ICANN Overview

Gulf Region Meeting

Dubai

June, 2001

Andrew McLaughlin

Chief Policy Officer and CFO

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

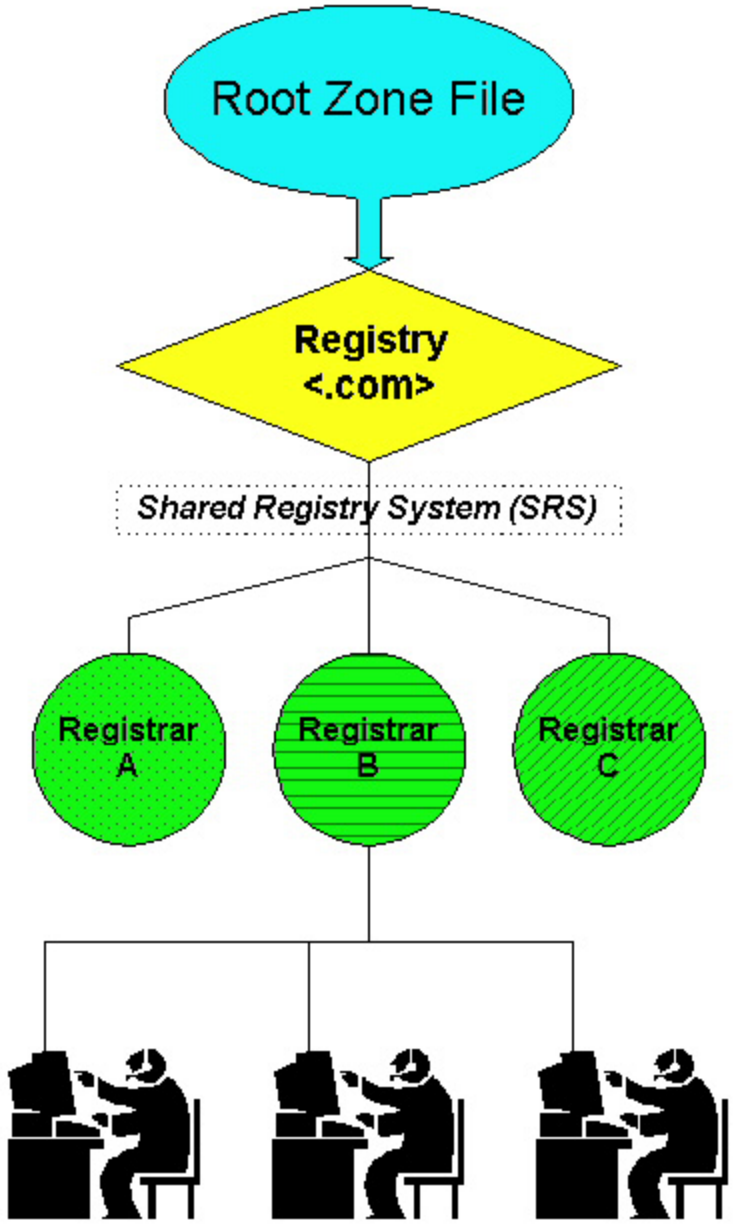
Example: <.com>

ICANN
(= overalll coordinator)

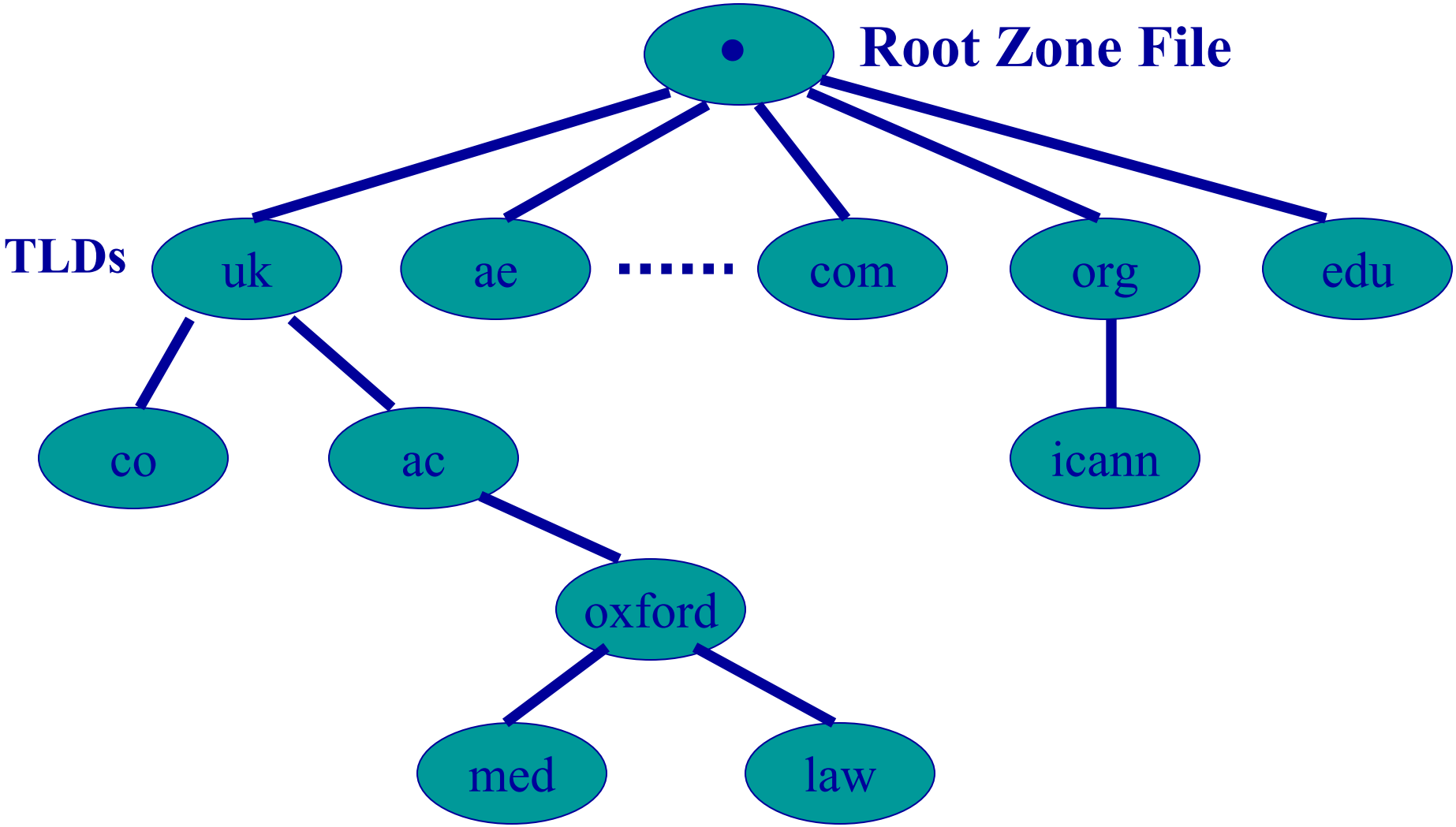
Registry
(= authoritative database of domain names and corresponding IP addresses)

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

Registrants
(= domain name holders)



The DNS Tree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Root Zone File
TLDs
uk
ae
.....
com
org
edu
co
ac
icann
oxford
med
law

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	Herndon,VA, US
k	RIPE	London, UK
l	ICANN	Marina del Rey,CA, US
m	WIDE	Tokyo, JP

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

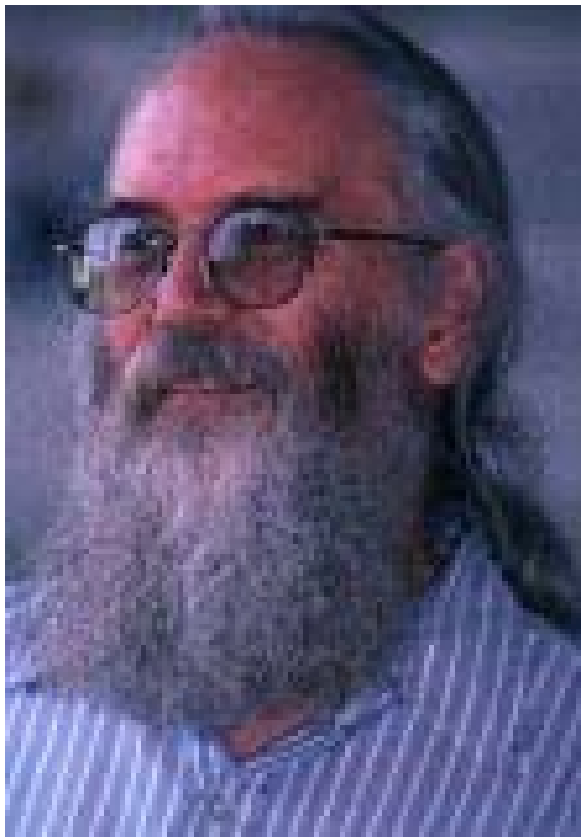
Most Internet DNS and IP Address coordination functions performed by, or on behalf of, the US government:

- **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

- ✓ 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
  - ✓ May - Revision of com/net/org agreements with VeriSign

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

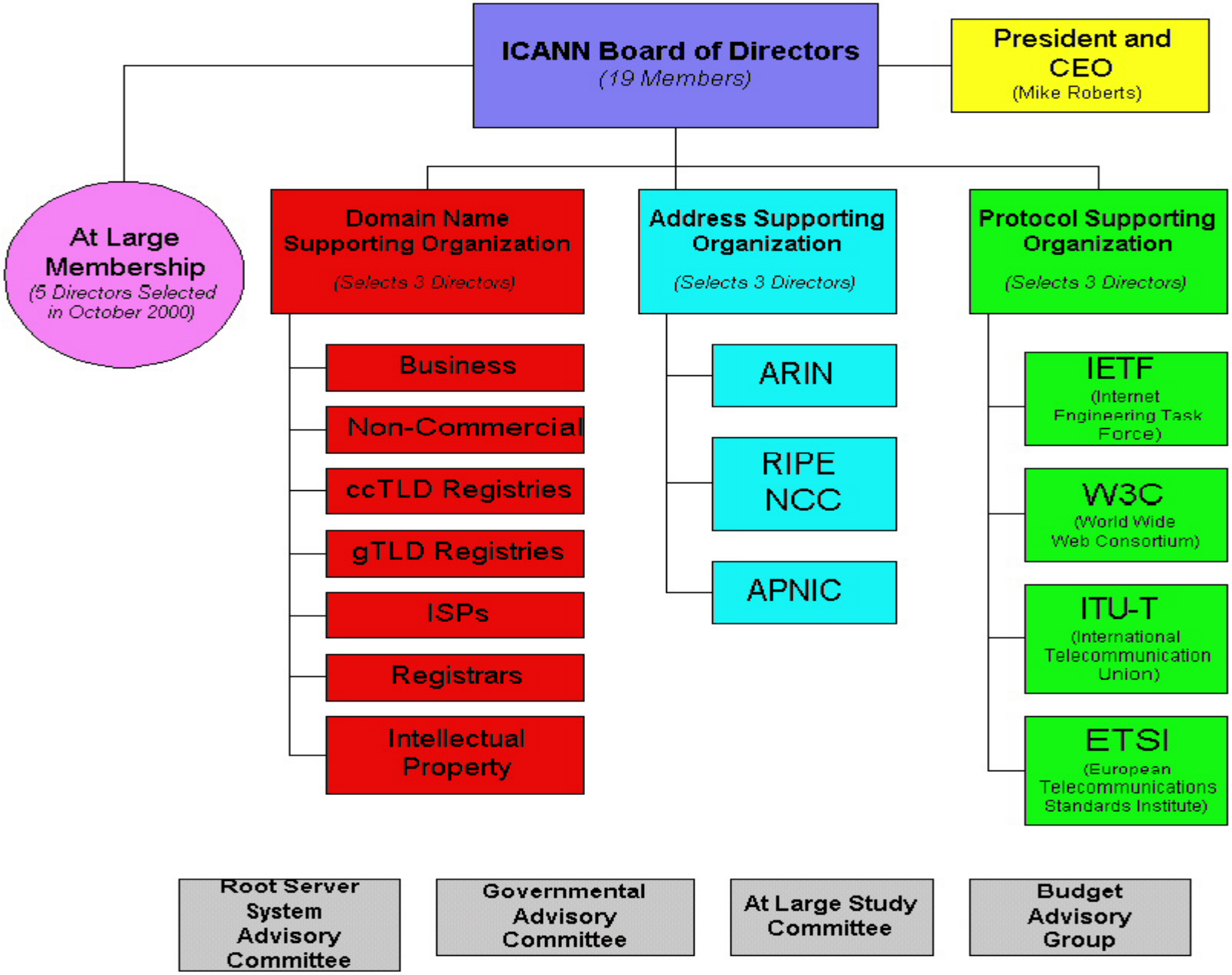
- First group chosen in November 2000
  - Global Open: <.info>, <.biz>
  - Individuals: <.name>, <.pro>
  - Specialized: <.museum>, <.aero>, <.coop>
- Proof of Concept - Launch with caution, observe carefully, learn from experience
  - Selection process was transparent & predictable
- If these are successful, 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 Reform
- UDRP Review
- Whois policy review

Structure of ICANN

ICANN Organizational Chart



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

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)
- <http://www.atlargestudy.org>

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:

BE INVOLVED!!!

Consensus means you have to show up to be heard.

www.icann.org

For Further Information:

Andrew McLaughlin
<ajm@icann.org>

http://www.icann.org