

Introducing IANA

Baltic Region and Eastern Europe International Seminar

The Internet & the post-WSIS environment: enhancing dialogue among the stakeholders

Riga 2006

Kim Davies

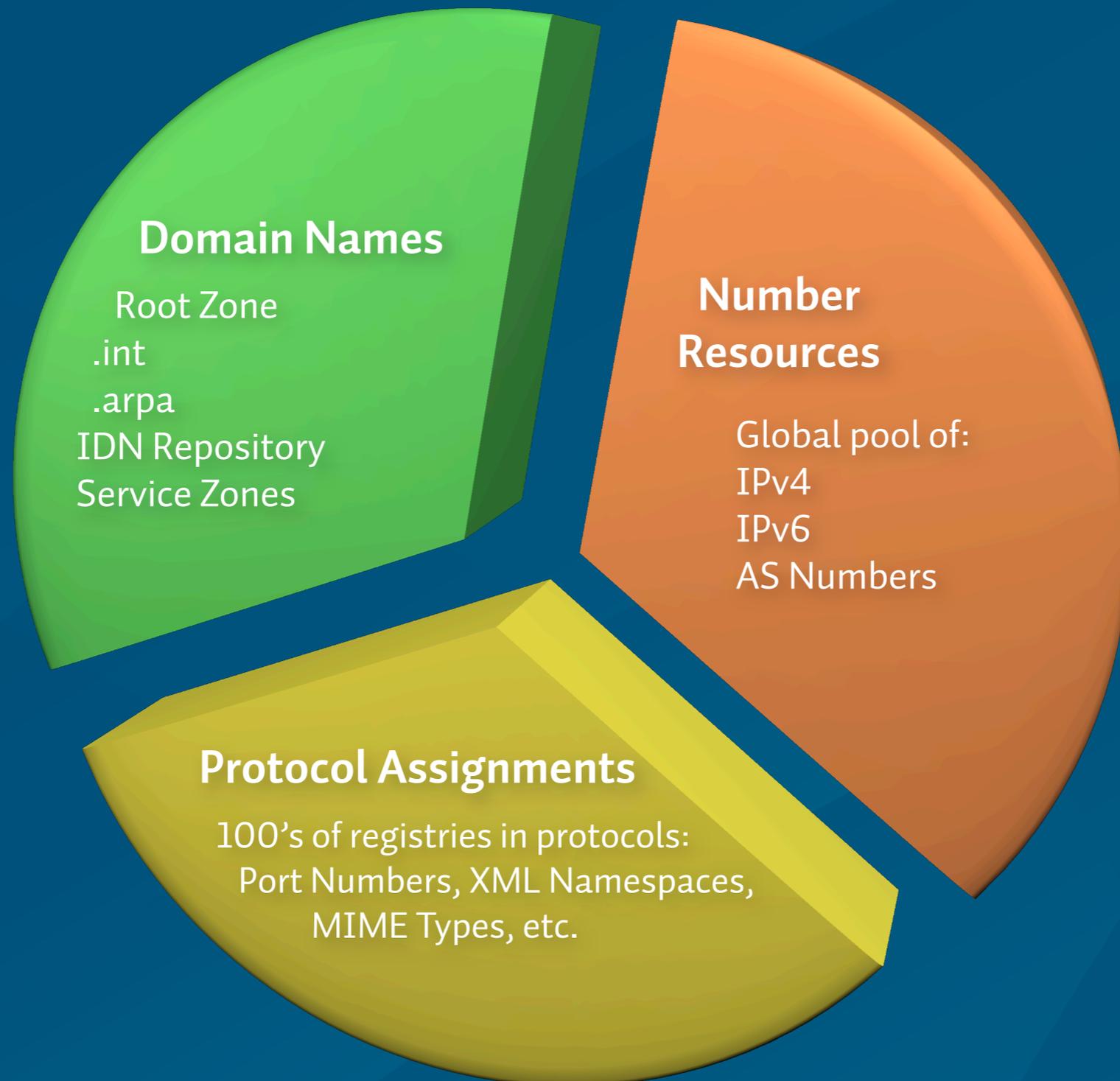
Internet Assigned Numbers Authority



What is IANA?

- ▶ the “Internet Assigned Numbers Authority”
- ▶ Quite likely the oldest Internet institution
 - ▶ first documented in 1972
- ▶ Responsible for global coordination of the Internet’s unique names and numbers
- ▶ Since 1998, a function of ICANN
 - ▶ Previously operated in academia under US Government research contracts.

Areas of Responsibility



Discussion points today:

- ▶ IPv4-to-IPv6 Migration
- ▶ ccTLD Matters
 - ▶ IANA's role and responsibilities
 - ▶ How the operator of a ccTLD is changed (“redelegation”)
 - ▶ ccTLD's role and responsibilities

What are IP addresses?

- ▶ IP addresses are unique numbers assigned to each device (computer, etc.) on the Internet
- ▶ Used for the internal routing of information, usually unseen by end users.
- ▶ Domain names are usually used as a more memorable way to connect to computers:

icann.org

(domain name)

192.0.34.163

(IP address)

Regular IP addresses are running out

- ▶ Current “IPv4” addresses devised in 1970’s didn’t envision such substantial usage.
 - ▶ Estimates of exhaustion around 5-10 years
- ▶ IPv6 is a new protocol with much more address space
 - ▶ $2^{32} \rightarrow 2^{128}$ numbers (2^{96} x more addresses)
 - ▶ $2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$
- ▶ IPv6 requires commitment to deploy
 - ▶ To fully switch over to new system, all systems must be upgraded to use the new number system.

Domain Name System

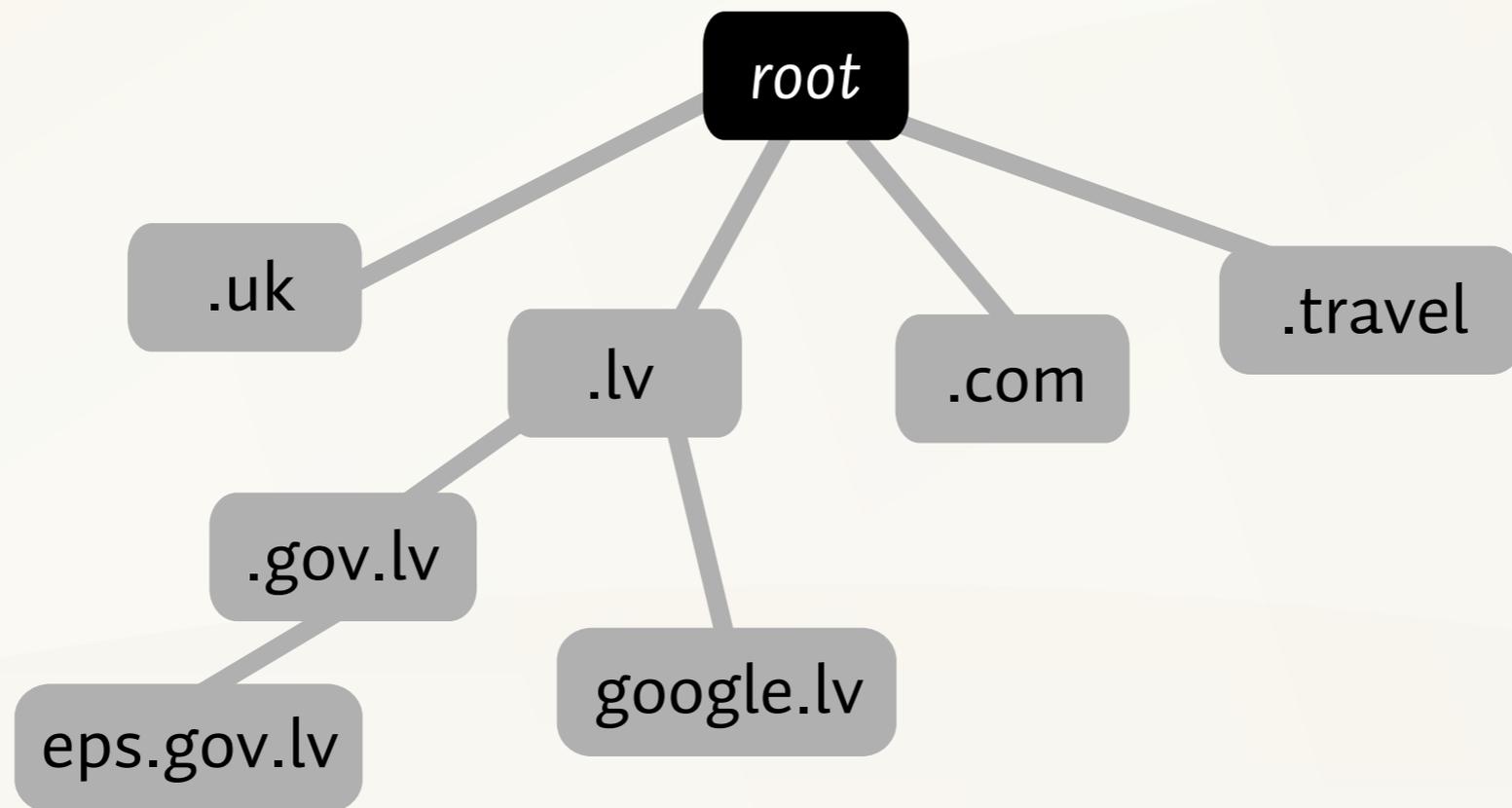
- ▶ The easier to remember identifiers for services on the Internet.
- ▶ Comprised of a hierarchical taxonomy separated by dots.
- ▶ The system internally converts the names into the raw numbers that computers need.

icann.org

(domain name)

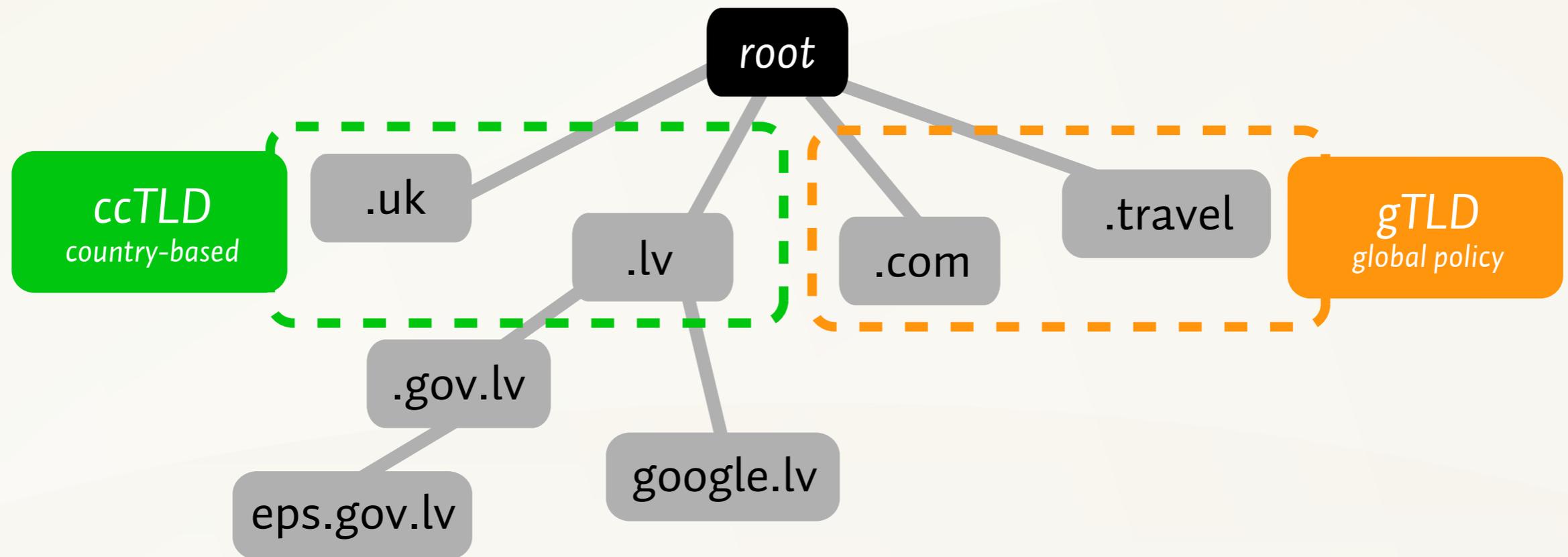
192.0.34.163

(IP address)



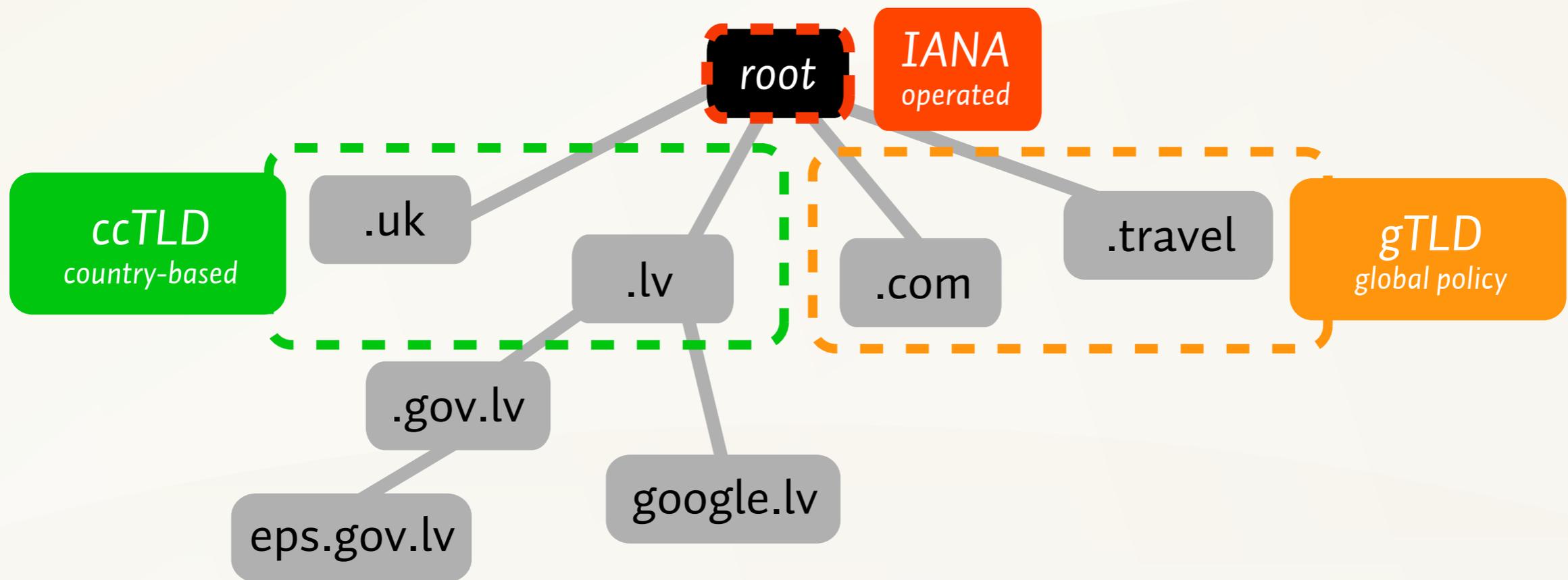
DNS structure

- ▶ Delegations are made down a “tree”.
- ▶ $root \rightarrow .lv \rightarrow .gov.lv \rightarrow eps.gov.lv$



DNS structure

- ▶ “top-level domains” can be divided into:
 - ▶ country-codes: local policy, local law, subsidiarity
 - ▶ global: worldwide use, ICANN policy



DNS structure

- ▶ IANA operates the root
 - ▶ delegates operators of TLDs (incl. ccTLDs)

Country-code top-level domains (ccTLDs)

- ▶ ISO 3166 standard nominates two-letter codes for countries and autonomous regions (as defined by UN)
- ▶ IANA will assigned an operator of a ccTLD for the local Internet community in a particular country.
 - ▶ initial request is a “delegation”, changing operators of an existing code is a “redelegation”.
- ▶ IANA doesn't take an ongoing role in operating the domain, simply appoints the operator. Local interests should decide how the domain is run within country.

(Re)delegation Procedure

- ▶ Request for (re)delegation is sent to IANA
- ▶ IANA performs evaluation
 - ▶ consultations with:
 - ▶ requestor to understand situation, seek additional documentation
 - ▶ current operators (if they exist) to determine consent
 - ▶ local Internet actors to confirm assertions on LIC support
 - ▶ governments to identify support
 - ▶ ICANN staff who have insight into local situation
- ▶ If assessed to proceed, considered by ICANN board
- ▶ Upon approval, implement normally (incl. USDOC, VeriSign)
- ▶ Report published on website

Key criteria for ccTLD operator

1. Operator must show operational and technical skills

Must be able to operate the TLD in an effective and proper manner.

2. Operator must be in country

Allows the operation to be subject to local law.

3. Operator must treat LIC fair and equitably

The operator, for example, can't discriminate within the local Internet community on who it may provide service for.

4. Operator must demonstrate community/government support.

Operator needs to show that it has reasonable support to operate the resource.

Ability to meet these criteria is formally assessed in the event of a delegation or redelegation request.



What ccTLD operators do

- ▶ Operate the ccTLD with policy in the public interest of the territory concerned
 - ▶ local Internet community
 - ▶ local government
 - ▶ etc.
- ▶ Operate a technically stable service
 - ▶ poor setup = unreliable domain service = “broken” Internet
 - ▶ damage of bad setup affects outside country as well!
- ▶ Liaise with IANA to ensure their details are up to date
 - ▶ Record staff changes etc. with IANA as appropriate
 - ▶ ensure technical data is properly communicated
- ▶ Participate in ICANN, other fora, to develop global policy and best practice

Summary

- ▶ ccTLDs are operated in the public interest, within countries, involving local Internet community and local government.
- ▶ IANA's role is ensuring it is operated by a responsible operator that the community agrees is appropriate.
- ▶ ccTLD operators and IANA community on an ongoing basis to ensure technical data is properly in sync.
- ▶ It is important that ccTLD operator details are kept up to date with IANA to ensure Internet stability.

Thank you for your attention!

Kim Davies

kim.davies@icann.org

