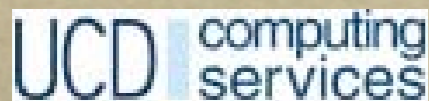


Consumer Broadband Performance in the “Last Mile”

*Niall O'Reilly, UCD Computing Services
RIPE-50, Stockholm, Sweden, May 2005*

Acknowledgements



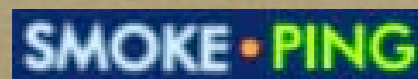
- *UCD Computing Services*



- *HEAnet*



- *Irish National Development Plan*



- *Tobi Oetiker*

- *Volunteer “customers”*

Performance in the “Last Mile”

- *Background*
- *UCD’s monitoring project*
- *Invitation*
- *Acknowledgements*

Background

- *Developing market*
- *Technologies:*
DSL, cable, FWA, satellite, WiMax, ...
- *Variety of service offerings*
- *“Information gap” for consumers*

Available Information

- *From the ISP:*
 - *capacity, contention ratio, price*
- *From others:*
 - *WOM (word of mouth), surveys*

Available Information

- *From the ISP:*
 - *capacity, contention ratio, price*
- *From others:*
 - *WOM (word of mouth), surveys*
- *Both subjective — in different ways*

Available Information

- *From the ISP:*
 - *capacity, contention ratio, price*
- *From others:*
 - *WOM (word of mouth), surveys*
- *By measurement:*
 - *throughput, delay, packet loss*

Examples

- *Just some examples*
 - *plenty others, no recommendation!*
- *http://www.journaldunet.com/witbe/fai/adsl/classement_adsl.shtml*
 - *monthly league-table (FR)*
- *<http://tptest.se/>*
 - *self-service throughput test (SE)*


Monitoring Project at UCD

- *University College Dublin*
 - *Ireland's largest university*
- *Need to monitor our own users at home*
- *Opportunity for casting net wider*
- *Supported by HEAnet — Ireland's NREN*
- *Just starting: no results yet!*

Monitoring Project: Aims

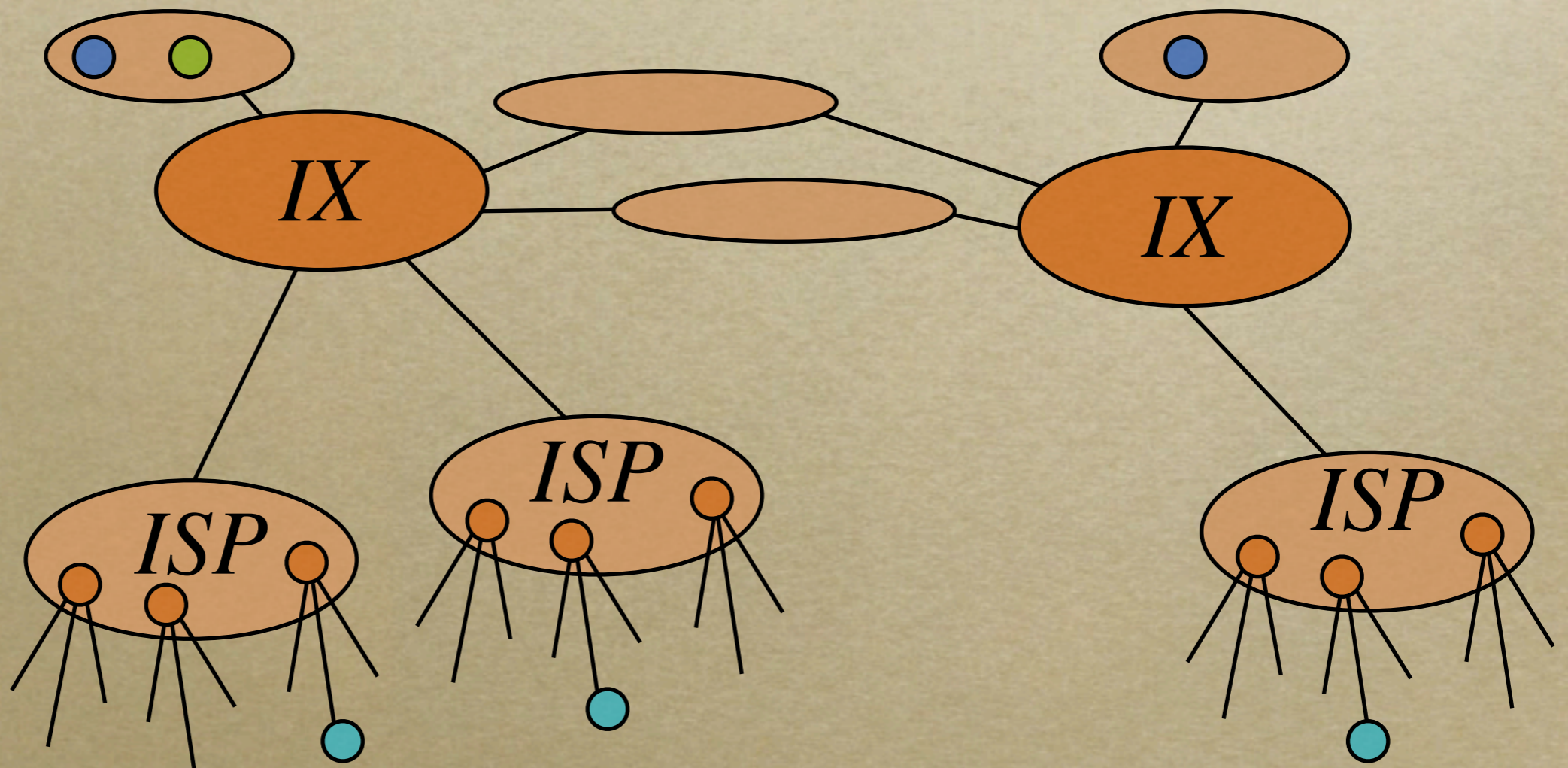
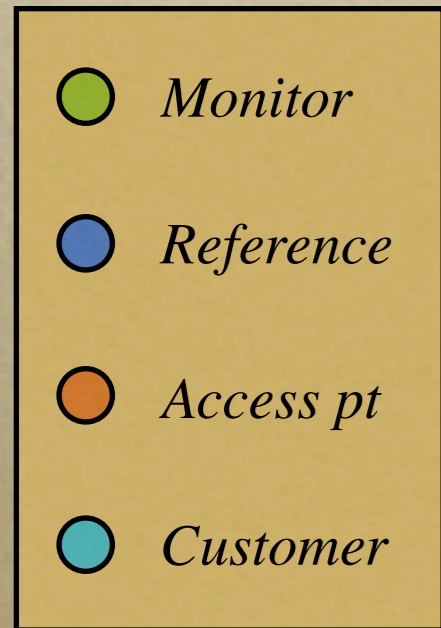
- *Probe consumer sites unobtrusively*
- *As much variety as possible*
- *Gather information*
- *Understand variation*
 - *technology, AP, ISP, country ...*

Monitoring Project: Method

- *Voluntary subscription*
- *Continuous monitoring and display*
 - *Tobi Oetiker's SmokePing* 
 - *20x ICMP Echo at 5' intervals*
- *Central monitoring site*
- *Customer and reference probe sites*

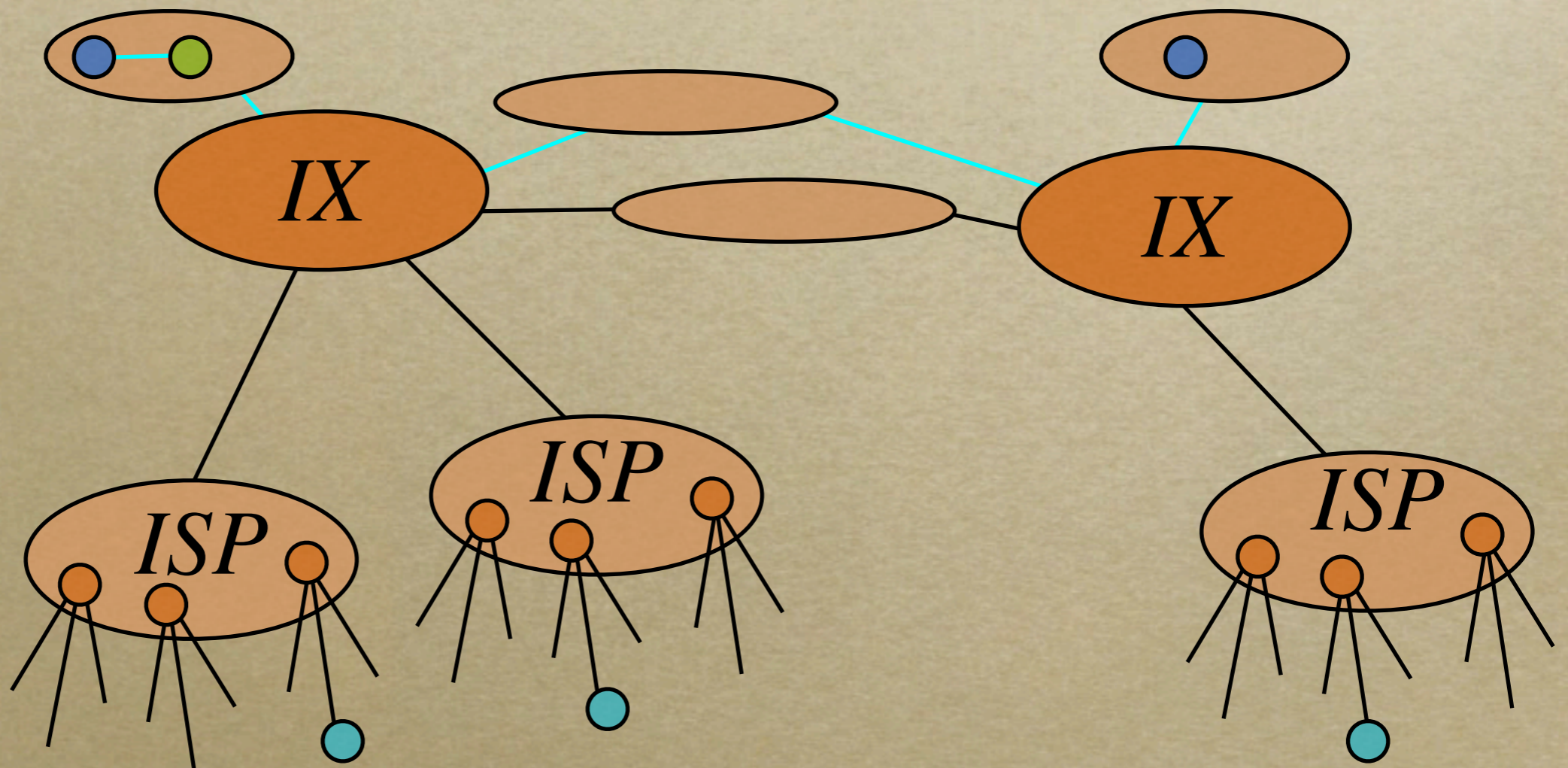
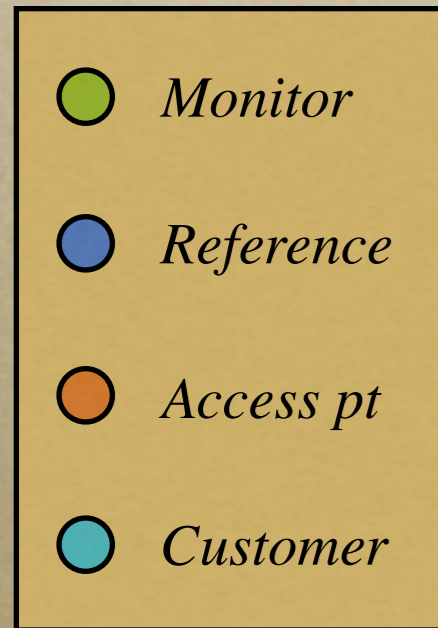
Monitoring Project: Paths

Relationships between Sites



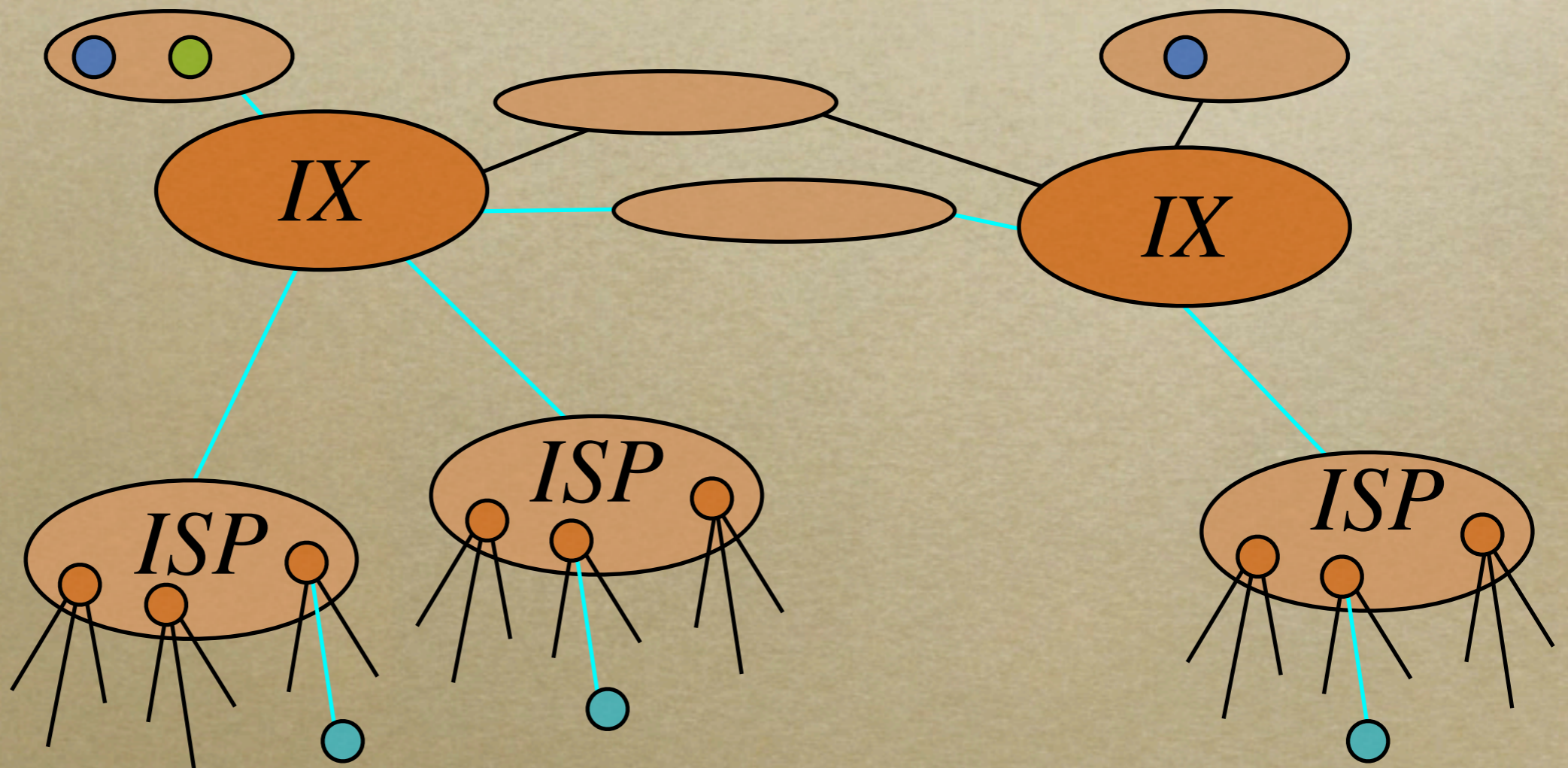
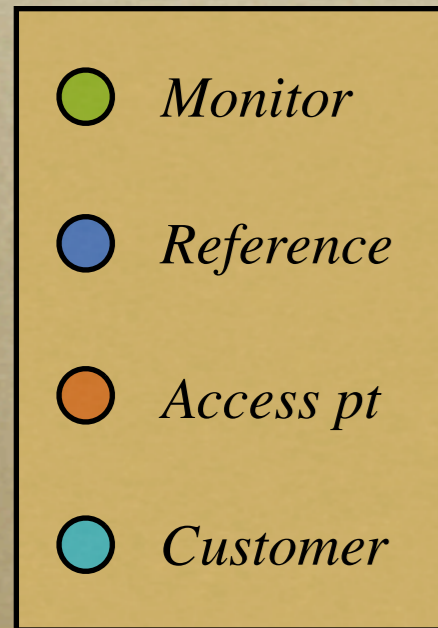
Monitoring Project: Paths

Paths to Reference Sites



Monitoring Project: Paths

Paths to Customer Sites

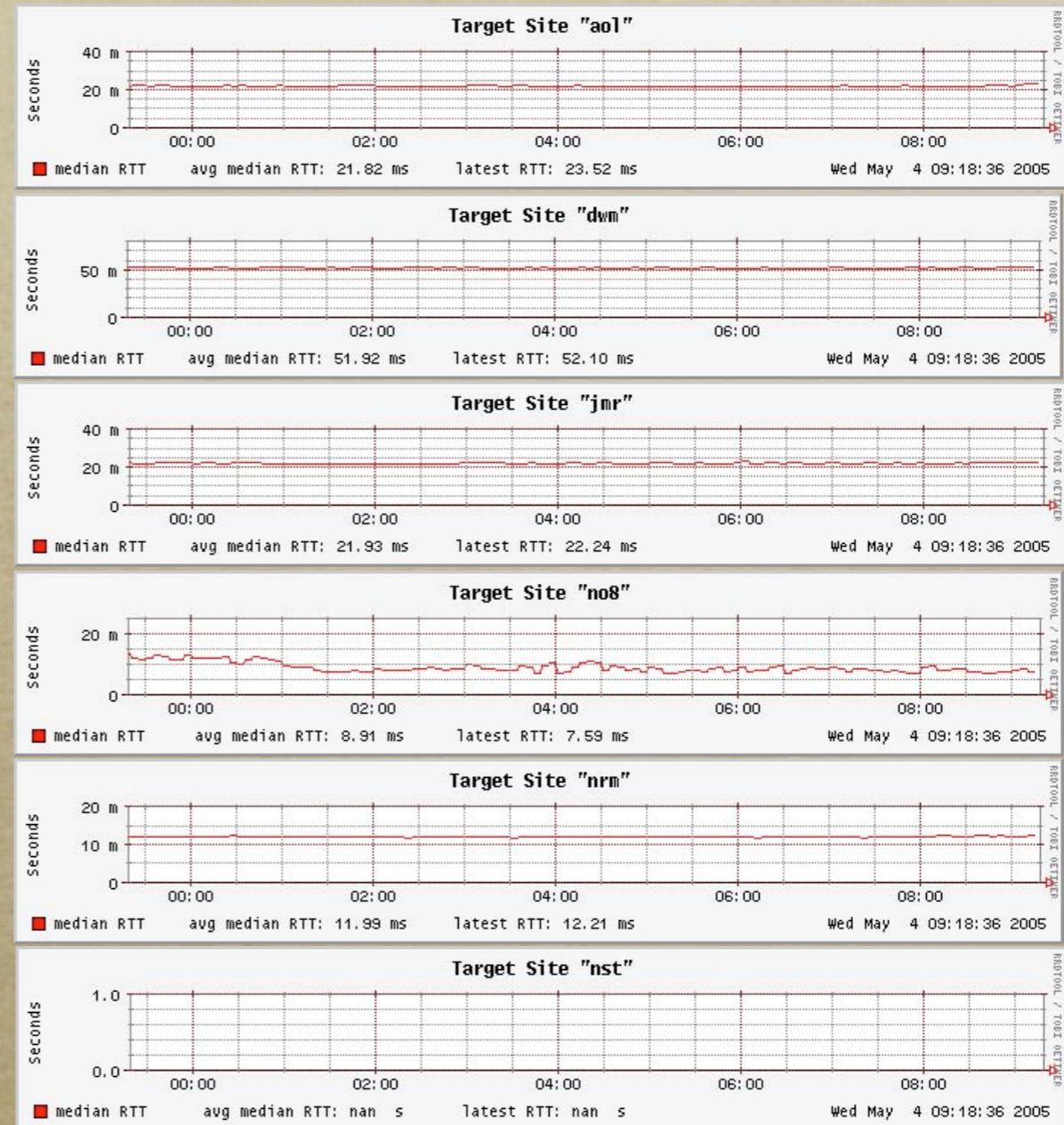


Monitoring Project: so far

- *2 countries*
 - *IE: 6 probed sites*
 - *NL: 2 probed sites*
- *3 technologies*
 - *DSL, Cable, FWA*
- *6 providers*
- *Not yet on view*

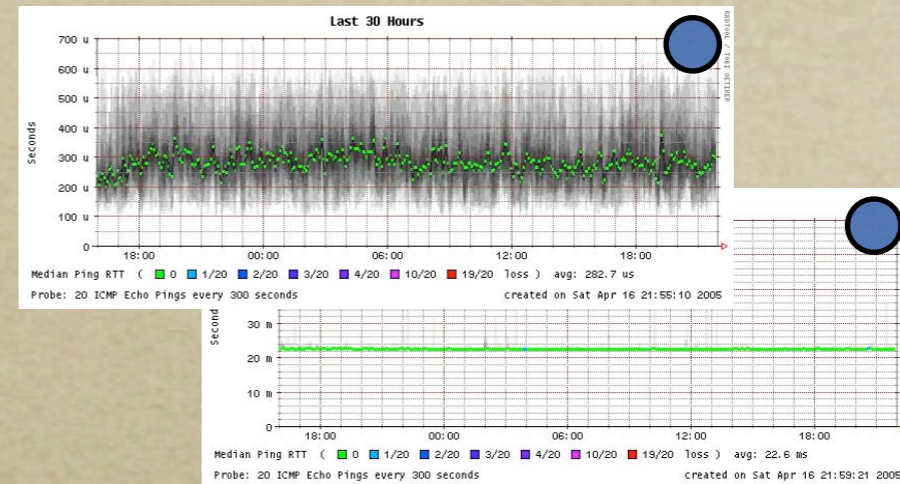
Monitoring Project: so far

- *IE:*
 - *6 probed sites*
- *2 technologies*
 - *DSL, FWA*
- *4 providers*
- *Not yet on view*



Monitoring Project: so far

- *2 countries*
 - *IE: 6 probed sites*
 - *NL: 2 probed sites*
- *3 technologies*
 - *DSL, Cable, FWA*
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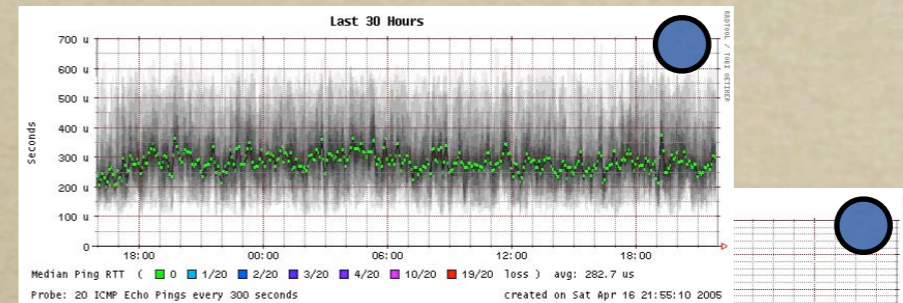


<700 μ s

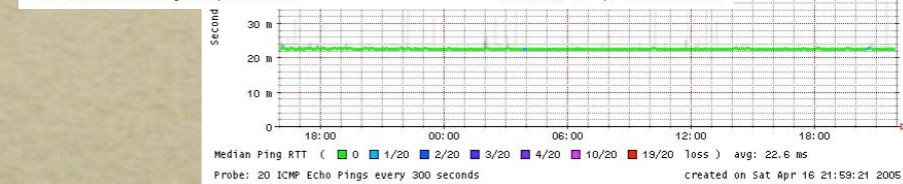
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Monitoring Project: so far

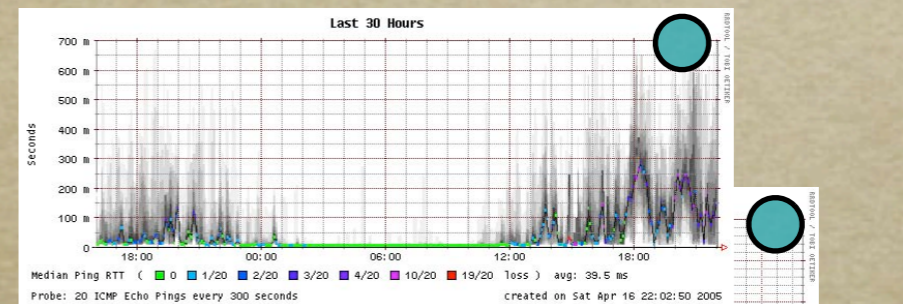
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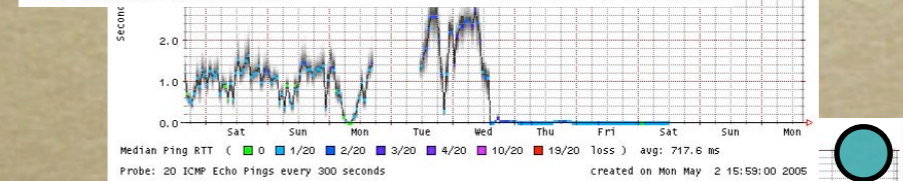
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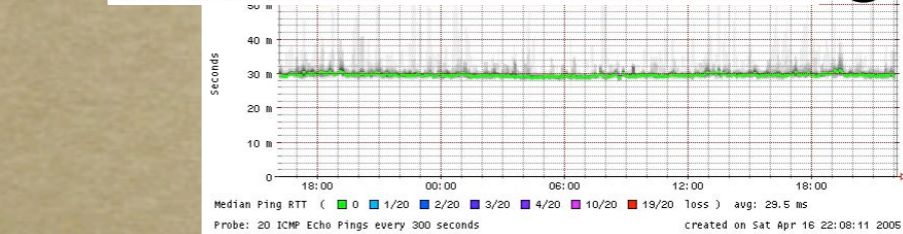
<23ms



~40ms



<3.2s



~30ms

Monitoring Project: Next Steps

- *Privacy policy*
- *Self-service subscription*
- *More accessible server*
- *Attract subscribers*
- *Engage ISPs, consumer groups/agencies*

Monitoring Project: Attractions

- *Consumer:*
 - *neutral, fact-based information*
- *ISP:*
 - *support trouble analysis*
 - *confirm effect of intervention*
- *General:*
 - *promote quality infrastructure*

Invitation

- *Private broadband connection ?*
- *Work from home ?*
- *Interested ?*
- *Drop me an e-mail:*
Niall.oReilly+broadband@ucd.ie

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