

Jari Arkko's remarks at the IGF 2014 Workshop on Policies and practices to enable the Internet of Things, September 4, 2014, Istanbul, Turkey

Abstract

This talk focuses on four areas where the Internet of Things presents challenges that relate to Internet Governance:

- Ensuring sufficient address and identifier spaces are available to not artificially constrain the growth of these applications
- Standards that enable the creation of competitive markets and provide customer choice
- Privacy and security aspects
- Deployment of this technology in the developing nations, for instance, to address environmental issues or improve energy efficiency

I would like to recommend that Internet Governance discussions should address not merely current Internet situation and its improvements, but also look ahead at new upcoming applications and their effects on governance needs.

Remarks

Much of the discussion in the Internet Governance area has been focused on the ways that the humans use Internet, for instance ensuring that we all have Internet access available to us, or the types of names that can be used to refer to Internet resources. However, the Internet is already encompassing a significant amount of autonomously operating devices that are embedded in our environment, and it is expected that in the future there will far more of these devices, in the order of tens or hundreds of billions of new devices.

This is an incredible useful development for many reasons, just to mention environmental and energy conservation benefits as one example. However, it presents also many challenges.

Some of those challenges are technical. The ability to build small devices that can operate in low-power mode for years or longer has been one issue that many of us in the technical community have struggled with. And there are many commercial challenges, for instance converting systems designed for personal usage into ones that can also be used efficiently for large number of devices.

I would like to highlight four areas where the Internet of Things presents challenges that relate to Internet Governance:

- Ensuring sufficient address and identifier spaces are available to not artificially constrain the growth of these applications. The numbers are big, and it is essential that there is enough growth potential in the Internet. For instance, large scale deployments of IOT devices would benefit greatly from IPv6 addresses and lack of NATs.

- Standards that enable the creation of competitive markets and provide customer choice. Many of yesterday's smart industry or building applications are based on proprietary or application-specific technologies. IP-based networking simplifies these designs and opens up these networks for new innovations and competition. Even more so, if the application-layer design allows modularity. For instance, it would be useful to be able to select what cloud provider my sensor data goes to.
- Privacy and security aspects. There are obviously many challenges here, for instance ones related to the choice that I mentioned about where your data is stored at, or who owns it.
- Deployment of this technology in the developing nations, for instance, to address environmental issues or improve energy efficiency. We have been very concerned in this meeting about reaching all the people on the planet, but it does not stop there.

I would like to recommend that Internet Governance discussions should address not merely current Internet situation and its improvements, but also look ahead at new upcoming applications and their effects on governance needs.

And I do not bring these questions up because I would be calling for regulation. But I think it is useful to understand the impacts of the new technology, and perhaps together make some conclusions about kinds of design would be preferred.

Questions

The questions that I would like to be asked at the panel are:

- What can standards do to improve competition and customer choice in the area of Internet of Things?
- What are the privacy and security challenges that may come with this new technology?
- When should the challenges be addressed through governance or regulatory mechanisms, and when should they be left to consumer or market choice?

Answers

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