



IETF 85 & 86 Update

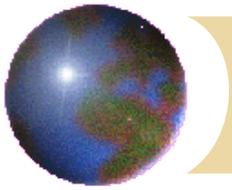
Cathy Aronson

cja@daydream.com



ARIN 31

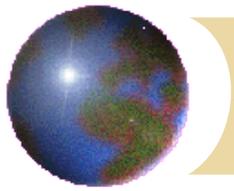
Bridgetown, Barbados



Note

This presentation is not an official IETF report

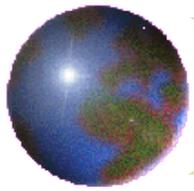
- ❏ There is no official IETF Liaison from ARIN or any RIR
- ❏ This is all my opinion and my view and I am not covering everything just highlights
- ❏ You should know I like funny quotes
- ❏ I hope you enjoy it
- ❏ Your feedback is greatly appreciated
- ❏ If you were there and have an interesting item I missed please speak up



Something Happened on the way...

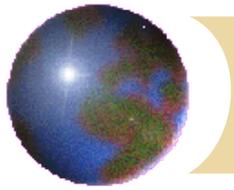
- ✚ Went to LACNIC in Montivideo
- ✚ Celebrated the 10th Anniversary of LACNIC





Highlights

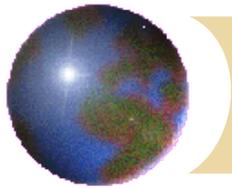




Highlights

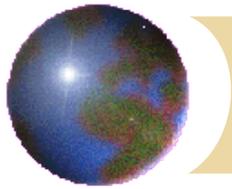
✚ Quotes

✚ "We had a problem in an operating system made by a food company"



IEPG

- ✦ Carlos Martinez from LACNIC
 - ✦ Using TAYGA – stateless NAT64 implementation
 - ✦ Used skype, dropbox, problems with twitter.
- ✦ Mirjam Kuhne talked about RIPE atlas
 - ✦ Stat.ripe.net - everything you ever wanted to know about address space, domain names, black lists, geo-location, routing tables, etc



IEPG

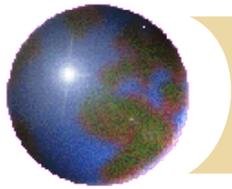
✚ IPv6 address scanning

☒ multicast ping requests work for unix but not windows

☒ Although in windows if you do a multicast echo request with unsupported options then you get a response.

☒ Scan6 tool

- The myth is that scanning for hosts is impossible because of size of subnets, distribution, etc.
- V6 address assignments follow patterns.
- Windows systems randomize interface IDs so that it makes it harder for scanning but they do use a constant for the whole life of the system. Some systems use MAC address for interface ID.



IEPG

⊕ RPKISpider – Eric Osterweil

⊕ Tracks

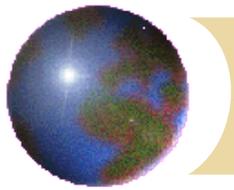
- success rates, throughput etc,
- delegation, structure object count,
- distribution of object types, etc.
- portion of covered routed space

⊕ DNS Rate Limiting

⊕ Presentation of reflection attacks in DNS

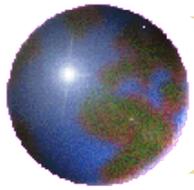
⊕ spoofed addresses are fired off to DNS servers and the spoof packets are sent to victim's address. Dampening queries can block real traffic.

⊕ Fixes are in BIND9



IPv6 Maintenance

- ✦ A method for Generating Stable Privacy-Enhanced Addresses with IPv6
- ✦ Transmission of IPv6 Extension Headers
 - ✦ Firewalls aren't updated until extension headers are deployed by they can't be deployed until firewalls are updated (meet Joseph Heller)
 - ✦ Updates to IPv6 multicast addressing architecture
 - ✦ Issues with how flag bits are being used.
- ✦ Security Implications of IPv6 Options of type 10xxxxxx
 - ✦ when you get this packet you must send an ICMPv6 parameter problem message even if the packet was sent to a multicast address.
 - ✦ the proposal is to not do this when it comes from a mcast address



Technical Plenary

✦ Talk about the End of POTS

- ✦ No flag day but over time the old PSTN as we know it will be phased out.
- ✦ In my world won't happen very soon.

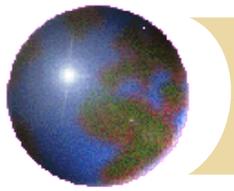
✦ OUI Registration Authority

- ✦ Remember those MAC addresses?
- ✦ "No relationship between this and IP addresses because there is no hierarchy"



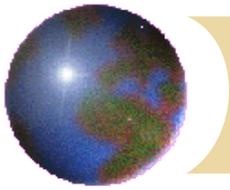
Technical Plenary

- ✦ OUI Registration Authority (continued)
 - ✦ <http://www.ietf.org/proceedings/86/slides/slides-86-iab-techplenary-5>
 - ✦ <https://datatracker.ietf.org/doc/draft-ieee-rac-oui-restructuring/>
 - ✦ Maintain existing OUI & OUI-36 registries
 - ✦ Create registries for EUI-48 sizes
 - 16M, 4M, 1M, 4k
 - ✦ Disconnect addresses from Company Identifier
 - ✦ Suggest VMs create addresses based on new Company identifiers in “local space”
 - Gives reusable local addresses



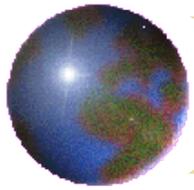
ISOC Briefing Panel

- ✦ Digital content and what happens to it? Rights and intended uses. (Makes me think of Tosh.0)
- ✦ The discussion was about everyone generates content now and what are folks' intentions regarding this content?
- ✦ "Identity management is the basis of the pyramid" perhaps "persistent identifiers" would be used to determine any intended uses of the content.



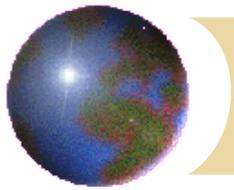
BEHAVE

- ✦ Discovery of IPv6 Prefix Used for IPv6 Address Synthesis
 - ▣ This document describes a method for detecting the presence of DNS64 and for learning the IPv6 prefix used for protocol translation on an access network
- ✦ NAT Logging Syslog vs IPFIX
 - ▣ syslog is ascii and IPFIX is binary so it's better for chatty logs.
 - ▣ There is a need for both.



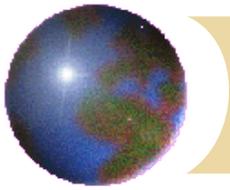
IPv4 Sunsetting

- ✦ It occurs to me this group is still trying to figure out what it covers
 - ✦ Problems from going from dual stack to just a v6 stack
 - ✦ Problems encompass not being able to turn v4 off
 - ✦ Overlaps with DHC
- ✦ WIDE Project
 - ✦ Presentation about their work of connecting an IPv6 network to the IPv4 Internet
 - ✦ Waiting for IPv4 connection timeout causes slowness. Put in a DNS forwarder A filter that filters out A records from replies. The IPv6 only host only gets AAAA record.



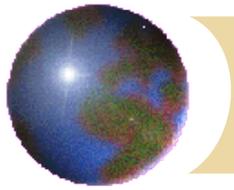
SDN

- ✦ What is SDN really all about? An Architectural Perspective – Dave Meyer
 - ✦ It seems to me that this whole SDN thing is an arbitrary overlay to obscure the difficulties of configuring individual devices and services. I am not sure this is feasible or will even work. Will it make it more complicated?
- ✦ SDX: A Software Defined Internet Exchange
 - ✦ This is the proposal to make a route-server like box that allows the user (ASN) to get routes based on certain criteria. It will then install FIB entries. Needs testers and thoughts on problems.



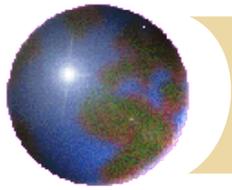
SDN

- ✦ Introduction to ForCES
 - ▣ parallel approach to Openview
 - ▣ object oriented classes defined in XML
 - ▣ Protocol = verbs data model = nouns
- ✦ Scalable Multi-Class Traffic Management in Data Center Backbone Networks rate control.
- ✦ Network Functions Virtualization (Nfv) update
 - ▣ seems like an abstraction to move network functions into a separate box.



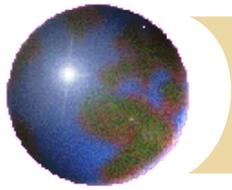
Transport Area

- ✪ SCTP Tutorial - Stream Control Transmission Protocol, RFC2960
 - Originally developed to move telephony signaling to IP. Need network fault tolerance. Strict requirements on failover, recovery, etc.
- ✪ Discussion of buffer bloat and AQM issues.
 - ✪ Do we need a working group?
 - ✪ How do we tell vendors to do the right thing?
 - ✪ Experimental data needed?
- ✪ Open MIC about Expertise for Transport AD



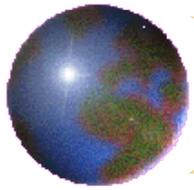
OPS Area and OPS WG

- ✦ An acceptable use policy for new ICMP codes
 - ✦ Limit use of ICMP to forwarding plane anomalies
 - ✦ discovery of on link hosts and routers
- ✦ draft-krishnan-opsawg-large-flow-load-balancing
 - ✦ identifying long lived large flows. In final review. Curtis says it's an implementation detail not an operational issue.



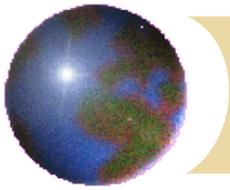
OPS Area and OPS WG

- ✦ draft-ietf-opsawg-lsn-deployment
 - ✦ CGN Deployment with BGP/MPLS IP VPNs being reviewed.
- ✦ draft-ietf-opsawg-firewalls
- ✦ Several Control And Provisioning of Wireless Access Points (CAPWAP) Drafts
- ✦ Deterministic CGN draft – Final Review



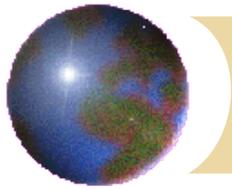
Softwire

- ✦ Various drafts about tunneling as usual.
- ✦ There is a draft about mapping v4 address and ports into v6. In essence having IPv4 services without IPv4 routing.
- ✦ Obtaining IPv4 Parameters in IPv6 networks
 - ✦ Softwires for DHCP
 - ✦ The issue is how to get DHCPv4 info into DHCPv6 packets



IntArea

- ✦ Multiple Provisioning domains (Ted Lemon)
 - ✦ This may be real work on multi-homing problems
 - ✦ Requires fundamental changes to the architecture
 - ✦ Many provisioning domains per link
 - For example turn on VPN and local printer goes away
- ✦ LISP EID Block Management Guidelines
 - ✦ Allocate a v6 /16 as experimental EID space
 - More in LISP slides



History of the Internet BOF

- ✦ Elizabeth Feinler (AKA Jake) from SRI was there.
- ✦ Looking for a way to get donors and repositories to talk to each other.
- ✦ Lots of information being lost. Software mostly gone, some manuals exist. People choose to save things they like
- ✦ IETF to come up with a plan for selective preservation of what we are doing because the online world can make it disappear.
- ✦ wiwiw.org (who is who in the internet world)



V6 Operations

✦ Enterprise IPv6 Deployment Guidelines

- ✦ Have an existing IPv4 network and want to deploy IPv6

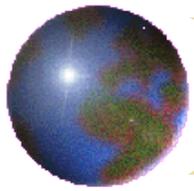
✦ Other drafts

- ✦ A Larger Loopback Prefix for IPv6
- ✦ NAT64 Deployment Considerations
- ✦ Extending an IPv6 /64 Prefix from a 3GPP Mobile Interface to a LAN
- ✦ IPv6 for 3GPP Cellular Hosts
- ✦ IPv6 Profile for Mobile Devices



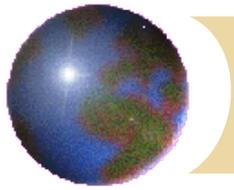
V6 Operations

- ✦ Design Choices for IPv6 Networks
- ✦ Balanced Security for IPv6 CPE
- ✦ New IPv6 IPID Needed
 - ▣ Folks from BCBS
 - ▣ Want this for network diagnostics.
- ✦ IPv6 Operational Guidelines for Datacenters
 - ▣ All things datacenter. Addressing plans, management systems and applications, PA vs PI space, Monitoring and logging, costs, etc
 - ▣ Guidance of Using Unique Local Addresses



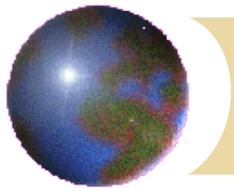
V6 Operations

- ✦ A Draft not on the agenda but of interest here
 - ▣ A mechanism to allocate IPv6 blocks for BGP networks based on the network's AS Number
 - This draft describes a mechanism by which an entity can generate a globally unique IPv6 /48 prefix based on its Autonomous System Number.
 - The automatic allocation is taken from a specific /16 block assigned by IANA for this purpose.
 - <http://tools.ietf.org/id/draft-mlevy-v6ops-auto-v6-allocation-per-asn-00.txt>



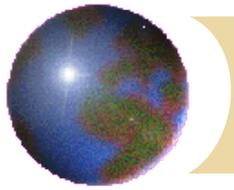
Another Draft

- The Internet Numbers Registry System
draft-housley-rfc2050bis-00.txt
 - This is an update to RFC2050
 - Describes current RIR system
 - “This document provides information about the current Internet Numbers Registry System used in the distribution of globally unique Internet Protocol (IP) address space and autonomous system (AS) numbers. ”
 - “This document also provides information about the processes for further evolution of the Internet Numbers Registry System.”



Dynamic Host Configuration

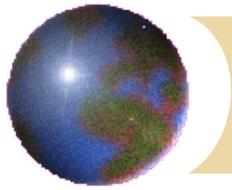
- ✦ draft-rajtar-dhc-v4configuration
 - ✦ Provisioning v4 configuration over v6 only networks
- ✦ draft-ietf-dhc-dhcpv6-tunnel
 - ✦ v6 over v4 tunnel and want to send DHCPv6 info
- ✦ draft-ietf-dhc-addr-registration
 - ✦ Removed host registering because of DOS issues
- ✦ draft-asati-dhc-ipv6-autoconfig-address-tracking
- ✦ draft-bhandari-dhc-class-based-prefix



V6 RENUM

"One man's rogue is another man's renumbering event" how to prepare a renumbering event - timers etc. RFC4192

✚ PLACEHOLDER



HOMENET

⊕ Homenet Architecture Update

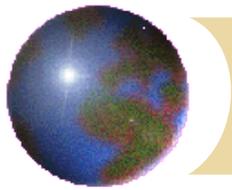
- ⊕ Home should have significantly more than a /64 per RFC6177

- ⊕ "If you have a /56 of address space per home and each address is addressed and sugar cube size, that's several feet deep of sugar cubes around the world"

⊕ Chris Grundemann on HIPNET

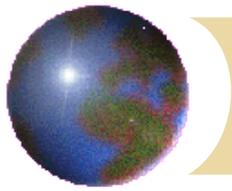
- ⊕ Another way to make a homenet work

⊕ Lots of drafts



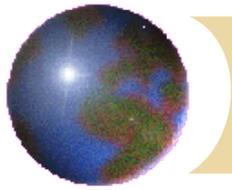
HOMENET

- ✦ draft-troan-homenet-sadr-00 Ole Troan and Lorenzo Colitti
 - ✦ Using classic multiple IPv6 address multihoming. All source addresses, give them to hosts. Hosts send packet and the network sends them based on source address.
 - ✦ "it's a hack"
 - ✦ "when the routing protocol is broken things don't work, yes"
 - ✦ "You allow for triangle routing in the home"
 - ✦ "if you don't remember anything you won't deprecate it"



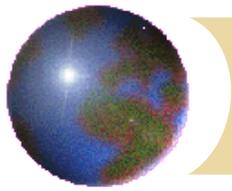
WCIT Update

- ✦ Sally Wentworth from ISOC gave an update on WCIT.
- ✦ I found some of her slides very interesting and wanted to share some of them here
- ✦ IETF folks willing to give countries IPv6 addresses.
- ✦ <http://www.iab.org/2013/03/14/wcit-what-happened-whats-next/>



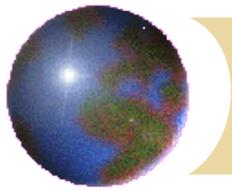
[Square Brackets]

- ✦ *b)* Any such special arrangements [shall / should] [avoid technical | not cause injury/bring] harm to the operation of the telecommunication facilities [or services] [and shall/should not breach nor diminish the security and confidence of telecommunications/ ICTs] of [third parties] [and shall not breach the rights of third parties under these Regulations].
- ✦ 9.2 [Member States [should / shall], where appropriate, encourage the parties to any special arrangements. [It is recognized that special arrangements] that are made pursuant to No. 9.1 above] to take into account relevant provisions of Recommendations of the [ITU / ITU-T].



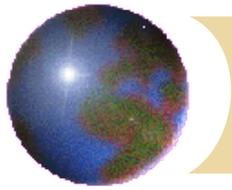
[WCIT]*





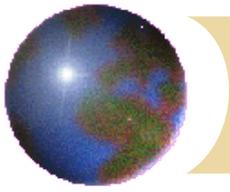
For Example

- ✦ ADD 3A.2 Member States shall have equal rights to manage the Internet, including in regard to the allotment, assignment and reclamation of Internet numbering, naming, addressing and identification resources and to support for the operation and development of basic Internet infrastructure.
- ✦ ADD 3.3 Operating agencies shall determine by mutual agreement which international routes are to be used. A Member State has the right to know how its traffic is routed and should have the right to impose any routing regulations in this regard, for purposes of security and countering fraud .
- ✦ ADD 3.5 Member States shall ensure that international naming, numbering, addressing and identification resources are used only by the assignees and only for the purposes for which they were assigned and that unassigned resources shall not be used. Member States shall also endeavour to prevent misuse and misappropriation of these resources.



For Example

- ✦ ADDMember States should ensure that administrations and operating agencies cooperate in ensuring the integrity, reliable operation and security of the national Internet segment, direct relations for the carrying of Internet traffic and the basic Internet infrastructure.
- ✦ ADD Operating agencies shall cooperate in the development of international IP interconnections providing both, best effort delivery and end to end quality of service delivery. Best effort delivery should continue to form the basis of international IP traffic exchange.
- ✦ ADDMember States should cooperate regarding telecommunications security matters (including cybersecurity), in particular to develop technical standards and acceptable legal norms, including among others those regarding territorial jurisdiction and sovereign responsibility.



LISP

CARIBBEAN VI  CARIBEROYALE
ALL-EXITE HOTEL & CONVENTION CENTER

Partly Cloudy 72° / 51° Fri Mar 15, 2013 10:29 AM

CURRENT EVENT

INTERNET ENGINEERING TASK FORCE

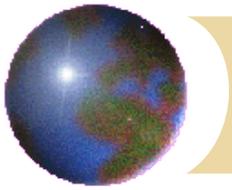
LISP

START/FINISH
9:00 AM - 11:00 AM

Coming Up

INTERNET ENGINEERING TASK FORCE

May Contain Nuts



LISP

✦ LISP EID Block

- ✦ /16 out of reserved /12

- ✦ Not announced without LISP

- ✦ 10 year timeframe

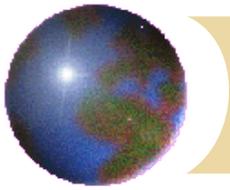
- ✦ This is a want not a need

- ✦ Document says the block may be advertised on global Internet

✦ LISP EID Block Management

- ✦ defining how this block will be allocated and announced

- ✦ Still not a lot of details.



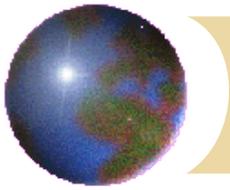
LISP

- ✦ The part that really contains nuts
 - ✦ Multicast Overlay Models & Mechanisms
 - Using LISP to encaps IPv6 multicast in IPv4
- ✦ "Any computer science problem can be solved with another level of indirection"
- ✦ Other drafts
 - ✦ draft-cheng-lisp-shdht
 - ✦ draft-cheng-lisp-nat-traversal-extension
 - ✦ draft-arango-pim-join-attributes-for-lisp-00
 - ✦ LISP gap analysis for nvo3
 - ✦ LISP Based FlowMapping for Scaling NFV



Questions?





References

- ⊕ General WG Info:

- ⊞ <http://datatracker.ietf.org/wg/> (**Easiest to use**)

- ⊕ Internet Drafts:

- ⊞ <http://tools.ietf.org/html>

- ⊕ IETF Daily Dose (**quick tool to get an update**):

- ⊞ <http://tools.ietf.org/dailydose/>

- ⊕ Upcoming meeting agenda:

- ⊞ <http://tools.ietf.org/agenda>

- ⊕ Upcoming BOFs Wiki:

- ⊞ <http://tools.ietf.org/bof/trac/wiki>

- ⊕ Also IETF drafts now available as ebooks

- ⊞ <http://www.fenron.net/~fenner/ietf/ietf-ebooks>