

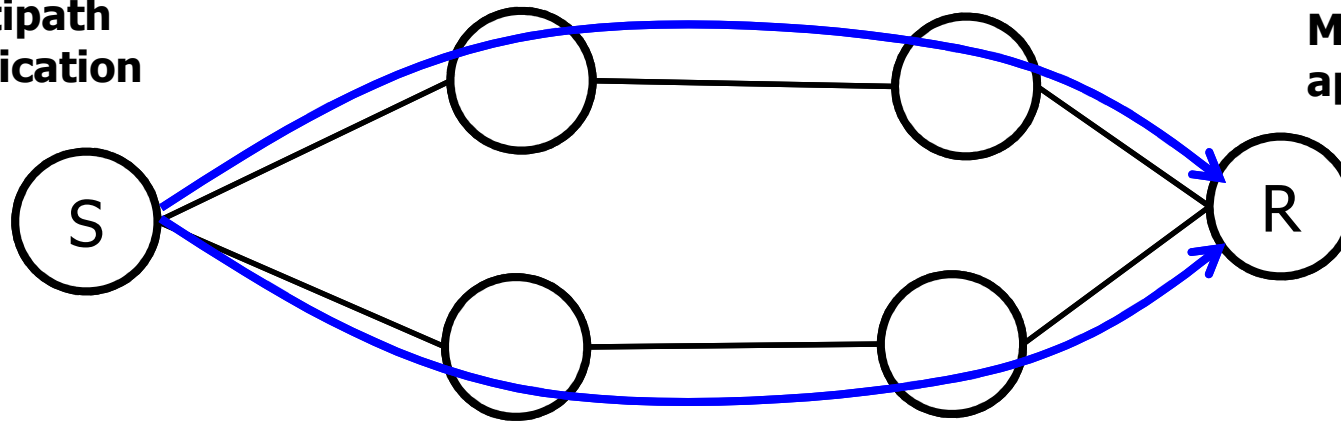
Multipath Routing Experiment with Federated Testbeds

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Experiment: Multipath Routing (Euro-NF Project MultiNext)

Multipath application



Multipath application

- Multipath Routing Research
 - Model for Buffer-Adjustment at Receiver
 - Experiment Goal: Model verification in real environment
- Requirements
 - Routing Infrastructure
 - Heterogeneity: Paths with very different delays
 - Delay information for the different paths



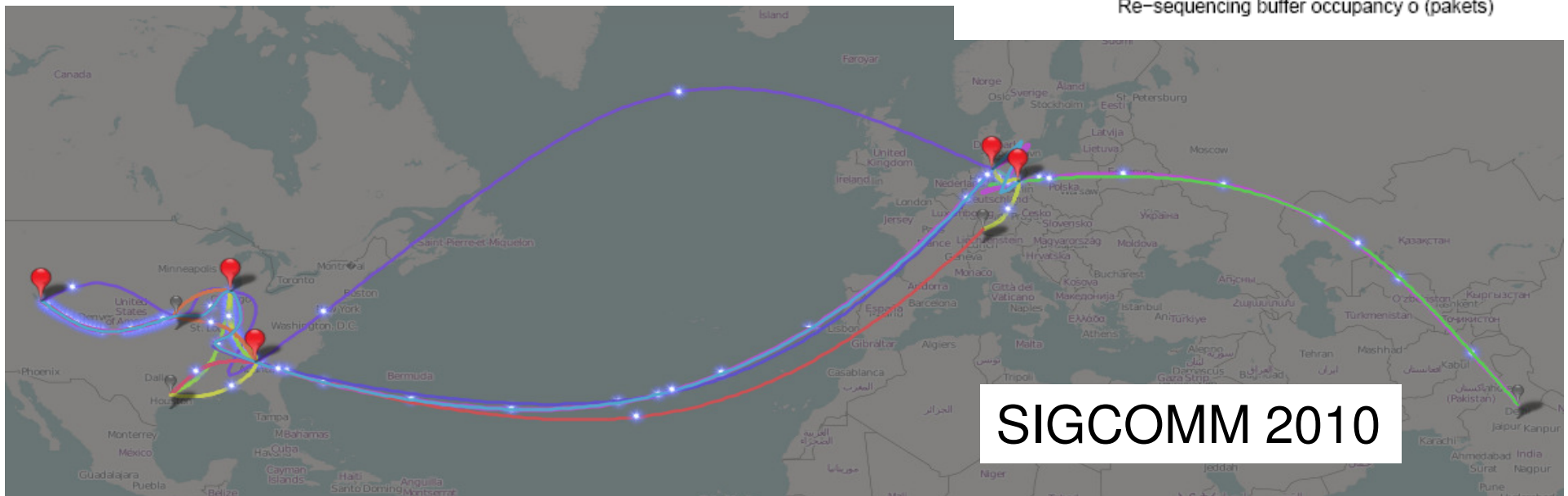
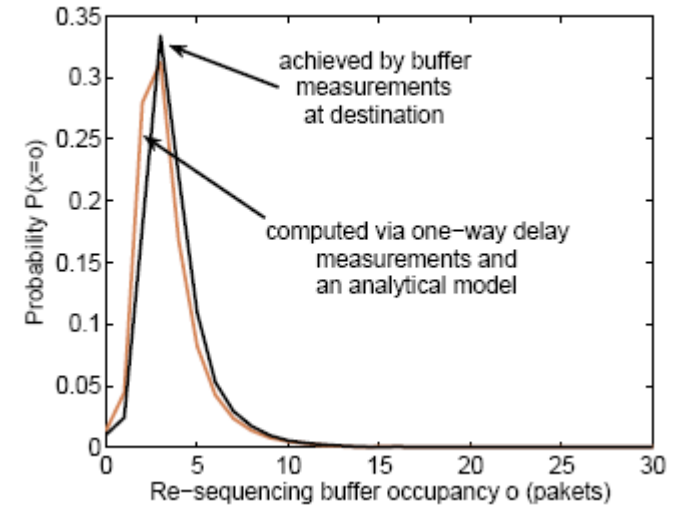
Available Testbeds

| Feature | G-Lab | PLE | PLC | VINI |
|-----------------------|--------------------|----------------|----------------|---------------|
| Scope | Germany | Europe | World | Mainly US |
| Exclusive Reservation | Yes | No | No | No |
| Routing | with own tools | with own tools | with own tools | Yes |
| BW and QoS | with own tools | Planned | Planned | Yes (service) |
| Openness/Federation | No (tests planned) | Yes (SFA) | Yes (SFA) | Yes (SFA) |
| Tools/Packet Tracking | Individually | Yes (service) | individually | individually |
| Clock Sync | NTP | NTP, some GPS | NTP | NTP |



Experiment and Results

- Use of PLE, VINI, G-Lab
- OneLab Packet Tracking
- OneLab Federation with ETOMIC
- VINI Routing and QoS Emulation



Lessons Learned

- Booking of resources o.k.
 - Easy booking of PLE, PLC and VINI nodes via PlanetLab SFA
 - G-Lab manually connected via overlay
- Routing needs more support
 - PlanetLab: overlay of end systems
 - VINI provides preconfigured topology (including QoS emulation)
- Observation tools
 - PlanetLab Europe provides many useful tools and federation with ETOMIC Infrastructure (high precision measurements)
 - Need: Agreements on tools/methods (comparability, share-ability)
 - Need: Clock sync support across testbeds



Thank You!

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<http://www.fokus.fraunhofer.de/go/track>

for more and results see Paper:

“Multipath Routing Slice Experiments in Federated Testbeds”
to appear in FIA Ghent book

