

# ICANN Orientation Workshop

## Stockholm Meetings

1 June 2001

9:00-10:00am

**Louis Touton**

Vice President and General  
Counsel



# ICANN: The Basic Idea

**ICANN =**

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

# ICANN: The Basic Bargain

**ICANN =**

Internationalization  
of Policy 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 Address
- 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.or.kr
- 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

# More Types of Internet Domains

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



# Basic DNS Registry Structure

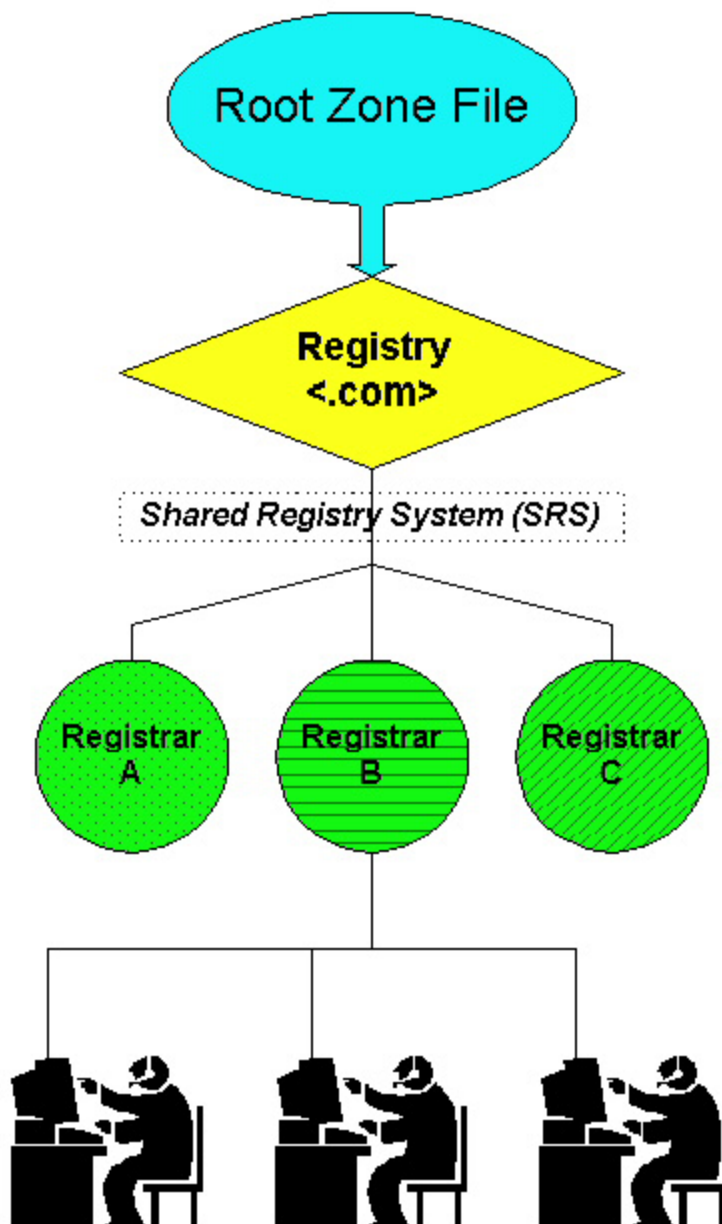
*Example: <.com>*

**ICANN**  
(= overall coordinator)

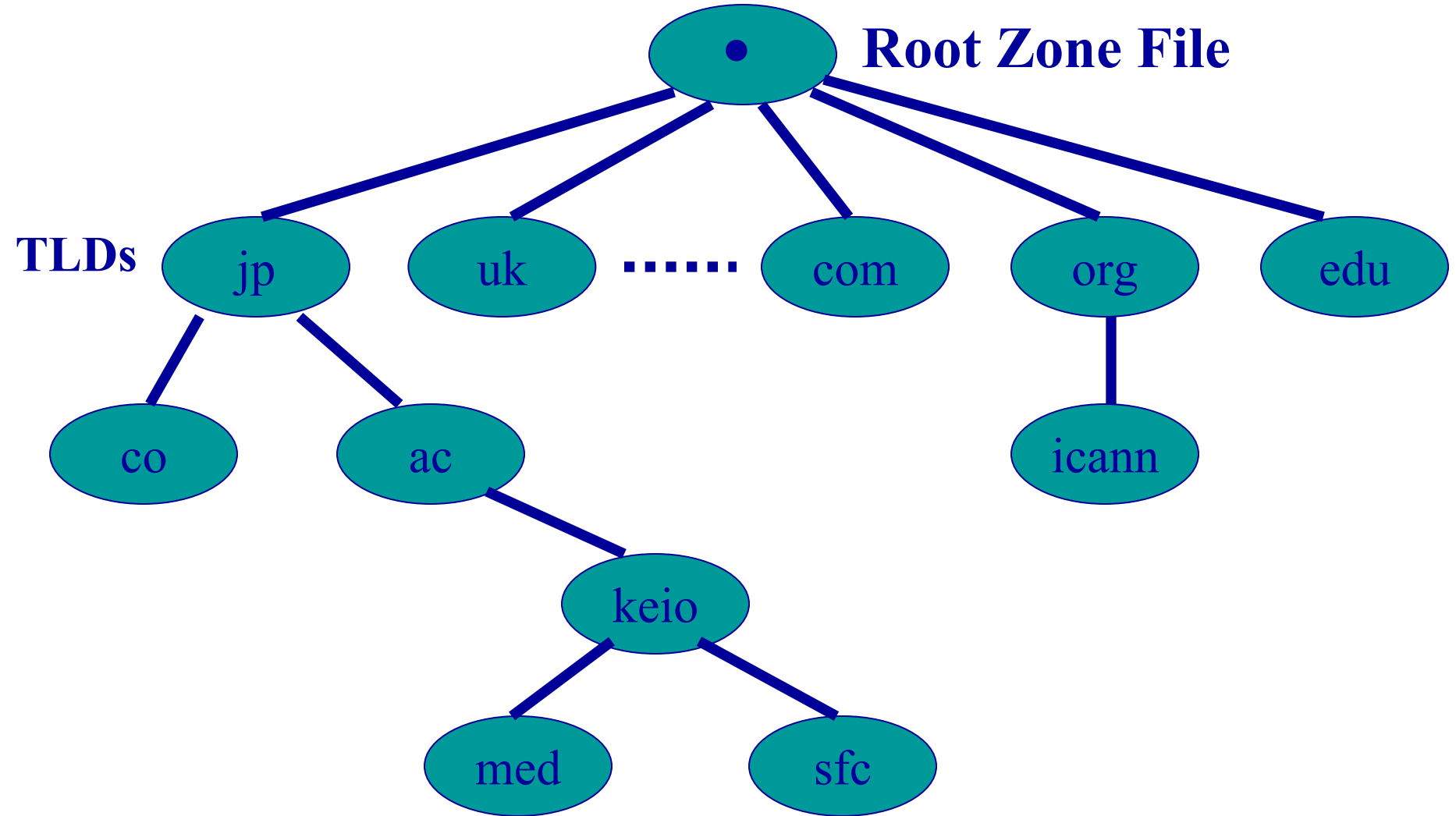
**Registry**  
(= authoritative database of domain names and corresponding IP addresses)

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

**Registrants**  
(= domain name holders)



# The DNS Tree



# List of the Root Servers

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

# Map of the Root Servers



# Root server architecture of today

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

# Improved root server architecture

- Dedicated primary to be responsible for the root zone
  - Will distribute to the 13 root servers
- Extensive technical deliberation and preparation
  - Improve system to be more secure, robust and reliable
  - Change will be transparent to users
- Existing root server operators have agreed
- ‘When’ is subject to operational readiness of the new structure

# 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
- Includes protocol parameter and port number assignment functions defined by the Internet Engineering Task Force (IETF)
- Now a part of 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

White Paper: new 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

- ✓ 25 November, 1998 - ICANN recognized in MoU
- ✓ June, 1999 - Cooperative agreement among ICANN, US Government, root server operators
- ✓ 10 November, 1999
  - ICANN and Network Solutions sign gTLD registry and registrar agreements
  - DoC transfers root authority over gTLDs to ICANN
- ✓ 9 February, 2000
  - Contract with US Government to complete transfer of IANA functions

# 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

# ICANN and Country TLDs

- Basic organizing principle: Local Internet communities make decisions about country code TLDs (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
  - Maintain 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

# 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*
- **Danger: Sleazy pre-registration offers (see FTC Warning)**

# Top Policy Objectives for Year 2001

- Successful introduction of New Top-Level Domains
- Completion of agreements:
  - ccTLD registry agreements
  - IP Address registry agreements
  - Root server operator agreements
- At Large Study
- DNSO Review
- UDRP Review



# Structure of ICANN



# ICANN Board of Directors

## At Large Directors:

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

## ASO Directors:

- Rob Blokzijl (Netherlands)
- Ken Fockler (Canada)
- 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 (U.K.)



# ICANN Staff

New Model: Lightweight

(minimal staff = minimal bureaucracy)

Current Staff:

- ◆ President and CEO (Dr. Stuart Lynn)
- ◆ Vice President/General Counsel (Louis Touton)
- ◆ Chief Policy Officer/CFO (Andrew McLaughlin)
- ◆ Director of Communications (Mary Hewitt)
- ◆ Registrar Liaison (Dan Halloran & Ellen Sondheim)
- ◆ ccTLD Liaison (Herbert Vitzthum)
- ◆ IANA staff (Joyce Reynolds, Michelle Schipper, Bill Huang)
- ◆ Office Manager (Diane Schroeder)
- ◆ Network Administrator (Jim Villaruz)
- ◆ Technical Advisor (Suzanne Woolf)

# Why Elect Directors?

- Accountability
- Transparency
- Representation
  - Geographic
  - Sectoral
- Diversity of views
- Distributed architecture of selection

# At Large Elections 2000

- Free and open to anyone with a verifiable email address and physical address
- Over 158,000 registered to vote; over 70,000 voted
- 5 Directors elected from 5 different regions
  - North America, Latin America, Europe, Africa, and Asia/Australia/Pacific
- Problems: Nationalism, capture, outreach

# At Large Study

- Next steps: 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)

# Does ICANN = Cybergovernment?

- No: ICANN coordinates unique identifiers.
- **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 does do:

- Coordinate the availability of unique identifiers
  - And address **directly** related policy issues

# 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](http://www.icann.org)



# For Further Information:

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<http://www.icann.org>