the Internet. A recent proposal by ETNO, an association of European telecom operators, confirms that the risks are dramatic.

I. Background on ITU, Internet Governance, and the ETNO Proposal

Member States of the International Telecommunication Union (ITU) are considering whether and to what extent it should expand its jurisdiction to Internet matters by amending its underlying treaty, the International Telecommunication Regulations (ITRs). While the ITU plays an important role in promoting interoperability of traditional telecommunications systems, CDT is highly skeptical of expanding the ITU's mandate to include Internet governance and regulation. One principal reason is that the ITU's structure lacks the transparency and inclusiveness that is necessary to make policy for a medium that has many diverse stakeholders and that operates on such a decentralized, participatory, and user-controlled basis as the Internet does.¹

Importantly, we also have concerns about the substance of some of the proposals the ITU Member States are poised to consider. In this paper, we focus on one specific set of proposals, which have been made public, put forth by the European Telecommunications Network Operators Association (ETNO) in the form of proposed revisions to the ITRs. ETNO's proposal is ambiguous in some respects, but it seems to urge fundamental changes to the way the Internet works. In particular, the proposal seems to be intended to impose on the Internet some traditional concepts from the regulation of telephone interconnection that simply do not map well to the current structure of the Internet.

Our analysis concludes that while the ETNO proposals might benefit large, incumbent telecommunications operators in their effort to obtain additional

¹ See Cynthia Wong, ITU Discussions Must Be Opened, <https://www.cdt.org/blogs/cynthia-wong/1705itu-discussions-must-be-opened> (May 17, 2012). Indeed, WSIS outcomes affirmed the importance of giving all stakeholders the opportunity to participate in policy decision-making relating to Internet governance, and to promote and facilitate such participation. WSIS Outcome Documents Booklet, http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=231610.

revenue from content and platform providers, it will not likely expand Internet access in countries that need it most. Indeed, the ETNO proposals might risk harming Internet users, especially those in less developed countries, undermining their right to access information, ideas, and knowledge and limiting their ability to offer their own content and services in the global online marketplace.

The ETNO proposals could:

- Replace the existing, highly functional Internet (IP) interconnection system with something significantly more complex and costly – increasing the costs of Internet communications generally and reducing growth opportunities in the ICT sector globally;
- In less developed countries in particular, hinder the ability of Internet users to access the full range of information, services, and tools available online because large companies may be reluctant to serve certain users due to high costs – in turn, this result could also curb access to online tools for political participation and organizing; and
- Create new barriers to the ability of enterprising innovators and content providers, including those located far from traditional technology industry power centers, to use the Internet to reach global markets, build sustainable scale, and compete with established companies in the Internet ecosystem – limiting the Internet’s potential to facilitate economic development.

If a mandate is created that requires sending networks – those providing content and applications that users want to access – to pay to interconnect with incumbent telecommunications operators in order to reach businesses and individual users, as the ETNO proposal suggests, those businesses and users in less developed countries in particular may not have access to the full range of information or services online or will find that access more expensive. However, it is important to recognize that the problem is not merely that citizens from less developed countries may have limited access to information outside their borders: the proposal could also increase costs for local speakers, businesses, and innovators wishing to reach foreign users outside their country, hindering the economic benefits of Internet technologies.

An essential feature of the Internet is that it makes it possible for anyone, anywhere in the world to speak or launch an innovative application and reach anyone else in the world without having to negotiate with a middleman or concern themselves with which particular Internet service providers their recipients may use. The ETNO principle seems to pose a direct threat to that hallmark of the Internet.

Accordingly, Internet users everywhere should urge their governments to take a stand against the ETNO proposal and any similar proposals that ITU Member States may consider.

II. Analysis of Specific Elements of the ETNO Proposal

Below, we analyze three specific elements of the ETNO proposal and explain why they would impede development of the Internet, especially in countries that most need it.

A. The ETNO proposal could displace current interconnection arrangements with a regulated, “sending party network pays” system

What the ETNO proposal says

The Internet is a network of networks and a range of entities – both private and state-owned – operate the networks on which all Internet communications travel. The flow of communications between networks is currently achieved through unregulated commercial agreements. Many involve “settlement-free peering,” where networks simply exchange traffic with one another without paying one another and without detailed accounting.² This system has successfully supported the globally interconnected Internet.

ETNO proposes to replace this with a “new IP interconnection ecosystem.” The ITRs would be modified to direct national governments to get actively involved in “facilitating” international IP interconnection. Moreover, the ITRs would dictate that interconnection agreements should be based, “where appropriate,” on the principle of “sending party network pays” – a telephone regulation principle that would be a radical departure from current interconnection payment arrangements.³

While the phrase “where appropriate” gives this proposal some ambiguity, “sending party network pays” is the only payment principle endorsed in the proposal; settlement-free peering is not mentioned, for example. The proposal thus appears to invite national regulators or incumbent network operators to demand “sending party network pays” in a potentially broad array of circumstances where no such principle exists today for the Internet. In short, this proposal is an attempt to fundamentally change how the Internet currently works.

Why the ETNO proposal is problematic

The ETNO proposal could result in replacing a functional and lightweight interconnection system with one that could ultimately make Internet access more expensive for users.

- The current model for Internet interconnection has been successful in creating a globally interconnected network of networks.
- In contrast, “sending party network pays” would greatly complicate interconnection. It would eradicate the simplicity of common, settlement-free peering agreements. Instead, carriers would be required to build and maintain detailed accounting mechanisms in order to determine who will pay for traffic that flows between networks. Protecting against manipulation of the payment system would entail further complexity and cost.
- The added costs will ultimately be passed on to Internet *users*. Forcing IP interconnection to emulate the international telephone settlements regime will make

² A survey by OECD of over 142,000 peering agreements found that 99.73% were symmetric and 99.51% were concluded without a written contract, clearly demonstrating that settlement-free peering is a current marketplace norm. OECD Working Party on Communication Infrastructures and Services Policy, Internet Traffic Exchange: Market Developments and Policy Challenges, 26-27 October 2011.

³ In the telephone context, “sending party pays” means that the calling party’s local phone network provider pays when a call requires interconnection with another phone network provider, who sets a “termination fee” for calls that end on its network. In turn, the cost of the call is passed onto the calling party, and the called party pays nothing to receive the call.

Internet access more like international telephony: a service with such high rates that it strongly discourages and diminishes the use of the system.

The ETNO proposal could limit the ability of users in smaller or less developed countries to access the global network.

- If sending networks have to pay termination fees to reach local telecom operators that serve businesses and individual users in less developed countries, large companies may decide certain countries are not big or commercially important enough to justify the cost of routing traffic into that destination.
- As carriers decline or limit interconnection with destinations deemed not worth the cost of termination fees, certain countries may find themselves on the wrong side of a worsening “digital divide.” Citizens in those countries could face reduced ability or increased costs to access important content outside their countries’ borders, global online markets and services, and powerful online tools they rely on for everything from political participation and organizing to building their own local businesses and service offerings. The usefulness of the Internet to empower citizens and promote economic development could be reduced in the very countries that need it most.
- In theory, any local network operator could try to avoid this result by keeping its termination rates low. But the local operator, the government, or both may be more interested in the short-term goal of collecting revenues from high termination rates than on preserving the citizens’ ability to access foreign Internet content. Indeed, high termination fees could be used to actively discourage foreign content providers from serving the local market.

The ETNO proposal could limit the ability of upstart entrepreneurs, innovators, and content creators all over the world to access global online markets and build successful, locally based online businesses that can compete with established Internet companies.

- An essential feature of the current Internet is that it makes it possible for anyone, anywhere in the world to speak or launch an innovative application with worldwide reach, without having to ask permission from any middleman. Physical location loses some of its importance, and new start-up enterprises can come from anywhere, grow quickly, and become successful.
- The ETNO proposal seems to put this feature of the Internet at risk. If networks serving local startup businesses need to pay new interconnection fees whenever they are deemed the “senders” of traffic, then they will have to charge substantially more for serving any business that starts to generate a large and growing volume of requests for its content. Obtaining quickly scalable network connections may become difficult and expensive.
- This hurdle could prove especially difficult in less developed economies, where entrepreneurs and other content providers may face greater challenges in accessing global markets to begin with and may have less access to venture capital or other financial resources to help sustain their online growth.

“Sending party network pays” could create incentives to do less local content caching, which could decrease the network performance enjoyed by users.

- On the Internet today, content providers and network operators rely increasingly on caching to host content as close as possible to the intended end users. This practice plays an important role in increasing the speed of online content delivery to users and preventing congestion on the network.
- “Sending party network pays” would create an incentive for network operators to reduce the amount of content they cache locally because requiring the content to be re-sent each time it is requested would enable them to collect more compensation from the networks “sending” the content.

“Sending party network pays” does not provide an effective or efficient mechanism for funding communications infrastructure deployment.

- Some stakeholders may argue that the ideas in ETNO’s proposal would help to generate revenue that can be used for infrastructure deployment in less developed countries.
- Funding Internet infrastructure is a serious challenge. But the payments and cross-subsidies that helped support telephone deployment cannot be simply ported over to the Internet world.
- “Sending party network pays” may generate some additional revenue for some carriers – but only at the cost of raising prices and depressing beneficial uses by citizens, for the reasons discussed in previous sections above.
- Moreover, there is no guarantee that interconnection fees would be used for the purpose of funding infrastructure deployment. The proposal does not specify any particular use for such funds.
- Finding effective, sustainable means of supporting Internet infrastructure deployment, particularly in less developed countries, is an important policy challenge. But it will require more efficient, effective mechanisms than the ETNO proposal can provide.

B. ETNO’s proposal could extend the ITRs to regulate providers of content, “over-the-top” services, and operators of private networks

What the ETNO proposal says

Currently, the ITR obligations apply mainly to “Recognized Operating Agencies” – entities that are licensed or authorized by their governments to provide public telecommunications services. ETNO proposes extending core treaty obligations to “Operating Agencies” generally. This broad term is defined in the ITU’s constitution as “any individual, corporation, or government agency which operates a telecommunication installation intended for international telecommunication service or capable of causing harmful interference with such a service.”

That definition could sweep in many entities from across the Internet ecosystem. It could extend to entities that deliver content and services over the Internet (sometimes referred to as “over-the-top” services) – everything from search engines to social networking platforms to e-commerce websites – so long as they operate some equipment that could constitute a

“telecommunication installation.” Arguably, any entity providing content could be covered. In addition, the definition might cover Wi-Fi hotspots and even non-Internet corporations that happen to run their own internal networks for employees.

One primary consequence of this expansion would be to subject a wide range of non-telecom entities to ETNO’s proposed interconnection regime, discussed above. That means they could have new regulatory obligations to pay interconnection fees whenever they are considered to be the “senders” of Internet traffic.

Why the proposal is problematic

The ETNO proposal could erect substantial new entry barriers for online services, reducing the online innovation and competition that benefits Internet users everywhere.

- One of the Internet’s defining characteristics is its low barriers to entry, compared to legacy mass communications technology: It enables anyone to launch a new website or online service at relatively low cost and to make that website or service available to interested users anywhere in the world. Low entry barriers have made the Internet a hotbed for constant innovation. Internet users everywhere benefit from the constant stream of innovative and evolving new communications tools and services.
- ETNO’s proposal could substantially raise barriers to entry. Online service providers could face significant fees for interconnection, plus the added complications of sorting through country-by-country and carrier-by-carrier differences in termination fees.
- Large, established companies might be able to bear the new interconnection fee structure – but for smaller, upstart companies, the added hurdles could be prohibitive.
- The impact would be especially severe on not-for-profit entities. The Internet and its low entry barriers empower not just for-profit companies, but also new forms of non-commercial, collaborative endeavors, who would have little ability to pay new and unpredictable interconnection fees.

It could cause online services to abandon smaller and less developed countries, depriving local Internet users of access to empowering communications technologies.

- The current interconnection regime makes it relatively straightforward for a provider of online content and services to reach Internet users all over the world. By contrast, subjecting online companies to ETNO’s new interconnection regime would require those companies to confront a tangle of new interconnection fees.
- To avoid unnecessary fees, many companies would likely decline to offer services in countries that are not important to their business strategy. Internet users in smaller and less developed countries could lose access to valuable Internet content and services. This could seriously exacerbate the global “digital divide” and leave citizens in less developed countries with reduced (or much more expensive) access to the platforms and services they need to participate in the global information economy and offer their own content and services.

It would needlessly extend telecom regulation far beyond its justified intents and purposes.

- The ITRs were established to govern and coordinate centralized telecommunications networks consisting mainly of large national operators, sometimes state owned, with monopoly or market power status. It was an environment of scarce and centrally controlled telecommunications resources and non-competitive markets.
- The current Internet ecosystem of over-the-top content and service providers is entirely different. It is an environment of abundance, not scarcity. It is largely competitive. Market power can shift more quickly. There is no basis for subjecting it to the regulatory institutions and instruments devised specifically for traditional telecommunications. It may be in the self-interest of the ITU and some of the established telecommunications companies it already regulates to radically extend the sweep of telecom regulation, but doing so would be a terrible mistake for the success and growth of the larger online economy and ecosystem.

C. ETNO would require development of costly new end-to-end “quality of service” capabilities

What the ETNO proposal says

ETNO’s proposal would require, as a mandatory treaty obligation, the development of “end to end quality of service” (QoS) capabilities in addition to traditional “best effort” delivery. QoS means that carriers would prioritize certain traffic in order to guarantee a specified level of end-to-end performance – a practice that could undermine the principle of Internet neutrality.

Why the proposal is problematic

It would mandate a technology with costs that might well exceed its benefits – unnecessarily raising the costs of Internet access for everyone.

- It is far from clear that end-to-end QoS prioritization is a necessary or cost-effective tactic. The idea has been circulating for many years, and the lack of adoption or serious coordination efforts in the market raises serious questions about its true utility.
- Full end-to-end QoS may prove costly, as there are serious technical challenges to achieving end-to-end performance guarantees for communications that traverse multiple carriers’ networks and use dynamically variable routing paths. In light of this complexity and the ongoing advances in transmission technology, some research has suggested that increasing capacity may generally provide more cost-efficient means of addressing performance issues. Finally, many applications that were offered as examples of online services needing QoS to function (e.g., real-time voice and videoconferencing) have successfully been adapted to the current best efforts environment.
- Carriers may choose to experiment with QoS arrangements or to press for cooperation in existing industry forums. But such an unproven technological approach should not be mandated by treaty.
- Costs of developing and deploying end-to-end QoS would ultimately be passed along to Internet users.

It risks depressing innovation by giving incumbent network operators new power to serve as online “kingmakers” and to cast aside the principle of Internet neutrality.

- ETNO, in explaining its proposal, states that “[d]elivery based on QoS allows for management of the IP traffic according to its characteristics (i.e. delivery requirements and acknowledged value) thus supporting innovation to provide a value-added service.”
- But allowing and indeed encouraging network operators to determine what traffic is valuable enough to warrant priority treatment would give the carriers tremendous power to influence the competitive balance among online services. The carriers could then charge for the “value-added service” of enabling one company to have its traffic prioritized, and thus delivered more quickly and reliably, than its competitors.
- In this kind of environment, online innovators could need to get the approval of, partner with, or pay various network operators in order to be a successful competitor in the operators’ home markets. The Internet’s traditional openness to “innovation without permission” could be impaired, with network operators assuming the new role of gatekeeper and kingmaker. Small, upstart innovators could face new costs in trying to match their more established rivals.
- This would be highly detrimental to online innovation. Preventing network operators from exercising this kind of power is the precise aim of Internet neutrality rules adopted in a number of countries.

It would discourage future expansion of network capacity and threaten the effective performance of best efforts Internet service.

- QoS makes a practical difference only when the network is congested. (When there is plenty of capacity, all traffic zips along quickly.) Therefore, network operators can charge a premium for QoS guarantees only if congestion is a serious issue.
- As a result, the more carriers come to generate revenues from QoS offerings, the weaker their incentive to expand overall network capacity and prevent congestion. Expanding capacity may improve the performance of the best efforts traffic, but it directly undermines the value of the QoS offerings, threatening that new revenue stream.
- As more traffic is delivered on a QoS basis, the performance of best efforts traffic declines – because in times of congestion, the growing volume of QoS traffic gets priority and the remaining best efforts traffic is bumped farther to the back of the line.

QoS often requires content-aware networks that inspect and categorize traffic in real-time – capabilities which can be abused by repressive governments.

- QoS often requires carriers to inspect and categorize Internet traffic in real-time. Repressive regimes would welcome the development and deployment of greater content-awareness capabilities in the network, as it enhances their potential ability to monitor, control, and restrict Internet communications.

III. Conclusion

Countries around the world have legitimate concerns about Internet governance, including the uneven pace of the development of the information society, which has left many unable to participate fully in the digital economy. However, a close examination of the ETNO proposal reveals that it would not meaningfully promote access to the Internet or benefit users. In fact, the proposal may harm citizens in less developed countries the most, limiting their right to access information and knowledge and to express themselves among a global community of users. The proposal may also hinder the ability of local entrepreneurs and businesses to participate in the global information economy by raising costs of reaching foreign users, thus curbing the economic benefits that can flow from the Internet.

At heart, the ETNO proposal seems intended to fundamentally alter the way the Internet currently works, likely resulting in benefits for large, incumbent telecommunications operators and harm to users, especially those in countries where Internet access is most lacking. Users concerned about promoting the full realization of the information society should urge their governments to oppose the ETNO proposal and any similar proposals that may be considered by ITU Member States.

##

For more information, contact Alissa Cooper, acooper@cdt.org, David Sohn, dsohn@cdt.org, or Cynthia Wong, cynthia@cdt.org.