

UNIQUE IDENTIFIERS AND INTERNET GOVERNANCE THE PERSPECTIVES OF THE OBJECT NAME SYSTEM

OECD - RFID Applications and Public Policy Considerations

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INTRODUCTION

The architecture of the Internet¹ is undergoing several important changes with the rise of mobile Internet usages and the diversification of connected objects, the « *Internet of machines* » is progressively moving toward an « *Internet of things*² ». The management of Internet resources is also changing as innovations are arising in the field of *Unique Identifiers*³ (as *Object Name System* for RFID « tags » or *Digital Object Identifier* for electronic documents).

¹ On a technical level, the architecture of the Internet is based upon superposed "layers", each with different functionality; the ***transport layer*** (physical infrastructure), the ***application layer*** (or logical layer), and the ***information layer*** (content layer). The consequences of this architecture have been summarized in the definition of the Internet in the RFC of E.Kroll in June 24, 1993.

The Internet is:

1. a network of networks based on the TCP/IP protocols,
2. a community of people who use and develop those networks,
3. a collection of resources that can be reached from those networks.

cf. <http://mist.npl.washington.edu/internet.txt>

² cf : *NSF seeks broad Internet research agenda, some science officials say it's time to rethink the Internet's architecture*, by A. Sternstein on Jun. 27, 2005 (*Federal Computer Week*)

<http://www.fcw.com/article89386-06-27-05-Print>

³ *On the design of Globally Unique Identification Schemes* par D. Engels of the MIT Auto-ID Center 2002

<http://www.autoidcenter.cn/solution/download/On%20the%20design%20of%20Globally%20Unique%20Identification%20Schemes.pdf>

The works on Internet Governance will have to encompass those ongoing technological evolutions of the Internet. In fact these evolutions if not properly addressed by the Internet Governance organizations could lead to reexamine their current mechanisms and scope within the next few years. The definition of Internet Governance as it has been stated recently in the report of the *Working Group on Internet Governance*⁴ will have to be broader than the current *DNS* management.

FROM THE DNS TO ONS... AND BEYOND

The *Domain Name System* has been for long the most « *visible* » centralized infrastructure of the Internet. This system has been originally created in 1983 for practical reasons in order to increase the « *usability* » of the Internet and to allow a larger number of users to use « easy to remember » names instead of IP addresses.

The role of ICANN and the current debates on Internet governance derives from this « *centralized* » architecture of the *DNS*. But this architecture comes now as a drawback for the development of new applications on the Internet (especially those which are related to the connection of new devices on the Internet) as it was stated by John Klensin in his RFC 3467⁵ about the *DNS* and its limitations.

The evolution of the current Internet (with the modification of the current *DNS*), or the possible introduction of new protocols dedicated to build a more secure network⁶ will also lead to analyze the political implications of the technological choices that are made in the new *Unique Identifiers* schemes (like *DOI* or *ONS*) implementation.

The upcoming development of new Internet services based on the use *Geographical Information Systems* and their connections with mobile devices and *RFID* tags will make these *Unique Identifiers* even more crucial for the development of the Internet economy. The

⁴ <http://www.wgig.org/>

⁵ « *Applications that are "almost good enough" prevent development and deployment of high-quality replacements...the overloading process [of the DNS] is often inappropriate. Instead, the DNS should be supplemented by systems better matched to the intended applications* » cf <http://www.faqs.org/rfcs/rfc3467.html>

⁶ cf *NSF seeks broad Internet research agenda, some science officials say it's time to rethink the Internet's architecture*, by A. Sternstein on Jun. 27, 2005 (*Federal Computer Week*)
<http://www.fcw.com/article89386-06-27-05-Print>

main difference between those new systems and the existing *DNS* is that they will control not only to the information flow but they will also allow the monitoring of the merchandises and the persons movements wearing these *RFID* tags. The public policy implications of these new *Unique Identifiers* will then become even more sensitive⁷. The architecture of the new *Unique Identifiers*⁸ that will be deployed on the Internet will have to be analyzed in terms of usability and value creation on the Internet but also in terms of security, stability and sovereignty regarding the management of key Internet resources. In order to ensure the development of the Internet, the collaboration between the States will soon become a necessity in all the technical segments (or all the layers) of the networks.

⁷ cf. *Privacy Advocates Criticize Plan To Embed ID Chips in Passports* by Sara Kehaulani Goo *Washington Post* (3 April, 2005)

<http://www.washingtonpost.com/wp-dyn/articles/A21858-2005Apr2.html>

⁸ cf. *On the design of Globally Unique Identification Schemes* par D. Engels of the MIT Auto-ID Center 2002

<http://www.autoidlabs.org/whitepapers/mit-autoid-tm-007.pdf>
