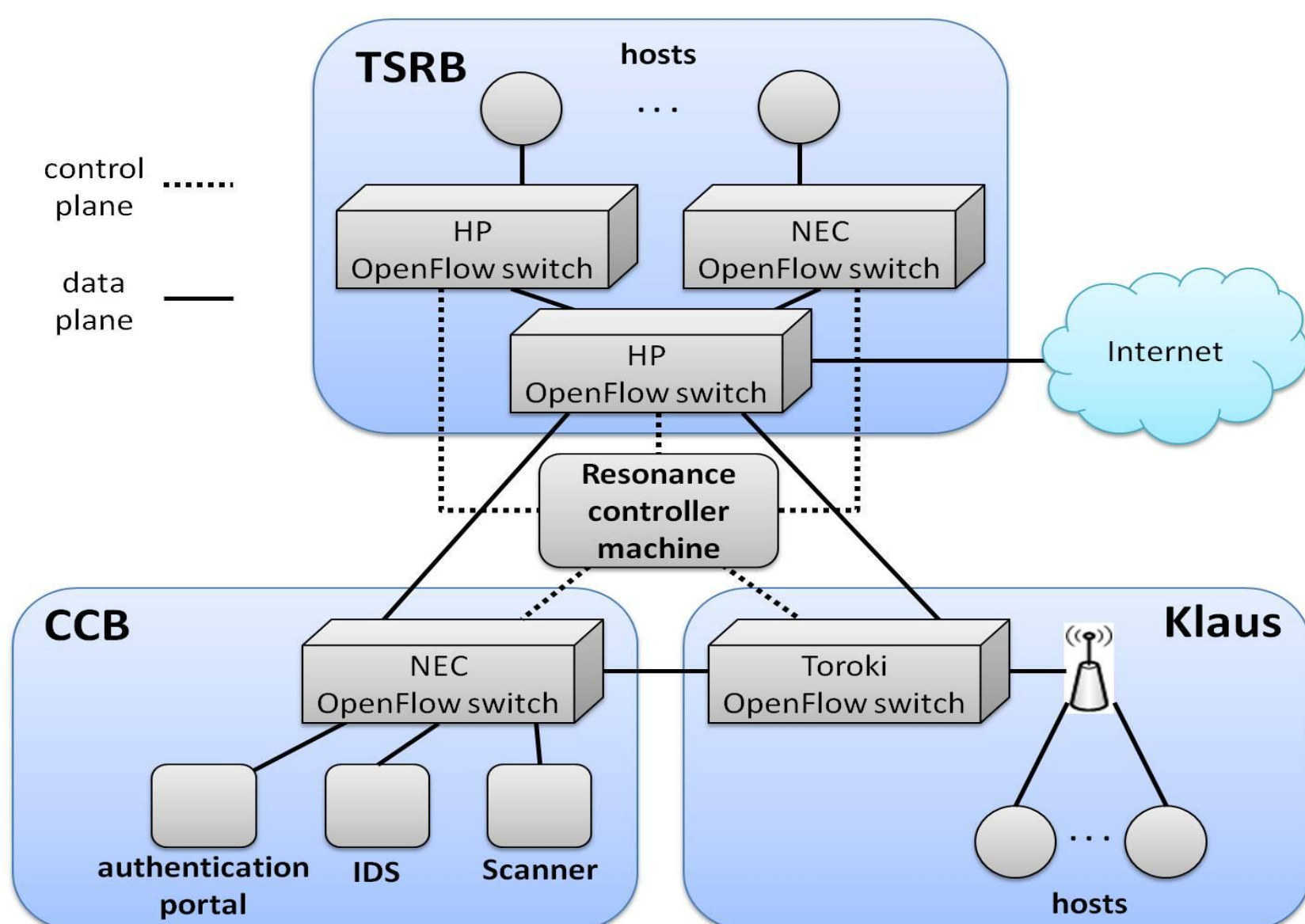# OpenFlow/GENI Activities at Georgia Tech

Hyojoon Kim, Tim Upthegrove, Yogesh Mundada, Bilal Anwer, Sam Burnett, Nick Feamster, Russ Clark

Georgia Tech Deployment

- Total 9 OpenFlow switches
  - 1 Quanta
  - 2 HP
  - 6 NEC (4 to be deployed)
- OpenFlow v 1.0.0 compatible
- Multiple experiments running simultaneously using FlowVisor
- BGPMux (Transit portal)

Resonance: Network Access Control with Event-Based Programming
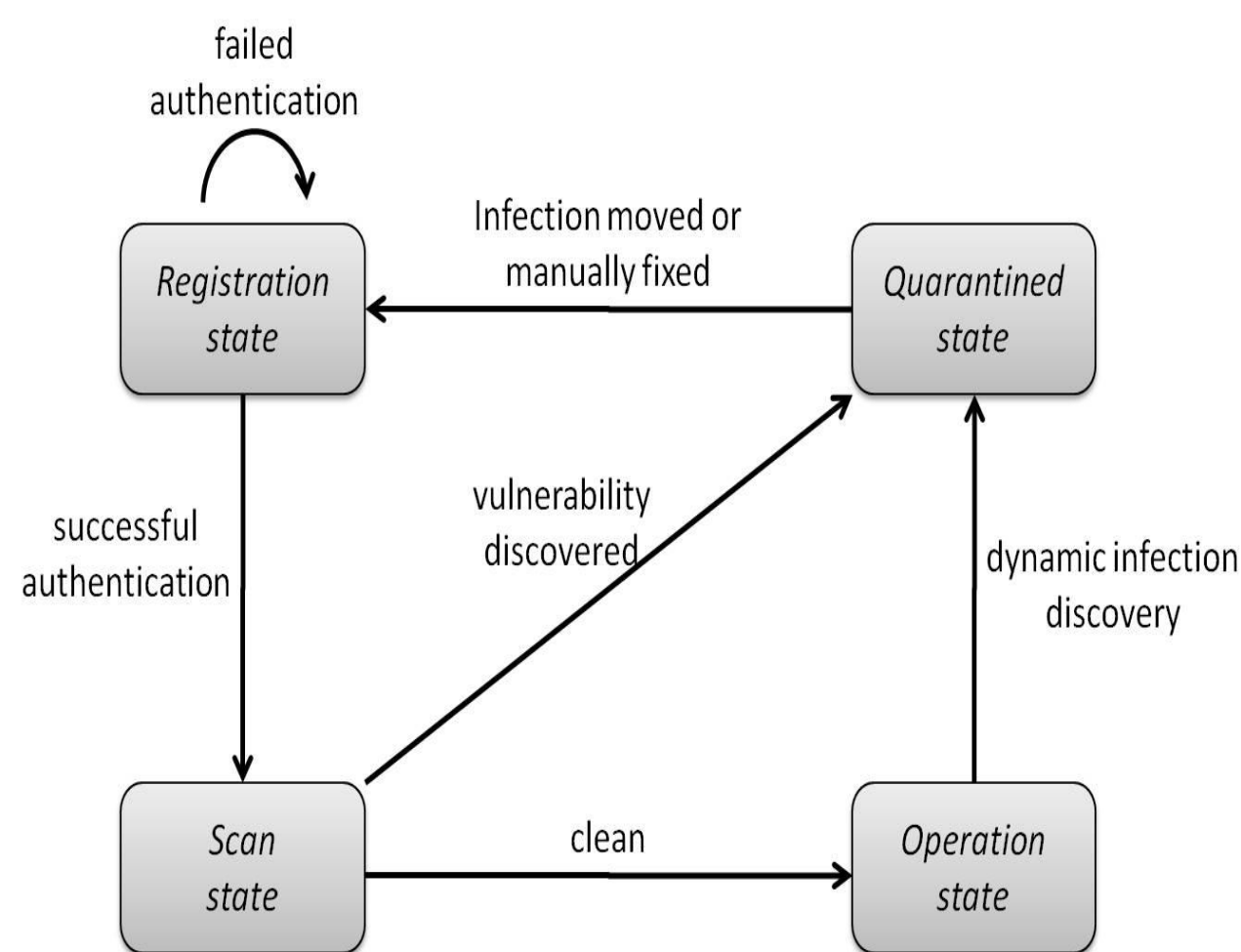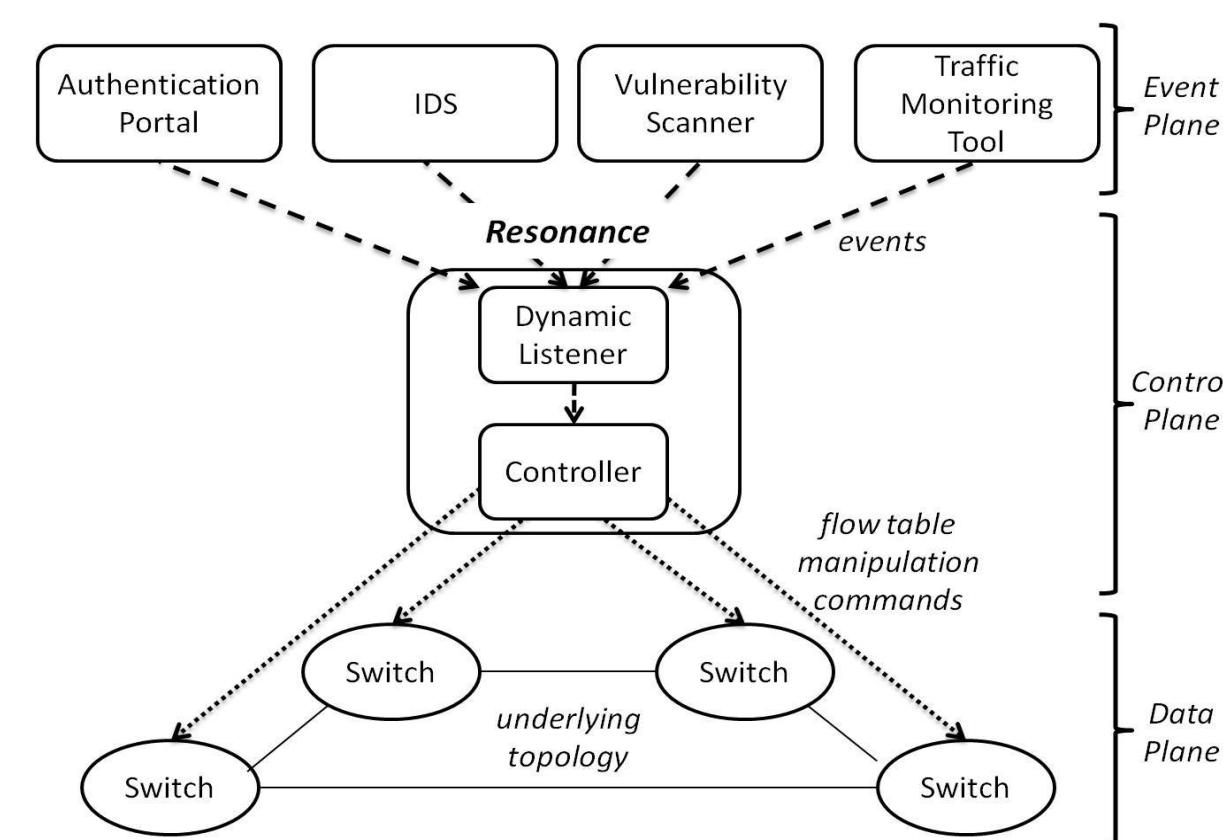
- Central controller to manage access control in the network.
- Benefits
  - Network-wide policy
  - Dynamic & event-based
 - Fine-grained management
  - Topology-independent
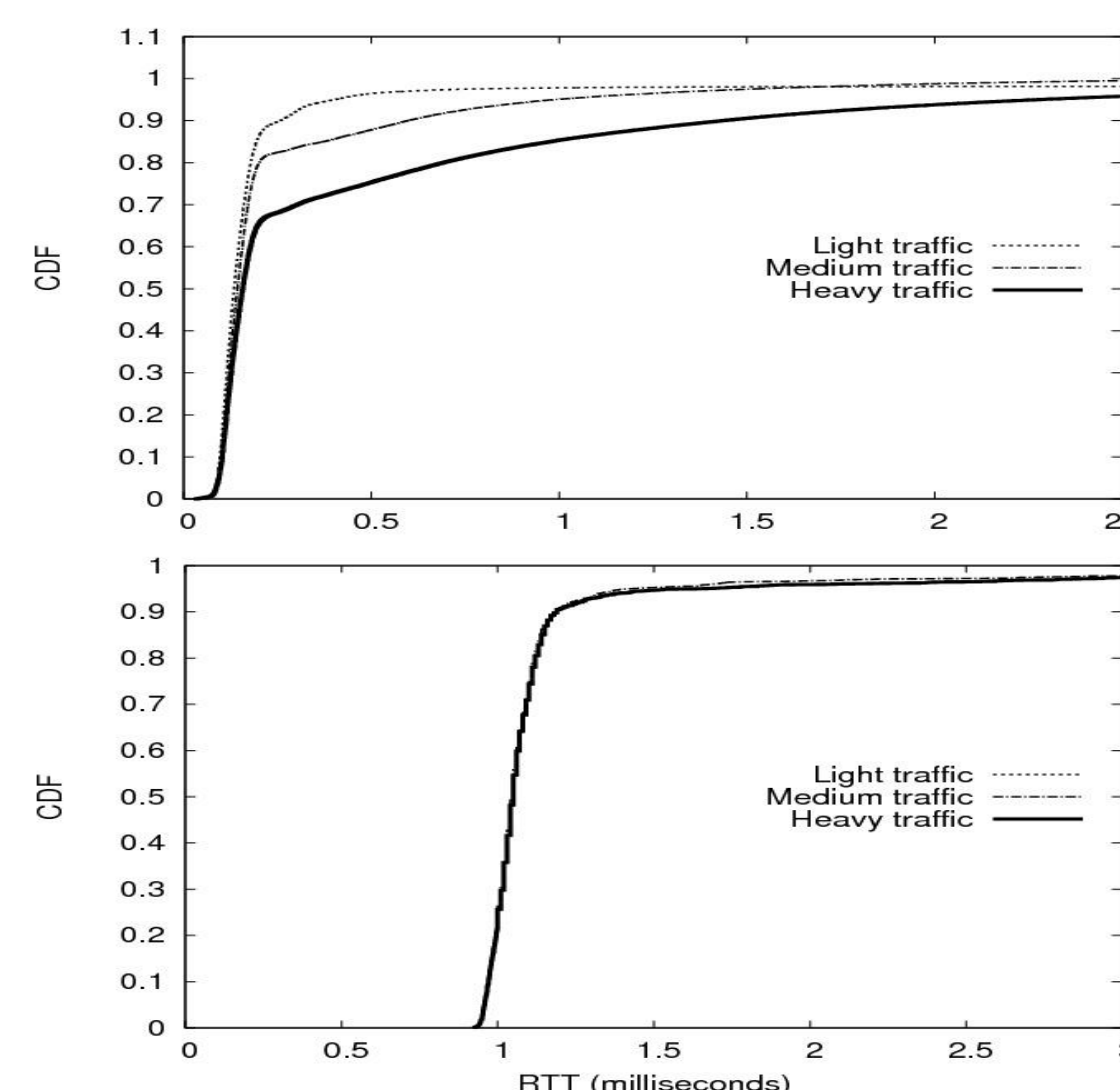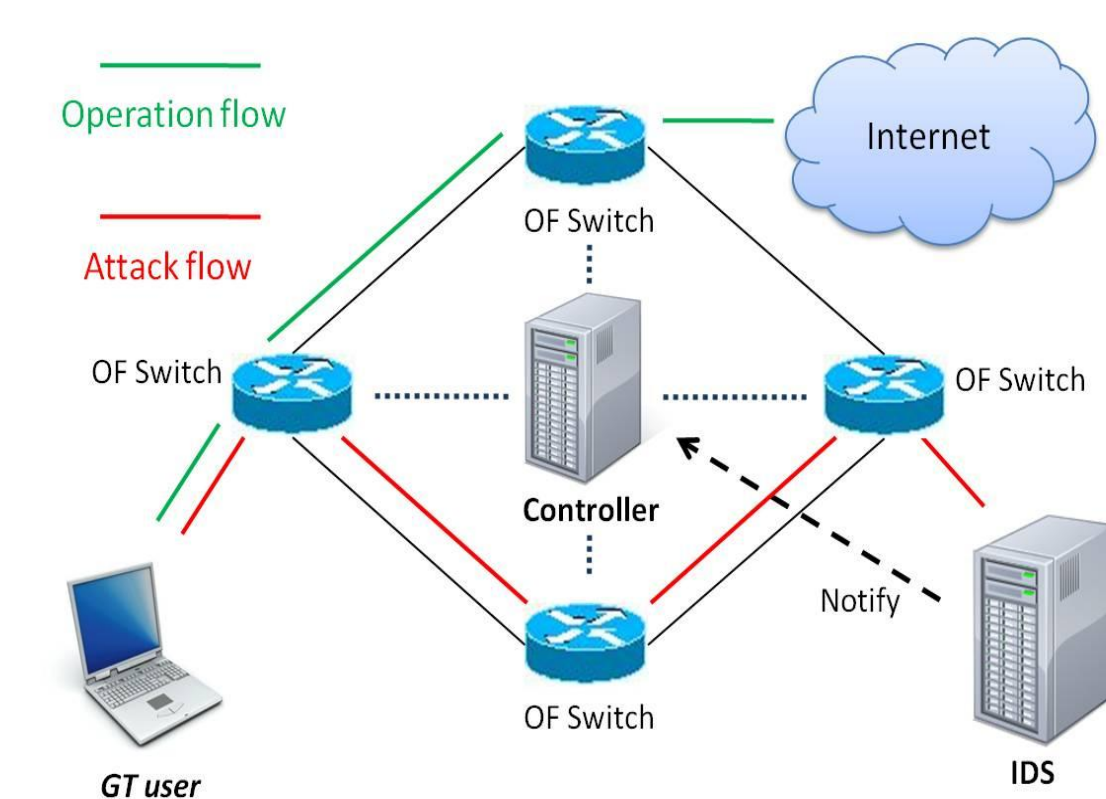
FlowFlex: A Distributed Data Plane for Centralized Policies

- Central policy enforcement through *customized* data plane
- Traffic processing granularity: per-flow or per-packet
- 3 phases: Classification, Policy Matching, Processing
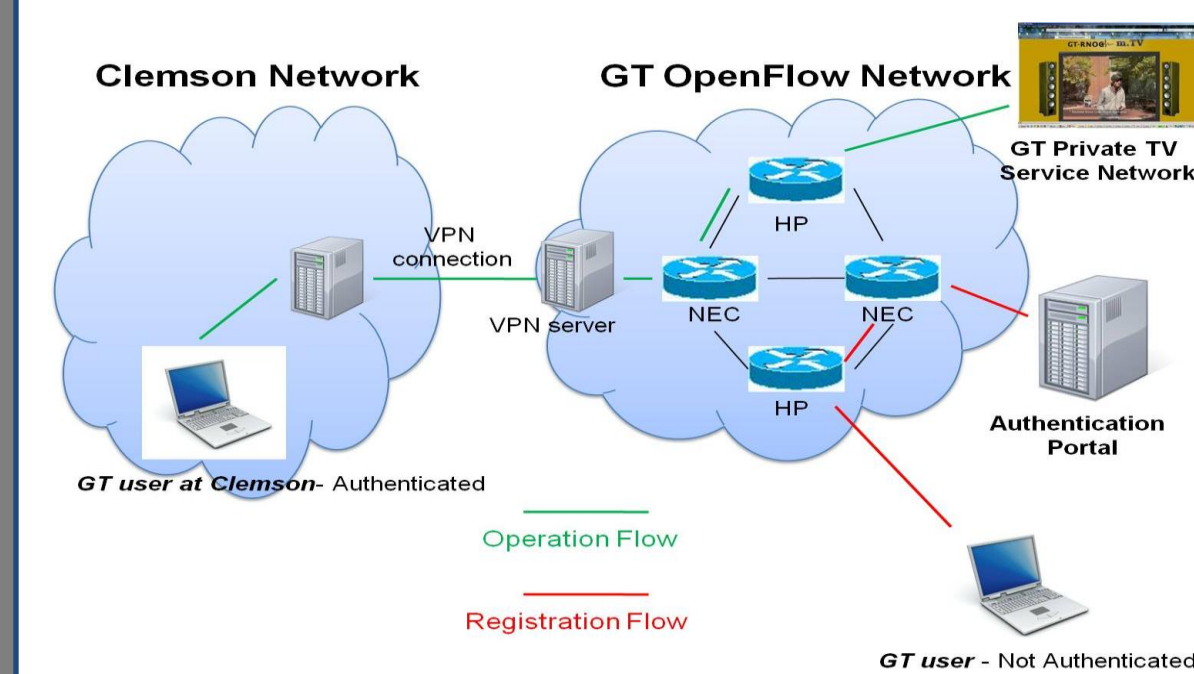- Implemented using OpenFlowClick element in Click software router

Deutsche Telekom   with Rob Sherwood

Nettle: Domain-Specific Languages for Network Control
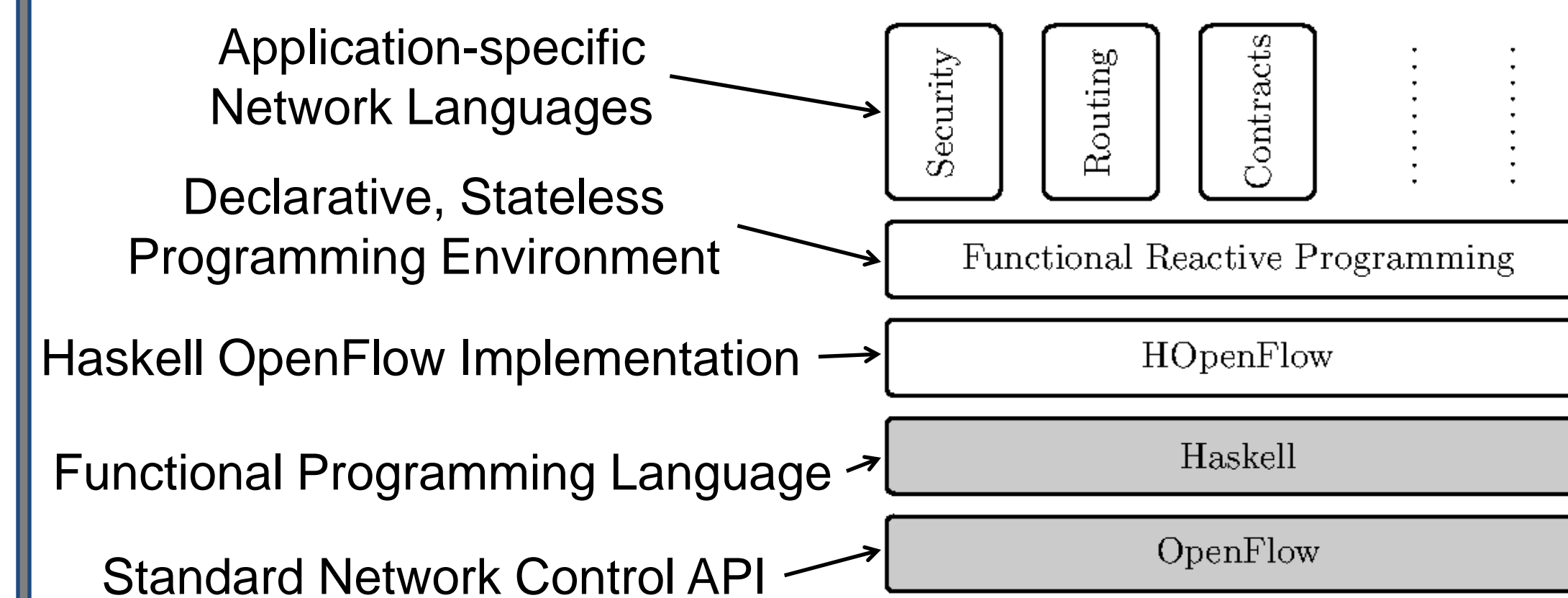
Yale with Andreas Voellmy & Paul Hudak

Multi-Campus Deployment

- Resonance deployed across campuses
- Layer-2 connectivity enables Resonance to perform cross-domain access control

CLEMSON UNIVERSITY

SwitchBlade: A Fast, Programmable Hardware Data Plane

- Platform for rapidly deploying new networking protocols.
  - High speed packet forwarding
  - Multiple data-plane protocols in parallel
  - Hardware cost minimization through resource sharing
  - Rapid prototyping in programmable hardware and software

Multi-Campus Experiments

- Aster*x
- SmartRE
- Pathlet Routing
  ... and hopefully more to come!