

The Conglomerate

Team Members

Andreas Voellmy – Yale, PhD

Spiros Eliopoulos – Cornell, Research Engineer

Eric Yspeert – NetYCE, CTO

User case – Ed Henry (Network Plumber)

Eric Murray – Kindred Healthcare

David Crosbie

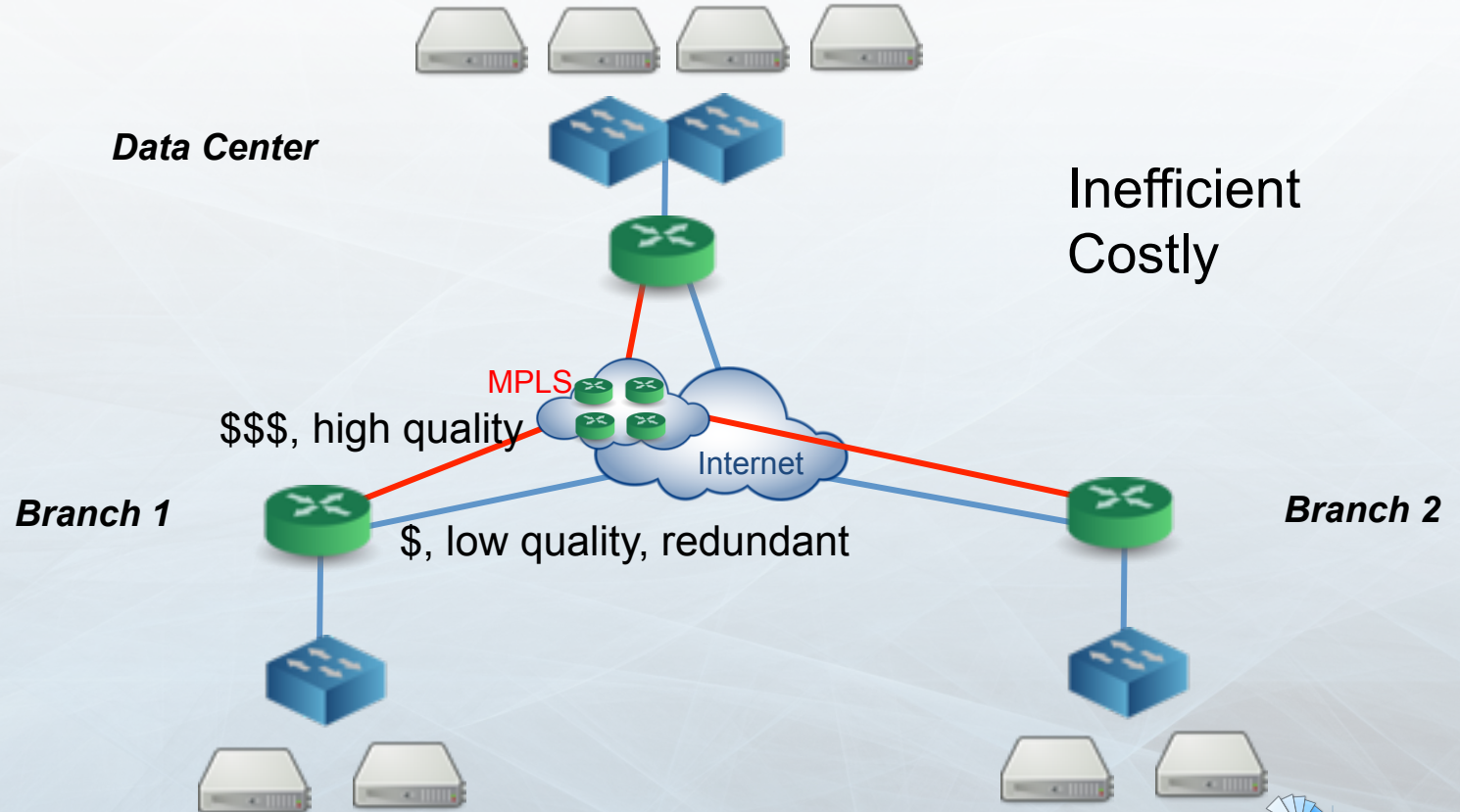


| SDN Hub



Open Networking
USER GROUP

User Case



What can we do about this?

- Some traffic is not SLA-bound: put on broadband links.
- Broadband connection may be good quality (better than MPLS WAN) at some times: at those times - use broadband.
- Impact: \$2.5m over 200 branches



Challenges

- Application identification
 - IP addresses shift (e.g. Youtube.com apple update)
 - Too much manual configuration
- Broadband connection quality varies



Our WAN App

- Feature 1: Allow flexible app identification using domain names; controller tracks bindings and installs correct flows.
- Feature 2: Monitoring
 - Dynamically monitor WAN link quality
 - Monitor app SLA
- Feature 3: Constraint-based routing to satisfy SLAs.
 - Load balancing to utilize available capacity

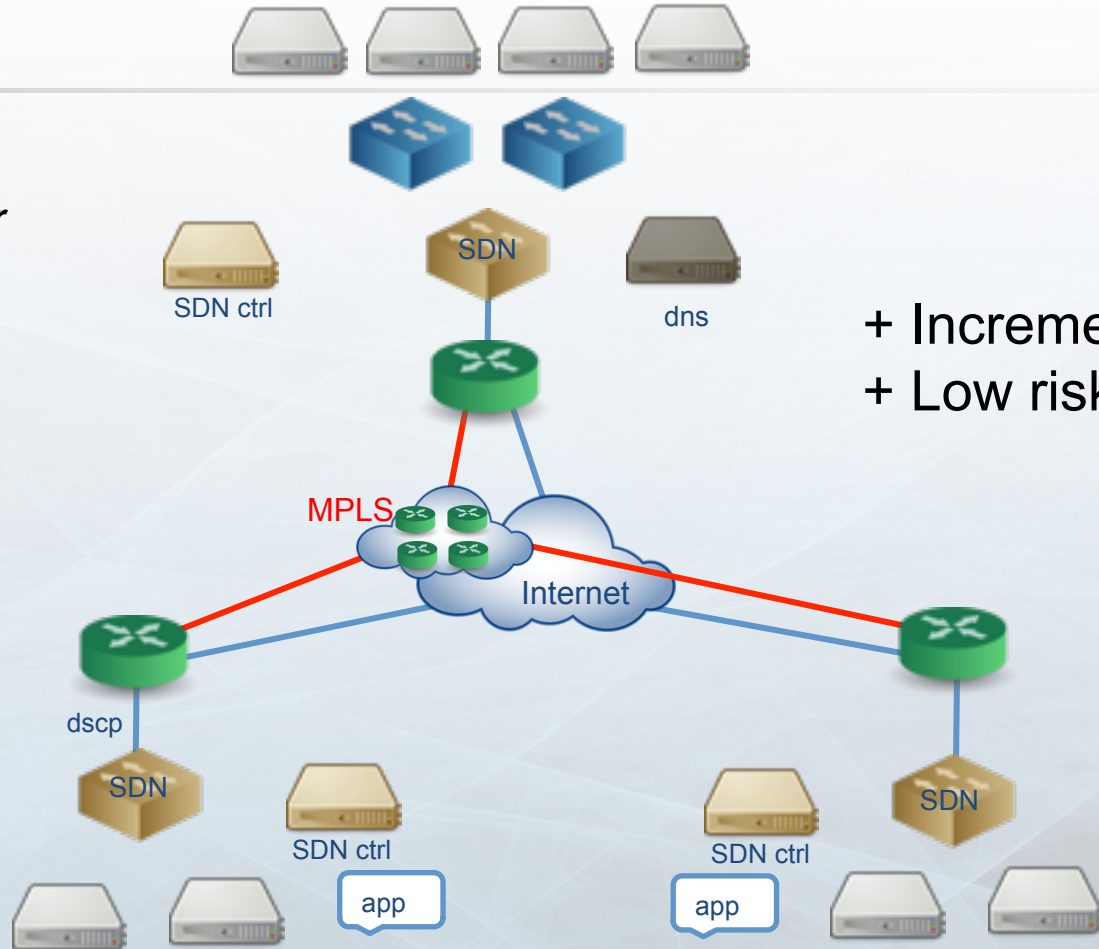


SDN Solution

Data Center

Branch 1

Branch 2



+ Incremental
+ Low risk

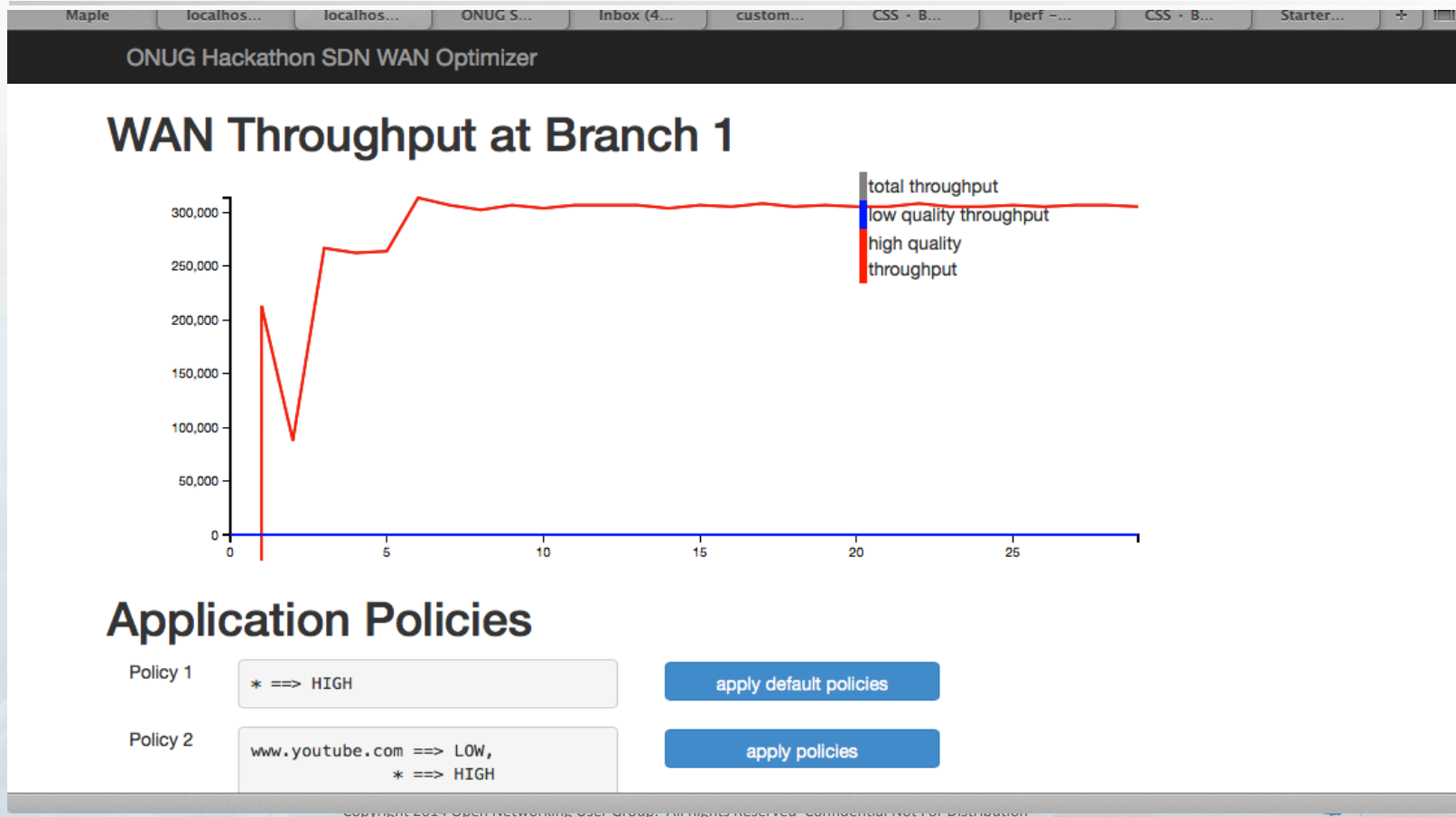


Hacking – How we made it

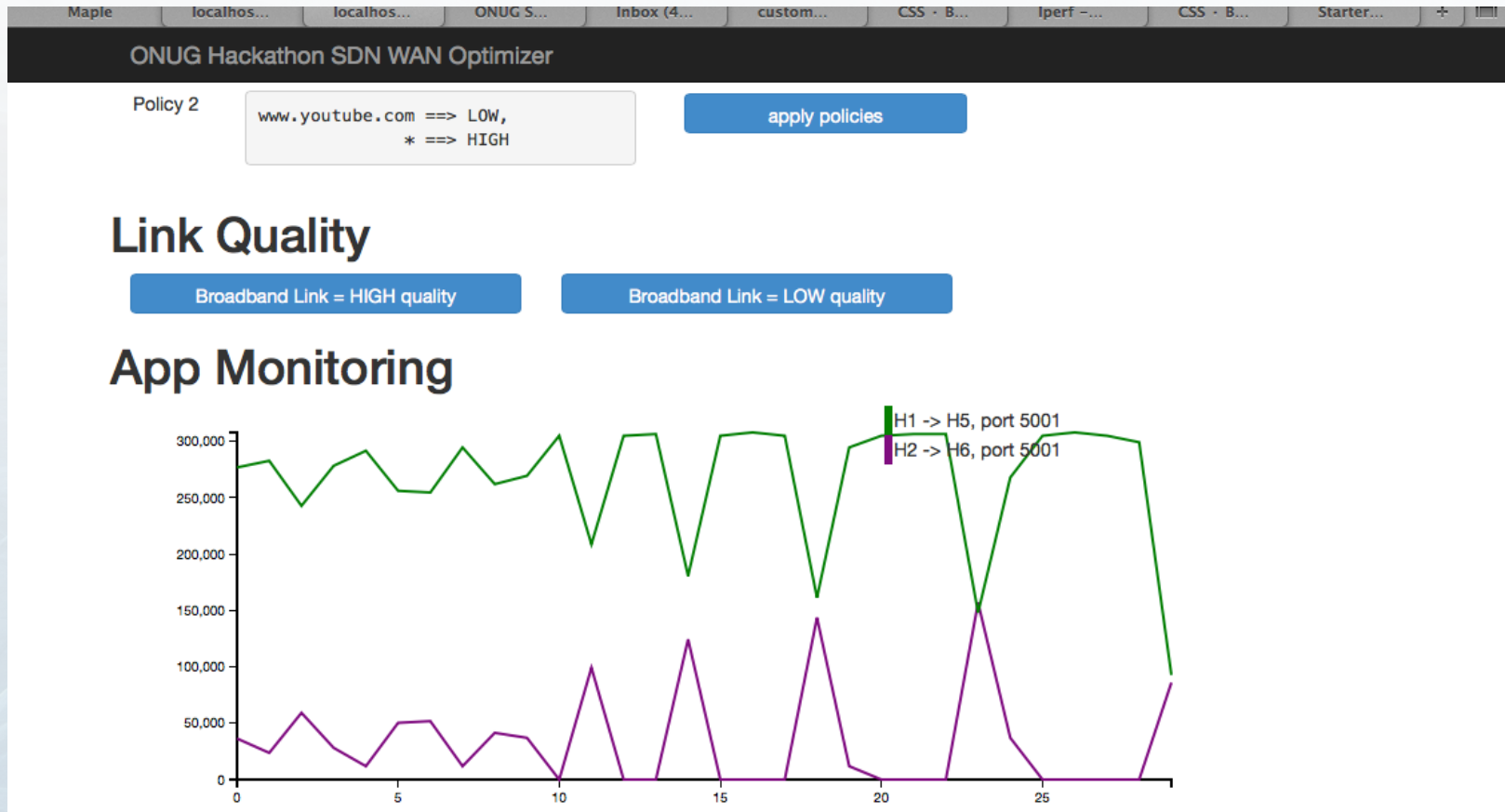
- Day 1:
 - Use mininet to simulate the network
 - Controller-less switches w/ static flowtable for legacy network hardware
 - Other switches connect to a single controller
- Day 2:
 - Implement controller application using Maple (100 loc)
 - Code up visualization using D3.js (400 loc JS+HTML)
- Day 3:
 - DEMO



All apps high quality

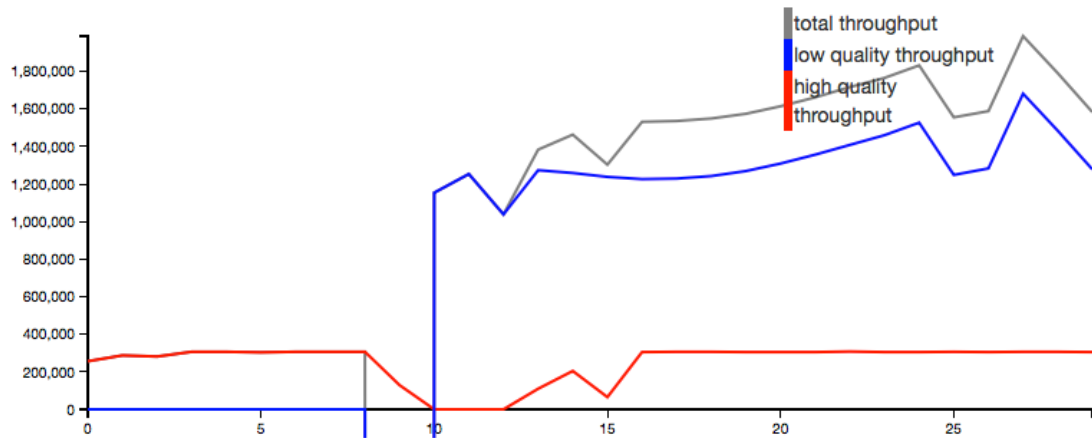


All apps high quality



Low quality app identification

WAN Throughput at Branch 1



Application Policies

Policy 1

* ==> HIGH

apply default policies

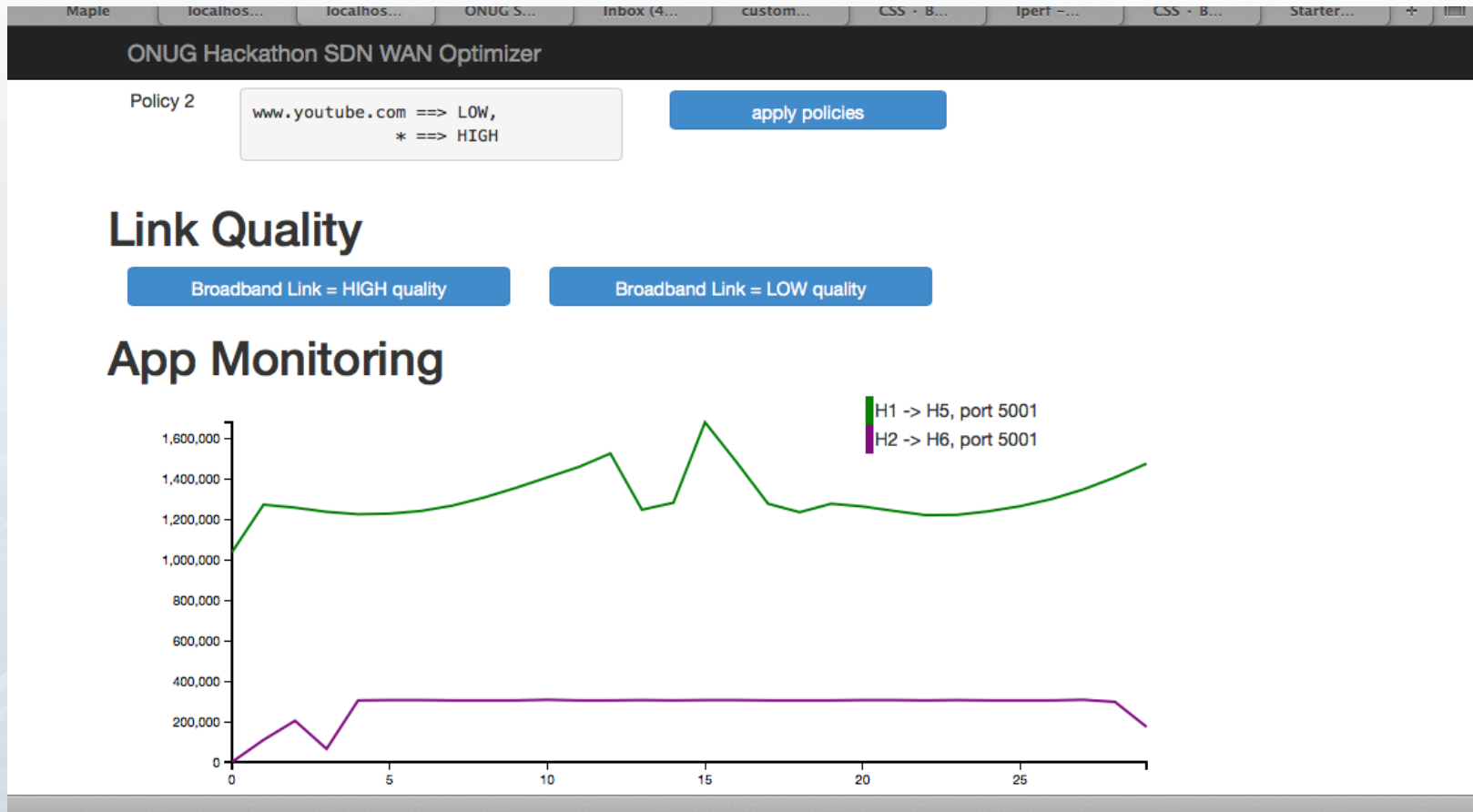
Policy 2

www.youtube.com ==> LOW,
* ==> HIGH

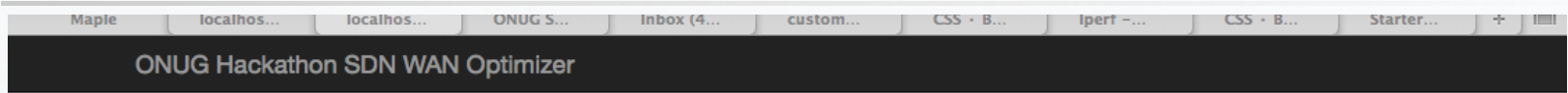
apply policies



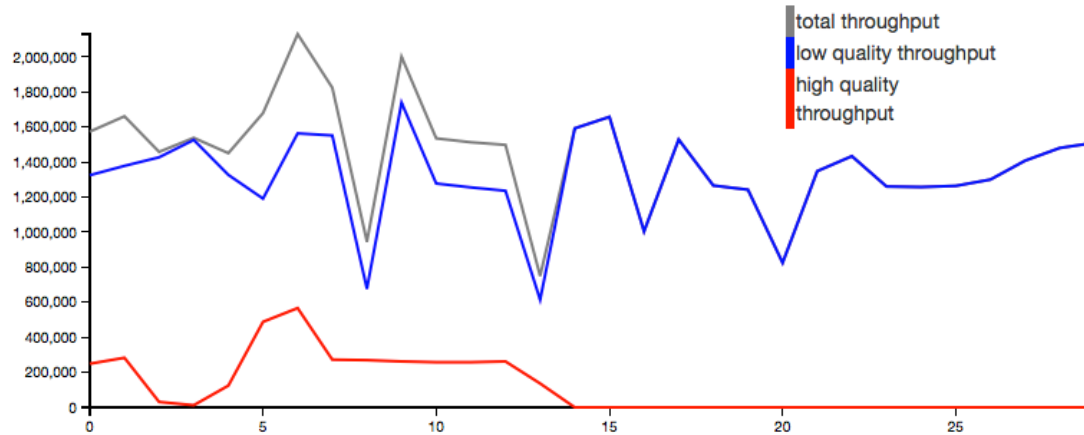
Low quality app identification



Broadband has high quality



WAN Throughput at Branch 1



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Broadband has high quality

