ICANN Accra Meeting

Orientation Workshop

11 March 2002

8:00-9:00am

Andrew McLaughlin

Vice President and Policy Guy

ICANN

ICANN: The Basic Idea

ICANN =

An Experiment in Technical Self-Management by the global Internet community

ICANN: The Basic Bargain

ICANN =

Internationalization
of Policy & Management Functions
for DNS and IP Addressing
systems

\+

Private Sector
(non-governmental) Management

What does ICANN do?

Coordinates policies relating to the unique assignment of:

- Internet domain names
- Numerical IP Addresses
- Protocol Port and Parameter Numbers

Coordinates the DNS Root Server System

- through Root Server System Advisory Committee

Says *The Economist:*

- "ICANN is in many ways a completely new institutional animal."
- "It is a hybrid between an online community and a real-world governance structure, an untested combination."
- "It is also a new type of international organisation: an industry trying to regulate part of itself, across the globe, with little or no input from national governments."

(10 June 2000)

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.org.gh

- 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

Types of Internet Domains

- Generic Top Level Domains (gTLDs)

  - <.com>, <.net>, <.org> open to all persons and entities on a global basis
  - <.int> for international treaty organizations
  - <.arpa> for Internet Infrastructure purposes
  - <.gov>, <.mil> for U.S. government, military
  - <.edu> for US universities

  - *New*: <.info>, <.biz>, <.name>, <.areo>, <.coop>, <.museum>, <.pro>

More Types of Internet Domains

- Country Code Top Level Domains (ccTLDs)
  - <.gh>, <.hk>,<.jp>, <.ca>, <.br>, <.de>, <.tv>, <.cc> . . .
  - Imprecise name: ccTLD includes *countries* and *geographically distinct territories*
  - Derived from ISO 3166-1 list
  - Key feature: Local Internet community decides
  - Registration requirements vary by domain:
    - Residency requirement
    - Price (or no charge)
    - Ability to transfer
    - Dispute resolution policy

Basic DNS Registry Structure
Example: <.com>

ICANN

(= overalll coordinator)

Root Zone File

Registry

(= authoritative database of domain names and corresponding IP addresses)

Registry <.com>

Shared Registry System (SRS)

Registrars

(= interact with customers/registrants; handle billing; place data in registry database; provide WHOIS service)

Registrar A

Registrar B

Registrar C

Registrants

(= domain name holders)
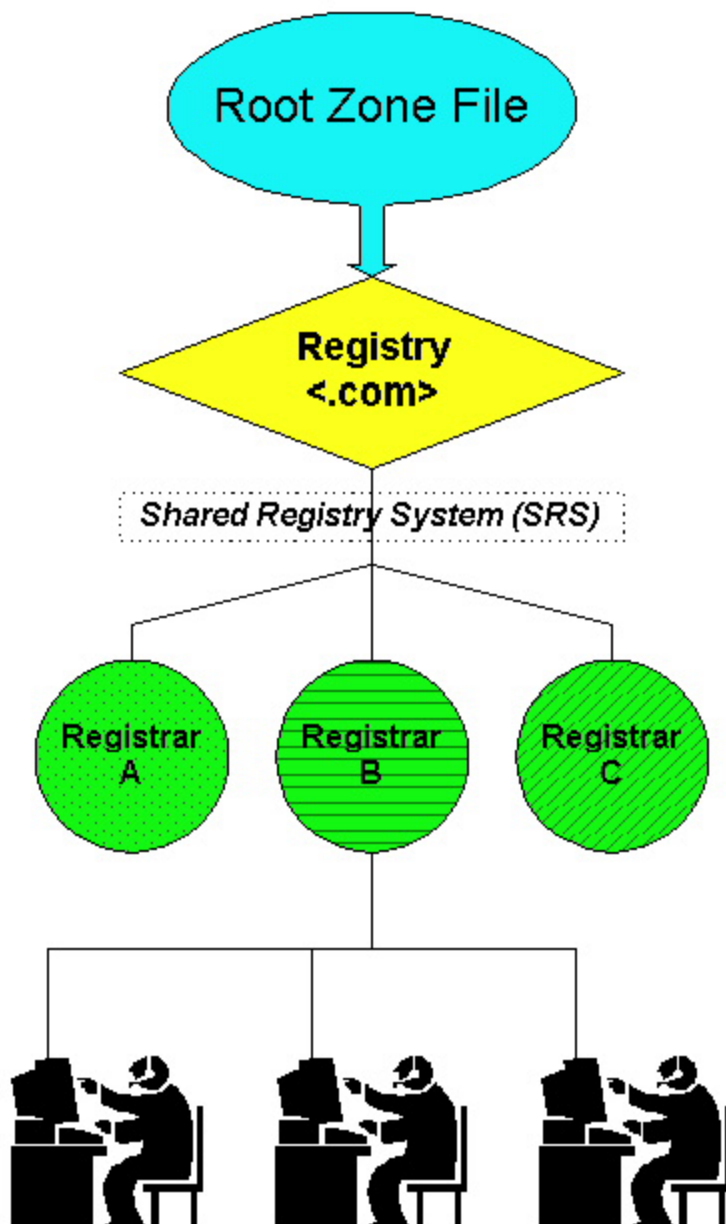
The DNS Tree
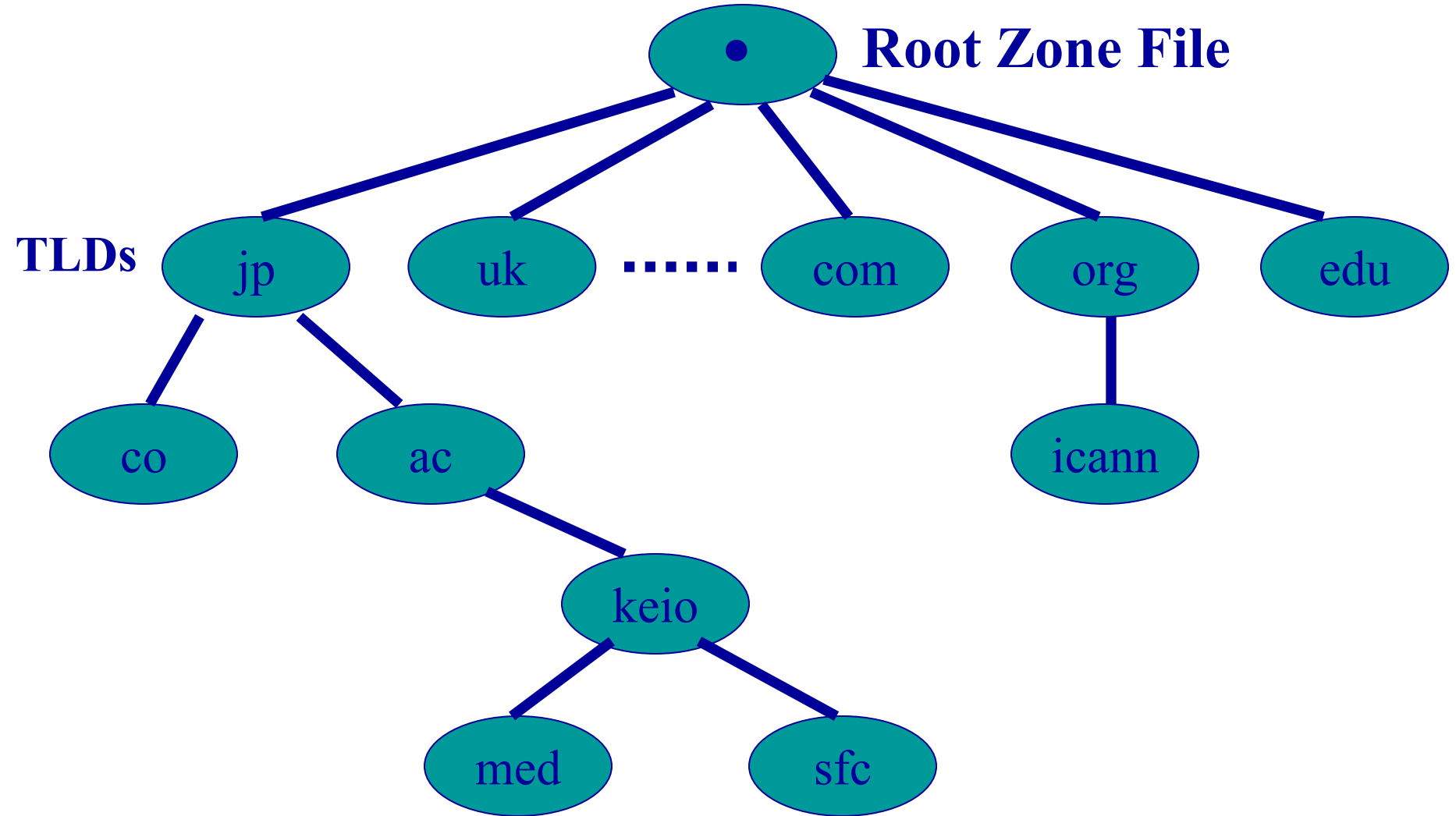
List of the Root Servers

name	org	city
a	NSI	Herndon,VA, US
b	USC-ISI	Marina del Rey,CA, US
c	PSInet	Herndon,VA, US
d	U of Maryland	College Park,MD, US
e	NASA	Mt View, CA, US
f	Internet Software C.	Palo Alto, CA, US
g	DISA	Vienna, VA, US
h	ARL	Aberdeen, MD, US
i	NORDUnet	Stockholm, SE
j	NSI (TBD)	Herndon,VA, US
k	RIPE	London, UK
l	ICANN	Marina del Rey,CA, US
m	WIDE	Tokyo, JP

Map of the Root Servers

Root nameservers
- Status check map -

Root server architecture of today

- Change decision
  - ICANN/IANA
- Verification/approval
  - US Department of Commerce
- Update of the zone file:
  - Zone file management (currently, via A)
  - Synchronized with the database
- Distribution of the zone information
  - To the rest of root servers

Internet Addressing - IPv4

- IPv4 = 32 bits
  - Example: <192.34.0.64>
- Initially, 256 networks … then mix of:
  - Class A (128 with 16 M hosts)
  - Class B (16,384 with 65K hosts)
  - Class C (2M with 256 hosts)
- Now, Classless Inter-Domain addresses
  - Theoretically, up to 4 Billion hosts, hundreds of thousands of networks

Next Generation Internet - IPv6

- IPv6 = 128 bits of addressing
- Theoretically, 10^{38} hosts
- Significant transition effort needed
  - (Sort of like changing engines on the aircraft while in flight)
- IANA officially announced first allocations to RIRs (July 14, 1999)

Regional Internet Registries (RIR)

- **ARIN**
  - North America
  - Latin America
  - Caribbean Islands
  - Sub-Saharan Africa
- **RIPE NCC**
  - Europe
  - Middle East
  - North Africa
  - Parts of Asia
- **APNIC**
  - Most of Asia
  - Australia/New Zealand
  - Pacific Islands

Emerging RIRs

AfriNIC   - Africa

LACNIC   - Latin America/Caribbean

Status Quo Ante ICANN

Most Internet DNS and IP Address coordination functions performed by, or on behalf of, the US government:

- **Defense Advanced Research Projects Agency (DARPA)**
  - Stanford Research Institute (SRI)
  - Information Sciences Institute (ISI) of University of Southern California
- **National Science Foundation (NSF)**
  - IBM, MCI, and Merit
  - AT&T, General Atomics, Network Solutions, Inc. (NSI)
- **National Aeronautics and Space Administration (NASA)**
- **US Department of Energy**

IANA

- "Internet Assigned Numbers Authority"
- A set of technical management functions (root management; IP address bloc allocations) previously performed by the Information Sciences Institute (ISI) at the University of Southern California, under a contract with the U.S. Government
- Also: Protocol parameter and port number assignment functions defined by the Internet Engineering Task Force (IETF)
- Now performed by ICANN

IANA
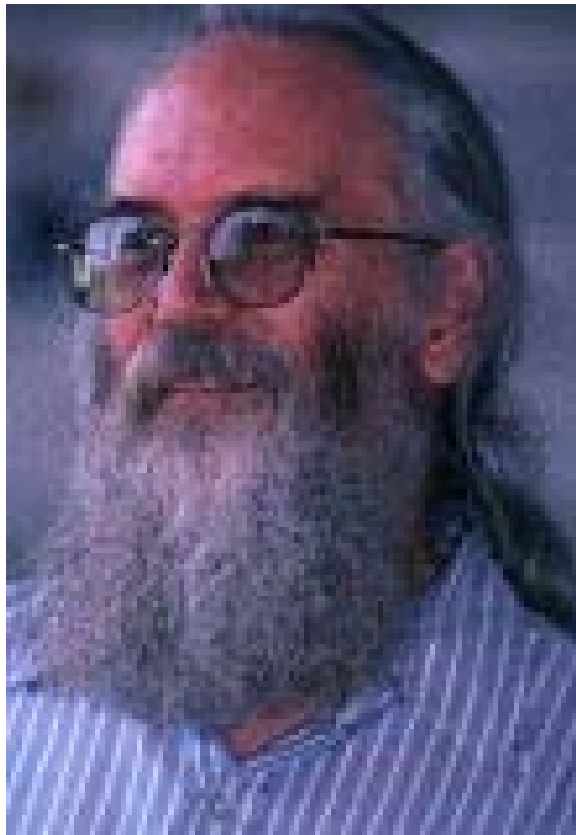
*Jon Postel
1943-1998*

Need for Change

- Globalization of Internet
- Commercialization of Internet
- Need for accountability
- Need for more formalized management structure
- Dissatisfaction with lack of competition
- Trademark/domain name conflicts

White Paper Principles

USG White Paper: new DNS policy & management structure must promote 4 goals:

- ◆ Stability
- ◆ Competition
- ◆ Private, bottom-up coordination
- ◆ Representation

White Paper Implementation

- Internet community to form non-profit corporation meeting White Paper's 4 criteria
- US Government (through Commerce Department) to transition centralized coordination functions
- Amendment of Network Solutions agreement to require competitive registrars in gTLD registries
- Request to WIPO to study & recommend solutions for trademark/domain-name conflicts

Status of Transition from USG

- ✓ 1998
  - ✓ November - ICANN recognized in MoU
- ✓ 1999
  - ✓ June - Cooperative agreement among ICANN, US Government, root server operators
  - ✓ November - ICANN and Network Solutions (NSI) sign gTLD registry and registrar agreements; USG transfers root authority over gTLDs to ICANN
- ✓ 2000
  - ✓ February - Contract with US Government to complete transfer of IANA functions
  - ✓ November - Selection of 7 new Top-Level Domains
- ✓ 2001
  - ✓ January - Transfer of InterNIC functions from NSI to ICANN
  - ✓ September – Agreement with .au Registry
- ✓ 2002
  - ✓ February – Agreement with .jp Registry

ICANN and ccTLDs

- Basic organizing principle: Local Internet communities make decisions about country code TLD Registries (ccTLDs)
- ICANN's role
  - Very hands-off on policy
  - Basic responsibility to delegate ccTLD so as to serve the interests of the local and global Internet communities
  - Coordinate stable root server system
- ccTLD managers' role
  - Technically competent registry and nameserver operations
  - Commitment to administer as trustee for the local community (local laws, culture, customs, preferences, etc.)
- Local government's role
  - Depends on the local situation

ICANN and Global TLDs

- For the global TLDs (such as .com, .net, .org), ICANN serves as the vehicle for consensus policy development
- Examples of policies:
  - Competitive registrars
  - Uniform Dispute Resolution Policy
  - Data Escrow
  - Redemption Period for Deleted Names (?)

New Top-Level Domains

- First group chosen in November 2000
  - Global Open: <.info>, <.biz>
  - Individuals: <.name>, <.pro>
  - Specialized: <.museum>, <.aero>, <.coop>
- Proof of Concept - Launch with caution, observe carefully, learn from experience
  - Selection process was transparent & predictable
- If these are successful, there will be future rounds
  - Goal: Less burdensome, less expensive, more objective
- Biggest challenge: Launch phase
  - *Intellectual Property & cybersquatting fears*
  - *Opening day rush; fairness to everyone*

Top Policy Objectives for Year 2002

- ## ICANN Reform!
  - DNSO Restructuring

- ## Progress toward agreements:
  - ccTLD registry agreements
  - IP Address registry agreements
  - Root server operator agreements

- ## Mechanism(s) for Individual Participation
- ## gTLD Policies
  - UDRP Review
  - Whois Requirements
  - Handling of deleted domain names

Structure of ICANN

ICANN Board of Directors

At Large Directors:

- **Karl Auerbach (USA)**
- **Ivan Moura Campos (Brazil)**
- **Frank Fitzsimmons (USA)**
- **Masanobu Katoh (Japan)**
- **Hans Kraaijenbrink (Netherlands)**
- **Andy Mueller-Maguhn (Germany)**
- **Jun Murai (Japan)**
- **Nii Quaynor (Ghana)**
- **Linda S. Wilson (USA)**

ASO Directors:

- **Rob Blokzijl (Netherlands)**
- **Lyman Chapin (USA)**
- **Sang-Hyon Kyong (South Korea)**

DNSO Directors:

- **Amadeu Abril i Abril (Spain)**
- **Jonathan Cohen (Canada)**
- **Alejandro Pisanty (Mexico)**

PSO Directors:

- **Helmut Schink (Germany)**
- **Vint Cerf (USA) -** *Chairman*
- **Phil Davidson (UK)**

ICANN Staff

New Model: Lightweight
   (minimal staff = minimal bureaucracy)

Current Staff:
- President and CEO (Dr. Stuart Lynn)
- V.P./General Counsel (Louis Touton)
- V.P./Chief Policy Officer (Andrew McLaughlin)
- Counsel for Int'l Legal Affairs (Theresa Swinehart)
- C.F.O. (Diane Schroeder)
- Manager, Technical Operations (John Crain)
- Manager, Technical Systems (Kent Crispin)
- Director of Communications (Mary Hewitt)
- Registrar Liaison (Dan Halloran & Ellen Sondheim)
- ccTLD Liaison (Herbert Vitzthum)
- IANA staff (Michelle Schipper, Bill Huang)
- Network Administrator (Jim Villaruz)

Funding

- ICANN Budget = ~4.5 million US
- Sources of funding: Registry & Registrar agreements
  - gTLD Registries (com, net, org, info, biz, etc.)
  - gTLD Registrars
  - ccTLD Registries (few agreements yet)
  - Regional Internet Registries (when agreements finalized)

At Large Study

- Charge to At Large Study Committee: Study the process, draw lessons, redesign for the future
  - Chair of study committee: Hon. Carl Bildt (Sweden)
  - Vice-chairs: Pindar Wong (Hong Kong S.A.R., China) and Charles Costello (USA, Carter Center)

ICANN = CyberGovernment?

- A: NO!
- ICANN has no inherent coercive power, only the ability to enter into contractual relationships through a process of consensus & consent
- Objectives: Network of agreements, that formalize and make transparent
- ICANN is not a substitute for the powers of governments (i.e., courts and laws)

ICANN = CyberGovernment?

- No: ICANN <u>coordinates</u> unique indentifiers.
- **But**: technical coordination of unique values sometimes touches on non-technical policy interests:
  - Data privacy protection
    - (WHOIS database)
  - Intellectual property/trademark law
    - (UDRP)
  - Competition law
    - (Registrar accreditation for .com, .net, .org)

What ICANN doesn't do

- Network security
- Financial transactions
- Data Privacy
- Internet Content
  - Pornography; hate speech
  - Copyright violations
  - Deceptive business practices / consumer protection
- Multi-national commercial disputes
- Definition of technical standards
  - Network surveillance and traceability
- Internet gambling
- Spam

What ICANN is NOT

- Technical Standard-Setting Body
- Internet Police Force
- Consumer Protection Agency
- Economic Development Agency
- Legislature or Court

What ICANN <u>does</u> do:

- Coordinate the Internet's systems of unique identifiers
  - And address **directly** related policy issues

- Set registry policies for the gTLDs

Lessons from the Experiment?

- **Private-sector self-management is possible, if narrowly chartered**

- **Global consensus on policy is difficult to define; even harder to achieve**
  - Consensus is a tradition in the technical community in which ICANN is rooted, because you can test solutions & refer to objective data
  - Consensus on policy questions can be elusive, because it depends upon subjective values

Message to You:

(and to all Internet communities)

GET INVOLVED!!!

Consensus means you have to
show up to be heard.

www.icann.org

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