RIPE NCC
RIPE NETWORK COORDINATION CENTRE

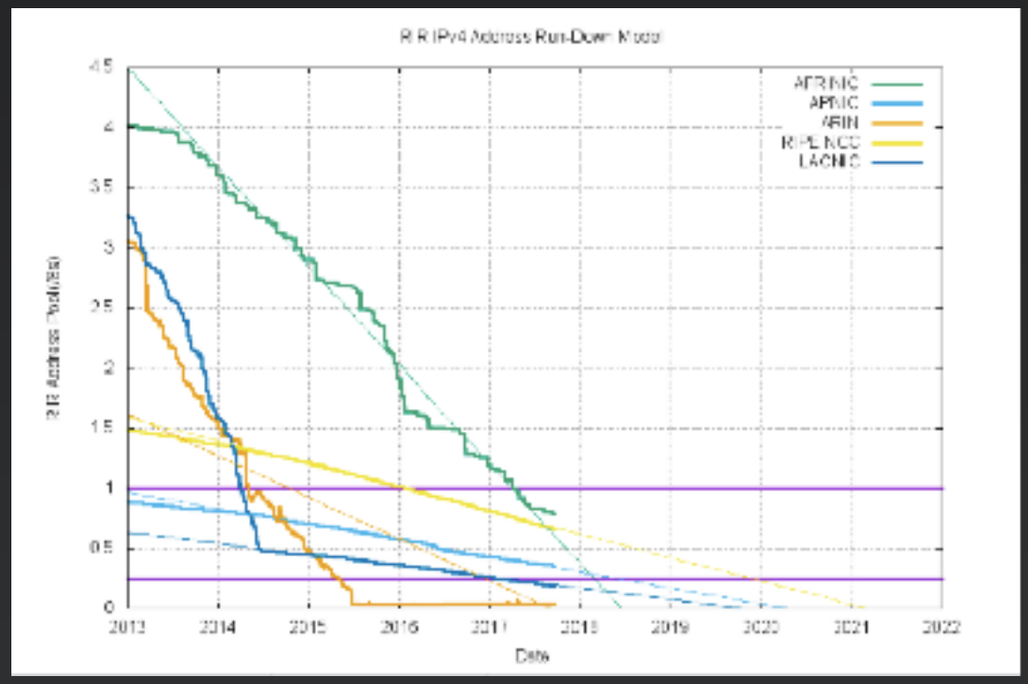
Towards a Sustainable Internet

The Opportunity of IPv6

Marco Hogewoning | September 217 | Bahrain

Steady Decline of Available IPv4

- No immediate shortage of IPv4 addresses
  - Transfer market appears to fulfil industry demands
  - Still some resources left at RIR level for new business
- Long term expectations
  - Less “free” addresses available to transfer market
  - RIR level pools will run out

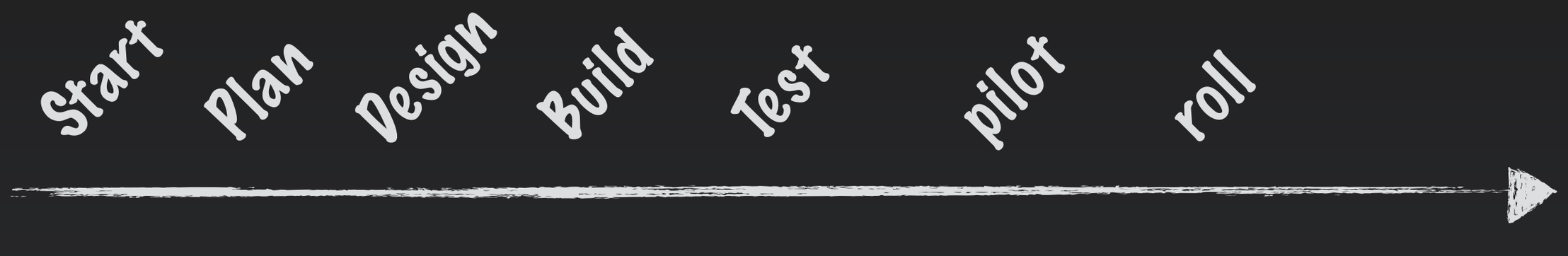


Projected Consumption of RIR IPv4 Pools (source: Geoff Huston, APNIC)

Dealing With Limits

- Industry is used to invest in resources
  - Spectrum, fibre, IP addresses
  - Price depending on supply and demand
- Some resources are finite
  - You simply cannot create more IPv4 addresses
- Technology can help
  - Innovations such as IPv6 to replace existing methods
  - More efficient use of existing resources e.g. NAT/CGN

IPv6 Roadmap for Operator



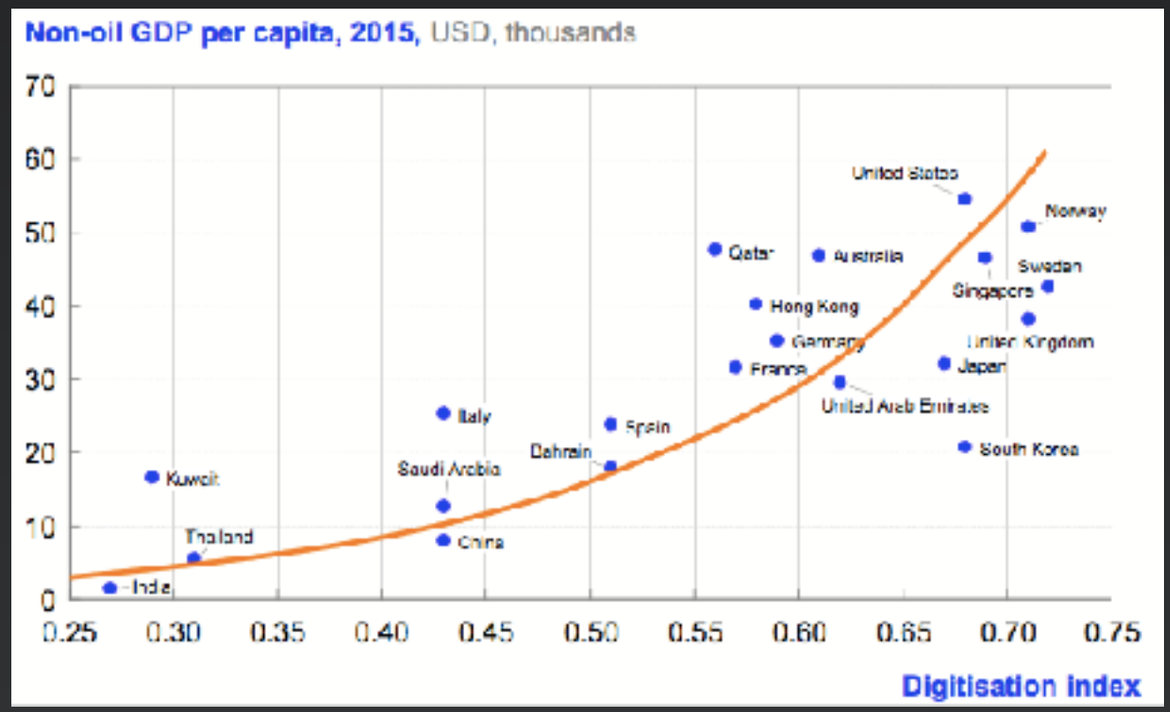
3 years

IPv6 Needs Focus on Long Term

- Three years in Internet terms is very long
- A lot or business focus on shorter term
  - Need a problem solved right now
  - Customer won’t wait for three years
  - Shareholders looking for next quarter’s results
- Warrants investment in IPv4
  - Need to keep things working as is
  - Need to support the current growth

Macro Economic Outlook

- “Digital Middle East” report by McKinsey
  - Bahrain GDP is 51% in “Services”
  - Digital Industries add 8% GDP
- Services become very reliant on digital
- What if 60% of your GDP relies on Internet?
- Strong correlation between digitisation and non-oil GDP



Bahrain:

GDP per capita 25k

GDP per IPv4 address 65k

(IPv6 usage close to 0)

How will this look in 10 years?

Longer Term Risks

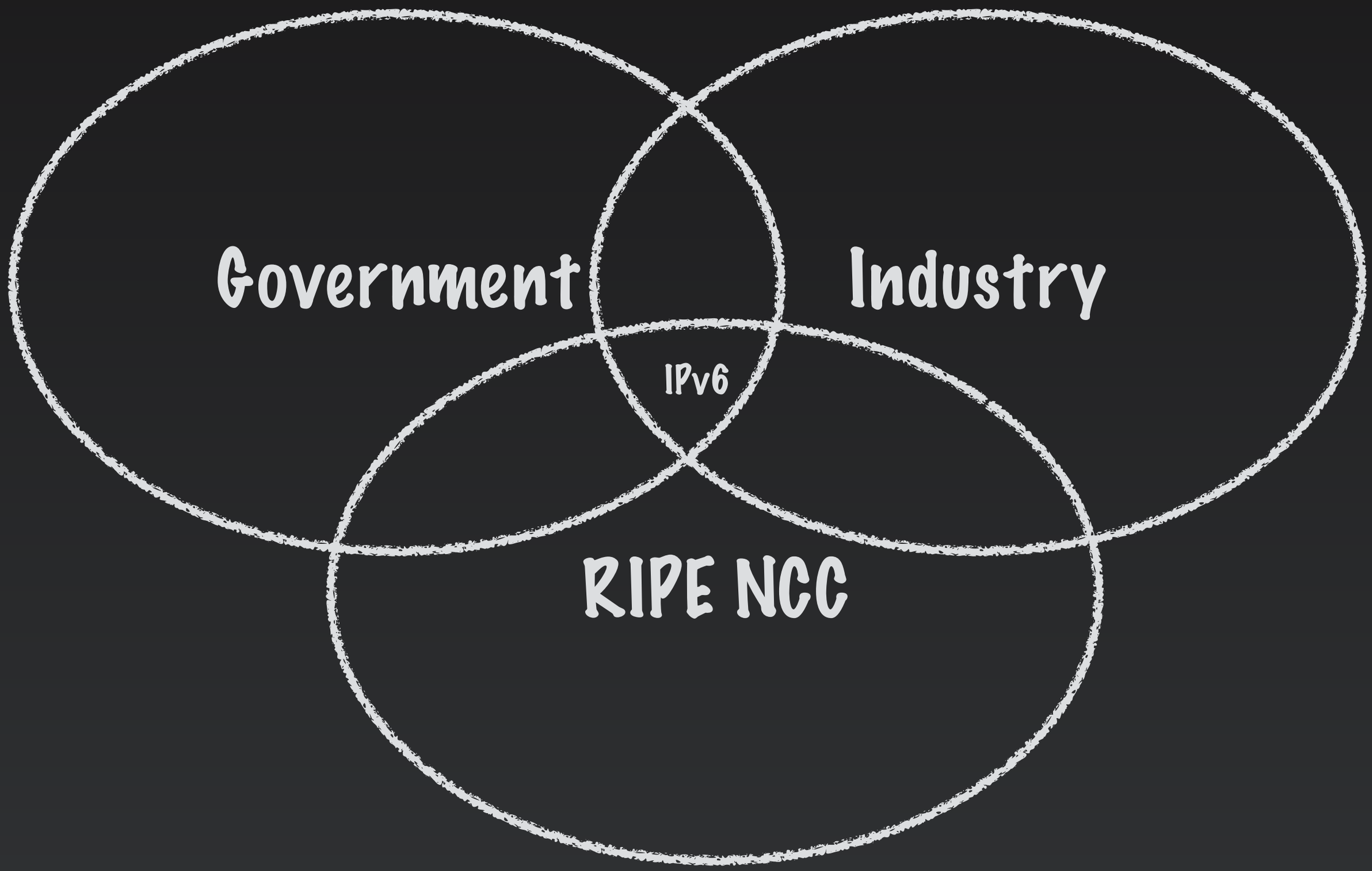
- Growth not impossible, but harder to achieve
  - Cost of IPv4 is likely to go up
  - More dependency on a scarce resource
- “Disconnect” from global Internet economy
  - Big business moving into IPv6
  - Parts of the Internet move away from IPv4

“…Preparation for this transition requires ensuring that many different environments are capable of operating completely on IPv6 without being dependent on IPv4…”

“…We encourage the industry to develop strategies for IPv6-only operation…”

Internet Architecture Board, November 2016

Deploying IPv6



Questions?

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