

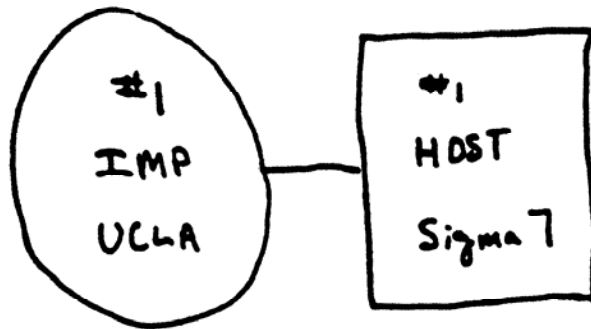
ICANN, IPv6 and the Root



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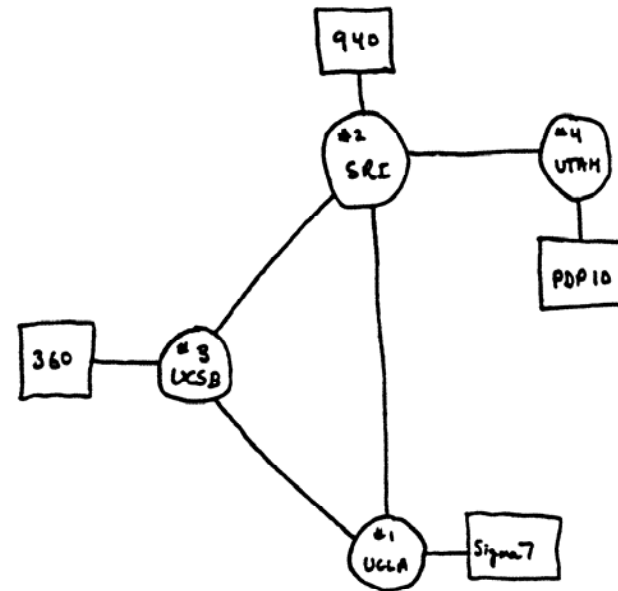
In the beginning . . .



THE ARPA NETWORK

SEPT 1969

1 NODE



THE ARPA NETWORK

DEC 1969

4 NODES

Internet's unique identifiers were coordinated through the Internet Address Naming Authority



Jon Postel
1943–1998

Need for change circa 1996–97

- **Globalisation** of Internet
- **Commercialisation** of Internet
- Lack of **competition** in domain name space
- Trademark–domain name **conflicts**
- Need for a new model of **governance**

ICANN mission statement

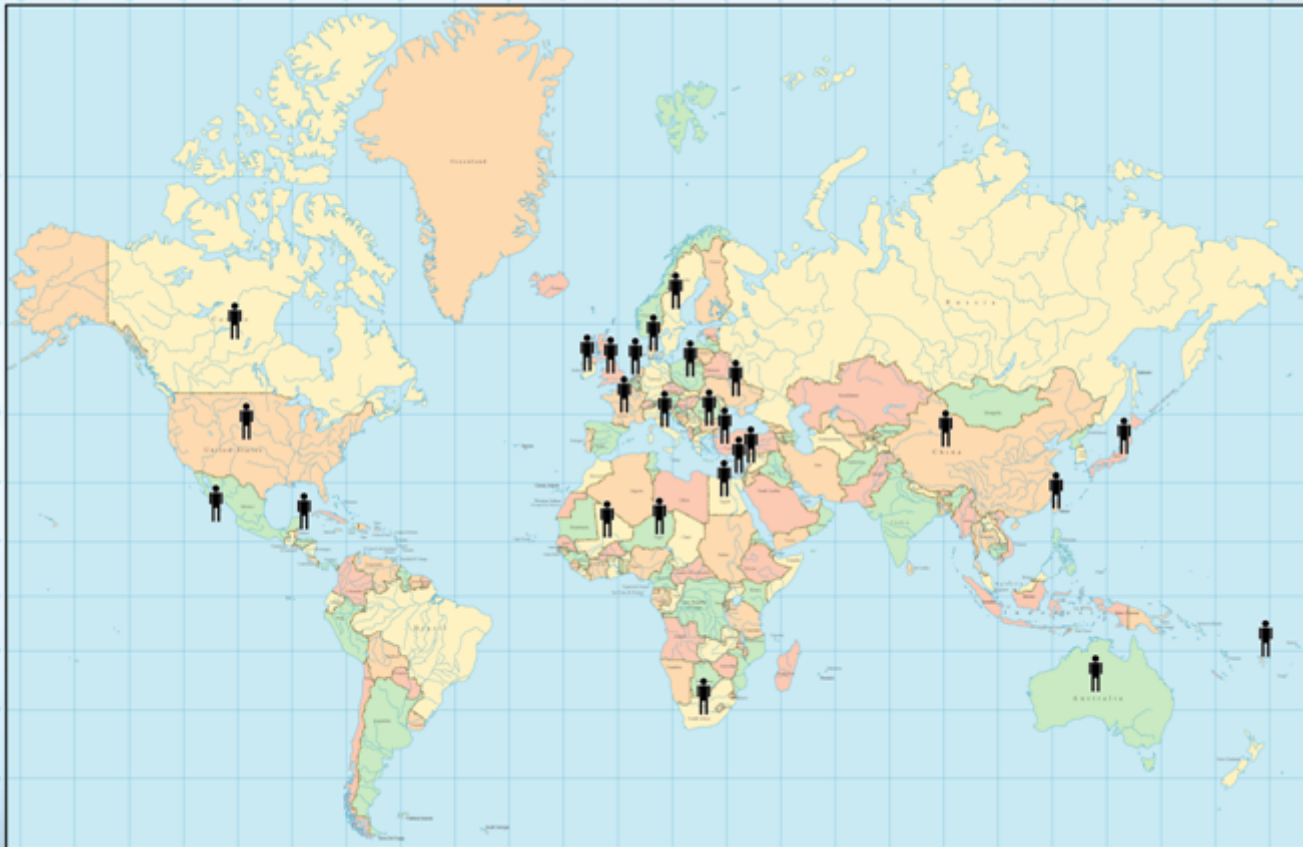
- To coordinate, overall, the global Internet's system of unique identifiers, and to ensure stable and secure operation of the Internet's unique identifier systems. In particular, ICANN coordinates:
 1. Allocation and assignment of the three sets of unique identifiers for the Internet:
 - Domain names (forming a system called the DNS)
 - Internet protocol (IP) addresses and autonomous system (AS) numbers
 - Protocol port and parameter numbers
 2. Operation and evolution of the DNS root name server system
 3. Policy development reasonably and appropriately related to these technical functions

Principles of operation

1. Contribute to stability and security of the unique identifiers system and root management
2. Promote competition and choice for registrants and other users
3. Forum for multi-stakeholder bottom-up development of related policy
4. Ensuring on a global basis an opportunity for participation by all interested parties

The Secretariat (People doing the day to day work)

58 Staff from 26 Countries



- The secretariat's work is administration and aiding policy processes.
- We do not set policy, that is the job of the community.
 - So please take part in the dialog

Internet community – a real phenomenon with world changing values

- Bottom-up technical policy-making and decision-making
- Participation open to all who wish to do so
- Legitimacy determined by open participation and the value of the contribution to the joint effort
- Consensus-based decision making
- Cooperation, coordination and consultation among participants and groups pushing initiatives forward
- Yet, **very** spirited and blunt public debate
- Private agreement or contract approach to creating and managing linkages among and to the network
- Global efficiency in the allocation of resources, such as Internet Protocol addresses

ICANN and IPv6

- IPv6 is one of the many Identifiers types that ICANN registers through the IANA function.
- IANA distributes to the Regional Internet Registries who in turn distribute to ISPs.
 - (looking for IPv6 addresses? Go to the APNIC Tutorial)

Five Regional Internet Registries

(AS and IP addresses)

ARIN

- North America – Canada, United States, several islands in the Caribbean Sea and North Atlantic Ocean

RIPE NCC

- Europe
- Middle East
- North Africa
- Parts of Asia

LACNIC

- Latin America
- Caribbean Islands

AfriNIC

- African Region

APNIC

- Most of Asia
- Australia/New Zealand
- Pacific Islands

Current Issue

- Adding AAAA records for the DNS root servers to the root zone, the hints files and the root-servers.net zone.
- Without this we do not have fully functioning DNS for IPv6!

SSAC 019

Offers principles to IANA concerning GLUE (IP addresses for name servers) in the root.

<http://www.icann.org/committee/security/sac019.htm>

More generic than IPv6 but the recommendations are useful for discussions on adding both A and AAAA records.

- Adding 13 AAAA records will push the packet size beyond standard UDP packet limit of 512 bytes.
 - Test show that the widely deployed DNS resolvers supporting IPv6 and are also eDNS0 ready. (Larger packet size accepted)
- Middleware such as firewalls may be an issue?
 - However tests look positive.
- Expecting a recommendation to add root server AAAAs and addition this year!
 - <http://www.icann.org/committee/security/sac018.htm>

- 5 of the root-servers have announced their IPv6 addresses.
 - <http://www.root-servers.org>
- Others have addresses and are at some level of readiness:
 - All the same issues that everyone else comes across with IPv6 deployment.
 - Lack of ISPs willing to provide Native IPv6
 - Equipment that needs upgrading
- Expect their AAAAs in the root zone etc. sooner rather than later!!

Thank You

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