FY13 ICANN Security, Stability & Resiliency Framework

1 June 2012

Part A

ICANN

ICANN is a global organization that coordinates the Internet's unique identifier systems for worldwide public benefit, enabling a single, global interoperable Internet.

ICANN's inclusive multi-stakeholder model and community-developed policies facilitate billions of devices and people into one Internet.

One World

One Internet

Security, Stability & Resiliency

Part A – ICANN's role in SSR and the Internet ecosystem

Executive Summary

The Internet has thrived as an ecosystem engaging many stakeholders organizing through collaboration to foster communication, creativity and commerce in a global commons.

The interoperability of the global commons depends on the operation and coordination of the Internet's unique identifier systems.

ICANN and the operators of these systems acknowledge that maintaining and enhancing the security, stability and resiliency of these systems is a core element of their collaborative relationship.

Security, Stability & Resiliency FY 13 Framework

- The SSR Framework outlines how ICANN will contribute to global efforts in addressing challenges to Internet security, stability and resiliency, focused on its mission related to the Internet's unique identifiers.
- The framework describes the foundation for ICANN's role and boundaries to how it engages in this area; overviews the ecosystem, ICANN community and staff structure, strategic objectives and planned activities through the next operational year.
- The framework provides a roadmap for how ICANN will meet the outlined objectives and activities.

What is new in this document?

- Part A is largely unchanged from the FY 12 Part A
  - Foundational section describing Bylaws, Affirmation of Commitments and Strategic Plan references to SSR; detailing ICANN's role in SSR and its place in the Internet ecosystem
  - Includes updates based on recommendations from the draft report of the Security, Stability & Resiliency Review Team (dated 15 March 2012)

- Part B Module for FY 13 showing operational priorities in SSR

- Status review of FY 12 Activities (as discussed with SSR Review Team in Dakar, that a scorecard would be a new addition for FY 13)

Components of FY13 Framework

PART A – Foundational Section (Ecosystem & ICANN's Role)

Part B – FY 13 Module (Activities & Initiatives)

Status Review of FY 11 & FY 12 Activities

FY 13 SSR Framework – Part A

- Foundational Section – Mission, Core Values, Affirmation
- Ecosystem and ICANN's role

Foundational – ICANN's Mission

The mission of ICANN is to coordinate, at the overall level,

the global Internet's

systems of unique identifiers,

and in particular, to ensure the stable and secure operation

of the Internet's unique identifier systems.

Source: ICANN Bylaws as amended 16 March 2012

Global Mission, Guided by Core Values

#1 - Preserving and enhancing the operational stability, reliability, security, and global interoperability of the Internet

Source: http://www.icann.org/en/general/bylaws.htm#I

Acknowledged in the Affirmation of Commitments: "global technical coordination of the Internet's underlying infrastructure – the DNS – is required to ensure interoperability"

Foundational – ICANN's Role

ICANN acts within its bylaws to support a multi-stakeholder model collaborating to ensure the security, stability and resiliency of the Internet's system of unique identifiers.

Security is central to ICANN's mission.

Terminology

- Security – the capacity to protect and prevent misuse of Internet unique identifiers.
- Stability – the capacity to ensure that the system operates as expected, and that users of the unique identifiers have confidence that the system operates as expected.
- Resiliency – the capacity of the unique identifier system to effectively withstand/tolerate/survive malicious attacks and other disruptive events without disruption or cessation of service.

Note – Definitions were from the 2009, 2010 SSR Plans & FY 12 SSR Framework. Minor wording edits for FY 13 (“identifiers in first bullet, removing “system” from unique identifiers in 2nd, revised Resiliency definition)

Terminology

To coordinate means to actively engage with stakeholders in the global Internet ecosystem to ensure

- Allocation of the Internet's unique identifiers
- Security, stability and resiliency of the Internet's unique identifiers, and
- Operational and policy development functions of the Internet's unique identifiers

Is conducted in an open, accountable and transparent manner and inclusive of the diversity of stakeholders in the ecosystem.

Challenge

- Misuse of and attacks against the DNS and other Internet infrastructures challenge overall unique identifier security. DNS attacks target individuals, corporations, civil society and governments.
- As the frequency and sophistication of disruptive events and other malicious behaviour increases, ICANN and the global community must continue to collaborate toward improving the resilience of the unique identifier systems and strengthen its capabilities.

Evolving Environment

Over the last year, there have been a variety of events that have raised the profile of impacts on the DNS:

- Continued adoption of DNSSEC by TLD operators, ISPs
- Expiration of the free pool of IPv4 address space and growth in IPv6 use
- Growth in IDN ccTLDs; Launch of the New gTLD process
- DNS filtering and blocking legislation
- Government interventions
- Increasing sophistication of denial of service attacks by groups

[Note – This is a new slide since the FY 12 Framework]

Developments Over Last Year

- US International Strategy for Cyberspace (16 May 2011) - http://www.whitehouse.gov/sites/default/files/rss_viewer/internationalstrategy_cyberspace.pdf
- G8-G20 Deauville Declaration (26-27 May 2011) - http://www.g20-g8.com/g8-g20/g8/english/live/news/renewed-commitment-for-freedom-and-democracy.1314.html
- EU Commissioner Neelie Kroes' Compact for the Internet (28 June 2011) - http://blogs.ec.europa.eu/neelie-kroes/i-propose-a-compact-for-the-internet/
- OECD Principles for Internet Policy-Making (28-29 June 2011) - http://www.oecd.org/dataoecd/33/12/48387430.pdf
- Council of Europe Principles for Internet Governance (21 Sept 2011) - https://wcd.coe.int/ViewDoc.jsp?id=1835773
- London Conference on Cyberspace (1-2 Nov 2011) - http://www.fco.gov.uk/en/global-issues/london-conference-cyberspace/
- World Economic Forum Principles for Cyber Resilience (27 Jan 2012) - http://www.weforum.org/issues/partnering-cyber-resilience-pcr

Affirmation of Commitments

- 3(b) Preserve the security, stability and resiliency of the DNS
  - ICANN has adopted an SSR Plan, which will be regularly updated to reflect emerging threats to the DNS [including unique identifiers, not just DNS]
  - This will be reviewed no less than every three years

Affirmation of Commitments by the US Department of Commerce and ICANN, signed 30 September 2009. This "institutionalized and memorialized the technical coordination of the Internet's domain name and addressing system (DNS) globally by a private sector led organization."

First SSR Review

Security, Stability & Resiliency Review Team (SSR RT) under the Affirmation of Commitments commenced its work in October 2010.

SSR RT published a draft report on 15 March 2012 (see http://www.icann.org/en/reviews/affirmation/ssrt-draft-report-15mar12-en.pdf)

- 28 recommendations on ICANN's management of its SSR-related functions, including publishing "a single, clear and consistent statement of its SSR remit and limited technical mission."

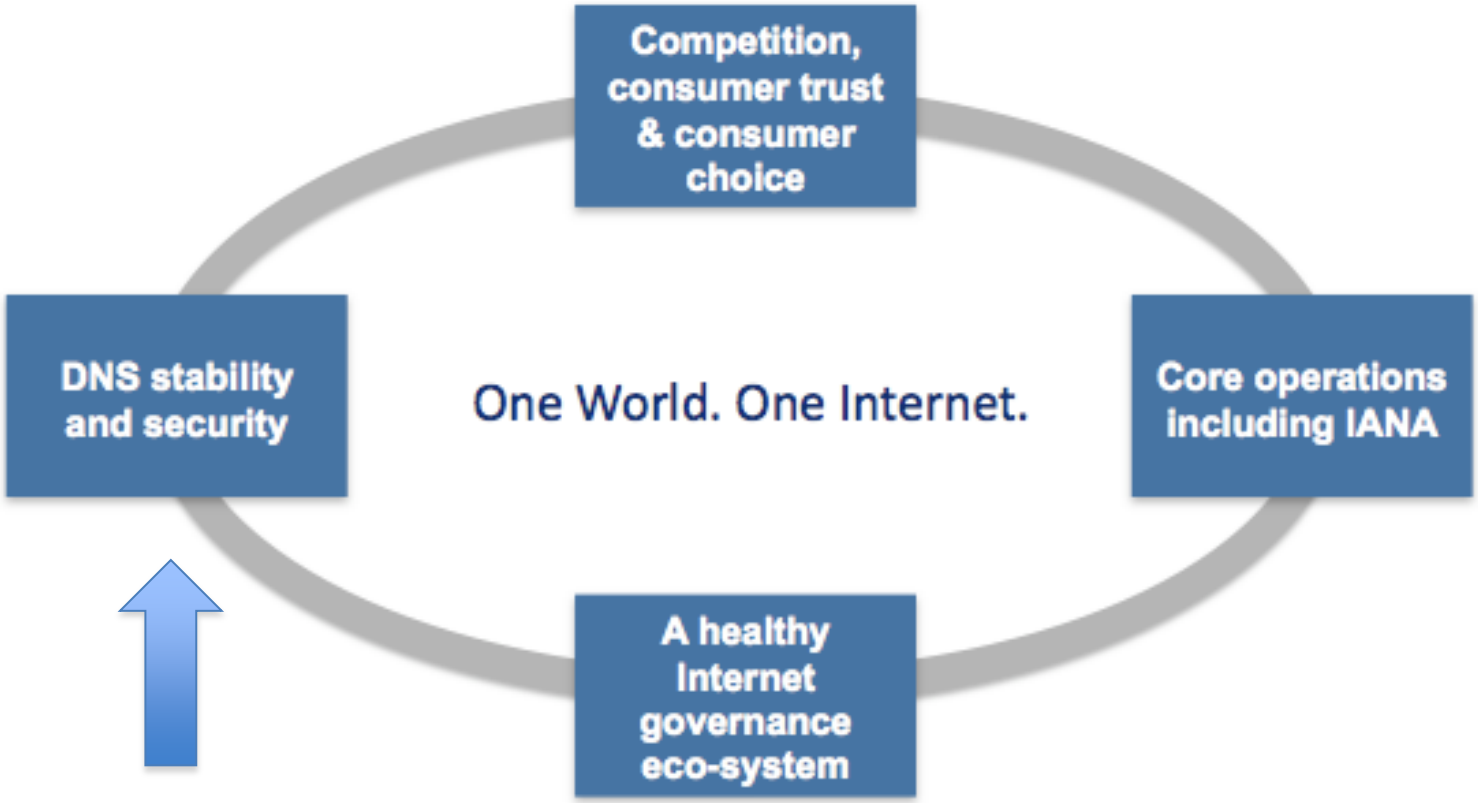
Previous Plans, Framework

- May 2009 (covered FY 10) – accepted by the ICANN Board in Sydney, June 2009
  - https://www.icann.org/en/topics/ssr/ssr-draft-plan-16may09-en.pdf
  - http://www.icann.org/en/minutes/resolutions-26jun09.htm#1.7
- Sept 2010 (covered FY 11) – accepted by the ICANN Board in Cartagena, Dec 2010
  - https://www.icann.org/en/topics/ssr/ssr-plan-fy11-clean-23nov10-en.pdf
  - http://www.icann.org/en/minutes/resolutions-10dec10-en.htm#1.8
- May 2011 (covered FY 12) – acknowledged by Board on 28 July 2011
  - http://www.icann.org/en/minutes/resolutions-28jul11-en.htm#2

Timing for FY 13 Framework

- Advance draft copy to SSR RT, Feb 2012
- Initial review by SSAC and small expert group; consultations – Apr, May 2012
- Publication 1 June 2012
- Comments to 2 July 2012; reply comment to 3 August 2012
- Community briefings before & during ICANN 44 in Prague

2012-15 Strategic Plan Areas



2012-15 Strategic Objectives - SSR

1. Maintain and drive DNS availability
2. Enhance risk management & resiliency of the DNS, IP addresses & parameters
3. Promote broad DNSSEC adoption
4. Enhance international DNS cooperation
5. Improve responses to DNS security incidents

FY13 SSR Framework – Part A

- Foundational Section – Mission, Core Values, Affirmation
- Ecosystem and ICANN's role

The Ecosystem

- ICANN operates for the benefit of the Internet community as a whole. The public is a diverse and disparate collection of communities knitted together by the Internet and operating as a complex ecosystem.
- The Internet has become an essential enabler for global information and education exchange, commerce and governance. It is recognized as a major driver of the global economy, growth and innovation.

International aspects of the ICANN model

- Supporting a global, single interoperable Internet and unique identifiers (Bylaws)
- Supporting global, technical coordination of the DNS, in the public interest (Affirmation of Commitments)
- Facilitating international participation in DNS coordination (Affirmation of Commitments)
- Through policy development in DNS technical coordination (Affirmation of Commitments)

Ecosystem & ICANN's role

- To ensure a single, global interoperable Internet, ICANN's security, stability and resiliency role encompasses three categories of responsibility:

  1. ICANN's operational & stewardship responsibilities (internal operations including L-root & DNS Operations, DNSSEC key signing operations, IANA functions, new gTLD operations);

  2. ICANN's involvement as a coordinator, collaborator and facilitator with the global community in policy and technical matters related to the Internet's unique identifiers;

  3. ICANN's engagement with others in the global Internet ecosystem.

ICANN's Technical Mission

- Coordinating the allocation of the Internet's unique identifier systems [domain names, Internet Protocol (IP) addresses, autonomous system (AS) numbers and protocol port and parameter numbers];
- Coordinating and facilitating the stability, security and resiliency of these systems in policy development;
- Collaborating in the technical protocol development of these systems;
- Maintaining and operating the L-root server as a steward for the community;
- Managing ICANN's operations and internal systems; and
- Providing a publicly accessible information resource on these functions for the greater Internet community.

Ecosystem & ICANN's role

- ICANN does not play a role in policing the Internet or operationally combating criminal behaviour.
- ICANN does not have a role in the use of the Internet related to cyber-espionage and cyber war.
- ICANN does not have a role in determining what constitutes illicit conduct on the Internet.

Ecosystem & ICANN's role

- ICANN is not
  - A law enforcement agency
  - A court of law
  - Government agency
- ICANN cannot unilaterally
  - Suspend domain names
  - Transfer domain names
  - Immediately terminate a registrar's contract (except under limited circumstances
- ICANN is able to enforce its contracts on registries & registrars

Responsibilities

- ICANN is responsible for Internet Assigned Numbers Authority (IANA) functions operations. Ensuring secure, stable and resilient operation of the DNS root zone function has been, and will remain, the highest priority.
- ICANN is an enabler for the DNS and addressing community efforts to strengthen SSR foundations of the system. Such efforts will include supporting the development of protocols and supporting technologies to authenticate Internet names and numbers.
- ICANN is an enabler and facilitator of the SSR activities conducted by DNS registries, registrars and other members of the community.

Responsibilities

- ICANN is responsible for the secure, stable and resilient operation of its own assets and services.
  - ICANN has a Security team, led by its VP & Chief Security Officer Jeff Moss
  - ICANN maintains an internal Computer Incident Response Team, https://www.icann.org/en/cirt/, and is a member of FIRST
  - Supports annual updating of ICANN security plans and effective security controls and procedures
  - Ensures internal staff have strong skills, appropriate tools and are current with security threats and best practices
  - This work includes stable, continuous L-root operations; DNSSEC key management.

Ecosystem Layers

- Global Community – those who rely on the secure & stable functions of the Internet's unique identifier systems, but may not be aware of or participate in ICANN
- ICANN Community – greater community of actors involved in ICANN programs, processes and activities who drive the multi-stakeholder, private-sector led policy development model for the benefit of global Internet users
- ICANN Organizational Operations/Staff – the operational structures, processes and supporting staff of ICANN as an organization

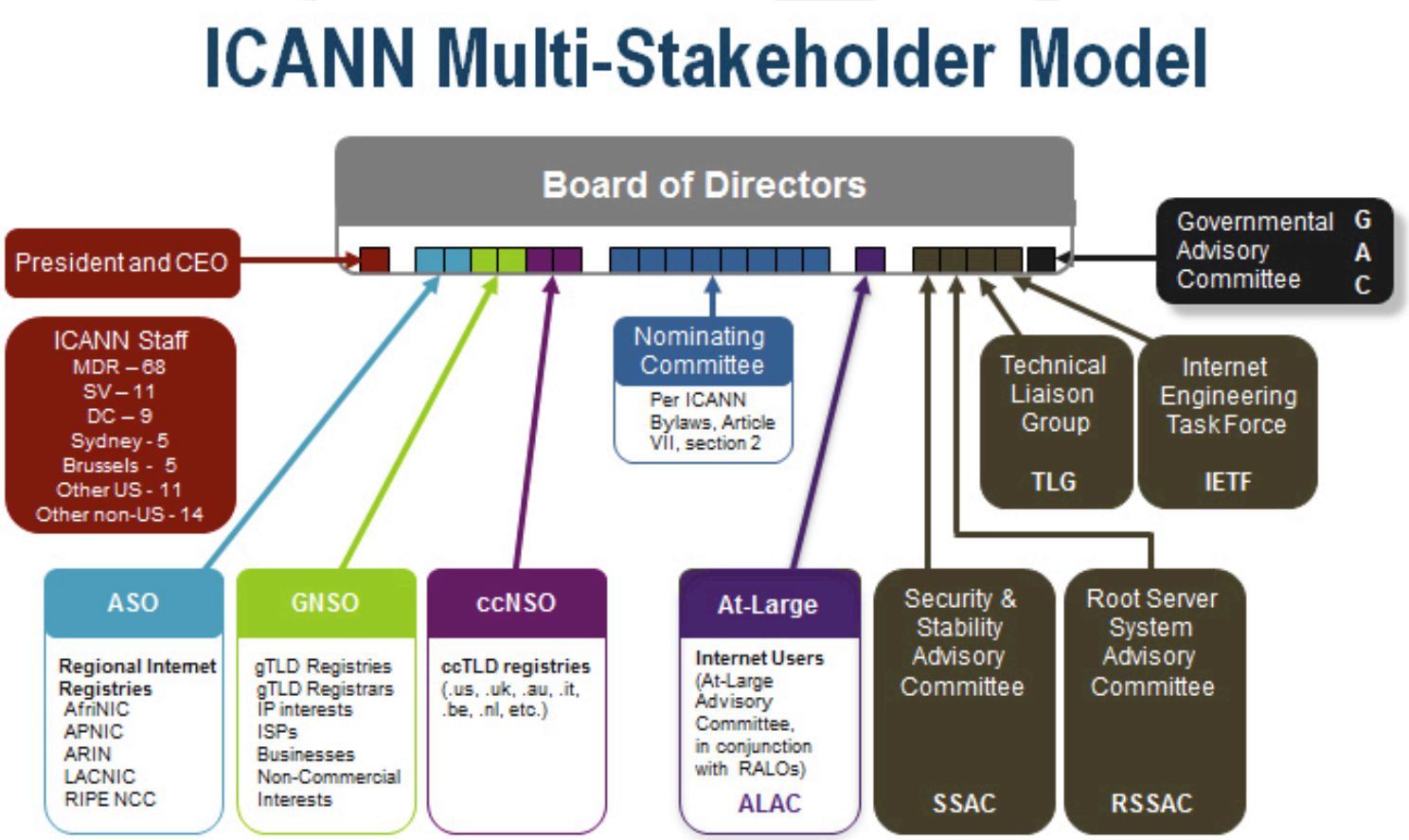
Ecosystem Participants

- Technical Community
- Infrastructure Providers
- Governments & NGOs
- Business
- Noncommercial & Academic
- Users/At-Large
- Law Enforcement & Operational Security

Examples of SSR Activity & the Ecosystem

- Nov 2001- International public meeting focused on Security and Stability of the Internet Naming and Address Allocation System
- 2002 - Security and Stability Advisory Committee formed, continues to this day (http://icann.org/en/committees/security/)
- Supporting tech days with the ccTLD community at ICANN meetings since 2006
- Annual contingency exercises since 2008
- Conficker Working Group, 2008-present
- Global DNS SSR Symposia: 2009 (Atlanta), 2010 (Kyoto), 2011 (Rome)
- Collaborated on signing of the root zone with DNSSEC in 2010 (http://root-dnssec.org)

ICANN Organization



ICANN Community Structures

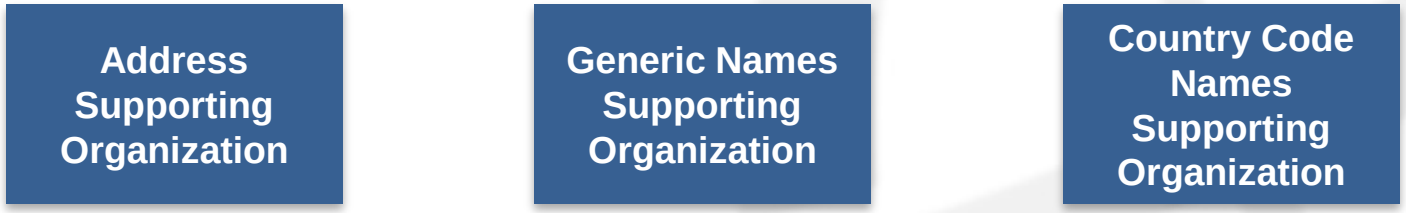
- Advisory Committees advise the ICANN Board, provide input into policy development processes and support community engagement on issues under consideration.

Security & Stability Advisory Committee

- Advises the ICANN community and Board on matters relating to the security and integrity of the Internet's unique identifiers.
  - Chair – Patrik Fältström (Netnod)
  - Vice Chair – James Galvin (Afilias)
  - Members represent a broad spectrum of the technical & security expert community (see http://www.icann.org/en/committees/security/)
- SSAC Work Plan for 2012: http://www.icann.org/en/groups/ssac/workplan-activities/ssac-activity-report-09mar12-en.pdf
- SSAC Documents: http://www.icann.org/en/committees/security/ssac-documents.htm

ICANN Community Structures

- Supporting Organizations



- Stakeholder Groups
- Constituencies

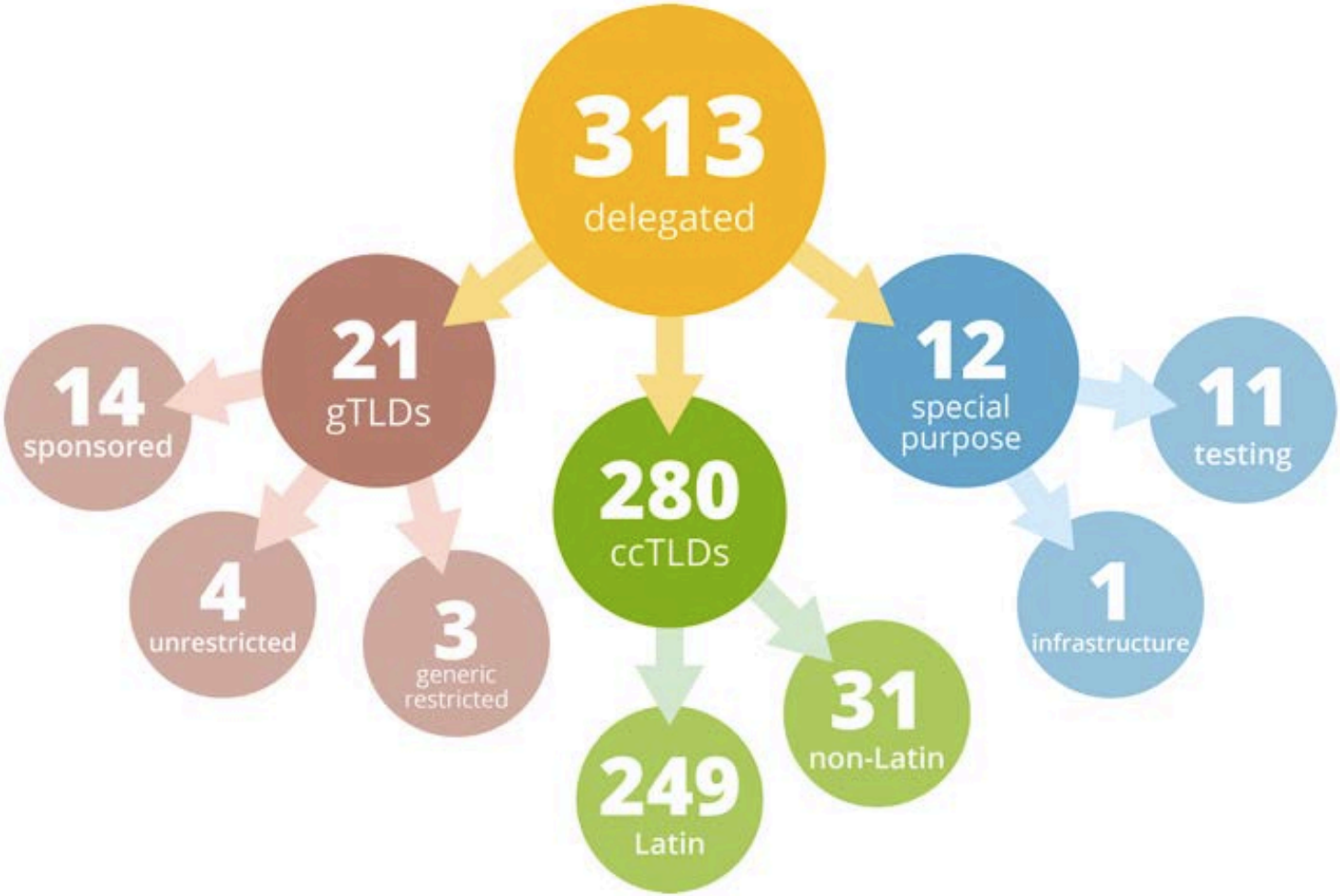
Agreements, Partnerships

- Affirmation of Commitments – US Department of Commerce
- IANA functions contract
- Internet Engineering Task Force MOU; Internet Architecture Board
- Number Resource Organization (NRO) MOU
- ccTLD Registry, Sponsorship, Accountability Frameworks and Exchange of Letters
- gTLD Registry Agreements
- Registrar Accreditation Agreements
- Escrow Agreements

Agreements, Partnerships

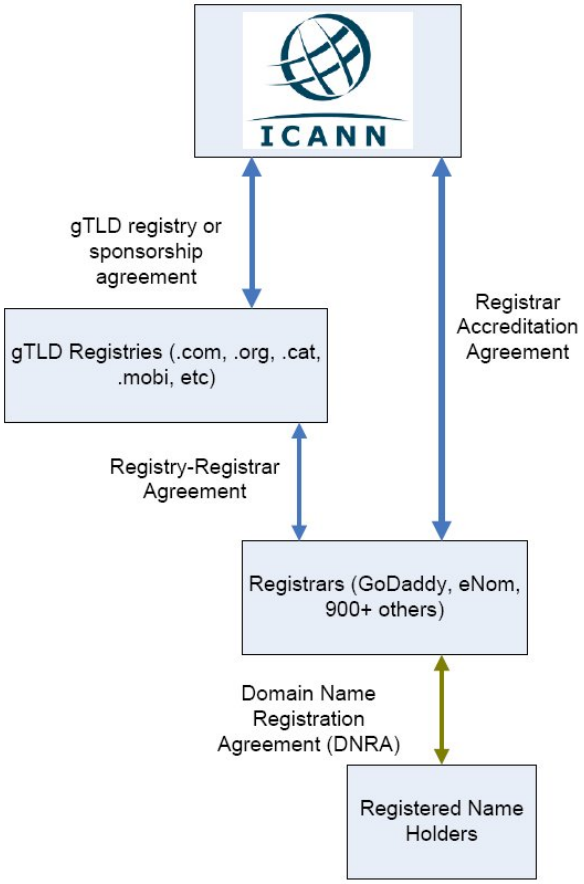
- UNESCO
- Russian Association of Networks and Services (RANS)
- Lomonosov Moscow State University Institute for Information Security Issues (IISI)
- Inter-American Telecommunications Commission of the Organization of American States (CITEL)
- African Telecommunications Union
- UN-ESCWA
- Commonwealth Telecommunications Organization
- Pacific Islands Telecommunications Association

Top-Level Domains (as of 1 June 2012)



Contracted Parties

Parties in the domain registration process must work together to ensure decisions made related to the global technical coordination of the DNS are made in the public interest and are accountable and transparent.



Non Contracted Partners

- Internet Society (ISOC)
- Network Startup Resource Center (NSRC)
- Regional TLD organizations (AfTLD, APTLD, LACTLD, CENTR)
- UN Group of Experts on Geographic Names (UNGEGN)
- International Telecommunication Union (ITU), World Wide Web Consortium (W3C), European Telecommunications Standards Institute (ETSI)
- Domain Name Dispute Resolution Providers
  - Asian Domain Name Dispute Resolution Centre
  - Czech Arbitration Court
  - World Intellectual Property Organization
  - National Arbitration Forum

Non Contracted Partners

- Regional Internet Registries (AfriNIC, APNIC, ARIN, LACNIC, RIPE NCC)
- International Organization for Standardization (ISO)
- Network Operator Groups
- DNS-OARC
- European Network and Information Security Agency (ENISA)
- Internet Governance Forum
- Forum for Incident Response and Security Teams (FIRST)
- Commonwealth Cybercrime Initiative

Others in the Ecosystem

- IT Sector Coordinating Council
- Anti Phishing Working Group
- Messaging Anti Abuse Working Group
- Security Trusted Communities
- Computer Emergency Response Teams
- Research & Academic institutions
- Law enforcement entities

Note – this list is representative and not intended to cover the full field of ecosystem participants

ICANN Organization/Staff

- Executive
- Human Resources/Administrative/Finance
- Legal and Compliance
- Global Partnerships/Government Affairs/Regional Vice Presidents
- Security
- IANA, DNS Operations (includes L-root) and IT
- Communications, Marketing, Meetings
- Policy Development
- Stakeholder Relations
- New gTLD Operations

Basic organizational structure – globally distributed staff supporting thousands of volunteers

Global Reach to Support Community

- Engaging with community & supporting SSR activities from ICANN office locations

Los Angeles, California

Brussels, Belgium

Sydney, Australia

Palo Alto, California

Washington, DC

Home Office Locations Worldwide

One World

One Internet

More Information: icann.org/en/security

Continue to Part B – FY 13 SSR Module