What lurks in yonder shadow?

Not a policy proposal.

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RIPE 60, Prague
May 2010

RIPE Policy

An LIR may receive an additional allocation
when about eighty percent (80%)
of all the address space
currently allocated to it
is used in valid assignments
or sub-allocations.

AfriNIC Policy

An LIR may receive an additional allocation
when about 80%
of all the address space
currently allocated to it
has been used in valid assignments
and/or sub-allocations.

ARIN Policy

ISPs must have efficiently utilized
all previous allocations
and at least 80%
of their most recent allocation
in order to receive additional space.

APNIC Policy

An LIR is not eligible to receive
subsequent allocations
until its current assignments account for
at least eighty percent
of the total address space
from all allocations it holds.

LACNIC Policy

In order to receive
the additional space requested,
a Registry shall have used
at least 80%
of its previous allocations.

Historical Documents

RIPE-159 (1997) states:

A request should be submitted to the RIPE NCC when the currently allocated address space **is nearly used up (about 90 percent)**

This is the first time a threshold is documented!

Followed one year later by:

RIPE-185 (1998) states:

… a request should be submitted to the RIPE NCC when the currently allocated address space **is nearly used up (about 80 percent)…**

Many moons later...

2005-01 Draft Policy Text

b. New: "An LIR may receive an additional allocation when its total allocated address space usage meets the HD-Ratio value of 0.96.“

In short: the more space you have, the less utilization you need to get more.

(71% utilization for a /20, 57% for a /12)

Many moons later...

2005-01 Draft Policy Text

b. New: "An LIR may receive an additional allocation when its total allocated address space usage meets the HD-Ratio value of 0.96."

In short: the more space you have, the less utilization you need to get more.

(71% utilization for a /20, 57% for a /12)

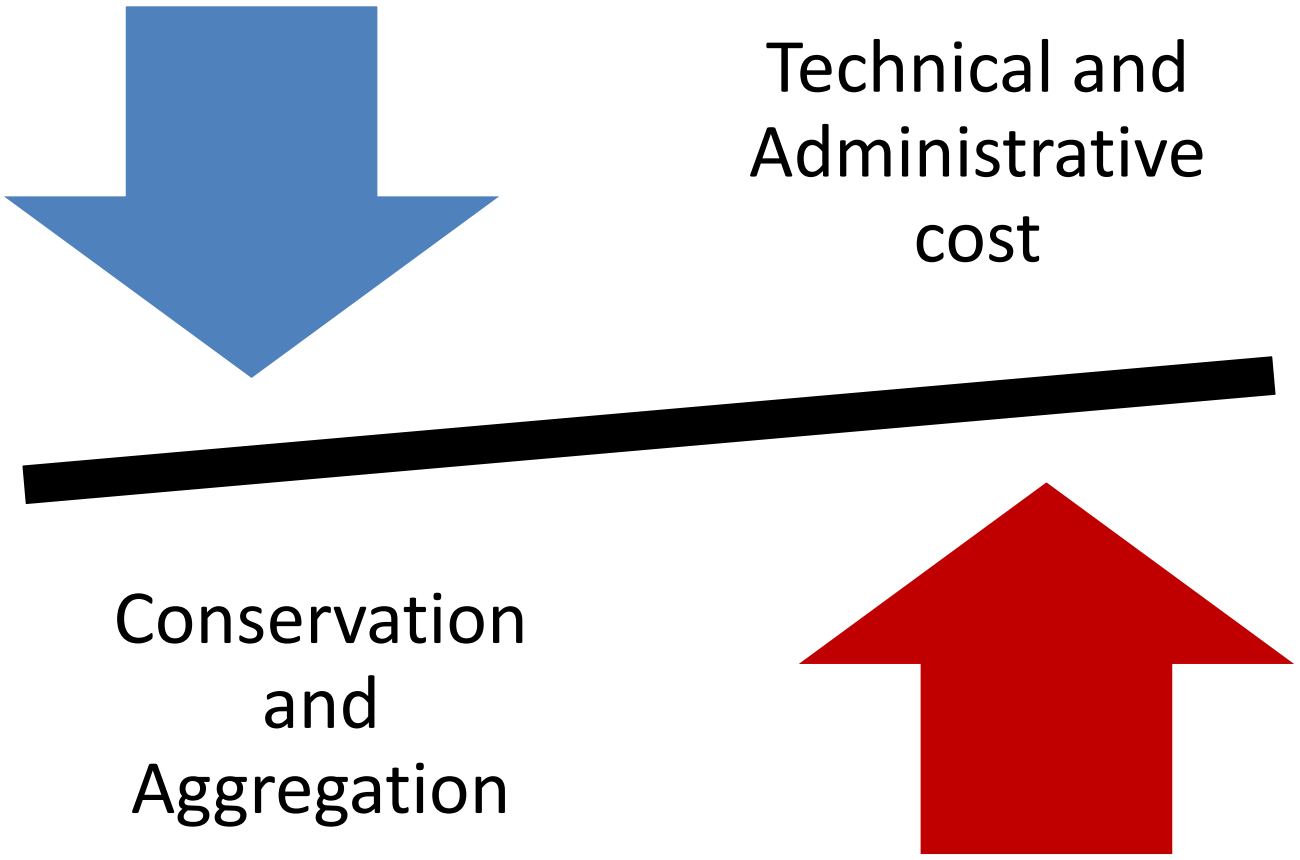
So 80% is a “sweet spot”

It addresses
conservation and aggregation issues

Without making
technical and administrative cost
too high (for most)

90% set the barrier too high
70% and less was deemed too low

So 80% is a “sweet spot”



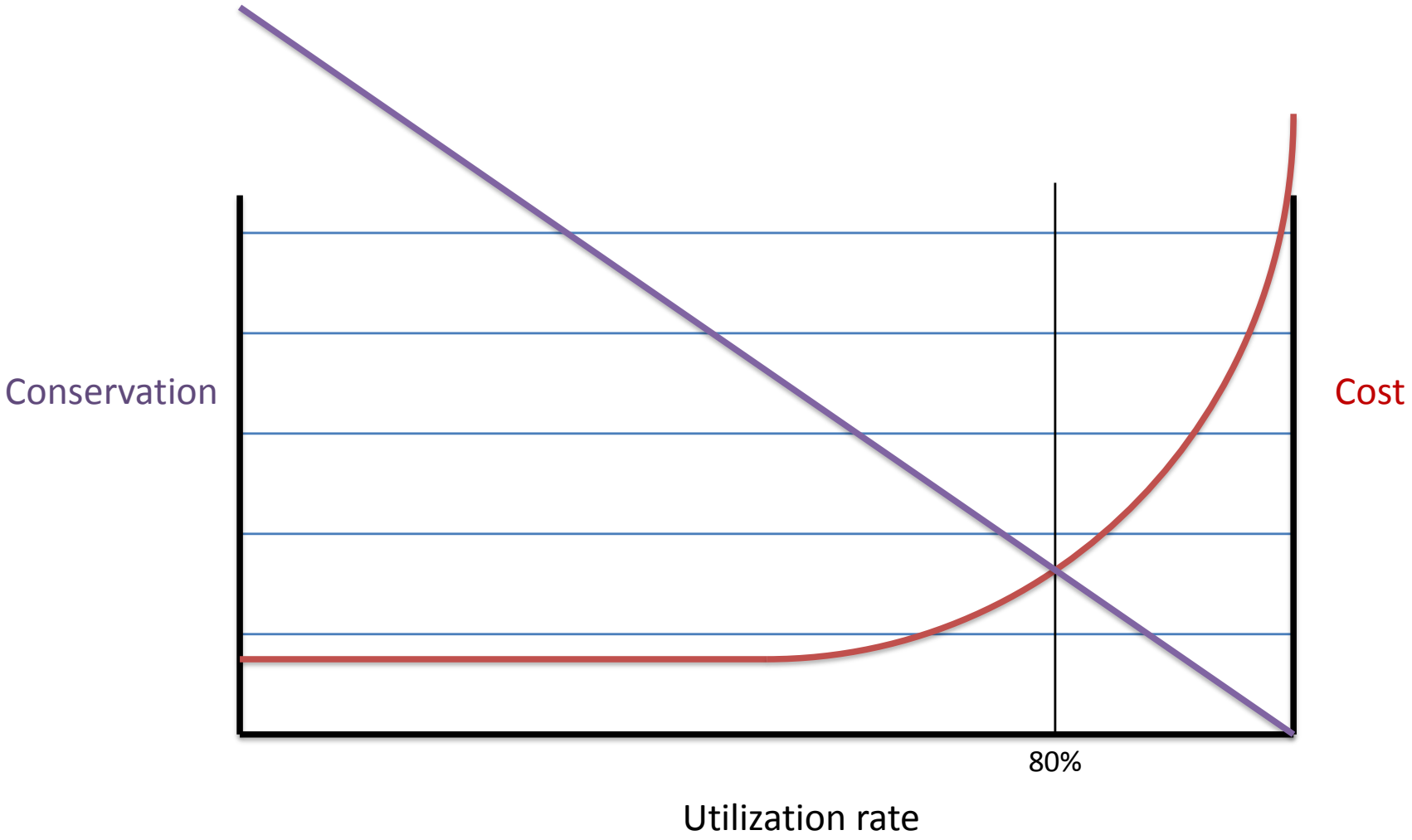
But what if the balance tips?

What is the cost of not being able to assign address space?

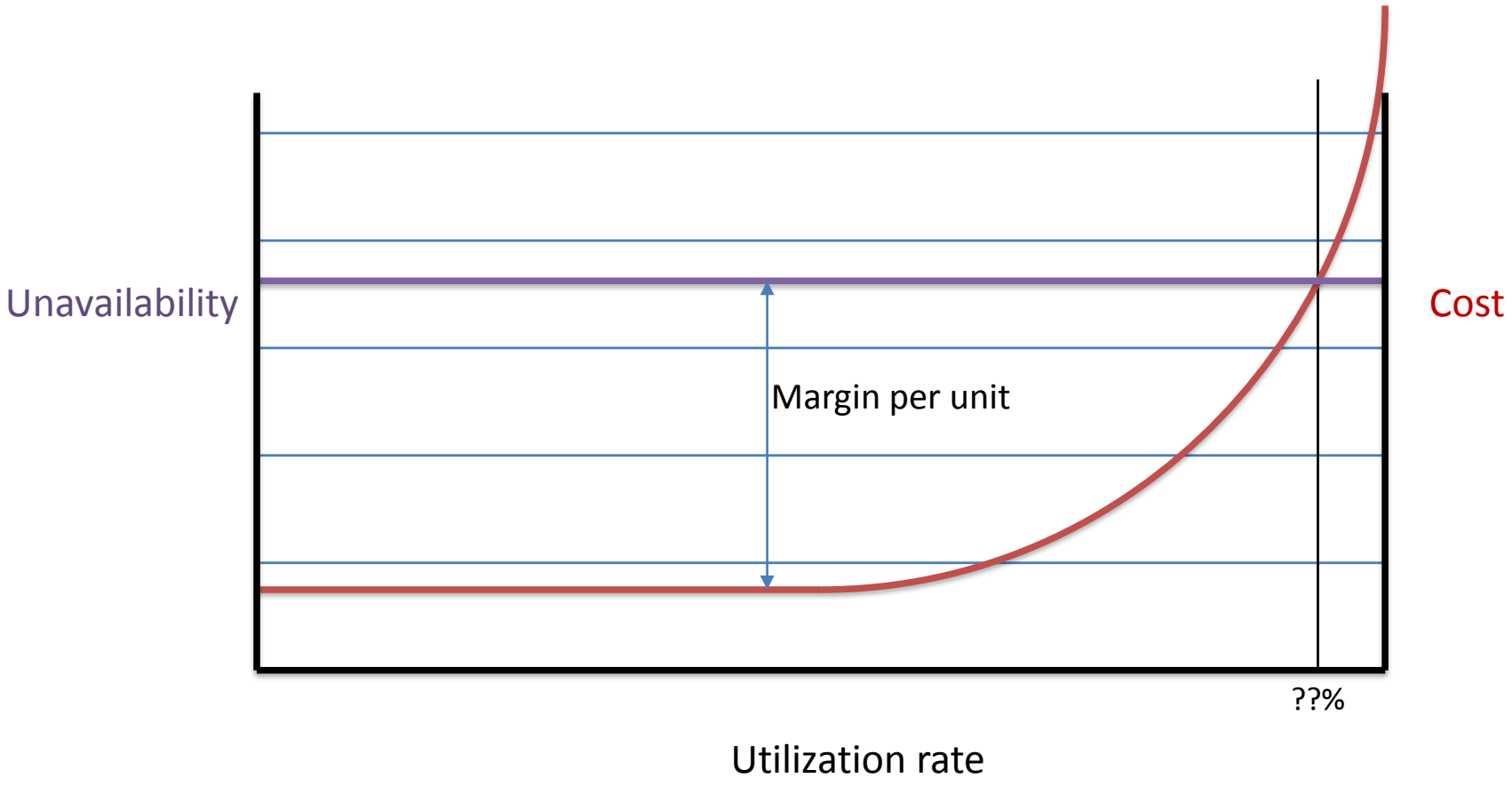
In other words:

What if “Conservation and Aggregation” gets replaced by “Unavailability”?

Cost vs Conservation



Cost vs Unavailability



Inside the head of your boss

"Let's change the cover of the TPS report"

"Looks like a nice day for golf"

"I wonder what they're doing, it's too quiet"

"Do I smell something?"

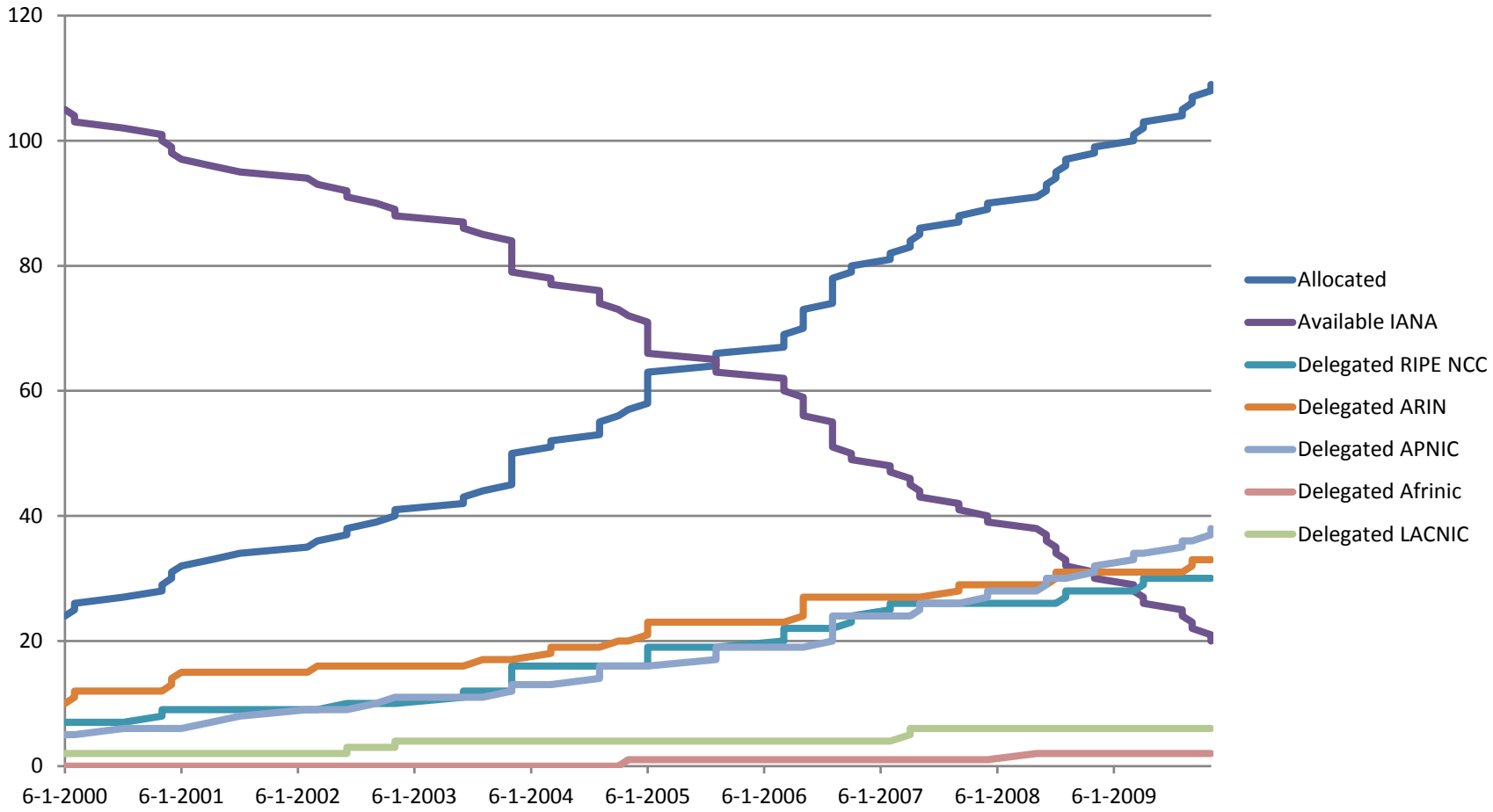
"Why are we only using eighty percent?"

"We're losing money! PANIC!"

Or the accountant

“With regard to the effective utilization of resources, it would appear that with an increase of capital spent up to an additional 20% of revenues in this category can be generated with current resources. It is therefore strongly recommended that the business operation in this matter is reviewed and current processes be audited and improved. Not being able to grow revenues in this product category given a lack of procurable resources is a clear business threat and should be disclosed in our public filings.”

Let’s look at address consumption



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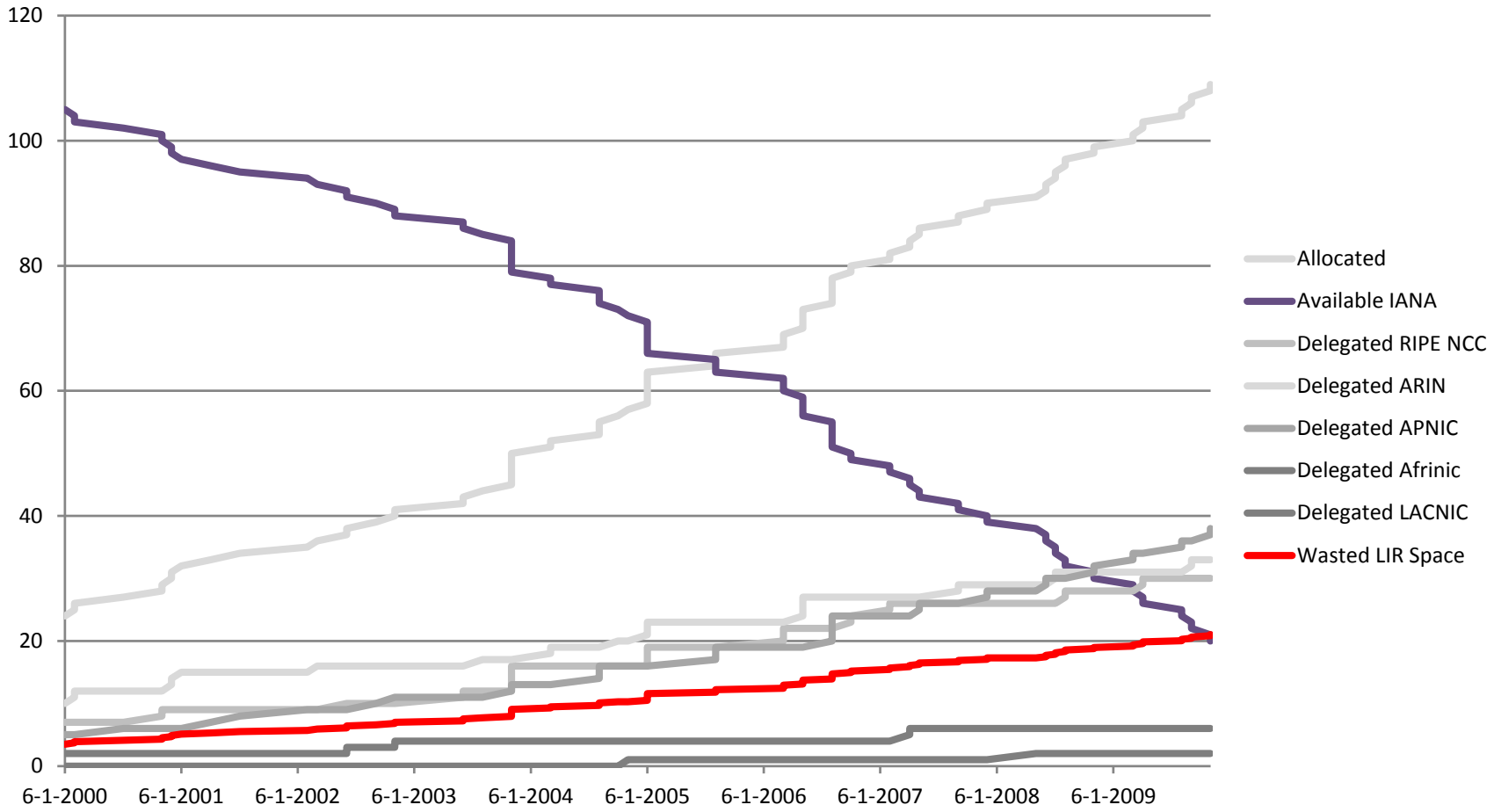


Assumptions

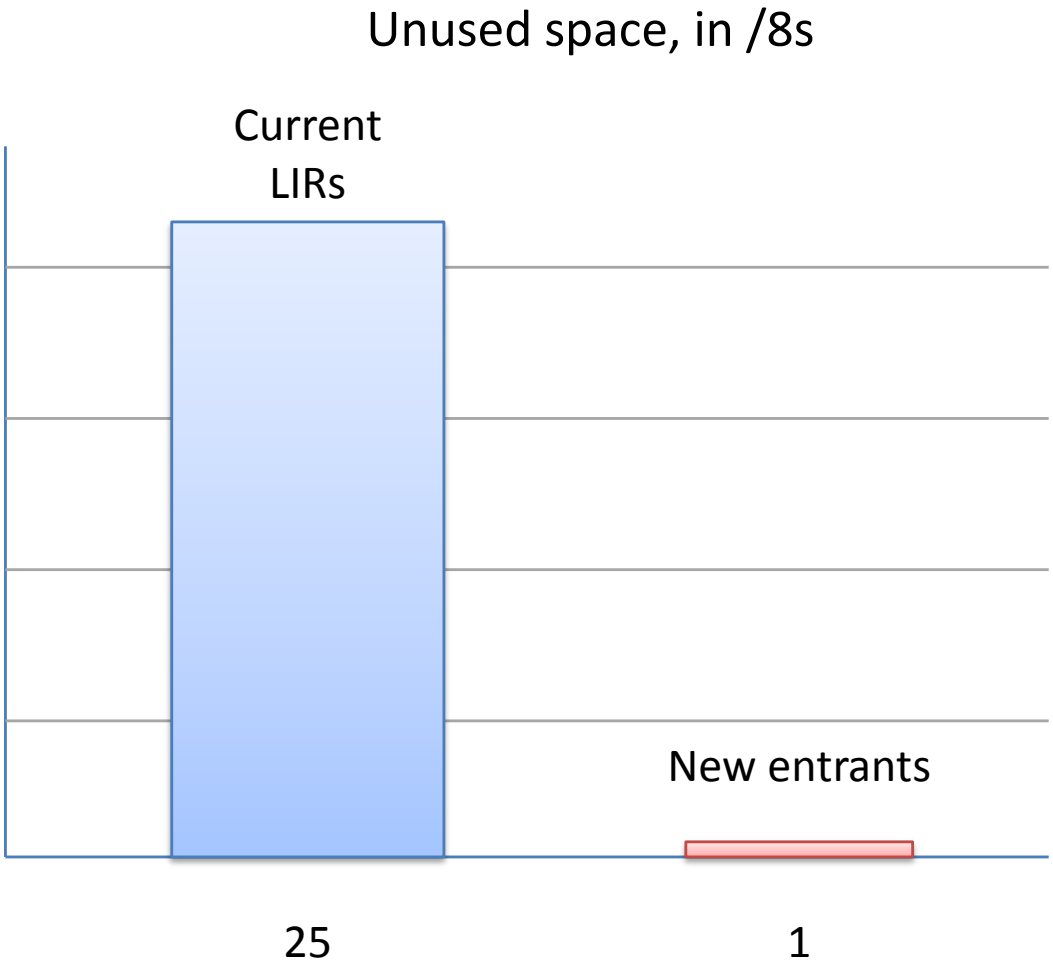
- Large RIRs get new space from IANA when they have about 1.5 /8 of unallocated space left; small RIRs at about 0.5
- All allocated and assigned space has a utilization rate of 80%, i.e. all LIRS are entitled to request more space NOW
- No distinction is made between PA and PI
- ALL space marked ‘LEGACY’ by IANA is out of scope

Results

- There is now a **minimum** of 21 /8s equivalent of wasted IPv4 address space in the RIR/LIR system, as a result of the “80%” rules
- This now exceeds unallocated IANA space

- At depletion, this has increased to 25 /8s

After depletion



This is **not** an issue

.. If all of us are **100% certain**
that even after depletion
this currently wasted space
will remain unusable.
And it will never get used.
Ever.

But is this a realistic assumption?

If not..

This will make all of us look bad. Really bad.

Can we fix it if we want to?

It’s not too late but we’re close.

How:

Change the utilization criterium globally
while we can still expect all active LIRs
to file at least one more request
before depletion at RIR level.

Challenge

Will the real threshold please stand up?