RIPE NCC Introduction

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RIPE NCC Contents

- Basics – what are Internet Number Resources (INR)?

- The 'INR world'

- The registration

- Legal aspects of INR

- RIPE NCC and Law Enforcement

Basics – what are Internet Number Resources?

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Internet Number Resources - IP addresses

"An internet protocol (IP) address is a numeric identifier that includes information about how to reach a network location via the Internet routing system"

An IP address does <u>not</u> give any information on:

- The geographic location of a network or device

- Who is using the IP address

- Where the user received the IP addresses

- Why the IP address is in use (the purpose)

Internet Number Resources- IP addresses

IPv4

- IPv4 in 1981

- IPv4 - 32 bits; 2^{32}; 4 billion addresses

- Originally a class system
  - "Class" A, B and C
  - Equivalent to /8, /16 and /24 networks

- Classless Inter Domain Routing (CIDR) notation more efficient use of available addresses

- Example: 193.0.0.203

IPv6

- IPv6 in 1996

- IPv6 - 128 bits, 2^{128}, 340 (36 zeros)

- Large allocations

- IPv6 hosts cannot directly communicate with IPv4 hosts

- Example: 2001:610:240:11::c100:1319 (IPv6)

Internet Number Resources – ASN

- Autonomous System Numbers, in 1995

- Indentifies a group of IP networks with a single and clearly defined routing policy

- Requirements are:

  - IP Addresses,

  - Multihoming,

  - an AS Number per group of IP networks

- Example: 3333

Names and Numbers

- www.ripe.net

- 193.0.0.203 (IPv4)

- 2001:610:240:11::c100:1319 (IPv6)

- 3333 (AS number)
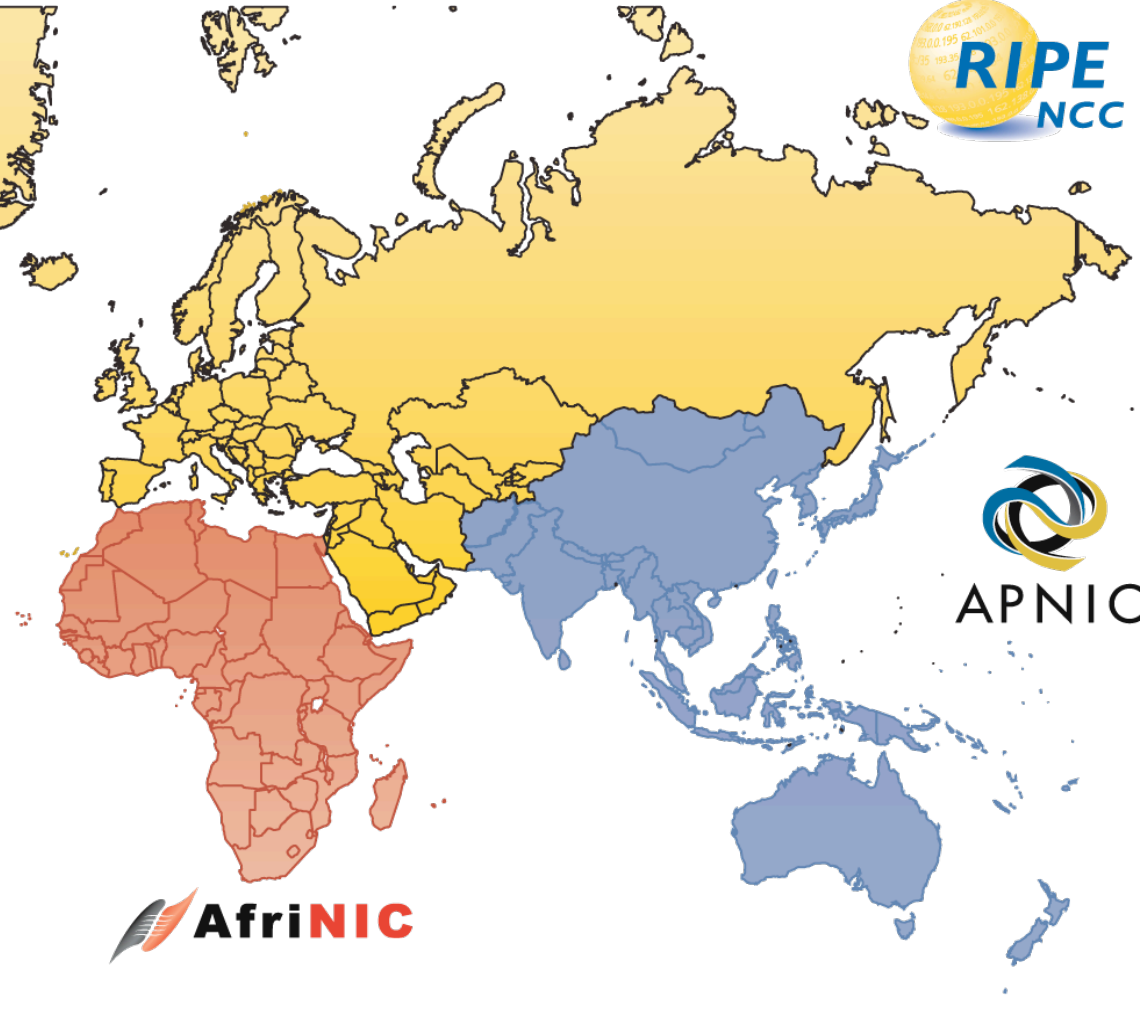
The "INR world"

The "INR world"

- ICANN / IANA

- RIRs

- Local Internet Registries (LIRs)

- RIPE

- IETF – standard body, no policies

- WSIS, IGF, ISOC and other stakeholders

The 5 RIRs

RIPE NCC

Since 1992 in Amsterdam

Not-for-profit association

Independent organisation

6000+ members in 75 countries

One of the five RIRs

RIPE NCC does not make policies

RIPE NCC services

- **Member services**

- Distributing resources
  - IPv4
  - IPv6
  - AS numbers

- Training Courses
  - LIR
  - Routing Registry
  - DNS for LIRs
  - Other - OPTA, IPv6 training

Public services

- RIPE Database

- Reverse DNS

- ENUM (e164.arpa)

- K-root nameserver

- Information Services

- E-learning

RIPE

- Policy forum

- Not a legal entity

- No official membership

- One RIPE chairman and WG chairs

- Open for anyone

- No voting, **consensus** is "the magic word"

- Policy work in Working Groups (WGs) and specific tasks in Task Forces (TFs)

The registration

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Principles of the registration

- ## Conservation

  "Safeguard efficient use of the finite resource"
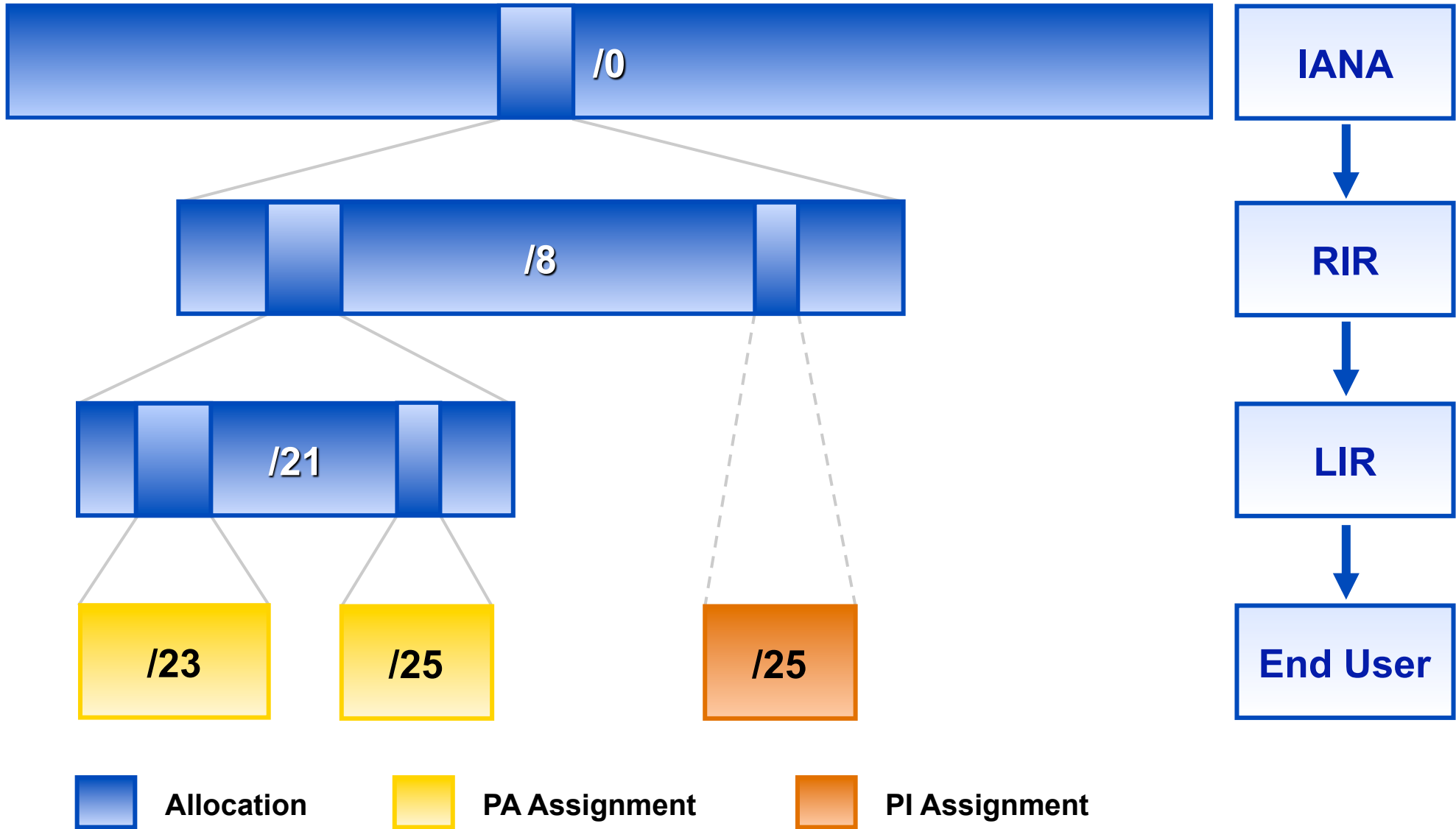
- ## Aggregation

  "Consider the impact on the routing of information"

- ## Uniqueness

  "Ensure IP addresses remain unique"

IP Address Distribution
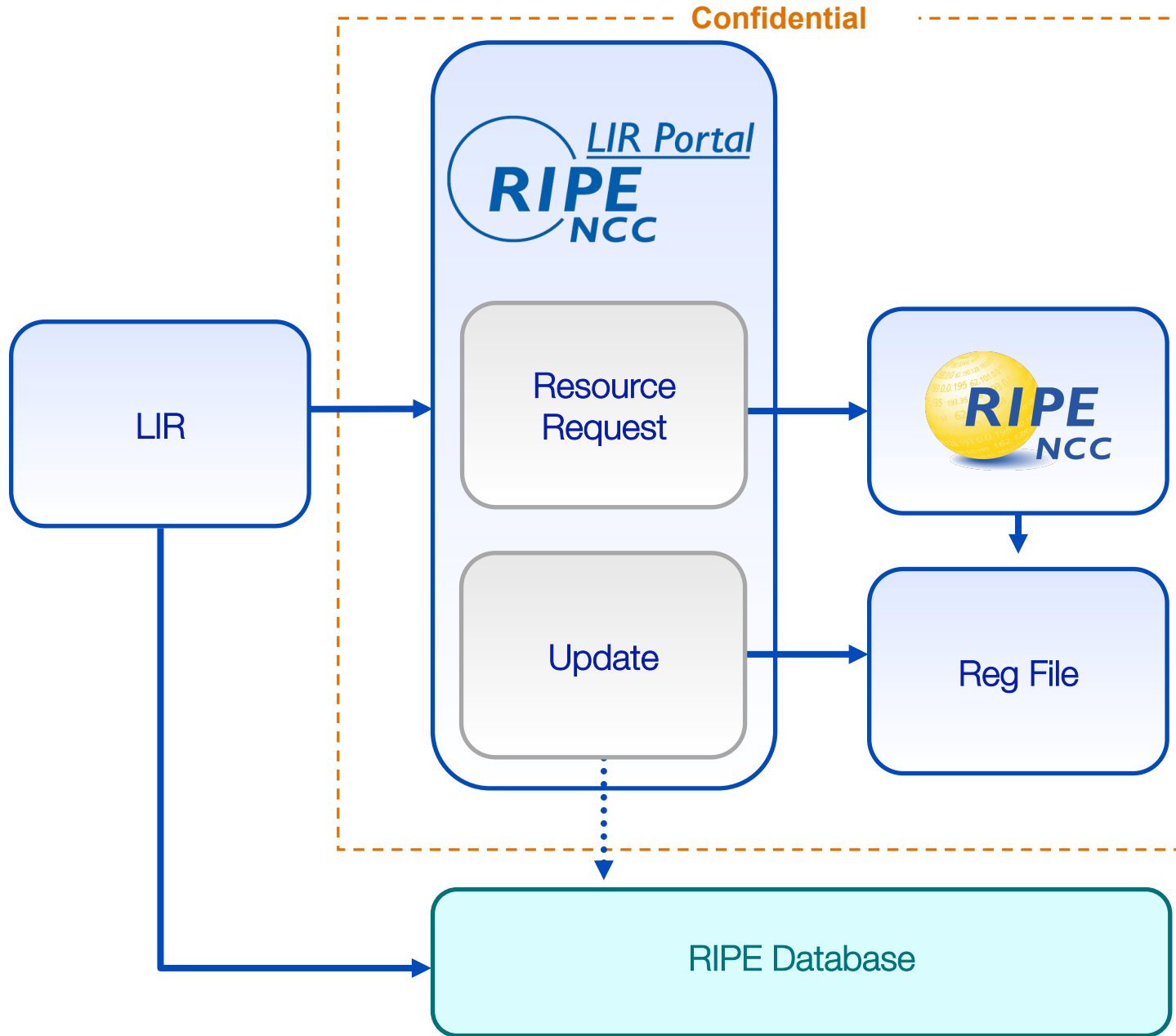
Requirements for IPv4 & IPv6 Allocations

- Be a Local Internet Registry (LIR)

IPv4

- Wants or needs individual addresses
- Size is based on expected use for the course of one year
- Minimum size: /21 (2048 addresses)

IPv6

- Publish the allocation as a prefix
- Plan to make assignments within two years
- Minimum size: /32

Confidential

LIR Portal
RIPE NCC

LIR

Resource Request

Update

RIPE NCC

Reg File

RIPE Database

Legal aspects of
Internet Number Resources

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Legal aspects of INR and of the RIPE NCC

Standard contract with all members, no exceptions

No "lease" structure in contract

IP addresses are allocated based on need

INR are not owned, no property

Upon termination of contract – voluntary return of resources

Legal aspects of LIR (member) closure

- "Closure" of LIR is complex

- "Reclamation" of INR is only partly possible

- Possible actions the RIPE NCC can take to change the "Routability":

    - Change "maintainer" on RIPE Database record

    - Remove the RIPE Database record

    - Remove Reverse DNS allocation

    - Publish "reclaimed" INR

- INR can still be in use

RIPE Database

Public Internet resource and routing registry database

Contact information for:

IP address blocks

AS numbers

- Each RIR has their own Database!

RIR Databases

RIPE NCC: http://www.db.ripe.net/whois

AfriNIC: http://www.afrinic.net/cgi-bin/whois

APNIC: http://www.apnic.net/whois

ARIN: http://www.arin.net/whois/

LACNIC: http://www.lacnic.net/cgi-bin/lacnic/whois

RIPE Database aspects

- Compliance with Data Protection regulation:
  - All records will be managed by a "maintainer"

  - Personal data can be removed upon request by individual

  - No bulk data dumps including personal data

- All data is and will be real time available

- "Maintainers" responsible for quality of data

RIPE NCC and
Law Enforcement

RIPE NCC and Law Enforcement

- Increased interest from LE for INR and RIPE NCC

- Increase in number of information requests

- Several meetings with relevant Dutch parties

- Several meetings / conferences with international LEAs

- Trainings for LEAs

- More information exchange and co-operation

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Public RIPE NCC Information

- General information

- Contact information

- RIPE Database information

- Routing information

What can't we do?

- Cancel INR

- Reclaim INR

- Know the factual user of the INR -different from End User in policies

- Know the location of the user (of the INR)

- Give information on the content that the INR is used for

- Without formal Dutch information request the RIPE NCC cannot supply any non public information

Non public RIPE NCC Information

- Historical RIPE Database information

- Invoicing/payment information

- Initial company information (CoC) and contact information

- INR registration/administration information

- "Resource request" information (e-mail, network plans)

Conferences 2009/2010 & Training

- RIPE NCC Roundtable – Feb & Sept 2009
  - First day "Governments" en "Regulators"
  - Second day "Law Enforcement"
  - March 2010 Global Roundtable

- RIPE meetings 2 per year
  - Co-operation Working Group
  - Anti Abuse Working Group
  - 3-7 May 2010, Prague

- RIPE NCC Training – upon request

for more:

www.ripe.net

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