

Legal issues of IPv4 to IPv6 transition

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Introduction

Internet protocols (IP) are the backbone to Internet networking, organising how computers and electronic devices are identified and interact. Two Internet Protocols, not directly compatible, are in active use: IP version 4 (IPv4) and IP version 6 (IPv6). The latter has been developed as a solution to the fact that IPv4 addresses were reaching exhaustion. IPv4 addresses are now depleted.

Despite a good number of issues that act in favour of Ipv6 (Net neutrality, cloud computing, Internet of things, the belief that IPv6 transition is a necessity, that Internet should be considered a universal infrastructure, regulated to the same extent as environmental protection, and that access to it is to be considered as a fundamental right) evolution towards IPv6 has remained slow due to social and legal hindrances.

The paper will analyse the legal issues that impede or could foster the transition, as well as the legal aspects related to the transition itself and the regulatory forces involved.

History of Internet protocols

Appraisal of the evolution of Internet protocols - Initial conception - procedures for the adoption of Internet norms (Requests for Comments – RFC) - provisional solutions to the shortage of IPv4 addresses - rationale behind IPv6 works - technical issues related to IPv6 implementation.

Governance and regulation of Internet

The respective roles of ISOC, IETF, ICANN, IANA, regional registries (RIR), ITU – the normative context, role of state entities.

IPv6 and DNS

Adaptation of the Domain Names System needed in view of Ipv6 implementation

Factors impeding the transition towards IPv6

Fears of data protection breaches given the identification preciseness offered - Fears of law enforcement agencies concerning loss of tracking abilities against cyber crime and common criminal activities - A quasi property right on IPv4 addresses and vested commercial interests

Regulatory issues linked to IPv6 perspectives

Capacity of regional regulatory approaches to foster the IPv6 implementation – role of European Union in promoting IPv6 – comparison with analog to digital TV transition – Risks: isolating the European instances using IPv6 from being accessible worldwide, accentuation of the risk of deepening a digital divide with countries that

do not have the capacity and financial resources to force IPv6 - Limitations: absence of universality (non applicability of EU rules outside EU), problems of jurisdiction for services emanating from installations outside EU - Impact of IPv6 generalisation on the EU legal framework, in particular concerning e-commerce and electronic signatures.

Current issues expected to be resolved by IPv6 implementation

IPv6 contribution on resolving issues related to traffic, data protection and cybercrime. Structural obstruction of interception of information, criminal or terrorist activities on the net (masking IP address and anonymity), lawful interception of information, Liability for IP and ISP services, Piracy concerns.

Conclusions

Emphasis on the need of IPv6 generalisation – expected shift towards a more regulated but less complicated environment