

RSSAC

.... and more

9 July 2024
@APIGA

Hiro Hotta, JPRS

Who I am

- Name
 - Hiro Hotta
- Affiliation
 - JPRS (Japan Registry Services Co., Ltd.)
- What roles JPRS plays
 - ccTLD manager of .jp
 - gTLD registrar of .com, .net, .asia, ..
 - gTLD registry services provider (for brand owners)
 - server certificate issuer
 - **RSO** (operating M-Root DNS) together with WIDE project
- My positions in ICANN
 - Former ccNSO Councilor
 - **RSSAC** member (a representative from an RSO)
 - **RSS GWG** member (a representative from an RSO)

RSO : Root Server Operator

RSSAC

(Root Server System Advisory Committee)

- RSSAC advises the ICANN Board and community on matters related to the operation, administration, security, and integrity of the RSS

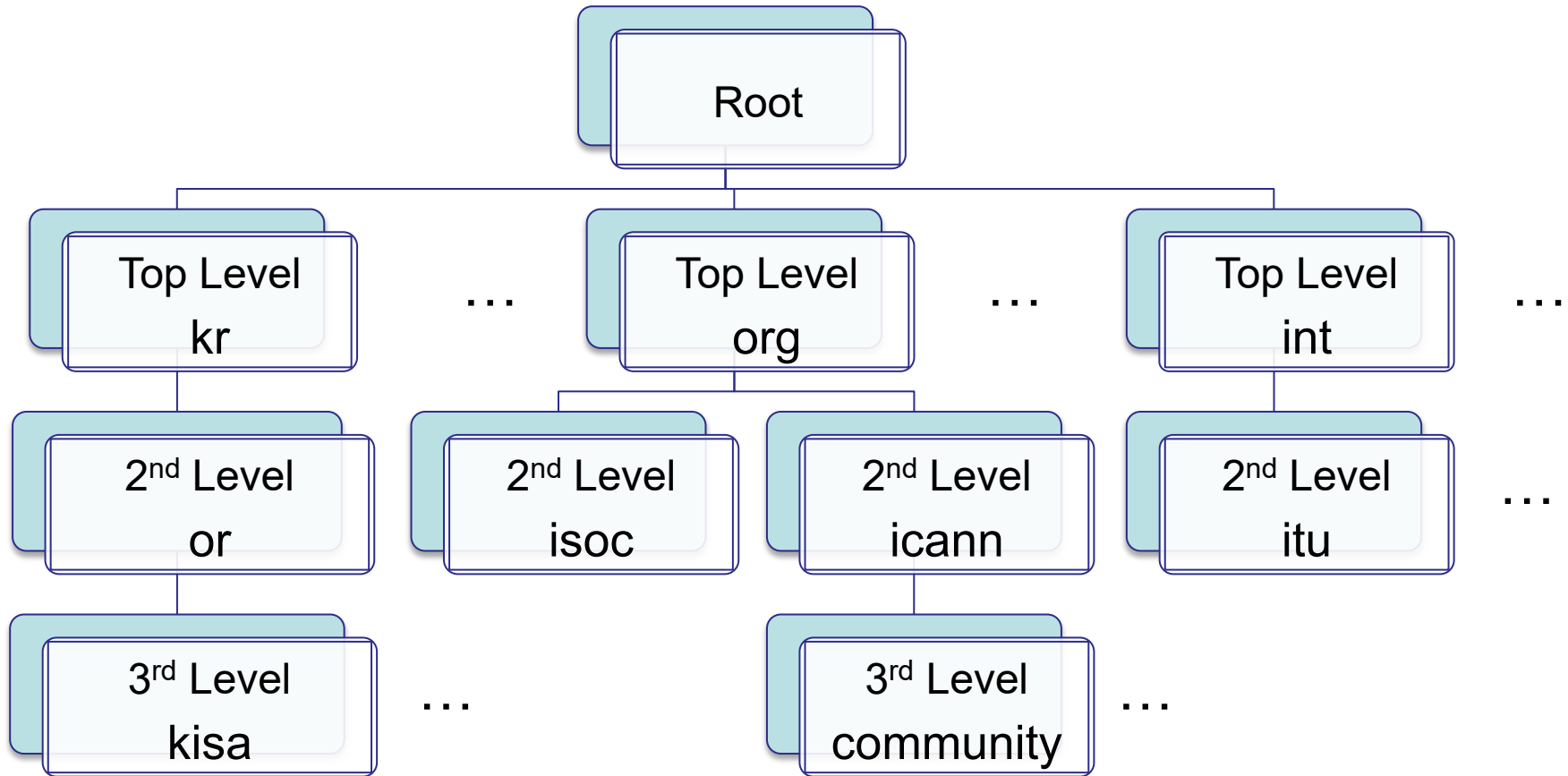
RSS : Root Server System

RSSAC Members

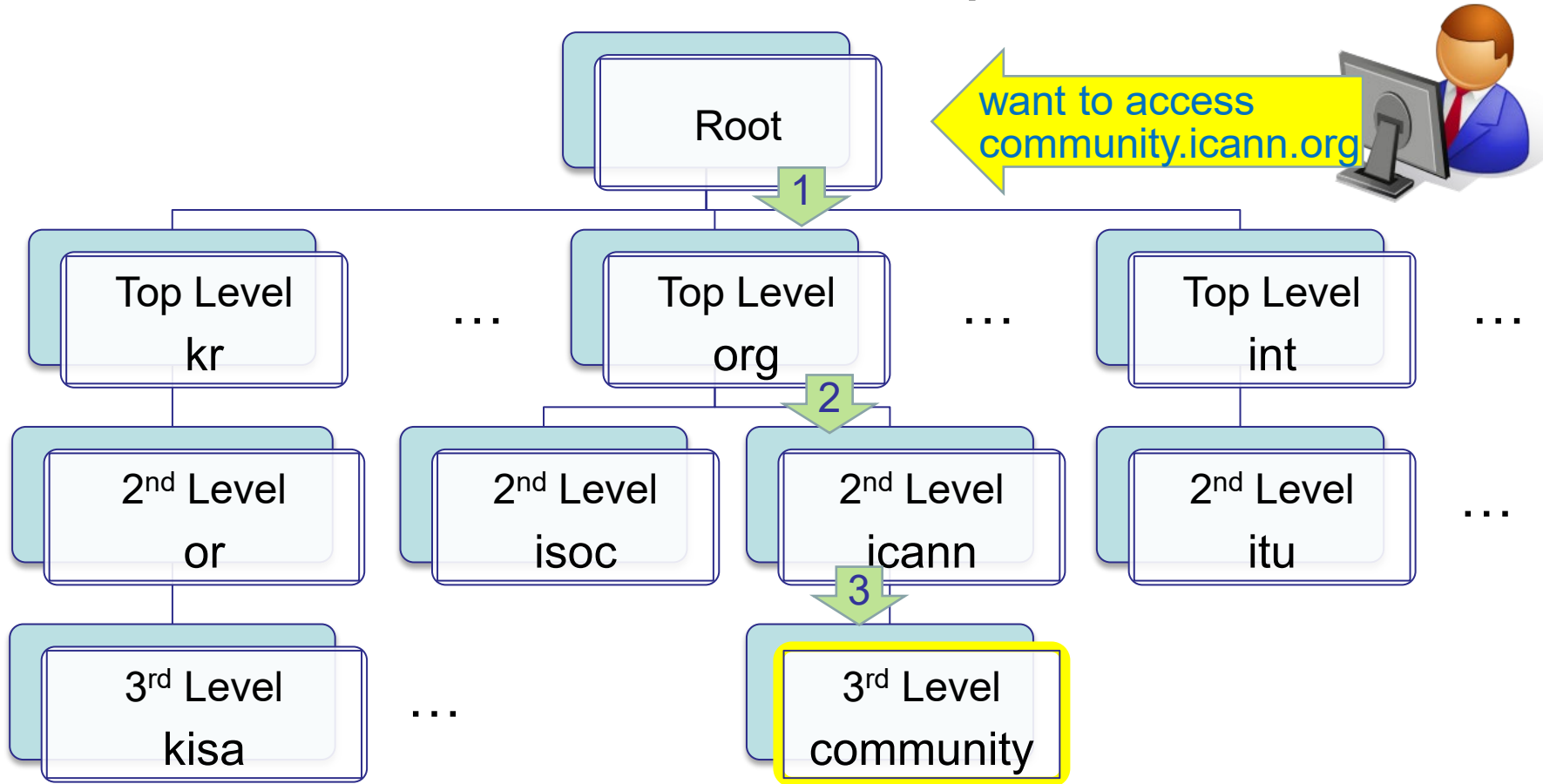
	organization	Representative	Alternate
Member (RSO)	Cogent	Paul Vixie	Brad Belanger
	Defense Information Systems Agency	John Augenstein	Peter Martin
	ICANN	Matt Larson	John Crain
	Internet Systems Consortium	Jeff Osborn	Robert Carolina
	NASA - Ames Research Center	Jose Nunez-Zapata	Brad Harris
	Netnod	Lars-Johan Liman	Patrik Faltstrom
	RIPE Network Coordination Centre	Hans Petter Holen	Paul de Weerd
	University of Maryland	Karl Reuss	Kevin Hildebrand
	University of Southern California - Information Sciences Institute	Wes Hardaker	Suzanne Woolf
	US Army DEVCOM Army Research Laboratory	Howard Kash	Kenneth Renard
	Verisign, Inc.	Brad Verd	N/A
	WIDE Project & JPRS	Jun Murai	Hiro Hotta
Liaison	the Internet Assigned Numbers Authority (IANA)	James Mitchell	
	Root Zone Maintainer (Verisign, Inc.)	Duane Wessels	
	the Internet Architecture Board (IAB)	Daniel Migault	
	the ICANN Security and Stability Advisory Committee (SSAC)	Russ Mund	

(as of 29 June, 2024)

Why/How Root is important



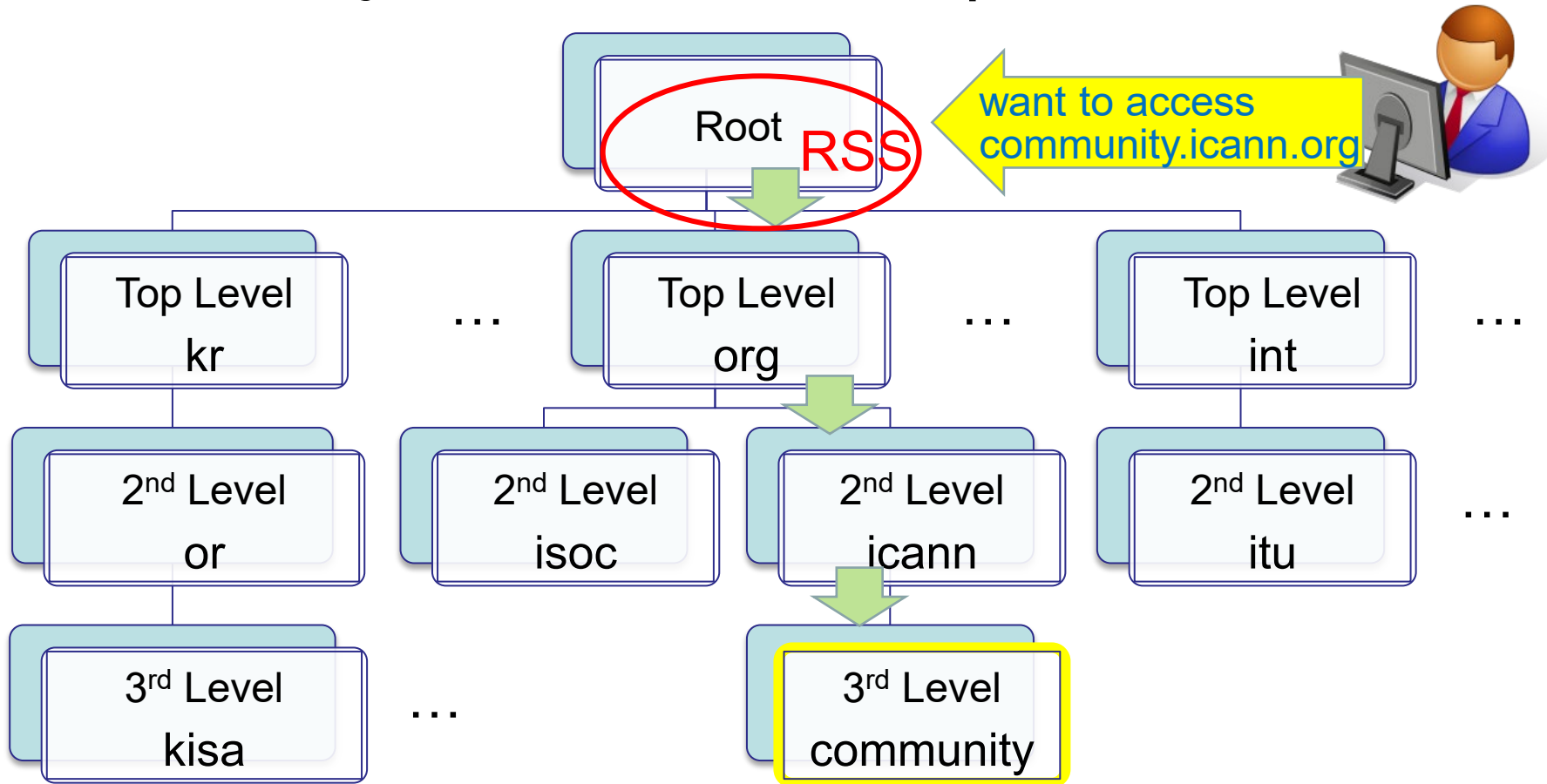
Why/How Root is important



0. your ISP knows where “Root” DNS server is
1. “Root” DNS server knows where “.org” DNS server is
2. “.org” DNS server knows where “.icann.org” DNS server is
3. “.icann.org” DNS server knows the IP address of “community.icann.org”

& RSS

Why/How Root is important



RSS is a system that responds to queries that ask for the location of a TLD DNS server
i.e., the origin of “IP address retrieval of a domain name”

Number of RSS instances over the world

RSS consists of

- 1,844 instances
- operated by the 12 independent RSOs

instance : infrastructure that serves root data at one site



(as of 29 June, 2024)

<https://root-servers.org/>

Root Server Operators

name		Operator	Organizational type
A-Root		Verisign, Inc.	Company (domain name registry)
B-Root		Univ. of Sothern California, Information Sciences Inst.	University (laboratory)
C-Root		Cogent Communications	Company (ISP)
D-Root		Univ. of Maryland	University
E-Root		NASA Ames Research Renter	Government (laboratory)
F-Root		Internet Systems Consortium (ISC)	Nonprofit organization (DNS soft. developer)
G-Root		U.S. DoD Network Information Center	Government
H-Root		U.S. Army Research laboratory	Army (laboratory)
I-Root		Netnod	Nonprofit organization (operator of IX)
J-Root		Verisign, Inc.	Company (domain name registry)
K-Root		RIPE NCC	European Regional Internet Registry
L-Root		ICANN	Nonprofit organization
M-Root		WIDE project & JPRS	Research project & Company (domain name registry)

RSS-related issues currently focused

- RSS is operated by 12 voluntary organizations
 - So far, no outages happened
 - ↓ however
 - Each RSO covers the cost of each root DNS system and operation
 - Financial sustainability? with growing traffic and security threat
 - There's no clear standard and structure to govern the whole RSS
 - Service continuity?
 - There's no mechanism for assuring technical ability of RSO and RSS
 - Service quality?
 - ↓ therefore
- 2015 - 2018
 - RSSAC spontaneously investigated how the future governance of RSO/RSS should be to serve as a sustainable base of the Internet
- 2019 -
 - Root Server System Governance Working Group (RSS GWG) was created and has discussed about the new governance model for RSS

RSS GWG (Root Server System Governance Working Group)

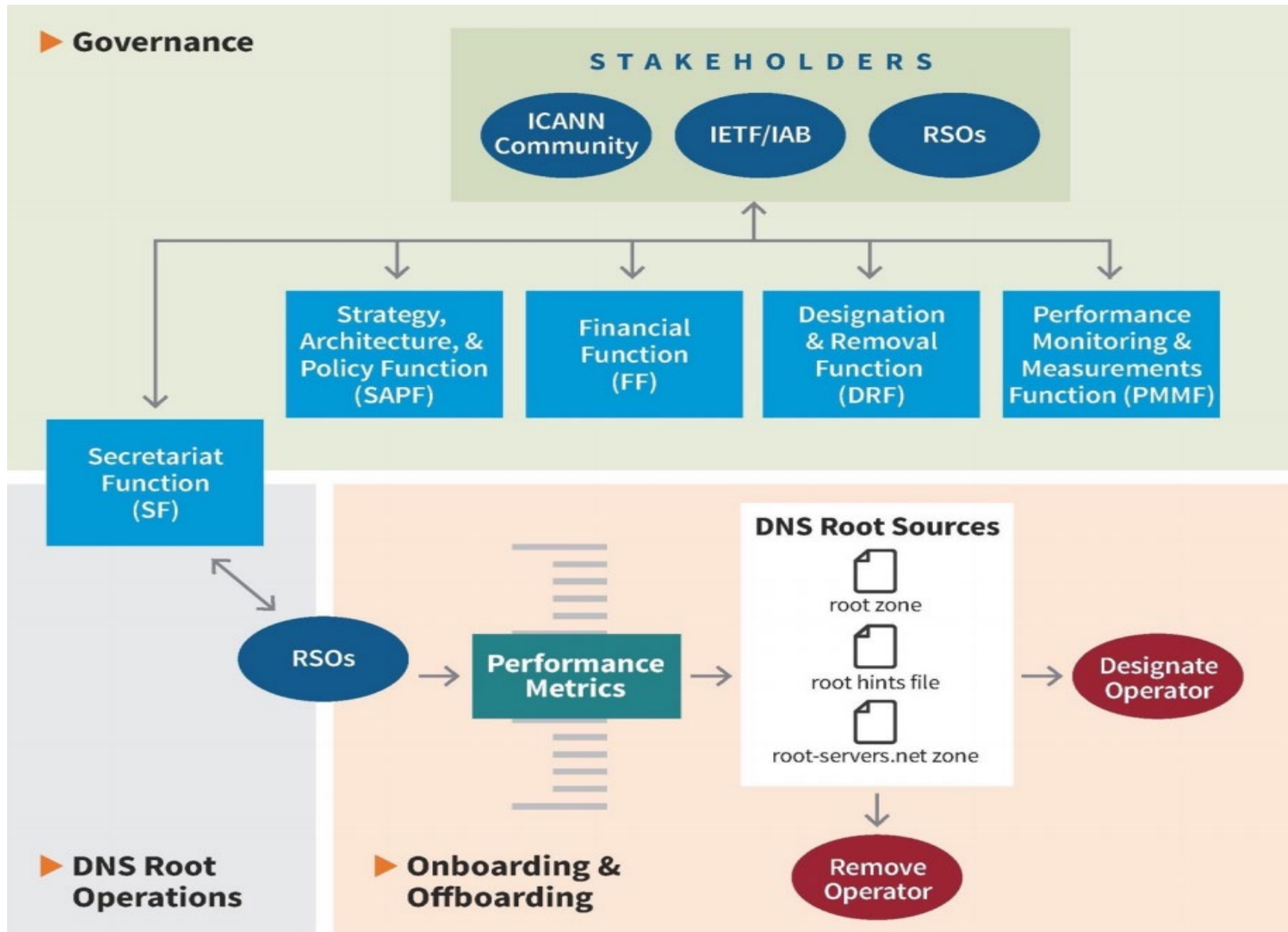
- Purpose and Mandate
 - to develop a final cooperation and governance model for the RSS
- Deliverable
 - a final model (“GWG Model”) of cooperation and governance for the RSS
- Members →
(as of 29 June, 2024)

Brad Verd (Chair)	RSO (Verisign)	Member
Christian Kaufmann	ICANN Board	Liaison
Duane Wessels	Root Zone Maintainer	Liaison
Edmon Chung	ICANN Board	Liaison (Alternate)
Geoff Huston	Internet Architecture Board	Member
Hans Petter Holen	RSO (RIPE NCC)	Member
Hanyu Yang	gTLD Registries Stakeholder Group	Member
Hiro Hotta	RSO (WIDE Project & JPRS)	Member
Jim Reid	Internet Architecture Board	Member
John Augenstein	RSO (US DISA)	Member
John Crain	RSO (ICANN)	Member
Karl Reuss	RSO (UMD)	Member
Ken Renard	RSO (US ARL)	Member
Kim Davies	IANA	Liaison
Kurt Pritz	gTLD Registries Stakeholder Group	Member
Lars-Johan Liman	RSO (Netnod)	Member
Luis Diego Espinoza Sa	ccNSO	Member
Paul Vixie	RSO (Cogent)	Member
Peter Koch	ccNSO	Member
Robert Carolina	RSO (ISC)	Member
Suzanne Woolf	SSAC	Member
vacant	RSO (NASA)	
Wes Hardaker	RSO (USC ISI)	Member

Principles guiding the operation of the RSS

1. To remain a global network, the Internet requires a globally unique public namespace.
2. IANA is the source of DNS root data.
3. The RSS must be a stable, reliable, and resilient platform for the DNS service to all users.
4. Diversity of the root server operations is a strength of the overall system.
5. Architectural changes should result from technical evolution and demonstrated technical need.
6. The IETF defines technical operation of the DNS protocol.
7. RSOs must operate with integrity and an ethos demonstrating a commitment to the common good of the Internet.
8. RSOs must be transparent.
9. RSOs must collaborate and engage with their stakeholder community.
10. RSOs must be autonomous and independent.
11. RSOs must be neutral and impartial.

Governance Model proposed in RSSAC037



Primary functions in the governance model

- **SAPF Strategy, Architecture, and Policy Function**
 - Planning future technology and structure for RSS, defining SLA
- **PMMF Performance Monitoring and Measurement Function**
 - SLA measuring and monitoring of the whole RSS and each RSO
- **SF Secretariat Function**
 - Channeling between RSOs and Internet Community
- **DRF Designation and Removal Function**
 - Designating and/or removing RSOs
- **FF Financial Function**
 - Carrying on sustainable financial provision to all/each RSOs in addition to each RSOs voluntary self finance
 - Including emergency funding, R&D funding for new technology of root DNS

Thank you

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