Provider Independent Address Space Assignments in the RIPE Region

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Outline

- PA vs. PI

- Comparing RIR Statistics, Policies and Fees

- RIPE Region Specific

PA vs. PI Address Space

Provider Aggregetable (PA)

- To LIR
- Hierarchy
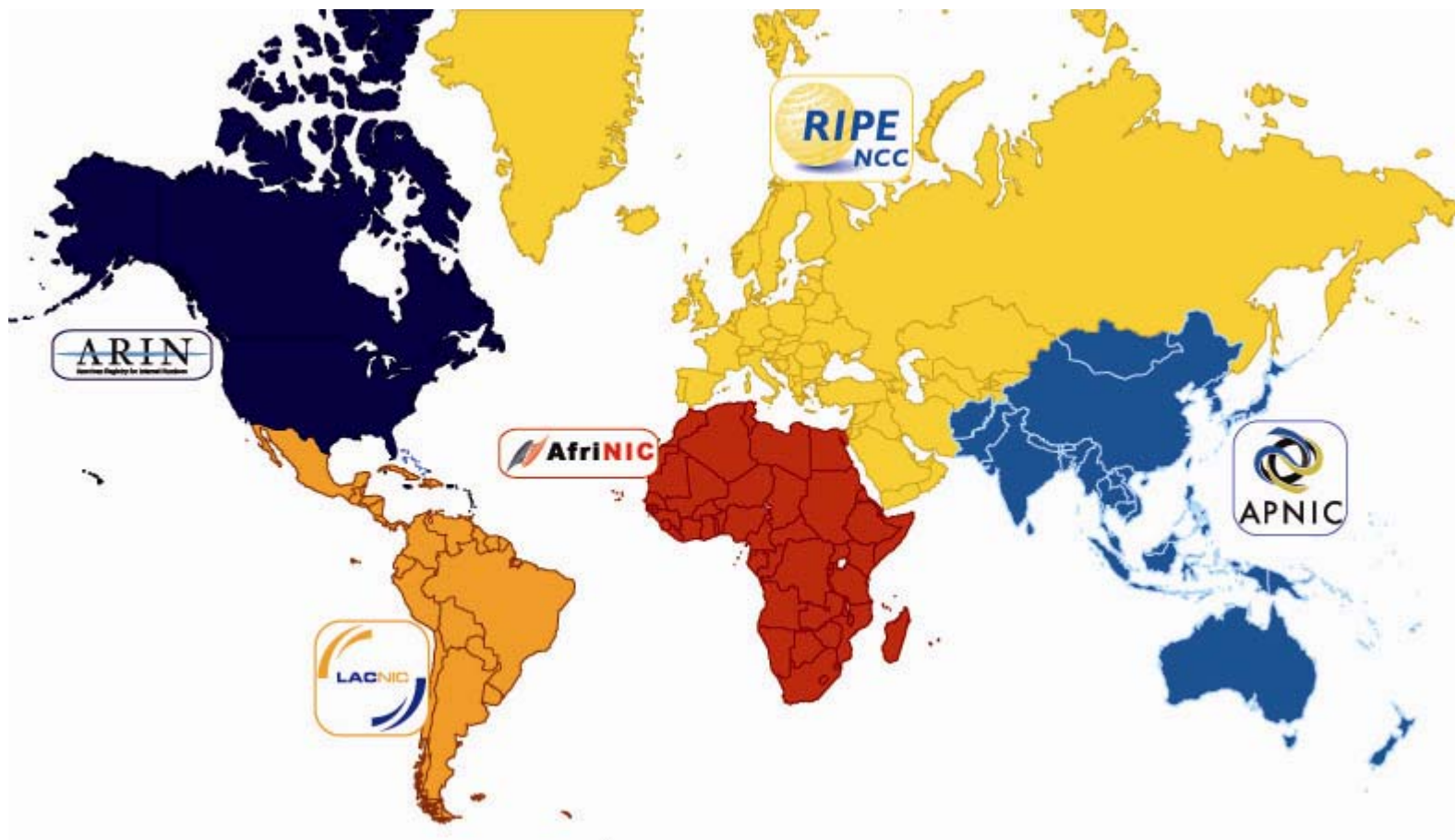- Aggregation

Provider Independent (PI)

- To End-User, through LIR, by RIPE NCC
- No Hierarchy
- No Aggregation

Why PI?

- Multihoming

- Avoid Renumbering
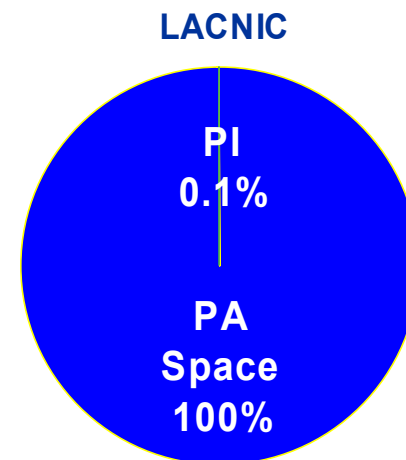
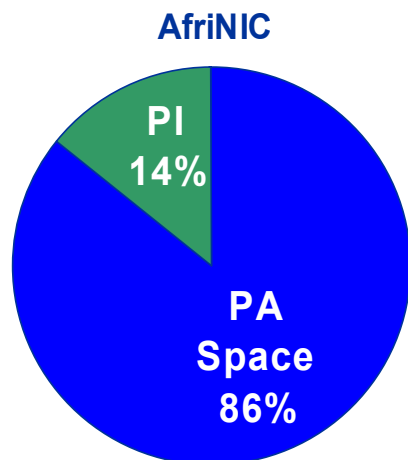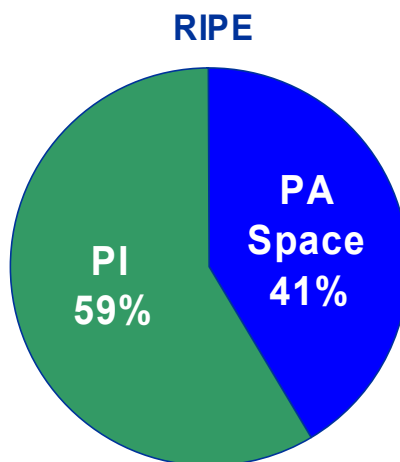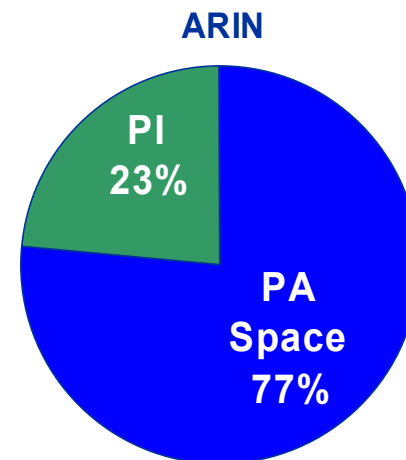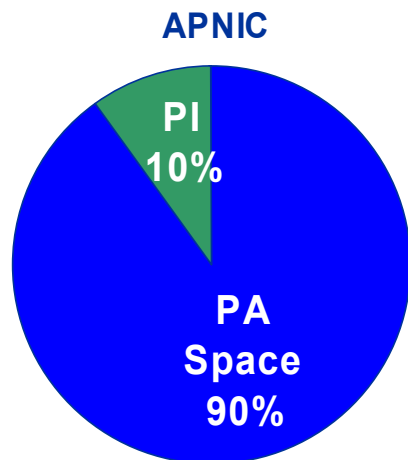- Independence

Service Regions Comparison

PI Assignment Requirements Comparison

	Current Utilisation Required	Multihoming Required	Renumbering Required	Minimum Assignment Size
AfriNIC				/24
APNIC		Yes	Yes	
ARIN				/22 (multihomed) /20 (non-multihomed)
LACNIC	/25 (multihomed) /21 (non-multihomed)			/24 (multihomed) /20 (non-multihomed)
RIPE				

PI Prefixes vs. Allocation Prefixes
in 2005 & 2006

APNIC

PI 10%

PA Space 90%

RIPE

PI 59%

PA Space 41%

ARIN

PI 23%

PA Space 77%

AfriNIC

PI 14%

PA Space 86%

LACNIC

PI 0.1%

PA Space 100%

PI Address Space Fee Comparison (End-User)

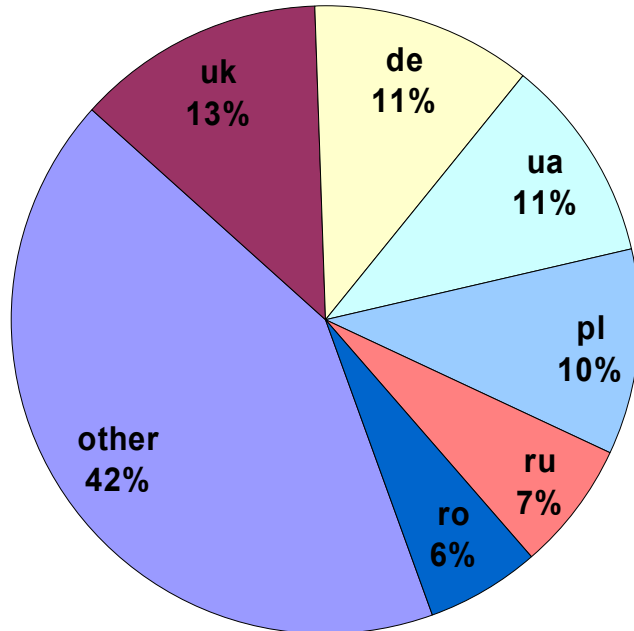|	Initial End-User Fee	Annual End-User Maintenance Fee
AfriNIC	Yes	Yes
APNIC	Yes	Yes
ARIN	Yes	Yes
LACNIC	Yes	Yes
RIPE	No (Assignment might influence LIR's Membership Fee)	No

Focusing on the RIPE Region
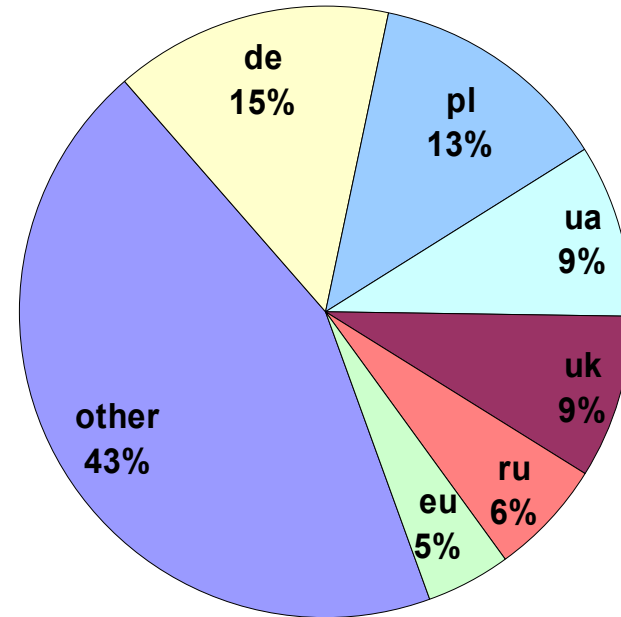
PI and Allocation Prefixes
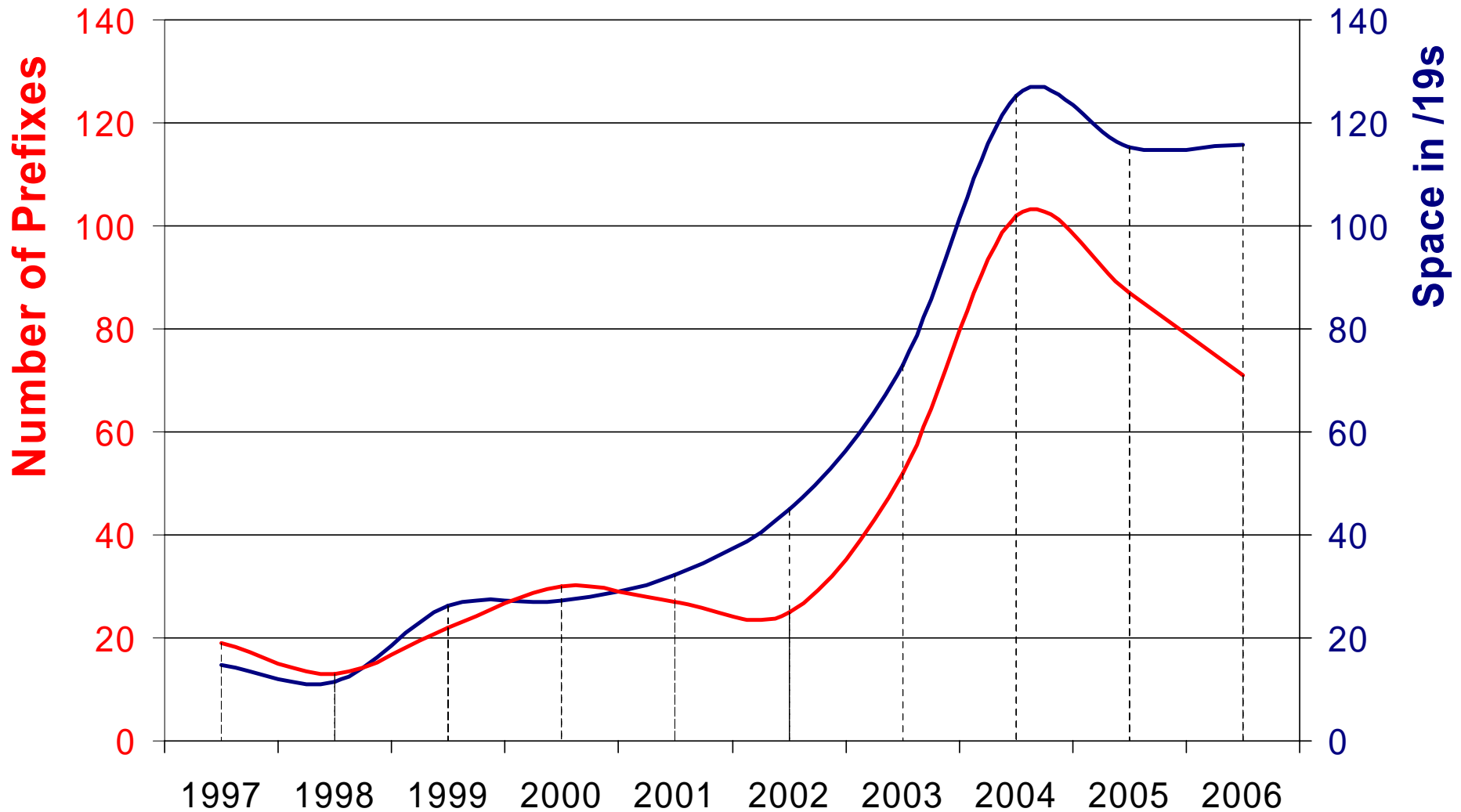
Top 6 Countries (1997 – current)

Number of PI prefixes

Amount of PI address space

PI Assignments ≥ /21
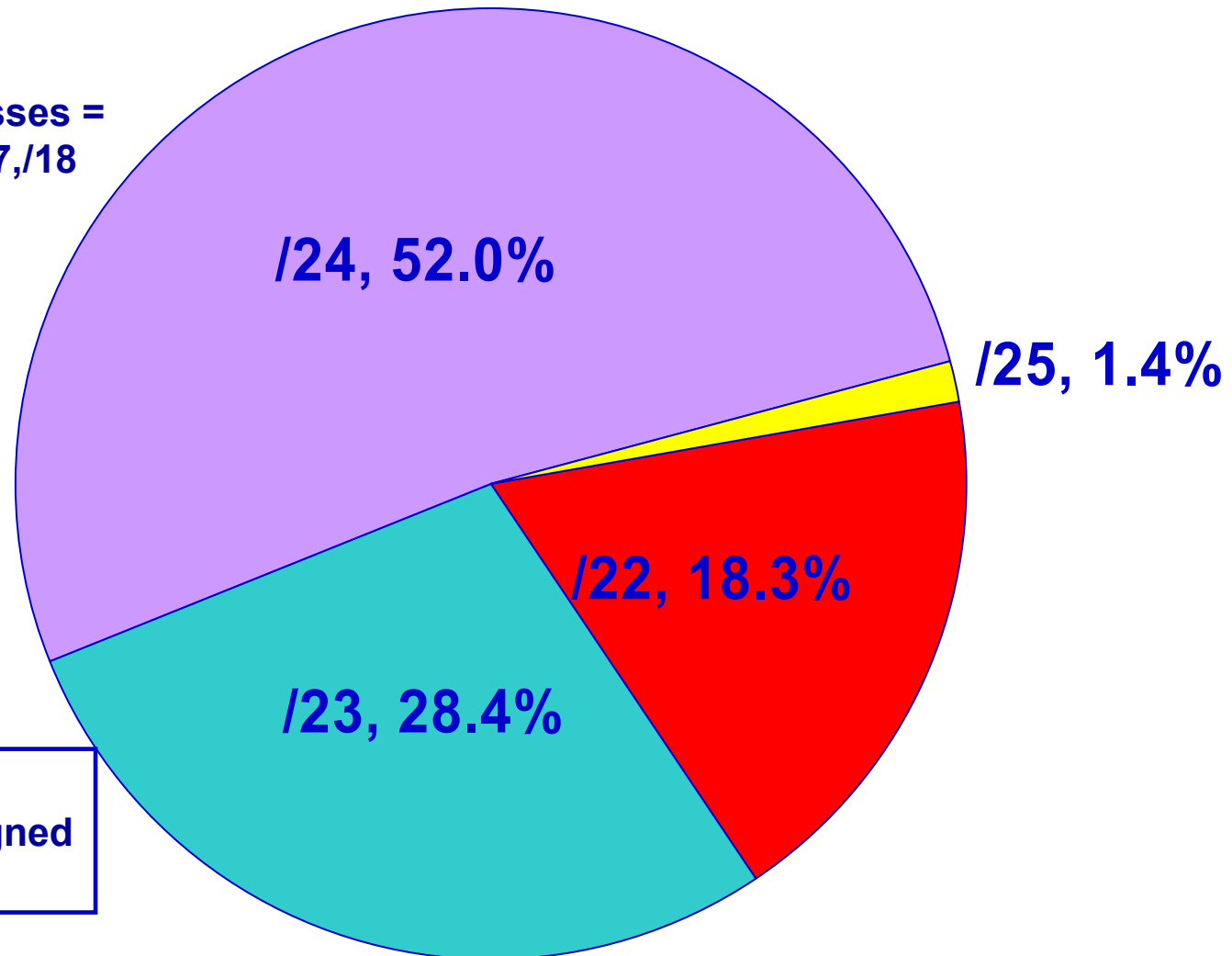
PI Assignments ≥ /21(1997 - current)

1,935,360 IP addresses =
/12,/13,/14,/16,/17,/21

/21, 60.9%

/16, 0.4%

/17, 1.6%

/18, 3.1%

/19, 8.9%

/20, 25.0%

About 40% of all PI address space assigned by the RIPE NCC

PI Assignments < /21(1997 - current)

2,864,512 IP addresses =
~/11,/13,/15,/16,/17,/18

/24, 52.0%

/25, 1.4%

/22, 18.3%

/23, 28.4%

About 60% of all PI
address space assigned
by the RIPE NCC

Food for Thought

- Is PI uptake an effect of RIPE policy or a result of economic development?

- Is it a natural transformation of IP address management?

- Is further discussion needed on this topic?

- If so, where should we go from here?

- Future?