



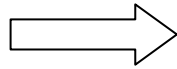
Universität Zürich
Rechtswissenschaftliches Institut

Prof. Dr. Rolf H. Weber

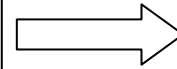
Transition to a New Internet Protocol: Challenges and Risks

Law Tech Talk, University of Hong Kong
January 2009

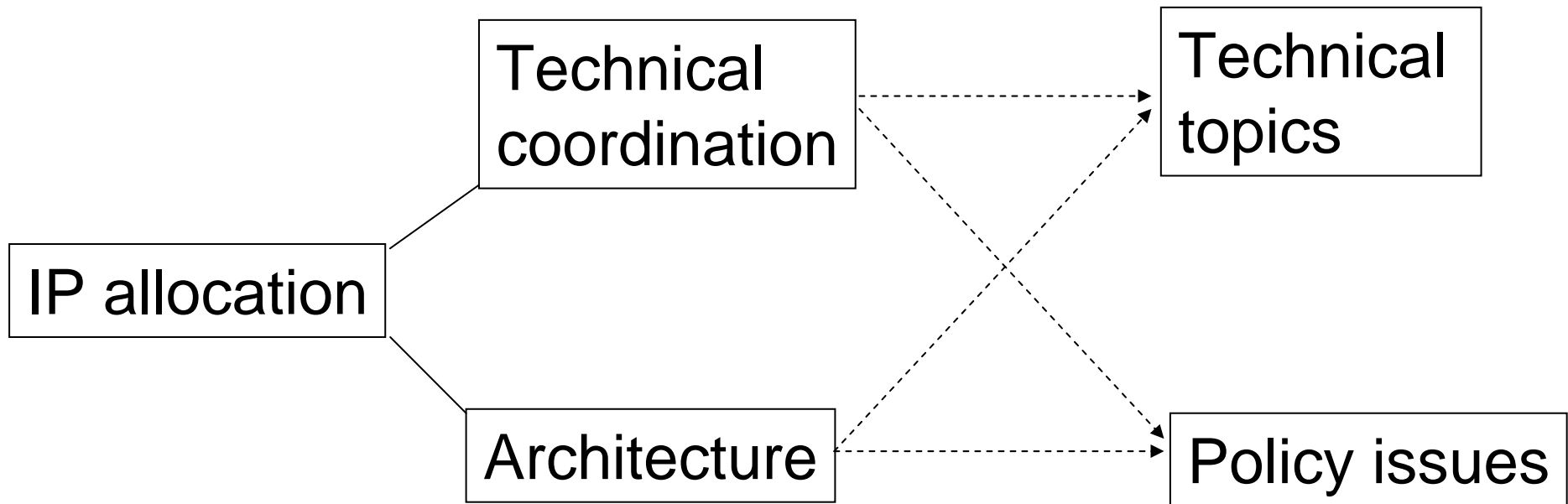
**IP
addresses**



**Unique identifiers
of the technical
backbone for the
Internet hosts**



**Interconnectivity
between hosts**



Restricted capacity

(as of 9 January 2009 at 12:05)

Regional registry IPv4 address exhaustion
in 1209 Days, 12 Hours, 54 Minutes,
30 Seconds.

(There are 786 days until Central Registry IPv4 address
exhaustion.)

Problem of
restricted
capacity

“Network Address
Translation”

Trade of IPv4 addresses

Reclaim of allocated,
under-utilised address
blocks

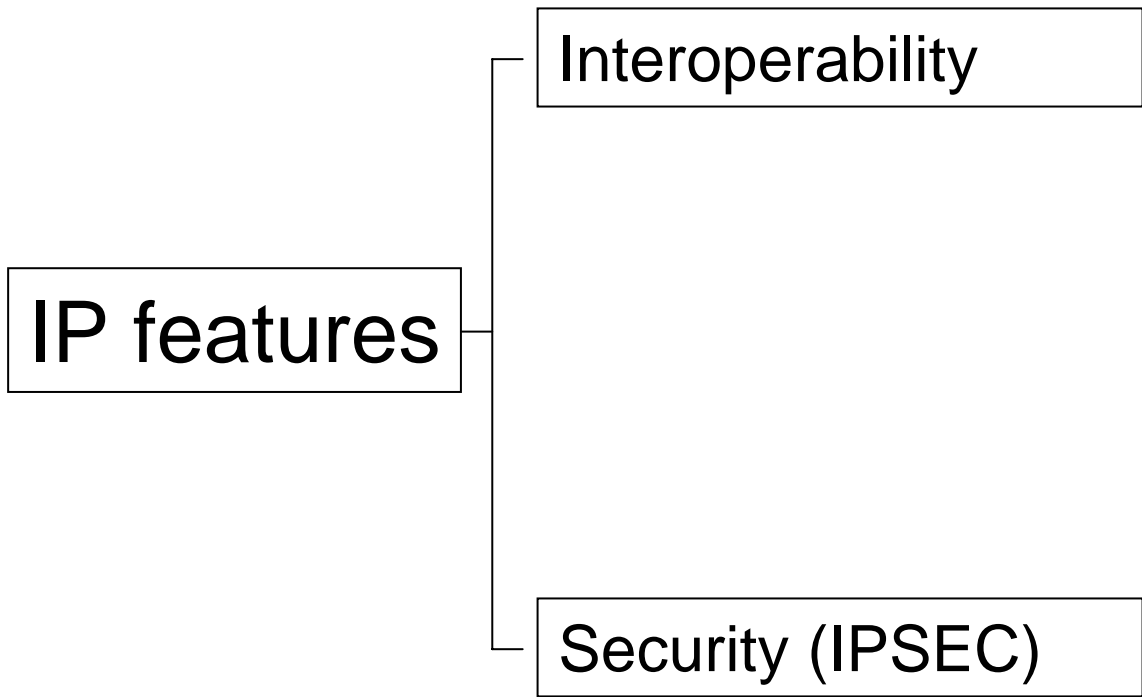
Technical standards

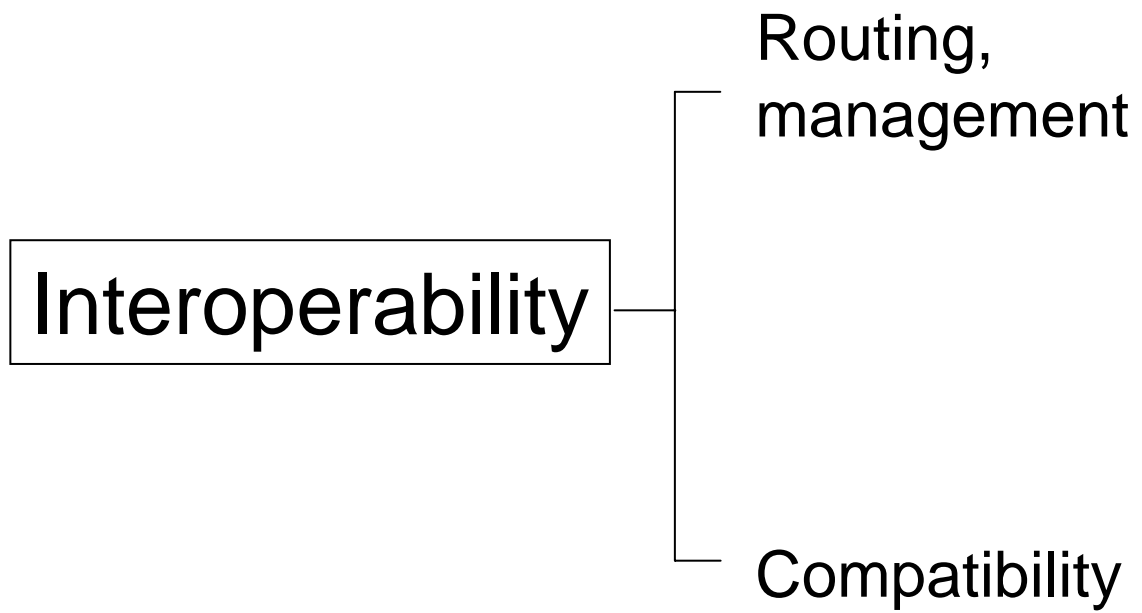
Multiple levels of hierarchy and flexibility in addressing and routing

Topology and functionality

Mobile IETF standard

Unicast, multicast, anycast



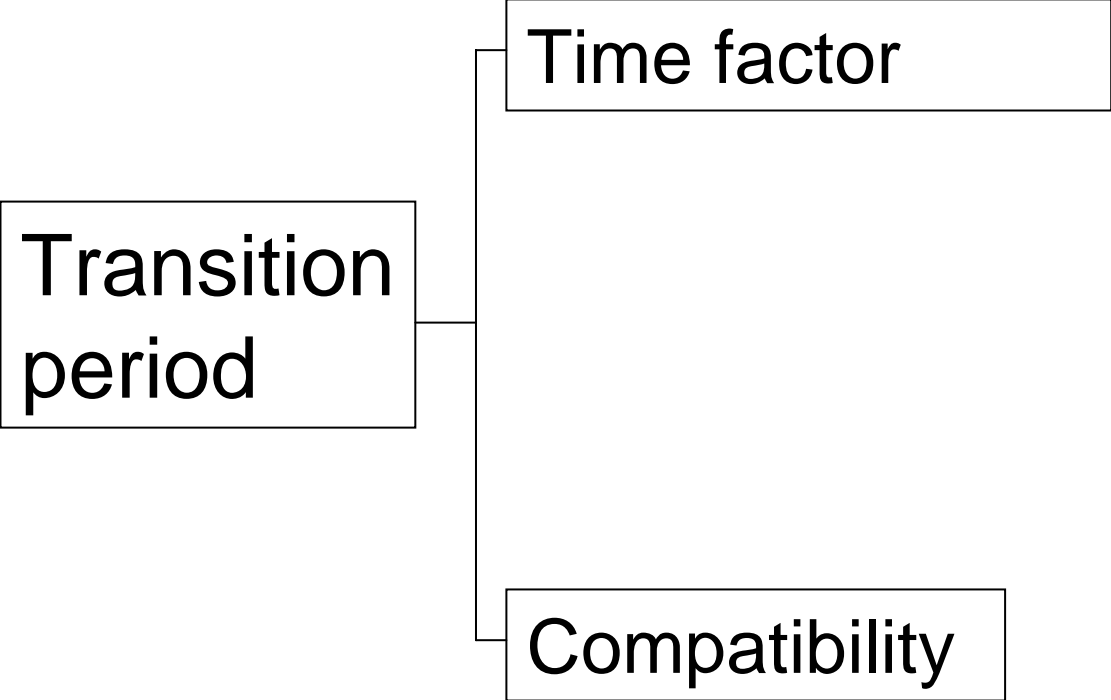


Security (IPSEC)

encryption and authentication

concrete algorithms and security policies

application of the Data Protection directives?



Time Factor

Coexistence of
IPv4 and IPv6

IPv6 deployment
increases with the
installation of IPv6
infrastructure

Implementation of
IPv6 hosts in IPv4
networks

Consideration
of
stakeholders

Internet organizations

Internet service providers

Infrastructure vendors

Content and service providers

Business and consumer application
vendors

End-users

Promotion
of IPv6 by
the business
sector

Leadership in IPv6 deployment

Security and stability in the transition
period

Increase awareness

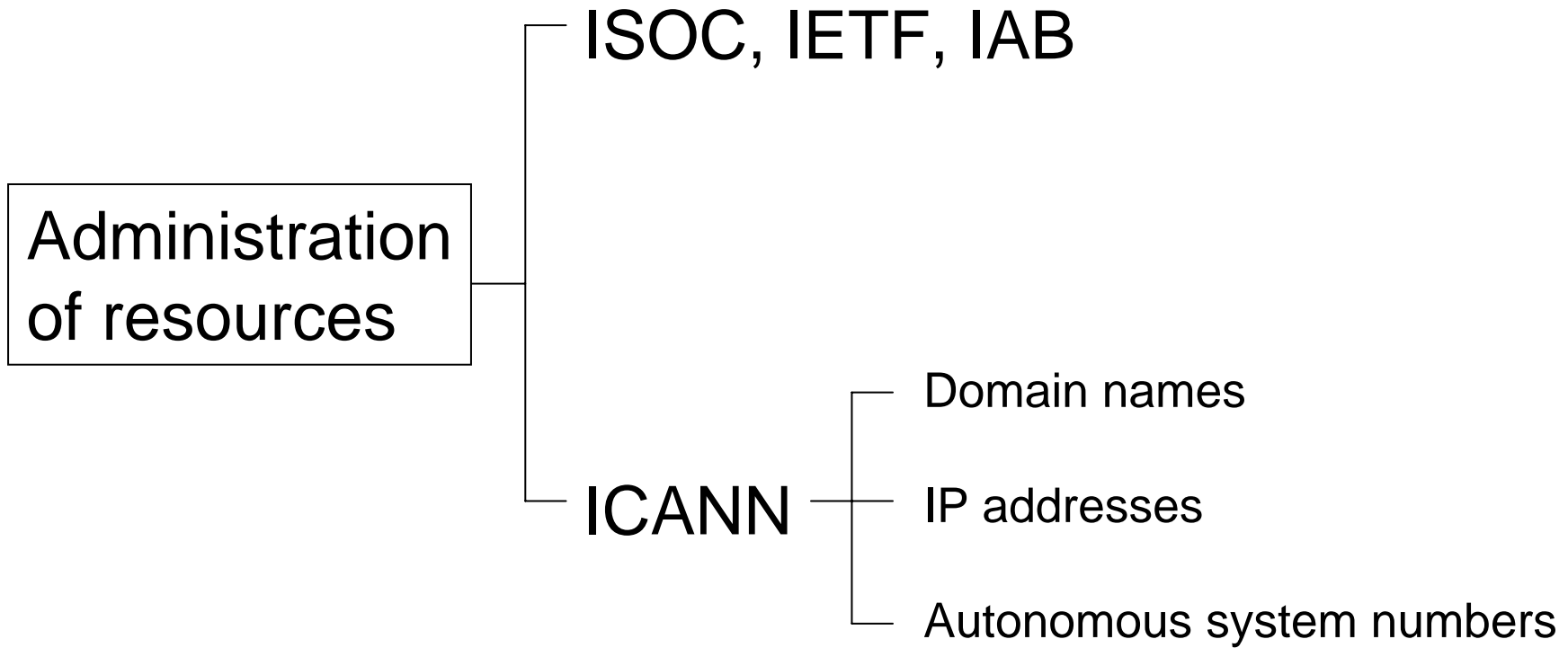
Expert input

Allocation of critical resources

No accepted definition of “criticality”

Technical access → essential
facilities doctrine

Administration as inclusion of
institutional and human elements



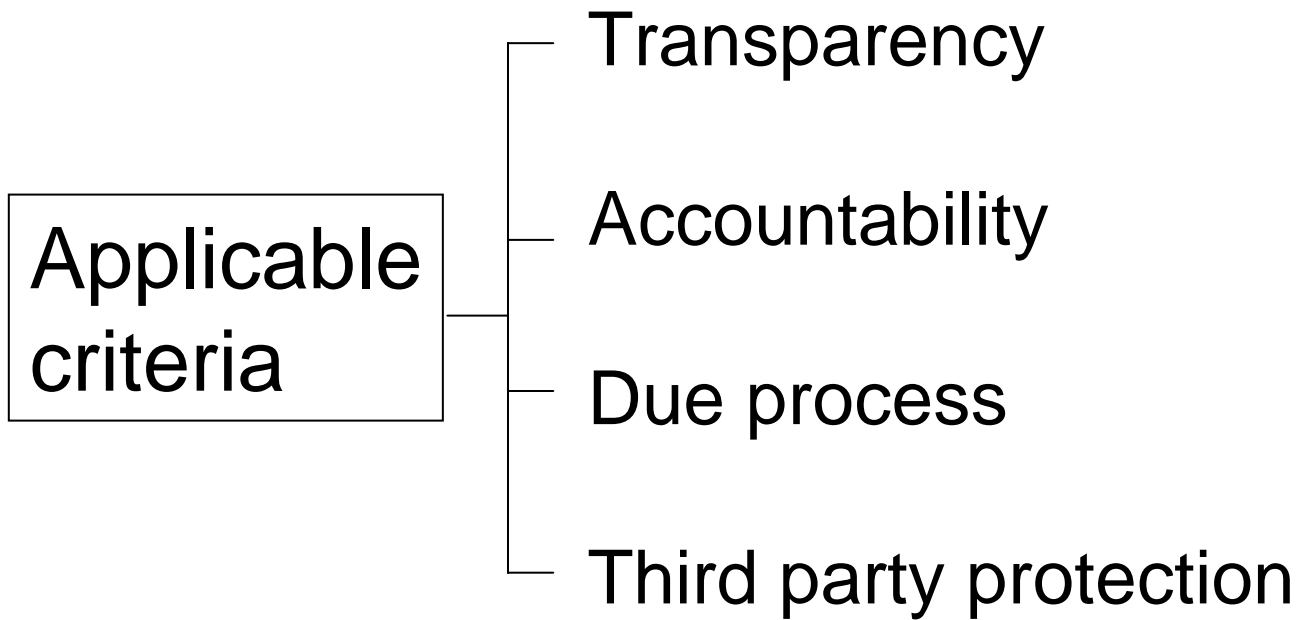
Weaknesses of present system

Privately-established rules undermine power of states

Public participation is limited

Substantial US-Influence

Enforcement mechanisms are insufficient



**Multi-
stakeholderism**

Governments, NGO, private sector,
civil society

Architectural principles enhancing
legitimacy

Constitutional substantive principles

Checks and balances

Specific issues
for developed
countries

Financial support for the
improvement of interoperability

Public procurement

Increase in awareness raising and
research

Exchange of experiences

Financing mechanisms for developing countries

ODA (Official Development Assistance)

IMF (International Monetary Fund) and World Bank Group

Public-private partnership schemes

1% digital solidarity principle