ICANN: Structure and Issues

TWNIC Symposium

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Chief Policy Officer and CFO

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 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 <u>DNS Root Server System</u>
- through Root Server System Advisory Committee

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
(= 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)
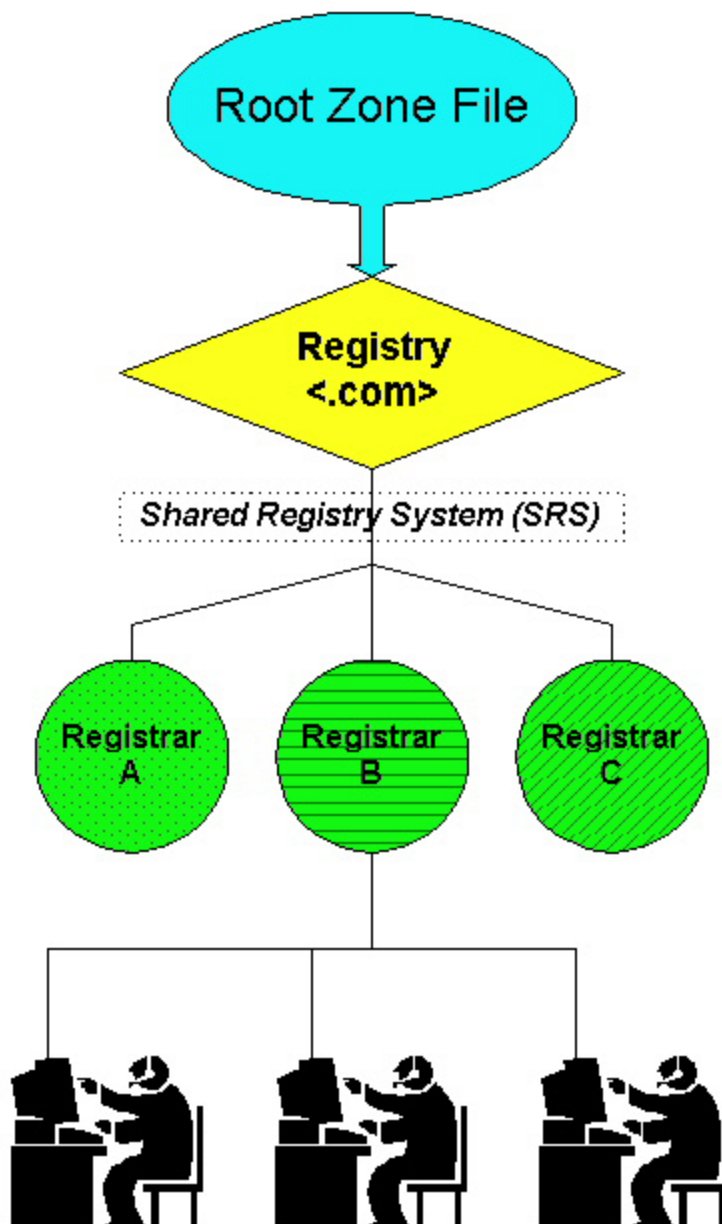
Internet Addressing - IPv4

- 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
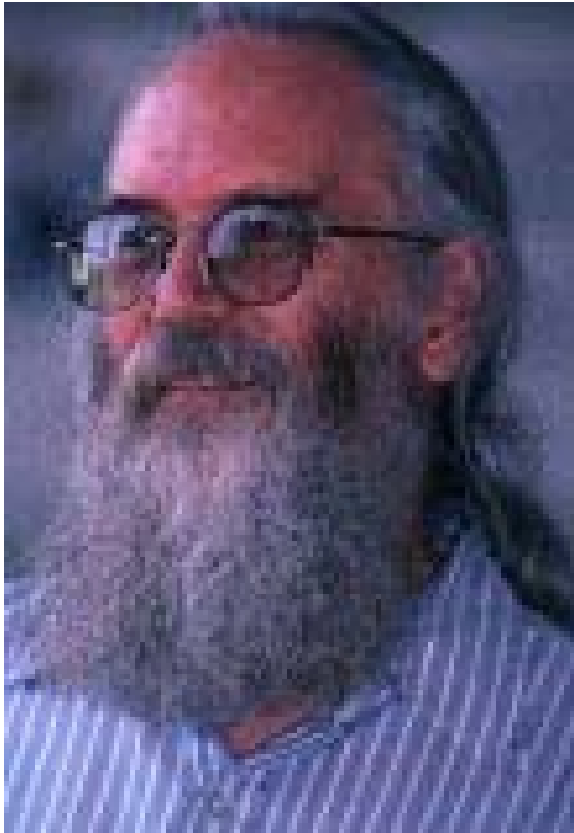
Internet Assigned Numbers Authority

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 to new corporation

- Introduce 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

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
- If successful, there will be future rounds
- Biggest challenge: Launch phase
  - *Intellectual Property & Cybersquatting fears*
  - *Opening day rush & Fairness to everyone*
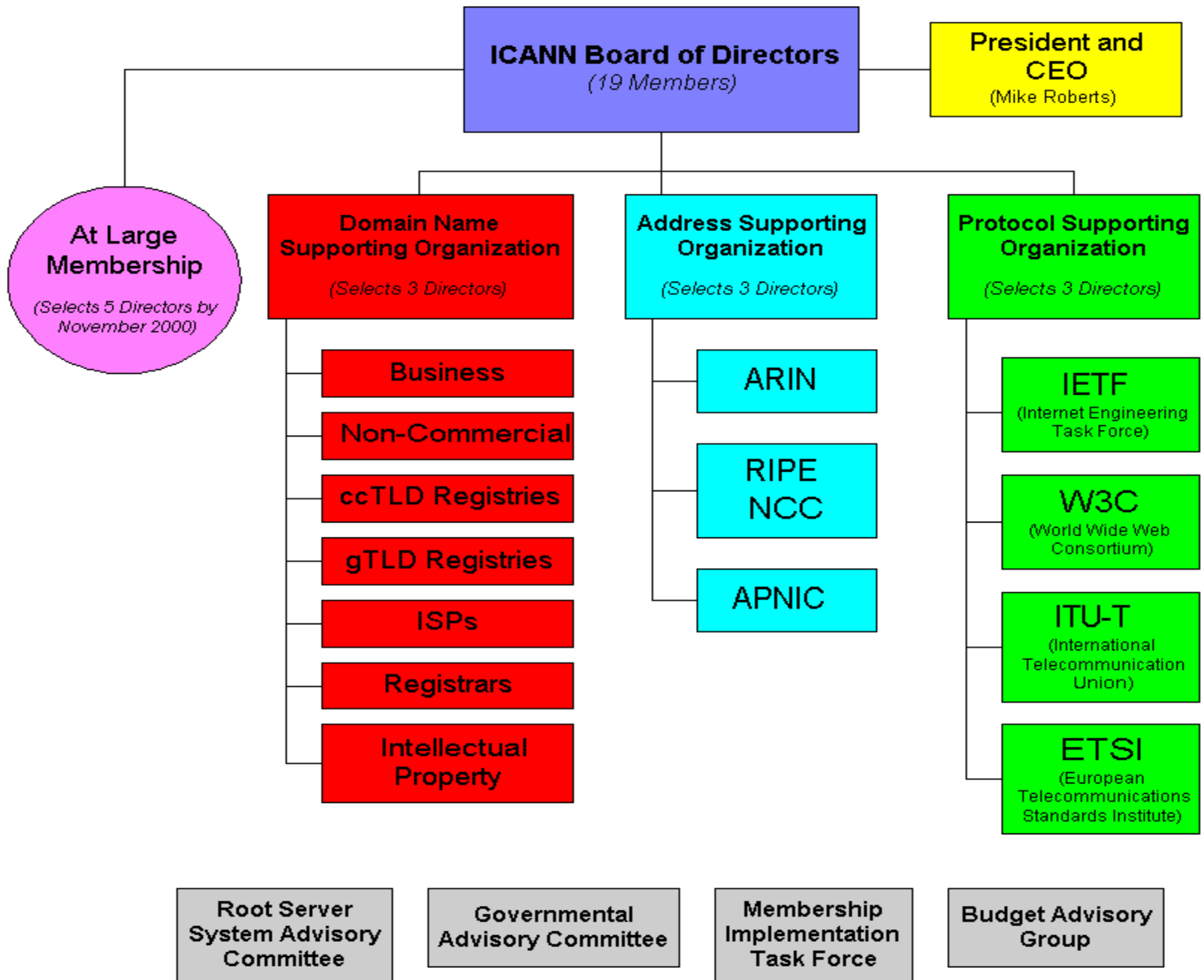- Beware of pre-registration offers!!!

Policy Objectives for Year 2000

- Successful introduction of New Top-Level Domains

- Completion of agreements:
  - ccTLD registry agreements
  - IP Address registry agreements
  - Root server operator agreements

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)**
- **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 (Mike Roberts)
- Vice President/General Counsel (Louis Touton)
- Chief Policy Officer/CFO (Andrew McLaughlin)
- Registrar Liaison (Dan Halloran)
- IANA staff (Joyce Reynolds, Michelle Schipper, Bill Huang)
- Office Manager (Diane Schroeder)
- Network Administrator (Jim Villaruz)
- Technical Advisor (Suzanne Woolf)

What ICANN is NOT

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

Message to You:

BE INVOLVED!

You Must Speak, In Order To Be Heard

ICANN Wants You!

For Further Information:

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