Inside this issue of HotLINX

Members & Partner News

In issue 14 of HotLINX we look at the impending launch of the three new LINX PoPs from Equinix, InterXion and TelecityGroup. There is news of a ‘not to be missed’ event from LINX partner Telx as well as a review of the Sheffield Outreach meeting and membership stats from LINX Sales & Marketing Manager, Richard Yule.

LINX News

On page four we focus on the LINX61 meeting and AGM in May and the Internet World 2008 event staged at Earls Court in London at the end of April. We also look at developments in the recruitment of new LINX staff including Ann Hawkins who has joined as Executive Assistant.

Industry Review

In a look around what else is happening in the Internet industry, we include a review of the Global Peering Forum 3.0 in Florida from Dan Golding of Tier1 Research. We also have a round up of the latest news from the LINX Public Affairs Website including stories on intellectual property, filesharing and RIPA decryption.

Technology Focus

In this edition of HotLINX we are publishing the latest LINX network diagrams which provide readers with a visual representation of how the LINX network fits together. There is also comment on the public peering network, multilateral peering and public peering ports.

LINX Meeting Connectivity

LINX has been holding quarterly member meetings at the Goodenough College for nearly three years now. LINX members Claranet and Entanet have been assisting us in providing connectivity at these events so in recognition, HotLINX is now putting them into the spotlight.

Back Stories

On the back page of HotLINX we look at how LINX operates for the ‘good of the Internet’. This covers the work carried out in regulatory affairs and in the area of best practice. We have also included a comprehensive list of root and top level DNS servers and atomic clock based network time server URLs.
Launch of New LINX PoPs Draws Nearer

At their meeting on 17th March 2008, the Board approved in principle a plan for LINX to build three new PoPs in 2008.

The prospective new London sites are:
- Equinix London4 data centre in Slough
- InterXion London city site
- Telecity Powergate in Acton, West London

This project represents considerable expansion of the LINX ‘footprint’, and builds on the outstanding growth of the membership over recent years. LINX has successfully navigated past the recent shortfall of colocation space in London, which means that these new PoPs allows the exchange to look to the future with real confidence.

With new PoPs associated with additional total capacity of around 35,000 sq metres of either built or committed neutral data centre space, LINX is well placed to develop its business and support for the Internet still further.

Equinix Say...

As Equinix expands its global service offering across the U.S., Europe and Asia-Pacific, the company is committed to providing high-performance platforms for exchanging Internet traffic. Partnering with top-tier Internet exchanges like LINX will enable Equinix customers to scale their peering relationships to reduce costs and increase performance.

www.eu.equinix.com

InterXion Say...

Intention would like to invite LINX members for a facility tour of our newly released 1,250 m2 of premium equipped space. The new space provides 2.5 kW or 5kW per cabinet with N+1 redundancy and free air-cooling as standard. More advanced requirements such as 2N redundancy configurations and high power density requirements of up to 20kW per cabinet can be provisioned quickly.

www.interxion.com

Telecity Say...

Investment in critical infrastructure is vital if we’re to keep London at the very heart of the global Internet economy. Our investment in the new Powergate site demonstrates our commitment to providing LINX members with the highly secure space, facilities, services and connected environment they require to support the growth in their business.

www.telecitygroup.com

‘Not To Be Missed’ Customer Business Exchange Event From LINX Partner Telx

CBX 2008 is being held on Thursday June 5th at The Brooklyn Bridge Marriott venue in New York City attracting industry thought leaders and high level executives to a physical ‘trading’ floor where deals are done. This year’s event is shaping up to be the biggest in Telx history.

In 2007 Telx had over 1,000 attendees registered. With recent expansions throughout multiple markets including the integration of 10 Meet Me Room facilities, Telx predict that more than 1,100 people will attend this time. It is expected that over 300 diverse and unique companies representing industries and sectors such as Enterprise, Web 2.0, Entertainment, ISPs and Global Carriers will be present. These organisations hail from Europe, Asia, South America and Canada.

The CBX is a unique opportunity focused solely on providing attendees networking opportunities that encourage telecommunications business transactions. The event is not tied to information sessions or panel discussions but focused on enriching the networking experience that provides delegates with the opportunity to meet one another and to transact business.

The One-On-One meeting system enables attendees to look up other attendees and request a meeting in advance of the event to help maximize time and increase productivity.

The event follows the NANOG meeting, also hosted by Telx at the Marriott Brooklyn Bridge venue in New York. For more information about the event, visit http://cbx.tels.com.

Member Soundbites

AboveNet

AboveNet A Sponsor At LINX60

On February 11 AboveNet were a sponsor at the most recent LINX meeting, LINX60.

Amy Bunn, AboveNet’s Marketing & Communications Executive said: “With many members travelling internationally to attend the event, the value that LINX provides to both its members and the Internet industry is well proven. AboveNet appreciated the opportunity to sponsor the forum and look forward to attending the next one in May.”

www.above.net

Fused Networks

Making The Office Mobile

Fused Networks, part of the Fused Group, has launched a Mobile Office solution as part of their on-going strategy to bring fully converged solutions to the UK SME Channel marketplace.

Mobile Office is a powerful business tool that allows for true mobile, collaborative working based on the Microsoft Windows Hosted Exchange service – with access to emails, shared calendars and address books anywhere in the world. It is the ideal solution for companies with remote workers at home and abroad who need instant access to emails and calendars for effective and productive working on mobile devices no matter where they are in the world.

www.fused-group.com

UKSolutions

Green Datacenter A Step Closer

UKSolutions has announced the launch date of its new state of the art datacenter, ‘UKS North’, as it will be known, will be fully operational on June 23 offering cutting-edge co-location services. The purpose built 10,000 square foot building was designed with minimal environmental impact in mind.

www.uksolutions.co.uk
From Russia With LINX

This quarter we were very pleased to see five of our recent Russian applicants complete their connection and begin peering at LINX. This represents a doubling of membership from this particular country.

Whilst growing rapidly, the Russian LINX membership is a fraction of those 222 peering at the Moscow Internet Exchange http://www.msk-ix.ru/eng/.

Sheffield Outreach Meeting A Great Success

March saw the first mini-meeting for members take place in Sheffield. LINX Sales & Marketing Manager, Richard Yule, Service Delivery Engineer Neil Ratcliffe and Business development Executive, Jennifer Atherton, all attended representing LINX.

The event was an informal gathering which included presentations from the recent LINX60 meeting, lunch, and general discussions about the exchange. There were 11 attendees representing five different LINX members plus one prospect.

Those attending on behalf of the prospect provided some very encouraging feedback stating that they enjoyed mixing amongst the members and learning more about the exchange. This whole process has led to further talks about the opportunities of them joining LINX in the future.

Several of the members said it was great to receive an overview of the latest LINX meeting as they are usually unable to attend the London events. This is due in part to the logistics of travel and time out of the office. However, they were all interested in the possibility of similar events being held for northern members in the future.

In his presentation Richard described and explained the importance of the public affairs service. This generated some interest in the members and has resulted in additional subscriptions to the public affairs mailing list.

Thanks to Andy Davidson from Goscomb Technologies who played a major part in the organisation of the event. We are hoping to stage more of these meetings in the future and will announce details in due course.

New LINX Members in 2008

February - May

Below is a list of new members connected since the February 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.

The most interesting aspect of this latest list is the proliferation of Russian flags. Please see our From Russia With LINX article for more detail.

Electron Telecom
Russia
www.etelecom.ru

Golden Telecom
Russia
www.goldentelecom.com

HGTN.net
USA
www.hgtn.net

Naukanet
Russia
www.naukanet.ru

NEOTelecom
France
www.neotelecoms.com

NTCOM
Russia
www.nt-com.ru

QTel
Qatar
www.qtel.com.qa

ReasonNet
The Netherlands
www.reasonnet.nl

Stealth Communications
USA
www.stealth.net

Synterra
Russia
www.synterra.ru

Wi-Manx
Isle of Man
www.wimanx.com
Another Varied Agenda Set For LINX61 AGM Meeting

LINX61 will be staged on 19 and 20 May at the Goodenough College in London. There will be the usual quarterly update from LINX CEO, John Souter, plus news on engineering, regulatory issues plus sales and marketing activity.

Day one will open with a presentation on Botnets from sponsor TelecityGroup followed by sessions on RIPE policy and Phorm from Nigel Titley and Richard Clayton respectively. Chas Tomlin of Team Cymru will be highlighting their flow-sonar project and there will be a Nominet update from Jay Daley. In addition, uptime metrics at LINXXL2 port security will be covered by LINX CTO, Mike Hughes. Tuesday’s agenda will commence with a member presentation by Lumison on the topic of nPlusOne VoIP platform by Mussy Kurt-Elli followed by a presentation from John Souter on the new LINX PoPs for 2008. An update on the MoU rewrite will be provided by LINX Chief Operating Officer, Howard Fisher. The second day will also feature the LINX Annual General Meeting and elections for the LINX Board.

2008/9 Meeting Dates
The dates for the next three LINX meetings have been provisionally set taking us into early 2009.
Further details will be made available in the member area of LINX website and future editions of HoLINX in due course.

LINX@Internet World 2008
LINX recently exhibited at Internet World 2008 held at Earls Court Exhibition Centre in London. The event, which staged over three days from April 28 to May 1, was an opportunity to enhance the profile of LINX, meet with industry professionals and to promote the work of the exchange generally. With so many LINX members, partners and business associates also on-site, it was also a great chance to meet face-to-face to discuss future plans.

Ann Hawkins Joins LINX as Executive Assistant
New Executive Assistant, Ann Hawkins, joined LINX in March 2008. She will be reporting to CEO, John Souter, providing business support in a range of day-to-day activities for LINX and the LINX Board.

Ann joined the Inland Revenue in 1991 and was later promoted to the role of Personal Assistant to a Deputy Director in 1998. Over the next four years she achieved a level 3 NVQ in Business Administration before being promoted again to Personal Assistant to the Head of Office at the Adjudicator’s Office. After nearly 15 years in the Civil Service she felt it was time for a change so she took a fixed term role with English Nature in Peterborough, followed by a position at a local training company before tempoing at the Home Office.

On life at LINX Ann commented: “It’s a very busy role, but I like that. There is a lot of technical information to learn which makes it a steep learning curve but everyone is friendly and helpful so it’s a pleasure to come to work each day.”

LINX Recruitment
It has been a busy time for LINX recruitment because in addition to Ann’s role, we have advertised positions for an IT Support Trainee, a Service Delivery Engineer plus a new Business Development Trainee for the Sales & Marketing department.
While the date for applications has now passed, we would like demonstrate how the new Business Development person will benefit LINX in the future.
The main tasks will be to carry out LINX pre and post sales activities, maintain contact with prospective and current members and provide administrative support for other LINX services.
Other responsibilities will include assisting in the planning and resourcing of LINX promotional and member events such as the quarterly LINX meetings.
All future employment roles will be advertised via the LINX website: www.linx.net/jobs
Global Peering Forum 3.0 in Florida
- A Review by Dan Golding, Tier1 Research

The third annual Global Peering Forum has just concluded, and attendees that T1R has spoken to considered it a rousing success. Moving from a cruise-ship-based venue to the Hard Rock Seminole Resort complex in Hollywood, Florida, the event brought almost 200 invited participants together, by invitation only, to discuss matters of importance to the global interconnection community.

This was the first year that LINX, the London Internet Exchange, participated as a host, which T1R finds is a wonderful move — the presence of John Souter, LINX CEO and Mike Hughes, LINX CTO, was a big plus.

To T1R, some of the most interesting content came from the Euro-IX chairman, Serge Radovic, who spoke about the growth in European interconnection — particular areas of interconnection growth include Poland, Moscow, Kiev and Budapest. That is of particular interest to the colocation sector, as active Internet exchange points (IXPs) can help drive colocation growth.

Other fascinating talks came from Todd Underwood of Renesys, who spoke in detail concerning the Pakistan-YouTube incident of earlier this year, and identified several areas of concern in relation to Internet security; Ren Provo of Comcast, who talked about the evolution of settlement-free peering arrangements; and Terry Rodery and Richard Steenbergen of (respectively) BitGravity and nLayer Communications, who discussed the outstanding PeeringDB Web database, which is a plethora of valuable information on interconnection and global colocation.

One announcement that T1R is skeptical about came from the minister of telecommunication for the Netherlands Antilles, which announced a Caribbean IXP during the conference, in partnership with AMS-IX. While T1R is sure that AMS-IX isn't going to come out on the wrong side of this deal (likely, the Dutch government will 'hold the bag'), T1R is consistently skeptical of such projects, for economic reasons — the same skepticism T1R has expressed concerning similar, Terremark-involved projects.

It should be noted that the event was not of interest only to carriers and IXPs — a large number of hosting providers were present, as were major content delivery networks. More hosting providers are beginning to engage in Internet peering, as an adjunct to their network-building activities. While not particularly germane for small or midsized hosting providers or CDNs, large commodity Web hosting and managed hosting providers, as well as CDNs in the 100 gigabit per second range with national or global network deployments should consider attending.

For more information on the GPF please visit: www.peeringforum.com

Peter Cohen of Switch & Data presides over the ‘Relevance of Peering Agreements Today’ session with panelists Adam Smith (Terremark), James Blessing (EntaNet), Brokaw Price (Yahoo!) and Ren Povo (Comcast)

In Brief!

The Latest Stories on the LINX Public Affairs Website

This column features the latest news in the world of Public Affairs. Please visit www.publicaffairs.linx.net/news to read the stories in full.

Media lawyers claim warnings from ISPs could cut filesharing by 70%

A survey from media lawyers Wiggin claims that warning letters from ISPs could cut peer-to-peer filesharing of copyright infringing files by 70%. This paper is part of the ongoing pressure applied to ISPs to police user activity to reduce peer-to-peer copyright infringement.

IWF Funding Council election results

The IWF received two nominations, Hamish MacLeod, Mobile Broadband Group and Mark Gracey from THUS plc. The number of candidates is equal to the number of places open and therefore Hamish and Mark are elected in accordance with the new Funding Council constitution as unopposed and no ballot is necessary.

RIPA decryption use disclosed

The Home Office has disclosed police use of powers to demand the decryption of data or production of decryption keys. The powers, created as s53 of the Regulation of Investigatory Powers Act 2000 (RIPA), came into force on 1st October 2007. Since that date eight notices have been served, with the following results (two each):

- Compliance by recipient of notice
- Refusal to comply, and the
- Refusal to comply and prosecution
- Compliance by recipient of notice
- Refusal to comply, and the
- Refusal to comply, and the
- Compliance by recipient of notice
- Refusal to comply, and the
- Compliance by recipient of notice
- Refusal to comply, and the
- Compliance by recipient of notice
- Refusal to comply, and the
- Compliance by recipient of notice
- Refusal to comply, and the

While none of these cases has yet come to court, the Home Secretary has stated that the four cases where the suspect refused to comply were terrorism-related investigations. The others were for conspiracy to murder; withholding information in relation to conspiracy to murder; conspiracy to defraud; and making indecent images of children.
Technology Focus

The LINX Network
‘Facilitating Your Connection’

The LINX Network is an oft-discussed concept but a visual representation of how LINX operates is often needed to make it clearer how the individual ‘elements’ fits together. This is why in this issue of HotLINX we are publishing the latest network diagrams.

Public Peering Network
The LINX Network consists of two separate high-performance Ethernet switching platforms installed across seven locations.

- Telehouse North
- Telehouse East
- Telecity, 6&7 Harbour Exchange
- Telecity, 8&9 Harbour Exchange
- Telecity, Bonnington House
- Telecity, Sovereign House
- Telecity, Memaco House, Meridian Gate

Switches from Extreme Networks and Foundry Networks are deployed in two diverse networks to provide an extra level of fault-tolerance. Therefore, at least two switches (one from each vendor) are installed in every LINX location, and the locations are interconnected by multiple 10 gigabit Ethernet circuits (across dark fibre) to form two physically separate backbone rings.

Physical protection of the dark fibre network is achieved by using diverse paths where available.

Management of the logical redundancy of the network is done using rapid-failover protection mechanisms (EAPS or MRP). In the event of the loss of a network segment, these activate the redundant links within tenths of a second and restore connectivity.

Multilateral Peering
LINX offers dual route servers (running Quagga) on each of the two peering LANs. Currently these servers have sessions with around 120 of our 280 members and offer almost 20,000 routes. This is an optional, free service. Members that prefer bi-lateral agreements may continue to use them.

100BASE-TX
All switches provide 100BASE-TX Ethernet ports. We can also supply media converters to provide 100BASE-FX access - these are typically used when copper Ethernet distance lengths are exceeded.

1000BASE-LX (option for 1000BASE-T)
Most 1Gb connections are over singlemode fibre but in some sites we are able to offer gigabit over copper, provided the cabling meets the required test standard.

Multiple Gigabit Ethernet Trunked Ports
Offering two, four or eight 1Gb Ethernet ports, aggregated (trunked), using 802.3ad/LACP or static trunks.
Technical Officer Entanet’s Chief Steve Lalonde, switched. The Metro nodes then link to 20 nodes’ where IP packets are routed and MSANs terminate all phone and broadband (Multi-Service Access Nodes). The 5,500 DSLAMs at exchanges replaced by MSANs concentrators, switching equipment and

By 2012, 21CN will see traditional connectivity was required.

In this case, Claranet provided an IPv4 Multicast enabled SDSL circuit and this was used as a dedicated connection for the webcast.

“Claranet are one of the few if not only providers that offer Multicast services across their entire access portfolio, from DSL to private circuits.”
David Freedman, Claranet

“Entanet has been proactively involved in 21CN’s development” says Lalonde. “We’ve been particularly influential in helping shape the network, the characteristics of the service offerings and the methodology for migrating customers from 20C to 21C.”

“Entanet is taking Wholesale Broadband Connect (WBC), the national broadband aggregation and transport service that enables it to connect customers to its own core network and service platform.

“In addition to resalable Entanet branded broadband products based on WBC, Entanet is providing a managed wholesale service that enables resellers to deliver their own branded core nodes that are able to handle traffic in multiples of 10Gbps.

“Our investment is significant and we’ll be providing a number of new broadband products that enable the channel to compete effectively in the market” adds Lalonde. The strategy requires Entanet to build out its existing UK network to cover the 20 core nodes. “Initially Gigabit Multi-Service Interconnect Links (MSILs) will be used at each of the 20 nodes to take delivery of individual connections onto our own network. As capacity requirements increase these will be upgraded to 10Gbps connections.”

24x7 Network Operations Centers covering all countries in the group. Claranet are a managed services provider with over 12 years experience in the IT industry and provide managed connectivity and hosting solutions to its customers, enabling them to focus on their business rather than worrying about the technology.

Claranet have a carrier neutral international network footprint which spans six countries in Europe and also multiple locations in the US, the network has numerous points of presence and attaches to 11 public exchange points. The network carries IPv4 (Unicast and Multicast) and IPv6 Unicast and is based on sound IP/MPLS Engineering principles. The network is managed by a series of

In recognition of their contribution to the successful running of these member meetings we are delighted to focus on their individual organisations in HotLINX.

LINX Meeting Connectivity Providers Claranet and Entanet in Focus

LINX has been holding quarterly member meetings at the Goodenough College since the LINX50 meeting in August 2005. Since that time members Claranet and Entanet have been assisting us in providing connectivity at these events plus at our alternative venue, the London Art House. In recognition of their contribution to the successful running of these member meetings we are delighted to focus on their individual organisations in HotLINX.

Claranet

Claranet were approached by LINX in 2005 to provide a connectivity service for their meetings at their new venue, the Goodenough college in London.

LINX were, at the time using a new company to provide streaming video for the LINX meeting webcast and IPv4 Multicast connectivity was required.

Entanet

BT’s 21CN programme aims to enable ISPs to provide faster and more stable broadband at ADSL2+ speeds as well as Quality of Service (QoS) options. We spoke to Entanet’s CTO, Steve Lalonde, to see how they’re tackling 21CN.

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For more information please visit: www.clara.net

For more info please visit: www.enta.net

For more information please visit: www.enta.net

For more information please visit: www.enta.net
For The Good Of The Internet

As one of the world’s leading Internet exchange points, LINX aims to provide increased performance and value for its members and to promote their shared interests.

LINX offers a number of collaborative and technical services which benefit the Internet community and do not compete with or privilege any particular member or class.

Some of the areas where LINX provide services include:

- The Internet exchange itself
- Regulatory awareness and analysis to help service providers comply with legal requirements
- External representation
- To help the media inform and educate the public on the social worth, potential and challenges of the Internet and the experience of the Internet industry
- To help law makers define and implement laws that meet modern needs
- To provide officials with a route to speak to the Internet industry, especially in co-ordinating industry support for anti-terrorist and child protection activities
- Development of best practice, both in strictly technical areas inherent in the use and operation of the exchange and in ‘social-technical’ areas such as user privacy, prevention of unsolicited emails and liaison with law enforcement operational personnel
- Social networking and peer support for technical network personnel - because when the people who run the networks know each other personally, the processes run more smoothly, best practice experience is shared and industry standards are improved
- Technical network support services that help to maximise the benefit of the core exchange, such as the “Looking Glass” network route inspection tool

Is there something happening at your company that the rest of industry should know about? Don’t keep it to yourself, tell us and get it published in the next edition of HotLINX!

We are always interested in receiving material and suggestions so why not let the rest of the membership know if you have something to say.

What are the latest developments at your organisation right now? Do you have a new product or service or member of staff to tell us about - it really is up to you.

HotLINX has a circulation of around 1000 copies with the last issue downloaded a further 500 times from the LINX website over the last quarter.

You can access recent HotLINX issues at: www.linx.net/publicity/hotlinx.html

If you wish to make a submission for the next issue of HotLINX (August 2008), please email: hotlinx@linx.net. You can also use this address if you would like to request any additions to HotLINX mailing list.

Jeremy Orbell
HotLINX editor

Get Connected With HotLINX

Serving All Internet Users

LINX offers primary Internet services that help service providers and end users alike. These include root and top level DNS servers and atomic clock based network time servers.

We have provided a detailed list below for your convenience.

- K.root name server - the original instance, on behalf of RIPE NCC
  k.root-servers.org
- I.root name server - a globally routed anycast instance, on behalf of Netnod/Autonomica
  i.root-servers.org
- Nominet UK ccTLD master nameserver
  www.nominet.org.uk
- nic.at - Austrian ccTLD slave nameserver
  www.nic.at
- dns.be - Belgian ccTLD slave nameserver
  www.dns.be
- nic.cz - Czech ccTLD slave nameserver
  www.nic.cz
- EURid - .eu TLD slave nameserver
  www.eurid.eu
- RIPE NCC Routing Information Service (RIS) server
  www.ripe.net/ris
- RIPE NCC Test Traffic Measurement server
  www.ripe.net/ttm/about.html
- Packet Clearing House server
  www.pch.net
- routeviews.org - BGP routing information collector
  www.routeviews.org
- Renesys route analysis peering
  www.renesys.com
- ISC multicast project peering
  www.isc.org
- OCCAID IPv6 project peering
  www.occaid.org