

# Internet names and numbers



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- What is the Internet
- Domain Names
- IP addresses
- The Domain Name System
- ICANN ecosystem & IANA
- Getting involved

# What is the Internet & what is the DNS

# The Internet



# Connected devices, connected everything



# Domain Names

**www.cafe-123.com**



Third Level  
Domain

Second Level  
Domain

Top Level  
Domain (TLD)

②

### Forming ASCII Labels

Use LDH

- Letters [a-z]
- Digits [0-9]
- Hyphen [H]

Label length = 63

Other constraints (e.g. on hyphen)

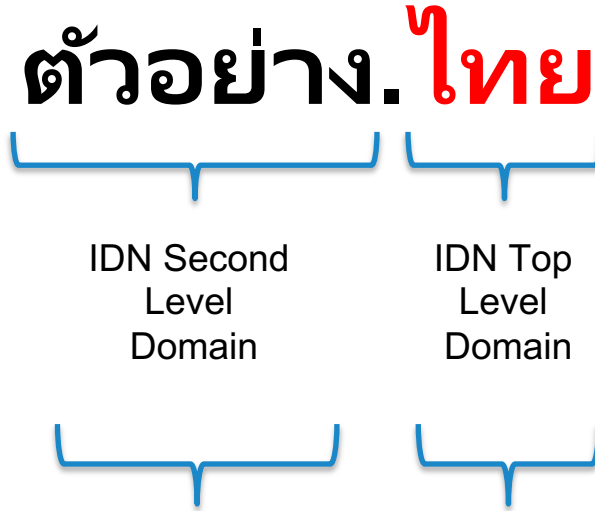
①

### Forming ASCII Labels

Use only Letters

- Letters [a-z]

Label length = 63



### Syntax of IDN Labels

**Valid U-Label:** Unicode code points as constrained by **the “LDH” scheme** within IDNA 2008

②

### Syntax of IDN Labels

**Valid U-Label,** further constrained by **the “letter” principle** for TLDs

①



# What Is Universal Acceptance?

**All domain names should be treated equally.**



# IP addresses

# Unique Names and Numbers on the Internet

IP addresses easy for machines but hard for people

- IPv4: 192.0.2.7
- IPv6: 2001:0db8:ac10:fe01:0000



People need to use names.

Mapping names to IP addresses is **name resolution**.



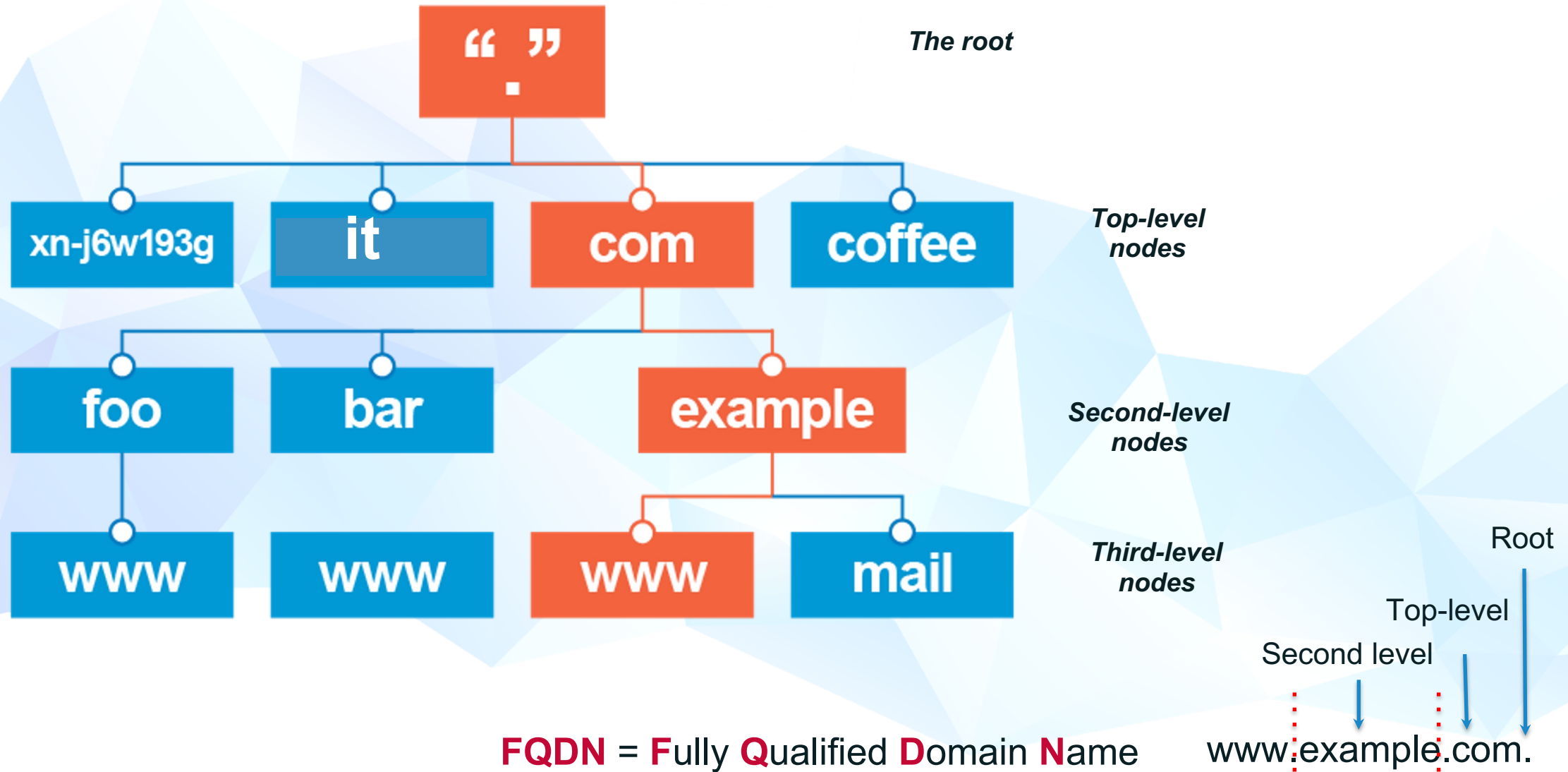
# Domain Name System

# The Domain Name System

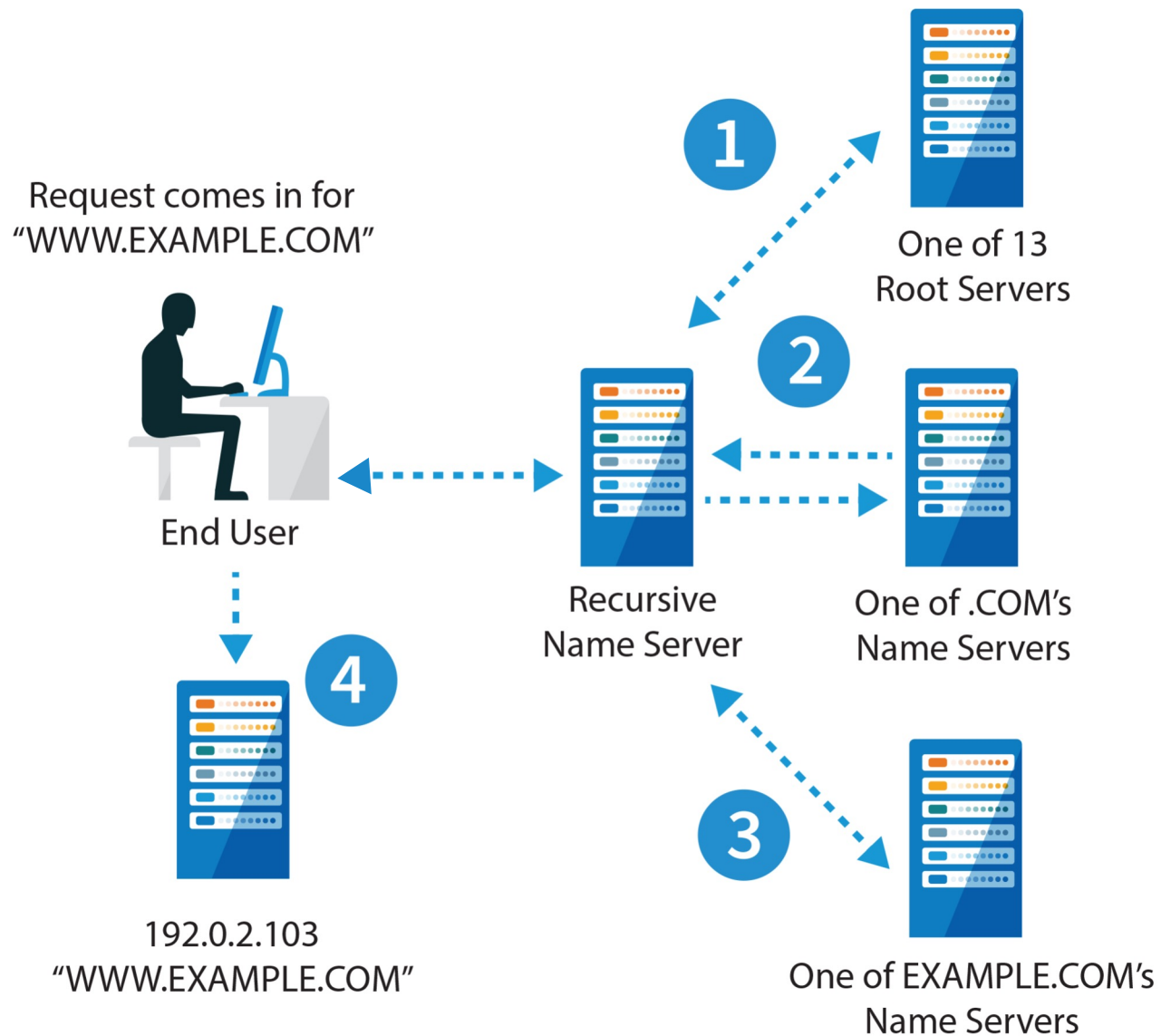
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- No single consistent definition – considered a combination of:
- A commonly used naming scheme for objects on the Internet
- A distributed database representing the names & certain properties of these objects
- An architecture providing distributed maintenance, resilience & loose coherency for the database
- A simple query and response protocol implementing this architecture

# The Domain Name System (DNS)

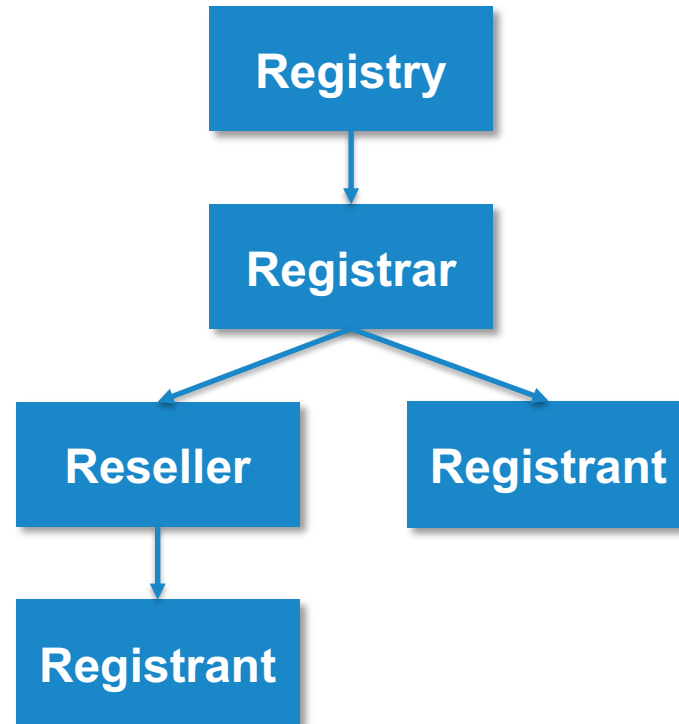


# How DNS Works



# Domain Name Industry Ecosystem Players

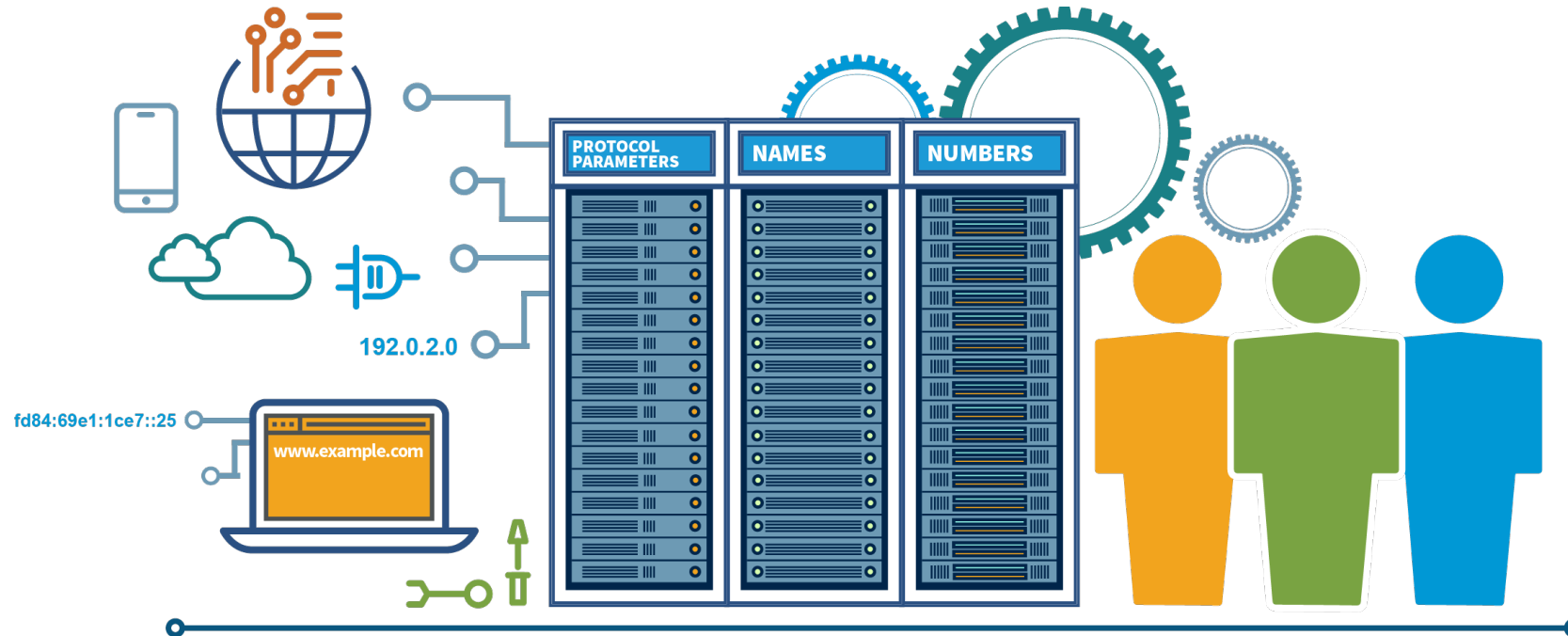
- **Registry:** Database of domain names and registrants
- **Registrar:** Primary agent between registrant and registry
- **Registrant:** A holder of a domain name registration



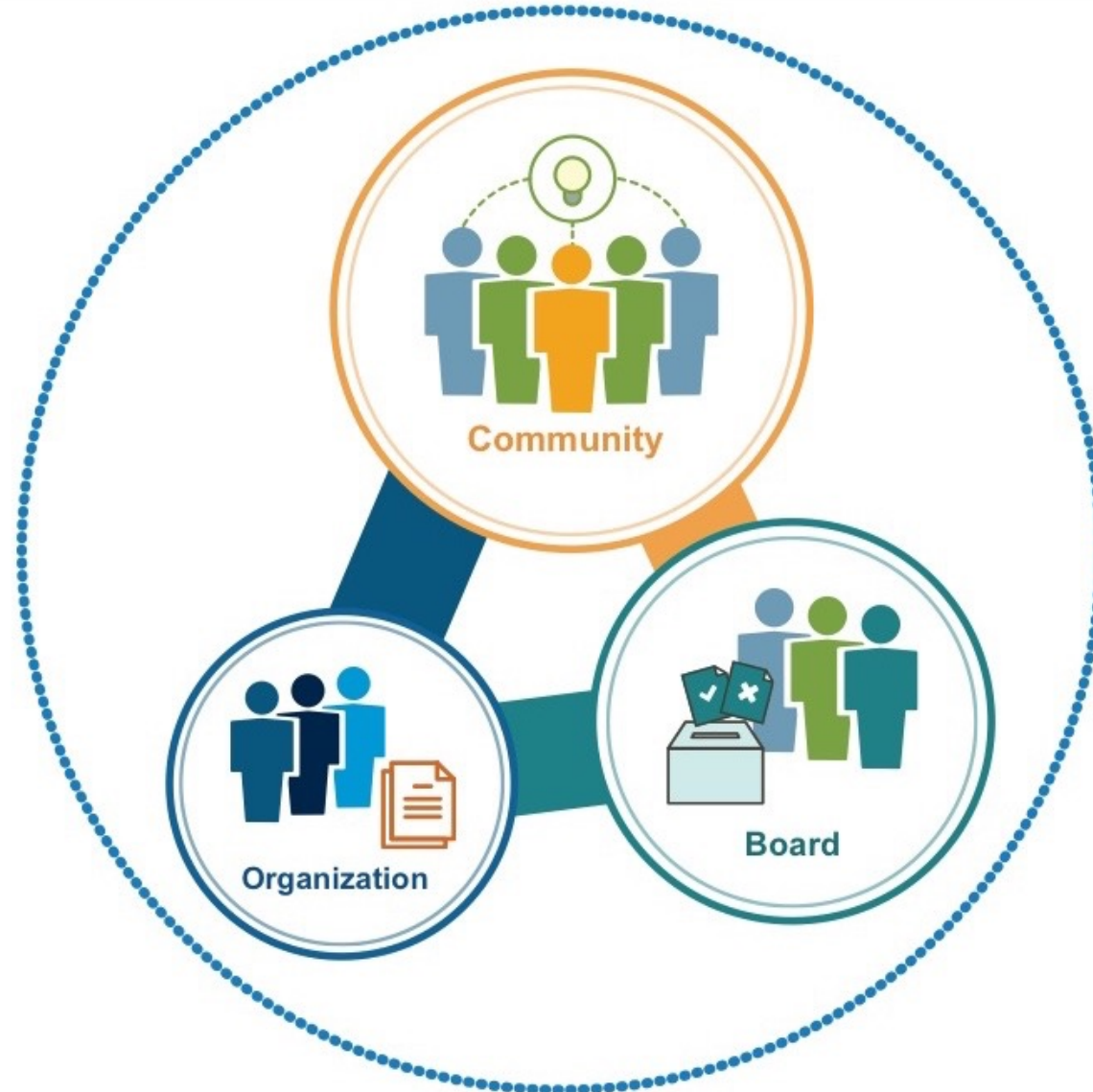


# ICANN ECOSYSTEM & IANA

Coordinating with our partners,  
we help make the Internet work.



ICANN was formed in 1998 as a not-for-profit public benefit corporation with a community of participants from all over the world



# The IANA Functions



The global coordination of the DNS Root, IP addressing, and other Internet protocol resources is performed as the Internet Assigned Numbers Authority (IANA) functions.

[Learn more.](#)

## Domain Names

Management of the DNS Root Zone (assignments of ccTLDs and gTLDs) along with other functions such as the .int and .arpa zones.

- Root Zone Management
- Database of Top Level Domains
- .int Registry
- .arpa Registry
- IDN Practices Repository

## Number Resources

Coordination of the global IP and AS number spaces, such as allocations made to Regional Internet Registries.

- IP Addresses & AS Numbers
- Network abuse information

## Protocol Assignments

The central repository for protocol name and number registries used in many Internet protocols.

- Protocol Registries
- Apply for an assignment
- Time Zone Database

# CCTLD management information example. (1/2)

domain: BF

organisation: Autorité de Régulation des Communications Electroniques et des Postes (ARCEP)  
address: 01 BP 6437  
address: Ouagadougou 01  
address: Burkina Faso

contact: administrative  
name: TLD Gestionnaire Administratif (DSI/ARCEP)  
organisation: Autorité de Régulation des Communications Electroniques et des Postes (ARCEP)  
address: Ouaga 2000  
address: 01 BP 6437 Ouagadougou 01 Ouagadougou  
address: Burkina Faso  
phone: +22625375360  
fax-no: +22625375364  
e-mail: tld-admin@arcep.bf

contact: technical  
name: TLD Gestionnaire Technique  
organisation: Association Burkinabè des Domaines Internet (A.B.D.I.)  
address: Secteur 24, 1200 logements, Avenue Babanguida  
address: 01 BP 6251 Ouagadougou 01  
address: Ouagadougou  
address: Burkina Faso  
phone: +22625332525  
fax-no: +22625332525  
e-mail: tld-tech@registre.bf

# CCTLD management information example (2/2)

```
contact:      technical
name:         TLD Gestionnaire Technique
organisation: Association Burkinabè des Domaines Internet (A.B.D.I.)
address:      Secteur 24, 1200 logements, Avenue Babanguida
address:      01 BP 6251 Ouagadougou 01
address:      Ouagadougou
address:      Burkina Faso
phone:        +22625332525
fax-no:       +22625332525
e-mail:       tld-tech@registre.bf

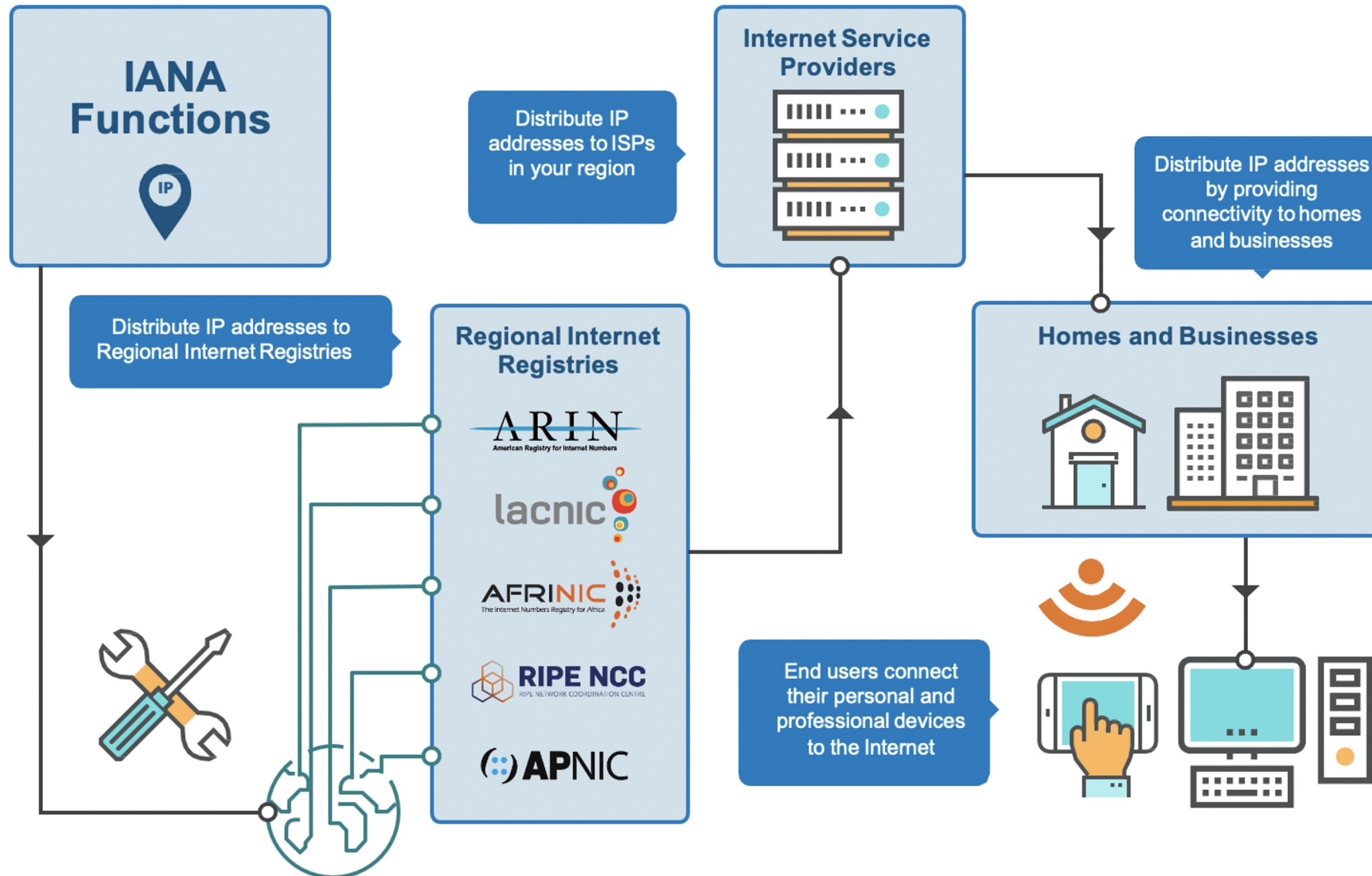
nserver:      A.REGISTRE.BF 212.52.146.50
nserver:      DNS-TLD.IRD.FR 13.39.116.127
nserver:      NS-BF.NIC.FR 194.0.9.1 2001:678:c:0:0:0:0:1
nserver:      PCH.NS.REGISTRE.BF 2001:500:14:6141:ad:0:0:1 204.61.216.141

whois:

status:       ACTIVE
remarks:      Registration information:
remarks:      http://www.arcep.bf/noms-de-domaine

created:      1993-03-29
changed:      2023-09-04
source:       IANA
```

# How Internet Protocol Addresses are Distributed



# GET INVOLVED



# Get Involved and Informed



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