

End-to-End performance monitoring

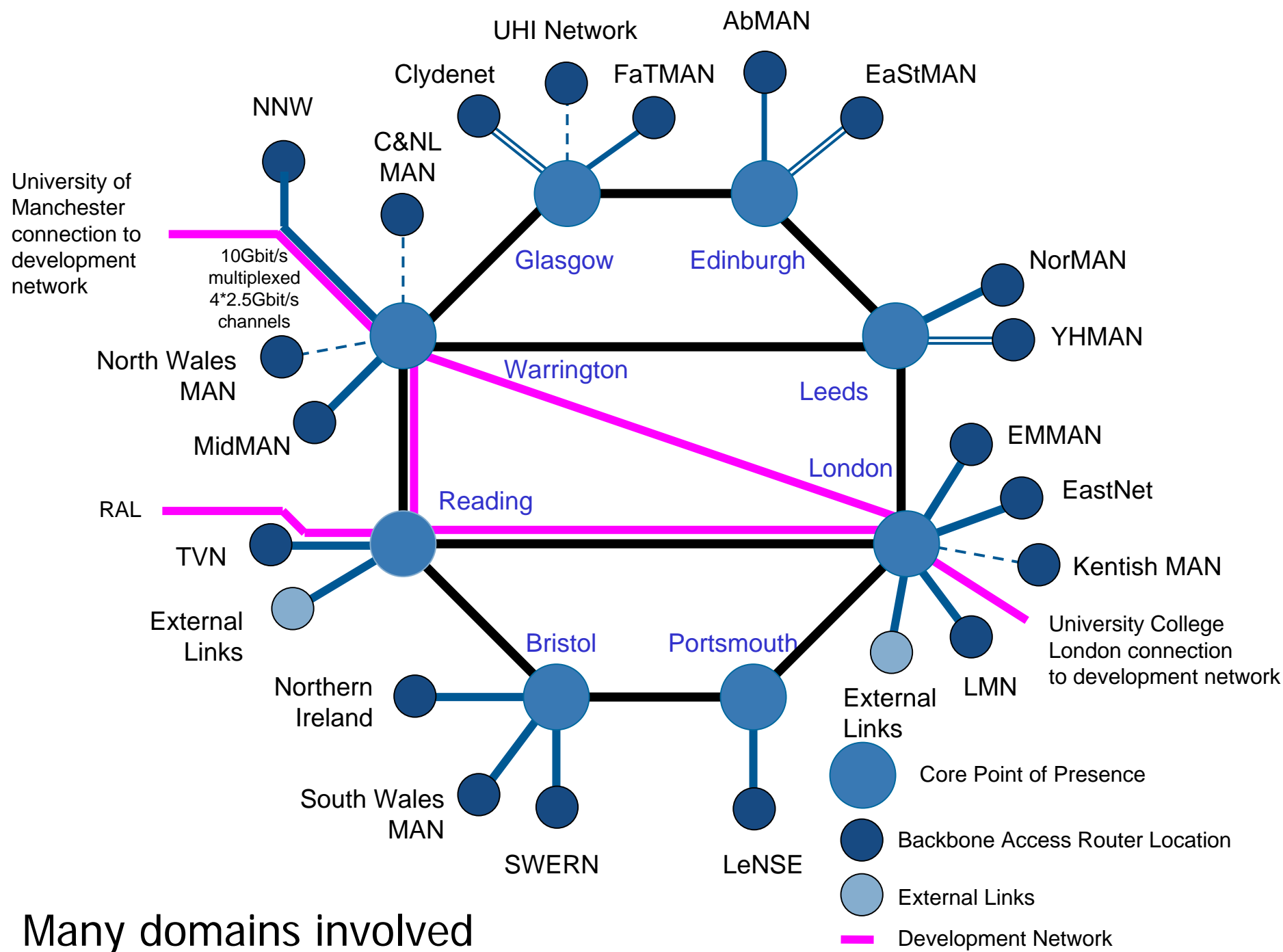
David Salmon

Why e2e performance monitoring ?

- What is the issue ?
 - Increasing network capacities
 - Increasing application demands
 - High-rate, long-term data transfers
 - Application users trying to understand the rates they observe
 - Often lower than expected
- Why ?
 - Protocol issues eg TCP limits
 - Network issues ?
 - Congestion
 - Mis-configuration (half duplex NICs/switches...)

Aims

- Allow end-users with demanding applications to make best use of the networks
- Understand performance limits and locate problems



Many domains involved

Network Measurements

- Internal view - Network Operator
 - Conventional stats gathering
 - Traffic on links (interfaces)
 - Packet loss
 - Domain specific – Backbone, Regional Network, Campus network
- External view (end-to-end)
 - UK & International Particle Physics and astronomy community have been doing this for years between their important sites
 - Now e-Science & Grid
- Complementary views
 - Need to join up the information

Internet2 e2e performance initiative

- This work started the thinking in this area
 - 1.5/2 ? years ago
- Now e2e pipes
 - Measurement & monitoring infrastructure
 - Equipment on Campuses, Regional Networks & Abilene backbone
 - Passive monitoring
 - Active probing
- Authenticated interfaces for end & users and Network administrators

UKERNA's involvement

- Better access to existing information
 - Traffic statistics
- Mark Godfrey
 - Funded through UK e-Science programme
- Engagement with:
 - UK community activities
 - e-Science...
 - US & EU activities
 - Internet2 – end-to-end performance initiative
 - TERENA - PERT

Session Talks

- GridMon – Grid Network performance Monitoring for e-Science
 - Mark Leese, CLRC Daresbury Laboratory
- Performance monitoring and PERT
 - Victor Reijs, HEANet Ltd