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Internet Governance

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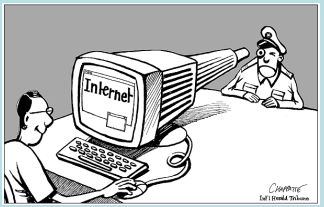
Introduction – Internet Governance Issues

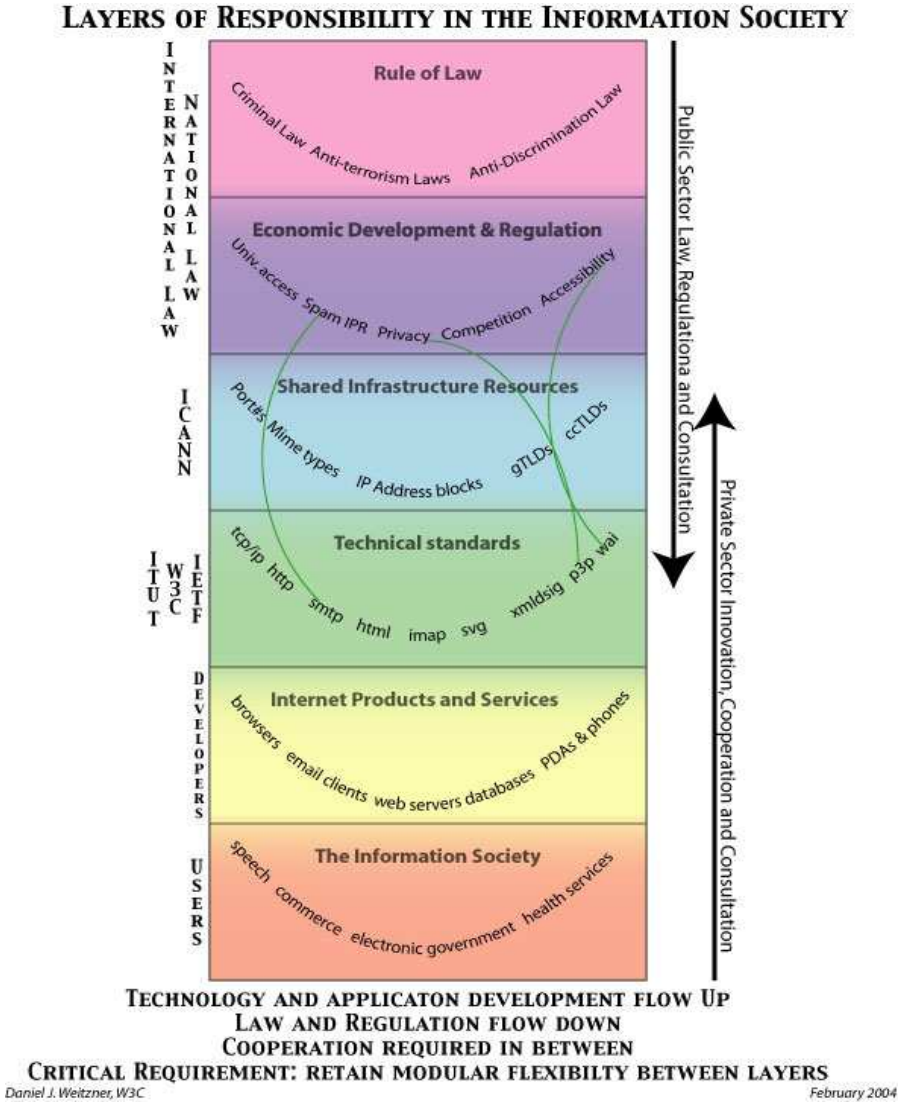


Introduction – Information Society „Layers“ of Responsibility

- At the **bottom** of this stack, the **users** of the Internet engage in pure expressive activity, exchange personal, political, economic and cultural human rights commitments, not regulated information. This communicative activity is to be supported but, consistent with basic international human rights

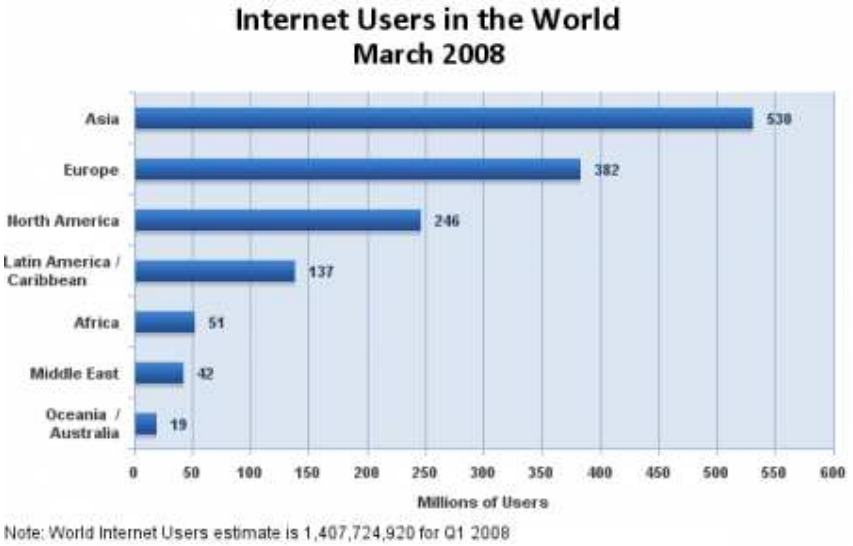
- At the **top** of the stack, we see an active role for **governments** in their historical role regulating commercial activity, promoting culture and economic development, and guarding against criminal activity.

- Where the Internet poses the **most unique challenges**, however, is at the center of this table. The **middle layers** (shared infrastructure resources and technical standards, e.g. ICANN, IETF, W3C) include a variety of issues that have significant social impact but, at the same time require technical expertise and operational consensus in order to be effectively addressed.



Introduction – Internet/ICT Impact and Benefits

- **Major impact**
  - Evolution towards information society
  - New activities, industries and services
  - 1.4 billion internet users (2008)
- **Benefiting all countries and areas**
  - Rapid development is impacting all economic and social areas
  - Contribution of ICT to economic growth mainly through productivity increase



- **Where competition in the telecommunications sector is effective**
  - Increased international connectivity
  - Technological leapfrogging, e.g. wireless
  - ICTs contribute to development goals

Internet Goveranance – What?

- „The development and application by governments, the private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolutions and use of the Internet“

- Tunis Agenda for the Information Society, Para 34

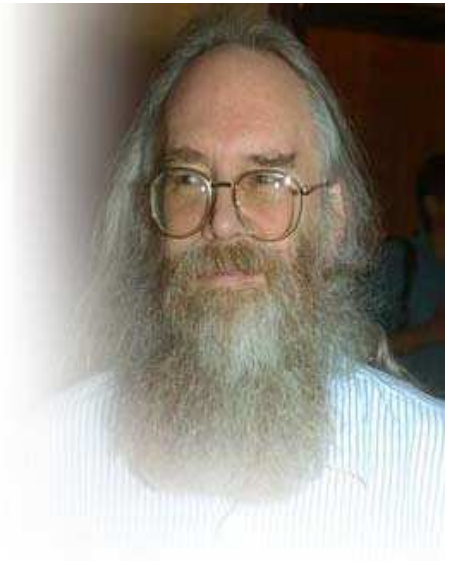
Internet Governance – Related Policy

INTERNET GOVERNANCE ISSUES		OECD
Infrastructure &	Peering and interconnection	√
	Telecommunications infrastructure incl. NGN	√
Management of critical Internet resources	Management of the domain name system and IP addresses	some √
	Administration of root server system	---
	Technical standards	---
	Multilingualization	---
Use of the Internet	Spam	√
	Network security, data protection & privacy	√
	Consumer protection	√
Wider impact than the Internet	Intellectual property rights	---
	International trade	√
Development	Education and human capacity building	---

Government intervention is often limited to national territories but the INTERNET HAS NO BORDERS which requires new approaches to tackling wordlwide problems

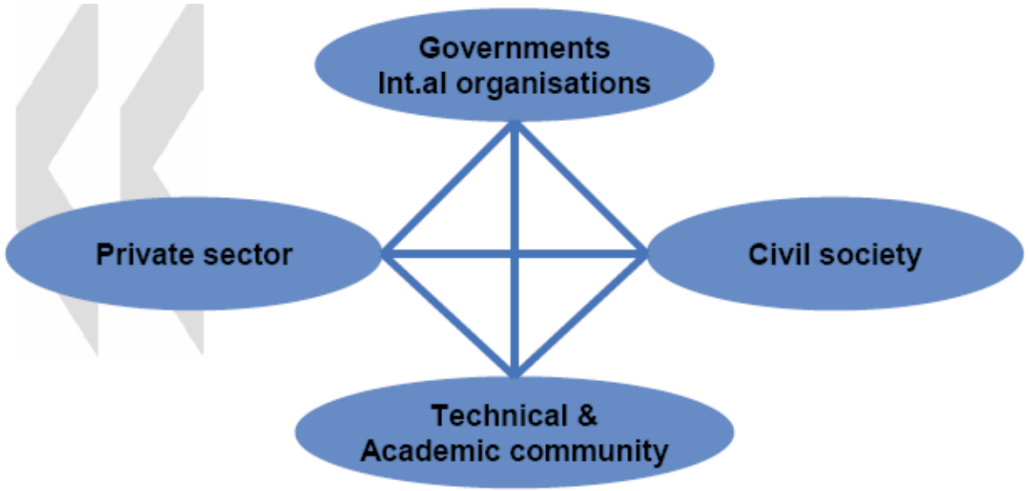
Internet Governance – Historical Legacy

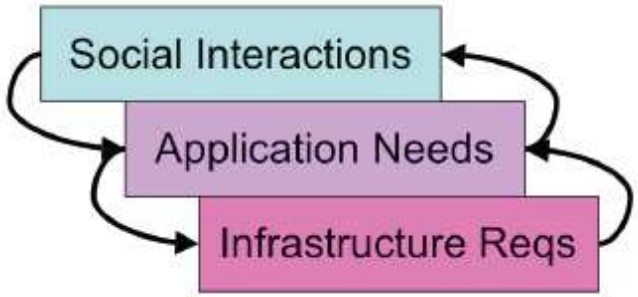
- Uniliteral control by US Government
  - For historical reasons, only one government is involved in authorization to change root file zone
  - No formal relationship with root server operators
  - Distribution of IP addresses is arbitrary
- Lack of multilateral mechanisms for ensuring network stability and security
  - No effective global Internet Goverance
  - Many different players (e.g. ICANN, ITU, OECD, RIRs)



Joe Postel: one of the founding fathers of the internet

Internet Governance – Multi-Stakeholder Approach



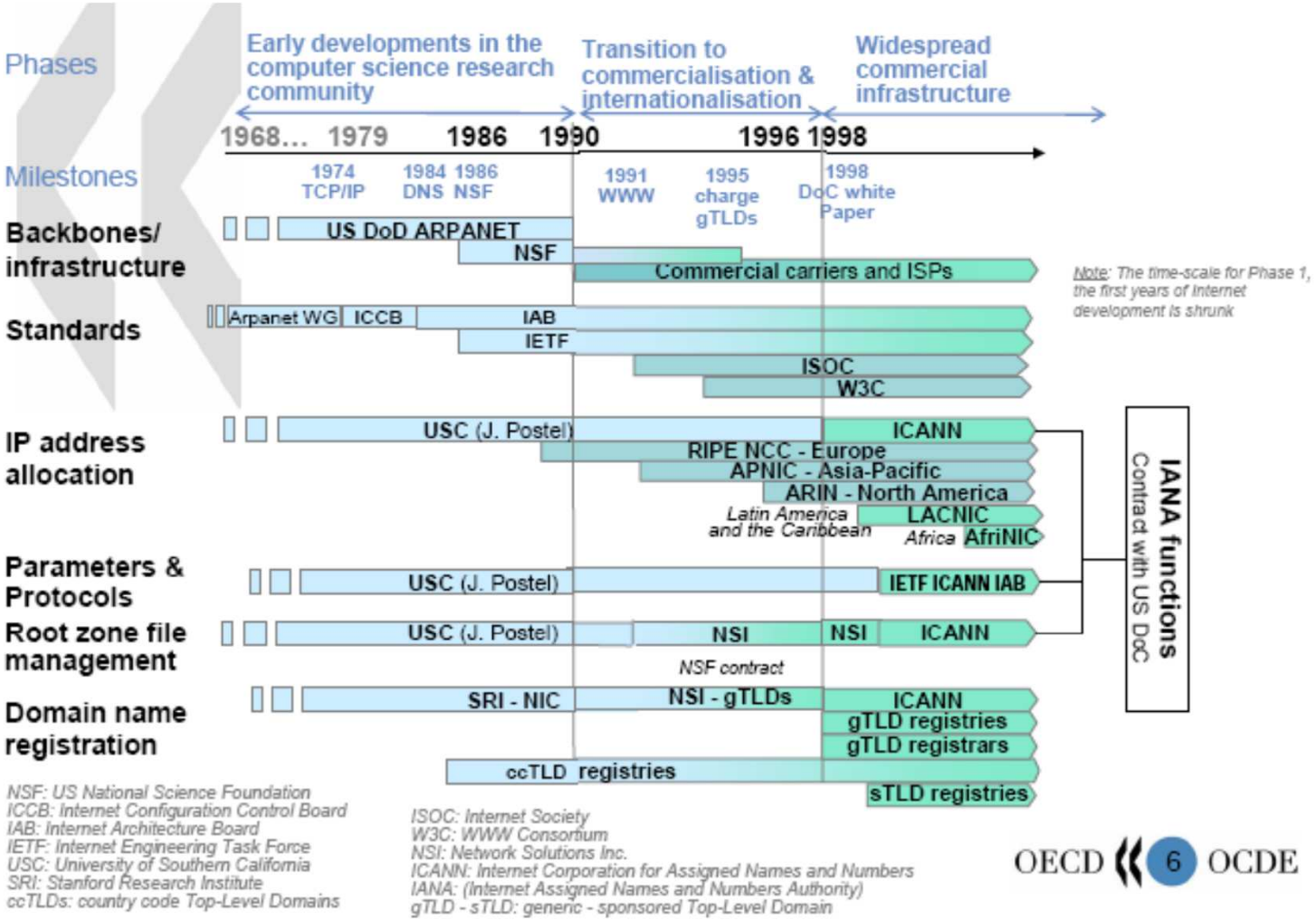


Communication amongst stakeholders to ensure decisions are taken considering all implications and balancing all interests

Internet Governance – Example for Multi-Stakeholder and Global Approach: SPAM

1. Regulation – principles and sanctions
2. Enforcement – national and international enforcement cooperation
3. Industry driven initiatives – ISPs
4. Technical solutions – users, ISPs, Networks service providers
5. Education and Awareness – End users
6. Co-operative partnership against spam – private/public
7. Spam metrics
8. Extend initative beyond OECD member countries: e.g. joint APEC/OECD/ITU meeting 2006, input and circulation with other countries

Internet Governance – Evolution & Technical Coordination

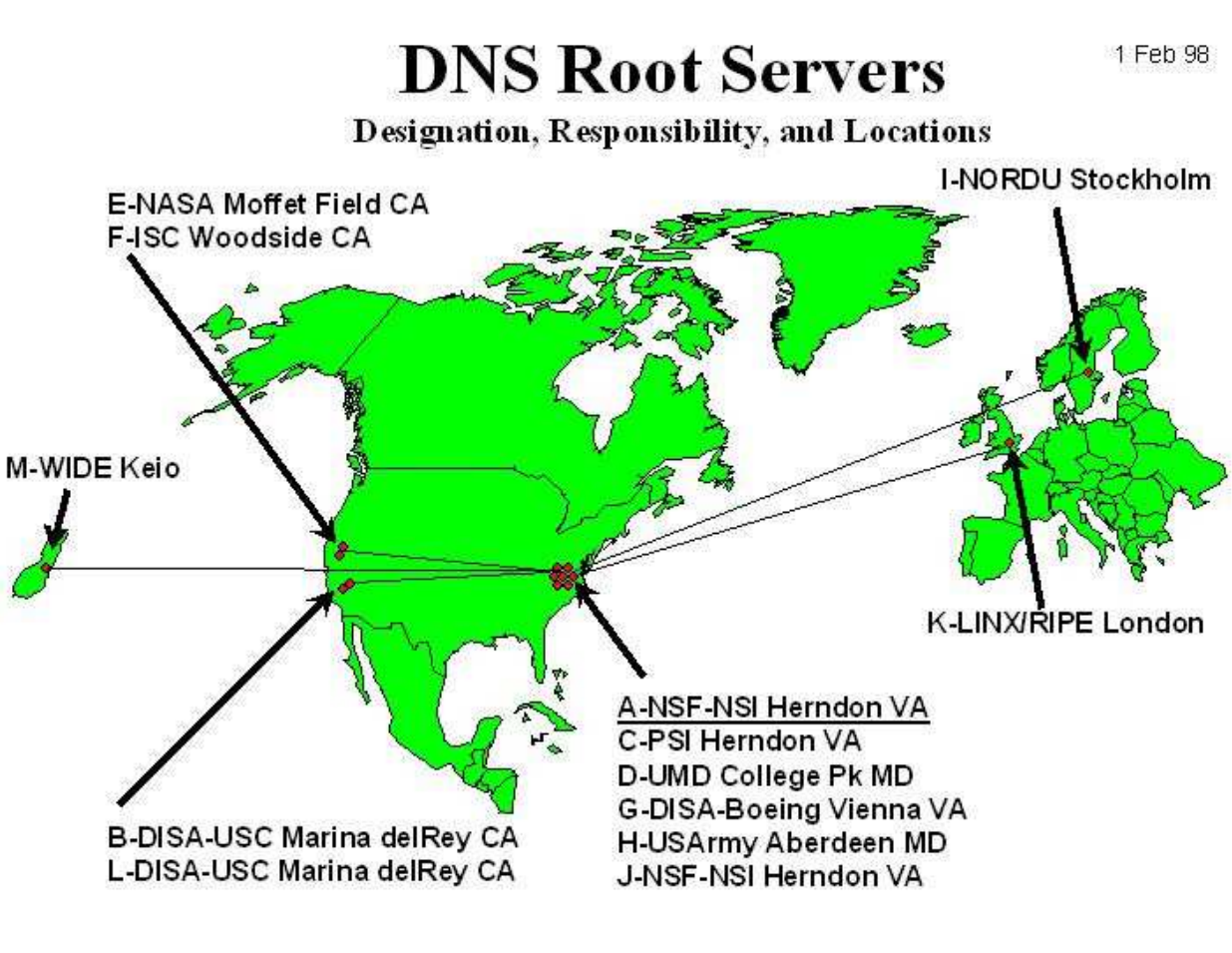


Internet Governance – IANA, ICANN

- IANA: The Internet Assigned Numbers Authority (IANA) is responsible for the global coordination of the DNS Root, IP addressing, and other Internet protocol resources
  - IANA manages the DNS Root Zone (assignments of ccTLDs and gTLDs), as well as the .int registry, and the .arpa zone.
  - IANA coordinates the global IP and AS number space, and allocates these to Regional Internet Registries
  - IANA is the central repository for protocol name and number registries, used in many Internet protocols

- ICANN: To reach another person on the Internet you have to type an address into your computer - a name or a number. That address has to be unique so computers know where to find each other. ICANN coordinates these unique identifiers across the world. Without that coordination we wouldn't have one global Internet
  - ICANN was formed in 1998. It is a not-for-profit public-benefit corporation with participants from all over the world dedicated to keeping the Internet secure, stable and interoperable. It promotes competition and develops policy on the Internet's unique identifiers
  - CANN doesn't control content on the Internet. It cannot stop spam and it doesn't deal with access to the Internet. But through its coordination role of the Internet's naming system, it does have an important impact on the expansion and evolution of the Internet

Internet Governance – Root Servers

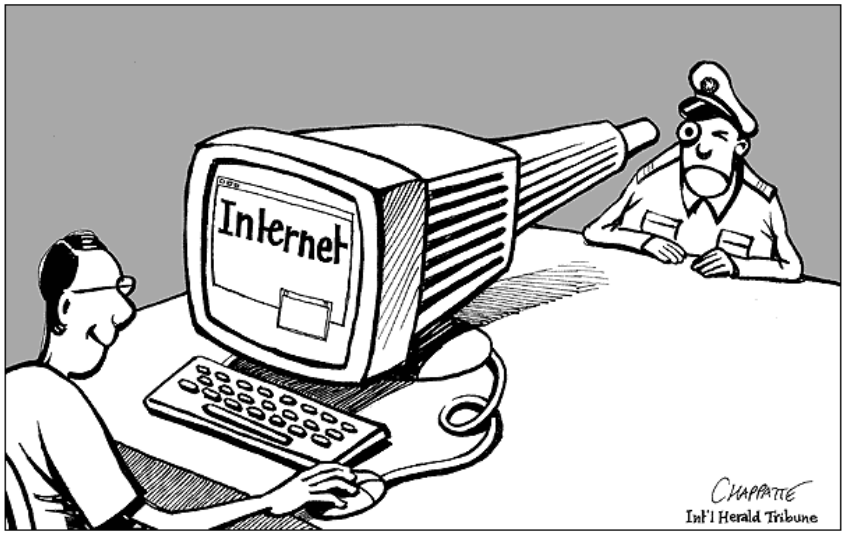


Internet Governance – World Summit on the Information Society (WSIS)

- WSIS proposed by Tunisia at ITU Plenipotentary Conference, 1998
- Adopted as UN Summit in 2001
- First Phase, Geneva, December 2003
  - 11.000 participants, of which 41 Heads of State/Government
  - Adopted Geneva Decleration and Plan of Action
- Second Phase, Tunis, November 2005
  - 25.000 participants, of which 47 Heads of State/Government
  - Dealt with **Internet Governance** and Financing ICT4D

  ⇨ Creation of **Internet Governance Forum (IGF)**
- Negotiation positions
  - **US**: defend status quo; formalize „technical“ role of ICANN
  - **EU:** new public/private model for international cooperation; globaly appicable public policiy principles; technical management private sector led
  - **Like-Minded Group (China, Brazil, India, Iran…):** Establish inter-governmental council for global public policy and oversight; council anchored in UN system

Internet Censorship – What?



- Suppression of speech or deletion of communicative material as determined by a censor
- Pre-censorship
- Post-censorship

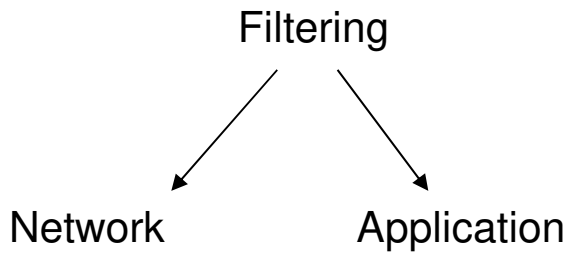
Introduction – Internet Censorship

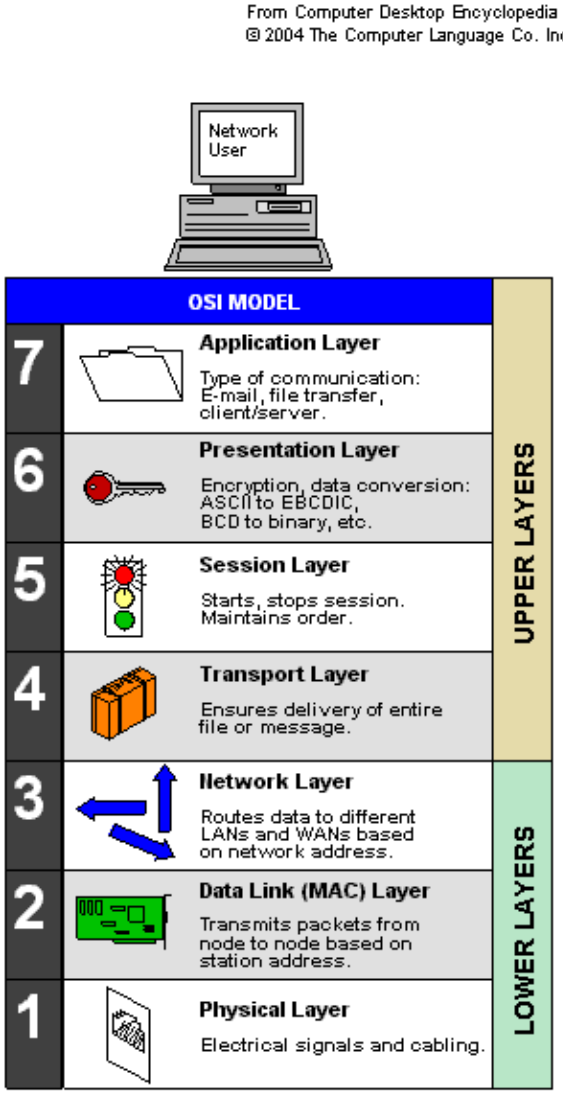
- Western World: Based on human rights, constitutions, legal systems and moral values, access to Internet is provided unlimited and most importantly unfiltered
- Countries such as China, Vietnam, Tunisia, Iran, Turkey, Saudi Araba have technical and non-technical controls for censorship
- Blocking of Nazi and pedophile websites in Germany

⇨ Variety of techniques operating at different levels of Open Systems Interconnection Reference Model (OSI-Model) that in costs, implementation, granularity and effectiveness

Internet Censorship – OSI Model & Filte

- 7 different layers for communication
- Each layer with specific task





Internet Censorship – Network Filtering

- Operates on Layer 3 and 4
- Each packet is inspected in real time as it passes through the filtering device (e.g. router)
- Based on the content of the header: forward or discard

  Layer 3: Responsible for logical addressing and routing of data (IP-adress)

  - E.g. Access Control Lists (ACLs, Cisco):
    deny ip host 212.58.224.81 any
    deny ip any host 221.58.224.81

  ➡ Will deny all TCP and UDP traffic from or to address

- Requires only minimal resources on any networking device
- In practice: rulesets tend to very large in size; managing, distributing and synchronizing difficult challenge

Internet Censorship – Network Filtering

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  Layer 4: Responsible for the formatting and handling of the transport of data, reliable and accurate delivery to next layer

  - E.g. (Cisco):

    deny tcp any host 212.58.224.81 eq 25 (SMTP)

  ➡ Will deny all traffic from any host with any source port to destination port 25

- Greater flexibility and precision in terms of the scope of filtering
- „Overblocking“: e.g. http in which one server with single IP host

Internet Censorship – Application Filtering

- Layer 7
- Possible to inspect payload or content of a packet
- Perform the most detailed inspection before making a filtering decision
- Unlike network filtering, it is possible to inform user about the filtering
- Cannot be done in real-time and requires highly expensive technical equipment
- Using of encrypted protocol such as Secure Socket Layer (SSL) or Secure Shell (SSH) makes filtering mostly impossible
    - Proxies
    - Deep Packet Inspection
    - DNS manipulation

Internet Censorship – Example China

- Any information...
  - contradicting the constitution
  - Disclosing state secrets
  - Damaging the honor and the interest of the state
  - Disturbing social order or undermining social stability
  - Spreading or instigating lewdeness, pornography, gambling, violence, murder or terror
- DNS manipulation
- Search engines
- Monitoring web browsing acitvities

Domain	Description	Result
www.falundafa.org	Spiritual movement	SERVFAIL
www.amnesty.org	Human rights org.	SERVFAIL
www.bbc.co.uk	Television channel	SERVFAIL
www.wikipedia.org	Online encyclopedia	SERVFAIL
www.cnn.com	Television channel	SERVFAIL
www.greenpeace.org	Non-profit organis.	SERVFAIL
www.gov.tw	Taiwanese governm.	Timeout
www.worldpress.org	News	Timeout