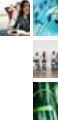


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# JANET Update


Jeremy Sharp – Head of Strategic Technologies  
Tim Kidd – Head of Operations

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Development



Operations

**Bigger and better**

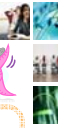
**Applications**

**Reaching out**

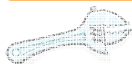
**The future**

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Development



Operations

**Bigger and better**

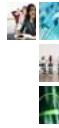
**Applications**

**Reaching out**

**The future**

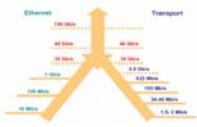
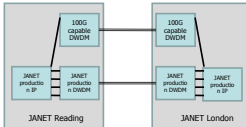
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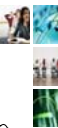
## Bigger! Beyond 40G

- 100GE – the next bandwidth step
- standards rapidly being finalised
- JANET traffic growth means that during 2011, 100G will be needed
- 100G JANET trial

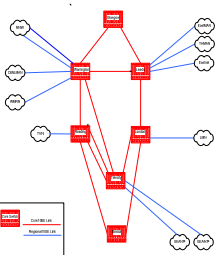
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## Better! – Lightpath service re-engineering

- moved from SDH to Ethernet (EoMPLS)
  - Increased flexibility
  - faster provisioning
  - lower cost




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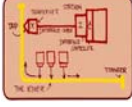

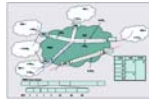


## Box of delights? – Carrier Ethernet

**Bob Metcalf, Ethernet inventor:**  
*So, what's kept Ethernet on top?*  
*Well, it's partly a semantic trick:*  
*"Ethernet has changed and changed and changed – and thank goodness, they still use the same word for it."*



Coaxial **Ethernet**      Switched **Ethernet**      Carrier **Ethernet**

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## JANET Carrier Ethernet Trial

- technology evaluation in JANET context
- gain experience & knowledge
- work to be conducted on JANET on a testbed
- starts Summer '09

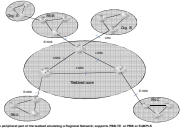
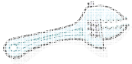


Fig. 1: The diagram shows the proposed Carrier Ethernet Network topology. The core consists of 10 nodes, each connected to 10 other nodes in the core. The core is connected to 10 regional nodes, each connected to 10 other nodes in the region. The core is also connected to 10 external nodes, each connected to 10 other nodes in the external network.

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Development



Operations

Bigger and better

Applications

Reaching out


The future

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## JANET Talk

- rich collaborative environment
- one year trial started Aug '08
- market survey Dec '08 to Feb '09
- analysing results from trial & market survey




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## Strategic review of JANET Videoconferencing

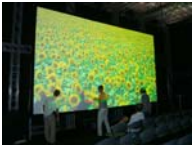
- enormously successful & highly valued service
- service grown & enhanced organically
- review requirements in the context of supporting a richer collaborative environment



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## Ultra High Definition Video




- a strategic area for investigation
  - Understand the network requirements
  - Showcase on JANET
  - Advice

22.2 Surround Sound!



Resolution 4320h X 7680v




Not exactly portable!

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Applications

Reaching out

The future


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**European Networking**

- Geant3 project about to start

**Four Objectives of GEANT3**

- innovative multi-domain hybrid networking environment
- flexible and scalable production quality services
- to be an enabler for Global R&E networking supporting international e-Science initiatives
- to contribute to standards as a key participant in European & Global efforts towards the Network of the Future




- JANET(UK) leading the AAI & Roaming work area

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**Shared Datacentres on JANET**

- public-sector "shared services"
  - one organisation purchases/runs
  - others share in the service
- total cost of provision lowered



- apply to university datacentres?
  - space
  - power
  - resilience
  - carbon footprint

} **££ savings across sector?**


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**Shared High-End Datacentre study**

- component of HEFCE commission: develop a strategy for sector sharing of datacentres
- "SHED"
  - Logica as consultants
  - managed by JANET(UK) with Russell Group universities
  - outline business plan for provisioning – end May
- is there a service universities would buy?
- will it save significant money and carbon?

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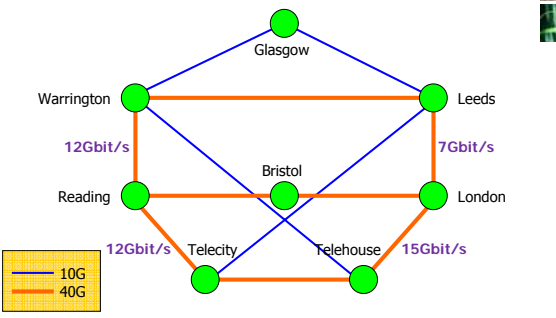


**Operations**

- Bigger and better**
- Applications**
- Reaching out**
- The future**

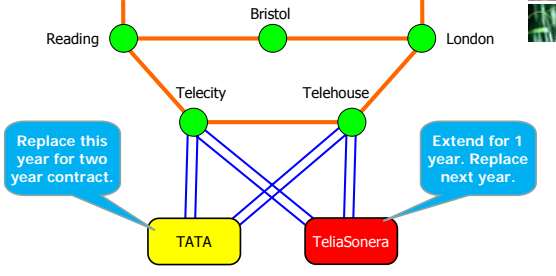
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**Upgrade: 40Gbit/s core.**



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**Global Transit Procurement**

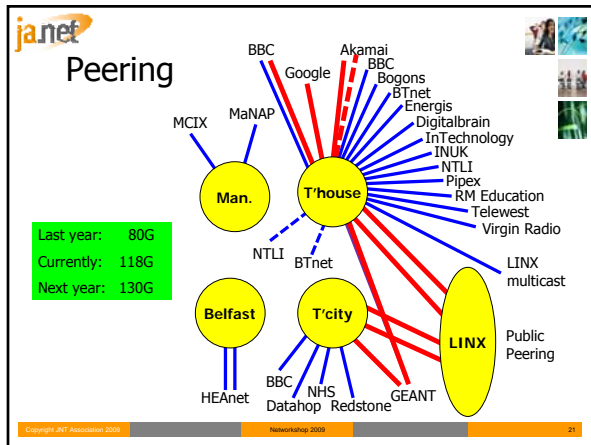
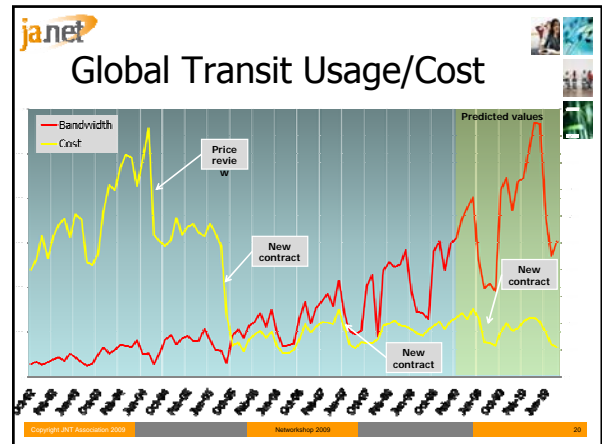
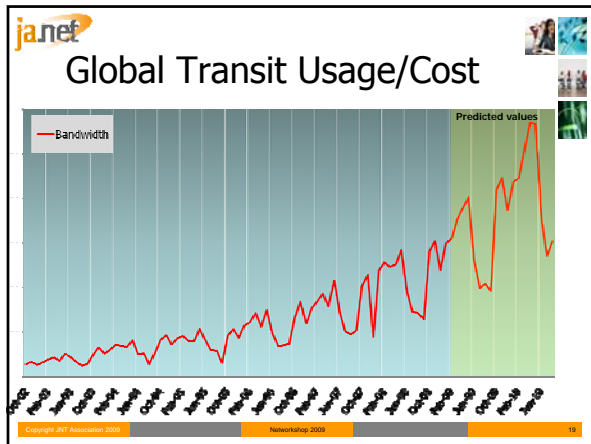


Replace this year for two year contract.

Extend for 1 year. Replace next year.

2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
2007/08	2008/09	2009/10	2010/11	2011/12	2012/13

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**JANET Service Desk**

- Service enquiries, fault management and general queries.
- Cover 07:00 to 00:00 (was 07:00 – 18:00).
- ☎ 0300 300 2212

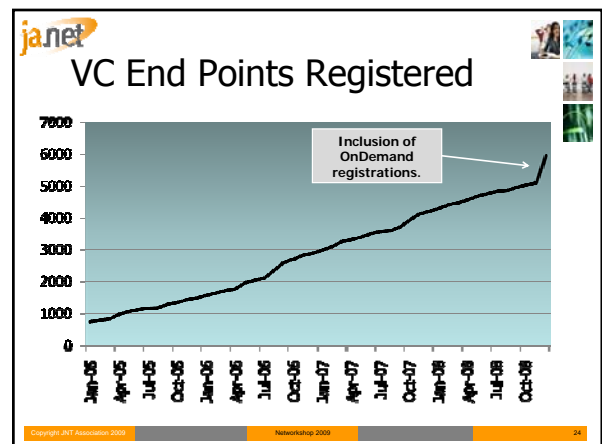
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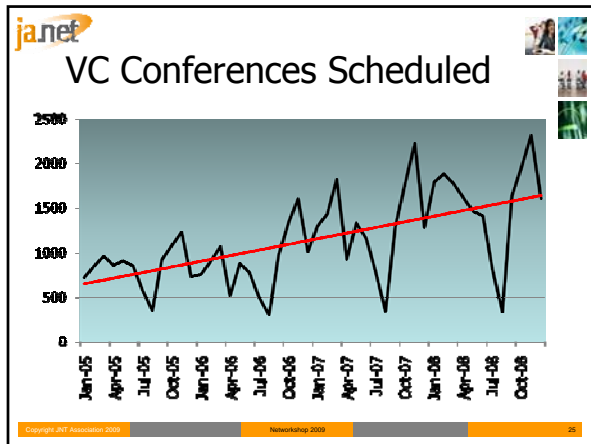
**Development**

**Operations**

- Bigger and better
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- The future

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**Videoconferencing**

Three Tandberg Codian MCUs

- Edinburgh • Bracknell • Didcot •

**HD: 200**  
**SD: 80** or **SD: 480**

**ISDN: 60 channels**

+192 channels of SD on old systems.

Videoconferencing recording service pilot started.

**Netsight 2**

- Based on central relational database.
- Keep all data for two years (no aggregation).
- Resilient design.
- More flexible graph display options.
- Schematic network maps (drill-down).
- Flexible user capabilities.
- IPv6 capability.
- Started the roll-out.

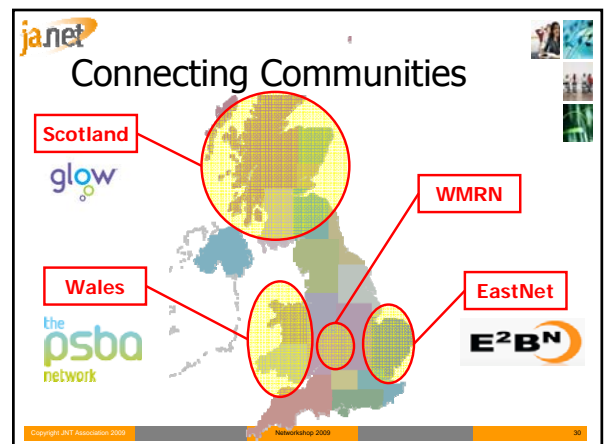
**Regional Network Entry Points**

Name	Last Change	Previous Change
EP_AISMAN via Glasgow	Up since 17:03:2009 07:21:48	Up from 17:03:2009 07:28:42
EP_AISMAN via Leeds	Up since 20:03:2009 13:30:28	Deployed from 20:03:2009 13:37:28
EP_CARLISMAN via Warrington	Up since 17:03:2009 07:21:42	Up from 17:03:2009 07:28:42
EP_CARLISMAN via Warrington	Up since 17:03:2009 09:54:16	Unknown from 17:03:2009 08:47:38
EP_ClydeVal via Glasgow	Up since 17:03:2009 09:11:11	Unknown from 17:03:2009 08:02:39
EP_ClydeVal via Leeds	Up since 18:03:2009 03:57:22	Deployed from 18:03:2009 03:08:25
EP_EASTMAN via Glasgow	Up since 17:03:2009 08:10:44	Down from 17:03:2009 08:10:49
EP_EASTMAN via Leeds	Up since 18:03:2009 03:50:58	Down from 18:03:2009 21:19:03
EP_EastNet via Leeds	Up since 30:03:2009 13:30:37	Down from 30:03:2009 13:34:32
EP_EastNet via London	Up since 30:03:2009 13:30:36	Down from 30:03:2009 13:34:36
EP_EMAN via Leeds	Up since 17:03:2009 07:21:41	Up from 17:03:2009 07:28:42
EP_EMAN via London	Up since 17:03:2009 09:12:12	Unknown from 17:03:2009 08:36:42
EP_FATMAN via Glasgow	Up since 17:03:2009 08:08:54	Unknown from 17:03:2009 08:02:39
EP_FATMAN via Leeds	Up since 21:03:2009 07:30:41	Down from 21:03:2009 07:29:47
EP_HANMAN via London	Up since 17:03:2009 09:11:56	Unknown from 17:03:2009 08:03:41
EP_HANMAN via Reading	Up since 17:03:2009 07:21:39	Unknown from 17:03:2009 07:31:29
EP_LATICE via Bristol	Up since 17:03:2009 09:02:40	Unknown from 17:03:2009 08:48:40
EP_LATICE via London	Up since 17:03:2009 07:21:39	Unknown from 17:03:2009 07:31:29
EP_LBIS via London	Up since 17:03:2009 07:21:39	Unknown from 17:03:2009 07:31:29

**Development**

**Operations**

- Bigger and better**
- Applications**
- Reaching out**
- The future**



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## Framework Agreements

any public sector and related organisation in the UK that is eligible for WVN or JVCS support"

- Equipment
- Maintenance
- Training

Videoconferencing      Direct Visual

"regional network operators and all organisations with a JANET primary connection"

Supply and maintenance of

- Cisco
- Juniper
- Alcatel

Routers

BTinet; Imtech; Alcatel-Lucent and Virgin Media (ntl:).

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## Telco Framework

supplier supplier ...

Framework Agreement

Contract

JANET(UK)

Cheaper circuits. Easier purchase.

- JANET(UK)
- Regional Network Operators
- Primary connections

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Operations

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The future

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## JANET (SJ5) core infrastructure

requirements	two years on
<b>Reliability</b> improve by building in more resilience	minimise components on backbone; dual entry to regional networks
<b>Scalability</b> ability to increase bandwidth at controllable cost	bespoke DWDM network – 40G upgrade
<b>Separability</b> protection of interests of teaching & learning and research sectors	JANET Lightpath service
<b>Flexibility</b> responsiveness to additional network service requirements	bespoke DWDM & IP infrastructure under JANET(UK)'s control – wavelengths added & removed
<b>Visibility</b> controlled access to network monitoring and measurement information by end users	Netsight2 being rolled out – ongoing development to give more visibility

JANET backbone (Verizon)      extension?

2009      2010      2011      2012      2013      2014

extend

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## Planning: programme of activities

- JANET "value for money" study**
  - benchmark 2009
  - options for the future
- technology and bandwidth trends**
  - through to 2013/14
- review of JANET delivery model**
- interworking with other public-sector networks**
  - JANET security model and compliance

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## Summary

Bigger and better

Applications

Reaching out

The future

- Power & flexibility of JANET exploited
- Supporting education and research
- Benefiting from a larger community
- Preparing for the future

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