
**Panel II:
Perspectives on Network Routing**

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- Dan Massey - Colorado State University
 - Tim Griffin - University of Cambridge
 - Oliver Bonaventure - Universite catholique
de Louvain
 - Loa Anderson - Acreo AB
 - Vijay Gil - AOL
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Context For this Panel

- 25 years of routing research and deployment
 - Panel focuses on infrastructure routing
 - Provides basic underlying network services
 - Network and routing is managed
 - Must account for commercial interests
 - Massive scale with distributed control
 - What can we learn from past results?
 - What challenges do we face today?
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What Might Be Done?

- Cryptographically secure the protocols
 - Prevent hijacking events from occurring.
 - Concept is relatively simple (e.g. apply RSA)
 - But building a complete system is complex
 - Fast and reliable detection, ad hoc response
 - Community very effective at reacting to events
 - Detect events and distinguish from valid ops
 - Reliably send report despite routing problems
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What Is Being Done?

- Deployed Defenses to False Routes
 - Public venues for communication (eg NANOG)
 - Private venues for communication (NSP Sec)
 - Ad hoc, but fairly effective reactions (filters)
 - Larger Concern is Attack by Edge Systems
 - Limited resources (eg CPU) in infrastructure
 - Vast numbers of compromised edge systems
 - RFC 3682: discard packets with $TTL < Max - 1$
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What Does This Mean For Research?

- Start From an Informed View
 - 25 years of research innovations and problems
 - 25 years of deployment experience and problems
 - Panel Provides Our (Biased) Views
 - Don't Let Deployment Success/Failure Constrain Ideas
 - Don't Ignore Lessons and Problems of Current Systems
 - Challenge or Enhance This View With Your Questions
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Outline of the Panel

- Tim Griffin:
Abstractions are important
 - Oliver Bonaventure:
Fast convergence
 - Loa Anderson:
MPLS and multi-layer networks
 - Vijay Gil:
Operational practices and backbone design
 - Discussion:
Your questions and comments
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