



**RIPE NCC**  
RIPE NETWORK COORDINATION CENTRE

# RIPE Database Workshop

For Law Enforcement  
Agencies

Moscow, RU | 31 January 2018 | RIPE NCC LEA Workshop

# Overview



- The RIPE Database
- RIPE Database Queries - IPv4
- Basic IPv6 Facts
- RIPE Database Queries - IPv6



# **The RIPE Database**

**Brief Introduction**

# The RIPE Database

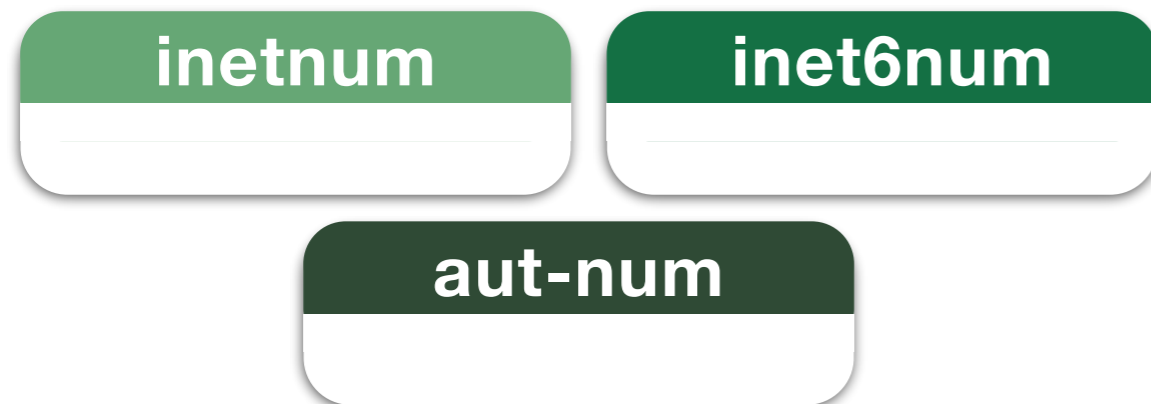


- Public Internet resource and routing registry database
  - IP addresses, AS Numbers
  - Contact information
  - Reverse DNS delegations
  - Routing policies

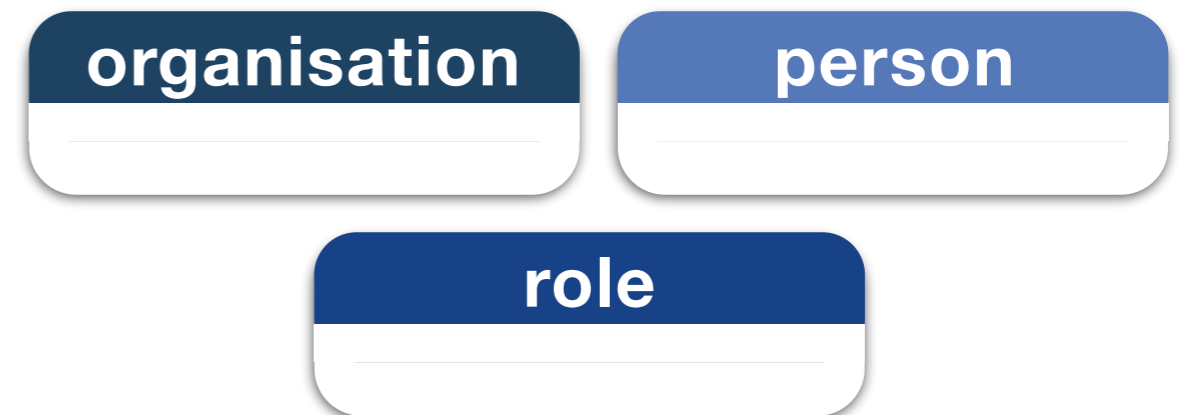
# RIPE Database Objects



## IPs and ASNs



## Contact Information



## Routing



## Reverse DNS



## Object Protection



# Object Templates



person:	[mandatory]	[single]	[lookup key]
address:	[mandatory]	[multiple]	[ ]
phone:	[mandatory]	[multiple]	[ ]
fax-no:	[optional]	[multiple]	[ ]
e-mail:	[optional]	[multiple]	[lookup key]
org:	[optional]	[multiple]	[inverse key]
nic-hdl:	[mandatory]	[single]	[primary/lookup key]
remarks:	[optional]	[multiple]	[ ]
notify:	[optional]	[multiple]	[inverse key]
abuse-mailbox:	[optional]	[multiple]	[inverse key]
mnt-by:	[mandatory]	[multiple]	[inverse key]
created:	[generated]	[single]	[ ]
last-modified:	[generated]	[single]	[ ]
source:	[mandatory]	[single]	[ ]

# Anatomy of an Object



Attributes

person:	Jean Blue
address:	Long Street 123
address:	76543 Big City
e-mail:	j.blue@example.com
nic-hdl:	<b>JB0123-RIPE</b>
mnt-by:	<b>SECURITY-MNT</b>
created:	(date & time)
last-modified:	(date & time)
source:	RIPE

Values

# Lookup Keys

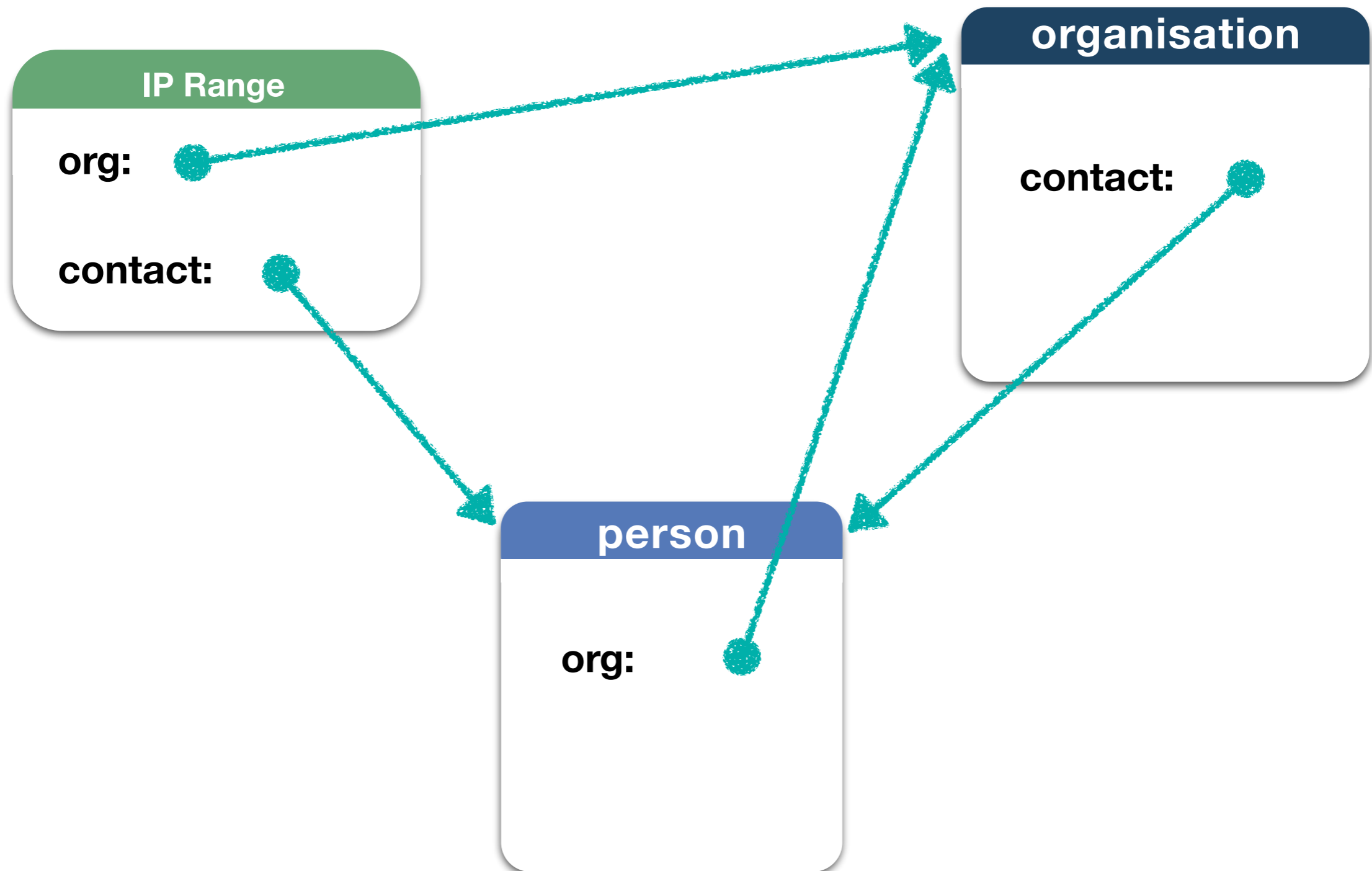


person:	Jean Blue
address:	Long Street 123
address:	76543 Big City
e-mail:	j.blue@example.com
nic-hdl:	<b>JB0123-RIPE</b>
mnt-by:	<b>SECURITY-MNT</b>
created:	(date & time)
last-modified:	(date & time)
source:	RIPE





# Objects Are Linked To Each Other



# Querying the RIPE Database



- Web interface
- Command line
- Full Text Search
- Restful API (XML/JSON)

## RIPE Database Query

Search term

Show full object details ?

Do not retrieve related objects ?

You can search up to 5 terms at once in the search box above, separating them with a semicolon.

**Sources**   Types   Hierarchy Flags   Inverse lookup

Search resource objects in all available databases ?

Search RIPE Database only

Are you looking for the [TEST Database?](#)



By submitting this form you explicitly express your agreement with the [RIPE Database Terms and Conditions](#)

**Search**

# Query Results



Responsible organisation: [Reseaux IP Europeens Network Coordination Centre \(RIPE NCC\)](#)  
Abuse contact info: [abuse@ripe.net](mailto:abuse@ripe.net)

inetnum:	<a href="#">193.0.24.0 - 193.0.30.255</a>	<a href="#">Login to update</a> 	<a href="#">RIPEstat</a> 
netname:	RIPENCC-MEETING-PUBLIC		
descr:	Reseaux IP Europeens Network Coordination Centre (RIPE NCC)		
remarks:	RIPE NCC Training Services & RIPE Meetings		
remarks:	This space is used as public space during RIPE meetings		
country:	NL		
admin-c:	<a href="#">BRD-RIPE</a>		
tech-c:	<a href="#">OPS4-RIPE</a>		
status:	ASSIGNED PA		
mnt-by:	<a href="#">RIPE-NCC-MNT</a>		
mnt-routes:	<a href="#">RIPE-NCC-MNT</a>		
mnt-domains:	<a href="#">RIPE-NCC-MNT</a>		
created:	2013-10-09T14:42:14Z		
last-modified:	2017-12-04T14:40:12Z		
source:	RIPE		

# Refining Queries



- Reduce the amount of objects returned
- Use options and flags to modify the results

Show full object details ?

Do not retrieve related objects ?

You can search up to 5 terms at once in the search box above, separating them with a semicolon.

Sources **Types** Hierarchy Flags Inverse lookup

Search resource objects in all available databases ?

Search RIPE Database only

# Results With Related Objects



Search term:

193.0.24.1

inetnum: 193.0.24.0 - 193.0.30.255

tech-c:

**OPS4-RIPE**

admin-c:

**BRD-RIPE**

role: RIPE NCC Operations

admin-c:

admin-c:

tech-c:

tech-c:

tech-c:

tech-c:

nic-hdl:

person: Brian Riddle

address: Stationsplein 11

address: 1012 AB Amsterdam

phone: +31 20 535 4444

e-mail: brian@ripe.net

nic-hdl: **BRD-RIPE**

**OPS4-RIPE**

route: 193.0.24.0/21

origin:

AS2121

# Results Without Related Objects



Search term:

**inetnum: 193.0.24.0 - 193.0.30.255**

**tech-c: OPS4-RIPE**

**admin-c: BRD-RIPE**

**route: 193.0.24.0/21**

**origin: AS2121**

# More Efficient Queries



- Default query brings back all related objects
- Use '-r' and '--no-personal' flags
- First find the resources
- Then look up organisations and persons

Search term

Show full object details ?

Do not retrieve related objects ?

# Network Objects



- Same object structure for IPv4 and IPv6

Network

**inetnum:** IPv4 RANGE  
**inet6num:** IPv6 PREFIX  
**netname:** NETWORK-NAME

Contact information

**country:** ZZ  
**org:** ORG-ZZ123-RIPE  
**admin-c:** AD321-RIPE  
**tech-c:** TE123-RIPE

Type of address space

**status:** ALLOC-ASSIGN

Protection of object

**mnt-by:** RIPE-NCC-HM-MNT  
**mnt-by:** DEFAULT-LIR-MNT

**source:** RIPE

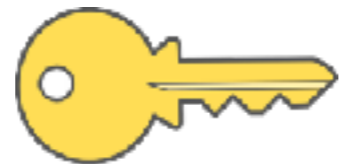


# Maintainers: Protecting Objects



<b>person:</b>	<b>John Smith</b>
address:	My Street 9876
address:	Office 123
e-mail:	js@example.org
phone:	+31 20 876 5432
nic-hdl:	JS123-RIPE
<u>mnt-by:</u>	<u>LIR-MNT</u>

<b>mntner:</b>	<b>LIR-MNT</b>
admin-c:	JS123-RIPE
notify:	js@example.org
upd-to:	js@example.org
auth:	MD5-PW \$1\$crypto-stuff
auth:	SSO email@domain.com
auth:	PGP-KEY-<key ID>
<u>mnt-by:</u>	<u>LIR-MNT</u>





# Live Demo

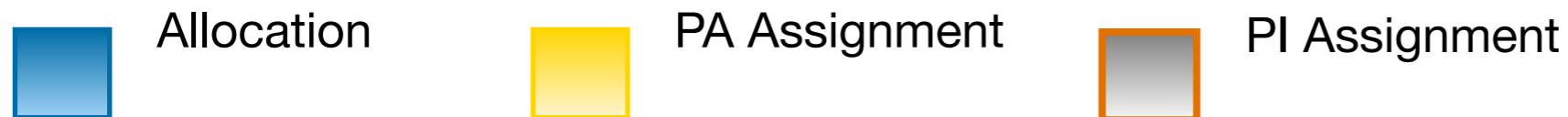
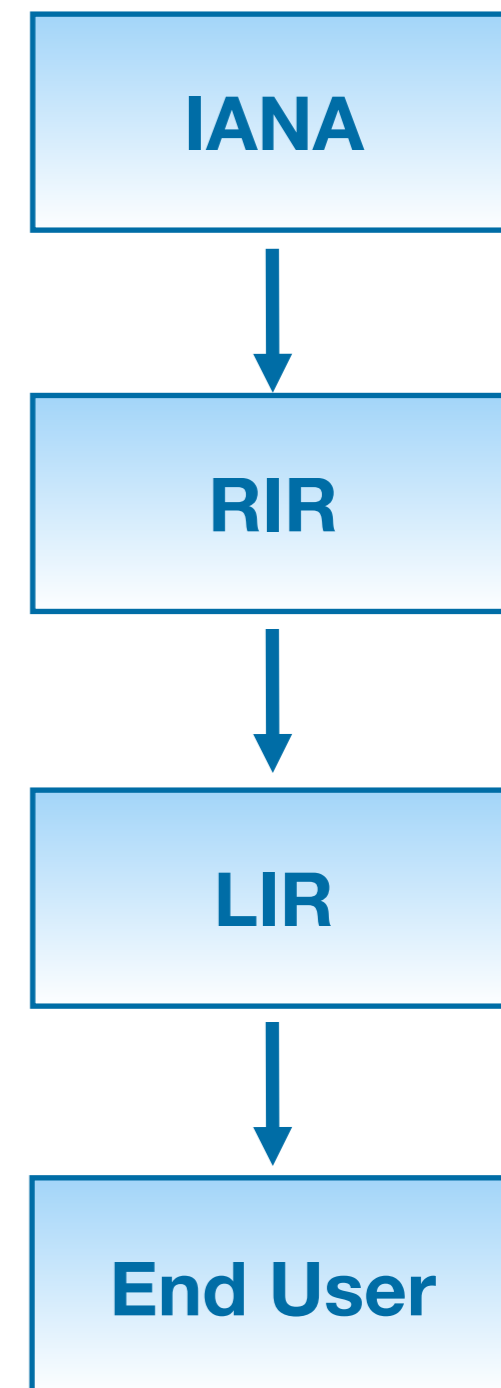
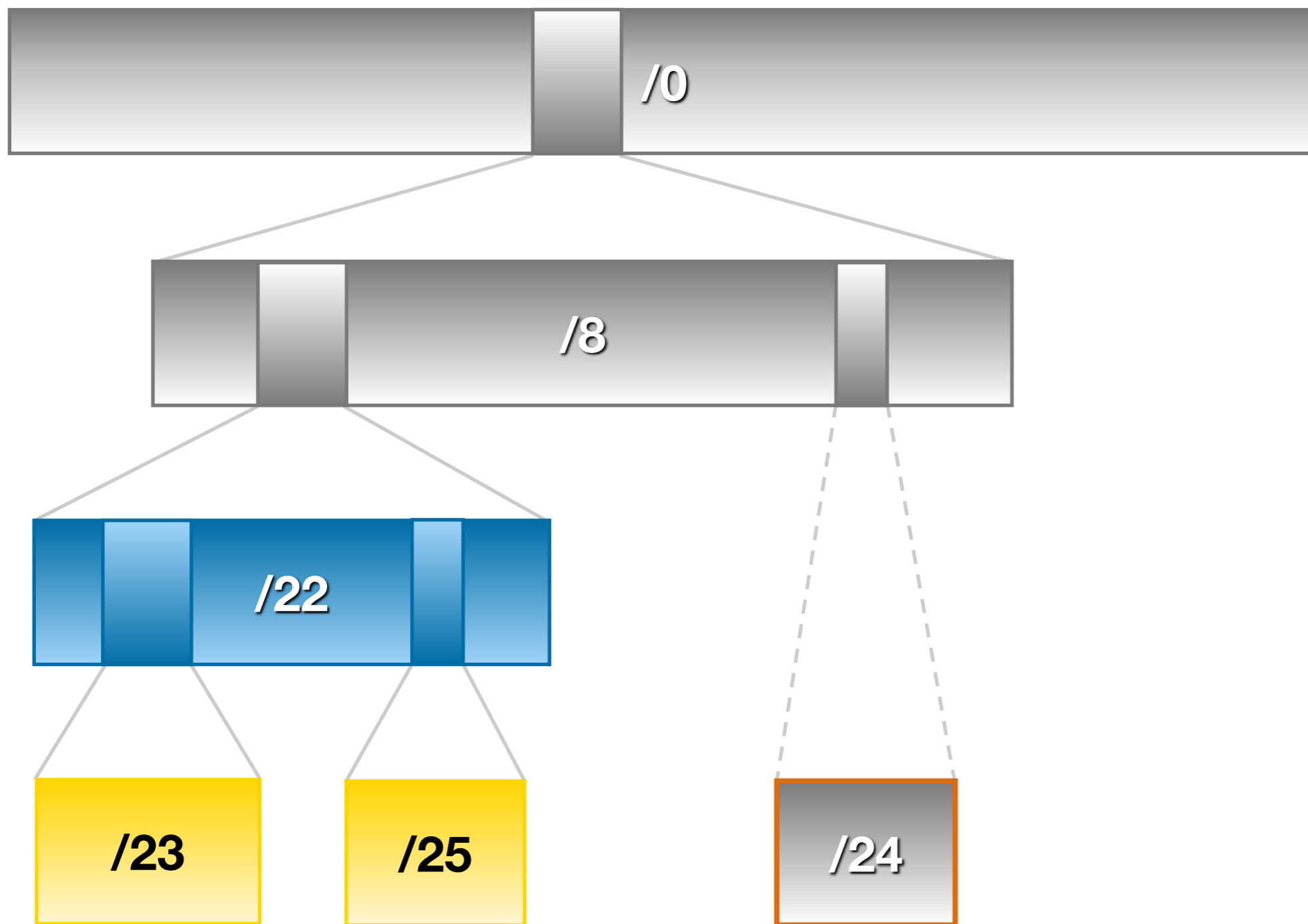
RIPE Database



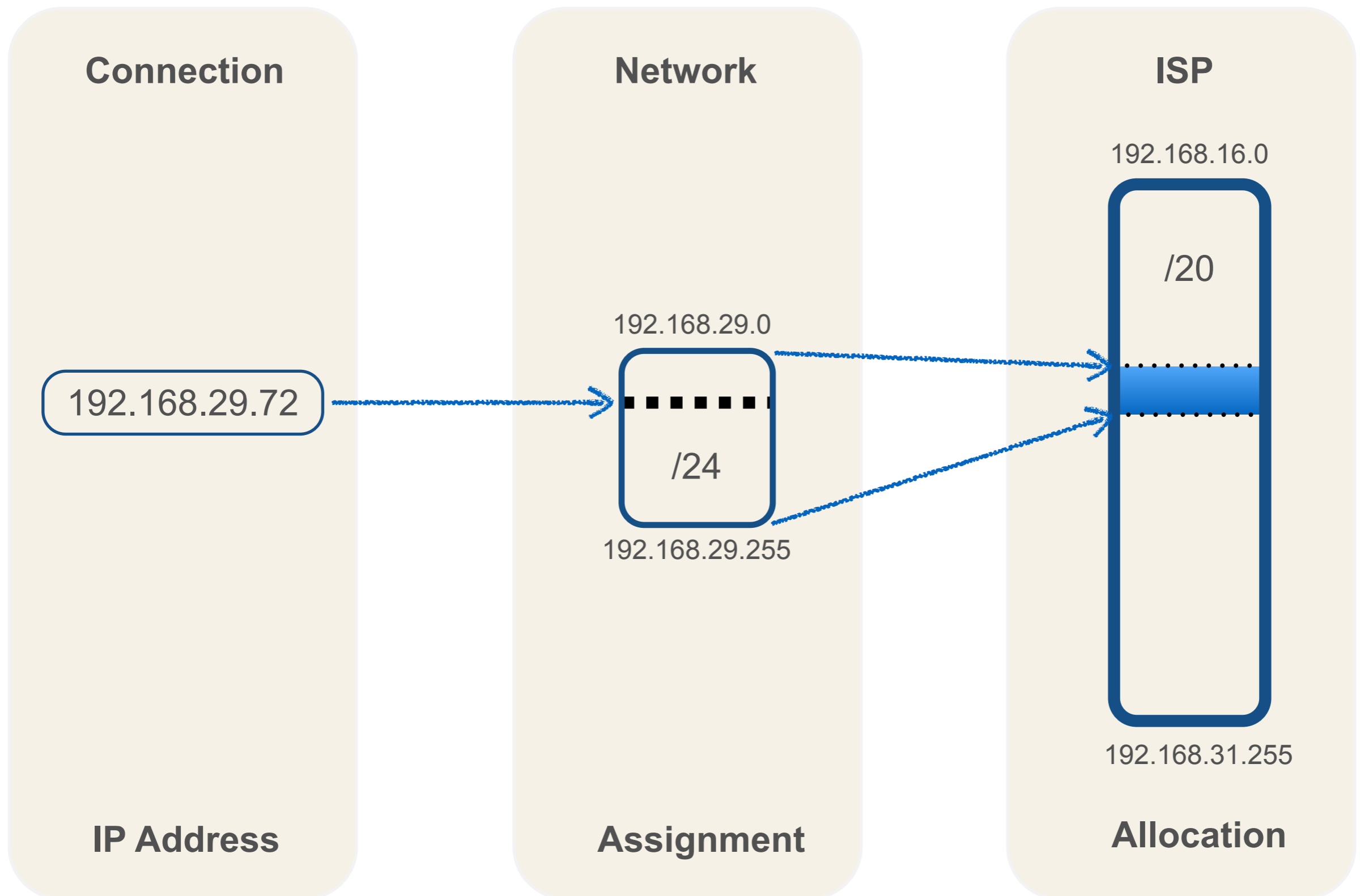
# RIPE Database Queries

IPv4

# IPv4 Address Distribution



# From One IP Address



# IPv4 objects: inetnum status



<b>TYPE</b>	<b>INETNUM STATUS</b>
Allocation	ALLOCATED PA
PA Assignment	ASSIGNED PA
Sub-allocation	SUB-ALLOCATED PA
PI Assignment	ASSIGNED PI

# IPv4 PA Assignment



<b>inetnum:</b>	<b>193.0.24.0 - 193.0.30.255</b>
<b>netname:</b>	<b>RIPENCC-MEETING-PUBLIC</b>
<b>descr:</b>	<b>Reseaux IP Europeens Network Coordination Centre</b>
<b>country:</b>	<b>NL</b>
<b>admin-c:</b>	<b>BRD-RIPE</b>
<b>tech-c:</b>	<b>OPS4-RIPE</b>
<b>status:</b>	<b>ASSIGNED PA</b>
<b>mnt-by:</b>	<b>RIPE-NCC-MNT</b>
<b>mnt-routes:</b>	<b>RIPE-NCC-MNT</b>
<b>mnt-domains:</b>	<b>RIPE-NCC-MNT</b>
<b>created:</b>	<b>2013-10-09T14:42:14Z</b>
<b>last-modified:</b>	<b>2013-10-09T14:42:14Z</b>
<b>source:</b>	<b>RIPE</b>

# IPv4 PA Allocation



**inetnum:** 193.0.24.0 - 193.0.31.255

**netname:** NL-RIPENCC-TS-19930901

**descr:** Reseaux IP Europeens Network Coordination Centre

**country:** NL

**org:** ORG-Bb2-RIPE

**admin-c:** BRD-RIPE

**admin-c:** TS7729-RIPE

**tech-c:** OPS4-RIPE

**status:** ALLOCATED PA

**mnt-by:** RIPE-NCC-HM-MNT

**mnt-lower:** RIPE-NCC-MNT

**mnt-routes:** RIPE-NCC-MNT

**mnt-domains:** RIPE-NCC-MNT

**created:** 2008-04-09T11:04:17Z

**last-modified:** 2015-09-17T08:49:39Z

**source:** RIPE # Filtered



# IPv4 PA Sub-Allocation



```
inetnum:        62.39.252.0 - 62.39.253.255
netname:        MAGIC-ONLINE
descr:          IP Pool for DSL Services
descr:          Gaoland
country:        FR
admin-c:        EC4108-RIPE
tech-c:         EC4108-RIPE
status:         SUB-ALLOCATED PA
remarks:        *****
remarks:        * For spam & abuse issues email to abus@magic.fr *
remarks:        *****
mnt-by:         LDCOM-MNT
created:        2003-11-20T14:11:01Z
last-modified:  2007-10-19T09:56:20Z
source:        RIPE # Filtered
```

# IPv4 PI Assignment



```
inetnum:          193.189.108.0 - 193.189.109.255
netname:          UNI-INVEST-NET
descr:           UNIVERSAL INVESTMENT GMBH
country:         DE
org:             ORG-UIG1-RIPE
sponsoring-org:  ORG-CI9-RIPE
admin-c:         TD3339-RIPE
tech-c:          TD3339-RIPE
status:          ASSIGNED PI
mnt-by:          RIPE-NCC-END-MNT
mnt-by:          EU-COLT-MNT
mnt-routes:      EU-COLT-MNT
mnt-domains:     EU-COLT-MNT
created:         2005-05-03T11:17:38Z
last-modified:   2015-05-05T01:47:35Z
source:          RIPE # Filtered
```

# Navigating the Hierarchy

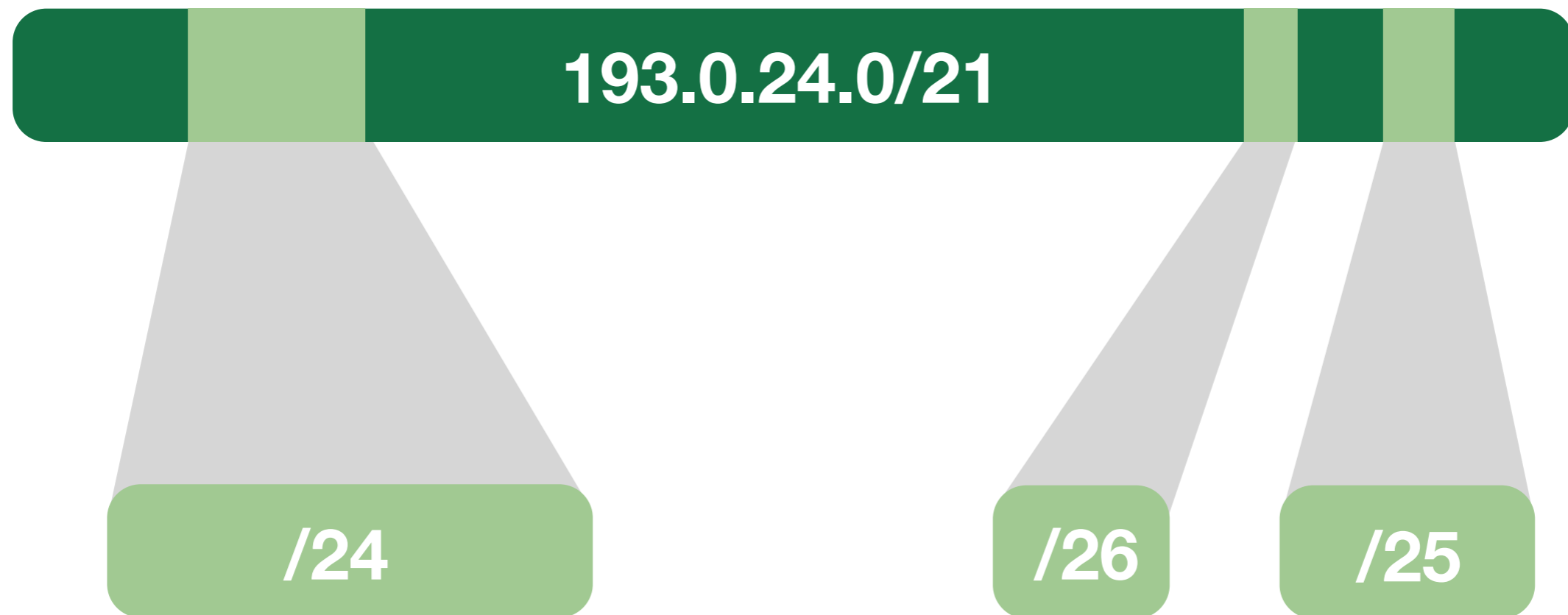


- With PA space, you want to find what is under or above the inetnum object
  - Under = More Specific
  - Above = Less Specific
- There are flags: -m, -M, -I, -L
- Also in the “Hierarchy Flags” tab

# More Specific inetnums: -m



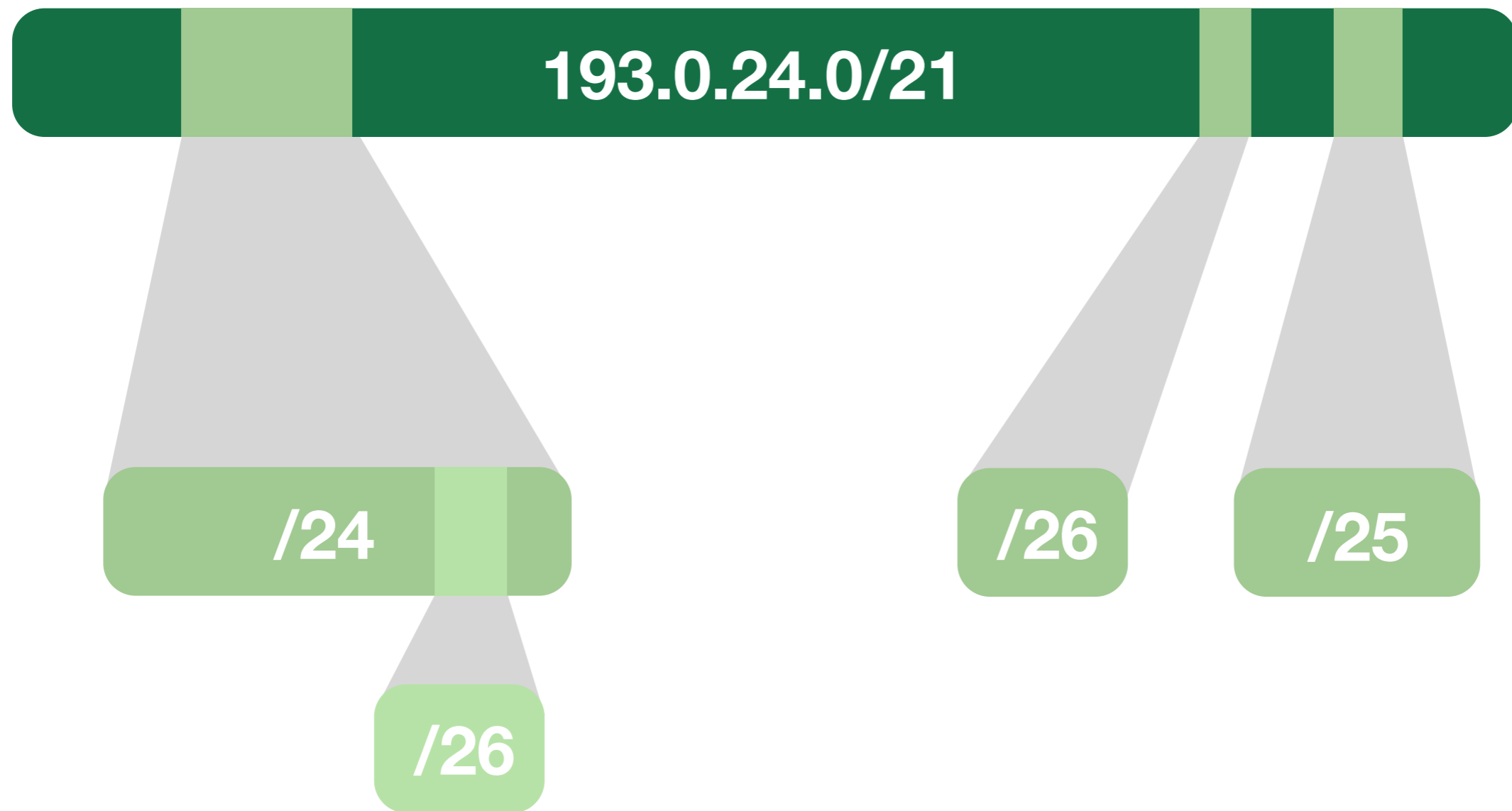
-m 193.0.24.0/21



# More Specific inetnums: -M



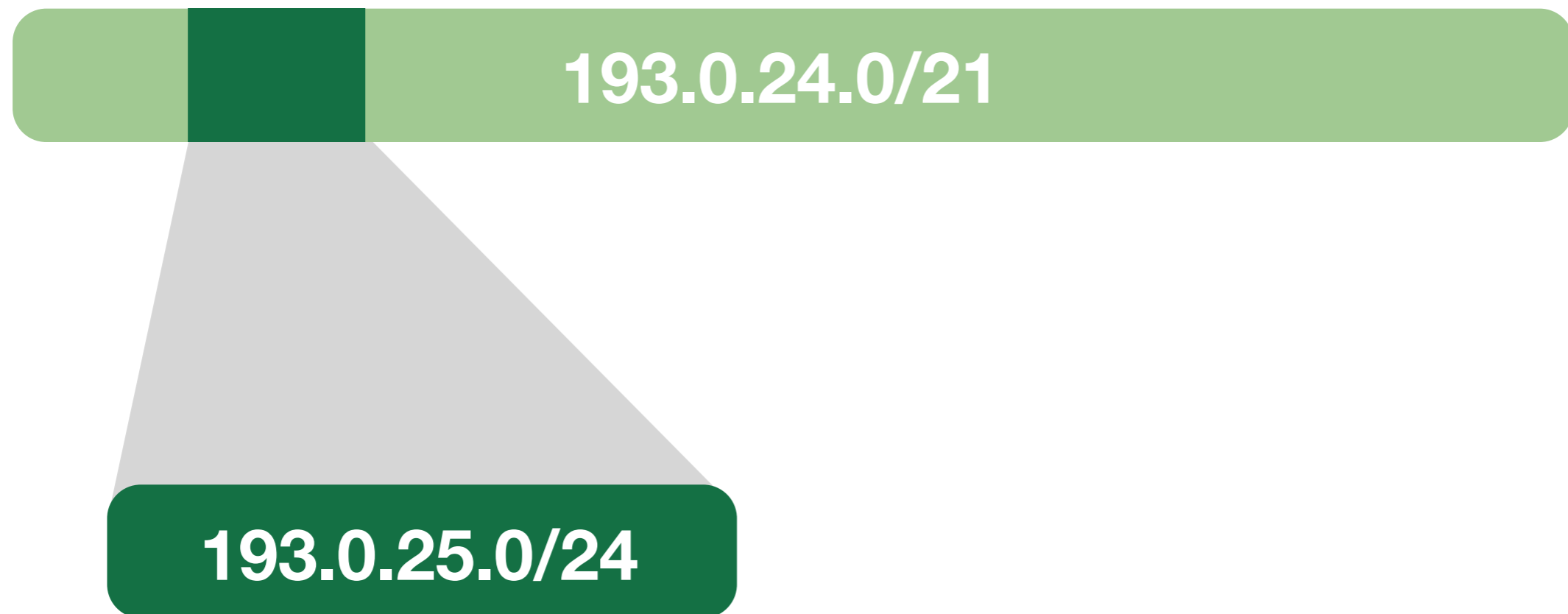
-M 193.0.24.0/21



# Less Specific inetnums: -I



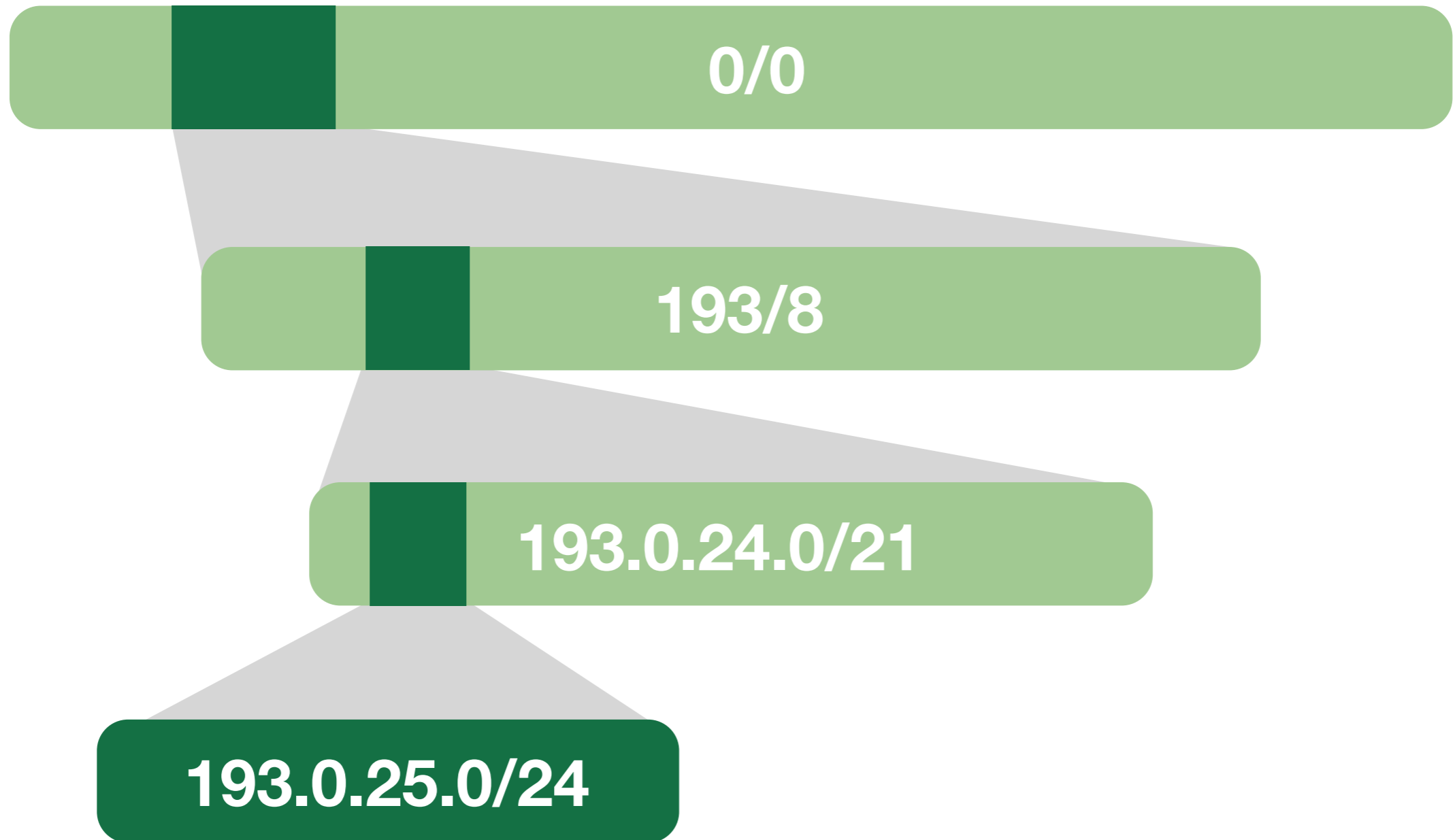
-I 193.0.25.0/24



# Less Specific inetnums: -L



-L 193.0.25.0/24



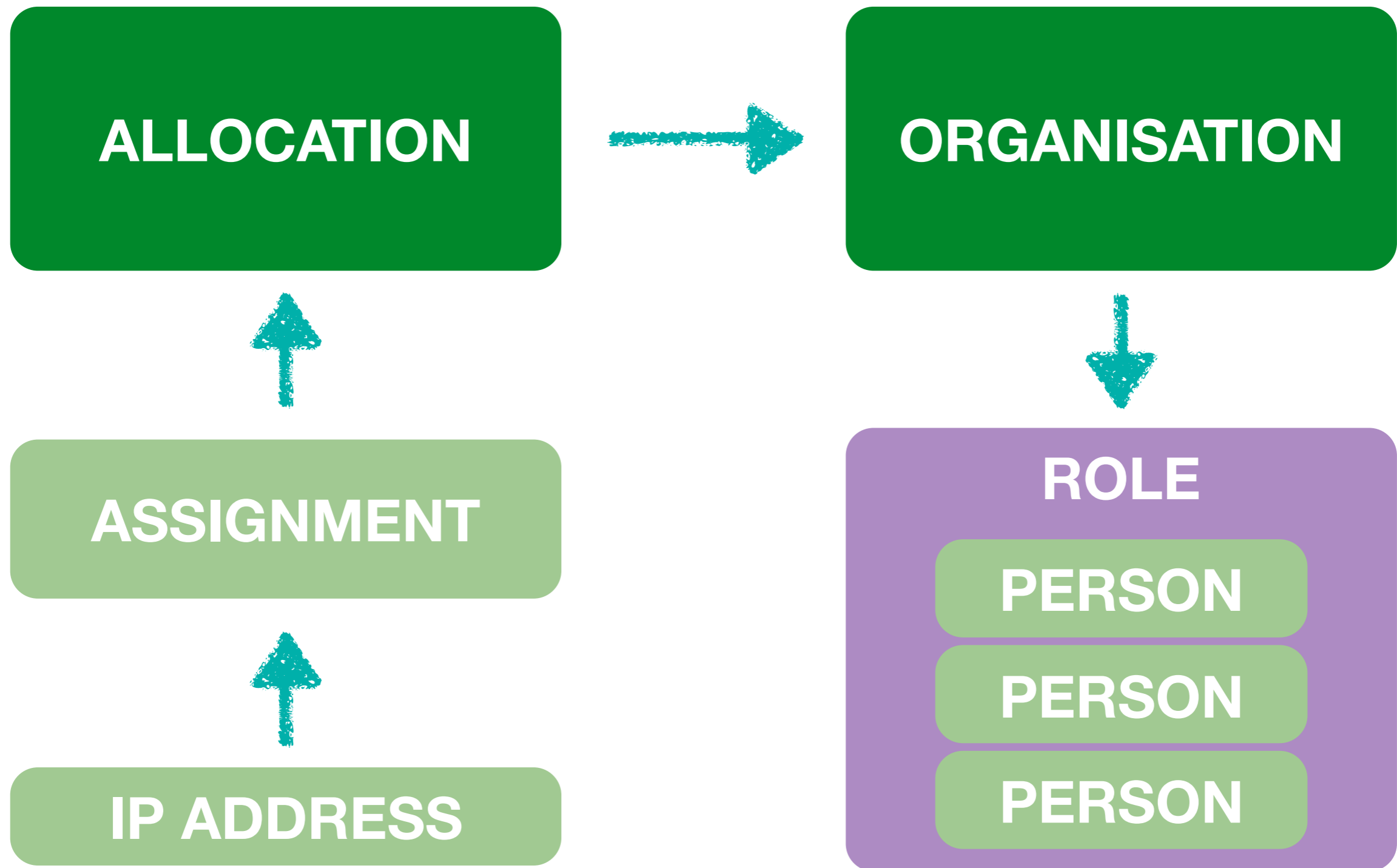
# Hierarchy Flags Tab



Sources	Types	Hierarchy Flags	Inverse lookup
		<p><b>?</b></p> <ul style="list-style-type: none"><li><input checked="" type="radio"/> No hierarchy flag (default)</li><li><input type="radio"/> l - Returns first level less specific inetnum, inet6num or route(6) objects, excluding exact matches.</li><li><input type="radio"/> L - Returns all level less specific inetnum, inet6num or route(6) objects, including exact matches.</li><li><input type="radio"/> m - Returns first level more specific inetnum, inet6num or route(6) objects, excluding exact matches.</li><li><input type="radio"/> M - Returns all level more specific inetnum, inet6num or route(6) objects, excluding exact matches.</li><li><input type="radio"/> x - Requests that only an exact match on a prefix be performed. If no exact match is found no objects are returned.</li><li><input type="checkbox"/> d - When used with a hierarchical flags (like --one-less), both address and route object types and domain object types are returned.</li></ul>	



# Relation between IP and LIR





# Contact Information

- Objects have contact information
- Organisation
  - “org:” points to an organisation object
- admin-c, tech-c, zone-c, abuse-c
  - point to person/role objects



# Organisation Object



```
organisation:  ORG-TDE1-RIPE
org-name:     TELEFONICA DE ESPANA
org-type:     LIR
address:      C/ Gran Via 28
address:      28013
address:      Madrid
address:      SPAIN
phone:        +34915846842
fax-no:       +34915846842
e-mail:       adminis.ripe@telefonica.com
admin-c:      ATdE1-RIPE
admin-c:      KIX1-RIPE
abuse-c:      NSYS2-RIPE
created:      2004-04-17T11:18:22Z
last-modified: 2015-05-06T14:02:02Z
source:      RIPE
```

# Person Object



```
person:          Rodolfo Garcia Penas
address:         Telefonica de España
address:         Ronda de la Comunicación s/n
address:         28050 Madrid
address:         Spain
phone:           +34914820830
remarks:         For mail filtering or abuse problems
contact with the abuse mailbox
abuse-mailbox:  nemesys@telefonica.es
nic-hdl:         KIX1-RIPE
mnt-by:          MAINT-AS3352
created:         2008-11-13T15:53:02Z
last-modified:  2013-02-15T10:05:37Z
source:         RIPE
```

# Role Object



role: Administradores Telefonica de Espana  
address: Ronda de la Comunicacion s/n  
address: Edificio Norte 1, planta 6  
address: 28050 Madrid  
address: SPAIN  
org: ORG-TDE1-RIPE  
e-mail: adminis.ripe@telefonica.com  
admin-c: KIX1-RIPE  
tech-c: TTDE1-RIPE  
nic-hdl: ATDE1-RIPE  
mnt-by: MAINT-AS3352  
abuse-mailbox: nemesys@telefonica.es  
created: 2006-01-18T12:24:41Z  
last-modified: 2014-04-23T17:23:39Z  
source: RIPE



# Live Demo

IPv4 Queries



# Questions





# **Basic IPv6 Facts**

The WHY, WHAT and HOW



# Why IPv6?



- IPv4 = ~4 billion possible addresses
- Not enough for everybody to connect
- NAT extends the possibilities of IPv4, but...
  - Has performance issues
  - Difficult to track users



# What is IPv6?

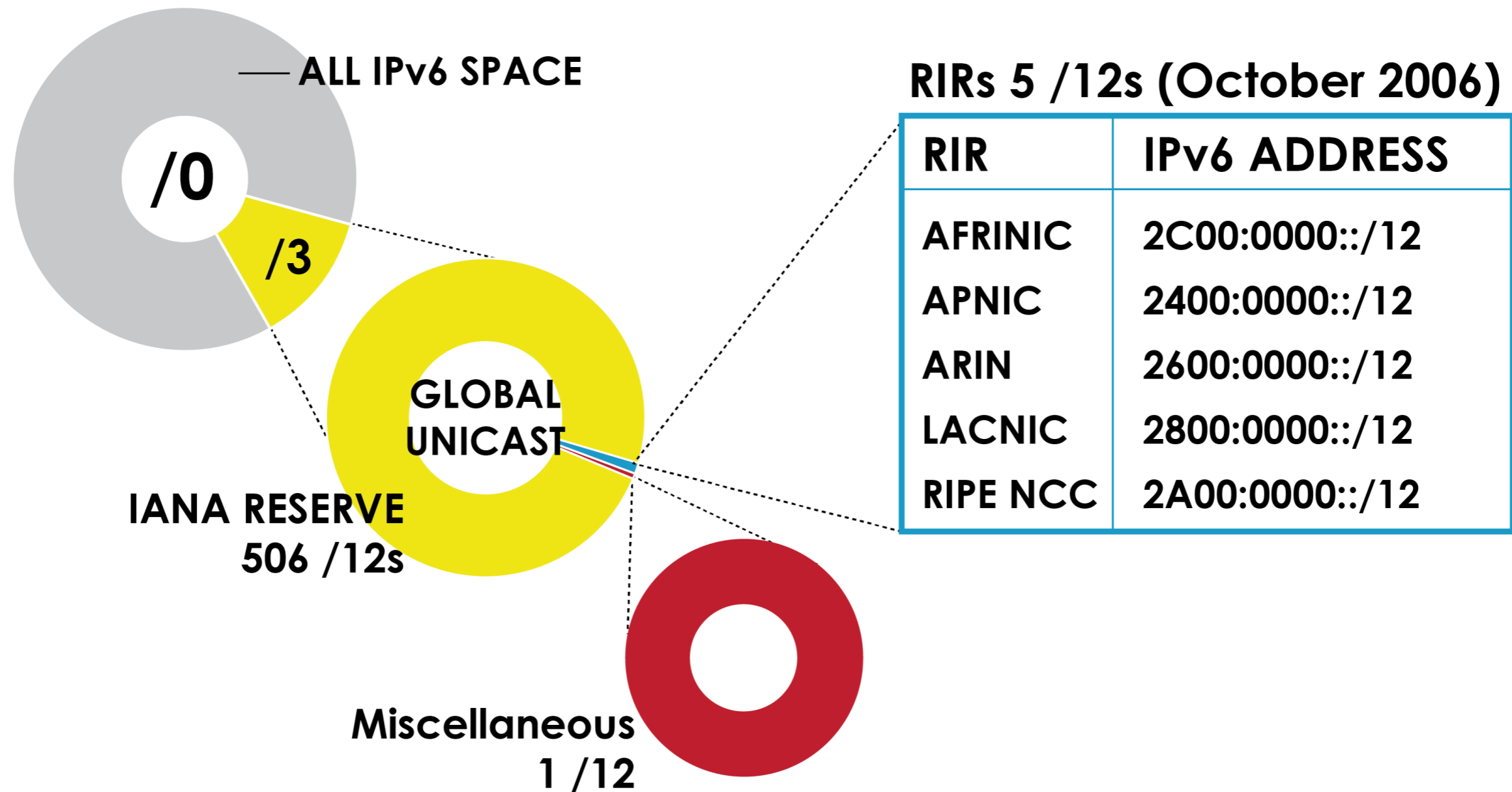
- 128 bits address space =  $2^{128}$  addresses
- Notation in CIDR is similar to IPv4
  - /128 = one IPv6 address
  - /64 = one subnet
  - /56 - /48 = typical assignment sizes
  - /32 = minimum allocation

# IPv4 compared to IPv6

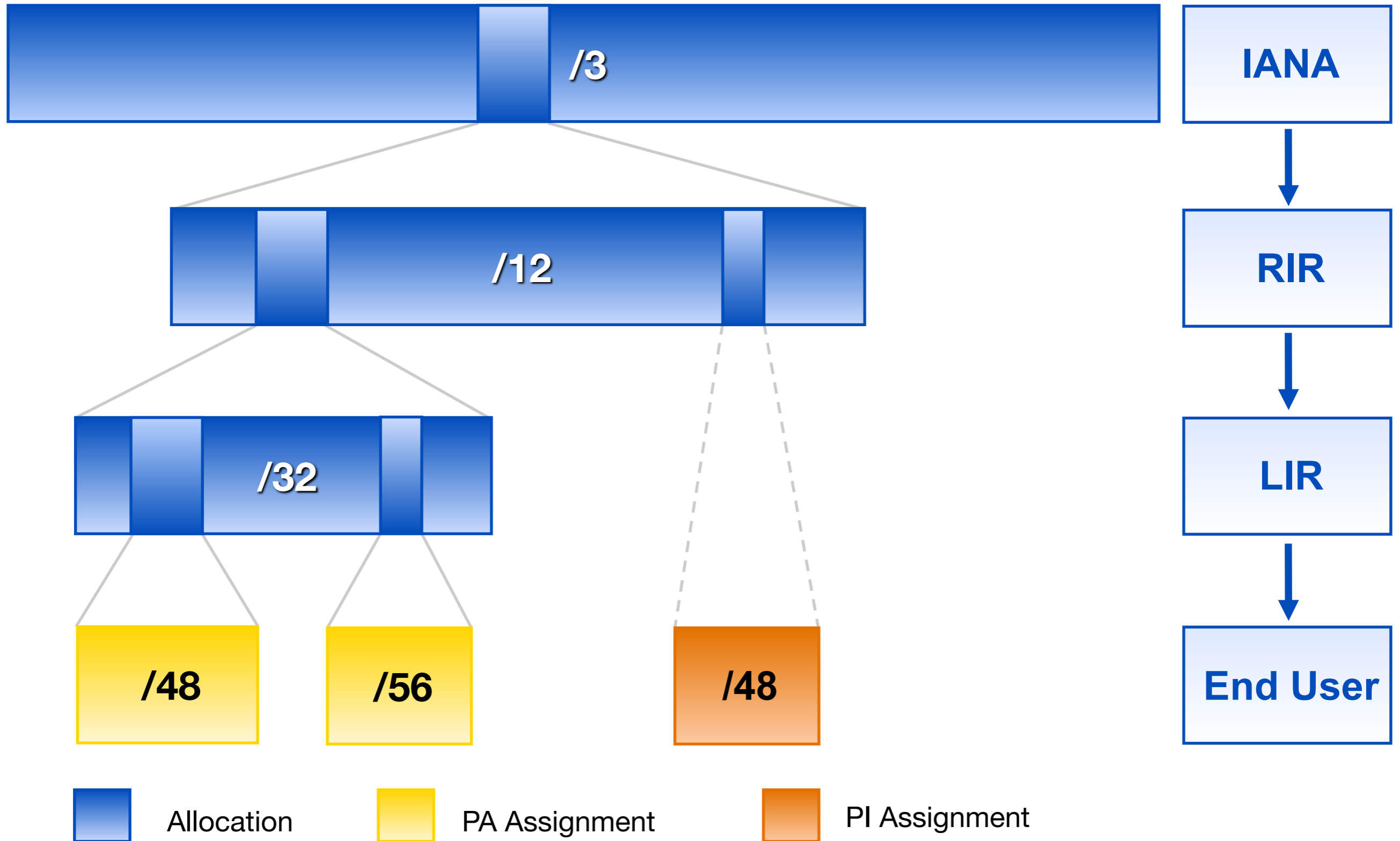


IPv4		IPv6	
/32	1 IP address	/32	4 billion x /64 subnets
/24	256 IPs Typical subnet	/64	1 subnet
/22	1024 IPs Minimum allocation	/48	65K subnets Typical assignment

# IPv6 Address Distribution



# IPv6 Address Distribution



# Multiple address types



Addresses	Range	Scope
Unspecified	::/128	n/a
Loopback	::1	host
Link Local	fe80::/10	link
Unique Local	fc00::/7	global
Global Unicast	2000::/3	global
Multicast	ff00::/8	variable

# Address Notation

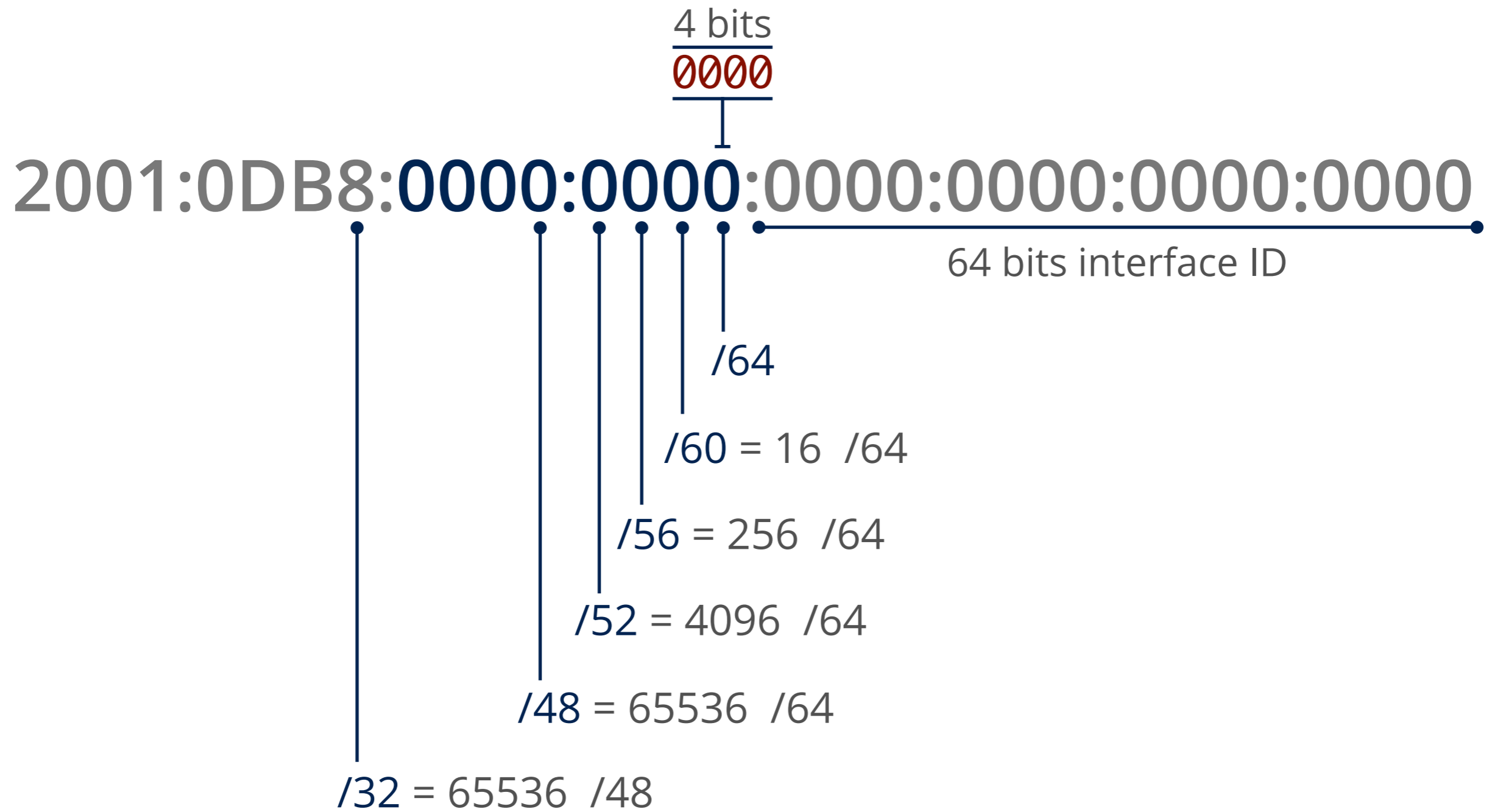


**2001:0db8:003e:ef11:0000:0000:c100:004d**

**2001:0db8:003e:ef11:0000:0000:c100:004d**

**2001:db8:3e:ef11:0:0:c100:4d**

# IPv6 Subnetting

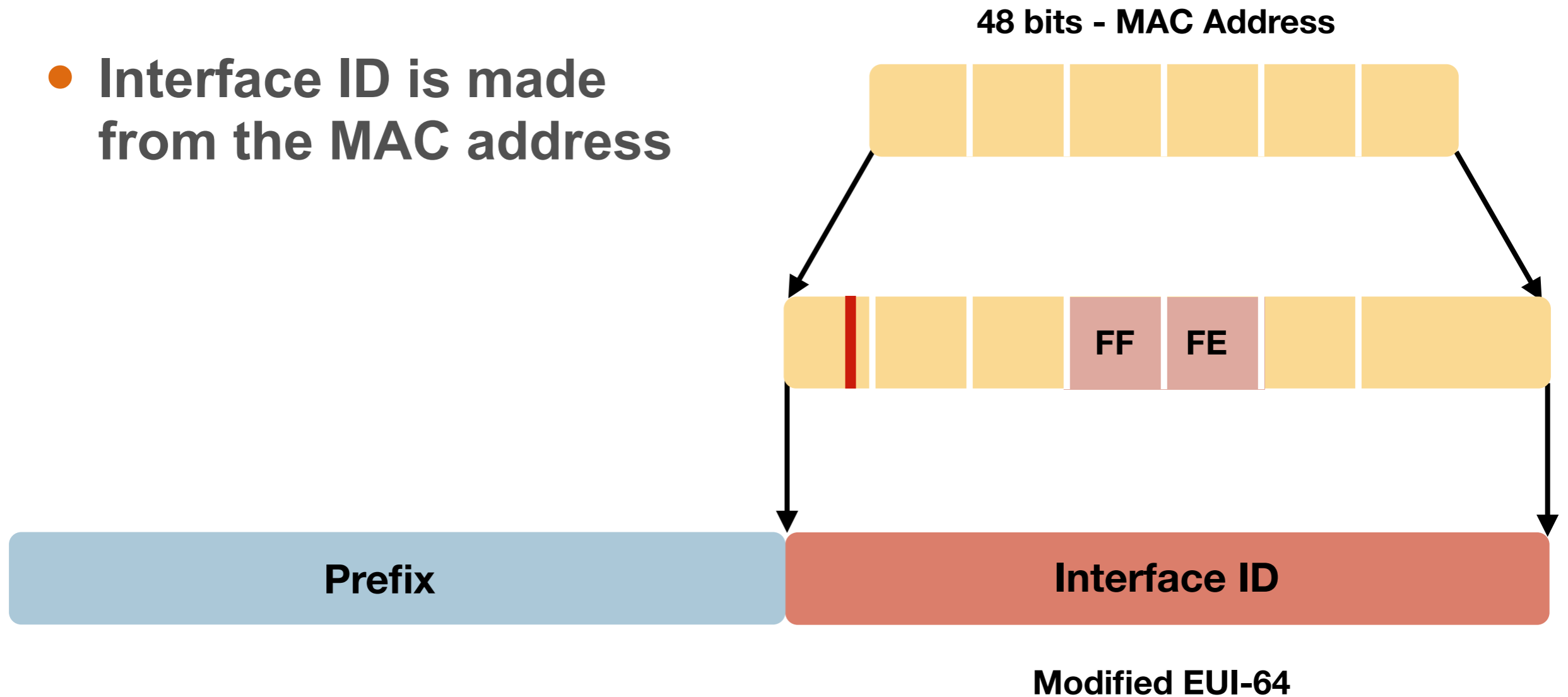




# Address Auto-Configuration



- Interface ID is made from the MAC address





# Privacy Extensions

- Changes the interface ID over time
- The prefix stays the same while connected to network

**2001:0DB8:0000:0000:**0000:0000:0000:0000

Prefix remains the same

Interface ID changes

# Interfaces have multiple addresses



- Link Local                      Self-generated - No Internet  
**fe80::6676:baff:fe98:d5e**
- Unique Local                    Just like private IPv4 - No Internet  
**fda3:3dcb:ebee::6676:baff:fe98:d5e**
- Global Unicast                    From /64 - Public Internet  
**2001:db8:2e8:13:6676:baff:fe98:d5e**  
**2001:db8:2e8:13:694a:1337:8ed4:77b3**

# IPv6 Assignments



~~IPs ?~~

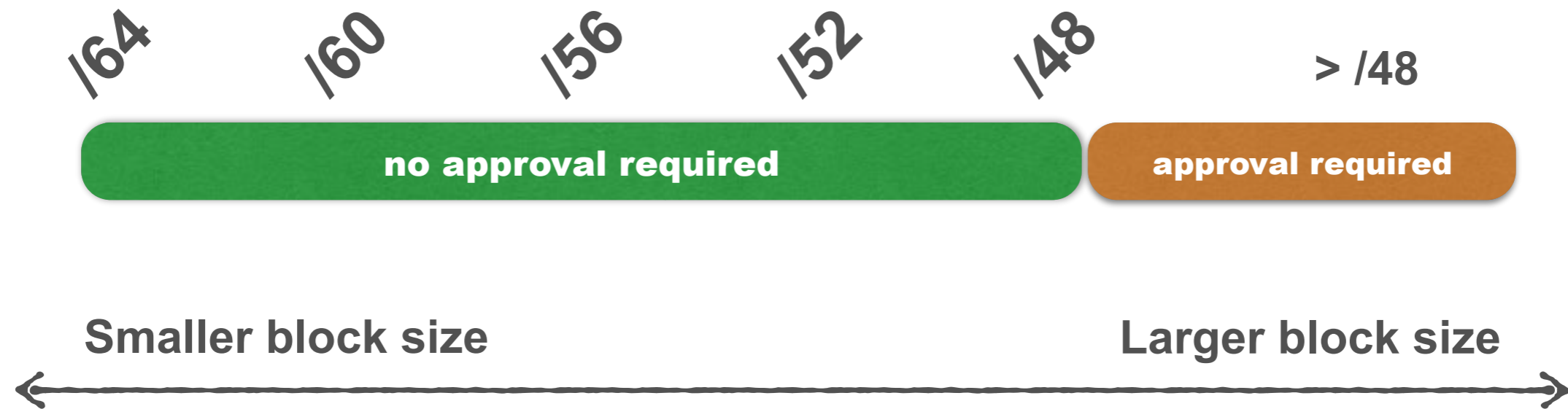


**Subnets!**

**1 subnet = /64**

**18,446,744,073,709,551,616 addresses**

# IPv6 Assignments



Prefix	Number of /64 subnets
/64	1
/60	16
/56	256
/52	4096
/48	65536

# IPv6 Assignments



**/64**



# IPv6 Assignments



**/56**



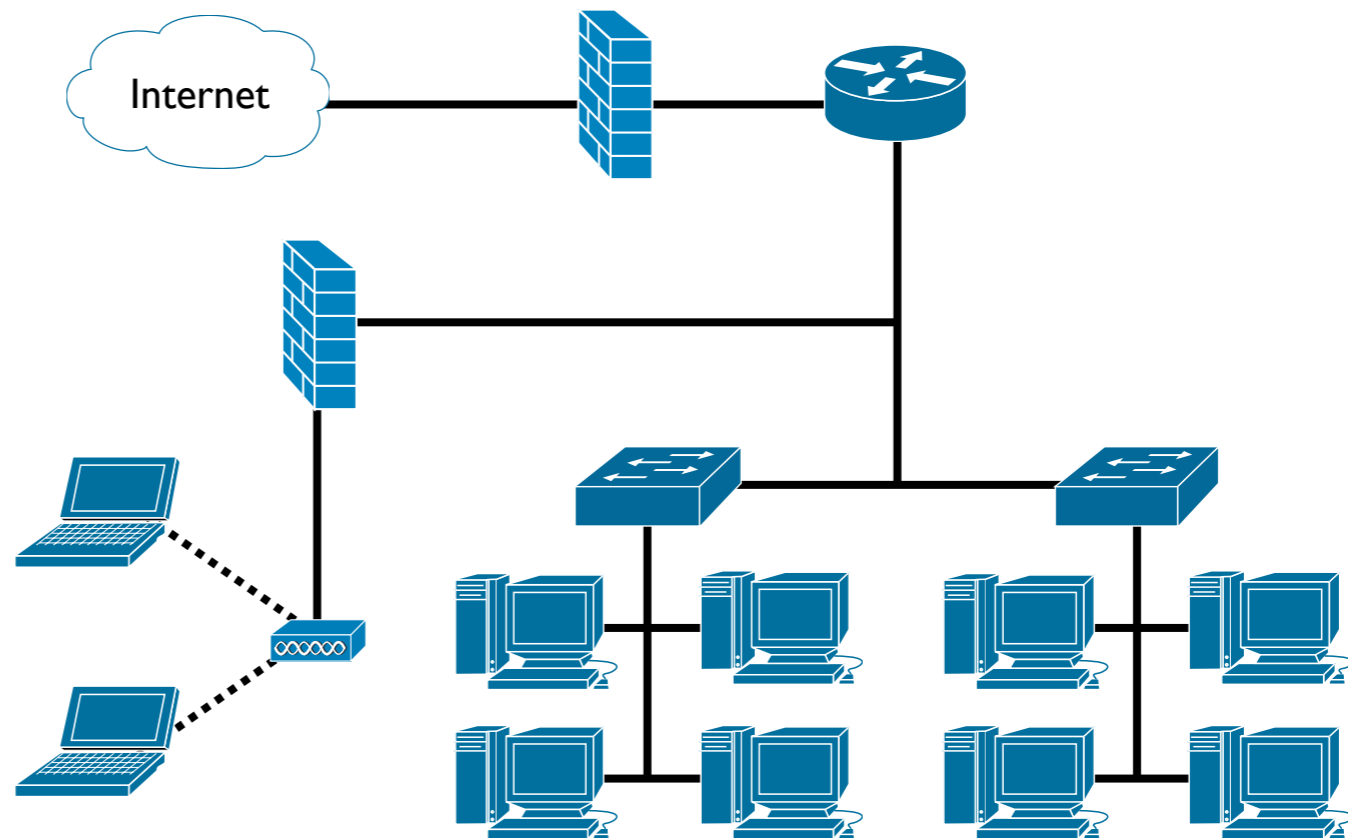
**/48**



# IPv6 Assignments

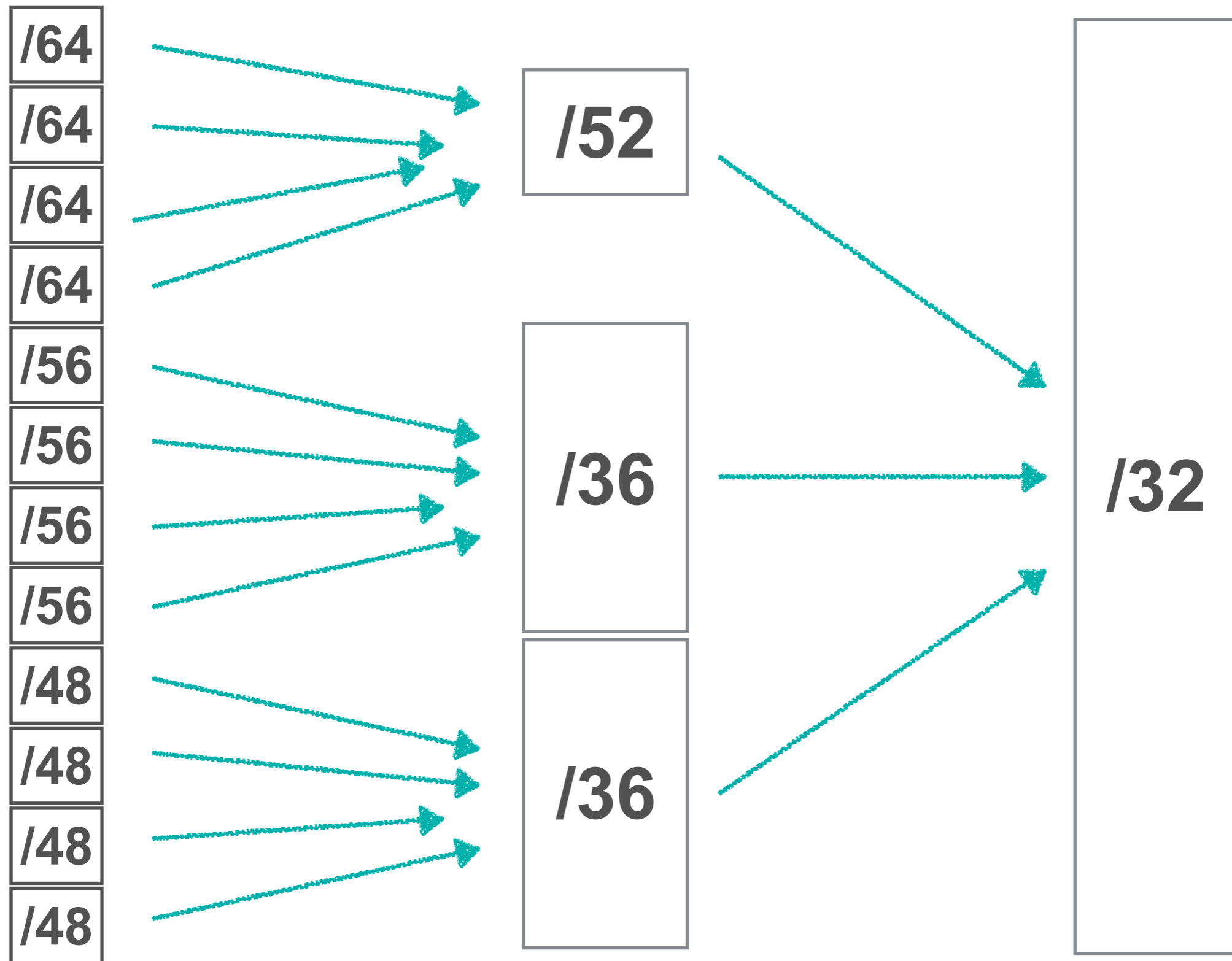


/48





# Aggregation in IPv6





# Questions

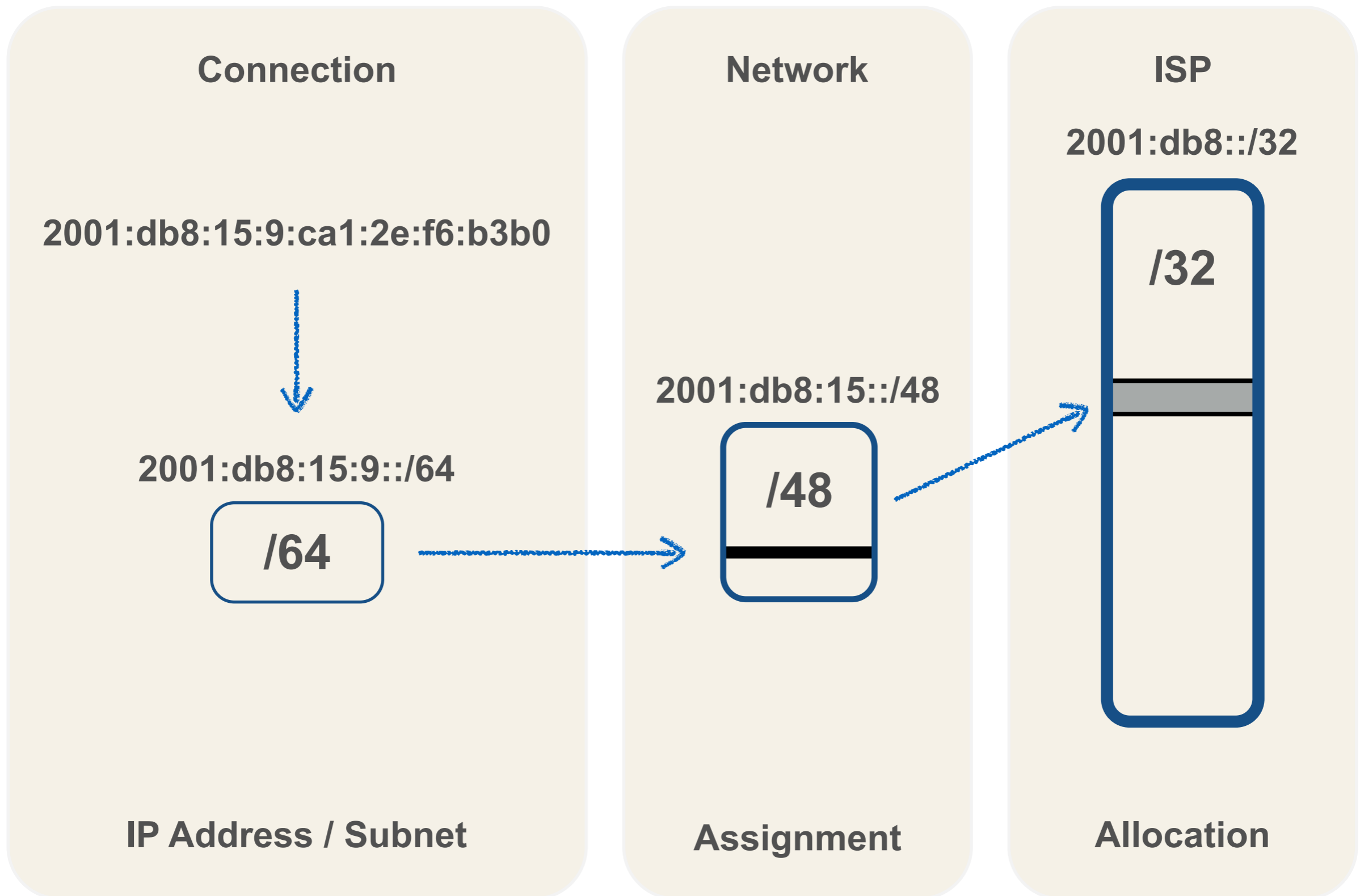




# RIPE Database Queries

IPv6

# From One IP Address



# IPv6 objects: inet6num status



<b>TYPE</b>	<b>INET6NUM STATUS</b>
Allocation	ALLOCATED-BY-RIR
PA Assignment	ASSIGNED
Group of Assignments	AGGREGATED-BY-LIR
Sub-allocation	ALLOCATED-BY LIR
PI Assignment	ASSIGNED PI

# IPv6 PA Assignment



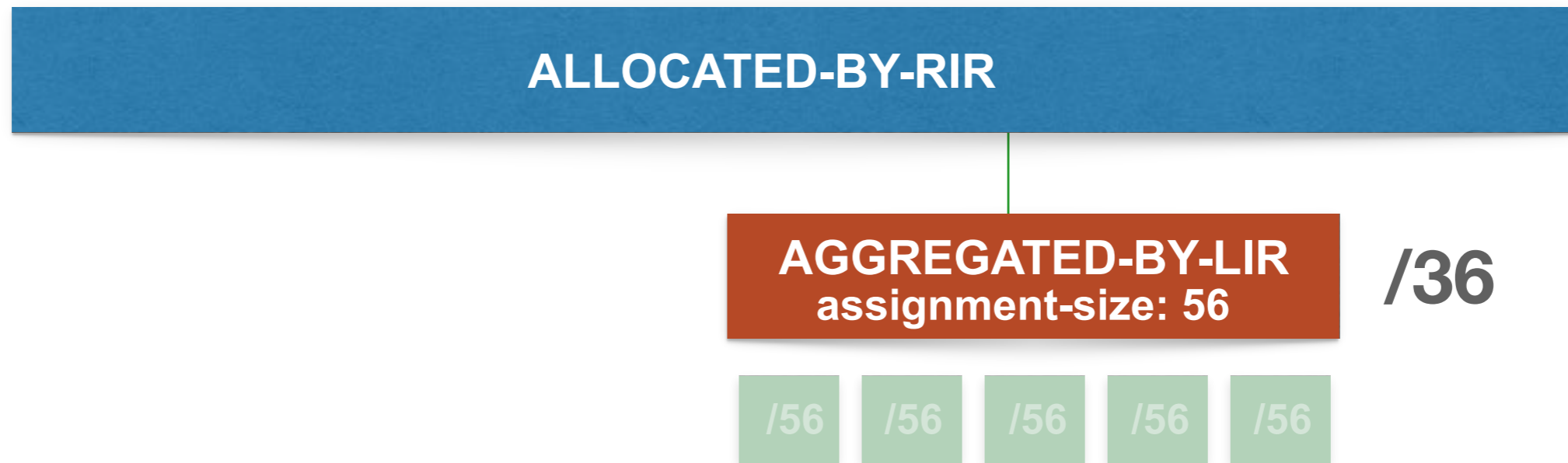
```
inet6num:    2a02:9010:87::/48
netname:     TGT
descr:       TGT
descr:       Internet Public Addresses
descr:       133828
country:     ES
admin-c:     FA4939-RIPE
tech-c:      FA4939-RIPE
status:      ASSIGNED
mnt-by:      MAINT-AS3352
created:     2014-04-16T11:45:58Z
last-modified: 2014-04-16T11:45:58Z
source:      RIPE
```

# IPv6 Group of PA Assignments



```
inet6num:      2a01:b600:e000::/36
netname:       EHIWEB-IPV6-DYN-1
descr:         Ehiweb xDSL IPv6 Dynamic Addresses 1st Pool
country:       IT
org:           ORG-ES53-RIPE
admin-c:       MS17084-RIPE
tech-c:        MS17084-RIPE
status:        AGGREGATED-BY-LIR
assignment-size: 48
mnt-by:        MNT-EHIWEB
created:       2012-05-22T11:38:56Z
last-modified: 2012-05-22T11:38:56Z
source:       RIPE # Filtered
```

# Using AGGREGATED-BY-LIR



- Can be used to group customers
  - example: residential broadband customers
- **“assignment size:”** = assignment of each customer



# IPv6 Allocation



```
inet6num:      2a02:9000::/23
netname:       ES-TELEFONICA-20110302
descr:        Telefonica de Espana
country:       ES
org:          ORG-TDE1-RIPE
admin-c:      ATdE1-RIPE
tech-c:       TTdE1-RIPE
status:       ALLOCATED-BY-RIR
mnt-by:       RIPE-NCC-HM-MNT
mnt-lower:    MAINT-AS3352
mnt-routes:   MAINT-AS3352
created:      2011-03-02T17:17:14Z
last-modified: 2011-03-02T17:17:14Z
source:       RIPE # Filtered
```

# IPv6 Sub-Allocation



```
inet6num:      2001:7b8:1000::/36
netname:       NL-BIT2
descr:         BIT IPv6 deployment
country:       NL
admin-c:       BIT-RIPE
tech-c:        BIT-RIPE
remarks:       For information, contact the NOC <noc@bit.nl>
mnt-by:        BIT-MNT
status:        ALLOCATED-BY-LIR
created:       2002-04-05T18:36:30Z
last-modified: 2007-01-17T08:32:11Z
source:        RIPE # Filtered
```

# IPv6 PI Assignment

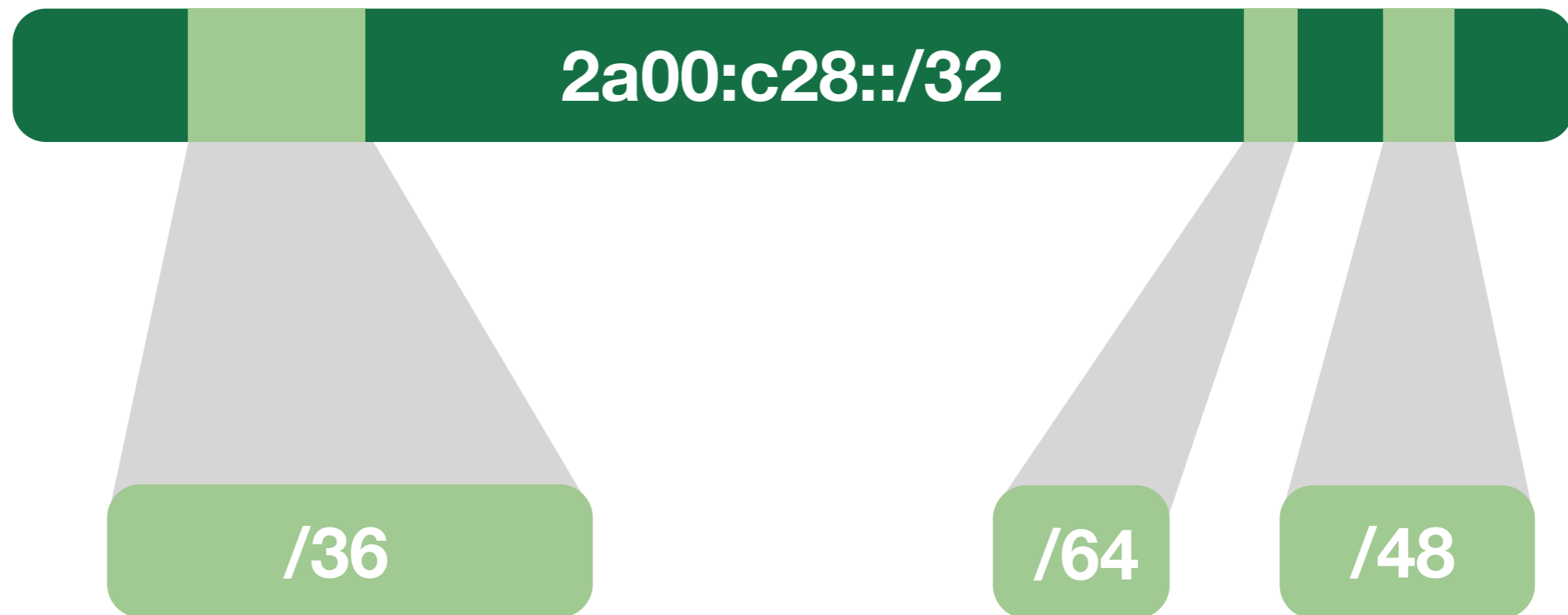


```
inet6num:      2001:67c:29cc::/48
netname:       HCS-V6-NET
descr:        HCS HEALTH COMMUNICATION SERVICE GMBH
country:      AT
org:          ORG-HHCS1-RIPE
sponsoring-org: ORG-iEWA1-RIPE
admin-c:      WW85-RIPE
tech-c:       WW85-RIPE
status:       ASSIGNED PI
mnt-by:       RIPE-NCC-END-MNT
mnt-by:       AS3330-MNT
mnt-routes:   AS3330-MNT
mnt-domains:  AS3330-MNT
created:      2012-06-06T09:26:00Z
last-modified: 2015-08-05T13:49:51Z
source:      RIPE # Filtered
```

# More Specific inet6nums: -m



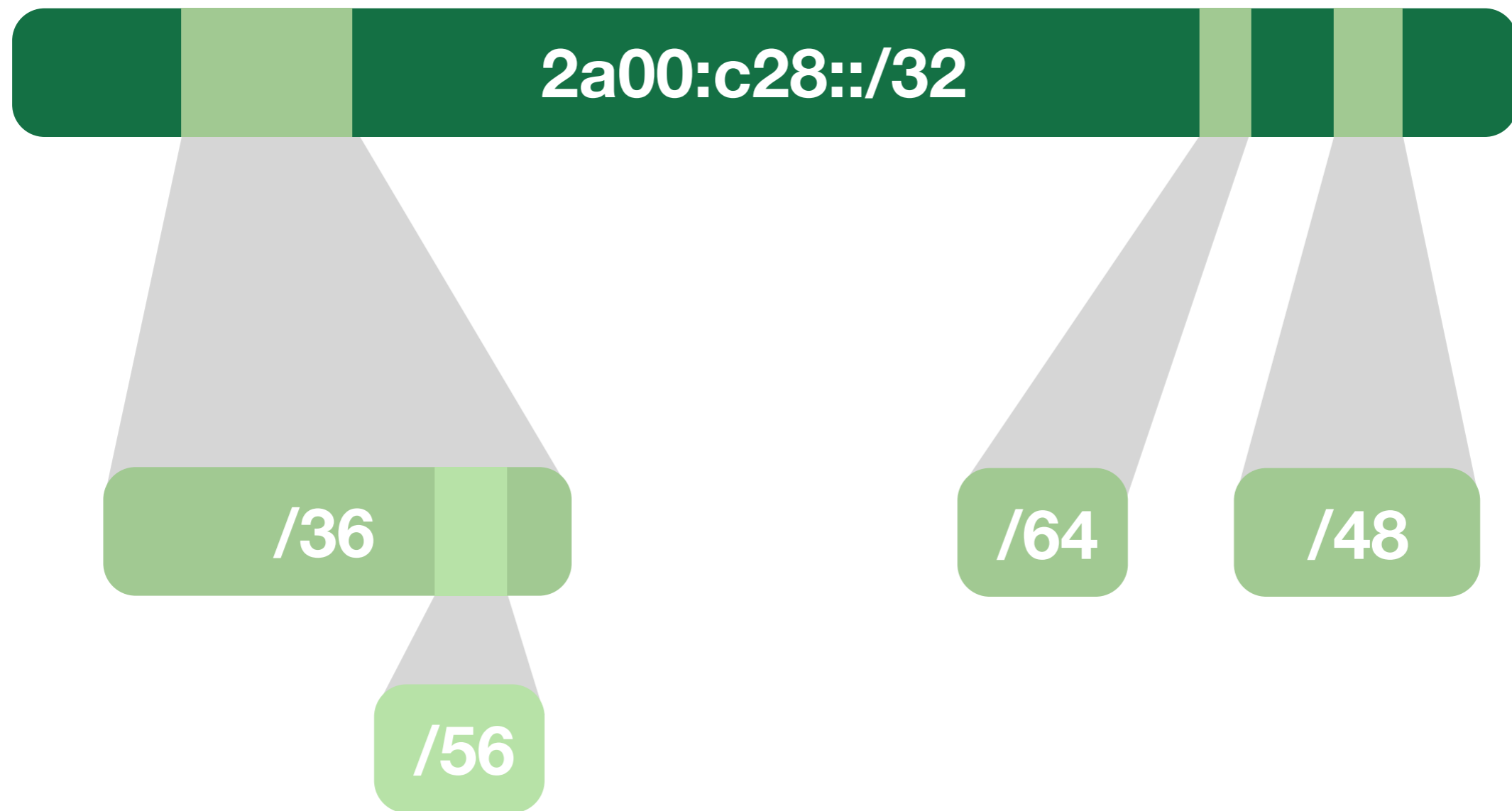
`-m 2a00:c28::/32`



# More Specific inet6nums: -M



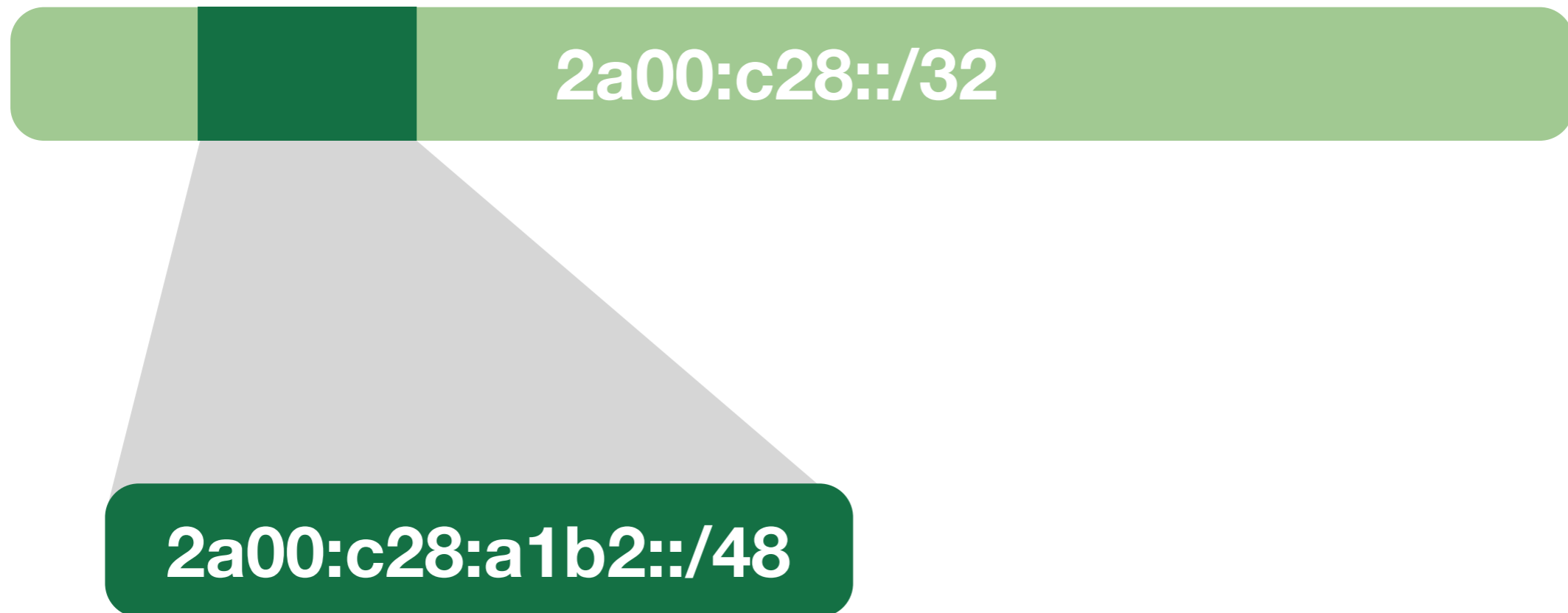
-M 2a00:c28::/32



# Less Specific inet6nums: -l



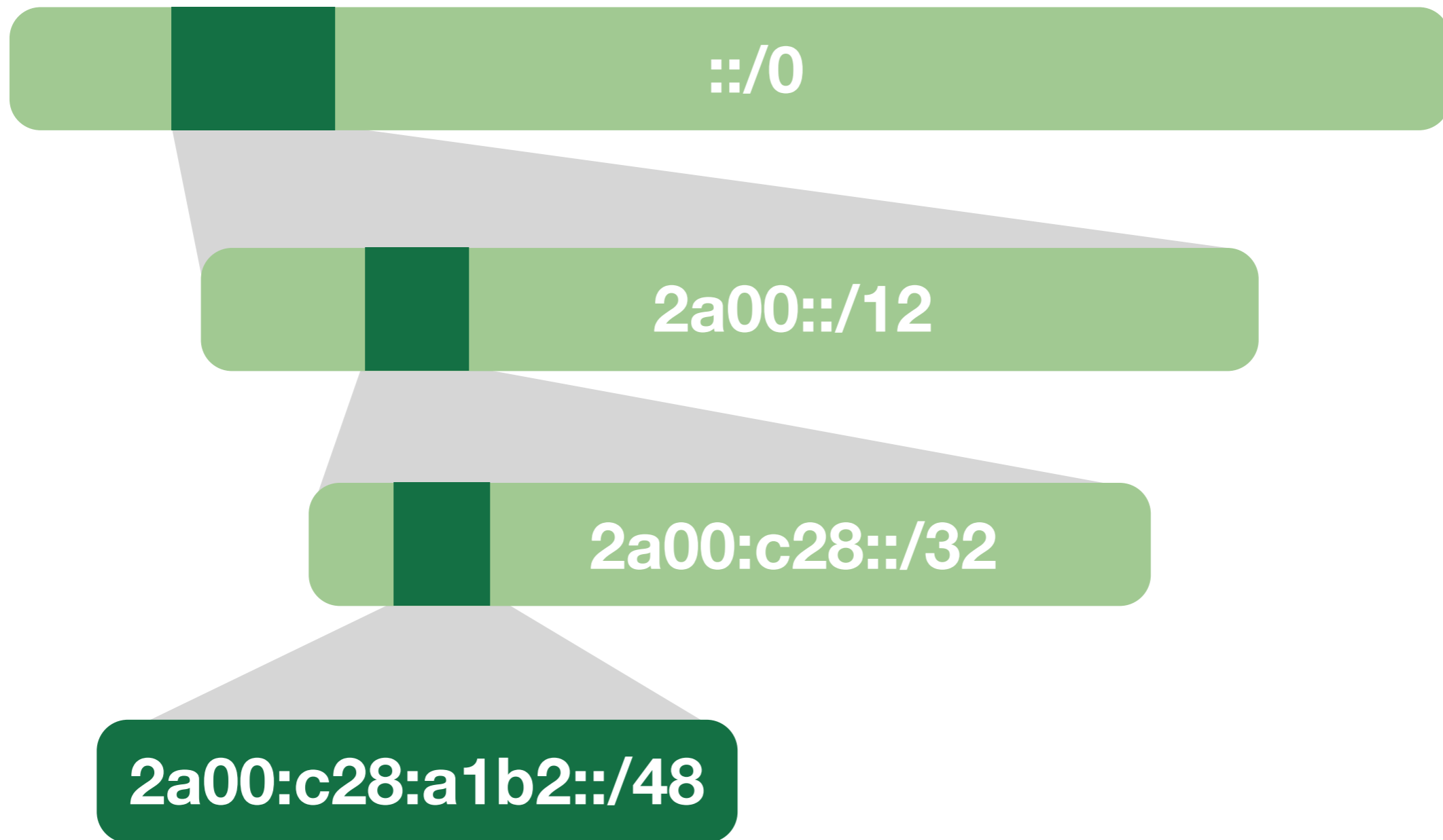
-l 2a00:c28:a1b2::/48



# Less Specific inet6nums: -L



`-L 2a00:c28:a1b2::/48`



# Contact Information



- The same as IPv4
- Find the ALLOCATION
- Follow to the ORGANISATION

**ALLOCATION**



**ORGANISATION**





# Live Demo

IPv6 Queries



# Questions





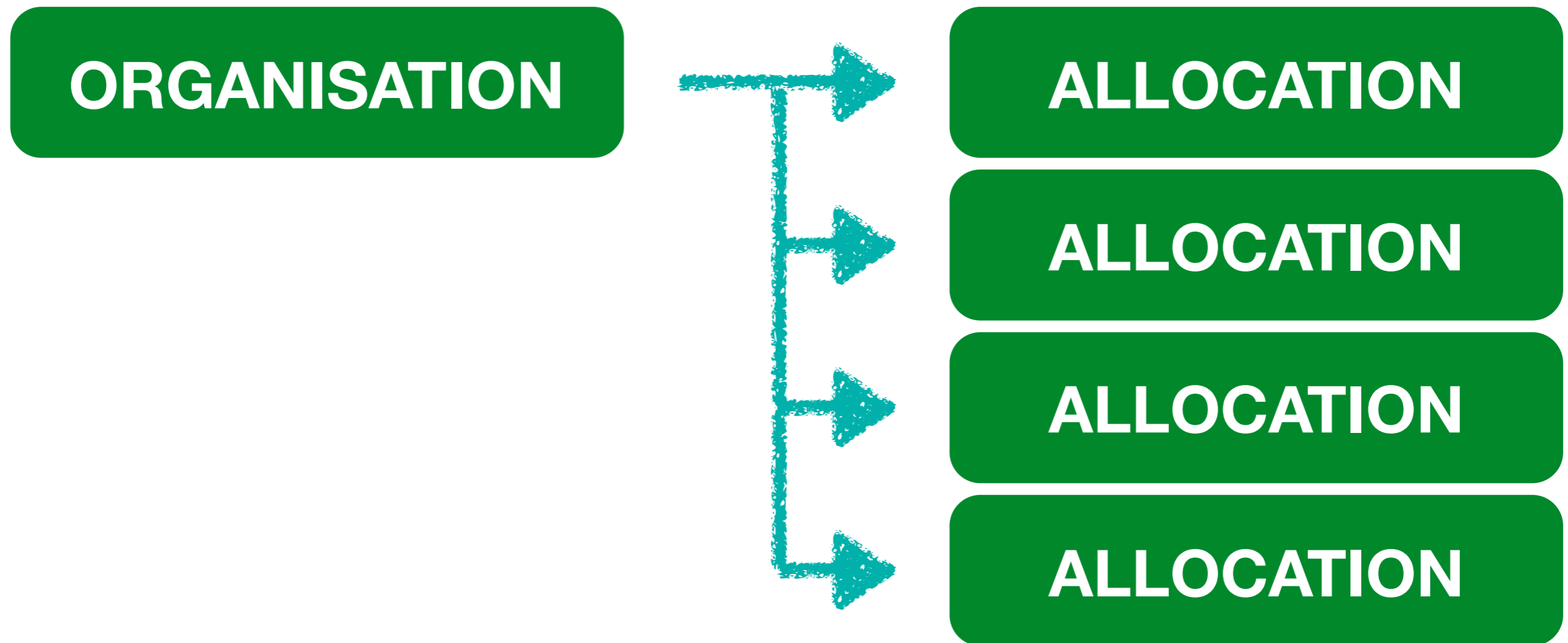
# Extra RIPE Database

Inverse Lookups  
Full Text Search

# Inverse Lookup



- Finding all objects in which an object is referenced



# Inverse Lookup



JD-RIPE

Show full object details ?

Do not retrieve related objects ?

You can search up to 5 terms at once in the search box above, separating them with a semicolon.

Sources	Types	Hierarchy Flags	Inverse lookup
?			
<input type="checkbox"/> abuse-mailbox	<input type="checkbox"/> member-of	<input type="checkbox"/> nserver	
<input type="checkbox"/> admin-c	<input type="checkbox"/> mnt-by	<input type="checkbox"/> org	
<input type="checkbox"/> auth	<input type="checkbox"/> mnt-domains	<input type="checkbox"/> origin	
<input type="checkbox"/> author	<input type="checkbox"/> mnt-irt	<input checked="" type="checkbox"/> person	
<input type="checkbox"/> fingerpr	<input type="checkbox"/> mnt-lower	<input type="checkbox"/> ping-hdl	
<input type="checkbox"/> form	<input type="checkbox"/> mnt-nfy	<input type="checkbox"/> referral-by	
<input type="checkbox"/> irt-nfy	<input type="checkbox"/> mnt-ref	<input type="checkbox"/> ref-nfy	
<input type="checkbox"/> local-as	<input type="checkbox"/> mnt-routes	<input type="checkbox"/> tech-c	
<input type="checkbox"/> mbrs-by-ref	<input type="checkbox"/> notify	<input type="checkbox"/> upd-to	
		<input type="checkbox"/> zone-c	

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Search

# Referenced person object



**inet6num:** 2001:db8::/32

**descr:** my IPv6 range  
**mnt-by:** RIPE-NCC-HM-MNT  
**org:** ORG-BB2-RIPE  
**admin-c:** JE777-RIPE  
**tech-c:** JD1-RIPE

**aut-num:** AS64551

**descr:** my AS number  
**mnt-by:** RIPE-NCC-HM-MNT  
**org:** ORG-BB2-RIPE  
**admin-c:** **JD1-RIPE**  
**tech-c:** LA789-RIPE

**mntner:** LIR-MNT

**admin-c:** **JD1-RIPE**  
**tech-c:** LA789-RIPE  
**mnt-by:** LIR-MNT

**role:** Bluelight Staff

**nic-hdl:** BLS77-RIPE  
**admin-c:** **JD1-RIPE**  
**address:** Sesame Street 1  
**e-mail:** staff@example.org

**-i admin-c JD1-RIPE**

**person:** John Smith

**nic-hdl:** JD1-RIPE  
**address:** Sesame Street 1  
**phone:** +1 555 0101  
**e-mail:** john@example.org  
**mnt-by:** LIR-MNT

# Referenced person object



**inet6num:** 2001:db8::/32  
**descr:** my IPv6 range  
**mnt-by:** RIPE-NCC-HM-MNT  
**org:** ORG-BB2-RIPE  
**admin-c:** JE777-RIPE  
**tech-c:** **JD1-RIPE**

**aut-num:** AS64551  
**descr:** my AS number  
**mnt-by:** RIPE-NCC-HM-MNT  
**org:** ORG-BB2-RIPE  
**tech-c:** **JD1-RIPE**  
**tech-c:** LA789-RIPE

**mntner:** LIR-MNT  
**admin-c:** **JD1-RIPE**  
**tech-c:** LA789-RIPE  
**mnt-by:** LIR-MNT

**role:** Bluelight Staff  
**nic-hdl:** BLS77-RIPE  
**admin-c:** **JD1-RIPE**  
**address:** Sesame Street 1  
**e-mail:** staff@example.org

## -i person JD1-RIPE

**person:** John Smith  
**nic-hdl:** JD1-RIPE  
**address:** Sesame Street 1  
**phone:** +1 555 0101  
**e-mail:** john@example.org  
**mnt-by:** LIR-MNT

# Referenced Organisation



**inet6num:** 2001:db8::/32  
**descr:** My IPv6 range  
**org:** **ORG-BB2-RIPE**  
**admin-c:** JE777-RIPE  
**tech-c:** JD1-RIPE

**inetnum:** 85.23.16.0/21  
**descr:** My v4 allocation  
**org:** **ORG-BB2-RIPE**  
**admin-c:** JE777-RIPE  
**tech-c:** JD1-RIPE

**inetnum:** 85.111.185.0/21  
**descr:** Other v4 allocation  
**org:** **ORG-BB2-RIPE**  
**admin-c:** JE777-RIPE  
**tech-c:** JD1-RIPE

**aut-num:** AS64551  
**descr:** my AS number  
**org:** **ORG-BB2-RIPE**  
**admin-c:** JE777-RIPE  
**tech-c:** JD1-RIPE

**-i org ORG-BB2-RIPE**

**organisation: ORG-BB2-RIPE**  
**admin-c:** JD1-RIPE  
**tech-c:** LA789-RIPE  
**abuse-c:** **AR789-RIPE**  
**mnt-by:** LIR-MNT



# Full Text Search



## RIPE Database text search

This service allows searches over the full text of the RIPE Database object data.

The search is done on object text without regard for any relationships. Multiple search terms should be separated with a space.

[Advanced Search](#)

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## Search results

This is the RIPE Database full text search service.  
The RIPE Database is subject to [Terms and Conditions](#).

[1] 2 3

domain: [205.149.82.in-addr.arpa](#)  
descr=Reverse delegation for [Bluelight 2nd/24](#)

domain: [210.149.82.in-addr.arpa](#)  
descr=Reverse delegation for [Bluelight 2nd/24](#)

domain: [201.156.178.IN-ADDR.ARPA](#)  
mnt-by=RO-BLUELIGHT, descr=BLUELIGHT

domain: [200.156.178.IN-ADDR.ARPA](#)  
mnt-by=RO-BLUELIGHT, descr=BLUELIGHT

inet6num: [2a01:4f8:201:31ea::/64](#)  
netname=BLUE-LIGHT

# Full Text Search - Advanced



Search term

**+** Basic Search

All  
 Any  
 Exact Match

**Search only within the following objects:**

- as-block
- as-set
- aut-num
- domain
- filter-set
- inet-rtr
- inet6num
- inetnum**
- irt
- key-cert
- mntner
- organisation
- peering-set
- person
- poem
- poetic-form
- role
- route
- route-set
- route6
- rtr-set

**Search within the following fields: ?**

- admin-c
- changed
- country
- created
- descr
- geoloc
- inetnum
- language
- last-modified
- mnt-by
- mnt-domains
- mnt-irt
- mnt-lower
- mnt-routes
- netname
- notify
- org
- remarks
- source
- sponsoring-org
- status
- tech-c

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**Search**



# Questions



# The End!

Край

Y Diwedd



Fí

Finis

Соңы

النهاية

Ende

Կէրջ  
Finvezh

Liðugt

Кінець

Konec

Kraj

Ěnn

Fund

پایان

Kraj

Lõpp

Beigas

Vége

Son

An Críoch

הסוף

Fine

Endir

Sfârşit

Fin

Τέλος

Einde

Конец

Slut

Slutt

დასასრული

Pabaiga

Fim

Амаиа

Loppu

Tmíem

Koniec



# Additional Info

More ways to query



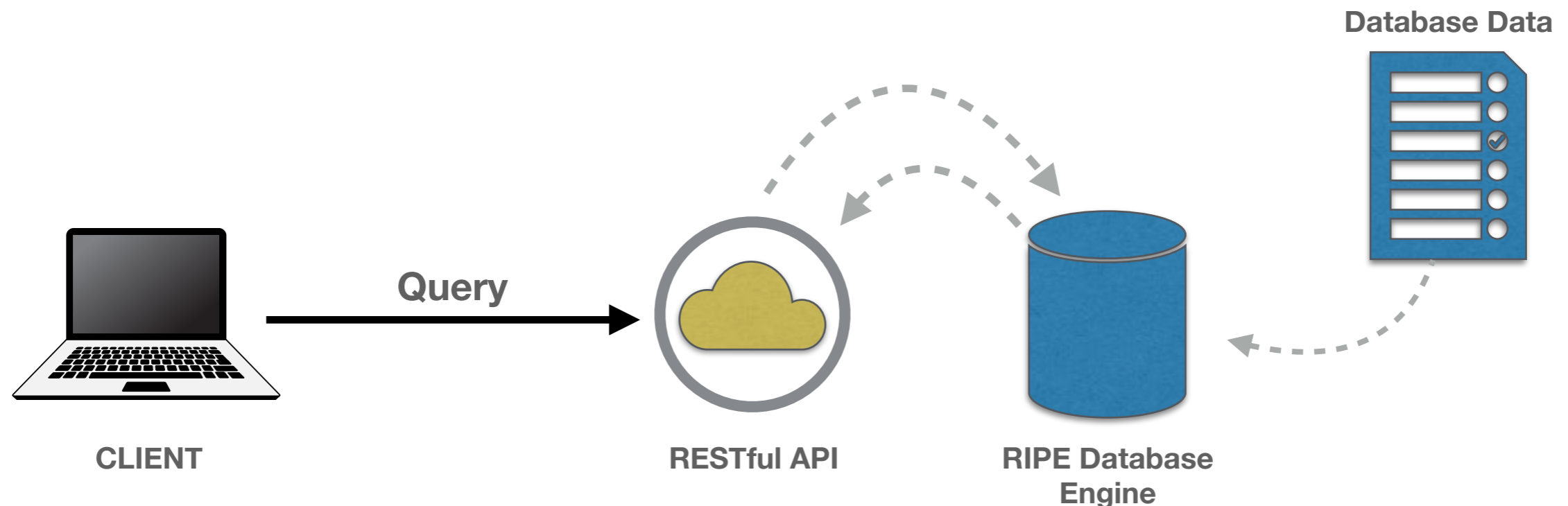
# RIPE Database API

Annex 1

# RIPE Database RESTful API



- Allows REST-compliant systems to access the RIPE Database
- Data is returned in XML or JSON format
- Standard query limits apply



# WHOIS REST API Lookup



- Returns an object from the RIPE Database
- Method: GET
- URI Format: `/{source}/{objectType}/{key}`
  - **{source}**: which database (RIPE / TEST)
  - **{objectType}**: the type of object queried
  - **{key}**: Primary key of the object
- e.g.: `/ripe/route/193.0.0.0/21AS3333.json`



# WHOIS REST API Search



- To do a search in the RIPE Database
- Method: **GET**
- Format: `/search?source={source}&query-string={query-string}...`
  - **{source}**: which database (RIPE / TEST)
  - **{query-string}**: the search term

# Example Output



```
[bash-3.2# curl http://rest.db.ripe.net/ripe/route/193.0.0.0/21AS3333.json ]
{"objects":{"object":[ {
  "type" : "route",
  "link" : {
    "type" : "locator",
    "href" : "http://rest.db.ripe.net/ripe/route/193.0.0.0/21AS3333"
  },
  "source" : {
    "id" : "ripe"
  },
  "primary-key" : {
    "attribute" : [ {
      "name" : "route",
      "value" : "193.0.0.0/21"
    }, {
      "name" : "origin",
      "value" : "AS3333"
    } ]
  },
  "attributes" : {
    "attribute" : [ {
      "name" : "route",
      "value" : "193.0.0.0/21"
    }, {
      "name" : "descr",
      "value" : "RIPE-NCC"
    }, {
      "link" : {
        "type" : "locator",
        "href" : "http://rest.db.ripe.net/ripe/aut-num/AS3333"
      },
      "name" : "origin",
      "value" : "AS3333",
```



# Use Cases

- Create your own query interface
- Use scripting to parse the query results
- Automate your searches
- More info:  
<https://github.com/RIPE-NCC/whois/wiki/WHOIS-REST-API>



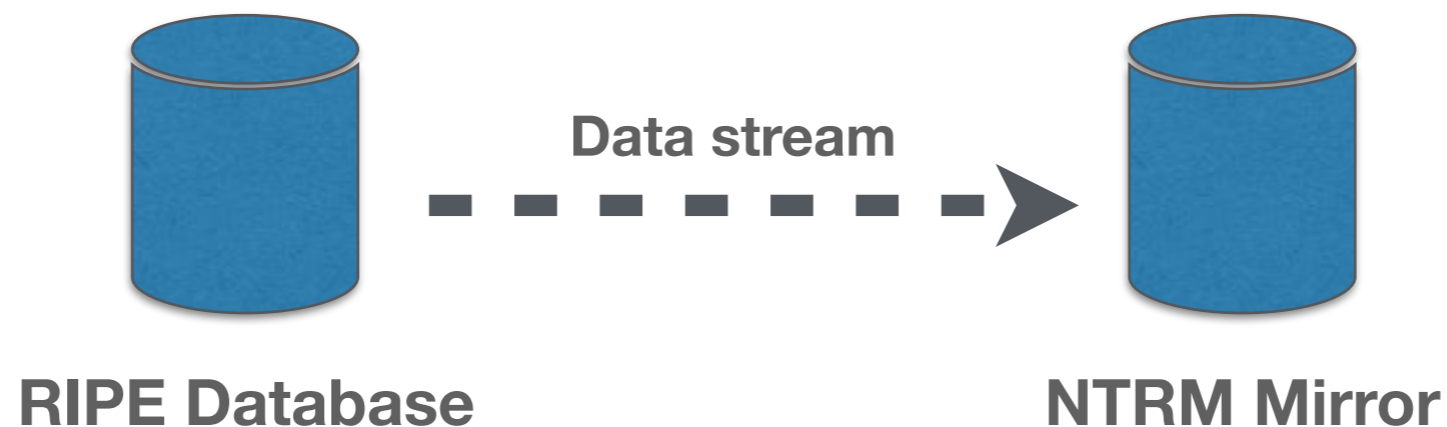
# **RIPE Database NTRM**

Annex 2

# Near Real Time Mirroring (NTRM)



- Allows an authorised client to receive a stream of data from the RIPE Database
- In near real time
- Does not include any personal or private data



# To Sign Up For NTRM



- You must be a member of the RIPE NCC
- Inform why you need the data
- Which IP address will receive the data stream
  - Only one IP address
- Inform if the data will be made available to third parties



# Two Ways to Set Up a Mirror



- Using GRS import
  - The mirror database is updated once per day
- Using Bootstrap and NTRM
  - The mirror database is updated in near real time
- Requirements
  - A server with 16GB RAM, 8 GB swap, and 160GB disk space is recommended



# Excluded Data

- Personal data (person and role objects)
- Organisation details (organisation object)
- Security data (mntner object)
- References to personal data (NIC Handles)







# RIPE Database Snapshots

Annex 3

# Download a Snapshot



- Full database:
  - <ftp://ftp.ripe.net/ripe/dbase/ripe.db.gz>
- Split by object types
  - <ftp://ftp.ripe.net/ripe/dbase/split>
- They exclude the Private object types:
  - Person, Role, Organisation and Mntner.



# Questions

