



IPv4 Addresses Exhaustion, not only “when” is critical

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LACNIC



All started ...

- When in LACNIC we realized that we will not get more IPv4 address space from IANA
- And we decided to publish how much IPv4 address space we had left
- Then, we were curious of when this space was going to run out ...



The numbers



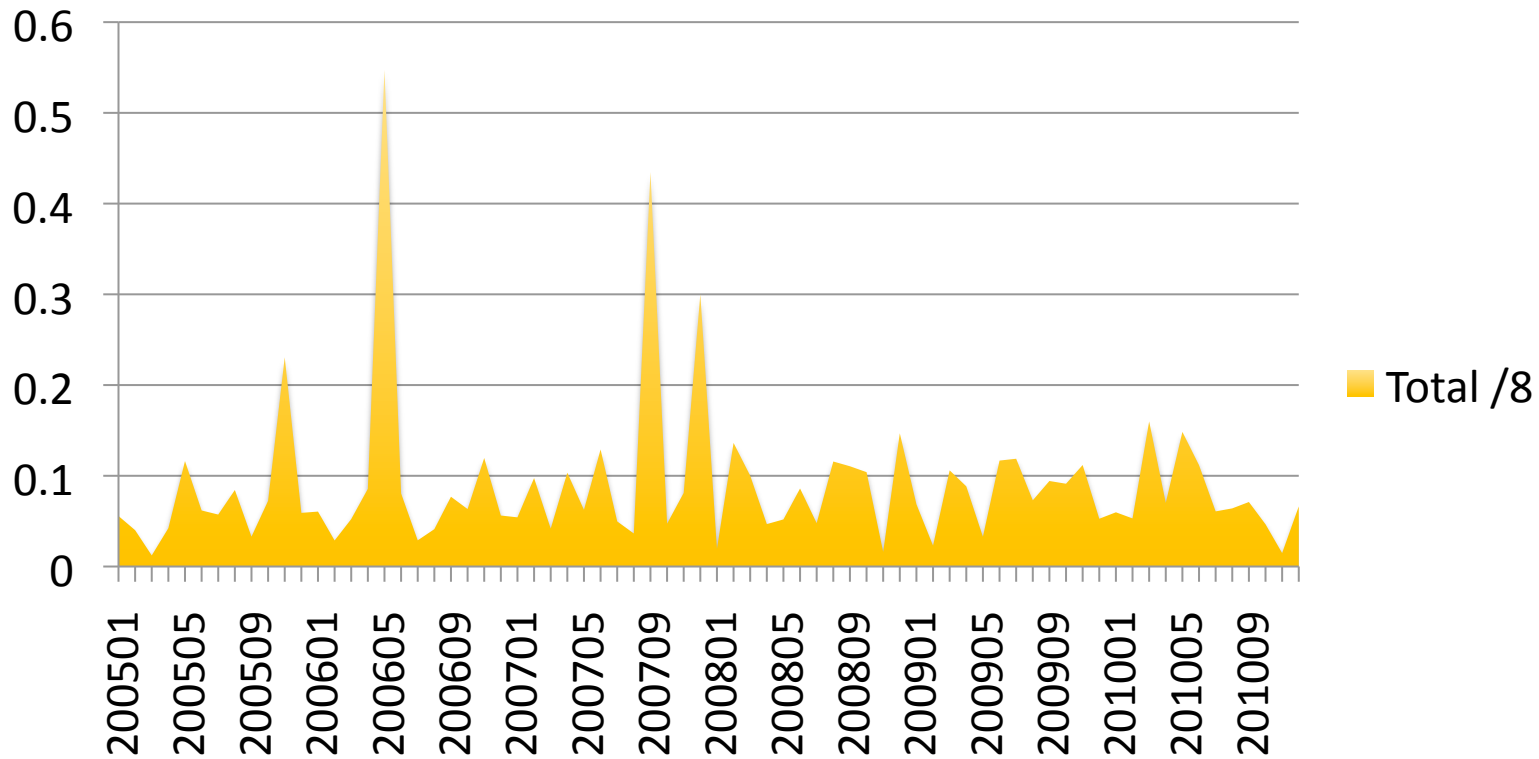
Available Today

Addresses Available Today	63161600
Available today /8	3.764724731
Reserve Last /10 (policy)	-0.25
Global Policy	1
Total Number of Addresses	4.5152 /8 = 75,744,512 addresses



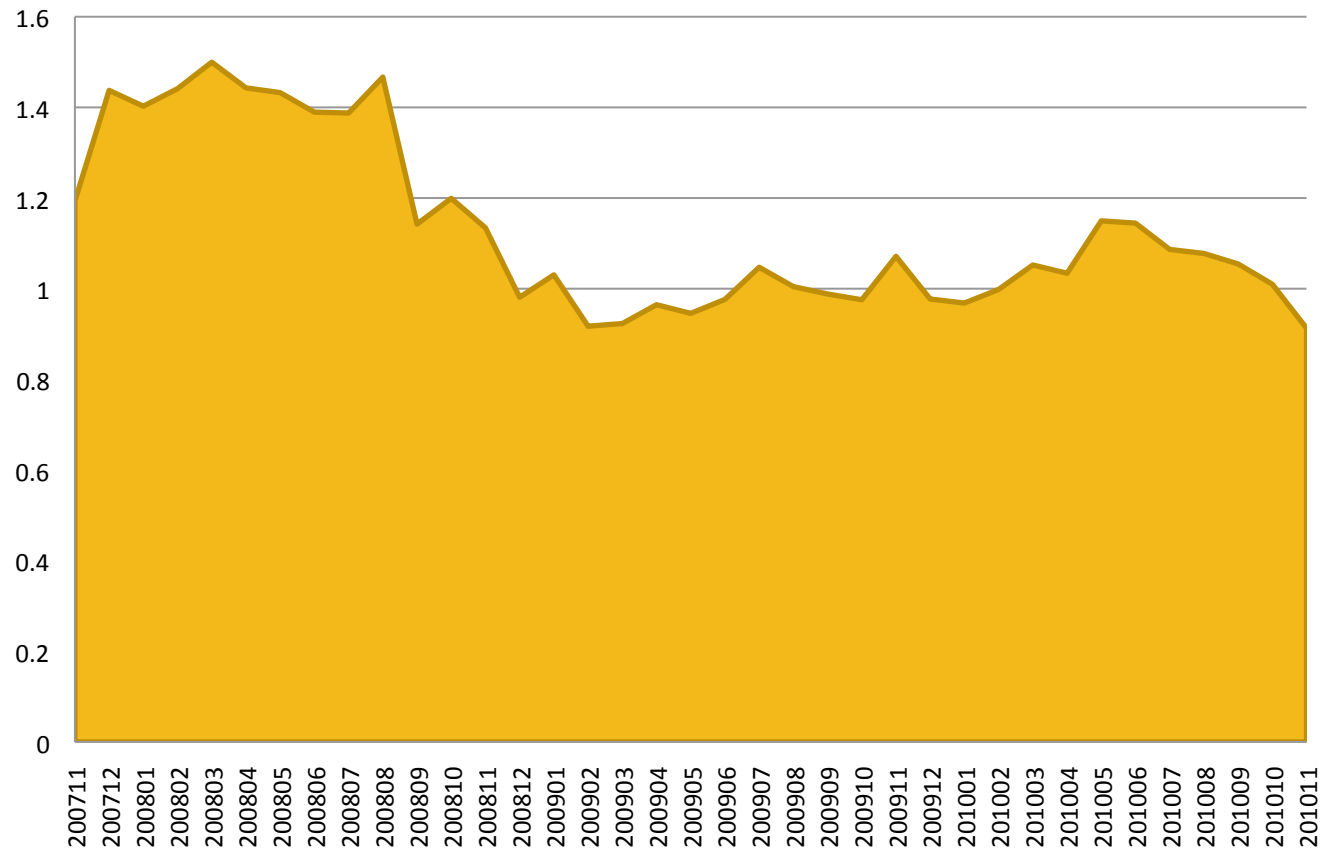
Monthly Address Allocations

Total /8





Annualized (36 months)

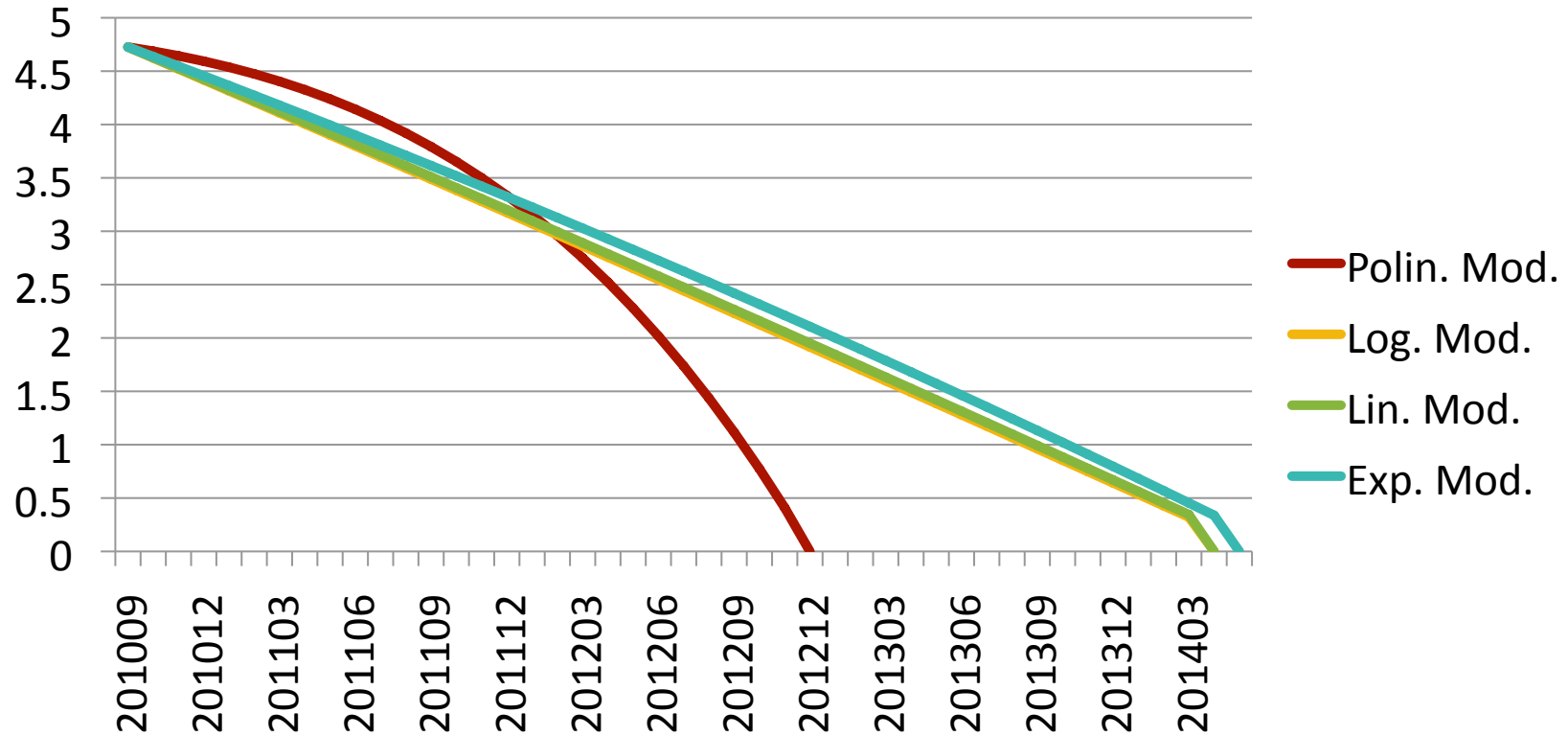




So, we know how much we have
and how much we use, so let's
make some numbers



Usage Projections

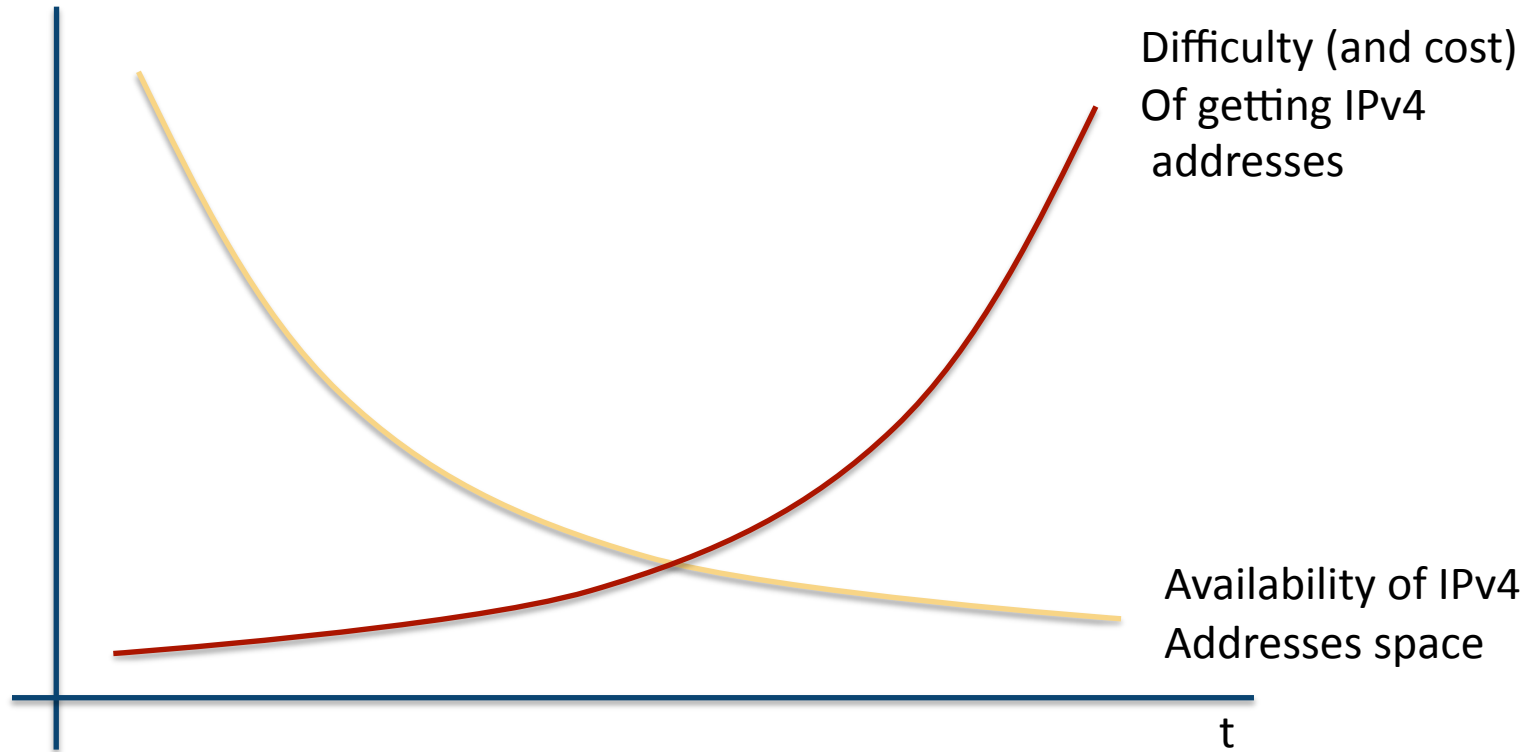




It appears that we will have addresses
for almost 4 more years.
But there is more to it than “when”



Availability vs. Accessibility



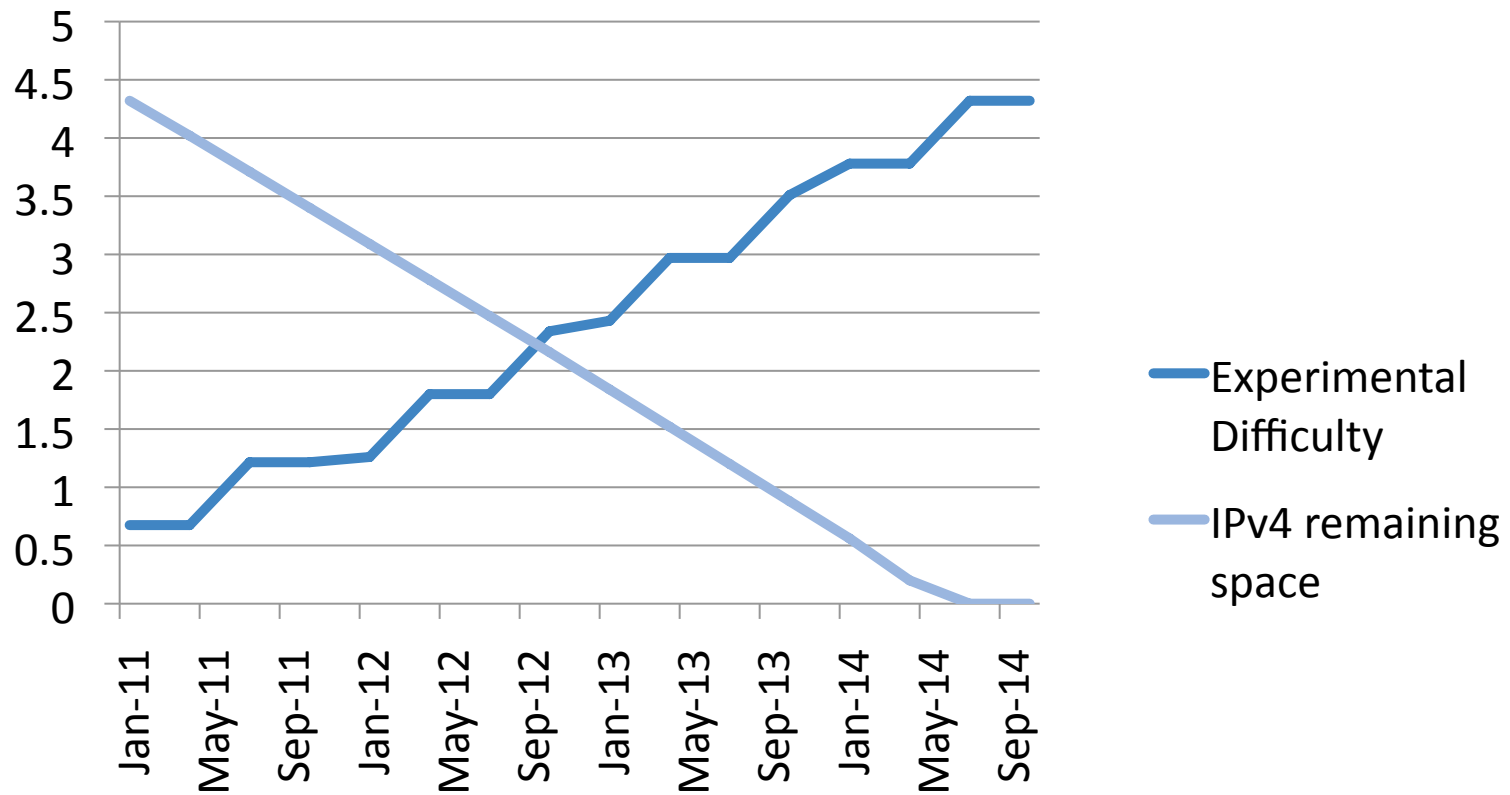


Modeling Difficulty

- We model difficulty as function of the number of requirements to apply for new address space and the amount of addresses that a RIR member would be able to get per year
- Requirements are: More strict allocations policies
- Among them allowing only one address request of a specific size per year

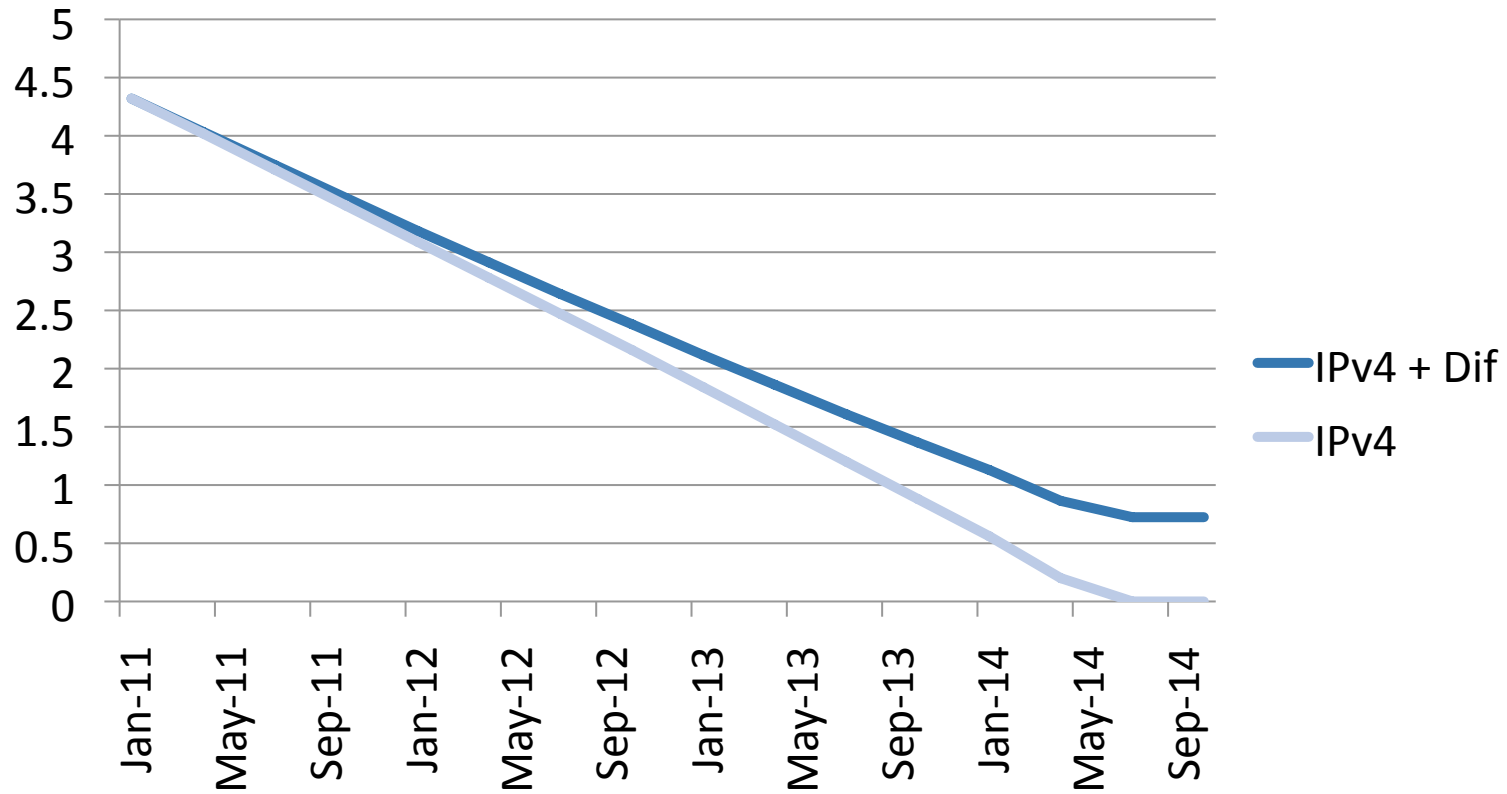


Experimental Difficulty



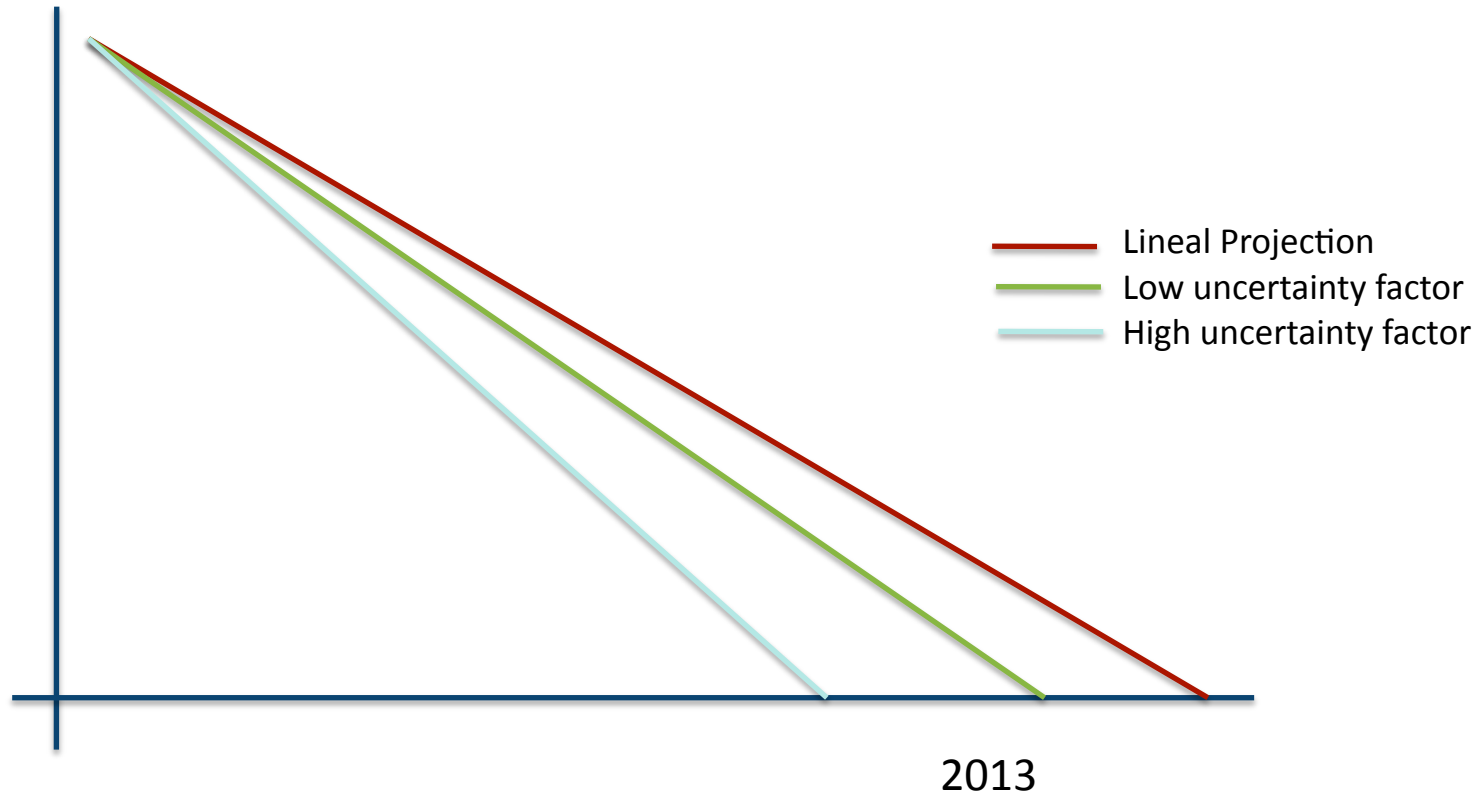


Experimental Difficulty





Uncertainty Factor



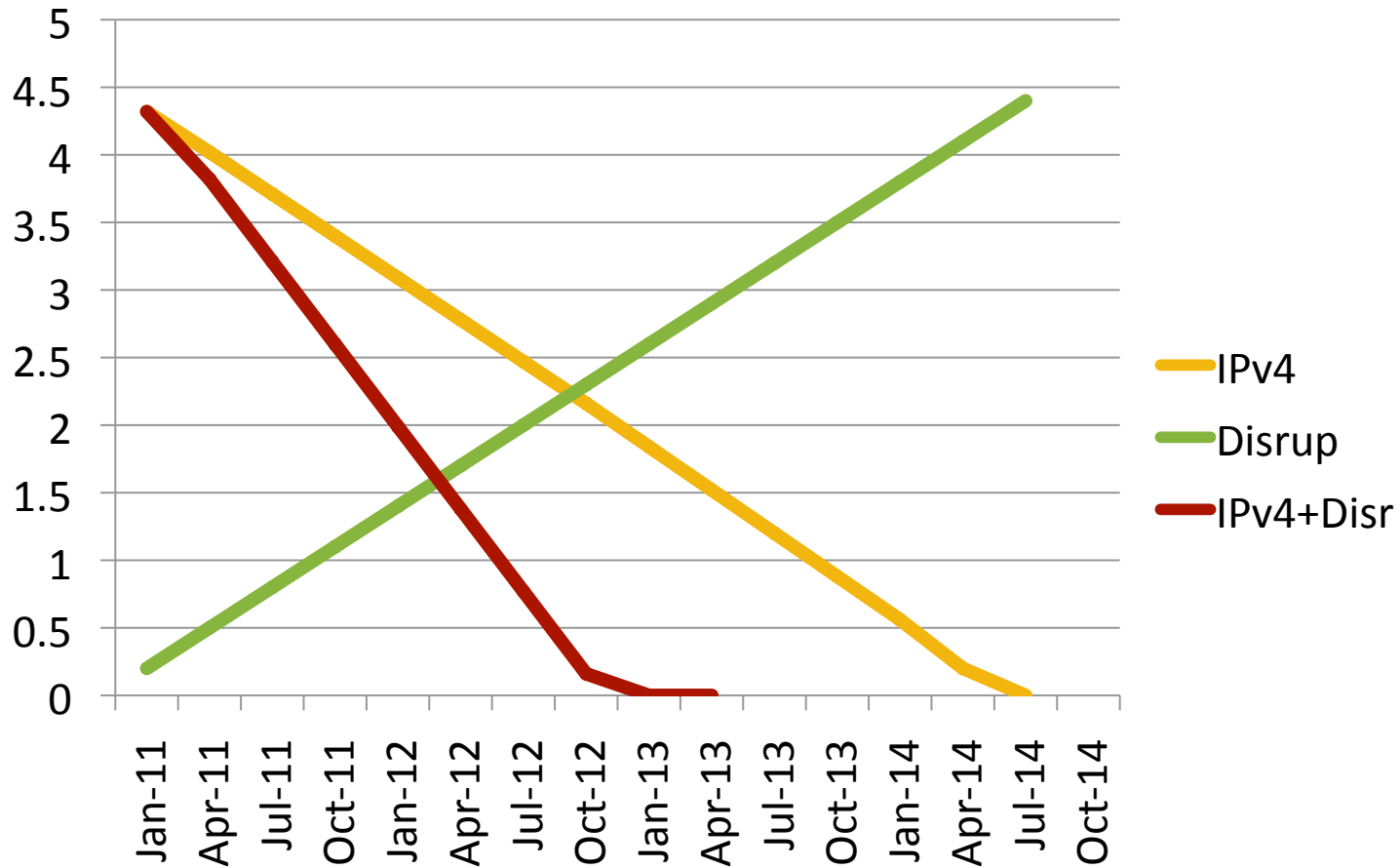


What is uncertainty?

- A new technology demanding connectivity, ergo an increase in IPv4 addresses requests
 - Mobile devices
 - Transition mechanisms to IPv6
- Rush shopping

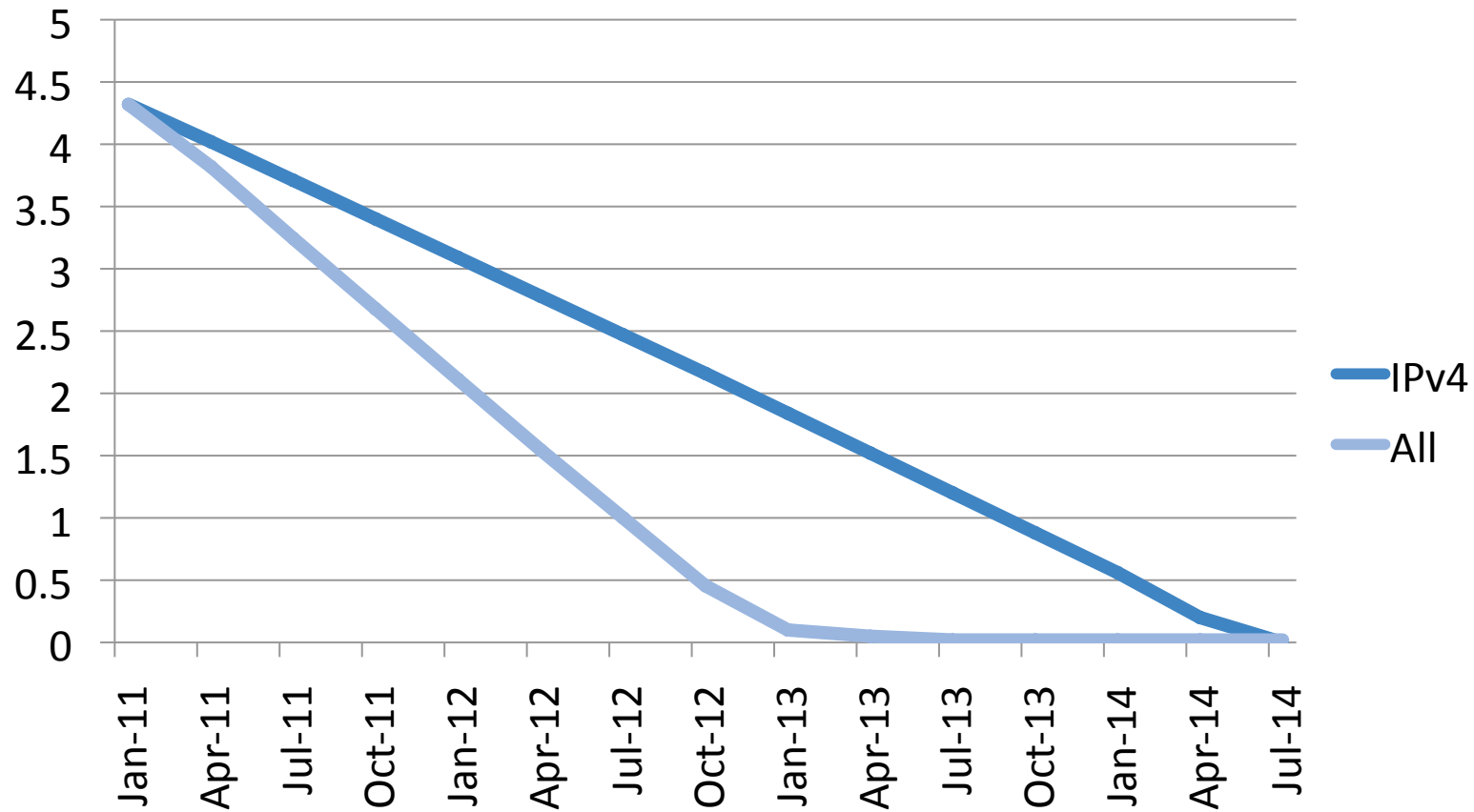


Experimental Uncertainty Factor





All together

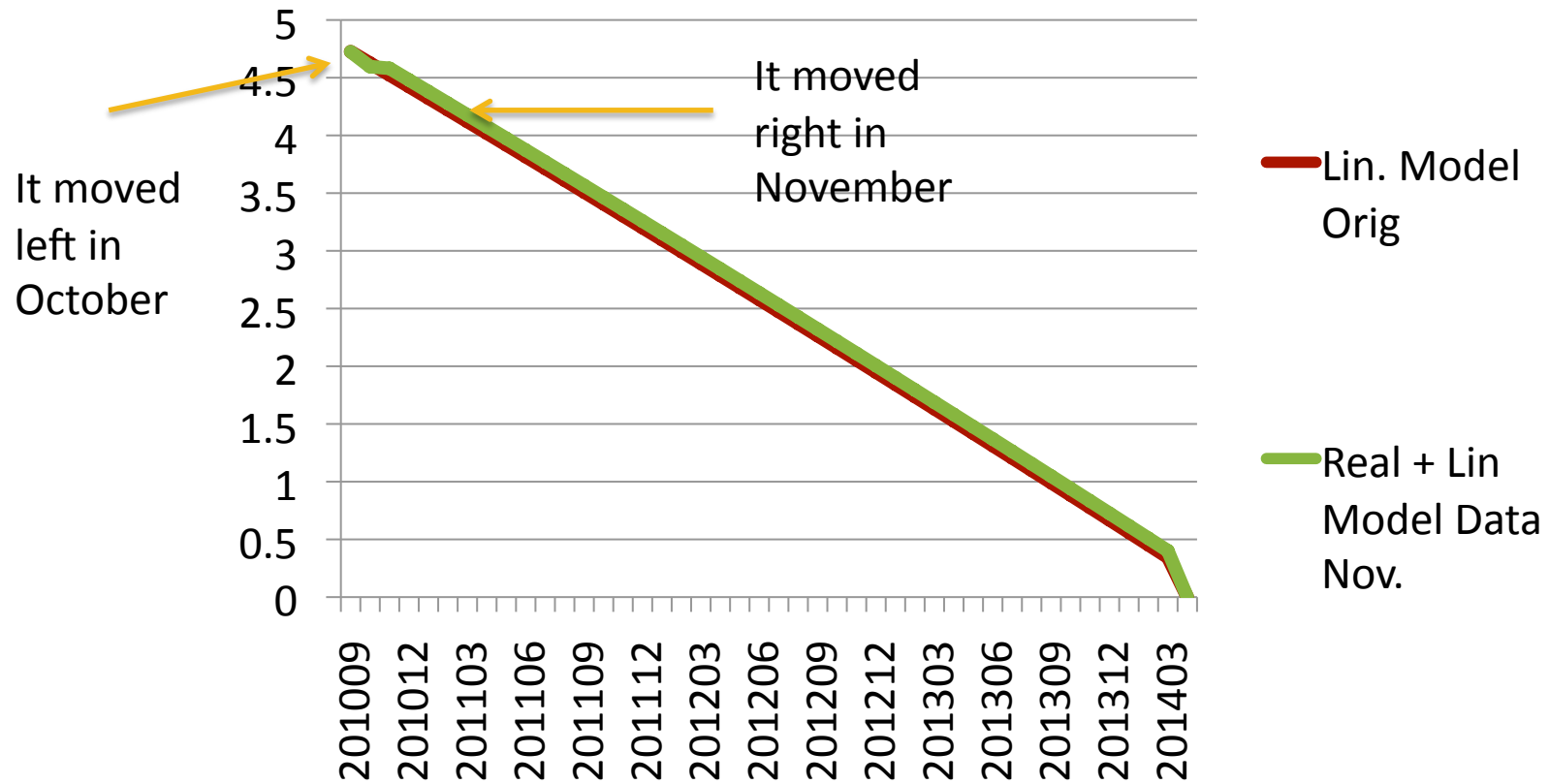




As seen, projection may be
difficult, look ...



New Projection (Dec 2010)





Conclusions

- Modeling the IPv4 address exhaustion is not easy, but that is not a surprise
- Close monitoring is crucial if we want to react to changes in the ecosystem
- Modeling short periods of time seems to be a sensible approach, but then RIRs need to open up their stats about stock and allocation

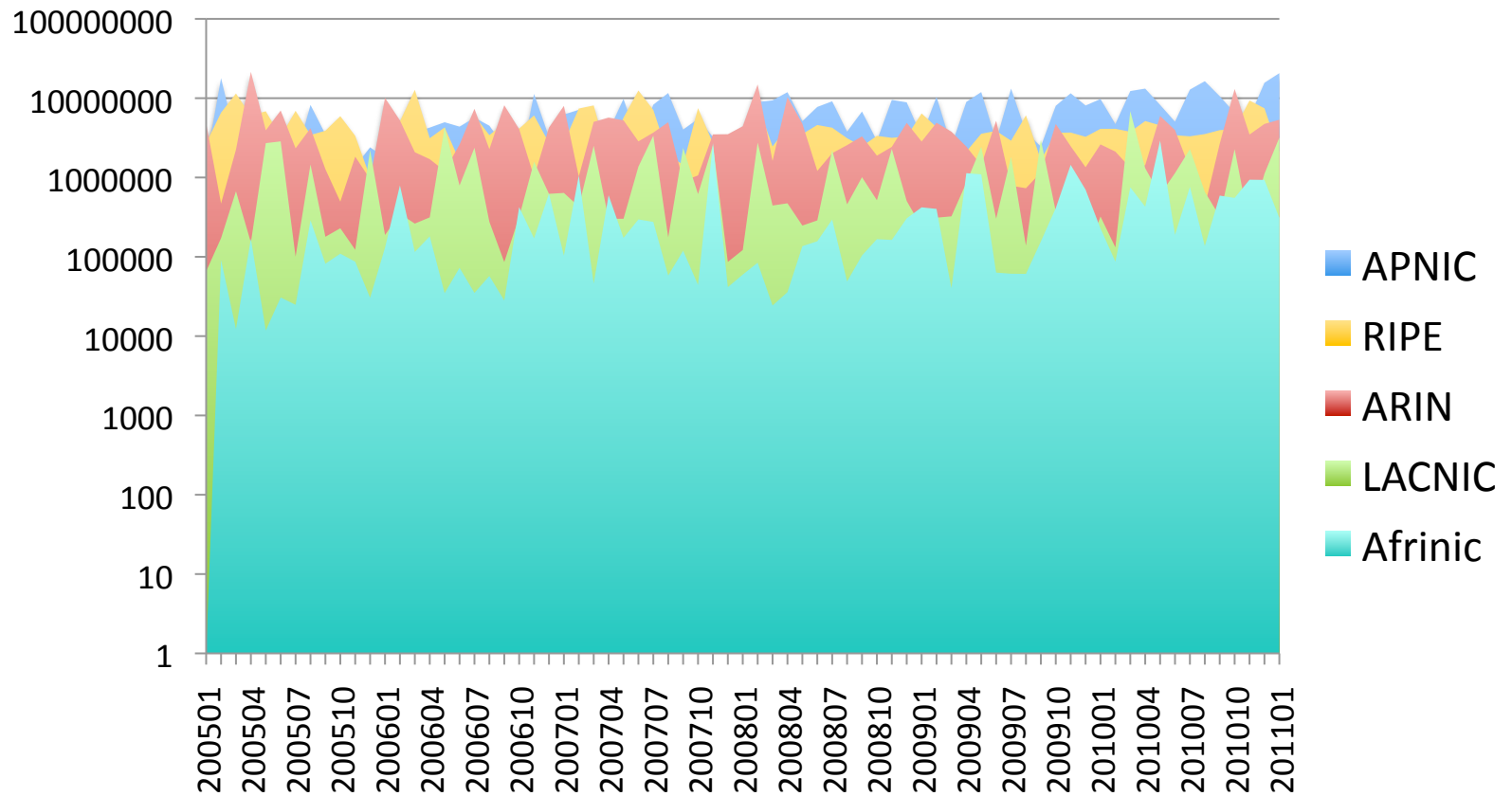


Conclusions (cont.)

- Knowing the “when” is important, but “how” the prediction changes and “why” is also critical
- Allocation policies can extend the life of the RIR pool but at a cost of availability
- New technologies and “rush shopping” may significantly affect the exhaustion model



Sleep tight ...





Thank you!

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are::you:IPv6:ready?