

janet

Janet in the East Midlands: Briefing Day

10:30 – 13:30 25th April 2013
University of Leicester

Introduction



Agenda

The Janet logo is located in the top right corner of the slide. It consists of the word "janet" in a white, lowercase, sans-serif font, overlaid on a graphic of several overlapping, semi-transparent circles in shades of green, yellow, and orange.

-
- 1. Introduction (JL) 5 mins
 -
 - 2. Janet6 update (RT) 20 mins
 -
 - 3. Refresh of the network in the East Midlands
 -
 - -the re-procurement process and outcome (JL) 20 mins
 -
 - -change to and preparation of the core and circuit migration (JC) 20 mins
 -
 - 4. Future Janet service (RT) 15 mins
 -
 - 5. EMMAN transition and implications (IDG) 15 mins
 -
 - 6. Future customer engagement and stakeholder groups (PW) 10 mins
 -
 - 7. Summary and questions 20 mins
 -
 - 8. Lunch approx 12:40 - 13:30

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Janet6

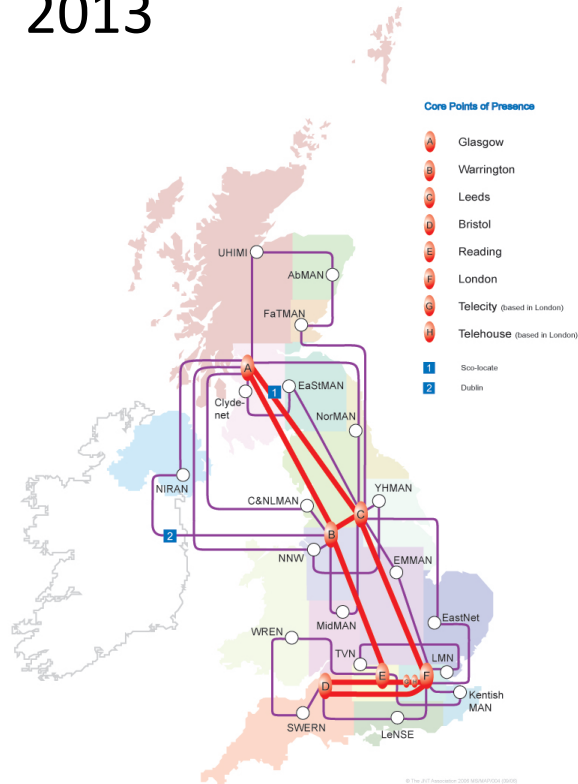
“A world-class infrastructure supporting world-class research
and education”

Rolly Trice

roland.trice@ja.net



SuperJanet5: 2006 to 2013



What is Janet6?

Project to replace the UK wide Janet backbone, SuperJanet5

Janet6 objectives

- A highly reliable network
- Flexible in meeting future demand
- More agile in dealing with change
- Increased range of partnerships and collaborations
- Increased level of cost control



- Getting out of the cycle of hitting the scaling ceiling
 - **SuperJanet4**: exploiting telco investment in new optical technologies
 - 10Gbit's
 - **SuperJanet5**: dedicated fibre backbone and transmission equipment
 - Management of transmission by Verizon via bespoke contract
 - Originally 10Gbit/s, but have upgraded through 40Gbit/s to 100Gbit/s
- But still some distance away from the “laser-Face”
 - Deployment issues – contractual rather than operational
 - Time to provision
 - Cost management



The Janet6 birds-eye view of the time line

Requirements gathering & analysis	2010/2011
Business case development, approvals & funding secured	Sept 2011 to July 2012
Procurement <ul style="list-style-type: none">• Fibre infrastructure• Optical transmission equipment	Oct 2011 to Sept 2012
Janet NOC readiness programme	Jan 2012 to April 2013
Rollout	Sept 2012 to April 2013
Transition SJ5 to J6	May 2013 to July 2013
SJ5 'turned-off'	Oct 2013



Service delivery options	
1	Do nothing
2	Continue with existing contract
3	Use the commodity market place
4	Bespoke arrangement
5	Separate networks for research and teaching and learning

Implementation options	
1	Outsource as per current approach
2	Procure separate fibre infrastructure and managed optical transmission services
3	Procure separate fibre infrastructure and DWDM equipment & Manage the optical transmission equipment in-house

Procurement strategy

- Bespoke arrangement
- Acquire dark fibre infrastructure and optical equipment separately and manage in-house by the Janet NOC
- Adjust during procurement if dialogue uncovers other options




- Fibre infrastructure contract signed: 31st July 2012



- Scottish & Southern Energy Telecoms (SSET)

-  contract
- £30M

- Optical transmission contract signed: 6th September 2012

- Ciena Inc.

- Supply and 5 years support agreement
- £12.8M



- Agreement with Juniper channel partner to supply and install router and switch infrastructure

- Imtech





- ***To deliver a highly reliable and secure network***

- Careful design choices
- Carrier class network equipment & infrastructure
- Strict SLA's
- Management by Janet NOC

- ***To provide a network that is flexible in meeting future demand***

- Design enable capacity scaling at controllable cost

- ***To provide a network that is more agile in dealing with change***

- Management by Janet NOC
- Close working relationship with industry partners





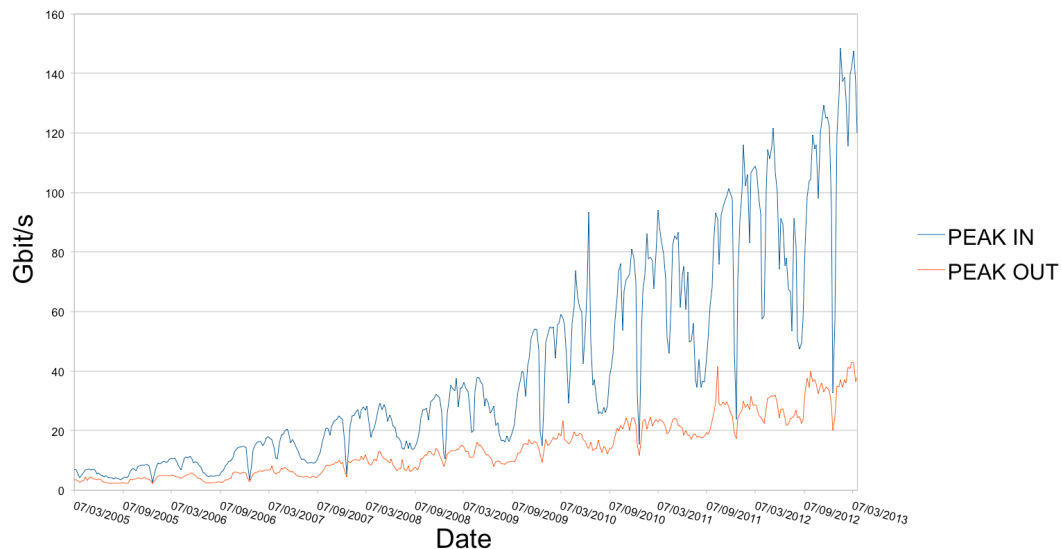
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Janet6 design

A design starts with requirements

- Bandwidth
- Reliability
- Collaboration
 - PSNs
 - Other service providers, e.g. “cloud”
- Services
 - Inter-site VPNs

Weekly 5-minute Traffic Peaks



- Two competitive dialogue processes
 - Fibre
 - Transmission equipment
- Initial criteria to thin out the list of suppliers
- Several rounds of intensive dialogue
 - Janet states its requirements
 - Potential suppliers give 1/2 day briefing on their solution
 - Janet refines its requirements
 - Repeat



- What should the network look like?
 - Where should the points of presence be?
 - How much of a mesh should the network be?
- Fibre characteristics



- Universities
 - Natural choice for a research and education network?
 - Combine backbone with “access” fibre
 - We require 24 hour access
 - We want to put large routers there with transmission equipment
 - We asked for 24kW at the core PoPs
- Telco-independent PoPs
 - We can get circuits from any provider in there
 - May be used to dealing with large routers
 - We’d have to contract with them individually
 - Overhead
 - Limited market
 - Can be expensive
 - Once we’re in there, we’re a captive market
 - Scolocate (Edinburgh); Telecity Manchester, Powergate and Harbour Exchange; Leeds AQL; Telehouse West and North

- Provider PoPs
 - Least expensive
 - Can be difficult to get third party circuits in there
 - Used to dealing with transmission equipment
 - Not so accustomed to large routers
 - Fibre is already going to be at the premises
 - We have a deadline to hit
 - Remainder of the backbone points of presence



- More east-west links
 - Birmingham to Nottingham/Leicester
 - Newcastle to Carlisle
 - Not much spare fibre available



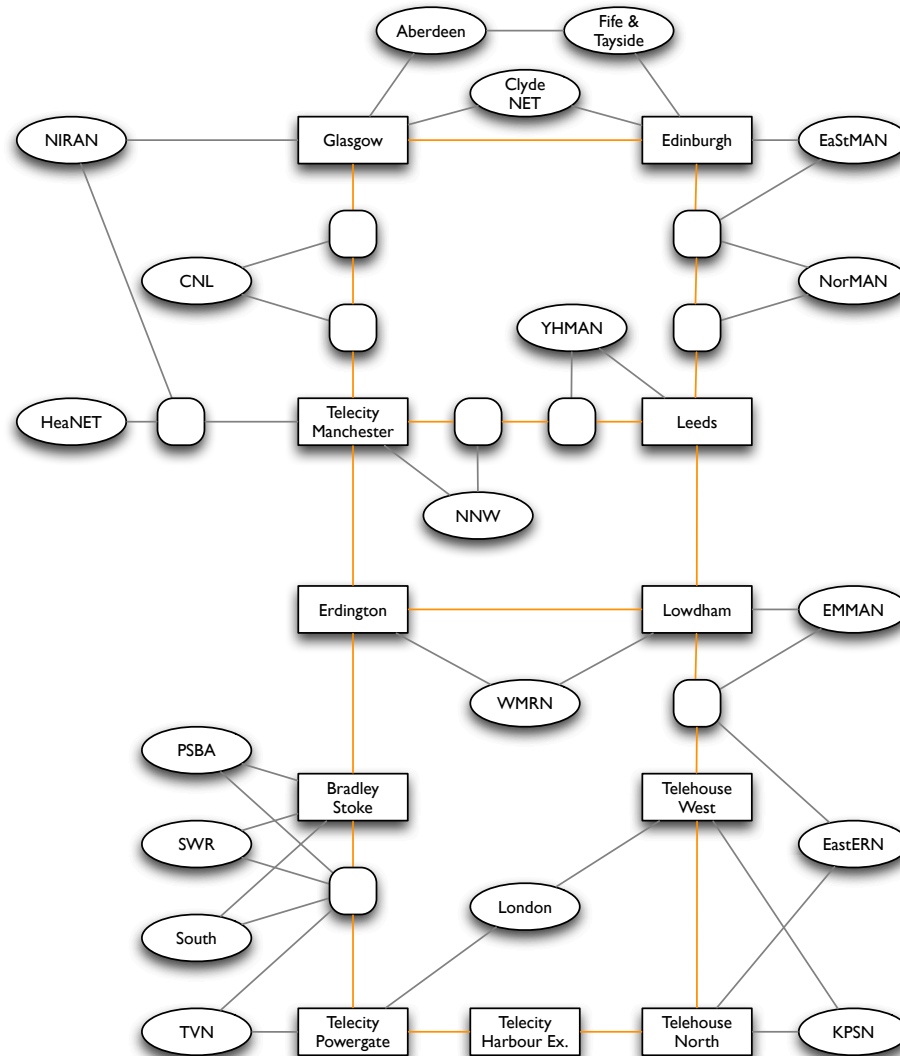
- G.652
 - Most of the installed fibre base
 - High chromatic dispersion at 1550nm (centre wavelength of DWDM spectrum)
 - $\sim 17\text{ps/nm.km}$
- G.655
 - Lower chromatic dispersion at 1550nm
 - $\sim 4\text{ps/nm.km}$
 - Need variant called “LEAF” for efficient transmission
- Latest DWDM kit is tolerant of chromatic dispersion
- Need to avoid splices between G.652 and G.655
- Result: G.652 everywhere.



- **Reconfigurable Optical Add/Drop Multiplexer (ROADM)**
 - Key point: Can flexibly redirect any one wavelength out of 80-90 coming in on a single port to any other port
- **Directionless (Direction Independent Access)**
 - Add and drop of client signals isn't tied to a particular outgoing fibre
 - Normally it is – three core fibres require three sets of add/drop multiplexers and demultiplexers
- **Colourless**
 - Add and drop wavelengths aren't tied to a particular port on a mux/demux card



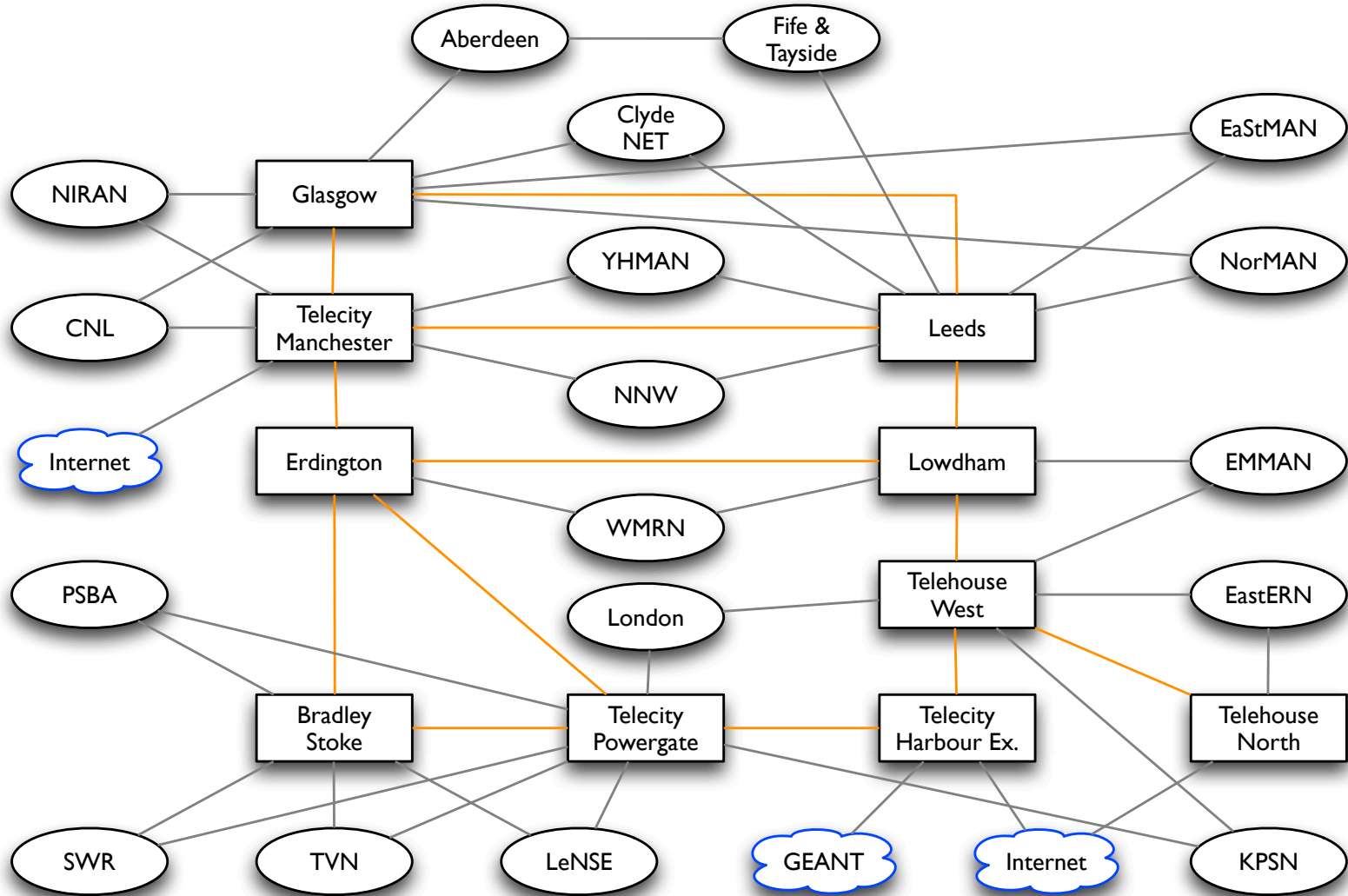
The fibre network



- No new procurement
- SuperJanet5 routers started off at 40G per slot (T640)
- Mid-life upgrade to 100G per slot (T1600)
- Another upgrade to 240G per slot (T4000)
 - One more upgrade on the roadmap
- 100GE on T4000 is $\frac{1}{3}$ to $\frac{1}{2}$ the cost of 100GE on T1600
- Topology changed to reflect new underlying fibre
 - New east-west link (Erdington to Lowdham)
 - Pull Telecity Manchester into the backbone
 - More PoPs in London



The IP network*



(*) This is a map drawn by an engineer, sorry.

What did we end up with?

- ~1,500 miles (2,383km) of backbone fibre
- ~2,700 miles (4,316¼km) of regional fibre
- 93 Ciena 6500 shelves
 - Plus CPL and Raman amplifiers
- 28 100GE circuits
- 130+ 10GE circuits



Janet6 deployment

- SSET fibre
 - Delivery
 - Acceptance
- Juniper routers
 - Delivery
 - Installation
 - Acceptance
- Ciena optical equipment
 - Delivery
 - Installation
 - Commissioning
 - Acceptance



Mid May 2013

End May 2013



-
- Final network commissioning **End May 2013**
 - Operational readiness programme **End May 2013**
 - Regional Network migrations **June – July 2013**
 - University clearing **Aug – Sept 2013**
 - Migration contingency **October 2013**
 - SuperJANET5 contract end **23 October 2013**
 - SuperJANET5 decommissioning **Nov 2013 – Apr 2014**



Delivery & Installation



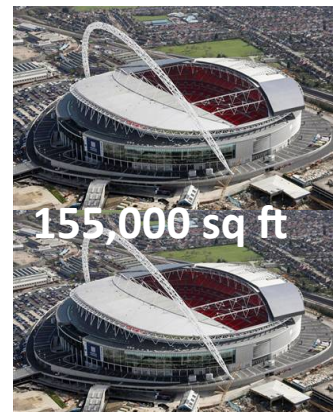
Key Stats

1. 92 fibre routes

- 6,000km

2. 80 PoPs

- 35 new
- 45 existing



3. 146 racks

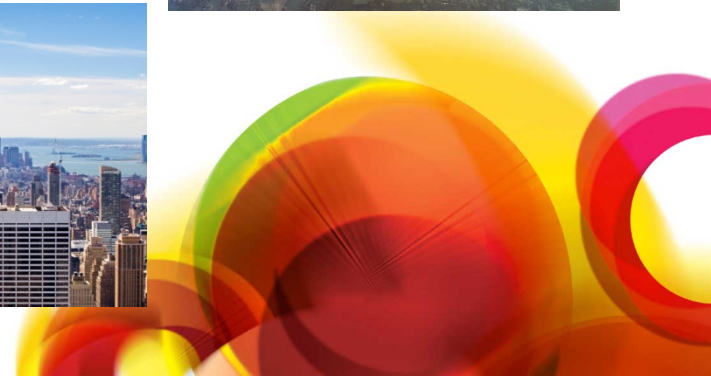
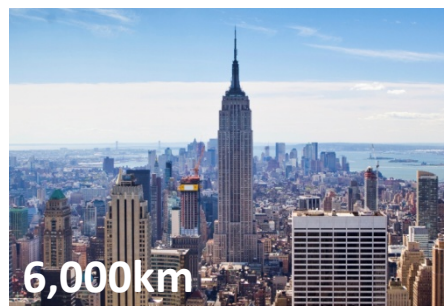
4. Ciena 6500 platform

- 91 chassis
- 5,000+ individual parts



5. 382 power feeds

6. 27km of construction



Building on the fact that Janet is....

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- Highly reliable
- Well managed
- Highly scalable
- Well connected



- Be open and accessible
- Be ahead of demand
- Support a richer set of connectivity services on and off-net
- Provide customer controlled access to bandwidth
- Support users getting the best performance



The background features a series of overlapping, semi-transparent circles in a color palette of orange, red, yellow, and green. The circles are arranged in a way that they overlap each other, creating a sense of depth and movement. The colors transition from warm tones on the left to cooler tones on the right.

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Thank You

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East Midlands: the re-procurement process and outcome

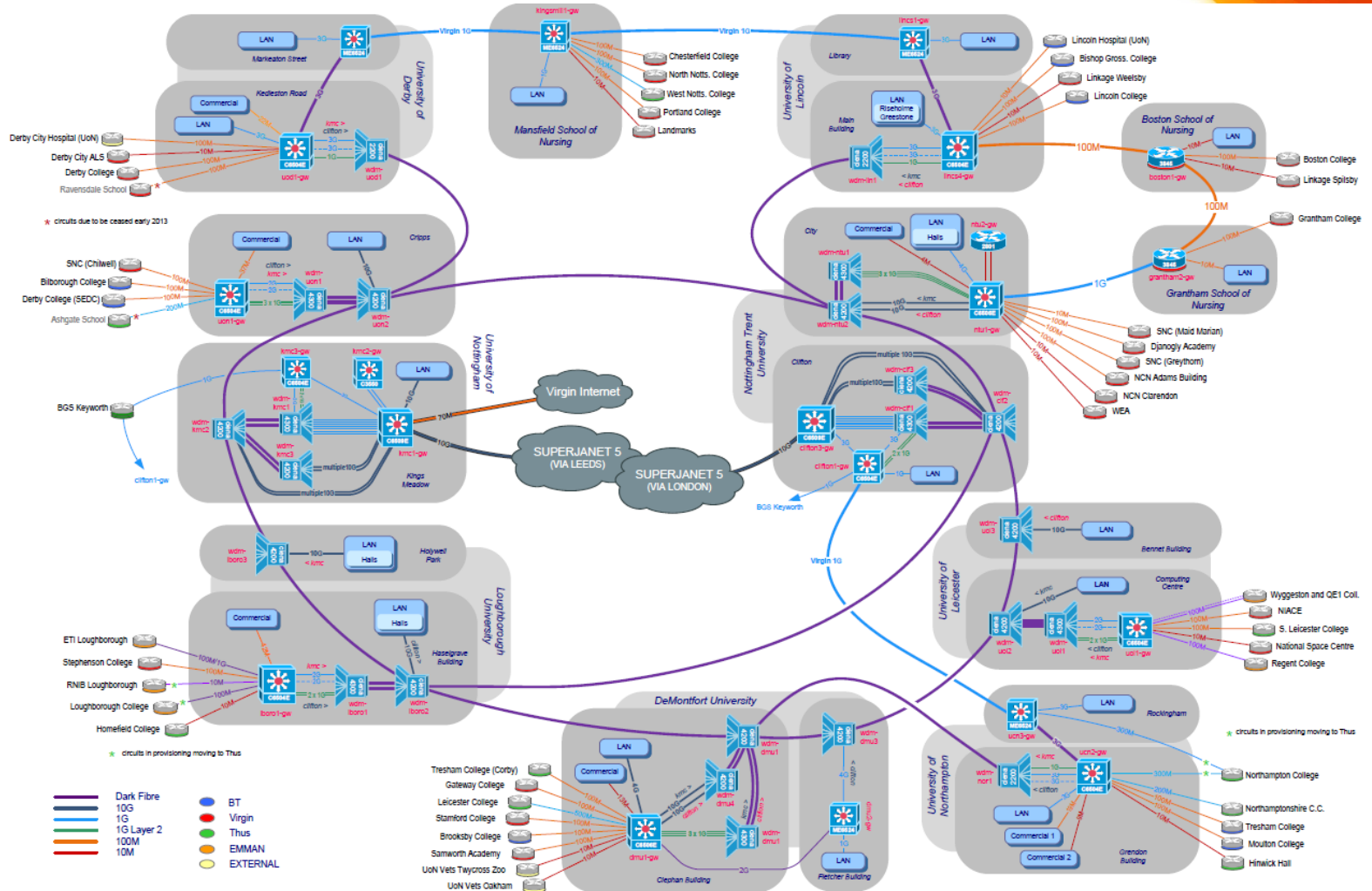
Presentation by John Littledale for the
Janet in the East Midlands Briefing Day



- The East Midlands region, EMMAN, has been managed and operated by EMMAN Ltd since 1 October 2001.
- RPAN and JPA contracts.
- RNEPs at the University of Nottingham and NTU.
- Always had a strong emphasis on a robust dark fibre core.
- Small number of outlying PoPs connected by leased lines
- Fibre procured over a number of years by NTU.
- Novated to EMMAN Ltd in 2002

EMMAN Network

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LABEL	TITLE	DRAWN BY	DATE
	EMMAN DETAILED NETWORK SCHEMATIC - INCLUDING 2012 UPGRADES	ROGER BROWNE	24/01/2007
		FILENAME	REVISED
		EMMAN SCHEMATIC - DETAIL - 120928 DRAFT.VSD	28/09/2012

-
- Procurement risk in extending the contract term without a market test.
 - Janet did not want to novate contracts.
 - Contracts are non concurrent.
 - Looking for a better deal
 - Need to re-design elements of the network



- Janet/EMMAN/EMUIT/FEs worked together.
 - Ability to increase bandwidth to meet need
known research initiatives e.g. DIRAC and HPC
unknown research initiatives
students use of media rich content
general increase in data generation e.g. through digitisation of information and from experimental equipment (telescopes, gene sequencers etc)
 - Availability
resilience
double PoPs
- “Expect HEIs to want to increase bandwidth and performance of connections flexibly up and down to accommodate fluctuating research requirements and locations. This will demand use of dark fibre connections.” Mary Visser.

- 2011 - explored procurement route with LAs
 - Requirements did not dovetail
 - Reinforced strong working relationship between Janet and the tertiary education groups in the East Midlands.
- June 2012 – first meeting of the East Midlands transition working group.
 - Ian Griffiths; John Cheesbrough; Stephen Percival; Rolly Trice; Rob Prabucki; John Littledale.
 - Became the first point of contact for interaction between Janet and the East Midlands tertiary community.
- Procurement discussions form a permanent part of the agenda.



- Written by Rolly Trice – a Janet document in consultation with EMMAN
- Outlined the essential procurement aims:
 - Network procured in compliance with public procurement regulations
 - Meets the needs of the Tertiary Education community
 - Sufficiently flexible to meet future bandwidth needs
 - Good VfM
- EMMAN and individual Universities' assistance
 - Transfer of optical equipment and core routers
 - Affordable and long-term PoP contracts
 - Service Levels re inter-campus dark fibre



- Informed by the procurement strategy and the project plan
- Again written by Rolly Trice
- Consultation with the procurement panel
 - Equal representation from Janet and the East Midlands community
 - Including Heads of procurement, IT, finance, senior engineers, project managers etc
 - Panel meeting on 19 November 2012
- Joint communications letter re the network refresh and the operational transition



- Two options for the core
 - Predominantly dark fibre
 - Managed services
- Separate lots
 - Cunning plan
- Contract duration
 - Term dependent on solution
 - Co-terminal
- Basis of selection
 - 50% on value
 - 50% on technology/service levels/delivery



-
- | | |
|-------------------|-------------------------------|
| • 3 December 2012 | Statement of Requirements |
| • 7 January 2013 | Final date for clarifications |
| • 15 January 2013 | Closing date for tenders |
| • 1 February 2013 | Selection of preferred Bidder |
| • 1 March 2013 | Contracts placed by |
| • 30 August 2013 | Scheduled Connection Date |



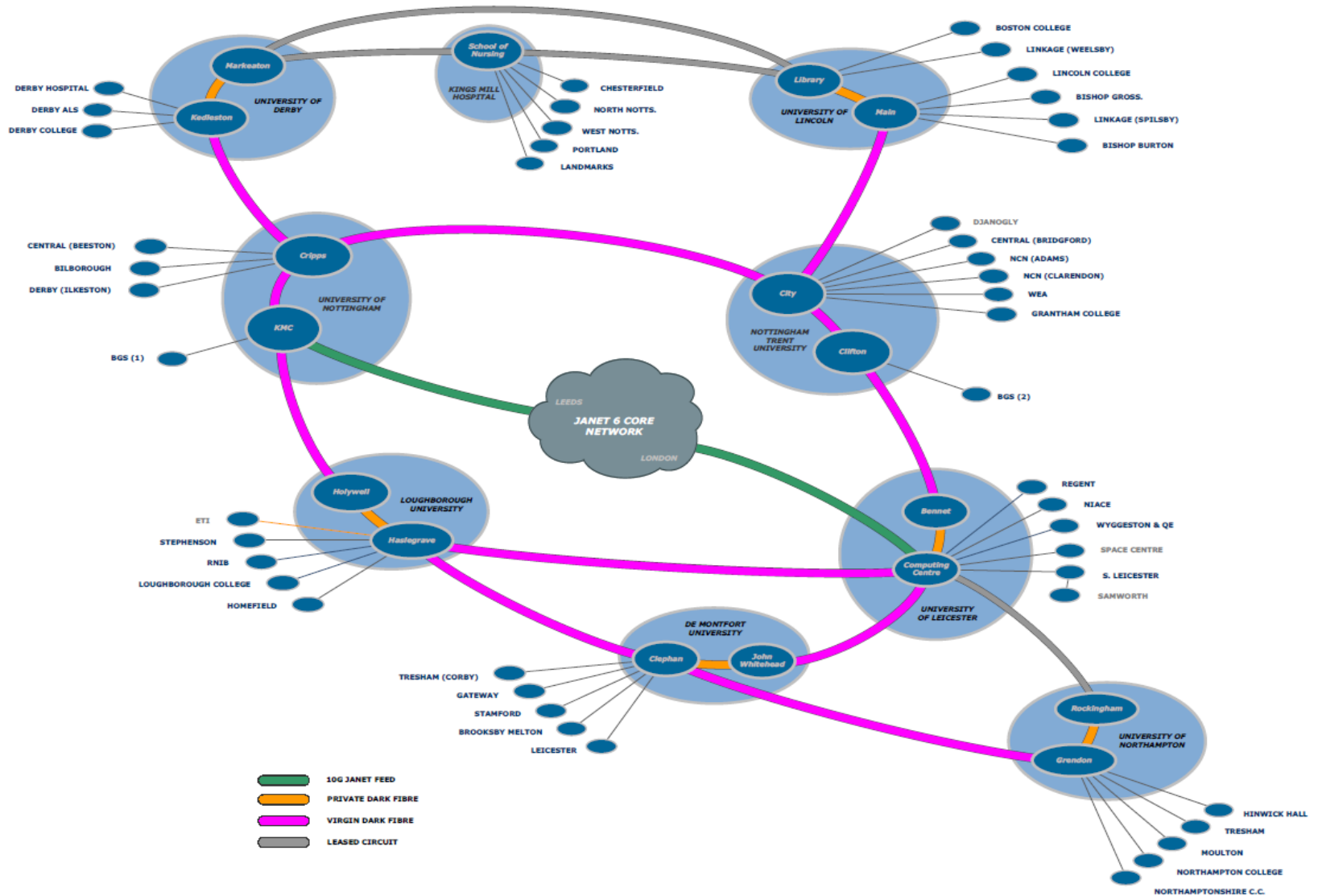
- 29 January 2013 Full panel meeting
- Selected VM
 - Dark fibre core retained
 - Good value access circuits
 - Continuation of good service
 - As the incumbent – good infrastructure and understanding of the network
- Current costs
 - Core = £ 615,542
 - Access circuits = £ 428,704
 - Total = £1,044,246
- New costs
 - Core circuits = £ 521,682
 - Access circuits = £ 266,575
 - Total = £ 788,257



- Upgrade bandwidths
 - Held for initial five year and three year terms (core and access)
 - Broadly – affordable upgrade paths
- Quick wins
 - Pricing so competitive that it includes bandwidth upgrades
 - Saturation identified by EMMAN
 - Upgrades authorised by Janet



Future East Midlands Network



East Midlands Buy In

The Janet logo is located in the top right corner of the slide. It consists of the word "janet" in a white, lowercase, sans-serif font, positioned over a graphic of several overlapping circles in shades of green, yellow, and orange. The circles are semi-transparent and overlap each other, creating a vibrant, multi-colored effect.

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- Critically important to Janet
- Favourable feedback from panel members

“Janet’s buying power was reflected in the favourable costs provided by Virgin Media – and has set the East Midlands region up well for the next 10 years and beyond.”

Phil Richards

Chair of the EMMAN board, Director of IT services at the University of Loughborough.

“As an end user of the service representing the FE community of the East Midlands, it was refreshing to be involved with the procurement and to see how thorough the process was, and to see the professionalism of all involved.”

Richard Garbutt,

ICT Services Manager at Northampton College

East Midlands Buy In (cont)

The logo for Janet, featuring the word "janet" in a white, lowercase, sans-serif font. The text is positioned over a series of overlapping, semi-transparent circles in shades of green, yellow, and orange, which are arranged in a circular pattern in the top right corner of the slide.

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“ Having been party to the entire process, sitting on the evaluation panel and seeing the probable disposition to FE institutions, I am impressed with the way you have all handled the process and also the result which does look very good.“

Jim Reed,
Director of Procurement, University of Nottingham.

Contract signature



- Scheduled for 1 March
- Actual signature date was 26 March
- Delays Scheduled Acceptance Date
 - Planned 30 August 2013
 - Now 24 September 2013
- Condenses period of migration

Confidence and thanks



- East Midlands community knew and trusted EMMAN
- The procurement process has engendered greater confidence and trust in Janet
- The process has been a considerable team effort
 - Multiple meetings
 - Documentation agreed
 - Procurement process including the evaluation
- A big thanks
- No complacency
- Appropriate forums going forwards
- Fine words, but know we will be judged on our deeds



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Thank You

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Janet Service in the post-EMMAN world

Rolly Trice

roland.trice@ja.net



- Janet's Service Commitment
- Performance Reporting
- Service Management



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Janet Service Commitment



- **A Service Level Agreement that**
 - Measures the service as a whole for the funders
 - Measures the service for individual customers
 - Based on averages in many cases
- **But**
 - Is not very customer-friendly
 - Is not very clear and transparent
 - Is not easy to use for internal monitoring and quality control
 - Is not focused on an individual customer's experience
 - Reflects old relationship between JISC and JANET(UK)
- **And**
 - Published stats used by HEIs to benchmark their services
 - Don't stop old reports unless replacement available



- By 1 August 2013, we intend to have:
- Worked with customers and stakeholders to create
 - an SLD for each of our services that meets the needs of both customers and stakeholders and
 - that supports internal monitoring and quality control
- Implemented any identified improvements to the SLD
 - Created new documentation that clearly defines Janet Service levels, using measures that are meaningful to our customers and stakeholders
- Aim to publish drafts in early May
- Feedback to sla2013feedback@ja.net



-
- To have in place SLDs for our services that:
 - has the broad acceptance of our customers;
 - is clear and appropriate for the target audience(s);
 - is integrated into our web presence;
 - is useful for our internal monitoring and quality control of service provision; and
 - has the support of the Jisc owners (UUK, AoC and GuildHE) plus the members of the Janet Stakeholder Group



- To have in place, SLD documentation that is
 - aimed at the individual customer
 - describes our services clearly, consistently and in plain English
 - states clearly what we will do when issues arise
 - defines what the customer can expect from Janet
 - defines the responsibilities of the customer
 - differentiates service levels for different products and services, as needed
 - enable customers to select the products and service levels which best meet their business needs

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Performance Reporting





- We will produce regular reports against the SLD
- Aimed at the individual customers
 - Default will be automated
 - Customer reports on the Janet web portal
 - Will need to manage exceptions and problems face to face
- Aimed at regional and national stakeholder groups
 - Broader statistics
 - Leading discussions on service improvement

- **Help you report internally on the value of Janet**
 - Near misses (what would happen if you didn't have backup links)
 - Identify the value of other Janet services above the bits and bytes
- **Potential to add more value**
 - DIY (We provide the information, you build the business case)
 - Chargeable service if we do it for you
 - Getting the balance right will be important

- Working with EMUIT transition Group
 - Establish post EMMAN environment
 - By December 2013
 - Work in progress





- **Feedback so far**
 - Some HEIs use current JISC reports to benchmark internal services
 - **Customers want confidence that Janet does:**
 - Fault Management
 - Customer Engagement
 - Service Management
 - Capacity Planning
 - Change Management
 - Business Continuity
 - Helping HEIs cope with disasters (which could also be disasters for Janet)
- **Customers want to understand**
 - How they interact with Janet
 - How they provide input to Janet's processes

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Service Management





- **Network Planning**
 - Developing tools for Capacity management and planning
 - Capacity Planning for Regional Infrastructures
 - Integration of Optical and IP NMS platforms
- **Projects**
 - Manage RNO transitions
 - Procurement, deployment and transition of regional networks

- Responsible for the effective & efficient delivery of major projects
- Strategic life-cycle management of the backbone and regional network infrastructures operated by Janet
- Ensure that the Janet backbone & regional infrastructures are monitored and modelled to enable detailed and informed predictive planning of capacity and service requirements
- Provide regionally focussed trusted advice and support which enables customers to exploit their Janet service to deliver relevant cost effective solutions for their business



- **Network Service Managers**
 - Will have procured and deployed regional networks
 - Will know the customers
 - Will understand the network
 - Will understand the politics
 - Will act as the customer's advocate within Janet
 - Will help customers better exploit the network and other Janet services
- **Could be embedded in your research groups**
 - Under NDA
 - To get advanced notice of emerging requirements
- **Your Service Manager will be John Littledale**



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Thank You

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East Midlands Briefing Customer Engagement

Paul Wakefield
April 25th 2013



- Janet aims to ensure that we actively engage with all our customers such that:
 - we are perceived as a trusted partner so that customers act as advocates for Janet;
 - customers are fully informed about Janet services and are able to use them effectively;
 - we participate in appropriate local and regional partnerships that benefit our customers; and
 - we provide in a timely manner the services that customers require.
- National / Regional levels
- Network & Services
- Strategic & Operational



CUSTOMER ENGAGEMENT TEAM



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Northern Ireland
Position Vacant

North West
Position vacant

Robert Prabucki is CEM for East Midlands & Eastern regions.

Search for your regional community group at <https://community/ja.net/groups>



- Individual
- Group (EMUIT, Heads of IT)
- Electronic ([Community](#))
- National stakeholders (UCISA, UUK, AoC, RUGIT, I57 Group etc)
- Other - whatever works for you!



- Janet 6 rollout
- Service Level Commitment
- Jisc Transition
- Regional transition (already covered)
- Janet Developments
 - ESISS
 - Telephony Framework
 - 4G Trials
 - Moonshot pilot
 - ADSL Back-up
 - Femto cells





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Thank You