



Network & Security Team

(A year is a long time in IT)

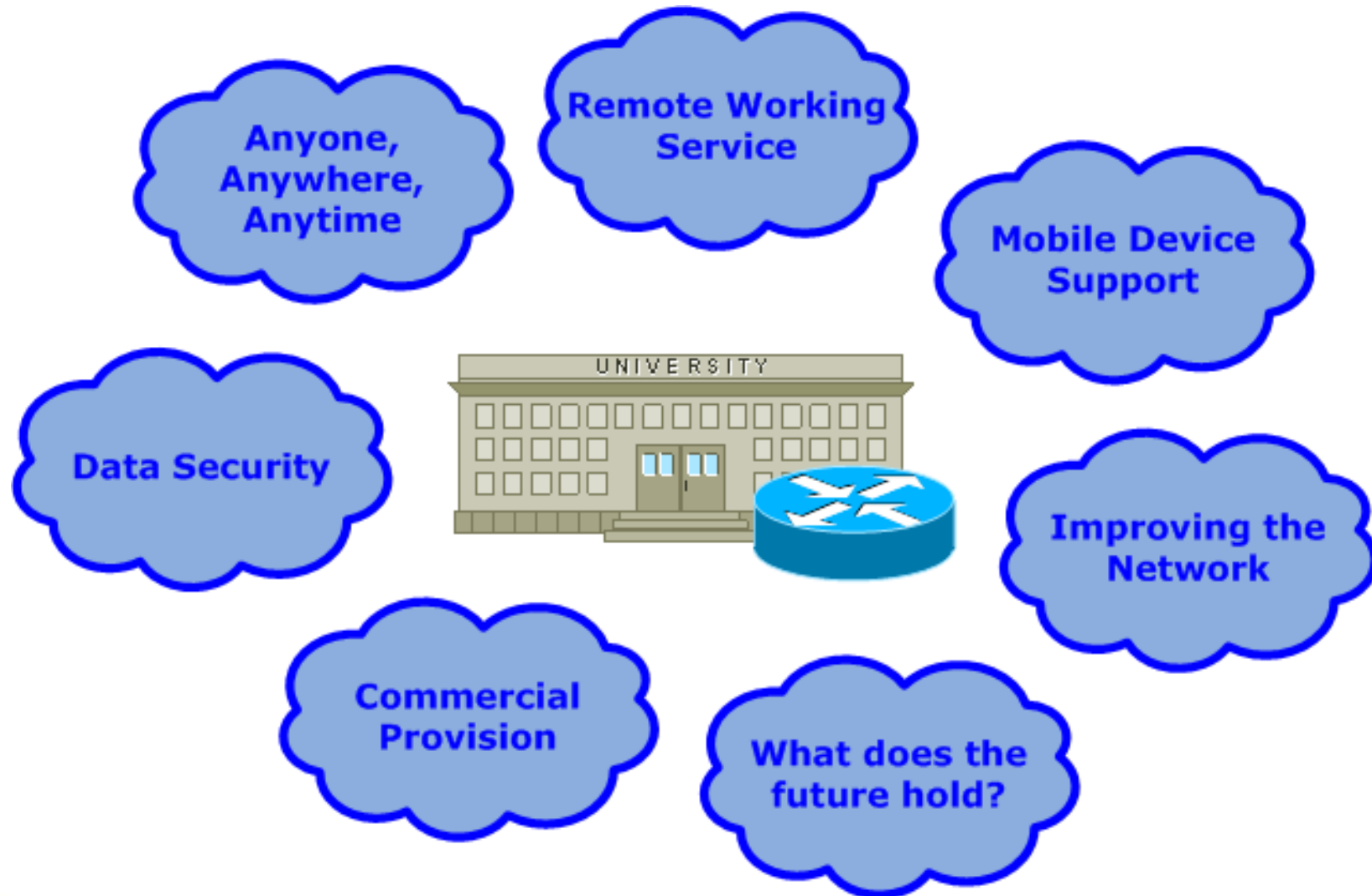
Technical Forum
10th December 2008

A bit about the Network & Security Team

- Network & Security Team within IT Services (affectionately NetSec)
- Team of ten IT professionals plus one vacancy.
- Manage the University logical data network and associated services
- Work on international research projects; generate an income in excess of £175k
- Hold many external positions
- Frequent conference speakers



Network and Security Team : Technical Forum



Anyone, Anywhere, Anytime

- Integrating what we do everyday in to the IT Services and University strategy.
- Consumer attitude towards networking.
- Focusing on the University business requirements, what can we do to help?
- Acting as a conduit to feed back innovation that can inform future strategy.
- Providing a innovative; but reliable and secure delivery platform for the University.

Where we don't want to be!



You are the weakest link...

One of our many challenges:

- “IT Services departments need to stop saying that they are user-focussed and actually mean it.” [David Harrison, UCISA]
- What do people actually want?
- Protection and intelligence built-in from the inception of projects.
- Embed the security
- Education

Where does NetSec sit?

- If students want to connect their PS3 or Wii in halls, go ahead, just do it!
- Why not everyone, wherever, what ever?
 - We are not quite there yet, but we will be!
- Skype, over cautious perhaps?
- Collaboration with key parties
- All avenues of Consultation and Education
- Leaders in our field
- We are self critical

What are we doing?

- Planning a reliable and secure delivery platform for business IT within the University.
- Encouraging a different way of thinking without neglecting corporate responsibility and governance.
- Ensuring innovation and technology provision is timely and well executed.

Prove you mean business

It is all well and good, but prove it!

- Remote Working Service
- Mobile Device Support
- Data Security
- Commercial Provision
- Improving the Network
- What does the future hold
- Wireless and EDUROAM/JRS (Scott)

...and if we don't get it right?



Remote Working Service

- Portal
 - Available to everyone
 - <https://vpn.lboro.ac.uk/>
 - Web resources, SSH, RDP, License Manager
- Full VPN
 - Available as part of the Staff Desktop Service
 - Full network access, ITS and Department.
 - Mac OS X and Linux

Remote Working Service (Futures)

- Version 2.3 of software released 15th Dec
 - Reported 11 bugs with the beta software
 - Six Mac OS X bugs fixed
 - Part of the beta programme
- Enabling of inline IDS/IPS module
- Procure posture checking module
- Documentation of mobile Remote Working
 - Windows Mobile and Apple iPhone/iPod Touch

Mobile Device Support

- IT Services official support for:
 - HTC Tytn II
 - HP iPaq
 - Apple iPhone/iPod Touch
- Full three tiered support
 - IT Service Desk
 - Staff & Student PC Services
 - Network & Security Team

Mobile Device Support (Futures)

- Continual documentation updates
- Challenging supplier to use fully compliant enterprise wireless technology
 - Engaged with the head of Cisco Wireless BU
 - Issue raised through UCISA-NG
- Periodic review of new features
 - Antivirus
 - Theft Protection
 - Encryption

Data Security

Media coverage

- What can you loose on the train?
 - National secrets;
 - All Lboro student records;
 - Database dump for testing!
- What can you buy on eBay?
 - Loughborough Student USB Stick BNIB;
 - Hard disc, formatted, but not wiped;
 - Networking Hardware, ready to connect!

Data Security (What if?)

What if I need to transfer some data?

- Hardware encrypted USB Stick
 - Cost for a 4Gb Kingston?
 - Instructions available on the ITS website.
- PGP Encrypted Self Extracting Archive
 - Just like a very secure zip file
 - Don't be tempted to use Word, ZIP, RAR password
- With both, remember:
 - Provide the data and password separately.

Data Security (Questions)

- Producing Guidance Documentation
 - System Procurement
 - Research applications
- Some questions to ask:
 - Formal DP notification to the ICO;
 - Accreditation: ISO, PCI/DSS, FIPS140-2
 - Information Security Policy;
 - Data Disposal/Retention Policy;
 - Access Policy.

Data Security (Futures)

- Already have Data Disposal Policy
 - Secure destruction of hard discs
 - Secure disposal of
 - Keep data for three to six months
- Align all policies with ISO 27001/27002
- Writing a full Information Security Policy
- Windows Vista Service
 - Bitlocker
- Networking hardware procurement

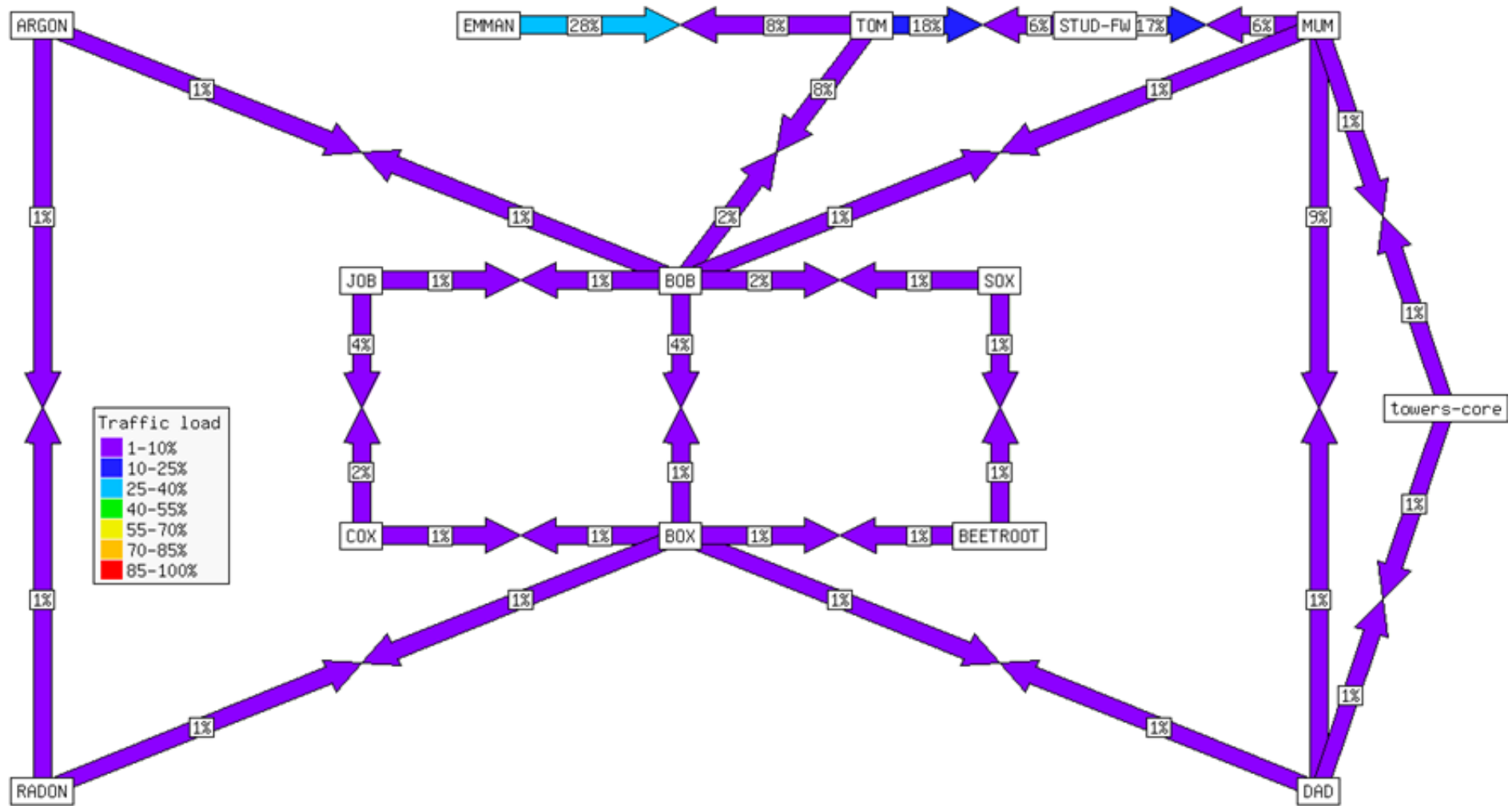
Commercial Provision

- Commercial bandwidth provided by NTL through EMMAN.
- Providing Innovation Centre, Technology Centre, Imago, Burleigh Court and other commercial entities on campus.
- 99.75% uptime in 2008 calendar year.
- We provide IPv4, IPv6, managed traffic services all over campus.

Commercial Provision (Futures)

- Already started the ball rolling
 - Already had compliments
- Service review meetings (twice yearly)
- Improving communications.
- Dedicated Account Manager
 - Jon Oakden
- Traffic management improvements
- Full service costing review

Loughborough Network Topology



Improving the Network

- Continual service improvement
 - JANET(UK), EMMAN and NetSec at-risk period (7am – 9am Tuesday)
 - Other service affecting periods
- Improving communications
- Five network training courses, one planned
- Improving Monitoring
 - <http://lanlord.lboro.ac.uk/>
 - Orion Solarwinds
 - EMMAN Shared Security Service

Short – Medium Term Improvements

- Completion of 10Gb core upgrade
- Installation of staff firewall
- Investment in student wireless over the next two years
- Bid for funding to complete the following:
 - Complete ubiquitous wireless rollout
 - Intrusion Detection System replacement
 - High speed Data Centre network
 - Malicious web content filtering
 - Resilient EMMAN connection at Holywell Park

Standardising Networking Equipment

- The network we install today will be with us for at least five years.
- Important to standardise:
 - Core 65xx -> Nexus
 - Aggregation
 - Cisco 3750 10Gb Ready
 - Distribution
 - Cisco 2960 series
 - PoE
 - Cisco 3560PS
 - Wireless LWAP 1131



Not just networking

- APC Fully Managed Power Strip
 - Staged power up, power loading, graphs
- APC Environmentally Aware UPS
 - Installed at all core switching nodes
- Data Centre – NetBotz Monitoring
 - Automated alerting
- EMMAN looking at providing
 - Jakarta monitoring sensors
 - Orion Solar winds Integrated



What does the future hold?

I'm not a psychic, but...

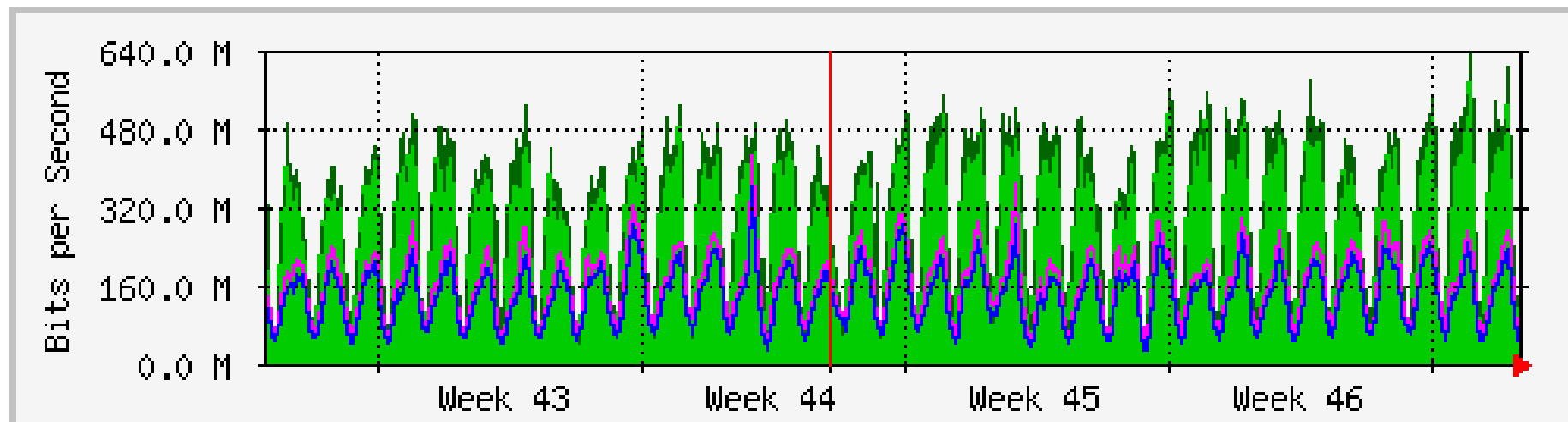
- Is Web 2.0 over?
- Streamed Applications
- Cloud Computing
- Past cloud computing
 - Clear differentiator
 - Networking implications
- Appliance Computing
 - Five years away?



Increasing Bandwidth Demands

- 34Mb/sec in 1999 to...

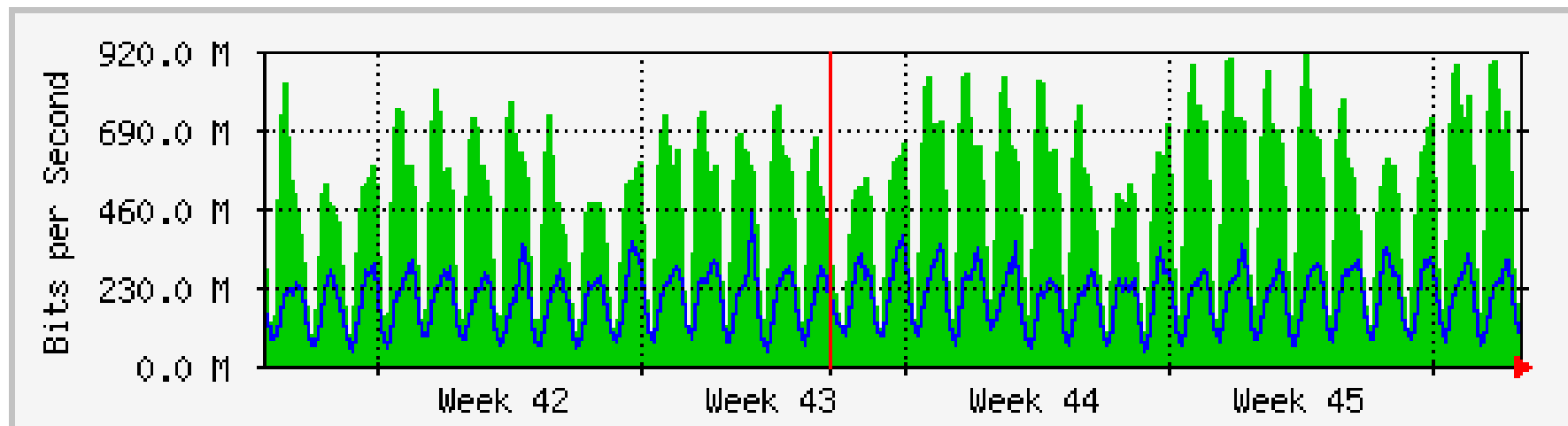
'Monthly' Graph (2 Hour Average)



	Max	Average	Current
In	637.0 Mb/s (63.7%)	279.2 Mb/s (27.9%)	73.8 Mb/s (7.4%)
Out	419.0 Mb/s (41.9%)	133.4 Mb/s (13.3%)	50.7 Mb/s (5.1%)

EMMAN - JANET Traffic

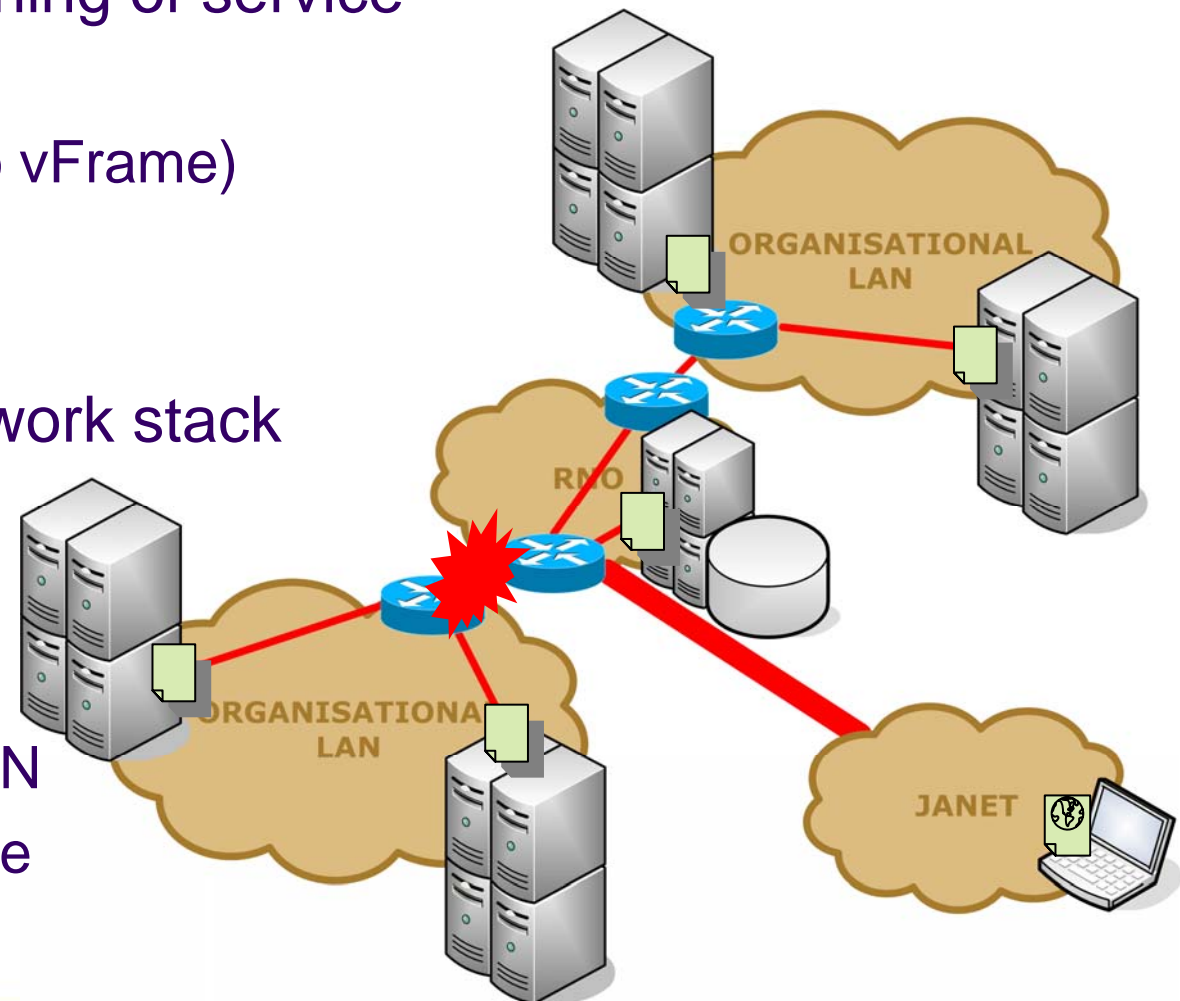
'Monthly' Graph (2 Hour Average)



Max In: 916.2 Mb/s (9.2%) Average In: 462.7 Mb/s (4.6%) Current In: 133.1 Mb/s (1.3%)
 Max Out: 451.7 Mb/s (4.5%) Average Out: 196.0 Mb/s (2.0%) Current Out: 99.8 Mb/s (1.0%)

The Cloud Data Centre

- Automated provisioning of service
 - Virtual Machine
 - Networking (Cisco vFrame)
 - Storage
- Complete IPv6 Network stack
- Pervasive Data Centres
 - Organisational SAN
 - Shared VM Service





Questions?

Matthew Cook
<http://escarpment.net/>