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New technologies and their impact on regulatory practices: *Back to the Future*



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Where it all comes together.

New technologies, new vulnerabilities



+ Fundamental points of inflection

- ? Digital networks, 1955 -
- ? Packet networks, 1964 -
- ? Network hosts, 1972 -
- ? Connectionless networks/internets, 1974 -
- ? Open systems interconnection, 1979 -
- ? Intelligent signalling infrastructure enables nomadicity, security, infrastructure protection, public requirements, 1986 -
- ? Academic internetworking goes public without infrastructure protection, 1994 -
- ? Rapidly scaling SPAM, cybercrime, cyberstalking, and cyberterrorism (as undesirable net technologies), 1996 -
- ? Wireless, cable, DSL enable broadband, ubiquity, 1998 -
- ? IP-enabled NGN Intelligent signalling infrastructure enables nomadicity, security, infrastructure protection, public requirements, 2004 -

+ Drive changes to regulatory practices

Intelligent infrastructure requirements and opportunities



+ Availability, Security and Protection

- ? **High availability**
 - analysis network metrics and outages
- ? **Network attack mitigation**
- ? **Priority access and notices during emergencies**
- ? **Restoration**
- ? **Personal emergency services**
- ? **Prevent unwanted intrusions**
 - Filters (DoNotCall)
 - Aids (CallerID)
- ? **Nomadcity**
 - Number portability
 - Roaming
 - Payment method flexibility
- ? **Cybercrime mitigation**
 - Forensics capability
 - Law enforcement/national security assistance
 - Fraud detection and management
 - Prevent cyberstalking
 - Digital rights management

+ Competition Requirements

- ? **Unbundling**
- ? **Service interoperability**
- ? **User/subscriber access by service providers**
- ? **Default service and routing options**

+ Operations Requirements

- ? **Directory access among providers**
- ? **Inter-carrier compensation**
- ? **Transaction accounting**

+ Innovation and Business Opportunities

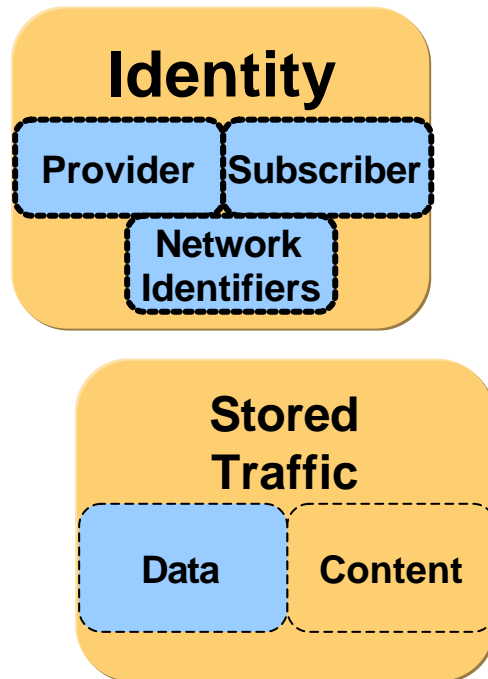
- ? **Infrastructure protection and security products**
- ? **Signalling and authentication products**

+ Other Consumer Requirements

- ? **Disability assistance**
- ? **Universal Service**
- ? **CPNI protection**

Ongoing regulatory, justice, and homeland security proceedings in countries worldwide

EU Data Retention Directive as example of new regulation



- + Harmonizes data retention and access across Europe
- + Applies to
 - ? Fixed network telephony
 - ? Mobile telephony
 - ? Internet access, messaging and telephony
- + Provides data necessary to
 - ? trace and identify the source of a communication
 - ? trace and identify the destination of a communication
 - ? identify the date, time and duration of a communication
 - ? identify the type of communication
 - ? identify the communication device or purported device
 - ? identify the location of mobile communication equipment
- + Does not include content
- + Includes privacy enhancement features
- + Adopted by European Parliament on 14 Dec 2005
- + Likely to be the subject of considerable implementation collaboration activities in 2006-2007

Most important new technology-driven regulatory needs



+ Competitive requirements

? Time to re-invent Computer III for IP-enabled NGN

- Unbundled signalling network elements
- Standard/open signalling interfaces
- Secure reciprocal access to network signalling elements

+ Public infrastructure protection requirements

? Controlled access to network resources

- protected global “out-of-band” signalling infrastructure

? Ability through trusted mechanisms to obtain authoritative

- provider information
- user/subscriber information and bindings to their communication identifiers
- supplementary information to support public infrastructure needs