

ICANN and .se

INTERNET DAGARNA 2000

Joyce K. Reynolds
USC/Information Sciences Institute

DNS History

- Before Domain Names, there was HOSTS.TXT (RFC 606)
 - Who
 - What
 - How

HOSTS.TXT

WHO

- SRI-NIC
(SRI International, Network Information Center)
- ARPAnet Community
(Advanced Research Projects Agency)

HOSTS.TXT

- A Host Table utilized by Hostname Server.
- Machine readable ASCII text.

HOSTS.TXT

Examples of Host Table Format

```
NET : 10.0.0.0 : ARPANET :  
NET : 128.10.0.0 : PURDUE-CS-NET :  
GATEWAY : 10.0.0.77, 18.10.04 :  
    MIT-GW.ARPA,  
    MIT-GATEWAY : PDP-11 :  
    MOS : IP/GW, EGP :  
HOST : 26.0.0.73, 10.0.0.51  
    SRI-NIC.ARPA, SRI-NIC, NIC :  
    DEC-2060 : TOPS-20 :  
    TCP/TELNET, TCP/SMTP  
    TCP/TIME, TCP/FTP  
    TCP/ECHO, ICMP :  
HOST : 10.2.0.11 : SU-TAC.ARPA,  
    SU-TAC : C/30 : TAC : TCP :
```

HOSTS.TXT

HOW

- Names and addresses for the hosts and gateways are registered before traffic can be passed.
- Via FTP (File Transfer Protocol)
- User program to name server.
- Copying the whole file by every host every time any change was made.

The Domain Name System

- Internet started to grow after 1983
- HOSTS.TXT table was unwieldy and hard to keep up to date in all hosts
- in 1984/5, Paul Mockapetris and Jon Postel developed a distributed database system called the Domain Name System to accommodate much larger scale

DNS Timeline

- December 1973 – HOSTS.TXT (RFC 606)
- November 1983 – DNS Invented (RFC 882)
- October 1984 – TLDs defined (RFC 920)
- October 1984 – gTLDs established (.com, .org, .mil, .gov, .edu, .net)
- January 1985 – SRI runs DNS service
- July 1985 – ccTLDs established
- November 1987 – DNS Specification (STD 13, RFCs 1034, 1035)
- November 1988 - .int domain established

DNS Timeline

- April 1993 – NSI/InterNIC starts
- June 1994 – Commercial use becomes dominant
- September 1995 – Charging starts
- March 1996 – Begin planning for competition
- May 1997 – MoU signed

Domain Name Management

- Internet Assigned Numbers Authority (Postel's group at USC/ISI) managed top level assignments
- **Volunteers** were found to manage next levels.
- Postel managed .edu, .US
- SRI managed .com, .org, .net, .mil, .gov and .int

Domain names & IP addresses

- Domain names are the familiar, easy-to-remember names for computers on the Internet
 - e.g., amazon.com, icann.org, nic-se.se
- Domain names correlate to Internet Protocol numbers (IP numbers) (e.g., 98.37.241.130) that serve as routing addresses on the Internet
- The domain name system (DNS) translates domain names into IP numbers needed for routing packets of information over the Internet

IANA Policy for Administering the DNS

Top Level Structure of the DNS

- Root – highest level of the system is unnamed
- Top Level Domains (TLDs)
 - ccTLDs
 - gTLDs

Categories of Internet Domains

- Generic Top Level Domains (gTLDs)
 - .com, .net, .org, .gov, .mil, .edu, .int, .arpa
 - .com, .net, .org open for registration by all persons and entities on a global basis
 - Proposals to add many more gTLDs (.shop, .arts, .union, etc.)
- Country Code Top Level Domains (ccTLDs)
 - .se., .uk, .fr, .us, .mx, .ca, .de, etc.
 - Registration requirements vary by domain (many require domicile within the territory or other connection with the territory)
 - Derived from ISO 3166-1 list

The Management of Delegated Domains

- Delegation of a New Top Level Domain
- TLD Manager Responsibility
- Fair Treatment
- Operational Capability
- Transfers and Disputes over Delegations
- Revocation of TLD Delegation
- Subdelegations of Top Level Domains
- Rights to Domain Names
- Users of ISO 3166-1 Table
- Maintenance Procedure for RootZoneFile

Domain Name Issues

- **Uniform Dispute Resolution Policy**
 - Optional, non-binding alternative to court
 - Average time to resolution: 35-40 days
 - Targets abusive, bad-faith cybersquatting
 - Applies to .com, .net, and .org (not ccTLDs)
 - Four providers: National Arbitration Forum, Disputes.org/e-Resolutions; WIPO; CPR

Domain Name Issues

- **Competition in registration services**
 - Pre-ICANN: Monopoly provider (NSI) for .com, .net, .org; minimum cost of US \$70
 - Now: Over 45 competitors worldwide (+ resellers); prices start at US \$10

Domain Name Issues

- **New Top-Level Domains**
 - ICANN Board made resolutions on 16 July 2000

Domain Name Issues

- **Internationalization of DNS character sets**
 - Problem for technical standards bodies (i.e., IETF), not ICANN
 - Need for open standard & interoperability with existing DNS



Jon Postel
1943-1998

Acknowledgements

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For Additional Information

- www.icann.org
- www.iana.org
- www.rfc-editor.org
- www.ietf.org