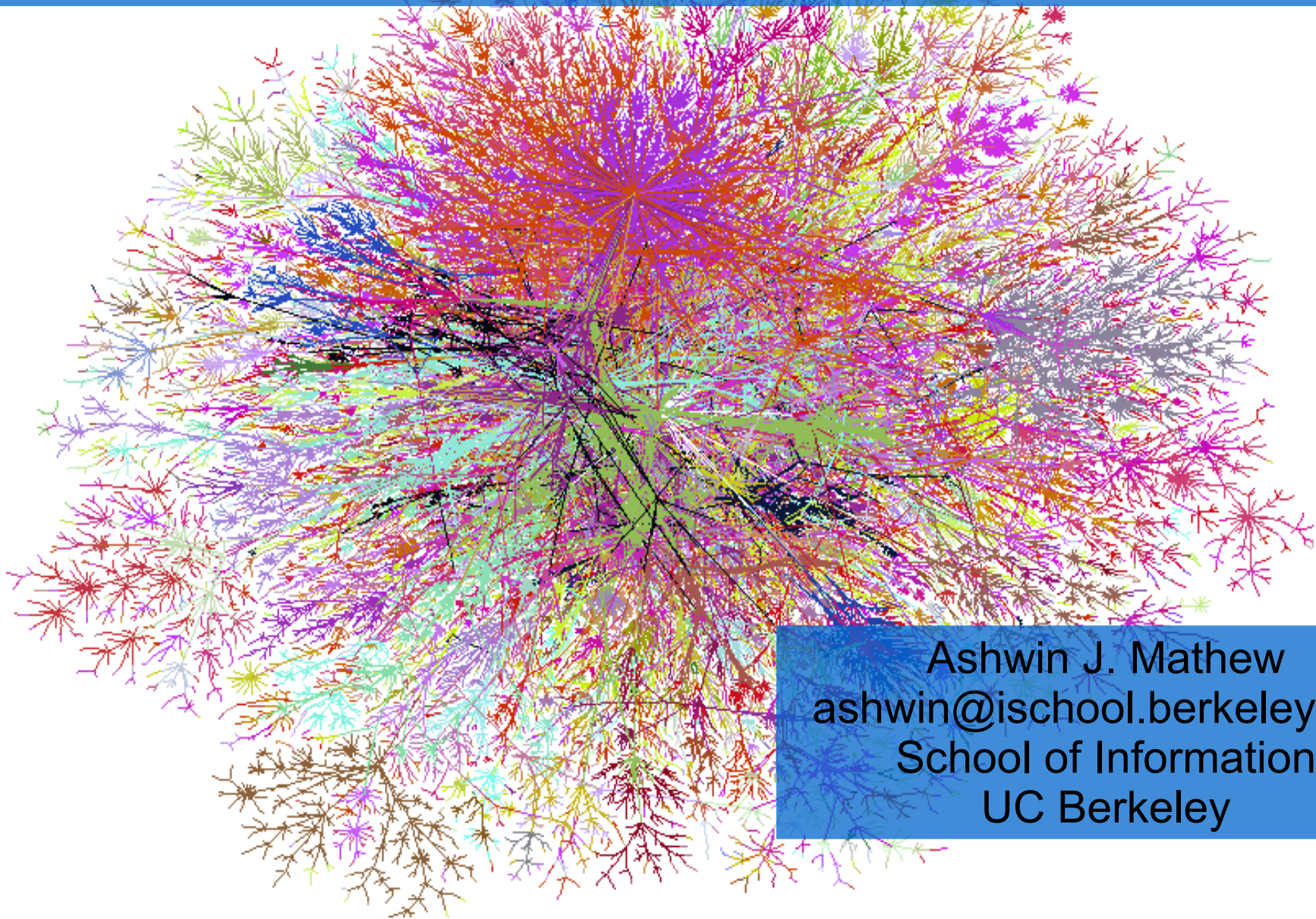


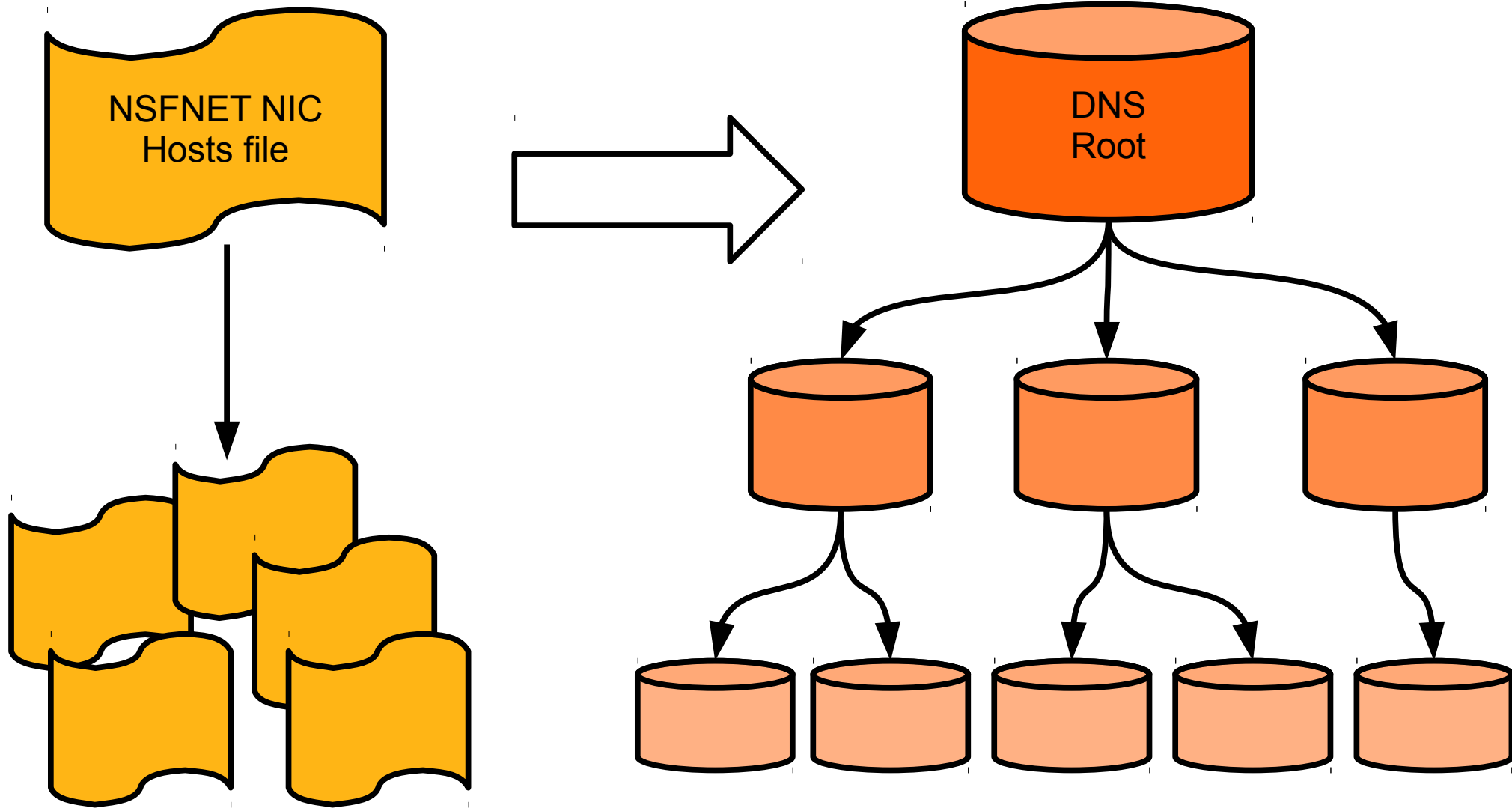
Trust in Anarchy?

Problems in the Governance of Distributed Computing Systems

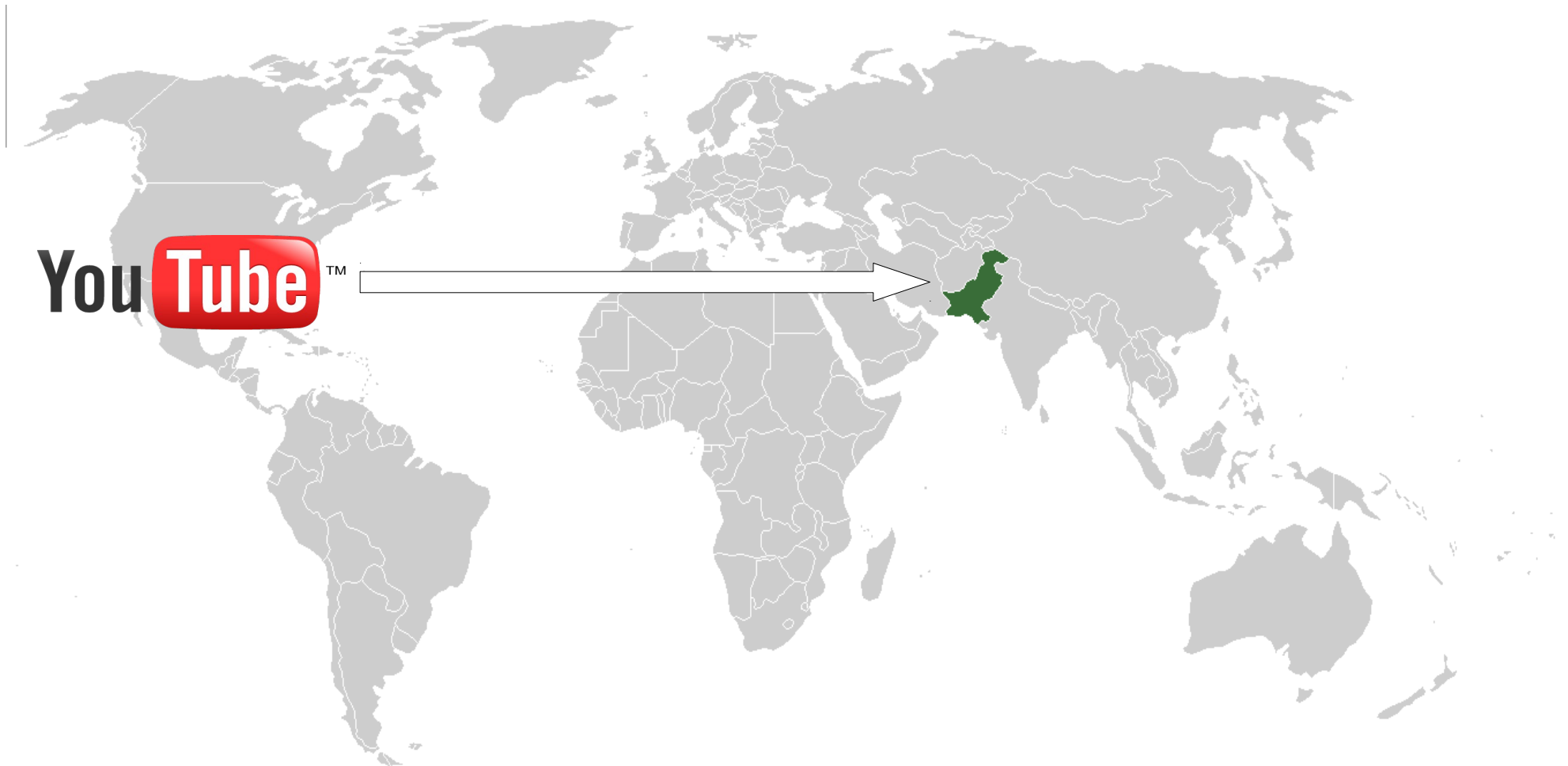


Ashwin J. Mathew
ashwin@ischool.berkeley.edu
School of Information
UC Berkeley

Hosts → DNS : Decentralization?

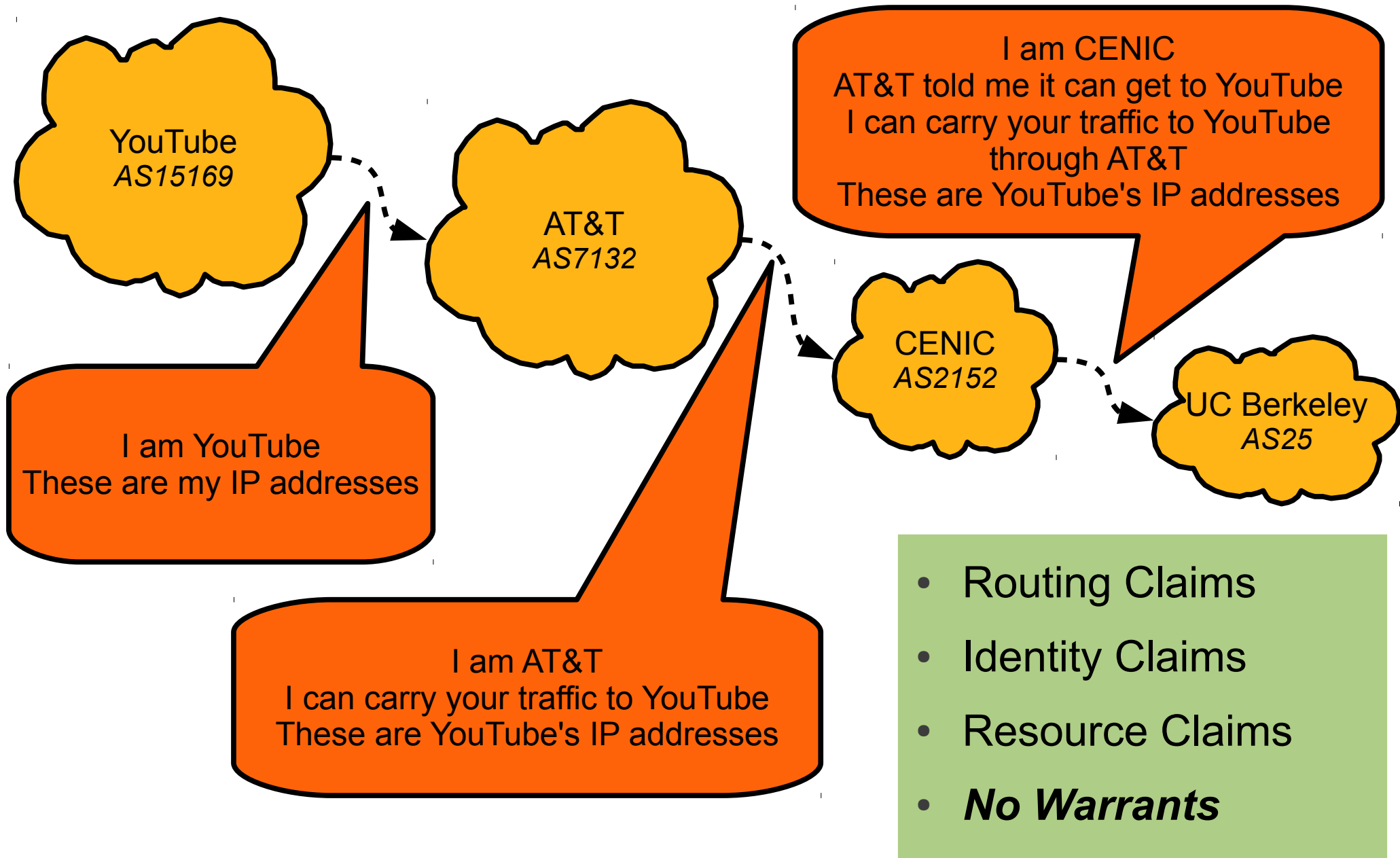


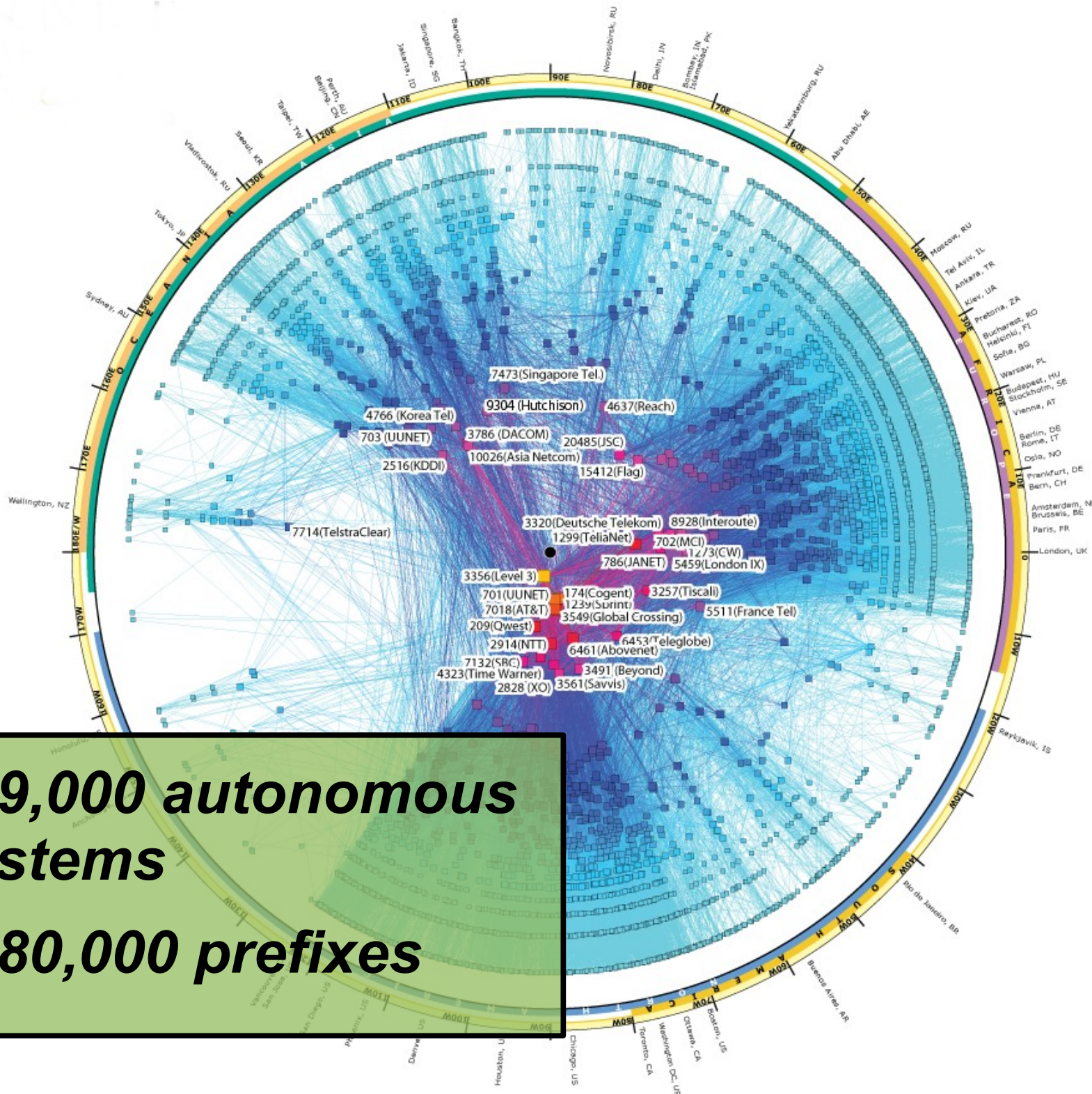
YouTube Goes to Pakistan



~ 2 hours on 24th February 2008

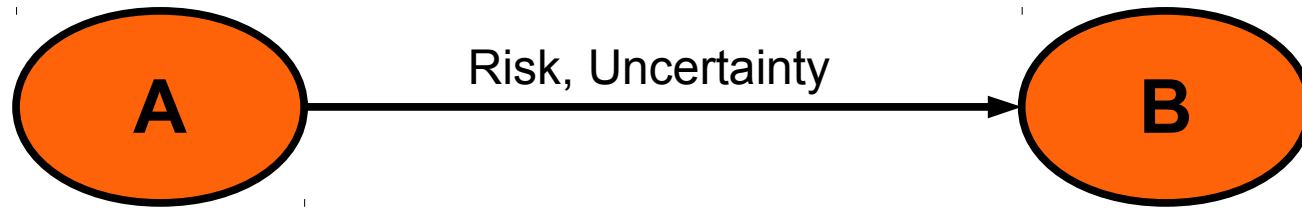
BGP: Inter-Domain Routing



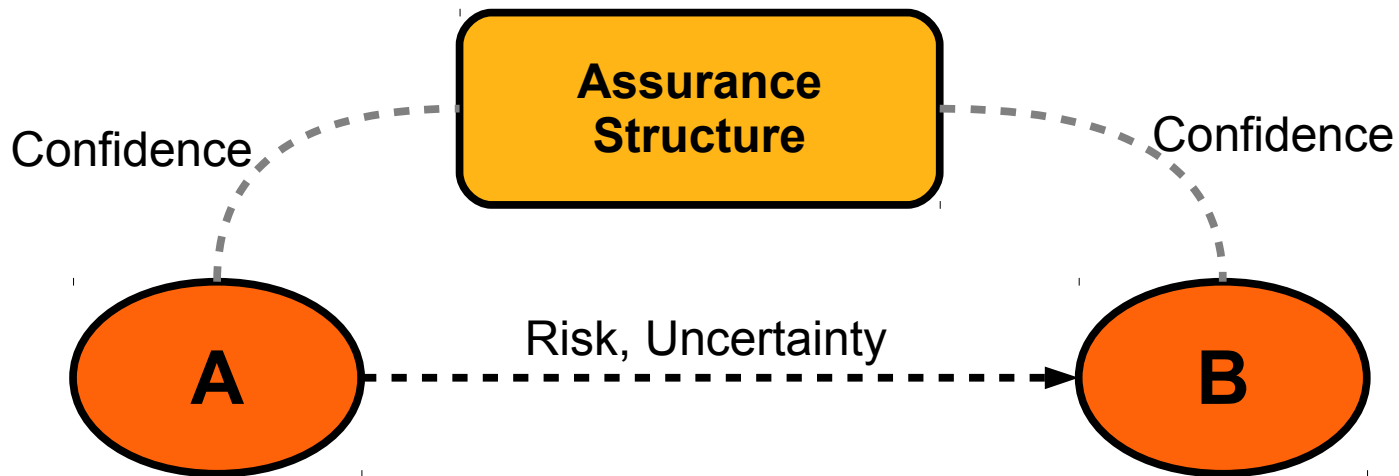


- **~39,000 autonomous systems**
- **~380,000 prefixes**

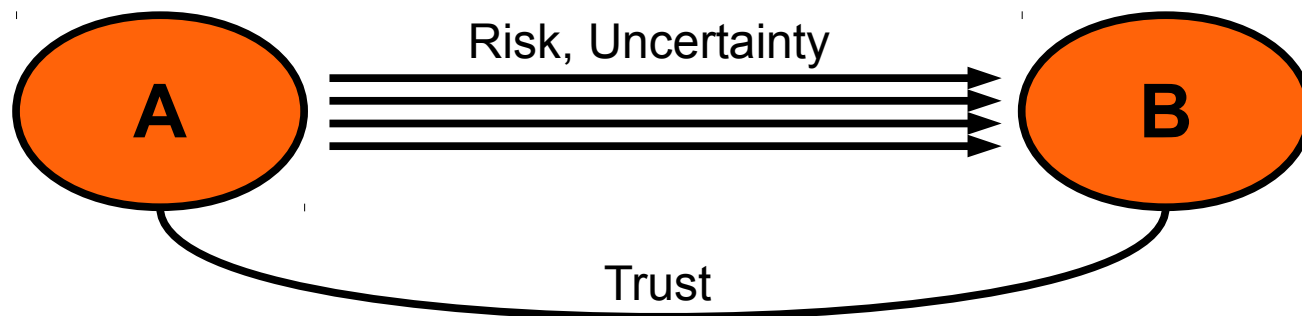
Trust Models



Problem



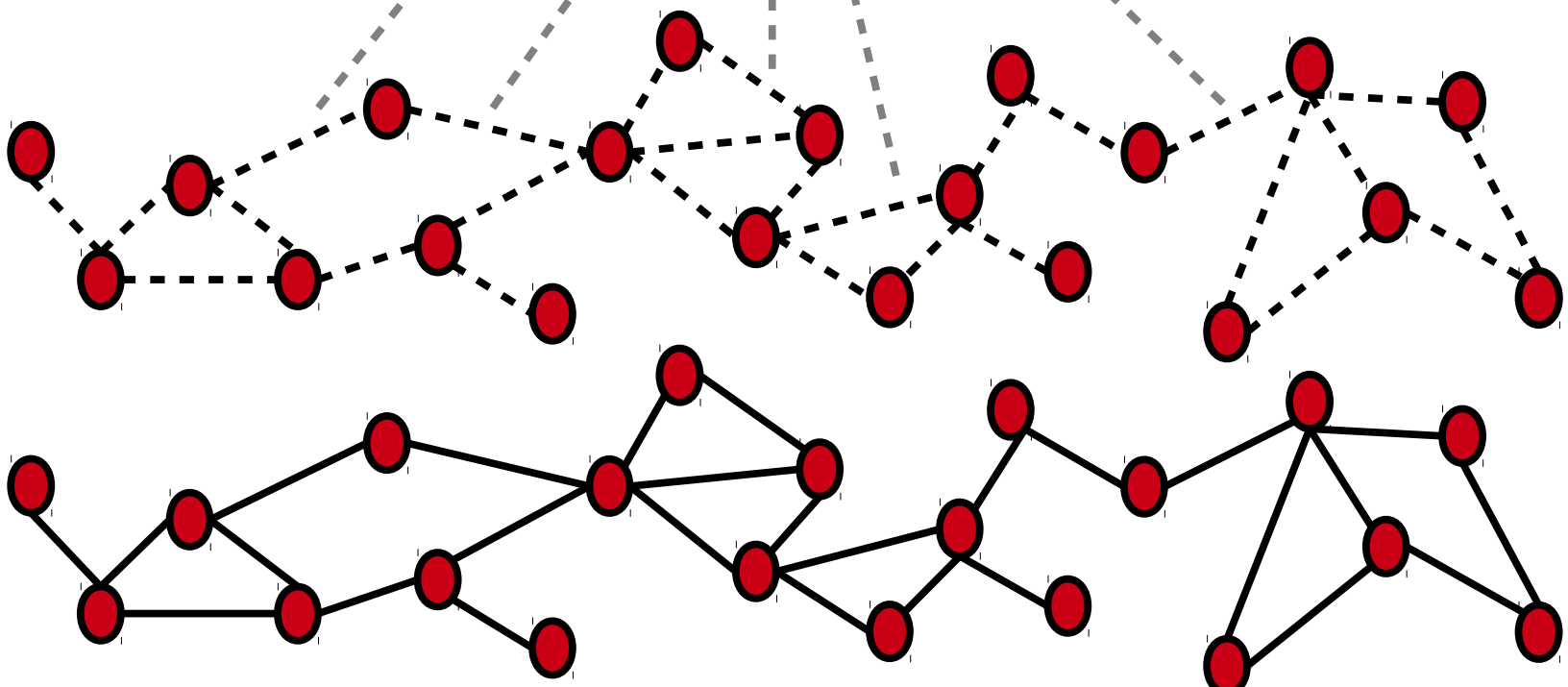
Solution:
Assurance
Structure



Solution:
Trust
Relation

Trust in Networks

Assurance
Structure



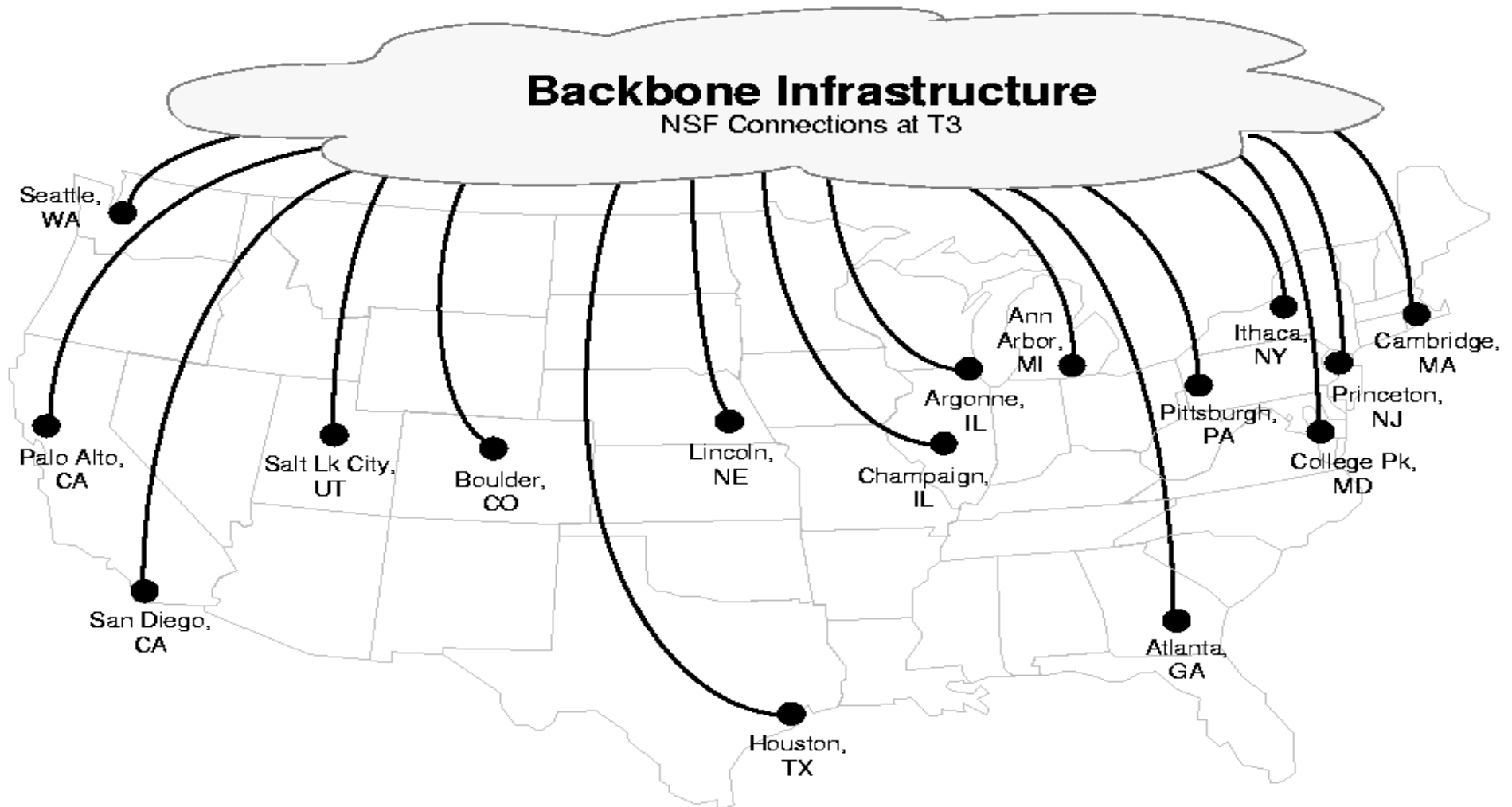
Trust
Anchor

Trust
Relations:
Reputation

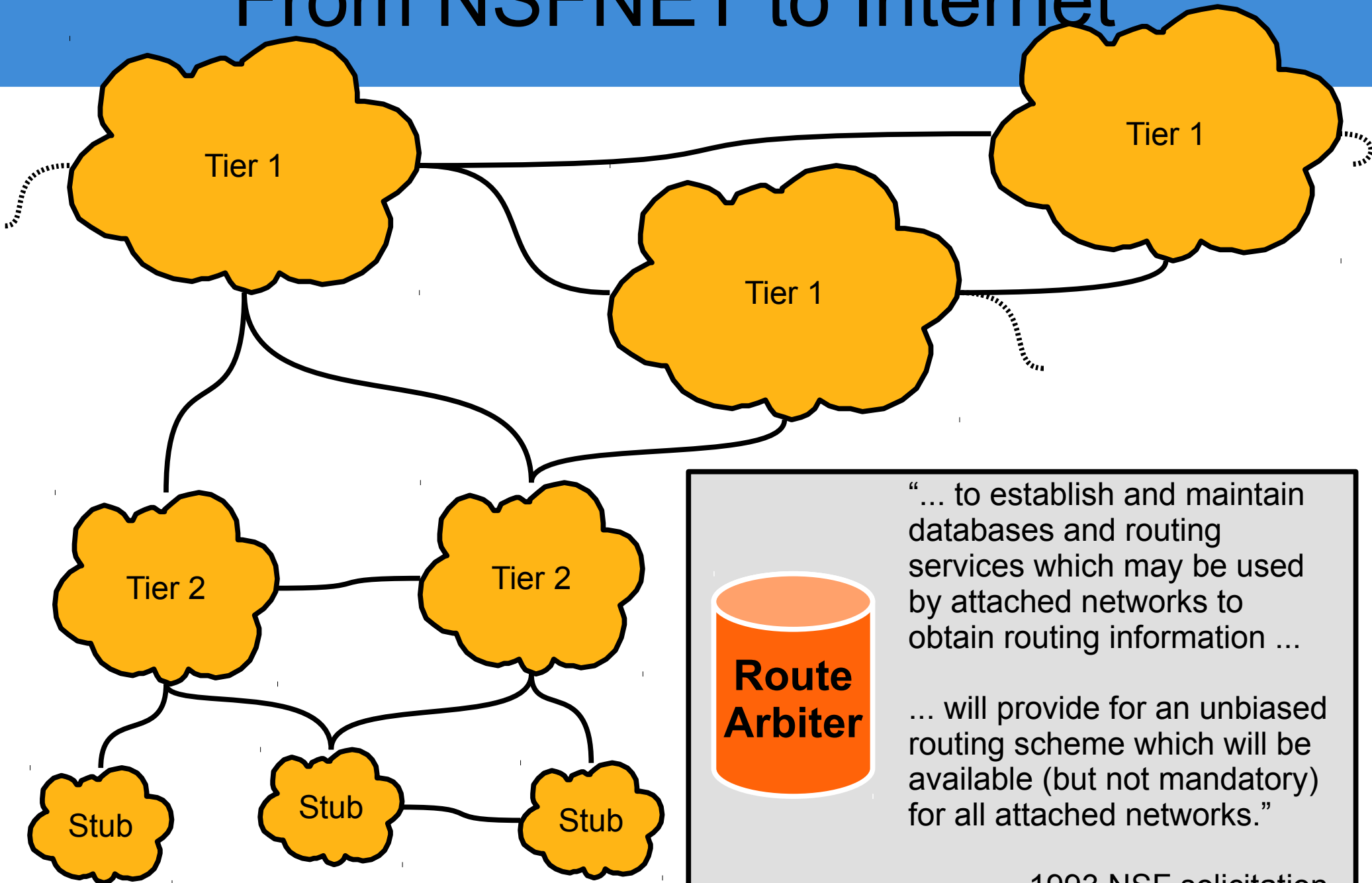
Generalized
Trust

NSFNET

NSFNET 1991



From NSFNET to Internet

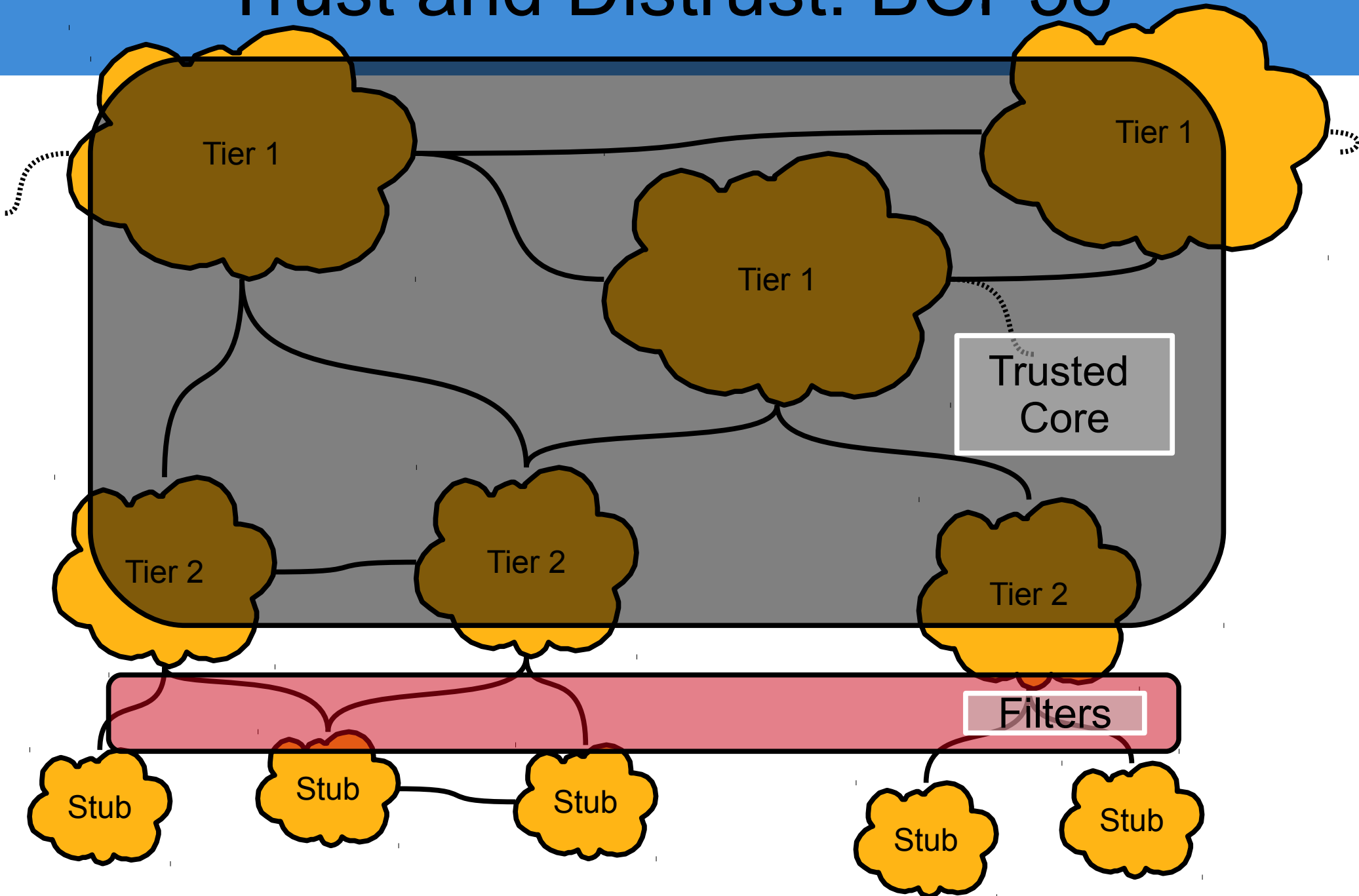


“... to establish and maintain databases and routing services which may be used by attached networks to obtain routing information ...

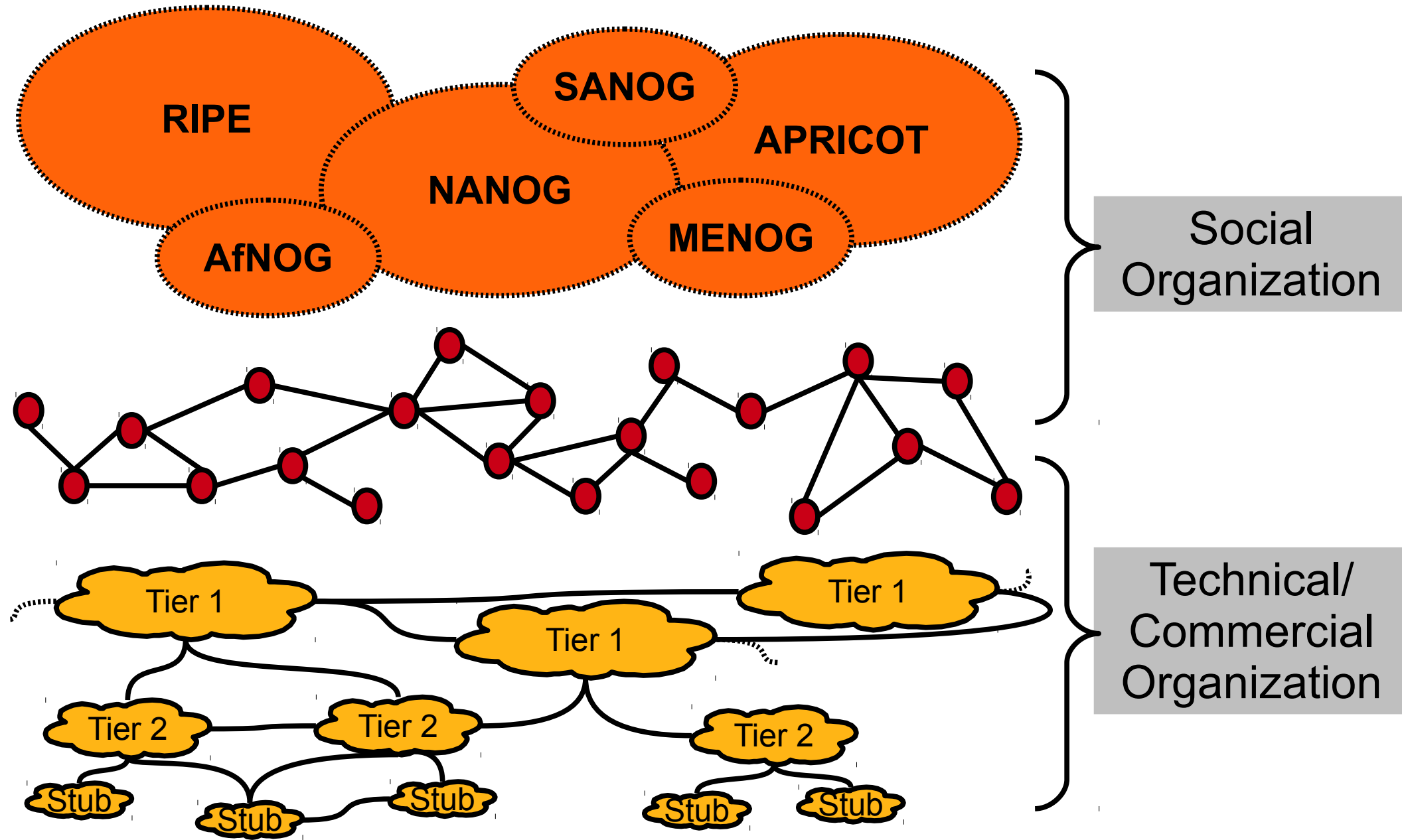
... will provide for an unbiased routing scheme which will be available (but not mandatory) for all attached networks.”

- 1993 NSF solicitation

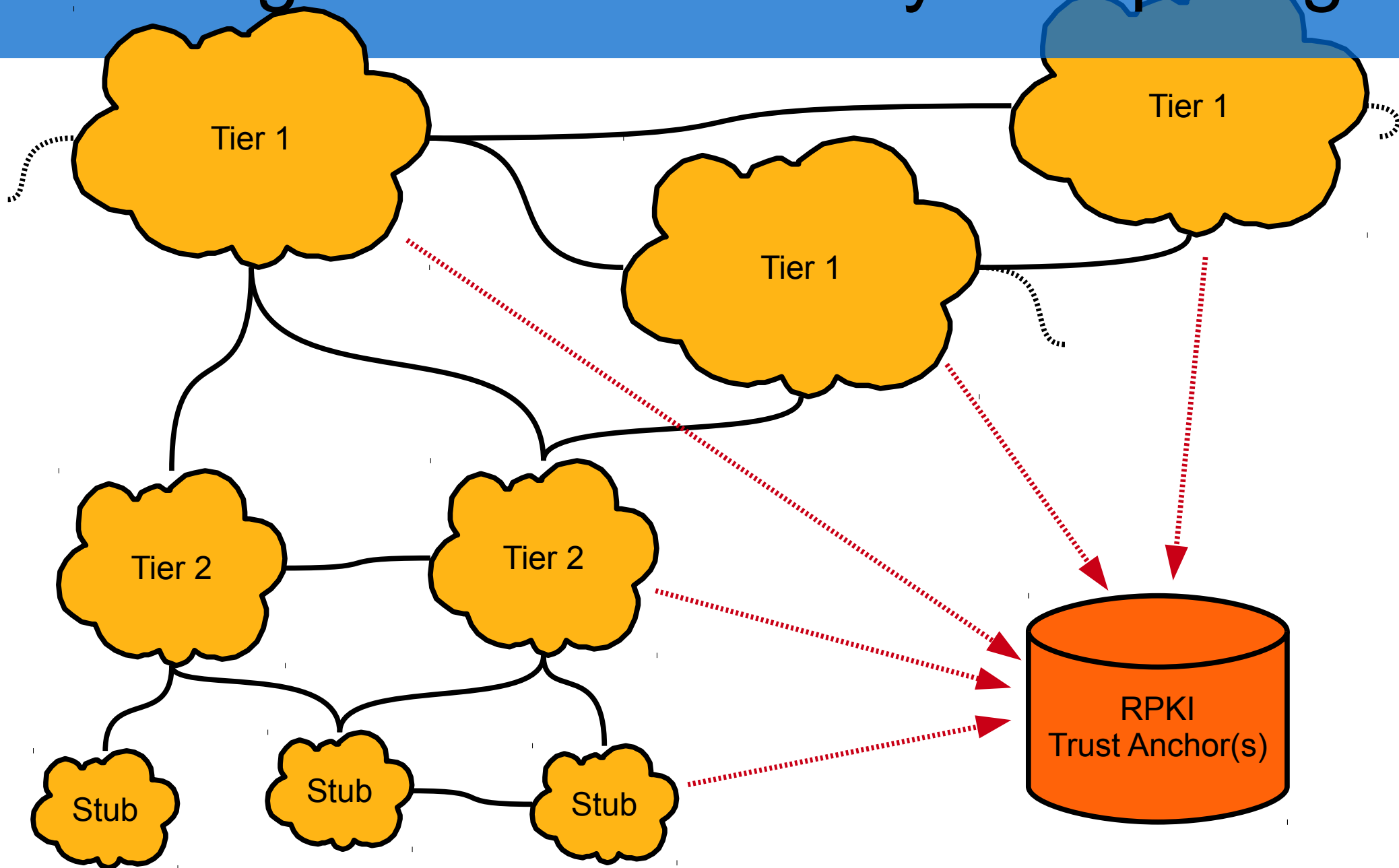
Trust and Distrust: BCP38



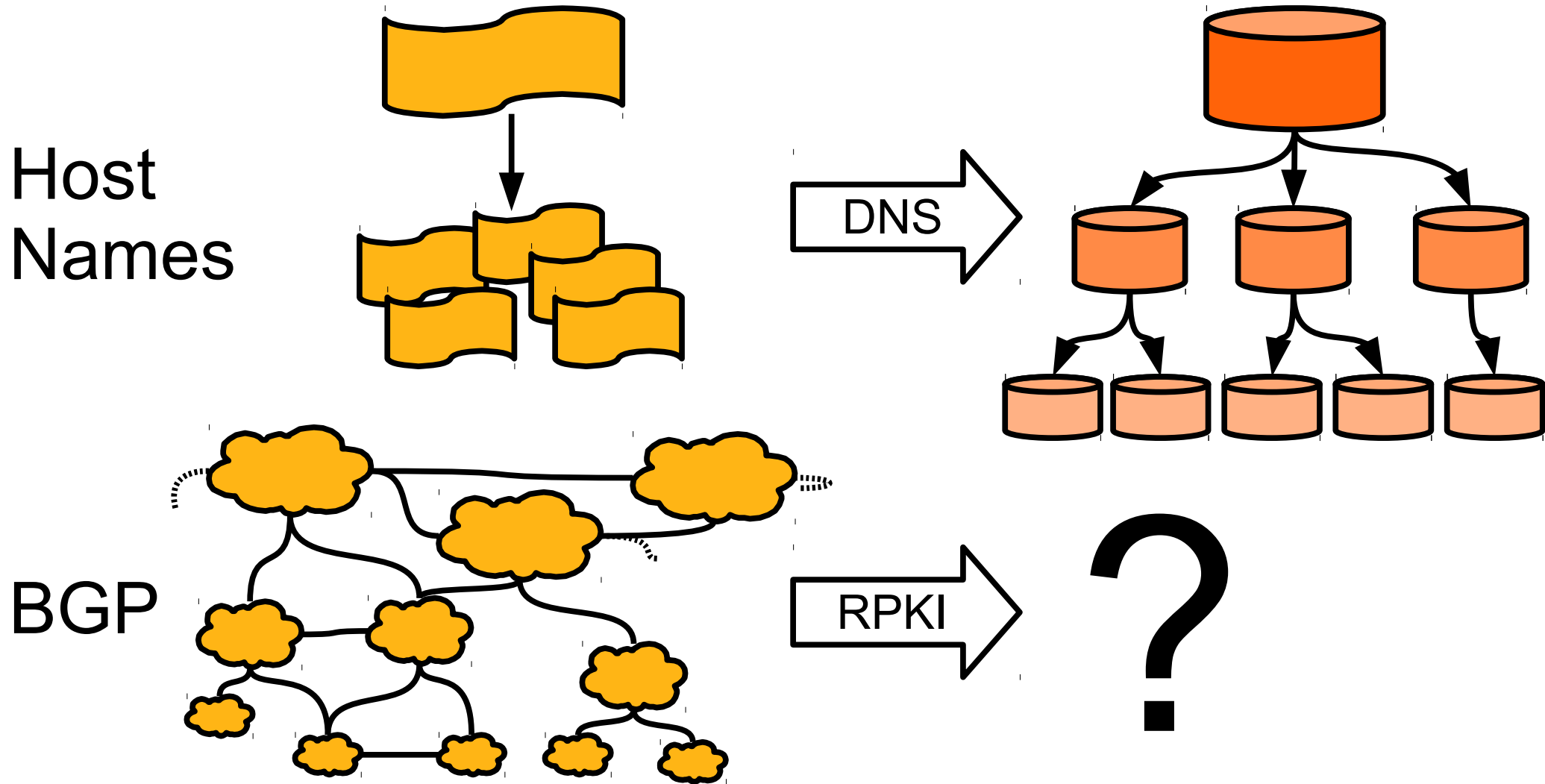
Network Topologies, Network Communities



Securing BGP: Trustworthy Computing?



Security and Governance



Trust vs. Assurance Structures