

Active Networks: Tradeoffs for Network Management

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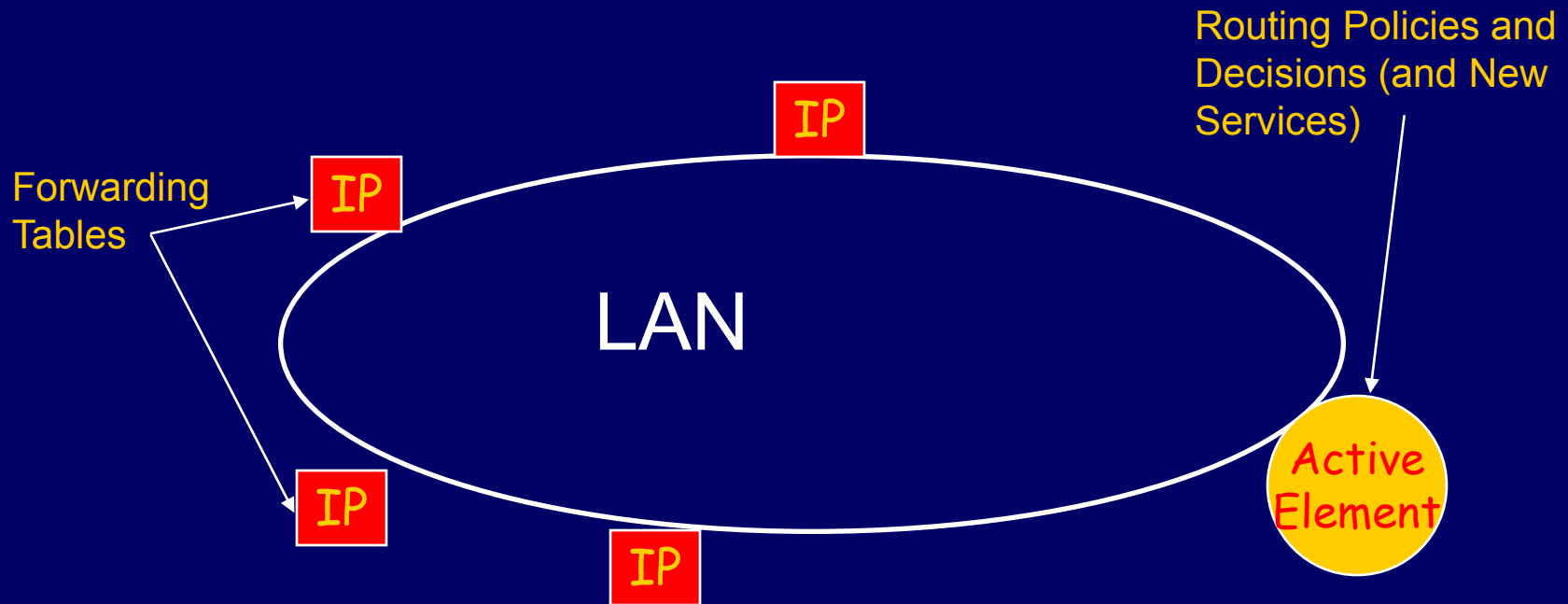
<http://www.cis.upenn.edu/~switchware>

How can A.N. help?

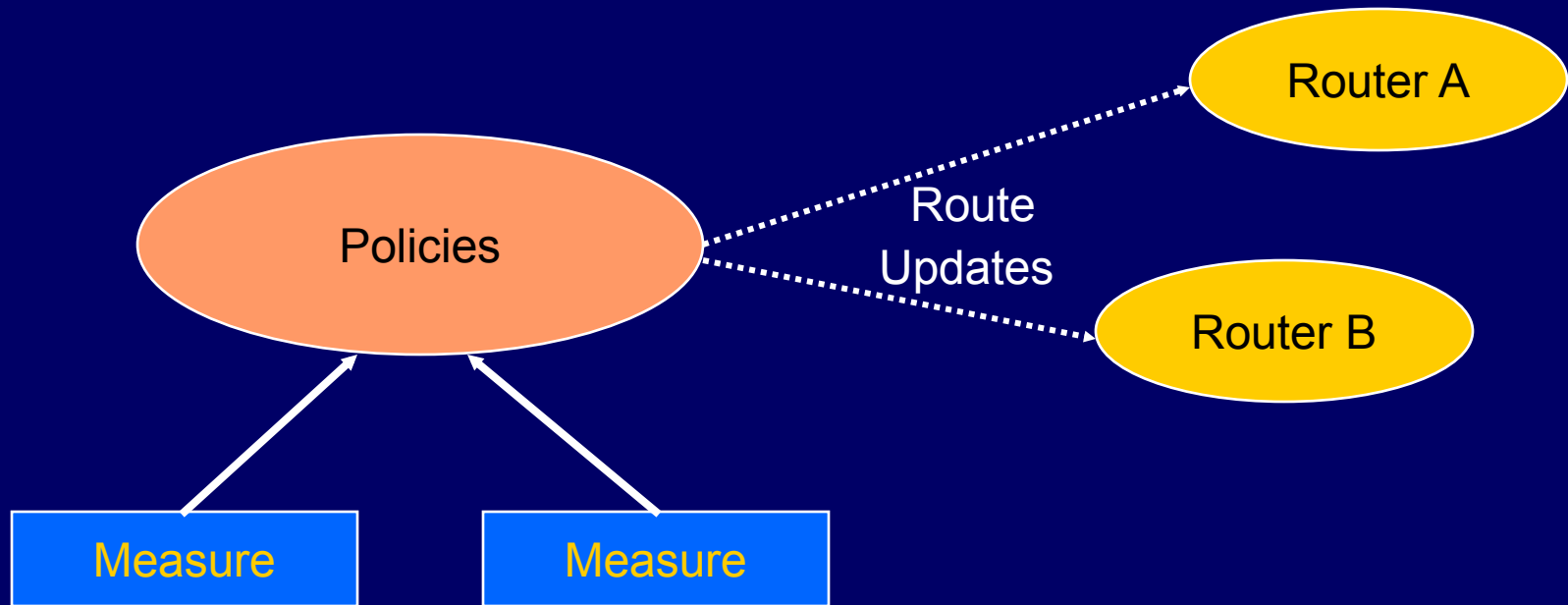
- More rapid deployment of solutions
- Proprietary solutions + IP as universal link layer solution
- Adaptive Solutions - Wireless + FEC
- Intelligent Layer Violations
- Intrusion Detection and Active Firewalls

Active Router Control: Activating the Internet

□ IP Router/Forwarders co-located with
Active Elements:



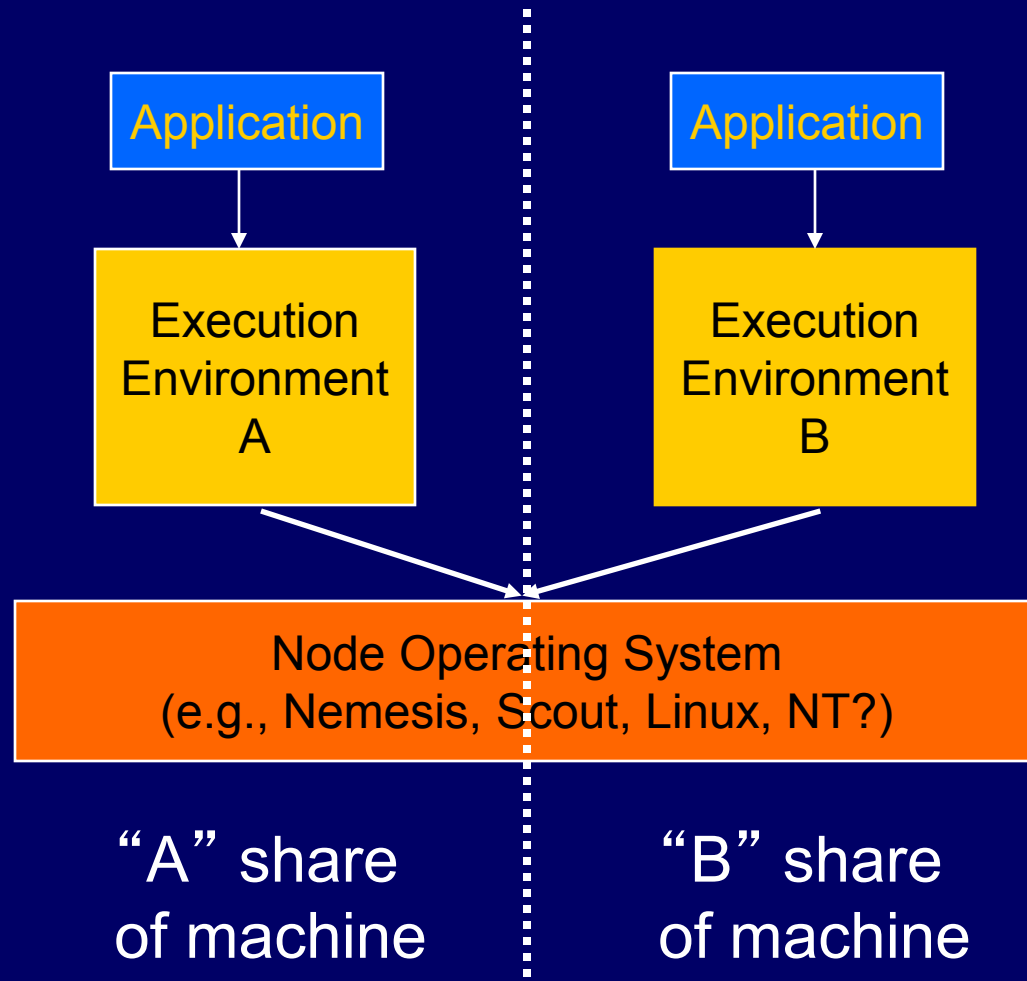
Measurement, Control and Policy



Risks and Challenges

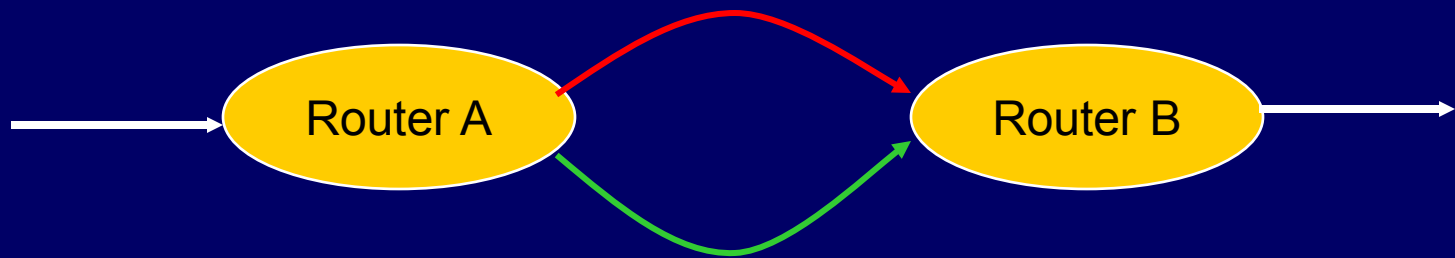
- Tradeoff between security, performance, flexibility and usability
- New features => new security risks
- Composability + Feature Interaction
- Administrative Domains
- Standards versus flexibility

RCANE Vertical Architecture:



The Basic Opportunity:

Internet routing does not utilize the available network topology unless manually configured:



Goal: Resource Discovery and Exploitation!