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## **ISOC-England: ISOC-E Digest 14 January 2003 Volume 2: Issue 01**

"The Internet is for Everyone"

The Internet Society of England freely distributable Newsletter Editor: Olivier MJ Crepin-Leblond <[editor@england.isoc.org](mailto:editor@england.isoc.org)> Producer: Richard Francis

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Date: Mon, 0 Jan 2003 00:00:00 -0000

From: Olivier MJ Crepin-Leblond <[ocl@gih.com](mailto:ocl@gih.com)> Subject: Welcome to issue number 2.01

Welcome to the fourth issue of the ISOC England Newsletter.

A New Year is upon us, and we would like to send our Best Wishes to all our readers for a healthy, happy, successful and prosperous 2003! As the music and lights of the 2002 Festive Season fade into the past, new challenges, but also new opportunities are presenting themselves on our doorstep. "Internet is for Everyone"; let's make 2003 the year where it really is.

With this in mind, our new Chairman Tricia Drakes, is taking the opportunity of this newsletter to set the course for ISOC England for the next 6 months. Today we are seeing a changing Internet, an Internet that needs to incorporate new services, and make use of new standards and a new technical infrastructure. What has served us in the past 30+ years will not do for the next 30 years, simply because the world is 30 years older. While there is fear by many in moving forwards - no upgrade is riskless - we are reaching a point when something needs to be done. Thanks to ISOC's unique position in building the Internet's underlying protocols, ISOC England needs to be the catalyst for this to happen in the UK.

## FEATURES

This issue of the newsletter is a 'bumper issue' since we are lucky to have three feature articles this month.

The first article, entitled ICANN in 2003, follows significant reforms to the structure of the Internet Corporation for Assigned Names and Numbers at its annual meeting in Amsterdam last month. Richard Francis and Tricia Drakes report on the briefing in London and round table in Amsterdam organised by ISOC England and the ISOC Legal & Regulatory International Special Interest Group (ISOC L&R iSIG) in the three weeks running up to the December 2002 meeting

Both of our other feature articles are about ENUM, a system developed by the Internet Engineering Task Force (IETF) to map telephone numbers to Internet addresses. With the integration of telephony and the Internet, this remains the last step to full and seamless integration. Of course, every new application also brings new problems. As a mapping system for telephone numbers, ENUM could be used by mass marketing outfits to send us their rubbish in the same way as we're flooded by e-mail SPAM these days. Do we really want this? Read on...

The first article was penned by Christian de Larrinaga, our Founder Chairman Emeritus. Christian looks at ENUM in general, its strengths and weaknesses, and talks about the work currently taking place in the UK to bring ENUM to a position when it can be implemented seamlessly with the Internet. Along with IPv6, ENUM has the potential to become a "killer application". The time to learn about it, and to get involved is NOW.

Our second article about ENUM comes from Poland. Andrew Bartosiewicz, from the Polish Research and Academic Computer Network NASK, provides us with a technical insight on how ENUM can be implemented, and what further uses it could have. Coupled with IPv6, it can be seen that ENUM will one day be a vital service on the Internet.

We would really like to receive feedback from everybody, so if you have suggestions, comments, or would like to contribute an article to the ISOC-E newsletter, then please write to: [editor@england.isoc.org](mailto:editor@england.isoc.org)

Happy Reading, and Happy New Year!

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ISOC England - Our Mission and the next seven months (to 25 July 2003) Tricia Drakes -  
Chairman  
[tricia.drakes@parvil.demon.co.uk](mailto:tricia.drakes@parvil.demon.co.uk)

The Mission of ISOC England is to promote the effective operation and development of the Internet and its related technologies in the public interest through leadership in standards, issues and education. Our primary focus is to deliver this mission and, in so doing, to develop an active and influential ISOC Chapter with a membership of like minded individuals and organisations who share our vision, and who want to support and/or participate in helping us to deliver our mission.

I read recently that "Over ninety nine percent of the UK population believes that the Internet is just another name for the World Wide Web, and included in that number are many of those who work in "technology" and Internet-based organisations". If this is correct, it is like having a population who cannot tell the difference between a train and the railway network upon which it operates. And, of course, this would matter less if the Internet were not an integral part of our everyday lives, with us being increasingly more dependent on it functioning reliably, securely and with resilience . and, like electricity, being "always on", "fit for purpose" and powering the "applications" and equipment we want and need to use.

Taking the railway analogy one step further, the Internet is now mid-way through a major and fundamental updating programme. There is a need for all those involved to have a basic understanding of what is planned and what it means. This understanding applies not only to "infrastructure", operations and "applications", but also to the broader commercial, political and societal implications.

The primary focus of the ISOC England "Action Plan" for the period to 25 July 2003 will be "to promote and, where appropriate, facilitate debate and be the catalyst for further study" in the following key areas for "Next Generation Internet":

- ICANN and the Domain Name System Work on this has already started with our Breakfast Briefing on "The Future of ICANN" at Burson-Marsteller on 25 November 2002, followed by "ICANN in 2003" in Amsterdam in December 2003 organised by the ISOC Legal & Regulatory iSIG. Full details are on our website [www.England.isoc.org](http://www.England.isoc.org)
- IPv6 Our second "breakfast briefing" is scheduled for mid February. Attention needs to be given not only as to progress on implementation programmes and "roadmaps", both in the UK and elsewhere (including in China & Japan), but also on the significant broader implications and new opportunities (and risks) arising from having a technology capable of massive scaling to deliver "connectivity for everyone" with pervasive use of networked devices and "many to many" communications.
- Content & Data (including key regulatory issues). This heading includes copyright, privacy, data protection & regulatory issues, as well as "basics" relating to content creation, management and distribution (including the "21st century tools"). Our third "breakfast briefing" will be scheduled early in the second quarter. However, prior to this, we will also respond to opportunities to "promote" and participate in initiatives in this important area, such as our response in December 2002 to the Parliamentary All Party Internet Group's consultation on the retention of and access to communications data for law enforcement purposes. (Submission is on our website: [www.England.isoc.org](http://www.England.isoc.org)).

The final "Action Plan" Item is "The UK and The Internet". The Internet has been "international" from its very early days, and the UK has played an important and active role in every stage of the Internet's history starting from the "founding" and "pioneering" period of the sixties and early seventies, and this continues right up to the present day as we move into the "Next Generation Internet".

The University College London and Royal Radar Establishment (Norway) were the first "international" connection to the Internet on 25 July 1973 . This year will be the 30th Anniversary!

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## ISOC NEWS

**ISOC ENGLAND WEB SITE UPDATED** The ISOC England Web Site has been updated! Go to <http://www.England.isoc.org> to find out about the new Chairman, the new Board structure, as well as recent activities which recently took place under the umbrella of ISOC England.

**ISOC WINS CONTRACT TO RUN .ORG TOP LEVEL DOMAIN** ...and sets up the Public Internet Registry, an entirely separate entity <http://www.pir.org/about.html>

**ISOC-E ANNUAL GENERAL MEETING IN Q1 2003** Although the date has not been finalised, this will take place in February or March in Central London. The exact date/location will be announced in the 2nd half of January.

**ISOC ENGLAND CONTACTS** In order to facilitate contact between the Board and Members, please find the following contact information. Don't hesitate to drop us a line.

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Director: Helen Wilkinson Email: [helen@genderquake.com](mailto:helen@genderquake.com)

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## NEWS DIGEST

In the fast-changing world of Technology and the Internet, News are a daily event. Here is a selection from the six past months of newsreel. I welcome comments about the selection! Please e-mail your feedback to [editor@england.isoc.org](mailto:editor@england.isoc.org)

## PRIVACY

**SMUTTY STAFF SHOWN THE DOOR** (Silicon.com, 9 July 2002) Surfing porn at work? Think again... <http://www.silicon.com/a54452>

**TERROR LAWS 'EAT AWAY AT PRIVACY'** (BBC, 6 September 2002) The UK is one of the worse places in the world for privacy with the internet playing a huge part in the erosion of rights, a report has found. <http://news.bbc.co.uk/2/hi/technology/2237050.stm>

## REGULATORY

**WIPO'S DOMAIN NAME DATABASE GOES LIVE** (WIPO, 5 July 2002) Now you can search WIPO's domain name resolution cases online. <http://arbitrator.wipo.int/domains/search/>

**RULES PROPOSED FOR .KIDS** (USA Today, 10 September 2002) One more step forward to establish new top level domain. At the end of the day, .kids was integrated under the .us hierarchy, and not as a Global Top Level Domain. [http://www.usatoday.com/tech/news/techpolicy/2002-09-10-kids-domain\\_x.htm](http://www.usatoday.com/tech/news/techpolicy/2002-09-10-kids-domain_x.htm)

**THE LAW COMMISSION CONSIDERS ISSUES RAISED IN GODFREY V DEMON INTERNET** Defamation and The Internet A Preliminary Investigation Scoping Study No 2 December 2002 This 58 page report, includes the conclusion that there is a strong case for reviewing the way that defamation law impacts on ISPs. The Commissioners conclude that while actions against primary publishers are usually decided on their merits, the current law places secondary publishers under some pressure to remove material without considering whether it is in the public interest, or whether it is true. <http://www.lawcom.gov.uk/files/defamation2.pdf> <http://www.nominet.org.uk/news/legal/demon-case.html>

**NET INDUSTRY MUST FIGHT PAEDOPHILES** (BBC, 6 January 2003) The UK Government has laid out practical guidelines for internet service providers (ISPs) about dealing with the threat of paedophiles on the internet. <http://news.bbc.co.uk/1/hi/technology/2632197.stm>

## INTERNET GOVERNANCE & E-GOVERNMENT

**ICANN NEWS** So much has happened in the past 6 months that it would take several issues of ISOC England Newsletters to cover them all. For a complete set of news, click to: <http://www.icann.org/announcements/>

**JOHN GILMORE: 'IT'S TIME FOR ICANN TO GO'** (Politech, 2 July 2002) ICANN has it's critics. Here's the view of one of them. <http://www.politechbot.com/p-03710.html>

## ACCESSIBILITY

**IRANIAN VILLAGE WIRED FOR WEB** (Silicon.com, 5 July 2002) The Internet really is for Everyone. <http://www.silicon.com/a54397>

**ANTI TERRORIST MEASURES 'THREATEN WEB FREEDOM'** (6 September 2002) Governments have been accused of using September 11 as an excuse to restrict the free flow of information on the internet. Is this censorship? <http://www.guardian.co.uk/Media/newmedia/story/0,7496,786913,00.html> [http://www.rsf.org/article.php3?id\\_article=3671](http://www.rsf.org/article.php3?id_article=3671)

**CHINA HIJACKS GOOGLE'S DOMAIN NAME** (IDG, 10 September 2002) Or can a

country control the information accessed by it's citizens? [http://www.idg.net/ic\\_946304\\_4394\\_1-1681.html](http://www.idg.net/ic_946304_4394_1-1681.html)

**EU PHONE CHIEF WARNS ON 3G DELAY** (BBC News, 16 December 2002) Take up on 3G has been disappointing in Japan. The take up doesn't look any healthier in Europe, where mobile phone operators are looking at a long wait until they can cash in on new services. <http://news.bbc.co.uk/go/em/fr/-/2/hi/business/2579307.stm>

**11.4 MILLION UK HOUSEHOLDS ONLINE** (Office of National Statistics, Internet Access, 17 December 2002) Over the period July to September 2002, 11.4 million households in the UK could access the Internet from home, according to the latest Office of National Statistics Expenditure and Food Survey (EFS). This is equivalent to 46 percent of all UK households and is over twice the number three years earlier and an increase of seven percent versus the same period last year. <http://www.statistics.gov.uk/pdfdir/inta1202.pdf>

**KOREAN HOUSEWIVES WANT SPEEDY NET** (Wired, 1 January 2003) With a population of 48 million, South Korea has a formidable position as the world's broadband Internet leader, far outstripping the United States and Europe. How did they do it? <http://www.wired.com/news/infostructure/0,1377,56525,00.html>

## TECHNICAL

**THE TAXONOMY OF DISTRIBUTED DENIAL OF SERVICE ATTACKS** (UCLA, July 2002) A very interesting paper about one of the Internet's underlying plagues. [http://www.lasr.cs.ucla.edu/ddos/ucla\\_tech\\_report\\_020018.pdf](http://www.lasr.cs.ucla.edu/ddos/ucla_tech_report_020018.pdf)

**WIFI: SPELLING EUROPE WITH AN 'A'** It's here, it's there, it's everywhere, but can you legally use WIFI everywhere? <http://news.com.com/2100-1033-940352.html>

**TOP TIPS FOR SPAM AVOIDANCE** (Silicon.com, 11 June 2002) ...or how to get rid of Spam, or at least try to... <http://www.silicon.com/a53874>

**COMPANIES NOT PREPARED FOR CYBERTERRORISM** (NUA, 10 December 2002) Is your company prepared for it? [http://www.nua.com/surveys/?f=VS&art\\_id=905358361&rel=true](http://www.nua.com/surveys/?f=VS&art_id=905358361&rel=true)

## ECONOMY

**FIRST INTERNET CONFERENCE IN CHINA** This took place in October 2002, and was deemed a success. <http://www.isc.org.cn/hlwdh/english.htm>

**GARTNER ON 2003 - THE GOOD NEWS** <http://www.silicon.com/a56819> **GARTNER ON 2003 - THE BAD NEWS** <http://www.silicon.com/a56822> (Silicon.com, 16 December 2002) Whenever there's good news, there's bad news as well.

**HOW STELIOS LOST £80M IN JUST 24 MONTHS** (Silicon.com, 23 December 2002) S'cuse me mate, can you spare some change? <http://www.silicon.com/a56901>

## TONGUE IN CHEEK

**THE DUCK OF THE DRAW** (Guardian Unlimited, 26 September 2002) Simon Waldman reveals who has won Guardian Unlimited's Best British blog competition. <http://www.guardian.co.uk/online/story/0,3605,798749,00.html>

**WHATEVER HAPPENED TO THE DOT-COMS?** (Silicon.com, 23 December 2002) A short review of 2002's more tongue in cheek events, courtesy of Silicon.com. first half. Boy has the Internet changed in one year! <http://www.silicon.com/a56906>

ICANN in 2003 Richard Francis Founding Chair ISOC L&R iSIG (in formation) Tricia Drakes Chair, ISOC England [rfrancis@igovernance-consultants.com](mailto:rfrancis@igovernance-consultants.com) [tricia.drakes@parvil.demon.co.uk](mailto:tricia.drakes@parvil.demon.co.uk)

At a summit meeting of the UN Economic Commission for Europe in Bucharest from 4-7 November, in preparation for the World Summit on Information Society in Geneva this year, participants agreed the following principle in their 'Bucharest Declaration' :

"To maximise the economic and social benefits of the Information Society, governments need to create a trustworthy, transparent, and non-discriminatory legal, regulatory and policy environment, capable of promoting technological innovation and competition, thus favouring the necessary investments, mainly from the private sector, in the deployment of infrastructures and development of new services."

"The Information Society is, by nature, a global phenomenon and issues such as privacy protection, consumer trust, management of domain names, facilitation of e-commerce, protection of intellectual property rights, open source solutions etc. should be addressed with the active participation of all stakeholders."

ISOC England, as a Chapter of the global Internet Society, shares the Board of Trustees belief that ICANN represents the best hope of a continuing nongovernmental approach to Internet governance.

The future of ICANN depends on its ability to develop international support for its programs and to build a stable financial base. The sometimes conflicting interests of governments, of the operators of the country code top-level domains, and of various nongovernmental parties cannot be resolved without serious attention to a variety of public policy issues. These include questions about the primacy of public interest versus commercial interests, the continuing role of the Internet Society, and the continuing conflict between the needs of trademark owners and the interests of Internet users in expanding the domain name space.(1)

ICANN was established in California, USA in the autumn of 1998 as a non-profit, private-sector corporation formed by a broad coalition of the Internet's business, technical, academic, and user communities. ICANN has been recognized by the U.S. and other governments as the global consensus entity to coordinate the technical management of the Internet's domain name system, the allocation of IP address space, the assignment of protocol parameters, and the management of the root server system. The relationship between the ICANN and governments through the Governmental Advisory Committee was redefined by the new Bylaws adopted by the Board at the corporation's annual meeting in December 2002 in Amsterdam (2)

It is ICANN's objective to operate as an open, transparent, and consensus-based body that is broadly representative of the diverse stakeholder communities of the global Internet. With a small staff of 14, ICANN is funded through the many registries and registrars that comprise the global domain name and Internet addressing systems. ICANN's own year end report to the US Department of Commerce is available on their website. (3)

ICANN.blogger Bret Fawcett wrote at the beginning of the month (4).

"My one prediction for 2003 is that this time next year we'll no longer be debating whether ICANN is the right sort of organization to coordinate the root server system, the DNS and IP Address allocation. It either will be or it won't be. If it's not up to the task, then another reorganization won't likely save it. This is the pivotal year in which ICANN proves itself...or the planning for a replacement for some, or all, of ICANN's functions begins in earnest."

ISOC England held a Breakfast Briefing in London and an afternoon Round Table in Amsterdam in the three weeks running up to the ICANN Annual Meeting, to bring together senior knowledge leaders and members of the local Internet community in the UK and in Europe, to discuss ICANN's future. A digest of the London briefing is here:

<http://www.england.isoc.org/public/icannbm.rhtm> and the Amsterdam round table is here <http://www.england.isoc.org/public/icannagm.rhtm>

During more than a year's debate about ICANN reform, many commentators had proposed various alternatives to ICANN. There has been talk about the reform process as 'Plan A' and the possibility of a 'Plan B'.

Some believed, including some US parliamentarians, that the US Government had already given up too much control over this vital of internet infrastructure and would prefer to see greater government involvement. Adrian Pinder of the UK Department and Industry said at the breakfast briefing in London that would not do as a long term solution, being neither in individual nationals' interest nor in the European long term interest.

Outside Europe others, together with some Europeans, considered that the International Telecommunications Union (the ITU), the United Nation's telecom agency, would be a better substitute for ICANN. Mr Pinder said the UK Government generally favoured a co-regulatory approach to internet regulation. Co-ordination of the DNS should remain rooted in the private sector- as the private sector was able to react more quickly - but with a strengthened Governmental input via the Government Advisory Committee (GAC) into the key public policy discussions. The ITU has played a valuable role so far within ICANN. They attend Governmental Advisory Committee meetings. Accredited GAC representatives are listed online here:

[http://www.noie.gov.au/projects/international/gac/contact/gac\\_representatives.htm](http://www.noie.gov.au/projects/international/gac/contact/gac_representatives.htm)

The UK Government sees a continuing role for the ITU within the ICANN framework, but he was not convinced that the ITU was a direct substitute for ICANN. This debate will continue at next month's Oxford Internet Institute Conference in the Chamber of the Oxford Union, on < Shaping the Future of the Next Internet>. Details are available here.

<http://www.oii.ox.ac.uk/events.shtml>

and at an ITU Workshop in Geneva on 3 and 4 March, co-chaired by ISOC England member Dr Willie Black, an Executive Chairman of Nominet UK, the registry for all Internet domain names ending Dot UK.(5)

George Papapavlou, a veteran of ICANN GAC meetings, speaking in Amsterdam the day before ICANN's Annual Meeting, expressed personal optimism that the new public/private partnership in transition will meet expectations. This issue will be one of the key Internet policy issues in 2003.

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References:

1 [www.isoc.org/pubpolpillar/](http://www.isoc.org/pubpolpillar/)

2 <http://www.icann.org/general/archive-bylaws/bylaws-15dec02.htm#XI>

3 <http://www.icann.org/general/status-report-08jan03.htm#A>

4 <http://icann.blog.us/2003/01/02.html#a1013>

5 <http://www.itu.int/ITU-T/worksem/cctld/index.html>,

<http://www.nominet.org.uk>

UK Trials pioneering ENUM deployment in 2003 Christian de Larrinaga [cdel@firsthand.net](mailto:cdel@firsthand.net)

ENUM is deceptive. Anybody with a rudimentary knowledge of the DNS and telephone number formats (also known as e164 numbers) can read its definition in [RFC 2916](#) and understand ENUM has enormous potential to deliver on the promise of convergence between the data and voice worlds of Internet and telecom's. ENUM has the potential to become the killer application for the next generation Internet.

However the financial, social and business models behind Internet are very different to the phone networks and this is putting ENUM in the firing line as the complexity of the impact of convergence between these two worlds makes its mark.

An ENUM is an electronic number. The idea behind ENUM is to allow a number identifier to be used in the DNS; in particular telephone numbers but any numbering system public or private can be mapped to services using ENUM like implementations.

This is potentially very powerful. The DNS already allows devices with Internet Protocol numbers to be given a name, with ENUM the DNS can also give telephones a name or for instance map an email to a telephone via a speech reader device for a blind person.

On the surface ENUM simply uses the DNS to add a pointer record that provides information that maps a telephone number to an Internet service and provides some intelligence so an appropriate choice of service is offered.

These Naming Authority PoinTeR (NAPTR) records implement ENUM. NAPTR records are maintained by users or on their behalf by Service Providers. The Telephone numbers are entered into the DNS formatted so the DNS can use these numbers as a DNS domain referred to in NAPTR records.

ENUM does not itself do any routing or run any applications. However it can call applications that make intelligent decisions based on the type of connection being requested to determine which service to offer.

For instance ENUM tools could prioritise connections based on user criteria such as route a telephone call to a SIP phone or Instant Message depending on the time of day, least cost, or location of the caller.

An intelligent way to manage our communications in an integrated environment is just what convergence technologies are supposed to promise. However getting this to work effectively is highly complex and impacts on the regulatory environment for voice communications in the telephone world.

For instance how do we organise telephone numbers in the DNS so that we can be sure that a person routing a number to another application really has the rights to do so?

There are critics of ENUM who look at ENUM as yet another attempt to create a Global User ID (GUID) and attack the premise of ENUM as an infringement of privacy. The use of NAPTR records that can be viewed as an address card in clear text for everyone to see increases the risk of spam. It has also been criticised as an invasion of privacy.

There are also many essential technologies that need further work if ENUM is to be widely deployed in a sensible and safe way. ENUM's dependence on the DNS has the advantages of piggy backing on a global distributed database. DNS also has many disadvantages in terms of security and authentication.

This makes deployment of DNSSEC essential for ENUM. DNSSEC is not yet ready for such wide scale deployment in the eyes of some key gTLD and ccTLD operators.

The regulated way telephone numbers are allocated and managed also creates barriers to ENUM. Some of these have been resolved in recent months.

Even the choice of top level domain in the DNS for e164 numbers has been controversial. Some view the selection of .arpa zone as a signal of continuing US domination of the DNS and an attempt to control ENUM. The ITU have called for a e164 to be allocated under .int and others for a specific .e164 top level domain. In practice the choice of .arpa was made on the grounds that the robustness standards for .arpa Name servers are equivalent to the actual root servers of the Internet and in some cases are also Internet root servers.

In May 2002 the Internet Architecture Board (IAB) and the International Telecommunications Union (ITU) announced the global Tier 0 management of ENUM by the European Regional Registry RIPE NCC. ITU have since worked on policies to allocate the telephone country codes to their respective countries creating ENUM Tier 1 Registries.

By January 2003 a small but growing number of countries have approved their ENUM Tier 1 provider including the UK with the +44 code being allocated to Nominum Ltd for the time being by request of the DTI.

Such is the interest yet potential pitfalls of ENUM that the UK in common with a few other countries are holding Trials so that the implementation of ENUM can be tested so the reality of ENUM can be properly understood for the development of effective best practice and supporting technologies.

The UK ENUM Group (UKEG) has been established from the UK Trials and has now held three open meetings in the autumn of 2002 where potential participants were briefed on the

Trials and expressions of interest received. The last meeting on 25th November was held for only those who have signed the Memorandum of Understanding for the Trials with agreement for Tier 1 providers to be ready to proceed by the beginning of 2003. The Trials are now due to proceed for six months from January to June 2003 although some slippage is both possible and likely.

The Trials have established a tiered structure that further delegates the hierarchy for the allocation and management of ENUM in the UK according to basic principles of DNS practice.

For the Trials the key Tier 1 country code (+44) has attracted three participants who will share the management of Tier 1 for the duration of the Trial. There are two DNS service participants, three ENUM Registrars, Two Authentication Providers and Four Application Service Providers. In addition End Users are involved.

The UK ENUM Trials will provide a real world case study of an actual implementation of ENUM with nearly the full depth of deployment using real e164 numbers but with a manageable number of participants. The Trials have attracted an excellent cross section of both telecom and Internet business interests the Government included. It should therefore provide good guidance on how ENUM works in practice and identify the main public policy issues.

I am also participating and would be interested to hear from people with applications they would like included.

#### References:

**ENUM** Technology ENUM RFC 2916, and Dynamic Delegation Discovery System DDDS RFC's 3401-3404 <http://www.rfc-editor.org>

ENUM Frequently Asked Questions at [enum.org](http://www.enum.org) <http://www.enum.org/information/faq.cfm>

24 May 2002: Interim Approval for Internet Telephone Numbering System (ENUM) Provisioning Delegation of e164 numbers approved by IAB and ITU to RIPE NCC. <http://www.isoc.org/isoc/media/releases/020524pr.shtml>

Country code delegations: by RIPE <http://www.ripe.net/enum/>

All List of ITU E164 country codes [http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164\\_717.html](http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164_717.html)

Delegated ENUM domains <http://www.ripe.net/enum/request-archives/>

UK delegation of +44 Authorised Fri, 17 May 2002 11:07:54 +0200 <http://www.ripe.net/ripenncc/mail-archives/enum-request-arch+44/2002/msg00000.html>

ENUM Administration in Europe can be found at [http://webapp.etsi.org/workProgram/Report\\_WorkItem.asp?wki\\_id=14414](http://webapp.etsi.org/workProgram/Report_WorkItem.asp?wki_id=14414)

UK Trials 2002-2003. DTI site <http://www.dti.gov.uk/cii/regulatory/enum/>

Societal and Commercial and Public Policy implications

Australia <http://www.aca.gov.au/committee/nsg2/discussion.html>

Electronic Frontiers Association ,Australia <http://www.efa.org.au/> Roger Clark's page on ENUM <http://www.anu.edu.au/people/Roger.Clarke/DV/enum.html>

EPIC on ENUM <http://www.epic.org/privacy/enum/>

Geoff Huston ENUM - The Internet Protocol Journal June 2002 issue [http://www.cisco.com/warp/public/759/ipj\\_5-2.pdf](http://www.cisco.com/warp/public/759/ipj_5-2.pdf)

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ENUM Telephone Mapping - how does it work? Andrew Bartosiewicz [andrzejb@nask.pl](mailto:andrzejb@nask.pl)

#### Introduction

The basic goal for ENUM is to combine two existing worlds: telephone and Internet. Those two

worlds have existed concurrently for several years. But as the internet and telephony get integrated, we are not sure how our phone calls are processed: using the circuit-switched or packet-switched networks. The only distinguishing factors are identifiers. ENUM is described by [RFC 2916](#) (see [www.ietf.org](http://www.ietf.org)). This article based on an RFC describes how a telephone number can be transformed into a domain name and inserted into the DNS.

## Identifiers

Internet name-space is based on three most important identifiers:

- domain name,
- IP address (IPv4 or IPv6) and
- MAC address (most of the young people surfing the internet are even not aware of the existence of the MAC address).

The Domain name (i.e. [bbc.co.uk/](http://bbc.co.uk/)) is the only broadly known name for internet end-users. We add to the domain name the information defining the type of service we want (like WWW for web pages; FTP for file transfer protocol or @ for e-mails)

On the contrary to Internet, the Telephony name-space is based on an "e164 number", a system used for over 100 years. The telephone number consists of the string of numbers sometimes preceded by the "+" symbol meaning "international access code".

## Time for revolution.

With the integration of the Internet and the Public Switched Telephone Network (PSTN), the only really existing relic of the past remaining is the PSTN numbering system. The ENUM system brings the solution: writing telephone numbers as domain names and integrating telecommunication services with ENUM-domain names.

The transformation from the Telephone Number into the ENUM domain is very simple and consists of few easy steps:

- Append the Country Code number to the Telephone Number. I have a Polish telephone number; that's why my country area code is "+48". The number looks like: +48 606 24-15-70.
- Remove all characters except digits. The number now looks like: 48606241570.
- Add dots between digits: [4.8.6.0.6.2.4.1.5.7.0](#)
- Reverse the order: [0.7.5.1.4.2.6.0.6.8.4](#)
- Add Tier-0 zone - "e164.arpa" (the Tier-0 zone identifier may be different in the future).
- And finally our ENUM domain looks like: [0.7.5.1.4.2.6.0.6.8.4.e164.arpa](#)

## Integrated services - ENUM added value.

ENUM is not only dedicated to enter Telephone Numbers into DNS. The most important part of the project is to integrate different telecommunication services with ENUM-identifiers (like: FTP, WWW, SIP, H323, e-mail, PGP keys and more). We are used to the situation where the DNS returns the IP (mostly IPv4) address for a domain name. Resolution of the ENUM domain brings the list of identifiers (NAPTR records). The identifiers indicate the different ways of contacting the Telephone Number "owner".

Let's think of one example:

We have the Telephone Number +48 606 241570 and we would like to integrate the following services with this Telephone Number:

- PSTN telephone number: 22 5231200
- Mobile Phone number: 606 241570
- e-mail address: [andrzejb@nask.pl](mailto:andrzejb@nask.pl)
- VoIP identifier: [andrzejb@nask.pl](mailto:andrzejb@nask.pl)

So let's try to write the proper NAPTR records:

\$ORIGIN [0.7.5.1.4.2.6.0.6.8.4.e164.arpa](#).

IN NAPTR 102 10 "u" "tel+E2U" "!^.\*\$!tel:+48225231200!".

IN NAPTR 102 10 "u" "tel+E2U" "!^.\*\$!tel:+48606241570!".

IN NAPTR 100 10 "u" "sip+E2U" "!^.\*\$!sip:andrzejb@nask.pl!".

IN NAPTR 102 10 "u" "mailto+E2U" "!^.\*\$!mailto:andrzejb@nask.pl!".

#### Potential ENUM services

There are a lot of potential ENUM services that may be useful for the users. It is still a theoretical consideration, but we may expect a lot of end-users applications when ENUM has been deployed. At present time we can suggest some basic http://www.isoc-e.org/newsletter/Issue\_2-01.htm

#### E-Mail

ENUM integrated with E-Mail software - instead of typing the e-mail address, we may enter the Telephone Number in the "To:" field. The e-mail software will ask the DNS for the e-mail address, substitute the Telephone Number with the E-Mail Address and then send the e-mail for this new identifier (typical e-mail address).

#### Voice over IP (VoIP) connection instead of PSTN connection

ENUM can solve the problem with high telephone call costs. In general, the VoIP costs are smaller than the PSTN-PSTN connection. When the user is abroad and has Internet access, it's highly recommended to use a VoIP connection (it's common to originate calls from IP address-based and terminate on the PSTN ). It's very convenient for the telephone user to have an application where you enter the telephone number and then you get the information of the possible ways of contacting the called party.

For example:

User enters (calling party): 606 241570

The response the User gets:

Generally the called party is reachable by:

- Mobile phone: +48606241570
- Phone: +48225231200
- e-mail: [andrzejb@nask.pl](mailto:andrzejb@nask.pl)
- SIP: [andrzejb@nask.pl](sip:andrzejb@nask.pl)

Currently the user is reachable by:

- Mobile phone: +48606241570
- SIP: [andrzejb@nask.pl](sip:andrzejb@nask.pl)

And then, the user may choose the most cost effective method to reach his correspondent.

#### Number portability

ENUM is fully suitable to support number portability. This allows telephone users to keep their telephone numbers when the telephone operator changes.

Example:

My number is 606 241570

My telephone operator is: Company X.

I live in City A.

I would like to keep my number (i.e. all my friends know my number) and at the same time I would like to change my operator form Operator X to Operator Y, and would like to move from

City A to City B.

ENUM, as a solution for the Number Portability Database (NPDB) may solve this problem. Nowadays some organisations like ETSI (European Technical Standards Institute), NASK (Polish ENUM administrator), UKEG (UK ENUM GROUP) are working on such a solution. Unfortunately Number Portability brings forth a lot of problems into the ENUM world. One of the problems is the consumer data protection. The co-called User-ENUM is publically available to all Internet users. In such a case, if you want to port your number, your data will be published and available for all internet users. One solution is to have the separate ENUM-based environments: User-ENUM and Infrastructure-ENUM.

User-ENUM can be available for everybody and Infrastructure-ENUM can be accessible for telecom operators only.

Author: Andrew Bartosiewicz

ENUM: [0.7.5.1.4.2.6.0.6.8.4.e164.arpa](mailto:0.7.5.1.4.2.6.0.6.8.4.e164.arpa)

Andrew Bartosiewicz works with the Naukowa I Akademicka Siec Komputerowa (NASK), the Polish Research and Academic Computer Network, a research & development unit whose mission was to connect the Polish scientific and academic community to the Internet and satisfy its needs in the field of data communications and network security. NASK also administers the .pl Top Level domain. As the ENUM administrator for Poland NASK supports the work undertaken by the international community to implement ENUM Telephone mapping on the Internet.

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## MEMBER CORNER - BOOK RECOMMENDATION

One of ISOC England's members, Beth Porter, has recently had her book released for sale! "The Net Effect" aims to demystify the Net for those outside the industry, to encourage eDemocracy, and to explore the relationship between Technology and The Arts. It has a forward by David [Lord] Puttnam, and a back-cover blurb by Stephen Fry.

The hardback is available from [www.amazon.co.uk/](http://www.amazon.co.uk/) and directly from the publisher's website: <http://www.intellectbooks.com/authors/porter/neteffect.htm>

The publisher has recently released it as an eBook, available for downloading to the Microsoft Reader at <http://www.swotebooks.co.uk/>

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## EVENTS DIARY

- The Oxford Media Convention - The Future of Public Service Broadcasting The Saïd Business School, Oxford, 15 January 2003 <http://www.oxfordmediaconvention.org/>
- Next Generation Internet Evening Lectures at Cruciform Building, UCL 16 January 2003 - see below for more information <http://www.uk.ipv6tf.org/events/>
- RIPE 44 Meeting Amsterdam 27 - 31 January 2003 <http://www.ripe.net/ripe/meetings/current/ripe-44/>
- ICANN Study Circle, Forum Hotel, Alexanderplatz, Berlin 3/4 February 2003 <http://www.icann-studienkreis.net/>
- PCMLP/OII Conference - Politics of Code: Shaping the Future of the Next Internet The Chamber of the Oxford Union 6 February 2003 <http://pcmlp.socleg.ox.ac.uk/code/> and for other OII events: <http://www.oii.ox.ac.uk/events.shtml>
- ITU World Summit on Information Society PrepCom II Geneva, 17 - 28 February 2003 <http://www.geneva2003.org/home/index01.htm>
- ITU Internet ccTLD Workshop, Geneva 3/4 March 2003 [http://www.itu.int/newsroom/press\\_releases/2002/advisory-10.html](http://www.itu.int/newsroom/press_releases/2002/advisory-10.html)
- 56th IETF in San Francisco, California, USA, 16-21 March 2003 <http://www.ietf.org/meetings/meetings.html>
- ICANN Meeting in Rio de Janeiro, Brasil, 23-27 March 2003 <http://www.icann.org/meetings/>
- Madrid Global IPv6 Summit 2003 12 to 14 May 2003 <http://www.ipv6-es.com/>

For a full schedule of future meetings and events, please consult: <http://www.england.isoc.org/event/index.rhtm>

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## FREE INVITATION

Invitation to the Next Generation Internet Lectures on IPv6 and Reception

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"IPv6 & the future of the Internet in the UK"

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at Lecture Room 1, the Cruciform Building, University College London 16th January 2003  
Doors Open 6:15pm Lectures Start 6:45pm

for Map of location <http://www.ucl.ac.uk/is/Clusters/Maps/25.html>

and afterwards

a reception at the Refectory UCL by kind sponsorship of Cisco Systems [www.cisco.com](http://www.cisco.com)

These lectures are organised by the UK IPv6 Task Force and are free to attend. - Please register (see below & website [www.uk.ipv6tf.org](http://www.uk.ipv6tf.org) for more details)

IPv6 is a strategic technology for the Internet. IPv6 is now ready for deployment making it vital that network managers, content & service providers, users and public services start working with IPv6.

Many countries are starting to deploy IPv6 including UK's major trading partners and competitors. The EU Commission has recommended IPv6 and has established a Phase II for the Task Force to promote IPv6 deployment throughout the European Union. The Japanese are also well advanced and Task Forces are being established in many major economies of the world.

These lectures will give an authoritative status of IPv6 in the UK with information about the use of IPv6 for networks and applications. Leading IPv6 experts from the UK and Europe will outline the key activities and opportunities of IPv6 and provide links to assist use and adoption of IPv6. Insight will be given as to the true status and business readiness of IPv6 in actual use and experience in commercial, academic and backbone environments in the UK and bring information on IPv6 progress around the world.

Internet growth continues unabated. Out of a global human population of 6 billion estimates anticipate 1.5 billion will be on the Internet by 2004 growing to around 3 to 4 billion within the next five years as penetration and IP telephony, ENUM and other media based applications take hold.

The current Internet Protocol IPv4 has a maximum address space for 4.3 billion users although in practice allocation and management inefficiencies mean very many fewer addresses are available for use. Clearly we need more addresses if the Internet is going to be able to grow as a resource for everybody.

An Internet Standard of the IETF [www.ietf.org](http://www.ietf.org) IPv6 is designed to replace the current Internet Protocol IPv4 to solve the address shortage on the Internet. IPv6 also includes many features to simplify life for end users and service providers with support for next generation Internet services and applications on mobile, wideband and multi-media content and bringing built in end to end security as part of the Internet itself.


These lectures are the first in a series of activities of the UK IPv6 Task Force [www.uk.ipv6tf.org](http://www.uk.ipv6tf.org) whose members are leading the promotion and awareness of IPv6 in the UK to ensure the UK is at the forefront of the Internet age.

Who should go.

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All those whose organisations use and at least partially depend on Internet based services, or whose customers and competitors around the world are starting to use IPv6. All those who need and want to participate in the IPv6 Task Force, including public policy and business policy advisors, strategic directors and managers who need to gain an understanding of and leading contacts in the IPv6 industry.

## Agenda

1. Introduction and Chair Christian de Larrinaga - Director UK IPv6 Task Force and Founder Chairman Emeritus ISOC England
2. IPv6 Forum and IPv6 Task Forces Latif Ladid - President IPv6 Forum and EC IPv6 Task Force .
3. Commercial Deployment of IPv6 Peter Hovell  BT Exact Technologies
4. IPv6 in Academic Networks Dr. Tim Chown - University of Southampton
5. IPv6 in the Internet Axel Clauberg - Cisco Systems
6. Questions from the floor to a selection of IPv6 Experts
7. Drinks Reception and networking kindly sponsored by Cisco Systems at the Refectory of University College London.

Lectures end 9pm

Event Ends 22:00 (10pm)

\*To attend please send your Name, email and Company/Affiliation to [ukipv6tfevent1@uk6x.com](mailto:ukipv6tfevent1@uk6x.com).\*

IPv6 Task Force UK January 2003

[www.uk.ipv6tf.org](http://www.uk.ipv6tf.org)

[cde1@firsthand.net](mailto:cde1@firsthand.net)

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Date: 06 Jan 2003 (LAST-MODIFIED)

From: [editor@england.isoc.org](mailto:editor@england.isoc.org)

Subject: Abridged info on ISOC England

ISOC England is a full chapter of the Internet Society in the UK. ISOC England is a voice of the future, creates awareness and promotes the Internet in the UK as a centre for business, government and cultural activities by working in partnership with many of the leading institutions, in government, academia, society and business.

Our mission statement is:

To promote the effective operation and development of the Internet and its related technologies in the public interest through leadership in standards, issues and education. Our primary focus is to deliver this mission and, in so doing, to develop an active and influential ISOC Chapter with a membership of like minded individuals and organisations who share our vision, and who want to support and/or participate in helping us to deliver our mission.

For more information about ISOC England, turn to: <http://www.england.isoc.org/about.rhtm>

CONTRIBUTIONS: letters to the editors, suggestions etc. should be sent to [editor@england.isoc.org](mailto:editor@england.isoc.org) with a clear subject line. We reserve the right to amend and publish any letter sent to this address.

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## **End of ISOC-E Digest 2.01**

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