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# Welcome and Introduction

The University  
of Manchester

MANCHESTER  
1824



## The University of Manchester

Welcome to Networkshop 33 at The University of Manchester, Britain's newest University, even though we were established in 1824. The University of Manchester has been created by bringing together The Victoria University of Manchester and UMIST, two of Britain's most distinguished universities, to create a powerful new force in British Higher Education.

The new University has been established with an unprecedented £300m investment programme. It is expected to be the largest single-site university in the UK, offering students a greater choice of degree programmes and options, and even better facilities and student support services.

Research is at the heart of The University of Manchester. Many of the major advances of the 20th Century began here, including the work by Rutherford leading to the splitting of the atom and the development of the world's first modern computer. Today, our research activities remain at the cutting edge; the University generates in excess of £100m in funding each year. Our commitment to research excellence is clearly demonstrated by our investment in facilities which make such world-leading research possible. The University boasts the world famous Jodrell Bank Observatory, the soon to be completed £30m Manchester Interdisciplinary Biocentre and the recently opened £40m Integrative Centre for Molecular Cell Biology.

The organising committee from Manchester has been formed from staff of Manchester Computing, which is responsible for the IT infrastructure supporting the University campus. Our aim is to remain as Europe's premier academic IT service by continuously improving services, standards, and access for all our users. Manchester Computing incorporates services funded by the Research Councils, JISC, UKERNA and industry, delivering them in support of research, teaching and learning. We are proud to deliver a portfolio of services into every UK Higher Education organisation, most Further Education organisations and increasingly schools.

The campus network run by the Communications group has a state-of-the-art high availability 10Gbit/s backbone and connects users across the University to the services provided by other teams: reliable networking is an essential component of virtually every other IT development in the University. As well as connecting buildings across a large campus, the network supports the operation of a dual-site configuration for the University's significant investment in new corporate information systems to support research, teaching and learning and administration.

Since 1998, The University of Manchester has operated Net North West as part of the not-for-profit company that provides the JANET Regional Network linking 86 HEIs, FECs and Research Council sites from Lichfield in the south to Carlisle in the north. NNW acts as a vehicle for inter-regional collaboration, and is set to develop in parallel with the national SuperJANET5 initiative to retain our place at the forefront of regional networking. Being at the core of NNW renders Manchester ideally placed to exploit opportunities in new technologies such as GRID, e-Science and UKLight.

**Tim Robinson**  
**Head of Services (Communications), Manchester Computing**  
**The University of Manchester**

## **UKERNA**

Welcome to Networkshop 33 at The University of Manchester. This is the first time that Manchester has hosted Networkshop and it is a pleasure to be at the country's newest University. This year's conference also celebrates the 21st anniversary of JANET, which was first set up in April 1984.

During the last 21 years the network has grown from its original 9.6kbit/s links to gigabit/s links and we will see it develop further in the next few years with the implementation of the SuperJANET5 backbone. The needs of JANET customers are varied and rapidly evolving, and it is UKERNA's role to ensure that JANET is maintained as a world leading education and research network that continues to meet the needs of our customers, both now and in the future.

The Programme Committee for Networkshop 33 has taken into account the event's technical focus while attempting to include subjects that will address the diverse interests of the delegates. We have kept to the format of the last event, with a plenary session on each day and a significant number of parallel sessions, which allows for a more varied set of talks. This year the exhibitor sessions are timetabled throughout the first two days of the event and Birds of a Feather (BoF) are arranged at the end of each day.

Networkshop is UKERNA's opportunity to obtain feedback from the community. Every element of the conference will give delegates the opportunity for questions and discussion, with the parallels and BoFs, in particular, designed to facilitate interaction. With over 350 delegates from within and beyond the JANET community there should also be plenty of opportunity for information gathering and discussion outside of the formal sessions.

The Programme Committee would like to thank all of the presenters who have contributed to the programme, particularly those who provided their material in advance, enabling the production of this guide prior to the event. The organisers of the event would like to thank the exhibitors who attend the event as it is their attendance which helps to keep down the costs to the delegates. Please take the time to visit the exhibition area during all the refreshment breaks.

There are others who also deserve a vote of thanks for their efforts in organising the conference: the team at The University of Manchester, including Tim Robinson and Malcolm Pitcher; and from the UKERNA side, Wendy Salmon and Julie Nicholson, who have worked extremely hard to ensure that this year's event is a success and you have a comfortable stay. A special thanks to Jeremy Sharp and his team who have helped to put together an interesting and varied programme. I should also like to thank Claire Aston for putting together this guide. Finally, many thanks to everyone not mentioned here who has been involved in making the event a success.

I hope you find Networkshop 33 useful, interesting and enjoyable.

***Shirley Wood***  
***UKERNA Programme Co-ordinator***

# Venue Information

## REGISTRATION AND INFORMATION

The Conference Registration and Information Desk will be located in the foyer on the first floor of the Renold Building (Map of Venues reference 5). A second Information Point will be located in the cloakroom on the ground floor.

Registration opens at 11:00 on Tuesday 22 March. Delegates should register here on arrival for the conference. The desk will be staffed as follows:

Tuesday 22 March	11:00 – 19:00
Wednesday 23 March	08:30 – 18:30
Thursday 24 March	08:30 – 14:30

A separate desk will be set up in the Renold Building alongside the conference desk, for accommodation registration for Weston Hall. This will be open from 11:00 to 18:30 on Tuesday only. At all other times please register at the Days Inn/Manchester Conference Centre – Weston Hall (Map of Venues reference 3).

## EARLY ARRIVALS

Delegates arriving on Monday should go straight to their accommodation in Weston Hall (Map of Venues reference 3). On Tuesday please register for the main conference at the Renold Building, as detailed above.

## BADGES

On registering you will be given a conference badge which **must be worn at all times** to gain access to conference sessions, the PC room, meals and refreshments. Please note that as the venue is a city centre campus we will be very strict about badges.

### Badge Identification

<b>clear</b>	<i>delegates</i>
<b>green</b>	<i>exhibitors</i>
<b>yellow</b>	<i>speakers</i>
<b>blue</b>	<i>conference team and stewards</i>
<b>red</b>	<i>visitors</i>

## CAMPUS ACCOMMODATION

All delegates will be accommodated in single, en-suite rooms in the Weston Hall (Map of Venues reference 3). Rooms are accessible from 14:00 on the day of arrival. The adjoining hotel reception is staffed for 24 hours.

All rooms are en-suite and offer private showers, toilet and washbasin facilities. Towels and soap are provided. Individual tea and coffee-making facilities, and private telephone, are provided in each room. There is access to communal lounges/kitchens where TVs, irons and ironing boards are available to guests. Bedrooms are serviced daily.

A choice of full English or Continental breakfast will be served in the Weston Room, from 06:30 – 08:45 each day.

Should you require assistance at any time during your stay, ask at the hall reception, or at the hotel reception that is staffed 24 hours a day, or note the Useful Telephone Numbers listed on page 9 of this guide.

### Internet Access in Rooms

All delegates will be issued with a username and password on registration. These credentials grant access to the conference network services, both wired and wireless (see pages 6-7). All delegate rooms contain an Ethernet point which may be used for TCP/IP LAN access from their own devices (configured to obtain an IP address by DHCP).

## DEPARTURE

Delegates must vacate their room by 09:30 on the day of departure. Facilities will be available for the storage of luggage in Hall or in the cloakroom on the ground floor of the Renold Building.

## CAR PARKING

Parking is available in the nearby multi-storey car park on Charles Street, behind the Security Lodge (Map of Venues reference 4) where we have negotiated reduced rates - £6.00 per 24 hours (or £5.00 per day). You will need to purchase special vouchers from the conference information desk – cash only please. Spaces are *limited* and will be first-come, first served. There are more car parks in the vicinity, shown on your Campus Guide.

## SECURITY

Security staff are on duty 24 hours a day to help in an emergency and provide information. Should an accident, criminal act or suspicious incident occur on University premises it must be reported without delay to University Security on 62444 from an internal telephone (0161 306 2444 external). Delegates are requested to reduce the risk of thefts by not leaving valuables unattended on

University premises. Subject to their statutory rights, the University will accept no responsibility for accidents to delegates while on its property, or to damage to, or loss of, their personal property.

## HEALTH

Should you require medical attention, the Occupational Health Department is situated on the ground floor of the Chemical Engineering Building, behind Staff House (Map of Venues reference 6) on the Sackville Street site, and is open from 08:00 – 17:00 Monday to Friday. Outside these times emergency cover is provided by telephoning the Security Lodge on extension 62444.

The nearest hospital with an A&E department is The Manchester Royal Infirmary (MRI), Oxford Road, Manchester, telephone 0161 276 1234. Please ask at the Information Desk for details of the nearest chemist and dentist.

***Please report accidents or ill health to the Conference Information Desk in the Renold Building, especially if this leads to you departing early from the Conference.***

## EMERGENCY PROCEDURES

Please familiarise yourself with the University's emergency procedures, especially in the event of fire, at the earliest opportunity. On discovering a fire, break glass at the nearest fire point and if possible telephone the Security Lodge on 62444. ***Do not take any risks.*** In the event of a fire an intermittent electronic buzzer will sound, which will become continuous if evacuation becomes necessary. On hearing this sound you must immediately evacuate the building and assemble outside the building. ***Do not use the lifts.***

## TELEPHONES

All rooms have private telephones operated by phone cards, which can be purchased from the hall reception. Incoming calls are accepted. The nearest pay/card phones are located near the Main Building on Sackville Street.

## NETWORK ACCESS

In addition to dedicated PC clusters, the locations of which will be publicised at the event, a number of Ethernet points within the Renold Building will be made available to delegates for TCP/IP LAN access from their own devices (configured to obtain an IP address by DHCP, as per the delegate room provision).

The conference network sits behind a firewall that permits off-site access to typical services (mail, web, shell access etc.). If you require access to particular ports that are currently blocked, please contact the Conference Information Desk: such requests that do not compromise the overall security of the conference network will be met promptly.

The conference network supports the Location Independent Networking (LIN) authentication hierarchy currently under trial by UKERNA. Participant sites may therefore use their home credentials to access the conference network services as an alternative to their conference account details. In addition, outgoing VPN is permitted from the conference network, and so the QUADNET VPN-based roaming initiative is also supported.

## WIRELESS LAN

Wireless access points supporting the 802.11b/g standards are deployed throughout the conference space. This WLAN offers a variety of access and authentication methods, from simple authenticated web proxy to VPN, to ensure that delegates can obtain a level of access that meets the capabilities of their client device and operating system, and their security requirements. To ensure the accessibility of the WLAN, we request that all delegates and exhibitors refrain from using non-client wireless devices (access points, clients in *ad hoc* mode, or long-range bluetooth).

The interface to the WLAN is designed to be self-documenting (associate with the 'networkshop' SSID and launch a web browser), but supplementary information sheets are available from the Conference Information Desk.

***Please note that the design philosophy for the conference WLAN places the onus for data security onto the protocols being passed over the WLAN rather than onto the security features of the wireless network itself. If you wish to transfer sensitive data over the conference WLAN, please ensure that you have selected an appropriately secured access method and/or protocol (e.g. SSH rather than telnet, HTTPS rather than HTTP, etc).***

## MEALS & REFRESHMENTS

(Please see the final programme, issued at Registration, for confirmation of times).

Breakfast will be served in the **Weston Room, Weston Building** (Map of Venues reference 3) each morning from 06:30 – 08:45 (from 07:00 on Tuesday).

Mid-morning and mid-afternoon refreshments will be served in the Exhibition areas on the ground and first floors in the Renold Building.

A buffet lunch will be served each day – Tuesday, Wednesday and Thursday – in the **Barnes Wallis Restaurant** (Map of Venues reference 7). Coffee and tea after lunch will be served in the exhibition areas.

A buffet supper will be served in the **Barnes Wallis Restaurant** on Tuesday night, from 19:00 – 21:00.

Delegates who have to leave immediately sessions finish on Thursday may order a packed lunch to take with them. If you have not already done so, please order this through the Information Desk **no later than 12:00 on Wednesday**.

## DRINKS RECEPTION WITH EXHIBITORS

Delegates are invited to join Exhibitors for a drinks reception from 18:30 on Tuesday 22 March. Drinks will be served from the refreshment points on **both** floors.

## CONFERENCE DINNER ON THE ORIENT EXPRESS

This year we have arranged something very special for the night of Wednesday 23 March. Coaches will take us to Manchester's Victoria Station where we will board specially chartered trains in the Venice Simplon-Orient Express UK livery – The British Pullman and the Northern Belle ([http://www.orient-express.com/web/oe/c3a\\_trains.jsp](http://www.orient-express.com/web/oe/c3a_trains.jsp)). Please note trains will not be steam-driven.

After a 1930s-style musical welcome, you will be greeted by your stewards on board with a glass of champagne as you take your reserved seat for a four hour (approximate) round trip along the North Wales coast. You will be served a four-course meal with wines, with a drinks service to tables (not included in price). The menu will be fixed so it is important that you detail special diet requirements – including vegetarian – on the booking form as the trains' kitchens will not carry an extended range of menu options.

There is a boutique on board where you may purchase mementoes of the trip.

Dress code – smart casual please, no jeans or trainers.

Please note the train is non-smoking but there should be an opportunity for a short break mid-journey at Llandudno Junction.

***It is important that you reserve your seat on the train in advance. When you register for the conference you will be directed to the Reservation Desk where plans will be available. If you wish to sit with particular friends or colleagues you should all register at the same time.***

## BARS

There is a bar in the Barnes Wallis Restaurant, open during mealtimes, and a residents' bar in the Days Hotel (Weston Building) which will be open late.

## SMOKING IN UNIVERSITY BUILDINGS

University buildings are designated 'No Smoking' other than where indicated.

## FACILITIES ON CAMPUS

### Banks

There is a Barclays and a Link cash point on the ground floor of the Barnes Wallis Building and a branch of Nat West bank opposite the Security Lodge, Sackville Street.

### Shops

As a city centre site, all the facilities of a major city are within a few minutes walk of the buildings we will be using.

### Sports/Leisure Centre

Manchester Aquatics Centre on Oxford Road is the nearest centre which includes swimming and gym and is open from 6.30am weekdays. However, you should double check as times may vary – telephone 0161 275 9450. You will also need to fill in an exercise readiness questionnaire, available from hotel reception.

### TAXIS

Mantax: 0161 236 5133

Radio Cars: 0161 236 8033

### USEFUL TELEPHONE NUMBERS

- 24-hour Reception (Days Hotel/Weston Building) 0161 955 8000
- Health Centre – Occupational Health 0161 306 4007 (int 64007)
- Sports Centre 0161 275 9450
- University Security 0161 306 4999 **or**  
0161 306 2444 (int 62444)
- NETWORKSHOP 33 Conference 0161 306 4092 (int 64092)  
(Office hours only, voicemail available)

## LOCAL INFORMATION

### Shopping

Manchester city centre.

### Travel

Visit <http://www.manchester.ac.uk/aboutus/howtofindus/>

### Tourist Information

For those who may be staying on, or wish to explore on Tuesday night, we will have a limited supply of tourist information at the Conference Information Desks. Alternatively, visit Manchester Visitor Centre:

Manchester Visitor Centre  
Town Hall Extension (off St. Peter's Square)  
Lloyd Street  
Manchester  
Greater Manchester M60 2LA

Tel: 0161 234 3157

Fax: 0161 236 9900

E-mail: [manchester.visitor.centre@manchester.gov.uk](mailto:manchester.visitor.centre@manchester.gov.uk)

or visit these websites:

<http://www.manchester.gov.uk/visitorcentre/>

<http://www.manchester.ac.uk/community/>

You will also find a selection of useful information at the hotel reception desk in Weston Building where local staff will be pleased to assist you.

***Note: map references given in this booklet refer to the Map of Venues shown on the back cover, and on your foldout Quick Reference Guide. For more detailed information refer to the University Campus Guide sent with your Joining Instructions (note map references are different – see the index in the Campus Guide).***

# Networkshop 33 Programme of Events

## TUESDAY, 22 MARCH 2005

11:00 Registration and Exhibition – Exhibition Areas

12:30 Lunch – Barnes Wallis Restaurant

14.00 - 15.30 Plenary Session Chair – *Mark Clark, The University of Manchester*  
Lecture Theatre C16, Renold Building

14:00 Welcome  
*The University of Manchester*

14:15 Review of the JANET Operations and Development Programme  
*Tim Kidd and Jeremy Sharp, UKERNA*

14:45 Service Oriented Architectures for Research and Education Networks  
*Bill St. Arnaud, CANARIE*

15:30 Refreshments and Exhibition – Exhibition Areas

16:15 – 17:30 Parallel Sessions

Session 1a	Session 1b	Session 1c	Session 1d	Session 1e
<b>Content Delivery Development</b> Chair - Roger Bolam, UKERNA Lecture Theatre C16, Renold Building	<b>Location Independent Networking</b> Chair - Rina Samani, UKERNA Lecture Theatre C2, Renold Building	<b>Optical Networking</b> Chair - Henry Hughes, UKERNA Lecture Theatre C9, Renold Building	<b>Exhibitor Session</b> Seminar Room F1, Renold Building	<b>Exhibitor Session</b> Seminar Room F2, Renold Building
16:15 Content Delivery Network Architecture Group Roger Bolam, UKERNA	16:15 LIN Update Josh Howlett, University of Bristol	16:15 UKLight Update David Salmon, UKERNA	16:15 Case Study : Who is Doing What in College Networks? John Brosnan, NetFort Technologies Ltd.	16:15 CopperTen™ - The World's First Augmented Category 6 Solution Enabling 10 Gigabit Ethernet Over 100m Kevin Anderson, ADC KRONE
16:40 Delivering Content to the JANET Community Julia Chruszcz, MIMAS	16:30 Manchester's LIN Deployment for Networkshop Mark O'Leary, The University of Manchester	16:30 Optimization of Local and Regional Network Requirements with Optical WDM Solutions John-Paul Hemingway, Ciena	16:50 Gary Swabel, Redstone Communications	16:50 Voice over IP and Higher Education - Opportunities and Considerations Falk Bleyl, THUS

(continued on next page)

**Session 1a**

**Session 1b**

**Session 1c**

<p>17:05 Newsfilm Online and BUFVC <i>Billy Hooke, ITN/ BUFVC</i></p>	<p>16:45 Extending LIN, LICHEN <i>Tim Chown, University of Southampton</i></p>	<p>17:00 Experiences in Deploying WDM Fibre Systems in Local and Regional Networks <i>Mark Jameson, Lancaster University</i></p>
	<p>17:00 Experiences Setting up LIN and Quadnet <i>Dave Tyson, The University of Liverpool</i></p>	
	<p>17:15 Questions</p>	

17:30 – 18:30 Birds of a Feather Sessions

**A**

**B**

**C**

<p><b>Location Independent Networking</b> <b>UKERNA</b> Lecture Theatre C16, Renold Building</p>	<p><b>Bandwidth Management Advisory Service</b> <b>George Neisser, The University of Manchester</b> Lecture Theatre C2, Renold Building</p>	<p><b>Wireless Futures</b> <b>UKERNA</b> Lecture Theatre C9, Renold Building</p>
<p>Q1 – How are you educating your users to use LIN?</p> <p>Q2 – How are you supporting guests?</p> <p>Q3 – Feedback from admin, tech support, users</p>		

18:30 Wine Reception and Exhibition – Exhibition Areas

19:00 Dinner – Barnes Wallis Restaurant

## WEDNESDAY, 23 MARCH 2005

06:30 – 08:45 Breakfast – Weston Building

09:00 - 10:30 Plenary Session Chair – *Shirley Wood, UKERNA*  
Lecture Theatre C16, Renold Building

09:00 Keeping the Right Side of the Law  
*Gavin Sutter, Queen Mary*

09:45 Security Essentials  
*Fred Baumhardt, Microsoft Ltd.*

10:30 Refreshments and Exhibition – Exhibition Areas

11:15 – 12:30 Parallel Sessions

Session 2a	Session 2b	Session 2c	Session 2d	Session 2e
<b>AAI / Middleware</b> Chair – <b>Henry Hughes, UKERNA</b> Lecture Theatre C16, Renold Building	<b>Network Engineering</b> Chair - <b>Rina Samani, UKERNA</b> Lecture Theatre C2, Renold Building	<b>Network Hungry Applications</b> Chair – <b>David Salmon, UKERNA</b> Lecture Theatre C9, Renold Building	<b>Exhibitor Session</b> Seminar Room F1, Renold Building	<b>Exhibitor Session</b> Seminar Room F2, Renold Building
11:15 Shibboleth and the JVCSS Booking System <i>Chris Adie, University of Edinburgh</i>	11:15 Update on IPv6 and Multicast <i>Rob Evans, ULCC</i>	11:15 UKLight – the Advance Party <i>Peter Clarke, E-Science Centre</i>	11:15 Ethernet - Wired, Wireless, Gigabit & VOIP - a Single Analysis Solution? <i>Ian Cummins, Full Control Networks</i>	11:15 Next Generation Networking <i>Martin Van Schooten, Extreme Networks</i>
11:35 Interfacing Shibboleth and PERMIS: The Issues <i>David Chadwick, University of Kent</i>	11:40 Quality of Service <i>Victor Oliner, UKERNA</i>	11:40 High Data Rate Transfer for HEP and VLBI: Tests on the Link <i>Ralph Spencer, Jodrell Bank</i>	11:55 High Performance Ethernet Solutions for Grid and Cluster <i>Adam Filby, Force10 Networks</i>	11:55 Managing a Multi-Vendor Network <i>Nick Randall, IP-Performance Limited</i>
11:55 The SDSS Federation <i>Fiona Culloch, University of Edinburgh</i>	12:05 Ethernet Frames Over Wide-Area Distances <i>John Graham, ULCC</i>	12:05 Bandwidth Challenges, Landspeed Records, TCP and You <i>Richard Hughes-Jones, The University of Manchester</i>		

12:30 Lunch – Barnes Wallis Restaurant

Exhibition – Exhibition Areas

14:00 – 15:30 Parallel Sessions

Session 3a	Session 3b	Session 3c	Session 3d	Session 3e
<b>Security</b> Chair - Shirley Wood, UKERNA Lecture Theatre C16, Renold Building	<b>Extending Last Mile Technologies</b> Chair - Rina Samani, UKERNA Lecture Theatre C2, Renold Building	<b>Managing Research Networking Requirements - Panel session</b> Chair - David Salmon Lecture Theatre C9, Renold Building	<b>Exhibitor Session</b> Seminar Room F1, Renold Building	<b>Exhibitor Session</b> Seminar Room F2, Renold Building
14:00 Dealing with Illegal Material – the Work of the Internet Watch Foundation Frank Glen, The Internet Watch Foundation	14:00 Local Loop Unbundling Barry Forde, Lancaster University	14:00 Panel of experienced speakers including Bill St. Arnaud, CANARIE, Robin Tasker, CCLRC, Andrew Kerl, UCL, Sam Wilson, University of Edinburgh	14:00 Network Admission Control Paul King, Cisco	14:00 Advancement and Convergence of Desktop Videoconferencing Peter King, Pinacl Solutions Mark Wilkinson, Polycom
14:30 Questions	14:30 Satellite Van – a Case Study Pat Gibbs, Gloucester College		14:45 KVM Over IP - 'Now and in the Future' Patrick Costello and Gary Harris, 2bm Ltd	14:45 WLAN Management and Security Solutions Greg Murphy, AirWave Wireless, Inc.
	15:00 Community Wireless Networking Michael Saywell, University of Southampton			

15:30 Refreshments and Exhibition – Exhibition Areas

16:15 – 17:30 Parallel Sessions (see next page)

Session 4a	Session 4b	Session 4c	Session 4d	Session 4e
<b>Resilience</b> <b>Chair - Jeremy Sharp, UKERNA</b> <b>Lecture Theatre C16, Renold Building</b>	<b>Voice over IP</b> <b>Chair – Roger Bolam, UKERNA</b> <b>Lecture Theatre C2, Renold Building</b>	<b>Emerging Wireless / Mobile Technologies</b> <b>Chair – Tom Kirkham, UKERNA</b> <b>Lecture Theatre C9, Renold Building</b>	<b>Exhibitor Session</b> <b>Seminar Room F1, Renold Building</b>	<b>Exhibitor Session</b> <b>Seminar Room F2, Renold Building</b>
16:15 Disaster Recovery - Tales From the Front Line <i>Bruce Rodger, University of Strathclyde</i>	16:15 JANET and Voice <i>Roger Bolam and Arron Bowley, UKERNA</i>	16:15 An Overview of WiMAX <i>Martin Dunmore, Lancaster University</i>	16:15 Control Plane Interworking Between the Data and Transport Layers and How This Will Shape Future Network Designs <i>Lucent Technologies</i>	16:15 10GBT and the Physical Layer - When Will Your Network Require 10-Gigabit Ethernet? <i>Chris Chandler, Belden CDT Networking</i>
16:40 How to Achieve Resilience <i>Jonathan Couzens, ULCC</i>	16:40 Implementing an IP Telephone System Using VolP <i>Simon Furber, Brunel University</i>	16:40 3G and Beyond – Looking to the Future <i>Stephen Hope, Orange</i>	16:50 Securing and Managing Your Wireless LAN on a Campus <i>Vincent Larue, Bluesocket</i>	16:50 ProCurve - Providing a Resilient Network <i>David Meredith, ProCurve Networking by HP</i>
17:05 Network Service Reliability Study <i>Andy Jordan / Jon Duke, Consultants</i>	17:05 Linking Telephone Networks Using IP <i>Ian Campbell, University of Exeter</i>	17:05 Mobile IPv6: A Deployment Guide <i>Martin Dunmore, Lancaster University</i>		

17:30 – 18:30 Birds of a Feather Sessions

D	E	F
<b>Wireless Security</b> <b>Lecture Theatre C16, Renold Building</b>	<b>TBC</b> <b>Lecture Theatre C2, Renold Building</b>	<b>TBC</b> <b>Lecture Theatre C9, Renold Building</b>

\*19:00 Coaches to Manchester Victoria Station

\*20:00 Champagne Reception and Conference Dinner on Northern Belle and British Pullman

\*00:15 Return to Manchester Piccadilly Station

**\* Note that these times may be subject to change because of timetabling issues with Network Rail.**

## THURSDAY, 24 MARCH 2005

06:30 – 08:45 Breakfast, Weston Building

09:00 – 10:30 Parallel Sessions

Session 5a	Session 5b	Session 5c
<b>Videoconferencing</b> <b>Chair – Karen Perrins, UKERNA</b> <b>Lecture Theatre C16, Renold Building</b>	<b>Campus Wireless LANs</b> <b>Chair – Tom Kirkham, UKERNA</b> <b>Lecture Theatre C2, Renold Building</b>	<b>Security Issues</b> <b>Chair - Shirley Wood, UKERNA</b> <b>Lecture Theatre C9, Renold Building</b>
09:00 JVCS Activities <i>John Martin, University of Edinburgh</i>	09:00 Update from the Wireless Advisory Group <i>Rina Samani / Tom Kirkham, UKERNA</i>	09:00 Security Issues in Mac OS X <i>Matt Cook, Loughborough University</i>
09:30 Instant Videoconferencing and the Automated Assessment Tool <i>Roger Bolam, UKERNA</i>	09:15 Wireless Networking - Experiences from the FE Sector <i>Chris Zisimedes and George Vernon, Plymouth College of Further Education</i>	09:30 Flow Based Monitoring on JANET <i>Stephen Warner-Jones, UKERNA</i>
10:00 Improving the User Experience of Access Grid <i>Mike Daw, The University of Manchester</i>	09:40 Mobile Computing from the Perspective of the Student and Lecturer <i>Helyn Gould and Bruce Rodger, University of Strathclyde</i>	10:00 Questions
	10:05 Bluesocket at the London School of Economics <i>Malcolm Barker, LSE</i>	

10:30 Refreshments and Exhibition - Exhibition Areas

11:15 - 12:30 Plenary Session Chair – *Shirley Wood, UKERNA*  
Lecture Theatre C16, Renold Building

11:15 GÉANT 2. A Different Type of Network  
*Dai Davies, DANTE*

12:00 The Future of the Internet  
*Vint Cerf, MCI Inc.*

12:45 Summing up and Close of Conference  
*Tim Marshall, UKERNA*

13:00 Lunch – Barnes Wallis Restaurant

# Speakers' Information

## CHRIS ADIE

### Biography

Dr Chris Adie manages the Specialist Services Division of Edinburgh University Computing Services, having responsibility for roughly 35 staff. His responsibilities include open-access student computing facilities; academic staff desktop systems; web and database services; documentation and training services, and software site licensing. In addition, he personally leads a small team which has developed a number of software products including the JVCS booking system, and which is now involved in JISC Shibboleth projects.

### Abstract

#### *Shibboleth and the JVCS Booking System*

'Shibboleth' is an open-source security system developed as part of the Internet 2 initiative. It offers secure authorization to web-based resources in a scalable manner, accommodating the varied authentication systems used in different institutions, while allowing institutions to come together in 'federations' to extend the capabilities of their identity management services. Shibboleth is being strongly backed by the JISC.

The JANET Videoconferencing Service (JVCS) is a well-used service, with its own web-based booking system. This system allows registered users to check venue availability and book videoconferences. As a web-based service which is used by many institutions, the JVCS booking system would seem to be an ideal candidate for securing using Shibboleth.

This talk will describe the background, features and method of operation of Shibboleth, and will then go on to look at how Shibboleth could be used to make things easier for JVCS booking system users.

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## MALCOLM BARKER

### Biography

Malcolm Barker is Network Manager in the IT Services department at the London School of Economics and Political Science. Before joining the LSE in 2002 Malcolm worked in network and IT services management roles at a number of universities and research institutes in the UK, Australia and New Zealand. He has a BSc Honours degree in Electrical and Electronic Engineering.

### Abstract

#### *Bluesocket at the London School of Economics*

This presentation will describe the use of Bluesocket gateway at London School of Economics to authenticate, authorise and collect usage statistics for various categories of user wishing to gain access to local and external network resources via the extensive 802.11b/g wireless network and the wired network provision for laptops.

**FRED BAUMHARDT****Biography**

Fred Baumhardt is the Security Technology Architect working for Microsoft Europe Middle East Africa. Fred specialises in helping customers envision and deliver end-to-end secure connected infrastructures built on Microsoft platforms. His current role at Microsoft also includes evangelising security and engaging with customers of all types, helping them get and stay secure.

Fred works closely with customers and partners implementing best practice architectures to deliver enterprise infrastructure solutions. Coming from a consulting background, Fred has been responsible for architecting diverse customer environments from small businesses all the way up to production Datacenters handling hundreds of thousands of clients in private, public, and defence sectors.

Prior to joining Microsoft, Fred's engagements have included companies such as Philip Morris, Abbey, Nationwide, Banyan, and an array of other financial institutions. Fred is a former ESU commonwealth scholar and has studied at Carleton University in Canada, and Webster University in Switzerland, and holds Microsoft Certified Systems Engineer, Professional, Administrator, Database Administrator, and Trainer qualifications.

**Abstract*****Security Essentials***

This session will summarize Microsoft's view of what is going on in the world of security technology and what we feel are the biggest issues facing the industry and security architects today.

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**ROGER BOLAM****Biography**

Roger Bolam is the Content Delivery Manager within the Advanced Technologies Group of UKERNA. He is primarily responsible for the management of UKERNA's development programme in the areas of content delivery, videoconferencing and other video and voice related activities. Current projects include developments in the areas of content delivery, IP videoconferencing, higher quality videoconferencing, booking and scheduling services (for videoconferencing), and Voice over IP.

Roger joined UKERNA in January 2000 working in the Advanced Technology Group. He went on to become a project manager within the video section and was responsible for the development of the JANET IP Videoconferencing Service (JVCS-IP).

During April 2003, Roger took over responsibility for the development of content delivery systems on JANET. Roger graduated from University of Humberside and Lincolnshire in 1999 with a BA (hons) Business Information Systems.

## Abstracts

### ***Content Delivery Network Architecture Group***

The use of content within the JANET community continues to grow. The way in which content is delivered is evolving as both network and hardware technology improves. UKERNA are in the process of creating a Content Delivery Network Architecture document, the purpose of which is to provide best practice and recommendations to both the providers and users of streamed content. This short presentation will cover UKERNA's current activities within content delivery.

### ***Instant Videoconferencing and the Automated Assessment Tool***

Developments to the current JANET Videoconferencing Service (JVCS) have so far been aimed at enhancing and complementing the current regulated and policed videoconferencing offerings. Developments associated with IP videoconferencing in particular, and the drivers from new JANET user sectors have created a requirement for an easy to use instantaneous method of participating in multipoint videoconferences.

UKERNA have been looking at a way to provide a supplementary videoconferencing service which can be used by the JANET community to allow users to create videoconferences, independently, through a simple web-interface, on an ad-hoc basis. Alongside this development UKERNA have also developed an instant assessment tool, which enables users to check the audiovisual quality of videoconferencing endpoints. This presentation will discuss the development undertaken to satisfy these requirements, and will include a live demonstration of the developed solutions.

### ***JANET and Voice***

It is now felt that the Voice over IP (VoIP) marketplace has sufficiently matured to provide protocols and technologies that can be developed and implemented to offer a secure, interoperable, and manageable voice over IP environment. UKERNA have formed a Voice Advisory Group, the aim of which is to understand the requirements for voice within the JANET community, and where relevant provide the facilities to meet these requirements. Aside from this group UKERNA have also undertaken a number of internal trials and studies to further understand VoIP and voice technologies. This work has included:

- Trialing IP PBX technology
- Understanding the regulatory issues associated with voice
- Understanding protocols and standards (SIP – Session Initiation protocol / H.323 etc) and vendor specific VoIP implementations.

This presentation will cover both current voice technologies, and the policy and regulatory issues associated with providing voice services.

**ARRON BOWLEY****Biography**

Arron Bowley joined UKERNA in September 2003 as Content Delivery Infrastructure: Projects Engineer.

**Abstract*****JANET and Voice***

See Abstract for Roger Bolam (*previous page*)

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**IAN CAMPBELL****Biography**

Ian Campbell is the network manager at the University of Exeter. He has been working in the academic networking field ever since the early days of coloured books and X.25 protocols and is now responsible for all of the network and telephone services at the University, including the links with SWERN and JANET. He has given many courses on related topics including Windows, Novell Netware and TCP/IP. He is currently the chair of the SWERN usergroup and attends SWERN policy and planning meetings.

**Abstract*****Linking Telephone Networks Using IP***

Experiences of IP telephony at the University of Exeter.

In 2003 the company running the student telephone service asked to use JANET to transit telephony traffic between Exeter and their headquarters in Manchester. Subsequently the Peninsula Medical School requested local telephone communication between their five main sites (two universities and three hospitals) using the South West MAN (SWERN). Two different approaches are being used for the finished solution. Finally the University of Exeter in Cornwall requires similar facilities over SWERN but is using completely different equipment. And the University of Exeter is trialling a number of VoIP solutions for use internally, which react interestingly with the trunk solutions.

This presentation discusses the requirements, looks at the technical problems and the different solutions deployed, and comments on their features and shortcomings.

## VINT CERF

### Biography

Vinton G. Cerf is senior vice president of Technology Strategy for MCI. In this role, Cerf is responsible for helping to guide corporate strategy development from the technical perspective.

Widely known as one of the 'Fathers of the Internet', Cerf is the co-designer of the TCP/IP protocols and the architecture of the Internet. In December 1997, President Clinton presented the U.S. National Medal of Technology to Cerf and his partner, Robert E. Kahn, for founding and developing the Internet.

Prior to rejoining MCI in 1994, Cerf was vice president of the Corporation for National Research Initiatives (CNRI). As vice president of MCI Digital Information Services from 1982-1986, he led the engineering of MCI Mail, the first commercial e-mail service to be connected to the Internet.

During his tenure from 1976-1982 with the U.S. Department of Defense's Advanced Research Projects Agency (DARPA), Cerf played a key role leading the development of Internet and Internet-related data packet and security technologies.

Vint Cerf serves as chairman of the board of the Internet Corporation for Assigned Names and Numbers (ICANN). In addition, Cerf is honorary chairman of the IPv6 Forum, dedicated to raising awareness and speeding introduction of the new Internet protocol. Cerf served as a member of the U.S. Presidential Information Technology Advisory Committee (PITAC) from 1997 to 2001 and serves on several national, state and industry committees focused on cyber-security.

Vint Cerf has recently been named as joint prizewinner with Robert Kahn of the prestigious A.M. Turing Award, presented by the ACM (The Association for Computing Machinery). It is the first time this award has been given for work in computer networking.

### Abstract

#### *The Future of the Internet*

Vint Cerf will discuss his views on the future of the Internet.

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## DAVID CHADWICK

### Biography

David Chadwick is Professor of Computer Science at the University of Kent and the leader of the Information Systems Security Research Group.

David specialises in Public Key Infrastructures, Privilege Management Infrastructures, Trust Management and Internet Security research in general. Current research topics of interest include: policy based authorisation, the management of trust, the delegation of authority and autonomic security. He actively participates in standardisation activities, is the UK BSI representative to X.509

standards meetings, and is the author of a number of Internet Drafts, Request For Comments (RFCs) and Global Grid Forum documents.

His current research projects include: secure role based messaging, distributed programmable authorisation, TrustCom (a 6th Framework Integrated Project), seamlessly integrating PERMIS and Shibboleth (which will be the content of this talk), dynamic delegation of authority, and context based separation of duties. His group are the authors of PERMIS, the X.509 based authorisation infrastructure developed under a previous EC project. PERMIS is part of the US NMI software suite, and is integrated with Globus Toolkit from version 3.3 onwards.

### **Abstract**

#### ***Interfacing Shibboleth and PERMIS: the Issues***

Shibboleth is a infrastructure for building federations and for transferring authentication and authorisation information between sites. PERMIS is an infrastructure for privilege management and authorisation decision making.

SIPS is a JISC-funded project to seamlessly link Shibboleth and PERMIS together. This talk will describe this interlinking and the benefits of using a combined Shibboleth/PERMIS infrastructure.

### **TIM CHOWN**

#### **Biography**

Tim Chown leads the participation of the University of Southampton in a number of projects focusing on IPv6, the new Internet Protocol, including recently 6WINIT and now the flagship EU IST projects 6NET and Euro6IX. Tim also has led UK academic IPv6 pilot activities and the IPv6 WG within the TERENA Task Force for Next Generation Networks (TF-NGN). He acts as an advisor to UKERNA in areas including IPv6, H.323 security, wireless networking and network QoS. He is a member of the EC and UK IPv6 Task Forces, and of the IPv6 Forum Technical Directorate. He also has interests in areas including wireless and ad-hoc networking, Internet security, IP multicast and multimedia and peer-to-peer applications.

### **Abstract**

#### ***Extending LIN, LICHEN***

In the LICHEN (Location Independent Collaboration in Higher Education Networks) project we propose to extend and complement the work of the UKERNA Wireless Advisory Group and TERENA TF-Mobility (which is establishing a RADIUS-based hierarchy of trust for Location Independent Networking) by investigating and developing a generic system for managing and applying authorisation policy pertaining to resources accessed by users in different administrative domains. These users would typically be members of short-lived, distributed collaborations between multi-site – and often multi-disciplinary – groups.

## **JULIA CHRUSZCZ**

### **Biography**

Initially trained in industry as a Systems Analyst, the move to academic computing services came in 1980. By 1990 Julia had moved into service management and in 1995 became Head of National Services, Manchester Computing at the University of Manchester, and subsequently assumed additional responsibilities as Head of Department for Academic Computing Services in January 2001.

In October 2004, with the establishment of the new University of Manchester, she was appointed Deputy Director, Manchester Computing. As a member of the Manchester Computing Directorate, primary areas of responsibility are the day to day management of Manchester Computing and the MIMAS data services to the UK academic community and beyond.

MIMAS is one of two JISC supported national data centres. It includes in its portfolio the UK Census, ESDS International, satellite data, the UK JSTOR mirror service, Beilstein Crossfire, COPAC (Consortium of University Research Libraries OPAC), ISI Web of Knowledge, NLN Materials, the UK HE Archives Hub and the British Library ZETOC service. MIMAS is also involved in a number of development projects, e.g. Jorum.

### **Abstract**

#### ***Delivering Content to the JANET Community***

Those involved in the end-to-end business of delivering information services will understand that it is not just about delivering content over a network. MIMAS hosts over 2.5 terabytes of data associated with 14 services and numerous projects. The potential UK user community spans all of Higher and Further Education communities. Some of the challenges we face are specific and others more generic. This talk explores some of the more tangible aspects of supplying and supporting online information services to a large, diverse community, including:

- Being part of JISC's Information Environment
- 24 x 7 delivery
- Data management and scale
- Authentication
- Service Transitions
- Developing new services
- Changing demands and expectations.

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## **PETER CLARKE**

### **Biography**

Peter Clarke is Professor of e-Science at the University of Edinburgh and the Deputy Director of the UK National e-Science Centre. He was formerly head of Particle Physics at University College

London. He is qualified with a PhD in Particle Physics from Oxford University, and a B.Sc in Electronic Engineering from Southampton University.

His experience encompasses both Experimental Particle Physics, High Performance Global Computing and Networks for Science. In the field of Particle Physics he has collaborated in the ATLAS experiment at the CERN Large Hadron Collider. In the field of networking he has been a principle member of the DataTAG and MB-NG projects, which address issues on the boundary between Grids and the Network (including QoS, high performance data transport and optical networking).

He now leads the ESLEA project to exploit optical networks for research applications. In the area of Grid computing he has been involved in several Grid middleware development projects including the UK grid for particle physics (GridPP), the European Data Grid and the EGEE infrastructure project. He was also a member of the Global Grid Forum Steering Committee and co-Director of the Data Area within the GGF.

### **Abstract**

#### ***UKLight - the Advance Party***

In 2001 the UK started on a path to join the global optical networking R&D facility, and this culminated with the start of UKLight in June 2004. Several early adopter projects were already pushing for approval in order to make early demonstrations of 'proof of benefit'. These include ESLEA, 46PaQ and MASTS. Since then several other groups have joined the testbed. This talk will review the experience of the first few months of UKLight availability, the current user base, and summarise the early results of each of the application projects.

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### **MATTHEW COOK**

#### **Biography**

Matthew has been a member of the Computing Services department at Loughborough University for over six years. During this time he has worked in many areas of IT development: PC lab model development, Networks & Infrastructure, JANET Web Cache Service, Bandwidth Management Advisory Service and most recently IT Security.

In December 2003 Matthew took the role of Senior IT Security Specialist within Computing Services with a remit to manage IT security for 3000 members of staff, 12,000 students and 4757 study bedrooms across a 410 acre campus.

Matthew has an extensive knowledge of wide ranging Operating System and Networking technologies and has spoken at many conferences on various security matters. These presentations, papers and lectures are available at <http://escarpment.net/>

**Abstract*****Security issues in Mac OS X***

Macintosh users often get overlooked, especially when it comes to concerns with security. Having enjoyed extended periods when Macintosh systems have not been affected by worms targeting the Windows platform, or the mass viral outbreaks of late, has the time now come for the spotlight to focus on the Macintosh platform? Is security through obscurity no longer good enough?

An openly technical discussion of a recent MAC OS X machine compromise and some worrying statistics and trends gives an indication of what might be in store for Macintosh users. This session will also be giving practical advice for support staff who are faced with a possibly compromised MAC OS X machine.

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**JONATHAN COUZENS****Biography**

Jonathan Couzens is a Principal Network Engineer with the JANET Network Operations Service Centre (NOSC) based at ULCC in London. He has been the lead engineer for various projects within JANET, including the deployment of Quality of Service (QoS) and Multicast throughout the SuperJANET4 backbone. He has been part of the team that designed the routing architecture of SuperJANET4 and is part of the design team for SuperJANET5.

Jonathan joined the NOSC at Easter 1998, after spending more years than he cares to count in the Computer Centre (as it then was) at Imperial College in London, having graduated there with a BSc in Physics.

**Abstract*****How to Achieve Resilience***

As the network becomes more and more crucial to the everyday business of most academic institutions, the normal methods of risk analysis need to be complemented by incorporating the results of such analysis into the design of the network. This seminar covers the common techniques for engineering around the inevitable outages within the network with the aim of preserving the overall transmission service. It will focus on the network infrastructure rather than application services and, although most of it can be applied to local area networks, there will be particular emphasis on the wide-area.

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**FIONA CULLOCH****Biography**

After working on compilers and operating systems in industry since the mid-80s, latterly with digital signal processors, Fiona became a contractor to the JISC-funded Technologies for Information

Environment Security (TIES) project in 2003, integrating X.509 identity certificates with web services hosted by EDINA. After briefly lecturing on computer architecture in Winter 2003 at the University of the Witwatersrand, Johannesburg, she is now doing further work at Edinburgh on scoping and cost estimation for a proposed JISC X.509 certificate authority. As a home worker, Fiona depends on JANET for access to resources and colleagues at the University of Edinburgh.

In 2004-5, Fiona has continued with authentication and authorisation, working on JISC Core Middleware projects to allow login to EDINA-hosted JISC Information Environment resources via Internet2's new 'Shibboleth' federated-identity framework in addition to Athens, and to construct a prototype UK academic Shibboleth federation (the SDSS Project).

### **Abstract**

#### ***The SDSS Federation***

The Shibboleth 'federated identity' framework, initially developed by the Internet2 initiative, has been adopted by JISC as the future access-management mechanism for UK academic online resources. This talk describes what federated identity is (user accounts and attributes administered locally by different institutions, using different technologies, being used for access to separately administered resource in other security domains), why it is useful (users logged in with local credentials can securely access both local and remote resources, completely transparently, with single sign on for both), and how far the SDSS project's implementation efforts to build a prototype UK academic Shibboleth federation have progressed, including an update on currently available JISC Information Environment resources within the SDSS federation and participating projects and institutions.

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### **DAI DAVIES**

#### **Biography**

Dai Davies has been General Manager of DANTE for over ten years. He has degrees in engineering and computer science from Cambridge University. He has worked for British Telecommunications for over 15 years, both in technical and commercial positions.

Before coming to DANTE he was director of the COSINE Project Management Unit.

### **Abstract**

#### ***GÉANT 2. A Different Type of Network***

For the last fifteen years the development path for Research networks has been simple and clear. Build a bigger, faster IP network; don't worry about quality or user support, if the network is empty enough nobody will notice anyway. This simple paradigm is now effectively dead. Individual users are finally starting to make serious demands on network capacity. ISPs are at last trying to offer moderate quality. The vicious circle of price reductions caused by deregulation of the telecommunications market place is over. All of these factors demand a new approach to the next generation of research networks. The talk will examine these environmental changes and consider

the effects they are having on the new GÉANT 2 network which provides the pan-European backbone for European Research.

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## **MIKE DAW**

### **Biography**

Michael Daw is Manager of the Access Grid Support Centre, a former Chair and Technical Director of SC Global, and is active in the development of Access Grid technology.

### **Abstract**

#### ***Improving the User Experience of Access Grid***

This talk will examine how the user experience of Access Grid has been improved through the establishment of a support model along the lines of that provided for the H.323 videoconferencing community and also by advances in the core technology. The Access Grid Support Centre has been established for about a year, providing services to UK users such as general support, multicast-unicast bridges, shared presentation software, an Access Grid recorder and an Access Grid-H.323 bridge. The talk will also look at developments in Access Grid technology that may soon benefit users.

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## **JON DUKE**

### **Biography**

Jon Duke and Andy Jordan became independent consultants in 2001 and have since jointly undertaken a number of reviews and strategic developments for a range of organisations, both national and local, all involved in the Further and Higher Education sector. The reviews have covered a number of technology-based services or similar activities, and have made recommendations for their future delivery as well as proposing strategies for their long-term continuation and positioning. Jon also acts as a consultant to RUGIT.

Before this, Andy was Director of Computing Services at Huddersfield University and Jon Director of the Computing Service at Leeds University. Both served as chair of UCISA. In addition, Jon led the project to establish the YHMAN regional network and Andy was a member of a number of JISC committees. Both have PhDs, Andy in chemical engineering and Jon in chemistry, and both earlier taught, Andy at Aston University and Jon at Leeds University.

### **Abstract**

#### ***Network Service Reliability Study***

UKERNA have commissioned Andy and Jon to provide advice to JANET connected organisations to help them to identify and understand the risks facing their organisation networks and their connection

to JANET. The advice will address loss of reliability related to network service delivery. It will be aimed at senior managers with strategic responsibility for network service infrastructure at Further and Higher Education Institutions and at Research and Funding Council sites. The development of the advice will involve consultations across the entire FE and HE sectors.

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## **MARTIN DUNMORE**

### **Biography**

Martin Dunmore is a research associate in the Computing Department at Lancaster University, where he currently works on the 6NET project. He received a BSc in Computer Science in 1997 and a PhD in Distributed Computing in 2001, both from Lancaster University. His research interests include IPv6, wireless and mobile computing, ad hoc networking, QoS, traffic engineering and intelligent network systems.

Contact him at [dunmore@comp.lancs.ac.uk](mailto:dunmore@comp.lancs.ac.uk).

### **Abstracts**

#### ***An Overview of WiMAX***

This talk will give an introduction to the broadband access wireless technology known as 'WiMAX'. It will give a brief overview of the work completed and still ongoing in the IEEE 802.16 working group. The talk will describe how WiMAX works, the advantages it can bring to a campus network and the current status of available products.

#### ***Mobile IPv6: A Deployment Guide***

This talk will give an overview of Mobile IPv6. It will describe what Mobile IPv6 is, how it works, and what implementations are available to use. It will also discuss some issues to consider when designing your testbed and the common problems and difficulties encountered.

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## **ROB EVANS**

### **Biography**

Rob Evans is a member of the Core Architecture Team, part of the JANET NOSC at ULCC. In addition to the usual NOSC network management duties, he has been the lead engineer for the IPv6 project, and tracks developments in the IETF, RIPE, and other European research networks that might impact on the operation of JANET.

Previously, Rob was heavily involved with the management of the TEN-155 network linking European NRENs together. Before that he carried out a variety of network and system administration tasks at Imperial College, London.

## Abstract

### *Update on IPv6 and Multicast*

This talk will be a quick update on the status of, and developments in, IPv6 and multicast deployment within JANET over the past year.

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## BARRY FORDE

### Biography

Barry Forde is the Deputy Director of Information Systems Services at the University of Lancaster (England, UK). He leads the Technical Support group which is responsible for the University's internal networking infrastructure and operating systems. He is also the architect of, and responsible for, the wide area networks supporting the higher and further education institutions in Cumbria and North Lancashire (C&NLMAN) and the broadband for schools network, Cumbria and Lancashire Education Online (CLEO). CLEO provides the high speed broadband connections for the 1100 schools in Cumbria and Lancashire as well as other public sector groups such as Libraries, Adult Centres of Learning and the Youth and Communities programme, over 1500 sites in total.

He is also responsible for the Trans Regional Broadband SuperHighway, an NWDA funded initiative providing a 10Gbit/s optical network across the region from Carlisle in the north to Warrington and Daresbury Laboratories in the south, around 200km top to bottom.

He is the Technical Director of LUNS Ltd, a subsidiary of Lancaster University, which holds a telecommunications license and is in the process of unbundling 46 telephone exchanges across Cumbria and Lancashire. The unbundling process will allow delivery of high speed (8Mbit/s) services to schools and the public sector generally, thus permitting broadcast quality video delivery over telephone lines as well as more conventional very high speed data services.

He is involved with many regional and national committees and his particular interests lie in the delivery of high speed network services to rural and difficult-to-reach areas.

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## SIMON FURBER

### Biography

Simon Furber is the Network Manager at Brunel University. After studying at the West London Institute of H.E he stayed on and joined Computing Services in 1988. West London Institute then merged with Brunel University in 1996, making a larger four-campus university. Simon has a wide background in support, applications development and for the last six years more exclusively with systems and networks. In July 2000, after a reorganisation within the department, a dedicated networks team was created and he was appointed to lead this team. Since then Brunel has been extensively renovating its network, and is developing and adopting new technologies and convergence strategies for the future.

## **Abstract**

### ***Implementing an IP Telephone System using VoIP***

Simon Furber will present on how Brunel University implemented their current IP Telephony system using VoIP and where they are likely to be going with their Communications infrastructure.

The talk will road map the journey that the team undertook and discuss the implications, design and the consequences for implementing an IPT strategy. Practical issues such as migration, interoperability and availability will be covered, as will organisational and technology issues.

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## **PAT GIBBS**

### **Biography**

Pat Gibbs is currently the Community IT Manager for Gloucestershire College of Art and Technology (Gloscat) providing IT in rural and suburban areas, and has held this post for the past 4 years. Pat trained as a mature teacher in secondary schools and moved into adult education by volunteering for Basic skills in her local town. Pat worked for several years as a training adviser for a TEC training provider in west Wales and ran several projects involving key skills and NVQs, culminating in staff development training.

Pat's academic background as an Open University Honours Graduate was in Literature and she is currently studying a Masters in Education (Lifelong Learning). With no formal IT background, the in-depth association with IT for users in this post has meant a rapid acquisition of a wide variety of IT skills and the need to use the expertise of others.

## **Abstract**

### ***Satellite Van - a Case Study***

Geographical demands that could only be met by a mobile delivery suite.

Gloucestershire is a very rural county characterised by small isolated communities and poor transport. There is no one area of deprivation but many pockets of 'disadvantage'. The schools had varying ICT suites, the libraries one or two PCs, there were no local learning centres in the rural areas. In the cities a suburb could be 'disconnected' from education as much as in rural areas.

*Equipment:* The equipment and connections were chosen after viewing another College's provision. It was an adaptation from the existing laptop provision rather than starting from scratch.

*Delivery Model:* Lots of models around funding and provision were explored and our early ideas evolved to a working model that met the needs of the majority. The community reaction was extremely good and partnerships and networking were established.

*Teaching model:* What worked best was to use the technology in delivery. The learning objective for the tutors was to move into a blended learning mode and use ILT to enhance the learning. Also there was a move from straight skills training to challenging the communities to use the facility to meet other needs such as socialisation and improving literacy.

*Future plans:* The market has matured and changed. The rural areas are becoming served by broadband and IT is no longer the new skill to be acquired. We will be looking into different uses for the facility in the future and into different audiences.

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## **FRANK GLEN**

### **Biography**

Frank has been with the IWF since 2000. He is responsible for the operational management of the IWF's Internet Hotline and operational projects. He is the project coordinator for the EU's Safer Internet Action Plan and represents the IWF in the Internet Hotline Providers association, [www.inhope.org](http://www.inhope.org).

He spent 10 years in the Royal Air Force, predominantly in IT roles; his last 4 years were in the Air Transport Fleet's Network Control Centre. Frank gained comprehensive knowledge and experience of applying UK law serving as a Police Officer immediately prior to joining the IWF.

### **Abstract**

#### ***Dealing with Illegal Material – the Work of the Internet Watch Foundation***

The talk will cover:

- Background, structure and work of the IWF
- Illegal content online, specifically child abuse images worldwide
- Criminally racist and obscene content on UK servers
- Impact of the Sexual Offences Act 2003
- The international effort - The Internet Hotline Providers association
- INHOPE

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## **HELYN GOULD**

### **Biography**

Helyn Gould is based at the University of Strathclyde. She splits her time equally between the department of Management Science, where she lectures on a range of management science topics, and the Strathclyde Laptop Initiative (SLI), where she is the Academic Project Manager. Helyn's background was originally purely Management Science, having joined Strathclyde in 1992 to project manage a national TLTP project. Since then her interests have broadened to include management science education development, teaching and learning evaluation, innovative teaching and ubiquitous computing.

In 2000 she became involved in the University's new laptop project, introducing mobile technology to the First Year of the Business Faculty. The project continued and expanded through three pilot

years before becoming a mainstream initiative in 2003. The SLI currently involves approximately 1000 students in mandatory laptop programmes, in addition to an open contract. She is a member of the Operational Research Society and a registered practitioner of the Higher Education Academy (formerly ILTHE).

### **Abstract**

#### ***Mobile Computing from the Perspective of the Student and Lecturer***

The Strathclyde Laptop Initiative began in 2000 with the introduction of mandatory laptop use, via a wireless network, to a class of 360 First Year Business School students. Since then it has expanded and become a mainstream part of the University, now involving students from four faculties in laptop programmes. Since its inception, the initiative has been the subject of close scrutiny, with in-depth research focusing on the experience of the students and academic staff, in addition to the impact on support structures and other University infrastructure. The technical aspects of this project have been covered in detail at a previous Networkshop, therefore this talk will begin with only a brief technical introduction to the wireless setup used at Strathclyde and will then focus on the impact on the teaching and learning experience of the introduction of a wireless network. Results from detailed research will be combined with feedback from students and staff over the last five years to give delegates an insight into the opportunities and challenges of this technology in an educational setting.

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### **JOHN GRAHAM**

#### **Biography**

John Graham has worked for Imperial College, UCL, the Corporation of London and, since 2000, the University of London Computer Centre. He has supported the community in London by providing technical expertise on all conceivable topics concerned with networking. The activities included solving sites' DNS problems, configuring their BGP peerings and designing novel VPN solutions to help them connect remote offices and users. He is now working on the UKLight project.

He holds a PhD in chemical physics and taught in the chemistry department at Imperial before discovering the joys of data networks.

### **Abstract**

#### ***Ethernet Frames over Wide-Area Distances***

This talk is about various techniques to move Ethernet frames over wide-area distances, including:

- Layer 2 Tunnelling Protocol v3
- 10 Gb Ethernet
- Generic Framing Protocol

## **JEAN-PAUL HEMINGWAY**

### **Biography**

John-Paul Hemingway joined the Ciena EMEA Systems Engineering group in April 2001. He now manages the group, which provides network design expertise and solution designs to Ciena's customers.

Prior to joining Ciena, John-Paul held positions as Product Manager for Netscient, a network planning and design software company, and as Research Engineer for Corning Cables. John-Paul attained his PhD in the area of optical transmission and all-optical switching from Manchester Metropolitan University in 1997.

### **Abstract**

#### ***Optimization of Local and Regional Network Requirements with Optical WDM Solutions***

An insight into Optical WDM solutions combining transport and switching technologies to demonstrate how both Ethernet over SDH and Optical Ethernet can address the requirements of the Local and regional MAN. The Optical Solutions will allow increased bandwidth within the fibres, providing a diverse and adaptable infrastructure suitable for UK Regional networks.

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## **BILLY HOOKE**

### **Biography**

Billy Hooke is the Education Officer for the Newsfilm Online project, having previously worked as Production Assistant/Research Technician with the Lifesign Project at the University of Portsmouth.

### **Abstract**

#### ***Newsfilm Online & BUFVC***

This presentation will examine what content will be available through the upcoming Newsfilm Online project and how the BUFVC supports and promotes moving images in teaching and learning for higher and further education.

The Newsfilm Online project is a collaboration between the BUFVC and ITN, funded by JISC. Newsfilm Online will offer 3000 hours of news content from the ITN archive, including: Gaumont Newsreels, Roving Reports, ITV and Channel 4 News. The material will be offered online free to institutions of Higher and Further Education in the UK.

The BUFVC is a representative body which exists to support and promote the use of moving images in higher and further education and research. It achieves this through a variety of services, databases, publications, courses and other activities.

**STEPHEN HOPE****Biography**

Stephen started his career in the Satellite Industry in 1975. He first became involved with terrestrial Mobile Communications in 1980 through working in the Military Communications Field and then moved to Cellular Communications, managing manufacturing tests of early 1G handsets. Since then he has been involved with system aspects of all the generations 2G 900 1800 2.5G 3G Cellular interspersed with Public Safety and Transport Private Mobile Radio System design.

Stephen joined Orange in the UK in 1993 as Testbed Manager and in 1994 was additionally responsible for Orange participation in various UK DTI and European Commission Research Programmes, and within Orange Research and Innovation until the end of 2004. Among many other roles, Stephen has been responsible for International Relations with both Academic and Industrial Research entities. Orange is now wholly owned by France Telecom and from the beginning of 2005, as part of a centralisation of the France Telecom Research and Development activities, Stephen has transferred to France Telecom R&D UK Ltd to continue his current role not just in support of Orange but also other companies with the France Telecom Group.

Stephen is on the Board of Directors of both the Software Defined Radio Forum and the Mobile Virtual Centre of Excellence in the UK. Stephen is now involved with Beyond3G (B3G) activities aiming to maintain his record of involvement at the leading edge of a converging communications world.

**Abstract*****3G and Beyond – Looking to the Future***

The recent introduction of '3G' into the mobile arena represents a landmark in the quest to deliver high quality Information and Services 'anytime anywhere to anybody'. However this is only the first milestone of an agreed roadmap defined within the 3G Standards bodies, which drives major development activity within the mobile industry to evolve the technology to meet the full 3G vision. The presentation will describe some of the technological developments. However, as we look 'Beyond 3G' we must also look beyond the technology and so the presentation will also raise some of the issues concerning the socio-economic impact on the user, the operator and all the actors involved to ensure that our 'Connected World' will be sustainable in the future.

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**JOSH HOWLETT****Biography**

Josh Howlett works in the Networking & Digital Communications team at the University of Bristol, and is responsible for network registration, network monitoring and the authentication requirements of wireless LAN and VPN remote access. He participates on the UKERNA Wireless Access Group, and since June 2004 he has been developing and supporting the UKERNA LIN National Trial.

**Abstract*****LIN Update***

The UKERNA Location Independent Networking (LIN) National Trial has been running since January with 33 participating organisations. This talk will provide a brief introduction to the LIN, an update on LIN developments and lessons learnt, and some information on the future evolution of LIN.

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**RICHARD HUGHES-JONES****Biography**

Richard Hughes-Jones leads the e-science and Trigger and Data Acquisition development in the Particle Physics group at Manchester University. He has a PhD in Particle Physics and has worked on Data Acquisition and Network projects. He is a member of the Trigger/DAQ group of the ATLAS experiment in the LHC programme, focusing on Gigabit Ethernet and protocol performance. He is also responsible for the High Performance, High Throughput network investigations in the European Union DataGrid and DataTAG projects, the UK e-Science MB-NG, GridPP and ESLEA projects. He is secretary of the Particle Physics Network Coordinating Group which supports networking for UK PPARC researchers. He is a co-chair of the Network Measurements Working Group of the Global Grid Forum, a co-chair of PFLDnet 2005, and a member of the UKLight Technical Committee.

**Abstract*****Bandwidth Challenges, Landspeed Records, TCP and You***

The talk will briefly describe what goes on in Bandwidth Challenge and Landspeed Record attempts and show some recent results. We will then pose the question 'So what is wrong with TCP?' and discuss some of the work in progress to help with Long Distance High Bandwidth transfers. Finally we will use some case studies to examine what transfer rates real users on real campus production networks get, and what is possible now and in the near future.

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**MARK JAMESON****Biography**

Mark Jameson is Head of Networking at Lancaster University.

**Abstract*****Experiences in Deploying WDM Fibre Systems in Local and Regional Networks***

- Fibre optic technologies - quick and dirty
- Properties of fibre - brief outline of common systems in use
- Moving from Campus to Regional scale technologies - the slightly more 'exotic'

- Multiplexing - OADM and coloured gbics/xenpacs
- Experiences and lessons learned
- Higher up the Comms stack
- Questions

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## ANDY JORDAN

### Biography

Jon Duke and Andy Jordan became independent consultants in 2001 and have since jointly undertaken a number of reviews and strategic developments for a range of organisations, both national and local, all involved in the Further and Higher Education sector. The reviews have covered a number of technology-based services or similar activities, and have made recommendations for their future delivery as well as proposing strategies for their long-term continuation and positioning. Jon also acts as a consultant to RUGIT.

Before this, Andy was Director of Computing Services at Huddersfield University and Jon Director of the Computing Service at Leeds University. Both served as chair of UCISA. In addition, Jon led the project to establish the YHMAN regional network and Andy was a member of a number of JISC committees. Both have PhDs, Andy in chemical engineering and Jon in chemistry and both earlier taught, Andy at Aston University and Jon at Leeds University.

### Abstract

#### *Network Service Reliability Study*

UKERNA have commissioned Andy and Jon to provide advice to JANET connected organisations to help them to identify and understand the risks facing their organisation networks and their connection to JANET. The advice will address loss of reliability related to network service delivery. It will be aimed at senior managers with strategic responsibility for network service infrastructure at Further and Higher Education Institutions and at Research and Funding Council sites. The development of the advice will involve consultations across the entire FE and HE sectors.

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## ANDREW KERL

### Biography

Andrew Kerl is Assistant Director and head of networking in Information Systems at University College London. He has been involved in IT within the academic community for over 30 years. For more than 20 years he has worked with computer networks. In 1988 he led a team which installed the first FDDI network within UK academia. In 1992, working closely with BT Martlesham, UCL was the beta test site for the SMDS service. More recently he has been responsible for implementing a large campus Gigabit network.

**TIM KIDD****Biography**

Tim is the Production Services Director at UKERNA, with responsibilities for operational services relating to SuperJANET, for various value added services and for computer emergency response through the JANET CERT. Tim is part of the executive management team that collectively manage the divisional structure of the company.

Tim joined UKERNA in October 1998 as Operations Manager responsible for the operational aspects of the network including basic transmission and value added services. Tim moved to the Network Development Division in 1999 as the SuperJANET Development Manager to look after some of the aspects of the SuperJANET4 project including the procurement of the new SuperJANET backbone and the contractual arrangements with the regional networks.

Prior to joining UKERNA, Tim worked for the Rutherford Appleton Laboratory and was responsible for networking and large scale data storage. Tim has a degree in computer science from the University of Southampton.

**Abstract*****Review of the JANET Operations and Development Programme***

Tim Kidd and Jeremy Sharp will present a review of the major developments and enhancements to JANET network services that have taken place during the past year.

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**TOM KIRKHAM****Biography**

Tom is the Network Access Project Manager within the Advanced Technologies Group in the Network Development Division of UKERNA.

Tom's main focus is to extend the reach of JANET. This will be achieved by researching, tracking and trialling new network access technologies for use within the JANET community. Current activity includes involvement in various projects under the Network Access Development umbrella, such as work with the JANET Wireless Access Group, and investigations into Satellite networking, xDSL, UMTS and other network access technologies.

**Abstract*****Update from the Wireless Advisory Group***

The UKERNA Wireless Advisory Group (WAG) was formed in May 2003 with a remit to provide advice and guidance, through the dissemination of information on wireless technologies to the JANET community. Since the formation of the WAG, a number of documents have been produced including factsheets, case studies and reports on wireless networking, focusing mainly on the 802.11

standard. The documents produced to date can be found on the JANET website at: [http://www.ja.net/development/network\\_access/wireless/wag/wireless-info.html](http://www.ja.net/development/network_access/wireless/wag/wireless-info.html). It is envisaged that future investigations by the WAG will also include technologies and standards such as 3G and 802.16 (WiMAX).

Members of the JANET community are invited to join the JISC mail Wireless Admin mailing for general discussion on wireless technologies and standards. Instructions on how to join this list can be found at: <http://www.jiscmail.ac.uk>.

The WAG update presentation will provide an overview of the areas investigated by the WAG over the last year, outlining the results of their work and documentation produced. Further details on the future direction of the WAG including the activities and areas to address will also be highlighted during the presentation.

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## **TIM MARSHALL**

### **Biography**

Tim is the Chief Executive of UKERNA. He started his working life as a computer operator at Cranfield Institute of Technology and then a Cobol programmer at the Open University. In 1978 he joined BBC TV as a producer, rising to become Assistant Head of Sports and Events.

In 1987 Tim moved to Walt Disney as Senior Vice-President and Managing Director of Buena Vista Productions, where he was responsible for all international production of TV and new media including a wide variety of educational, factual and fiction content. He also led the development of the emerging international network of Disney Channels and associated infrastructure.

In 2000 Tim joined a new 'dotcom', Wide Learning, as Chief Operating Officer, a company producing online financial and regulatory learning content as well as developing a bespoke LMS for hosting the content. He subsequently led the company through a management buy-out and then on to its sale to Fuel IT Ltd in 2003.

Following the sale Tim became Director, Development in the new consolidated company and in January 2004 he acquired CNDL Group Ltd for Fuel, so enabling access to major government enabling agreements. Through this arrangement he has managed significant government contracts including a programme with the Defence College of Communications and Information Systems on datacoms and networks. He has also won a major contract with Ufi for the creation and maintenance of bespoke learning solutions through the OJEC process and has been responsible for strategic relationships with the Securities Institute, Financial Training Company, Thomson Netg, MOD and Learndirect.

Tim has an HNC in Computer Studies, is a graduate of Southampton University in Sociology and an alumni of Ashridge Management College, where he was on the Strategic Management Programme. He is a member of the Learning Lab, Henley E-Bus Group, Royal Television Society, British Academy of Film and Television Art and the advisory board of the National Film and Television School. In 2004 he was Quality Controller for the International Broadcast output at the Athens Olympics, ensuring

compliance with the international rights holding broadcaster SLA, a role he also fulfilled at the 2002 Commonwealth Games in Manchester. For his charitable work, each year he produces the Festival of Remembrance at the Royal Albert Hall in the presence of HM the Queen.

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## **JOHN MARTIN**

### **Biography**

John Martin is the Manager of the JANET Videoconferencing Service Management Centre, based at Computing Services, the University of Edinburgh. He also acts as an advisor for the Video Technology Advisory Service (VTAS). Originally from Northumberland, John has worked for Computing Services since 1989. John has a Royal Air Force engineering background and since originally joining Computing Services as a network technician, has worked in management of videoconferencing since 1996.

John was heavily involved in the development of a videoconferencing service across the Scottish Metropolitan Area Network and then its later transition from ATM to an IP based solution. More recently John has been involved in the Videoconferencing for Schools pilot, with emphasis on support for configuring and implementing gatekeepers and cascading multipoint control units. John maintains the configuration of the UK based world gatekeeper, which is part of the Global Dialling Scheme. John is also involved in the development of the JANET Videoconferencing Booking Service and updating web documentation.

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## **MARK O'LEARY**

### **Biography**

Mark is an IT Officer on the Networking team of Manchester Computing, where he has specialised in remote access, authentication and wireless technologies. He is a member of the JANET Wireless Advisory Group and leads Manchester's contribution to the LIN proof of concept and full trial programmes, and the LICHEN project.

### **Abstract**

#### ***Manchester's LIN Deployment for Networkshop***

The design and implementation of the Networkshop 33 network with a view to location-independent authentication: LIN - enabling a conference.

## VICTOR OLIFER

### Biography

Victor Olifer joined the Advanced Technologies Group of the Network Development Division of UKERNA as Network Development Project Manager in November 2003. He has two first degrees (Computer Science and Applied Mathematics) and a PhD in Computer Science. He is an author of four text-books for universities (three of them have been published in Russia; a fourth book will be published in England in May 2005 by John Wiley & Sons) and a number of articles.

### Abstract

#### *Quality of Service*

This presentation will discuss the results from the JANET QoS Development Project. The project was set up in January 2002 to create a roadmap for the development of network QoS for the UK academic and research community. Phase 1 of the project finished in August 2004, following a large-scale QoS trial across the JANET production network. The trial included the testing of the IP Premium for Voice over IP (VoIP), videoconferencing applications, and Less than Best Effort services for the AccessGRID application.

During the tests, the behaviour of the traffic was examined under two conditions: when certain traffic is processed as Best Efforts (BE) (i.e. receives 'common' processing) and when the same traffic is processed as a high priority DiffServ class (IP Premium). Comparison of traffic behavioural patterns would allow the Project group to assess the impact of enabling QoS for certain applications.

The results obtained from the measurement tools showed the positive impact of QoS on the behaviour of the applications, especially the significant reduction in packet loss for IP Premium traffic against BE traffic, and for BE traffic against LBE traffic under the same network conditions.

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## BRUCE RODGER

### Biography

Bruce Rodger is Network Manager at the University of Strathclyde, where he is responsible for infrastructure, network services, security, and anything IT-related that doesn't have a specific label. He is a member of the JANET Wireless Advisory Group. His children think he spends all day playing with computers, which probably has a certain element of truth. He still does not have a van (see Workshop 29).

### Abstract

#### *Disaster Recovery - Tales from the Front Line*

There are many publications on disaster recovery. Some take a very academic approach to the preparations and planning you must make. Some dwell on the commercial aspects. Others take a more practical approach. But no matter how thorough the groundwork, nothing can prepare you for

the feeling of shock and dismay that you experience if you turn up for work one day to discover that what yesterday was your workplace is now just a smouldering hole in the ground.

In November 2003, a fire completely destroyed one building at the University of Strathclyde, and adjacent buildings were uninhabitable for several months. This presentation will describe the disaster recovery process, at a practical level, from the IT point of view. It will cover restoration of services elsewhere on the campus in the hours after the fire, the decant operation, data recovery, and longer-term issues.

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## **DAVID SALMON**

### **Biography**

David's role as Research Support Co-ordinator at UKERNA covers liaison with the Research and e-Science communities to understand their network requirements and related issues, and includes UKLight project management.

### **Abstracts**

#### ***UKLight Update***

The current state of the UKLight infrastructure will be presented, with an indication of where it will go in future, the projects using it, and how projects can still become involved.

#### ***Managing Research Networking Requirements***

This session will cover how organisations connected to JANET are approaching the issue of managing the more demanding network requirements of their research community alongside the traditional networking.

Speakers from organisations hosting a significant grid/e-Science community will give presentations on the approach their organisation has taken, highlighting any issues which have been encountered (anything from security/firewalls to network capacity) and how they have been tackled.

This will be followed by a 30 minute panel session with questions from the audience and broader discussion of any points brought out during the presentations.

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## **RINA SAMANI**

### **Biography**

Rina is the Network Development Manager within the Advanced Technologies Group in the Network Development Division of UKERNA. She is responsible for:

- Managing the Network Engineering Section within the Advanced Technologies Group.
- Managing specific development projects, as part of the SuperJANET Development

Programme, to ensure that the underlying JANET network service is able to meet any novel demands of new applications, i.e. :

- Network QoS
- IPv6
- Multicast
- Network Access Programme
- SuperJANET Development Network

Rina joined UKERNA as a Value Added Services Officer in September 1998, working in the Production Services Division. After a year's service she was promoted to the Technology Development Manager's post. Rina graduated from De Montfort University (Leicester) in July 1998, with a BSc (HON) Business Information Systems.

### **Abstract**

#### ***Update from the Wireless Advisory Group***

The UKERNA Wireless Advisory Group (WAG) was formed in May 2003 with a remit to provide advice and guidance, through the dissemination of information on wireless technologies to the JANET community. Since the formation of the WAG, a number of documents have been produced including factsheets, case studies and reports on wireless networking, focusing mainly on the 802.11 standard. The documents produced to date can be found on the JANET website at: [http://www.ja.net/development/network\\_access/wireless/wag/wireless-info.html](http://www.ja.net/development/network_access/wireless/wag/wireless-info.html). It is envisaged that future investigations by the WAG will also include technologies and standards such as 3G and 802.16 (WiMAX).

Members of the JANET community are invited to join the JISC mail Wireless Admin mailing for general discussion on wireless technologies and standards. Instructions on how to join this list can be found at: <http://www.jiscmail.ac.uk>.

The WAG update presentation will provide an overview of the areas investigated by the WAG over the last year, outlining the results of their work and documentation produced. Further details on the future direction of the WAG including the activities and areas to address will also be highlighted during the presentation.

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### **MICHAEL SAYWELL**

#### **Biography**

Mike Saywell is a Third Year PhD student conducting research in the area of wireless networking and distributed security. His recent work includes the application of SDSI/SPKI to 802.1x wireless authentication and the use of ad-hoc routing protocols for discovering signature chains in the PGP Web of Trust.

Mike also has interests in IPv6, Ad-Hoc Sensor Networks, Scale Free Networks, Community Wireless and the field of Pervasive Computing and Networks in general.

**Abstract*****Community Wireless Networking***

The talk will cover how community wireless came to be and what the term actually means. There will be a discussion of some of the technologies involved, including detection, authentication, meshing and the hardware used.

As a case study, the talk will examine the SOWN network in Southampton, in which Mike Saywell has been heavily involved.

Finally the talk will consider the problems faced by community wireless and what Mike Saywell thinks the future holds.

**JEREMY SHARP****Biography**

Jeremy Sharp is manager of the Advanced Technologies Group in UKERNA, which is part of the Network Development Division.

The role of the group is to provide a view of how network technologies and applications will shape the future of JANET and SuperJANET. In particular it is responsible for the development and implementation of initiatives that lead to the development of specific new services to the community.

Jeremy is also responsible for the SuperJANET5 project.

**Abstract*****Review of the JANET Operations and Development Programme***

Tim Kidd and Jeremy Sharp will present a review of the major developments and enhancements to JANET network services that have taken place during the past year.

**RALPH SPENCER****Biography**

Dr Ralph Spencer is a Reader in Radio Astronomy at The University of Manchester. He has worked on the development of interferometers for radio astronomy since the 1970s. Work on phase stable interferometers led to the development of the MERLIN array. His interest in VLBI started in the late 1970s. He was responsible for running VLBI operations at Jodrell Bank Observatory until the mid 1990s, when the National Facility took over. He led European development of the 1 Gbit/s MkIV VLBI system until 2001. Since then he has worked on fibre-optic data communication systems for the ALMA mm-wave instrument and e-MERLIN, and has developed use of the Internet for e-VLBI.

**Abstract*****High Data Rate Transfer for HEP and VLBI: Tests on the Link***

Very Long Baseline interferometry is a well established technique in radio astronomy for the study of celestial sources at high angular resolution. Conventional methods use data recording techniques at individual telescopes; however this is unreliable and results in long delays before the astronomically interesting results arrive. e-VLBI uses the Internet at high data rates and can give answers in real time. I will be describing experiments on the Internet as part of eVLBI development which are beginning to produce astronomical results.

**BILL ST. ARNAUD****Biography**

Bill St. Arnaud is Senior Director Advanced Networks for CANARIE Inc., Canada's Advanced Internet Development Organization. At CANARIE Bill St. Arnaud has been responsible for the coordination and implementation of Canada's national research and education network CA\*net 4.

**Abstract*****Service Oriented Architectures for Research and Education Networks***

Research and education networks may be entering an exciting new development. We soon may be able to deploy Research and Education Services Networks (RESNs) which provide infrastructure where Web Services can be securely published, reused, and invoked based on Service Oriented Architecture (SOA) Standards. The CA\*net 4 network is a prototypical example as it provides end users with the ability, using Web Services (WS) architecture and Grid technology (OGSA), to provision, manage and control the routing of their own lightpaths and/or Articulated Private Networks (APNs) across the network without the need to signal or request services from any central network management authority or server.

In the next phase the user Controlled LightPath (UCLP) software will be adapted to allow seamless integration of large scientific instruments and sensors into the network using web services workflow and orchestration techniques such as BPEL. It will enable service oriented architectures for research and education networks to seamlessly provide network 'services' from the optical network layer right through to the research application where every element is in effect a 'lego'-like building block that can be assembled by the end user in any configuration they desire. The deployment of SOA for networks will complement many of the current developments being undertaken in the UK e-science and EU e-infrastructure programs.

## GAVIN SUTTER

### Biography

Gavin Sutter LLB LLM (Queens, Belfast) joined the Institute of Computer & Communications Law (one of the constituent Units of the Centre for Commercial Law Studies, a department of Queen Mary, University of London) in February 1999. His personal research interests include a wide range of content regulations issues as they apply to material on the Internet (e.g. obscenity, defamation, copyright infringement). He has published a number of papers and book chapters in this area, including in particular several works on the issues relating to intermediary liability for third party provided content.

Gavin is particularly pleased to note that his views on sexual harassment and Internet pornography in the workplace have been quoted in *Shine*, a glossy magazine marketed at women in their late 20s. He has also been actively involved on behalf of the ICCL in a wide range of other research, including the interception of electronic communications for the purposes of criminal investigations, the enforcement of Internet regulation and electronic payment systems.

### Abstract

#### *Keeping the Right Side of the Law*

This session will offer a survey of legal problems and pitfalls which can arise when dealing with the online world. Problems can arise where a computer is used to facilitate a crime, such as fraud, where the computer itself is the target of a crime, through the use of viruses or gaining unauthorized entry to a system, or where the content stored on and distributed via a computer system is itself contrary to law - child pornography, for example. The issue of legal liability on the part of the provider of online services as a result of material made available via those systems by third parties is an extremely significant area which has seen significant developments in recent years. This will be considered along with suggestions on how the risk of such liability may be minimised.

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## ROBIN TASKER

### Biography

Dr Robin Tasker is Head of the Networks and Communications Group of the CCLRC. His research and development interests include high performance transport, wide area QoS, the lower-layer (switching) environment and network monitoring. He has been a voting member of the IEEE 802.1 (Internetworking), and since 1997 led the UK at ISO/IEC JTC1 SC6 Data Communications meetings. Within the EU DataGrid project he led the work to develop an integrated network monitoring architecture and is now responsible for the development of a monitoring infrastructure for the UK e-Science and HEP communities. In the EU DataTAG project he was responsible for high performance networking which included high performance transport, inter-domain QoS and advance reservation of network bandwidth; and he was active within the UK e-Science MB-NG project.

**DAVE TYSON****Biography**

Dave Tyson has worked on a wide variety of UNIX and networking projects at the University of Liverpool for over 25 years. He is currently in charge of the networking team and is also responsible for maintaining a raft of servers running BSD open source operating systems.

**Abstract*****Experiences Setting up LIN and Quadnet***

There will be a brief overview of Quadnet (quick & dirty networking) which allows visiting researchers from remote sites to gain network access back to their home institution, followed by some comments on scalability issues. This will be followed by a discussion of the experiences in setting up the LIN trial at Liverpool.

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**GEORGE VERNON****Biography**

George was first introduced to programming in 1973 (Fortran IV) and the novelty is yet to wear off. He joined FE in 1988 as a lecturer specialising in systems software development, operating systems and networks. He gave up full time lecturing seven years ago to become the computer systems manager at Plymouth CFE. He is currently interested in security, interoperability issues, web services and programming (Java and PHP).

**Abstract*****Wireless Networking - Experiences from the FE Sector***

See Abstract for Chris Zisimedes, *overleaf*

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**STEPHEN WARNER-JONES****Biography**

Stephen Warner-Jones has been a member of JANET-CERT at UKERNA for over two years. He has specialised mostly in network security. Previously he was a member of the Network Reporting Group.

**Abstract*****Flow Based Monitoring on JANET***

The purpose of this talk is to discuss how network flows are being used to enhance security on JANET. There will be an explanation of the current capability that JANET-CERT has to monitor

backbone traffic and how it is expected to develop. There will also be some discussion on how flow based monitoring is being used at JANET sites.

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## **SAM WILSON**

### **Biography**

Sam Wilson joined Computing Services at the University of Edinburgh in 1985. He spent some time in the Advisory Service, specialising in the communications area, before moving into networking full time. He helped plan the University's LAN and was involved in the Shoestring project to implement a TCP/IP infrastructure across JANET. Since then he has been part of the team responsible for the ongoing development of the University's network infrastructure, the EaStMAN metropolitan network and, most recently, Edinburgh's eScience network.

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## **CHRIS ZISIMEDES**

### **Biography**

- BSc (Hons) Computer Systems and Networks
- Novell CNA
- College Network Manager at Plymouth College of FE for the past 4 years
- College network lecturer for the previous 3 years
- Key roles are the College network infrastructure and network project management.

### **Abstract**

#### ***Wireless networking - Experiences from the FE sector***

In 2002 Plymouth CFE had a stable, well structured and reliable centrally switched network. The main limitation was that ILT resources could only be accessed from offices and dedicated IT suites. Our e-learning strategy had highlighted the need to remove all barriers to the use of ILT by lecturers. It was perceived that the best way to do this would be to issue all lecturers with laptop PCs and enable network access from anywhere in the College.

'Back of the envelope' calculations indicated that the cost of installing two network points in each area was approximately the same as that of installing wireless networking.

Given that the wireless option would also offer considerably more flexibility, it was decided to install sufficient wireless access points (WAPs) to give full connectivity from all areas of our two main sites. The result was, at the time, the largest 802.11a network in Europe.

The presentation will describe the design and implementation stages of the project with particular emphasis placed on the lessons learned (mistakes made!).

# Networkshop 33 Exhibition

## EXHIBITION

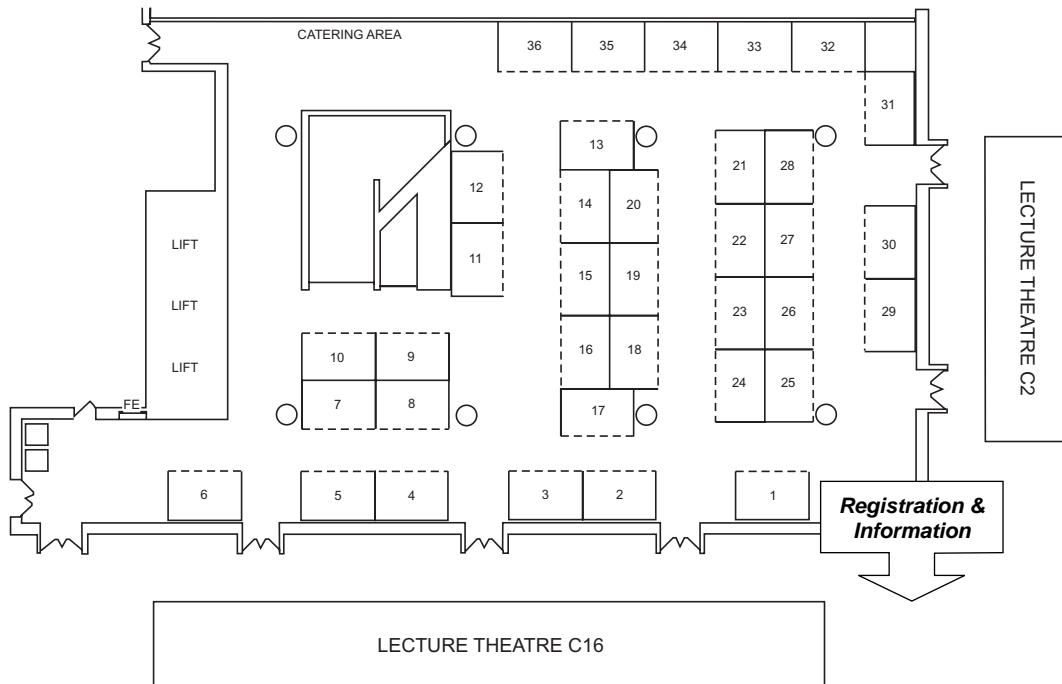
A full turnout once again for our exhibition – welcome back to old friends and a special welcome to companies exhibiting for the first time. Delegates are urged to make full use of refreshment and meal breaks to visit exhibition stands on both floors.

**Stand numbers 1-36 are located on the first floor of Renold Building**

**Stand numbers 36-54 are located on the ground floor of Renold Building**

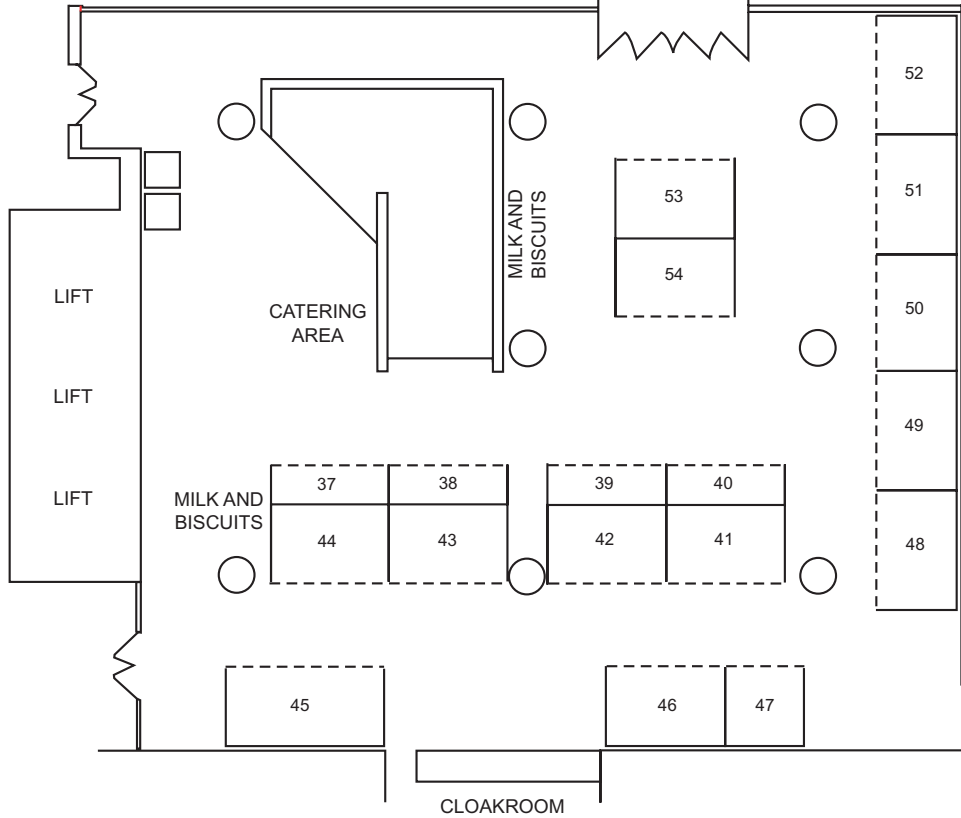
## FLOOR PLANS (NOT TO SCALE)

**Upper Exhibition Area (C15) Stands 1 - 36**



**Lower Exhibition Area (B1) Stands 37 - 54**

**To / from the Weston  
Building and Barnes  
Wallis Building**



# Networkshop 33 Exhibitors

<b>Exhibitor</b>	<b>Stand No.</b>	<b>Exhibitor</b>	<b>Stand No.</b>
2bm Ltd	16	Juniper Networks	10
ADC KRONE	21	Logicalis	6
AirWave Wireless, Inc	20	Lucent Technologies	32
Allied Telesyn International	29	Matrix Communications Group & Bedrock Networks	2 & 3
AT Communications	44	MCI International Ltd	43
Belden CDT Networking	7	NetFort Technologies Ltd	47
Bluesocket Ltd	30	Pervasive Networks Ltd	45
Ciena	54	Pinacl Solutions UK Ltd & Polycom UK Ltd	26, 27 & 28
Cisco Systems	34 & 35	Redstone Communications Ltd	36
CMS Ltd	37 & 38	SEC Datacom	1
Cooper B-Line Ltd	41	Server Technology UK Ltd	48
Crannog Software Ltd	42	SkyNet Systems	4 & 5
Critical Software	50	Symantec	46
Dynetcom UK Ltd	49	Synetrix Ltd	53
Enterasys Networks	39 & 40	Telewest Business	33
European Electronique Ltd	22 & 23	THUS plc	51 & 52
Extreme Networks	15		
FibreSpan Ltd	13		
Force10 Networks	8		
Foundry Networks (UK) Ltd	18 & 19		
Full Control Networks	14		
Global Secure Systems Ltd	17		
HellermannTyton Data Ltd	24		
Hewlett Packard	11 & 12		
Imtech Telecom UK Ltd	9		
IP-Performance Ltd	25		

# Exhibitor Profiles

## 2bm LTD

**STAND NO. 16**

<http://www.2bm.co.uk>

Contact: Mark King  
E-mail: mark.king@2bm.co.uk  
Telephone: 0115 972 1155 Mobile: 07968 769 505  
Facsimile: 0115 972 1177

2bm are specialist providers of innovative data centre solutions which include server racks, KVM switch solutions and intelligent power management systems.

We have a wide range of server racks available along with the very latest in digital KVM switch technology from Avocent, the worlds leading KVM switch manufacturers.

In addition to KVM and server racks we offer some of the very best solutions in managing power to servers, locally in the data centre and remotely over IP.

Visit our stand and find out how 2bm can help you manage your servers more cost effectively.

## ADC KRONE

**STAND NO. 21**

<http://www.adckrone.com>

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### *Excellence*

ADC KRONE provides the connections for enterprise, wireline, wireless, cable and broadcast networks. The company's network infrastructure equipment and services enable high-speed Internet, data, video, and voice services to residential, business and mobile subscribers.

ADC KRONE has experience in the education sector with installations at University College London and University of Warwick.

### *Innovation*

ADC KRONE recently launched the CopperTen™ structured cabling system, the first to include 10 Gigabit/s capability over Unshielded Twisted Pair (UTP). CopperTen has been successfully sold worldwide to organisations such as banks, universities, law firms, engineering consultancies, aerospace companies and one of the world's leading animation studios.

**AIRWAVE WIRELESS, INC.****STAND NO. 20****<http://www.airware.com>**

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AirWave Wireless, Inc. develops wireless network management software solutions that make wireless networks as manageable and secure as wireline networks. The Company's AirWave Management Platform (AMP™) software reduces support costs, improves network performance, and guarantees enforcement of an organization's security policies. The software's web-based user interface provides a single point of intelligent control from which to monitor, analyze and configure even the most complex, multi-vendor wireless networks. The Company's open, standards-based software integrates with existing network infrastructures and gives AirWave's customers the freedom to select the Wi-Fi hardware that best meets their current and future network requirements.

**ALLIED TELESYN INTERNATIONAL****STAND NO. 29****<http://www.alliedtelesyn.com>**

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Allied Telesyn is one of the world's leading enterprise networking organisations. Formed in 1987, Allied Telesyn is part of the overall Allied Telesis Group, headquartered in Tokyo, Japan. The Group has displayed regular profit and growth since its formation in 1987. The company now has a worldwide turnover in excess of \$600 million, over 2500 worldwide employees and over 1,000,000 worldwide customers.

Historically, Allied Telesyn has specialised in providing Ethernet networking and connectivity systems and is the world leading manufacturer of media conversion products. The company also has a range of optical, switching and routing solutions which have been deployed within many Education establishments throughout the UK. Our solutions for the core of networks and to provide student connectivity to University core services are at the forefront of our expertise within the sector.

## **AT COMMUNICATIONS**

**STAND NO. 44**

**<http://www.atcommunications.co.uk>**

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AT Communications is one of the UK's leading communications providers, offering a comprehensive range of solutions tailored to meet all business requirements. With an award winning customer service approach and a nationwide support network, we continually strive to add value, providing our customers with the solutions and support for all their voice and data requirements, ensuring increased productivity, cost-efficiency and return on investment.

We have the right solutions for you, including:

- Telephone Systems and Installation
- System Maintenance and Servicing
- Data Hardware and Infrastructure
- Network Services: including Line Rental and LCR
- Mobile Communications and Data Solutions

## **BEDROCK NETWORKS**

**STAND NO. 2 & 3**

**<http://www.bedrocknetworks.com>**

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Bedrock Networks, a wholly owned subsidiary of Matrix Communications Group plc, is a network integration specialist that focuses on the delivery of LAN/MAN and WAN, content delivery and WLAN mobility solutions. We work in collaboration with our customers to design, integrate and deliver cost effective and scalable network infrastructures.

We pride ourselves on selecting only the best technologies, and by focusing on a limited product portfolio we offer the highest level of technical expertise. Our flexible support services are tailored to complement the skills and resource of our customers and are delivered in line with our customers' needs.

We have an established and loyal customer base, and many of our customers will be at this event. We will be pleased to meet with you.

## **BELDEN CDT NETWORKING**

**STAND NO. 7**

**<http://www.beldenibdn.com>**

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Belden CDT Inc. has emerged from the union of two cabling industry giants: Belden Inc. and Cable Design Technologies Corp. (CDT). Belden CDT Inc. is one of the largest manufacturers of high-speed electronic cables focusing on data networking and speciality electronics markets.

The Belden CDT Communications Networks Division is comprised of two networking industry leaders: Belden Electronics-Commercial Networking Group and NORDX. The result is the Belden IBDN System.

Belden IBDN is made up of IBDN Copper Systems and FiberExpress™ solutions. The copper systems consist of three high performance, end-to-end solutions, optimised for the Gigabit-networking era: Belden IBDN System 1200 (Category 5e), Belden IBDN System 2400 (Category 6), and Belden IBDN System 4800LX (Beyond Category 6™).

FiberExpress™ is a complete system supporting centralised and fibre-to-the-desk topologies, as well as backbone and campus configurations.

## **BLUESOCKET LTD**

**STAND NO. 30**

**<http://www.bluesocket.com>**

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Founded in 1999, Bluesocket is a leading manufacturer of systems to secure and manage wireless local area networks (WLANs) for enterprises, institutions and public access venues in 45 countries worldwide. Thousands of Bluesocket's award winning Wireless Gateways are deployed by leading enterprises including Harvard University, Honeywell, Universal Health Services, Toyota and Parker Hannifin and others who require policy-based, open-systems solutions to secure, manage and profit from their WLANs.

Bluesocket also complements its wireless gateways with BlueSecure™ Intrusion Protection System – a dedicated wireless LAN monitoring and intrusion protection system to protect an organisation's network from wireless-based attacks.

**CIENA LTD.****STAND NO. 54****<http://www.ciena.com>**

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Ciena Corporation is the network specialist, focused on solving the diverse service delivery expectations of your customers. The company's systems, software and services target and cure specific network solutions so that telcos, cable operators, governments and enterprises can best exploit the new applications that are driving their businesses forward. Ciena addresses the needs of Enterprise Solutions to High End Core Networks with solution architectures to address Layer 1, 2 and 3 applications. Visit Ciena at Stand 54 to understand how Ciena can address your needs.

**CISCO SYSTEMS****STAND NOS. 34 & 35****<http://www.cisco.com/uk>**

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Cisco Systems is the worldwide leader in networking for the Internet.

Virtually all messages or transactions passing over the Internet are carried quickly and securely through Cisco equipment. Cisco's Internet Protocol based networking solutions are the foundation of the Internet and most education, government and corporate networks around the world.

A Cisco network has the power to:

- protect itself and safeguard your information
- unify your communications
- untether staff
- access critical data when you need it

It's your network. All you have to do is unlock it.

**CMS LTD****STAND NOS. 37 & 38****<http://www.cableman.co.uk>**

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CMS (Cable Management Supplies) Ltd are a well established, complete solutions provider for the data and telecoms industry. With over 2700 product lines, all available for next day delivery before 1:00pm, you can be sure they'll have exactly what you need.

Manufacturers' products on show include Assynia, HellermannTyton, PatchSee, Test-um Tools, and many more. All products are featured in their now infamous 'CMS Yellow Book'. Be sure to make a visit to the stand to collect your FREE copy. As well as dealing with our friendly sales team you are also able to purchase securely online at **[www.cableman.co.uk](http://www.cableman.co.uk)**.

**COOPER B-LINE LTD****STAND NO. 41****<http://www.cooperblineline.co.uk>**

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Facsimile: 01278 788000

**INNOVATORS IN HIGH QUALITY ENCLOSURE SOLUTIONS**

With over 50 years of experience in the enclosure industry, operating as both Willsher & Quick Ltd and Cooper B-Line Ltd, we have developed the knowledge and skills to support our position as a premier company specialising in the design, manufacture and supply of both standard and custom enclosure solutions.

Whether you are looking for standard 19-inch racks and cabinets or bespoke solutions to meet specific requirements, Cooper B-Line Ltd have the capability to meet your needs on a global basis. Cooper B-Line Ltd continues to develop market-leading solutions in an ever changing environment to meet our customers' expectations.

## **CRANNOG SOFTWARE LTD**

**STAND NO. 42**

**<http://www.crannog-software.com>**

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Crannog Software specialises in the design of niche network management tools. Its innovative suite of software products leverage technology already present in your infrastructure to let you monitor and measure the performance of your data communications networks, across local and wide area links.

Using Netflow, Crannog's Netflow Tracker and Netflow Monitor offer an intuitive 'drill down' into bandwidth utilisation without the complication and expense of hardware probes. Completely web based with a simple and intuitive graphical format, they are simple to install and easy to operate.

Responsewatch uses IP SLA to gather network performance monitoring statistics. IP/SLA measures response times, network resource availability, application performance, and jitter, connect time, throughput and packet loss.

## **CRITICAL SOFTWARE**

**STAND NO. 50**

**<http://www.icritical.com>**

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Critical Software is a managed gateway security service provider strategically positioned to service large scale networks (i.e. education and government). The iCritical product range offers services to screen all SMTP, HTTP and FTP traffic, protecting from the latest viruses, spam, exploits, phishing and spyware, with content filtering also available. It brings together multiple security competencies in a complete solution resulting in lower cost of ownership.

iCritical is a managed application that can be completely automated, resulting in zero maintenance and administration if necessary, and provides a secure web based interface that allows administrators to monitor and manage the system from anywhere.

**DYNETCOM UK LTD****STAND NO. 49****<http://www.dynetcomuk.co.uk>**

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Dynetcom UK Ltd is a major UK distributor for RAD Data Communications products. We provide access solutions, convergence, rate and media conversions and compression products.

The TDMoIP based product range offered by RAD has proved to be very successful in integrating legacy equipment with modern technologies. This year we see the launch of a point to point product, the Airmux 200. Replace the legacy leased line with the Airmux and enjoy a fast ROI.

We are a main distributor for Dynetcom branded products, which cover X25 and Cable management.

**ENTERASYS NETWORKS****STAND NOS. 39 & 40****<http://www.enterasys.com>**

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Enterasys manufacture a range of Network Hardware and 'Policy' software from the edge to the core.

With Enterasys 'Secure Networks', any type of network traffic can be allowed or disallowed for each individual user. The ability to control all network traffic on every port revolutionises network control.

Network managers can set different rules for different users. Students, staff, guests and devices can be offered different network resources, bandwidth, traffic types and priorities.

The ability to define network policies is unique to Enterasys.

Enterasys has over 250 universities worldwide using our 'Secure Networks' technology. It's your network, take back control.

## EUROPEAN ELECTRONIQUE LTD

STAND NOS. 22 & 23

<http://www.euroele.com>

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European Electronique has been networking partner of choice to several hundred HE & FE customers for over a decade. We pride ourselves on remaining ahead of the competitors in helping our customers harness the power of their networks.

Considerable structural and management savings can now be made in deploying IP Telephony, CCTV, Environmental Monitoring and Door Access Systems, to name a few.

This Networkshop we will be demonstrating how to utilise your data network to deploy cost effective and easy to use CCTV cameras, together with a revolutionary network print management solution that could reduce your paper bill by half.

## EXTREME NETWORKS

STAND NO. 15

<http://www.extremenetworks.com>

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Extreme Networks is the leader in open converged networks. A true open converged network allows the seamless integration of applications, services and devices accessed via wired and wireless connectivity.

Extreme Networks delivers to academia a proven, low risk path for building a truly business class open converged network. Our solutions offer unrivalled levels of resilience, adaptability and simplicity. Our network architecture delivers predictable performance, advanced security capabilities and industry leading availability, whilst allowing for future extensibility.

We understand your requirements – in today's world simply providing connectivity is not enough. Come and talk to us about how we can deliver an open converged network that delivers service end to end.

For more information, please visit stand 15 here at Networkshop.

## **FIBRESPAN LTD**

**STAND NO. 13**

**<http://www.fibrespan.co.uk>**

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Facsimile: 023 8057 4591

FibreSpan build bespoke, dark fibre networks offering unrestricted bandwidth across university networks. In many cases the annual rental charge for a bespoke FibreSpan network compares favourably with typical restricted bandwidth LES circuits.

FibreSpan holds a UK national telecommunications licence and is regulated by Ofcom. They undertake all aspects of network build from initial planning through to liaison with local authorities, network construction and ongoing maintenance.

## **FORCE10 NETWORKS**

**STAND NO. 8**

**<http://www.force10networks.com>**

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Force10 have designed and produced groundbreaking technology for HPC Ethernet networking; the most reliable, secure and scaleable Ethernet network switch router in the market today. Force10 is the only vendor who can provide 100% availability in complex HPC, grid and cluster computing environments.

### *Leading Customers*

The company is growing rapidly and has won a number of impressive customers, including Google and Teragrid. Force10's switches are deployed in the 940 node DELL Cluster at Liverpool University and in four of the 15 largest supercomputers worldwide.

### *Partnerships*

Force10 has established a strong list of partners, including IBM, Dell and SUN.

IBM have embedded Force10's systems into their E1350 Linux platform.

## **FOUNDRY NETWORKS (UK) LTD**

**STAND NOS. 18 & 19**

**<http://www.foundrynet.com>**

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Foundry Networks, Inc. (Nasdaq: FDRY) is a leading provider of high-performance enterprise and service provider switching, routing and Web traffic management solutions including Layer 2/3 LAN switches, Layer 3 Backbone switches, Layer 4 - 7 application switches, Wireless LAN and access points, access routers and Metro routers. Foundry's 7,500 customers include the world's premier ISPs, Metro service providers, and enterprises including e-commerce sites, universities, entertainment, health and wellness, government, financial, and manufacturing companies. For more information about the company and its products, visit **[www.foundrynetworks.com](http://www.foundrynetworks.com)**.

## **FULL CONTROL NETWORKS**

**STAND NO. 14**

**<http://www.fullcontrolnetworks.co.uk>**

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Full Control Networks is a leading supplier and consultant for Local Area Network management products and services.

Solutions are provided from testing cables, looking at network traffic issues through to measuring application response times on the network. A range of solutions, from software to hardware, are offered including Fluke Networks, Network Instruments, Chevin, Datacom Systems and NetVoyant.

Services offered by Full Control Networks include investigating performance issues, auditing networks, design consultancy and writing tender documents.

## **GLOBAL SECURE SYSTEMS LTD**

**STAND NO. 17**

<http://www.gsec.co.uk>

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Educational Establishments providing Internet access must ensure Internet connections are secure. Global Secure Systems are eSecurity specialists who have provided a full range of security products and services since 1997.

Today we continue to develop our portfolio in accordance with the changing marketplace, therefore always providing best of breed security solutions.

Products include wireless products from Vernier and AirMagnet, appGATE VPN solutions and PatchLink Patch Management.

## **HELLERMANNTYTON DATA LTD**

**STAND NO. 24**

<http://www.htdata.co.uk>

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HellermannTyton Data is one of the leading manufacturers of copper and fibre structured cabling solutions in the UK market with over 15 years of experience in the Education sector. With particular emphasis on R & D we have consistently produced new and innovative product lines including our latest development, already tried and tested in a number of well known institutions and businesses, branded RapidNet. RapidNet is a fully warranted fibre, Cat6 and Cat5e compliant pre-terminated end-to-end cabling system that significantly reduces installation time and offers consistent factory terminated quality. Looking forward to meeting with you on our stand!

**HEWLETT PACKARD****STAND NOS. 11 & 12****<http://www.hp.com/uk/hpprocurve>**

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ProCurve Networking by HP – still the fastest growing vendor, and now #2 networking vendor in the Ethernet switch market (source: IDC). HP will be showcasing its award-winning ProCurve portfolio of LAN products, covering small workgroup to university campus. Recent additions to the range include the ProCurve Switch 3400cl and 6400cl series of Gigabit and 10 Gigabit switches designed to operate in the most demanding network environments. In addition, a major product announcement in March will provide an exciting opportunity! Find out more at the show.

**IMTECH TELECOM UK LTD****STAND NO. 9****<http://www.imtechtelecom.co.uk>**

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Imtech Telecom UK Limited is a supplier to numerous education clients in the UK. Our principal business is the design, installation, operation and maintenance of carrier class networks.

Imtech Telecom provides best of breed solutions based on a solid foundation of technical excellence. Our ability to provide expert support and operational services is complemented by products and support from some of the industry's leading vendors. We are a Juniper Elite Partner and EMEA Service Partner of the Year.

Imtech offers solutions for IP, optical communications, metro ethernet, secure access and performance measurement.

## IP-PERFORMANCE LTD

STAND NO. 25

<http://www.ip-performance.co.uk>

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IP-Performance Limited is a leading supplier of customised network infrastructure and security solutions.

Partnered with Allot, Bluecoat, Allied Telesyn, Juniper and as Lucent's premier UK business partner, our delivery of complex network solutions using leading edge technology products is backed by our own 24-hour support technical assistance centre.

We support organisations within your community with network security solutions, voice-over-IP, network management, broadband and bandwidth management solutions, URL filtering, virus management, wireless LANs, routers and switches.

Visit our stand No 25 to catch up with us and discuss which projects we have undertaken within your community since Keele last year.

## JUNIPER NETWORKS

STAND NO. 10

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Juniper Networks, Inc. is the leader in enabling secure and assured communications over a single IP network. The company's purpose-built, high performance IP platforms enable customers to support many different services and applications at scale. Service providers, enterprises, governments and research and education institutions worldwide rely on Juniper Networks to deliver products for building networks that are tailored to the specific needs of their users, services and applications. Juniper Networks' portfolio of proven networking and security solutions supports the complex scale, security and performance requirements of the world's most demanding networks. Additional information can be found at [www.juniper.net](http://www.juniper.net).

## LOGICALIS

STAND NO. 6

<http://www.uk.logicalis.com>

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Logicalis is an international provider of intelligent networks and integrated services. We are one of the UK's leading providers of IT infrastructure solutions to the education sector and currently maintain the core routers on the JANET backbone.

We design, build, implement and maintain high-performance network and advanced IT infrastructures, integrating appropriate products and applications into complex IT environments, and providing a variety of solutions to optimise performance and keep critical systems up and running.

Networking is our core business, and we have over a decade of experience in delivering complex projects. In addition, our experience and expertise in networked storage, security, convergent technologies and systems management solutions all enhance the functionality, availability and business value of any network implementation.

## LUCENT TECHNOLOGIES

STAND NO. 32

<http://www.lucent.com>

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Lucent Technologies designs and delivers the systems, services and software that drive next-generation communications networks. Supported by Bell Labs research and development, Lucent uses its strengths in mobility, optical, software, data and voice networking technologies, as well as services, to create new revenue-generating opportunities for its customers, while enabling them to quickly deploy and better manage their networks. Lucent's customer base includes communications service providers, governments and enterprises worldwide. For further information on Lucent at this event, please contact Neil Warren, Business Development for Lucent on +44 (0)7803 278 879 or via e-mail at the address shown above.

## **MATRIX COMMUNICATIONS GROUP PLC**

**STAND NOS. 2 & 3**

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A leading integrator of IT and communications infrastructure, Matrix Communications Group plc propose, implement and support total networks.

Our expertise in LAN/ WAN integration, Voice over IP (VoIP), storage and network security, coupled with our ability to provide world class support services, including maintenance on a 24/7 basis both across the UK and globally, means we can provide a total solution to our customers across all technology areas.

Our policy of proposing 'best of breed' solutions means we are not linked to a single hardware manufacturer. Instead we have supply arrangements with a number of leading edge manufacturers who deliver pure performance technologies, allowing us to propose a bespoke solution that will best satisfy our customers' needs.

Matrix Communications Group plc are experts in delivering:

Data • Security • Carrier Services • Voice • Storage • Support Services

## **MCI INTERNATIONAL LTD**

**STAND NO. 43**

<http://www.mci.com/uk>

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MCI is a leading global communications provider and the provider of the SuperJANET4 backbone, delivering innovative, cost-effective, advanced communications connectivity to government and business. With the industry's most expansive global IP backbone, based on the number of company-owned points of presence, and wholly-owned data networks, MCI develops the converged communications services that are the foundation for commerce and communications today.

Leveraging our communications experience and Government sector knowledge, MCI offers the expertise that can make a real difference to the public interface into Government bodies. From cost conscious telephony, information hosting, through to mission critical IP based applications, MCI offers a focused approach led by professional account management.

## **NETFORT TECHNOLOGIES LTD**

**STAND NO. 47**

**<http://www.netforttechnologies.com>**

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NetFort Technologies develops Network Monitoring Solutions. The NetFort LANGuardian is an integrated system designed specifically to give a visibility into internal network activity. The LANGuardian captures and analyses traffic, using it to MONITOR all network activity and VALIDATE the security and usage policies. NetFort Technologies have deployed the LANGuardian in a number of universities in Ireland and the UK including National University of Ireland Galway, Dublin Institute of Technology, Dublin City University, Heriot Watt University and Napier University in Edinburgh. The feedback from these colleges indicates that they are delighted with its ease of use, low maintenance and training overhead, and concise daily e-mail reports.

## **PERVASIVE NETWORKS LTD**

**STAND NO. 45**

**<http://www.pervasive.co.uk>**

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Pervasive Networks Limited is a leading independent consultancy, integrator and managed service provider of communication solutions. With a strong reputation for delivering the highest quality services that provide a measurable return on investment, Pervasive Networks Limited has become a 'trusted advisor' to its customers within both the public and private sectors. Pervasive Networks Limited is totally committed to achieving business goals and continually surpasses customer expectations by gaining a thorough understanding of their customer's requirements as well as those of their customers' customers.

Pervasive Network Solutions include:

Business Consulting • Business Continuity • Network Security • Cost Containment  
Improving Customer Care • Integration of Voice and Data Applications  
Improving Application Performance • Supporting Mobile and Remote Users  
Relieving Staff Shortages • Improving Global Coverage • Voice and Data Networks

**PINACL SOLUTIONS UK LTD & POLYCOM UK LTD**

**STAND NOS. 26, 27 & 28**

<http://www.educationict.com>

<http://www.polycom.com>

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Kay Piper

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**STANDARDS BASED PERSONAL VIDEOCONFERENCING CREATES NEW POSSIBILITIES  
FOR DISTANCE LEARNING IN FURTHER AND HIGHER EDUCATION**

Polycom and Pinacl Solutions are committed to delivering solutions to the academic community that provide the same standards based videoconferencing capabilities from the desktop to the lecture theatre.

This coupled with the JVCS service operated and provided by UKERNA means that connecting to whom and when and where you want is now simpler than ever.

Pinacl Solutions are the key supplier who have provided UKERNA with the central Polycom equipment to support the videoconferencing services including IP to ISDN gateways, IP and ISDN multipoint and the new Conferencing on Demand.

Pinacl Solutions and Polycom work closely together with the community to ensure that its products, from the PVX desktop conferencing system through to the MGC-100™ Multipoint Conference Unit, meet the needs of the JANET community.

## **REDSTONE COMMUNICATIONS LTD**

**STAND NO. 36**

**<http://www.redstone.co.uk>**

Contact: Gary Swabel, Education Business Development Director  
E-mail: [education@redstone.co.uk](mailto:education@redstone.co.uk)  
Telephone: 0845 200 2000  
Facsimile: 0207 324 7601

Redstone has been working in partnership with the education sector for over 16 years, implementing voice, data, Internet and building solutions. We have developed an award winning intelligent building solution: a set of products and services we call Smart B.

Redstone manages the lifecycle of each education project from design to delivery, backed up with excellent customer care and managed service support.

Redstone is an accredited Cisco Gold partner and has over 5000 clients across the education market.

We look forward to meeting you at stand 36 where we will be exhibiting IP CCTV, access control and wireless technology.

## **SEC DATACOM**

**STAND NO. 1**

**<http://sec-datacom.co.uk>**

Contact: Neil Hutchings, Business Manager  
E-mail: [sales@sec-datacom.co.uk](mailto:sales@sec-datacom.co.uk)  
Telephone: 0118 953 4047  
Facsimile: 0118 953 4074

SEC Datacom is the specialist nationwide Systems Integration business of SEC, a member of the Scottish and Southern Energy plc group of companies.

With extensive experience of working in challenging environments, we have become a market-leading solutions provider of all aspects of system infrastructure.

With over ten years experience working in the local government and higher education sectors we have the capability to undertake any size of job or project from adds, moves and changes through to the design and build of a new installation.

DESIGN – INSTALLATION – MAINTENANCE – SUPPORT

CAT 5e – CAT 6 – FIBRE – WIRELESS – TELEPHONY – UPS – LANs & WANs

**SERVER TECHNOLOGY UK LTD****STAND NO. 48****<http://www.servertech.com>**

Contact: Paul Ellis  
E-mail: paul.ellis@servertech.co.uk  
Telephone: 01628 525511 Mobile: 07812 349452  
Facsimile: 01628 531296

Manufacturer of Enterprise Network and Data Cabinet Management solutions. Products allow remote console access and power reboot for servers, firewalls, routers, switches etc either 'in band' through the existing network infrastructure, KVM switches, or 'Out of Band' via secure modems.

UKERNA bought Server Technology products for their core network and many of the Universities use remote power management for their MAN/Campus/Datacentre in order to minimise downtime and meet Service Levels. The ability to reboot a 'locked up' device within minutes of the fault appearing is saving time and money, as well as improving user satisfaction.

**SKYNET SYSTEMS****STAND NOS. 4 & 5****<http://www.skynetsystems.co.uk>**

Contact: Matt Walker, Education Account Manager  
E-mail: edu@skynetsystems.co.uk  
Telephone: 01993 885910  
Facsimile: 0870 191 6599

What impact is convergence having on your network?

SkyNet Systems is working with many institutions that have innovative solutions, which reduce operational costs and increase efficiency through the deployment of a converged infrastructure. Through mobility solutions combining Wireless, IP Telephony, Remote Access and Security, we have improved employee productivity.

The Cisco Connected Real Estate proposition allows further technologies such as IP CCTV, Access Control and Building Management to complement your network, further reducing costs and increasing productivity.

SkyNet Systems understands the pressures and constraints that Universities and Colleges are facing; we have the solutions to meet your requirements.

## **SYMANTEC (UK) LTD**

**STAND NO. 46**

**<http://www.symantec.com/publicsector>**

Contact: Helen Pym, Account Director  
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Telephone: 07717 340670  
Facsimile: 01628 592302

Symantec, the global leader in information security, provides a broad range of software, appliances and services designed to help individuals and small, mid-sized and large enterprise businesses secure and manage their IT infrastructure. With two decades of experience and the world's largest team of security experts, Symantec's broad and robust family of security solutions include:

*Integrated security, Firewall/VPN solutions, Intrusion protection solutions, Virus protection/content filtering, Anti-spam and Security management.*

Symantec's enterprise administration solutions facilitate the efficient management of hardware and software assets, providing customers with a corporate-wide capability to plan, track and apply system changes, including:

*Backup and recovery, Patch management, Asset management, Policy management, Remote management, Software distribution, License management and Software metering.*

Visit our stand for more information or go to **[www.symantec.com/publicsector](http://www.symantec.com/publicsector)**.

## **SYNETRIX LIMITED**

**STAND NO. 53**

**<http://www.synetrix.co.uk>**

Contact: Jane Leadbeater, Sales Consultant  
E-mail: [info@synetrix.co.uk](mailto:info@synetrix.co.uk)  
Telephone: 01782 338200  
Facsimile: 01782 629600

Synetrix Limited is one of the country's leading suppliers of broadband network services and solutions to the public and private sector, having pioneered some of the most important broadband networks in the UK today. Synetrix provides solutions to national, regional and local grids, developing secure Internet and Intranet infrastructures for a wide range of public services.

### *Capabilities*

Our primary focus is the design and construction of converged multi-service networks to support voice, video and data transmission together with collaborative e-business and e-learning applications. We deliver best practice, best value solutions by leveraging the most appropriate mix of technologies, services and infrastructure providers.

## **TELEWEST BUSINESS**

**STAND NO. 33**

**<http://www.telewest.co.uk/public>**

Contact: Alberto Stec  
E-mail: support@telewest.co.uk  
Telephone: 01483 750 900 / 0800 953 8801  
Facsimile: 01483 750 901

Telewest Business has over 15 years experience in delivering broadband communications to public and private sector organisations across the UK.

Our public sector division offers managed voice, data and Internet solutions to higher and further education, local and central government, health and emergency services organisations.

Telewest Business has been involved in a number of projects with universities and colleges nationwide. We have assisted with initiatives to increase web-based learning and to promote the greater use of PCs that have impacted choices in delivery of electronic data.

We are an approved supplier on the OGCBuying.solutions Broadband Solutions Framework Agreement.

## **THUS PLC**

**STAND NOS. 51 & 52**

**<http://www.thus.net>**

E-mail: thuscorporatesales@thus.net  
Telephone: 0800 275 8487

THUS plc provides communication solutions to business customers throughout the UK. We have a strong track record in working closely with LMN, UKERNA and the wider academic sector and bring with us extensive experience in advanced IP-based technology that helps us deliver a fast, scalable and cost effective solution. THUS deploys managed solutions and expert customer services with excellent network reliability. Based on a high quality network infrastructure, THUS delivers the flexibility to meet changing needs of the educational field and supports the requirements of the Academic sector.

For further information on THUS managed solutions and key technologies please do not hesitate to contact us.

## **TNS SYSTEMS INTEGRATION LTD**

**STAND NO. 31**

**<http://www.tns.co.uk>**

Contact: Simon Haydn-Lee  
E-mail: [simon.haydn-lee@tnssi.co.uk](mailto:simon.haydn-lee@tnssi.co.uk)  
Telephone: 01691 663640

Part of the Total Network Solutions Group, TNS Systems Integration has an experienced, dedicated public sector team providing comprehensive and high performance voice and data communications solutions and services to the education sector.

TNS SI has a strategic focus on the future, encouraging the adoption of new concepts and enabling a creative connection between real needs and existing and emerging technologies.

The company has a proven track record of providing solutions that deliver significant cost-savings and enable more effective use of resources.

TNS SI is a Cisco Gold Partner and Cisco Education Partner and also has a network management centre that is accredited to BS7799-2 and ISO9001 standards.

# Acknowledgments

Thanks to the following companies who have supported Networkshop 33 through sponsorship :-

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# Notes

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