

# R&D on Key Technologies and Future Application for NWGN and Future Network

## Overlay Networks



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# Overlay Networks

- Fast deployment of new services on IP
  - P2P, skype, ...
  - Don't need the standardization effort
- However,
  - Difficult to dimension the network
  - Leads to “uncontrollable” networks
- Another possibility is “testbed”

# Routing Challenges, Alternatives and Perspectives

## Dimitri Papadimitriou, Alcatel Lucent

- Challenges & Alternatives
  - Current BGP
    - Stability? Scalability?
  - Overlay routing
    - Conflicting cross-layer interactions
    - Amplified by selfish routing
  - Compact routing
  - Loc/id separation
- Perspectives
  - Modification to existing protocol or new protocols?
    - Important is a “deployment” requirement
  - Scalable routing protocol to “scale-free networks”?

# Overlay Networks and Network Virtualization

## Akihiro Nakao, U. of Tokyo

- Network virtualization
  - Virtualizing service: PlanetLab
  - Virtualizing network: GENI, NVLab at NICT, auto-i
- Network virtualization
  - Two possibilities
    - Facilitates the testbed
    - (A part of) new-generation network architecture
  - Questions & Remaining problems
    - Protocols among routers for resource reservation
    - Resource-sharing mechanism?
    - S/W-based to H/W-based