



DNS Ecosystem

WACREN Regional Workshop

Building Resilient DNS Infrastructure and Introduction to DNSSEC

10-15 October 2016

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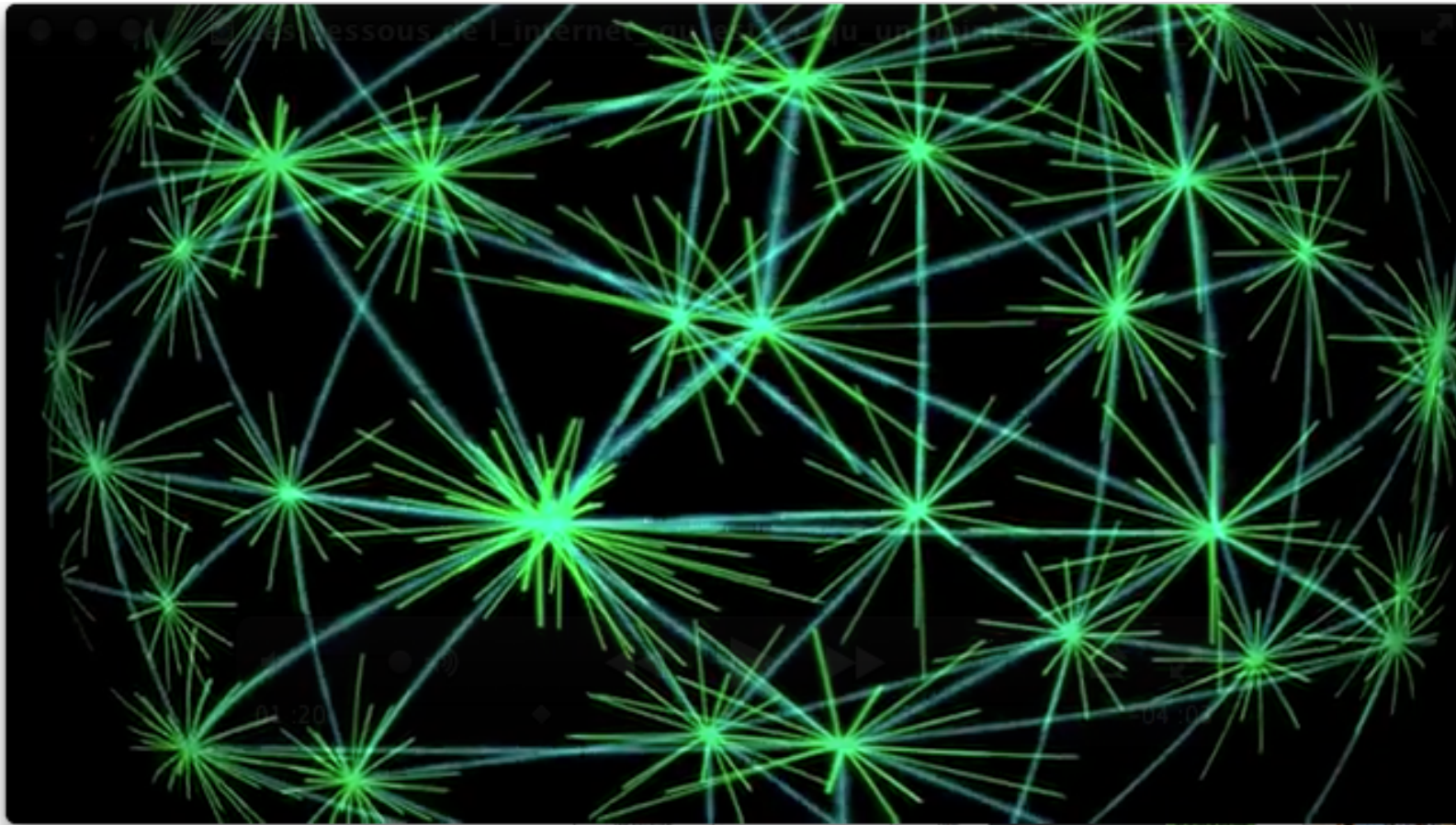
AIMA Group



Internet view



The InterNet: the network of networks





How Internet Works



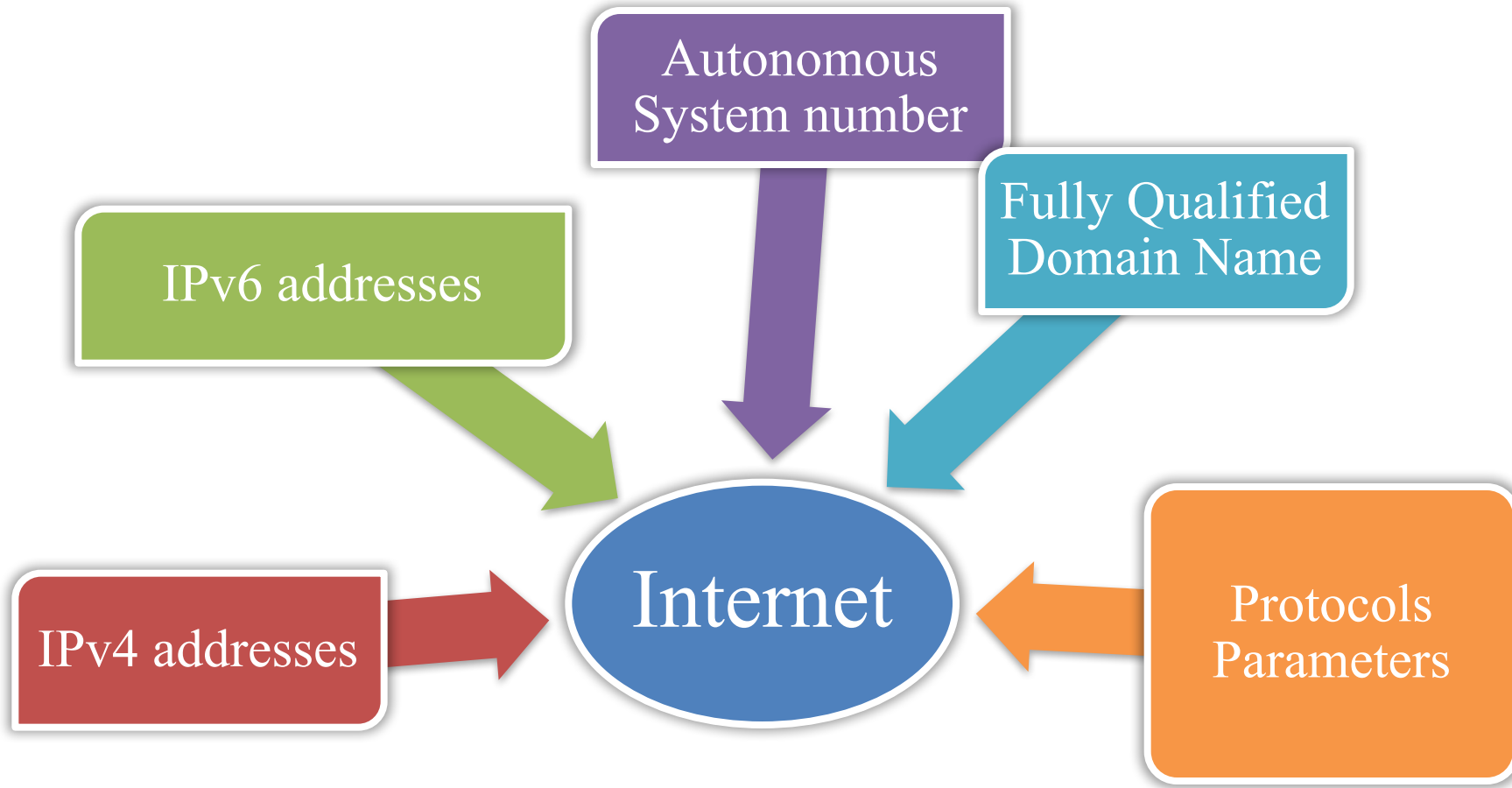
- Each node connected to Internet uses an IP address which identifies the host in the Internet.
- IP blocs belonging to one administrative entity are announced through the Internet using an Autonomous System Number (ASN).
- Internet applications, services and resources are accessible by human beings using a name.



Key Internet resources

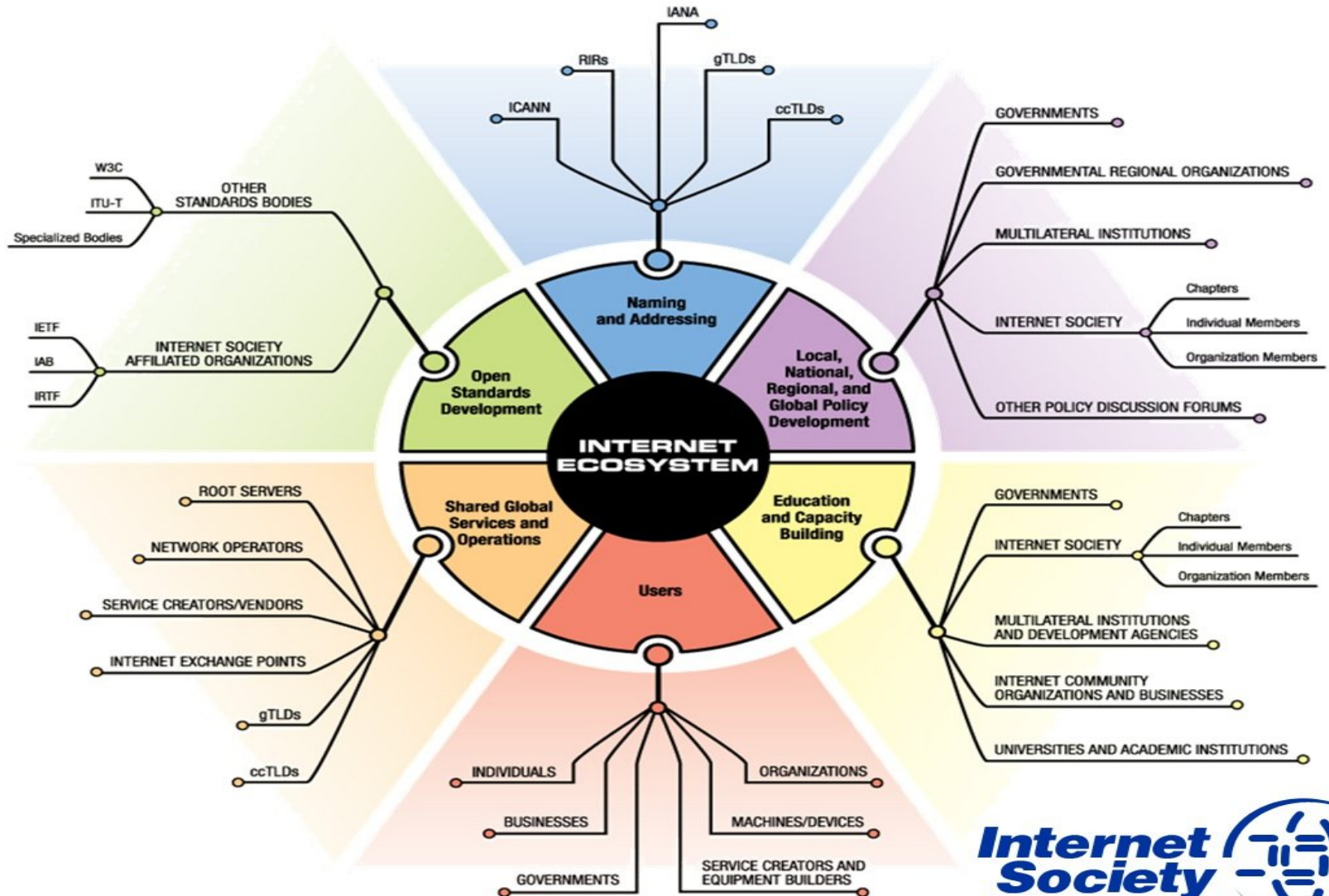


Internet Numbers and Names Resources





Internet Ecosystem





The Domain Name System



- DNS is a system designed to make Internet accessible to human beings
- Provides an addressing system that helps people to find websites and other resources in the Internet: Internet is easier to use with DNS
- Translate Names to IP addresses
- Hierarchical architecture with the root at the top



ICANN



- Internet Corporation for Assigned Names and Numbers
- Coordinates uniqueness of Internet Resources
- One global Internet, secure, stable, interoperable
- ICANN develops policies on the Internet's unique identifiers (domain names, IP addresses, ASNs)
- **IANA functions** are the key technical functions supporting the DNS



IANA Functions



- IANA manages the **DNS Root Zone**
 - Root zone management: assigning the operators of top-level domains (ccTLDs and gTLDs) and maintaining their technical and administrative details.
 - operates the .int registry, and the .arpa zone.
 - Database of TLDs
 - Root Key Signing Key (DNSSEC)
 - IDN practices repository



IANA Functions



- IANA coordinates the **global IP and ASN space**, and allocates these to RIR (AfrinIC, ARIN, RIPE NCC, APNIC, LACNIC)
- IANA is the central **repository for protocol name** and number registries for IETF



ICANN: The operator of IANA Functions



- From 1998 to Sept 2012 ICANN had a contract with DoC of US to operate IANA functions



- The National Telecommunications and Information Administration (NTIA) operated the IANA functions



ICANN: The operator of IANA Functions



- 2009: affirmation of commitment (AOC) between ICANN and DoC:
 - the NITA has awarded the IANA functions to ICANN
 - privatization of the Internet DNS
 - Multistakeholder model (private sector, gov, academi, etc)
 - designed for innovation, economic growth, stability, security an openness
- 2012: New contract: Oct 2012- Sept 2015
- 2014:IANA Stewardship Transition proposal:
 - 1st October 2016: the **contract has officially expired**



DNS Registration Process





WACREN Capacity Building Program



- Through the [Africa Training Initiative \(ATI\)](#), WACREN organises regional training workshops to:
 - establish the frameworks
 - build capacity to secure African NRENs
 - DNS/DNSSEC topic is one of the most important of the ATI Program to help [Building resilient DNS Infrastructure](#)



DNS Capacity Building

Organizations: Af*



- AfTLD
- AfNOG: SS AIS Workshop
- AfriNIC: AfriNIC Meeting
- AfChix
 - SenChix: AfNOGChix 2013
 - National workshop for women and girls in ICT



Links



- <https://www.icann.org/news/announcement-2016-10-01-en>
- <http://www.iana.org>
- www.wacren.net