Three of the world's leading Internet Exchange Points (IXPs), LINX, AMS-IX and DE-CIX hosted the second European Peering Forum (EPF2) on the 28th and 29th of November 2007 in Barcelona, Spain.

The EPF is designed to bring together more than 150 individuals from the respective IXP member organisations to discuss all aspects of peering from negotiating to operations.

The two days were split into four distinct sections including Peering Strategy and Operations, New Developments, Network Operations and Regulatory.

Job Witteman of AMS-IX gave the opening address which was followed by the keynote speech by Dirk van der Woude, Digital Officer of the City of Amsterdam.

Peering Strategy and Operation
Edwin Punt of KPN gave his view on the European Peering Landscape which was followed by a presentation from Monica Martinez-Quero and Marta Garcia-Lopez of Telefonica. Greg Hanks provided observations on peering deployment.

New Developments
Day two saw the Web 2.0 scene and its impact on infrastructure covered by Ivan Communod of CPOD.TV while Michael Winterson of Equinix Europe presented on scaling European peering infrastructure. Laird Popkin, CTO at Pando Networks asked: ‘Can ISPs and P2P networks work together?’ which was followed by a high speed user group discussion on standardisation of 40/100GE and beyond by Edwin Punt of KPN.

Network Operations
Consolidation and integrating several ASs was the topic presented by Bjorn Bjerkeskaug of Telenor while Remco van Mook of Virtu gave an interesting talk on network monitoring with Google Earth.

Regulatory
Malcolm Hutty, LINX’s Head of Public Affairs, presented on the mutual misunderstanding of regulators and the Internet community. This was followed by a panel session on regulatory issues of particular interest to the delegates.

With such a full schedule some delegates were pleased to take advantage of the special guided tours of the Spanish city organised especially by the three host IXPs.

You can find out more about EPF2 by visiting the dedicated European Peering Forum website: www.peering-forum.eu
Filesharing Clampdown

ISPs have come under pressure to cancel the accounts of customers accused of infringing copyright through peer-to-peer filesharing.

In December 2006 the Gowers Report into Intellectual Property recommended that ISPs should:

"Observe the industry agreement of protocols for sharing data between ISPs and rights holders to remove and disable users engaged in ‘piracy’. If this has not proved operationally successful by the end of 2007, Government should consider whether to legislate."

(Gowers Recommendation 39)

ISPA UK responded to the government by offering to broker a deal with the Motion Picture Association of America (MPAA). The idea is for a four-step plan, where the ISP first gives the consumer two warnings before suspending and ultimately terminating their Internet access. Each warning, suspension and termination would be triggered by an allegation from the MPAA that a given IP address was found filesharing.

Just over a year later, this deal has not been finalised. ISPs have been asking for indemnity against customer complaints for breach of contract (under the plan customers would have no right of appeal, except to the courts). Meanwhile the Open Rights Group, a consumer campaign, has asked to participate in negotiations to protect user rights, a request ISPA has so far refused.

Lord Triesman, the government Minister responsible for protecting Intellectual Property has expressed his frustration at the delay. In a series of speeches and interviews, Triesman threatened legislation if the ISPs do not agree with the MPAA soon. Lord Triesman left the government shortly afterwards to become Chairman of the Football Association, so it remains to be seen whether his successor, Baroness Morgan, will be any more sympathetic to the concerns of ISPs.

The intellectual property lobby has been emboldened by developments in France, where President Sarkozy has personally backed a similar scheme which would also create a "blacklist" of accused users, who would be refused permission to sign up with a new ISP.

The War on Terrorism

The Home Office is taking the War on Terrorism to the Internet, as it looks for technical measures to prevent terrorists making use of modern communications.

In January Home Secretary Jacqui Smith vowed "the Internet is not a no-go place for us", and spoke of the need to stop and "to identify how and where terrorist recruiters are working online to groom young people as future terrorists". She likened this to the practice of paedophiles "grooming" children for sexual abuse.

ISPs are now wondering whether the government will force them to block access to web sites thought to be promoting terrorism, or sites that terrorists might find useful. When pressing ISPs to introduce such network-based blocking for images of child abuse the Home Office stressed the unique nature of paedophilia, in an attempt to calm fears that it was the thin end of the wedge. Now that many ISPs have introduced that blocking, however, Home Office officials are actively considering extending its application into the War on Terror. Initial discussions have already been held with LINX and other experts, and Ministers have arranged to meet ISP Chief Executives in February to discuss the possibility.

Terrorist material is quite different to child abuse images, ranging as it does from political opinion and religious belief to basic information about chemistry and electronics. With the advent of the Internet, suppressing the availability of such material is going to be even more difficult than it was the last time the Home Office attempted such a policy, with a humiliating failure to suppress the MI5 memoir "Spycatcher" in the 1980s.
Technology Focus

HotLINX regularly features articles on LINX engineering topics and will continue to do so. However, there is much more to technology issues within the LINX organisation as a whole.

We asked Tony Vroon, Unix Systems Administrator at LINX to explain the work the company is doing on green issues such as reducing power usage on new equipment.

Under normal circumstances, the dual socket dual-core Opteron 2.6GHz servers in LINX data centres would use 210 watts on average. Under heavy disk load, the server can use as much as 339 watts for a short amount of time.

Without measures in place to curb power consumption, the absolute minimum consumption of the machine is 199 watts. This occurs when there is no disk activity and the CPUs are idle. (see graph 1)

With the Opteron CPUs using as much as 103W each, significant power can be saved by reducing the clock speed. Unlike older CPUs, the clock speed allows various steps: 2.60 GHz, 2.40 GHz, 2.20 GHz, 2.00 GHz, 1.80 GHz and the lowest step of 1000 MHz.

The linux kernel offers an ‘on demand’ CPU frequency scheduler which varies the speed as the load on the machine increases or decreases. Power consumption can now dip as low as 177 watts while the performance will immediately scale up if required.

LINX is pleased to announce the launch of a new sFlow network monitoring portal.

The portal provides each member with peer-peer flow statistics that cross their ports, and presents these in an easy to manage, sortable and configurable way - essential when trying to work with such large amounts of data.

Using this data, LINX members can make better, more informed, decisions in how they manage their peering activity at LINX, and LINX engineering staff get a whole new level of insight into how traffic moves around within the LINX platform.

Network Monitoring Tool Available For LINX Members

Mike Hughes, LINX Chief Technical Officer said: “The LINX operations staff value these statistics, because flow characterisation and traffic management are important tools in bridging the gap between the growth in Internet traffic and the lead time to deliver the new 100G Ethernet standard. Large members will find this data useful for planning peering upgrades.”

Behind the new portal is a collection of open source software, while an in-house developed web application queries the database and presents the information. This is only the beginning as LINX are planning that this is to be the first of several tools that mine this data source.

The portal is accessible via the LINX website member area. To view go to: sflow.linx.net (LINX members only).

For more information please email: tony@linx.net
**UKSolutions Data Centre Space Nearing Completion**

As demand for quality datacentre space continues to outstrip supply, a number of well publicised new custom built facilities are nearing completion. UKS’s own “North” facility based in Studley, 12 miles south of Birmingham, will be ready for occupation in June this year.

The building, designed as a datacentre from the ground up, is being built to meet key “Tier 4” standards which include a specification of N+N protected power delivery and N+N cooling systems. The 1,000m² of technical space is split into four suites for a combination of shared and dedicated areas. It is the second privately owned and financed datacentre on the UKS campus which already includes the now at capacity “South” facility successfully supporting a broad range of customers including LINX members.

Communications on site include a number of national telcos together with UKS’s own network providing transit, MPLS, IP-VPNs and LINX From Anywhere services. UKS can interconnect you with LINX and other ISPs using long line Ethernet services to Telehouse or Telecity sites.

**Want to know more?**

For more information on our co-location facilities or managed hosting services, please speak to our technical staff at LINX meetings, visit: [www.ukssolutions.co.uk](http://www.ukssolutions.co.uk) or contact Sebastian Jesson-Ward on 0845 004 1333.

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**Matrix Communications Supporting Increasing Demand for 10GbE Ports**

LINX Partner, Matrix Communications, support and maintain both the Foundry and Extreme peering backbones at LINX. As a result of continuing traffic growth, they are delighted to announce the provisioning of the latest Foundry NetIron switch, to support increasing customer demand for 10GbE ports.

Engineered to meet the current and future needs of the service provider, Foundry Networks’ NetIron series of routers offer a unique combination of advanced service delivery capabilities, high-versatility, superior port density, and increased traffic capacity. The massive capacity of these routers will enable bandwidth intensive applications, such as video on-demand, broadcast television, and large scale Voice over IP (VoIP). The routers also feature carrier-class hardware and software resiliency, as well as highly scalable service delivery capabilities.

With annual group revenues in excess of £100m, Matrix is the leading UK integrator for non-Cisco networks. Their comprehensive suite of switching, routing and security products has ensured their continued success within the Service Provider arena over many years. They have been proud to leverage this experience to address the needs of LINX members and their customers, and would welcome the opportunity to create more relationships.

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**Member Soundbites**

Winter 2008

**AboveNet** [www.above.net](http://www.above.net)

**Metro-Wave Service Update**

AboveNet has announced the expansion of its Metro-Wave service, which offers customers private wavelengths between strategically placed hubs in and around London. The service will now include a new inner city ring which will expand from Docklands through the City and out to Soho in the West End. Already linking Slough, Park Royal and Heathrow back to Docklands, this expansion offers AboveNet customers further options for high speed, low latency, wavelength based connectivity between key metropolitan areas.

AboveNet’s Metro-Wave is built using the latest WDM technology and offers a scalable, flexible service supporting multiple protocols up to 10Gbps, expandable to 40Gbps.

**Entanet** [www.enta.net](http://www.enta.net)

**Entanet receives five nominations for second year running**

The ISPs, the Internet industry’s awards, have yet again recognised Entanet as a leading communications provider, short-listing the company for no fewer than five awards including Best Business ISP and Best Internet Telephony.

Marketing Manager, Darren Farndon said: “Whilst ultimately the final winners will be decided by the respected judges, being nominated in five categories is testament to the quality of our services and our commitment to the channel.”

The nominations come hot on the heels of Entanet’s CRN Channel Award success last November where it retained the title of ‘Specialist Vendor of the Year’ for the second year running.

**UK Broadband** [ukbroadband.co.uk](http://ukbroadband.co.uk)

**Ofcom Expands UK Broadband’s Wireless Licence**

Ofcom has adjusted the wireless licence for UK Broadband Ltd (PCCW), allowing the provider to offer Internet connections to portable or mobile devices as well as to fixed locations across the country.

**Something to say?**

Is there something happening at your company that the rest of industry should know about? Don’t keep it to yourself, tell us and maybe get it published in the next edition of HotLINX. [hotlinx@linx.net](mailto:hotlinx@linx.net)
7 New Member Countries Join the LINX Family

The last quarter at LINX has seen tremendous growth in global reach with members from seven new countries welcomed to the exchange. LINX members can now take advantage of peering opportunities offered by network providers from 43 different countries.

The seven new countries to join over the past three months were Hungary, Luxembourg, Bhutan, Indonesia, Cyprus, China and Turkey. 2008 promises more of the same with a number of large network operators on target to complete their expansion to London and LINX.

The LINX from Anywhere programme offers an alternative to collocating in London, allowing International networks to use a layer 2 transport solution to peer at LINX. With 24 carriers within the programme, connectivity to LINX from around the globe has never been easier.

To see our carrier partners and find the location closest to you see: www.linx.net/service/linxanywhere.html

Getting Connected To LINX 'Is as fast as you want it to be'

Joining LINX has never been simpler. To demonstrate we asked new LINX member, Coreix, to share their joining experience with the readers of HotLINX.

Paul Davies, Director of Engineering at Coreix told us: “We were delighted at how seamless the whole joining process was for us. We knew the status of our application and setup at every stage and whenever we had a question, Jennifer dealt with matters within minutes as opposed to days like many other companies. Answers were always detailed which meant that we never needed to ask for any further information.”

The membership timeline for Coreix was:

- 01 November - submitted application
- 06 November - approved by LINX membership
- 14 November - copper installed
- 21 November - two active connections (Foundry/Extreme networks IPv4 and IPv6), configuration of Coreix's first peers and the connection to the Multi-Lateral Peering service (MLP)

This demonstrates that the actual completion period was just three weeks or 15 working days from initial application to actual peering.

About Coreix
Coreix specialise in providing high availability hosting services and solutions for small, medium or large enterprise businesses. From their securely operated facility in London, Coreix are able to provide services ranging from a single dedicated server to managed multi-server clusters and co-location services. They offer fully managed services such as hosted exchange and data backup in addition to supplying premium network bandwidth and point-to-point connections, all of which are complemented by 24/7/365 onsite staffing. To learn more about Coreix and their available services please visit: www.coreix.net

New LINX Members in 2007/8

November - February
Below is a list of new members connected since the November issue of HotLINX. It is an ever growing list which includes a number of new territories thus expanding the global reach of the LINX network still wider.

- Bhutan Telecom
  Bhutan
  www.telecom.net.bt
- Biznet Networks
  Indonesia
  www.biz.net.id
- China Telecom (Europe)
  China
  www.chinatelecomeurope.com
- Coreix
  UK
  www.coreix.net
- EPT Luxembourg
  Luxembourg
  www.pt.lu
- Fastweb
  Italy
  www.fastweb.it
- Ipercast
  France
  www.ipercast.net
- IPTP Networks
  Cyprus
  www.iptp.net
- Jasmin Media Group
  Hungary
  www.jasmin.hu
- LeaseWeb
  The Netherlands
  www.leaseweb.com
- nLayer Communications
  USA
  www.nlayer.net
- Scotland Online
  UK
  www.scotlandonline.co.uk
- Turk Telekomunikasyon
  Turkey
  www.turktelekom.com.tr
- Vodafone Group Services
  Germany
  www.vodafone.com
Dr Richard Clayton Presented With LINX Award at LINX59

LINX were delighted to present their Conspicuous Contribution to LINX Award to Dr Richard Clayton at LINX59 in November.

An academic at Cambridge University, Richard is also a consultant for LINX member, THUS plc (incorporating founding LINX member, Demon Internet).

The award was made during the recent LINX member meeting at the Goodenough College in London and judging by the warm reception given to Richard by the delegates, it was a very popular decision indeed.

The ‘Conspicuous Contribution’ prize was first given in 2006 to Nigel Titlley of Easynet who was a LINX council member from LINX’s 1994 formation through to 2006.

Dr Clayton had this to say on receiving the award. “Nigel’s contribution is crystal clear for all to see but my own was perhaps a little less obvious. I’ve often given talks at the quarterly LINX meetings but I suspect that the main reason that I received the award is because of my contribution to many of LINX’s Best Current Practice documents. These have covered everything from traceability to spam and have proved to be hugely influential.”

Richard continued: “The BCPs highlight the best ways for the industry to operate on key issues, spreading knowledge to all of the organisations that need to know. They demonstrate to the Government and the regulators that the industry is responsible and can explain why it works the way it does. They also educate end-users and — when there’s a dispute with an abuse@ team — that other ISPs will take the same dim view of their spamming as their current provider. This in turn reduces churn and helps everyone to work things out more sensibly.”

LINX Chairman, Grahame Davies, said: “Richard has been attending LINX general meetings for nearly 10 years now and can always be relied upon to provide support through objective questions and points of view. Through interaction like this, LINX and its Board benefit from the vast knowledge and experience of its members.”

John Souter, LINX CEO, added: “It is an exciting time in the development of LINX and Richard’s part in that growth cannot be underestimated. Being able to call upon his extensive experience and expertise is very important to us and we are delighted to acknowledge his input in this way.”

LINX60 Preview

LINX60 will be staged on 11 and 12 February at the Goodenough College in London. It looks set to be another packed agenda for the delegates with many topics up for discussion. There will be the usual quarterly update from LINX CEO, John Souter, plus news on engineering, regulatory and sales and marketing activity.

Day one will feature LINX ‘Conspicuous Contribution’ Award winner, Dr Richard Clayton presenting on mail servers while Nigel Titlley and Remco van Mook will take opposing standpoints in a debate on IPv4 address commercialisation. There will be a number of updates from members, including Prolexic, Tata and Nominet while a LINX Board Q&A will close proceedings on the opening day.

Tuesday’s agenda will commence with a presentation from guest IXP, Netnod. We expect a lively panel session on colocation and there will also be great interest in the results of the 2007 LINX membership survey.

Members can learn more about this and other LINX meetings in the member area of the LINX website.

LINX Meetings in 2008

Meeting Dates

The dates for the next three LINX meetings have been provisionally set taking us all the way to the end of 2008.

Further details will be made available in the member area of LINX website and future editions of HotLINX in due course.

LINX61 AGM - 19 & 20 May Goodenough College, London
LINX62 - 18 & 19 August Goodenough College, London
LINX63 EGM - 17 & 18 November Goodenough College, London

LINX Webcast

If you are unable to attend a LINX meeting remember you can stay in touch via the LINX meeting webcast by following the authenticated link in the member area of the LINX website.
LINX59 Sponsors Tucows are ‘Breaking Away from the Herd’

Tucows’ sponsorship of LINX 59 was a chance both for LINX members and for Tucows to get to know each other better. Their corporate philosophy of working to make the Internet easier and more effective for passionate Internet users is something that they have in common with LINX.

Tucows focuses on two core product areas: Hosted email (including anti-spam), and domain names (including SSL certificates).

Tucows manages and sells a complete hosted email solution designed and built for the specific needs of ISPs and hosting companies. Choosing to outsource email frees ISPs and hosting companies from the technological challenges of implementing and maintaining an in-house email platform.

Tucows Email Service is a white label, hosted email service that allows customers to compete with the “free” email services offered by the giants of the Internet. By providing an email platform specifically designed for their unique needs at an affordable price, they give their customers an effective tool to grow their business and increase customer retention.

Tucows Email Service is full featured, offering POP3, IMAP and webmail access at a low price. They provide two gigabytes of standard storage per mailbox and their AJAX-enabled webmail provides end users with a desktop-like email experience in their browsers. Tucows Email Service is designed to enable their customers to compete effectively in a very competitive marketplace.

The email solution offered by Tucows was built in-house and is fully owned, controlled and managed by the company. It’s a mix of the best in open source, standards-based technology and their own custom code. Tucows Email Service runs on high-end hardware, in a virtualised environment and the result is an email service that’s fast, reliable, scalable and yet still affordable.

Other Services
Tucows also sells and manages domain names through a large reseller network that gives them global reach. Tucows understands the domain name industry and how to run an end-to-end system that allows businesses to sell and manage domain names.

They offer a full API that allows custom integration with Tucows and the ability to sell and manage a variety of top-level, and country-code domain names, along with SSL Certificates. The Tucows Domains service can also be accessed through a web-based interface, allowing administration of Tucows services and control over the various aspects of your domains business.

Find out More...
To learn more about Tucows and their range of services visit: http://about.tucows.com or http://services.tucows.com. For sales inquiries, contact Craig Cluett, Director of Business Development at ccluett@tucows.com.

The LINX Sponsorship Experience

By Craig Cluett
Director of the Business Development team, Tucows

I was part of a team from Tucows that went to to London as sponsors of the LINX59 Meeting. As one of the world’s largest and longest established Internet exchanges, LINX is a who’s who of London’s ISPs, network providers and operators. We really appreciated the warm welcome we received from the LINX group and their members.

LINX’s John Souter (CEO) and Grahame Davies (Chairman) have a lot to be proud of. The forums they offer their members are top-shelf, extremely well run and thoroughly organized. Hats off to Jeremy Orbell, Neana Singh, Jennifer Atherton, and the rest of the good folks of LINX.

The topics covered during the two day event were chosen by the members and were for the members. The end result was good discussion and greater understanding between everyone. Our very own Kim Phelan started off the two days of discussion with a brief overview of Tucows and how we go to market with our 8,500+ partners (1,000 of which are in the UK) in our key offerings of wholesale domain names and hosted email.

Adam Eisner, while not subbing in as Kim’s personal photographer (at the request of the communication team back home in the “colonies”), was kept busy chatting with the 100 plus members in attendance.

Part of the magic of the LINX forum is the special attention put into the significant networking opportunities across a number of venues (a.k.a. pubs) where the discussions get lively and great strides towards shared understanding are made. All in all, it was a productive couple of days for everyone and Tucows will be looking into becoming a member of one of the world’s largest and longest established Internet exchanges.

Cheers to all our new friends at LINX!

LINX Extra

If you are interested in sponsoring a future LINX meeting then please contact: marketing@linx.net

To learn more about Tucows and their range of services visit: http://about.tucows.com or http://services.tucows.com. For sales inquiries, contact Craig Cluett, Director of Business Development at ccluett@tucows.com.

LINX Meeting Sponsors
**LinX News**

**LinX Chairman Joins Lumison Board**

LinX Board Chairman, Grahame Davies, has been appointed to the board of directors of Edinburgh based LinX member, Lumison.

Grahame, who was founding MD of Demon Internet and group MD of Easynet, has been chairman of LinX since 2001.

Commenting in his appointment, Grahame said: “Lumison has an enviable track record in providing high quality services. I am looking forward to joining the company and helping it achieve its ambitious goals.”

Lumison CEO Aydin Kurt-Elli added, “This is an exciting time of growth for us with the launch of our new London datacentre, and winning accolades for our managed VoIP services. It is the perfect time for us to have someone of Grahame’s calibre and experience join the board.”

**HotLINX Editor Reveals Himself**

Compiling an issue of HotLINX requires the input of a great many people in terms of suggesting ideas and creating material for each edition. However, getting this information to fit into the constraints of an 8-page document is often akin to speed-shuffling a pack of cards.

HotLINX editor and designer, Jeremy Orbell said: “In addition to writing stories for HotLINX I have to collate text and images from staff, LINX members, partners and sponsors of the quarterly LINX meetings. Timescales are often tight but it’s an enjoyable process, particularly recently as we’ve had more input from the membership towards articles.”

If you would like to contribute to a future edition of HotLINX please email Jeremy at: hotlinx@linx.net to find out more.

**Career Opportunities@LinX**

‘An opportunity to work at the heart of the Internet Industry in a dynamic, team-motivated, working environment.’

That is what LINX can offer you - in addition to an attractive remuneration package with benefits that include private health cover, life insurance, pension and income protection.

LINX currently has a vacancies for:

- Service Delivery Engineer
- Executive Assistant
- IT Support Trainee

To find out more about these positions and to apply online go to: [www.linx.net/job](http://www.linx.net/job)

**Competition - ASN Search**

In a HotLINX first we include our inaugural prize competition - an AS number search!

Rather than just list the individual numbers the sneaky LINX quizmaster has only provided clues with you to work with. Some are easier than others but there are certainly a couple that are sure to get you thinking.

Answers can appear in any direction - horizontal, vertical or diagonal - but must only be in a straight line.

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**Prize Details**

The prize on offer is one of three fabulous pairs of LINX Peering binoculars complete with beautiful LINX branding and carrying pouch. Be the envy of your friends and enter the competition today.

**Competition Rules**

We are running two separate competitions. The first will be held during LINX60 on the 11th and 12th of February and is open to meeting registrants only. A draw of correct answers will take place on each day of the meeting.

We will also accept entries from HotLINX readers who correctly name AS numbers and LINX members included in the grid. Please send your answers to hotlinx@linx.net by the closing date of the 4th April 2008. Only one entry per person and the LINX Quizmaster’s decision is final...or he will get mighty cross!

**Clues**

The seven clues below ask for a total of 11 ASNs. If you need a helping hand in finding the answers to these questions refer to the ‘Members by IP / ASN’ page in the ‘Technical Info & Help’ section of the website.

www.linx.net/about/member_ipasn.html

1. Where your iPlayer content comes from
2. The Answer to Life, The Universe and Clearing Packets
3. Current ASNs of the five LINX founder members
4. Member based furthest from London
5. Most Northerly member
6. Member whose ASN is closest to 10,000
7. $1 + 1 = ? (Note: It’s not 2)