IGF 2017 NRI's Collaborative Session

IPv6 situation, remaining challenges for the African region as whole, suggestions on a way forward beyond IGF IPv6 BPF documents.
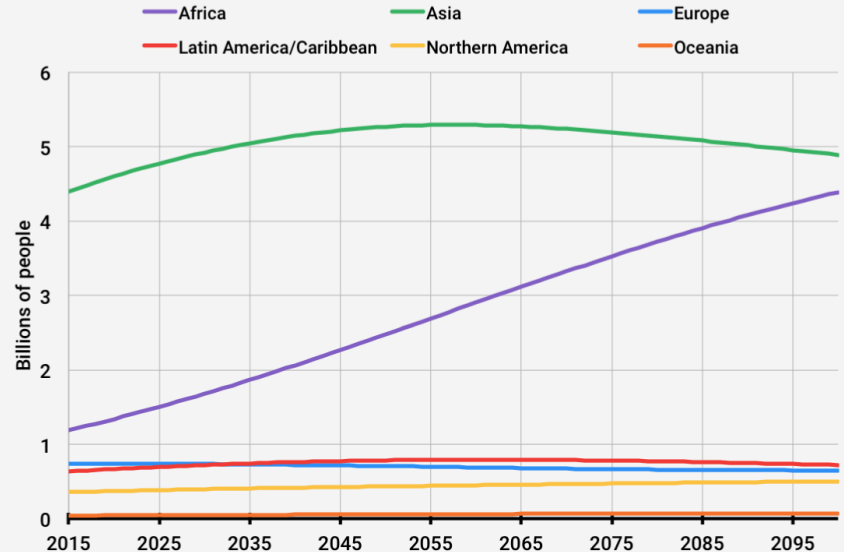
Alan Barrett, CEO, AFRINIC
21st December 2017

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Africa's future outlook

- Better **macroeconomic** management, increased diversification and an improved business environment have seen Africa's GDP grow

- **Domestic demand** continues to drive Africa's growth. Africa's growing population represents a major catalyst for future growth

- Internet penetration rate in Africa is at **31%**. The penetration rate is expected to grow by **25%** in the coming three years.

Population projections, 2015-2100

Legend: Africa, Asia, Europe, Latin America/Caribbean, Northern America, Oceania

Y-axis: Billions of people (0 to 6)

X-axis: 2015, 2025, 2035, 2045, 2055, 2065, 2075, 2085, 2095
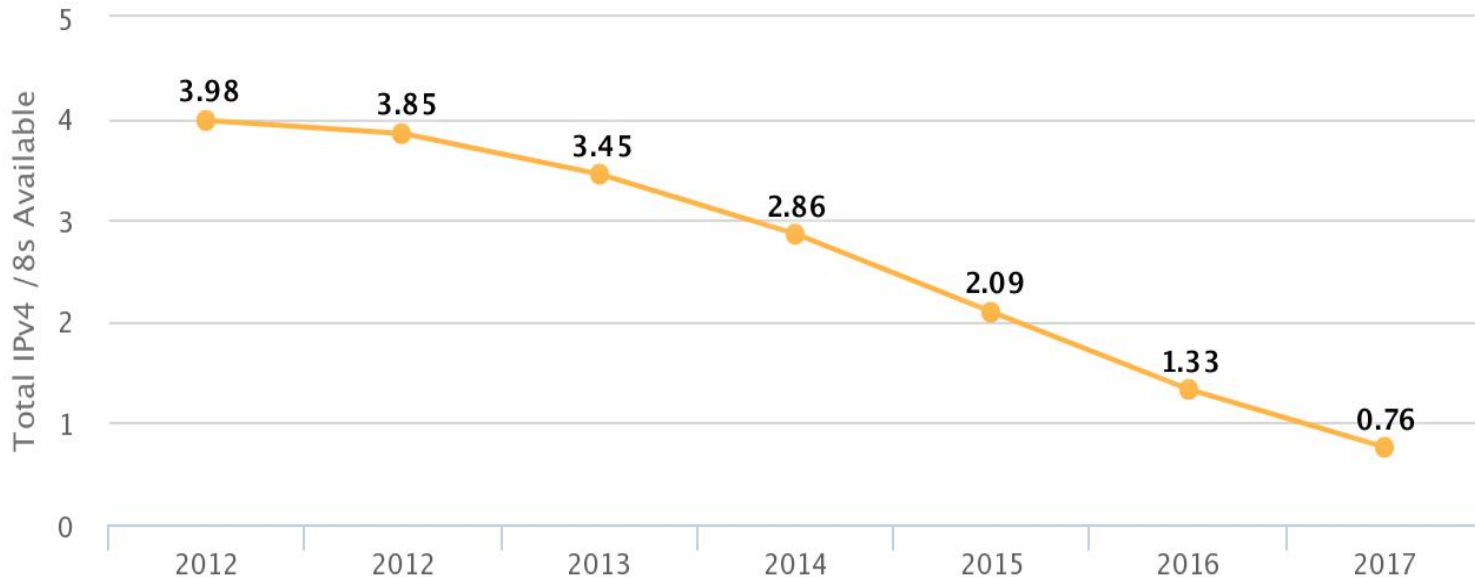
IPv4 exhaustion in Africa

The total available **IPv4 pool** in the AFRINIC region today is about **13.5 million addresses** and you can't get more than **one /13** at a time
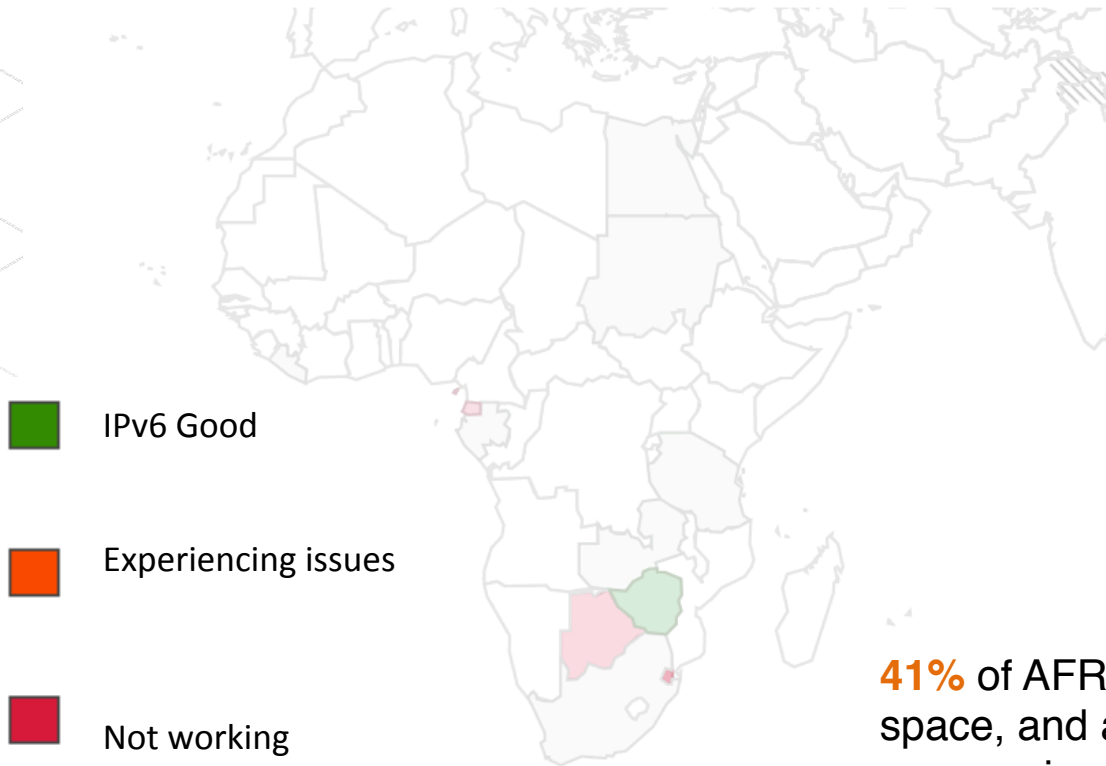

IPv4 available /8s per year from 2012 to 2017
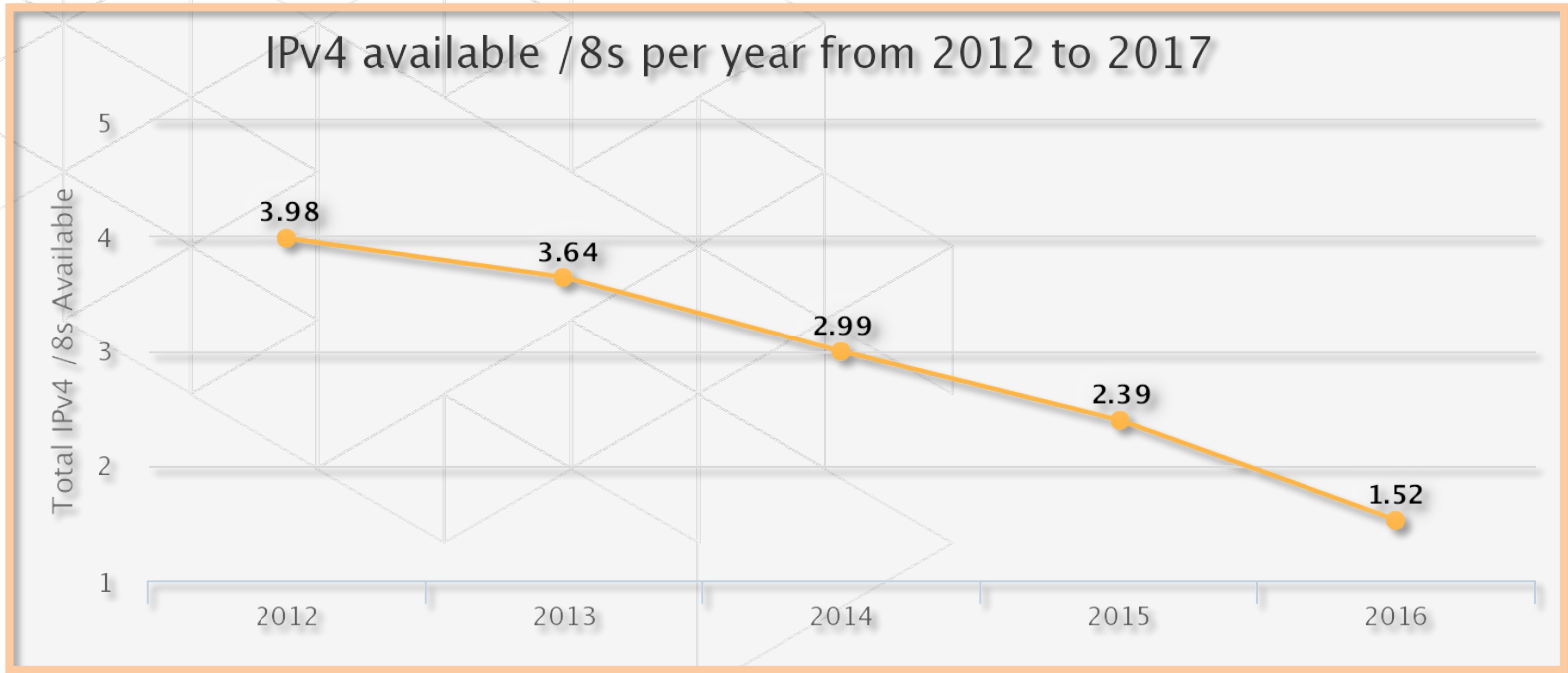
IPv4 exhaustion in Africa

By 2018 AFRINIC expects to reach **"exhaustion phase 2"**, which will mean nobody can get more than a /22, or 1024 addresses, at one time.

IPv4 available /8s per year from 2012 to 2017

Year	Total IPv4 /8s Available
2012	3.98
2012	3.85
2013	3.45
2014	2.86
2015	2.09
2016	1.33
2017	0.76

IPv6 Statistics in Africa

IPv6 Good

Experiencing issues

Not working

Source: CISCO 6LAB

% of clients

Country	Google	APNIC
Zimbabwe	**7.15%**	**9.15%**
Egypt	0.57%	0.4%
South Africa	**0.38%**	**1%**
Sudan	0.34%	0%
Tanzania	**0.44%**	**0%**

41% of AFRINIC Members have some IPv6 space, and about **18%** of networks in Africa are announcing an IPv6 prefix.
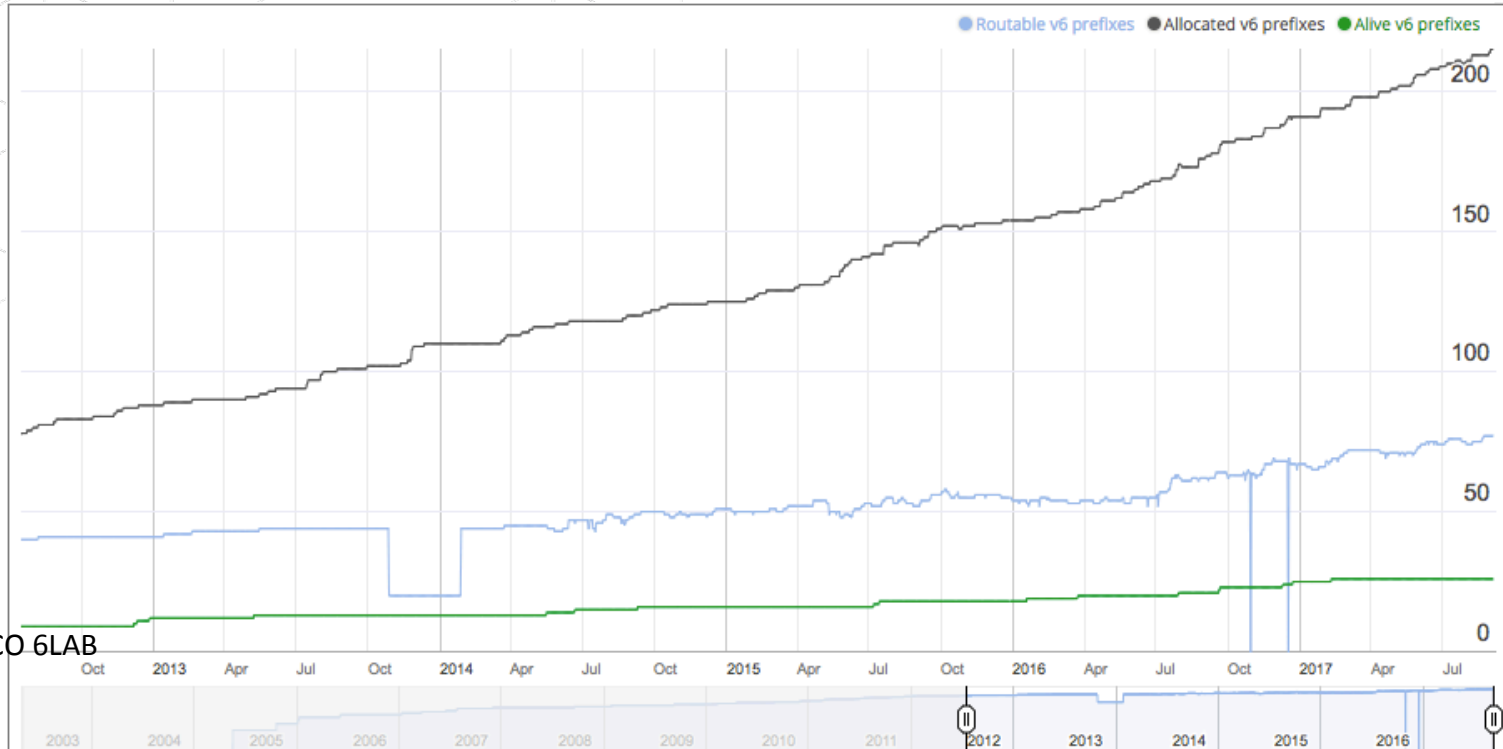
Ratio of routable IPv6 prefixes
(seen in BGP vs allocated)
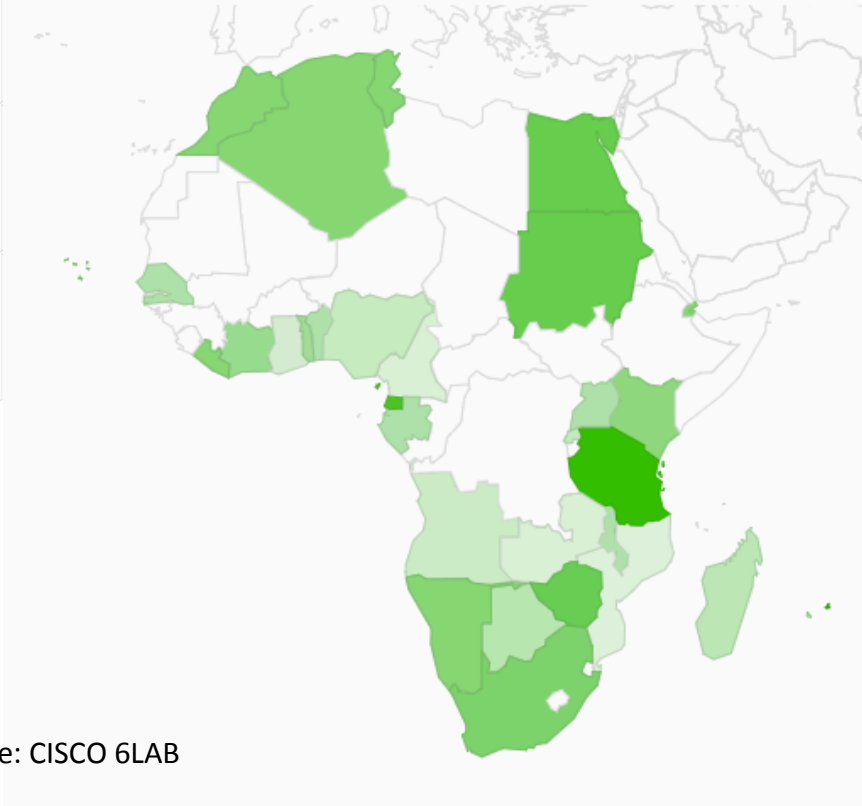
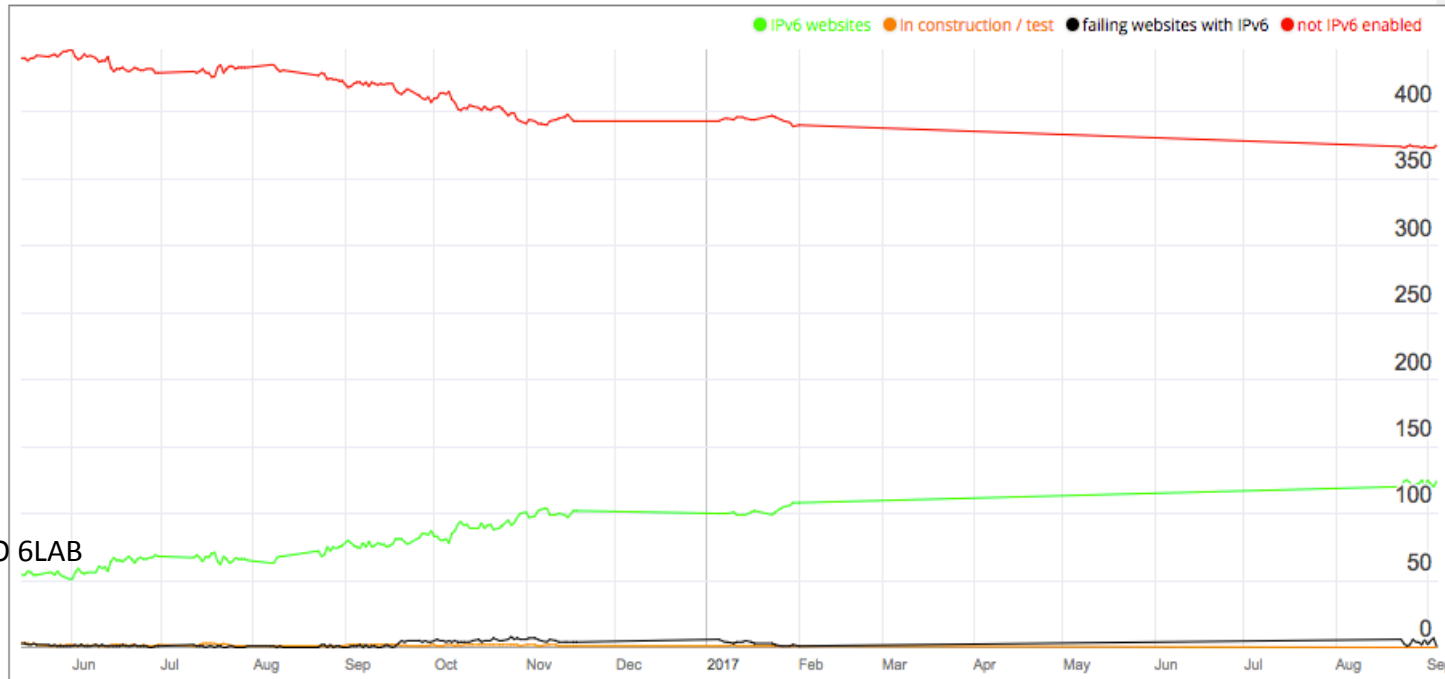| Mauritius	68%
Tanzania	**56%**
Equatorial Guinea	**50%**
Zimbabwe	**42%**
Egypt	42%
South Africa	35%
Namibia	33%
Algeria	33%
Botswana	18%

Source: CISCO 6LAB

IPv6 Uptake: South Africa

Source: CISCO 6LAB

IPv6 Enabled top 500 web sites

Zimbabwe

Display Content Data

Source: CISCO 6LAB

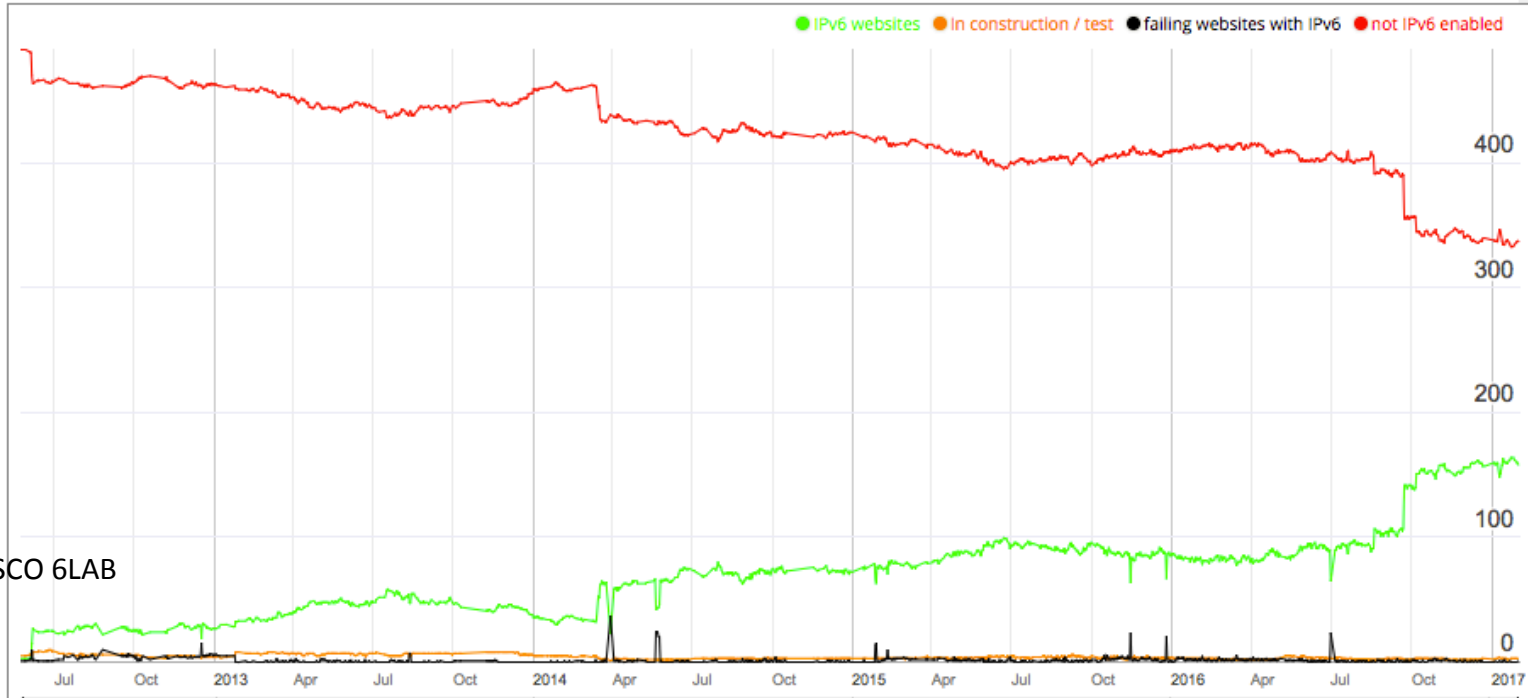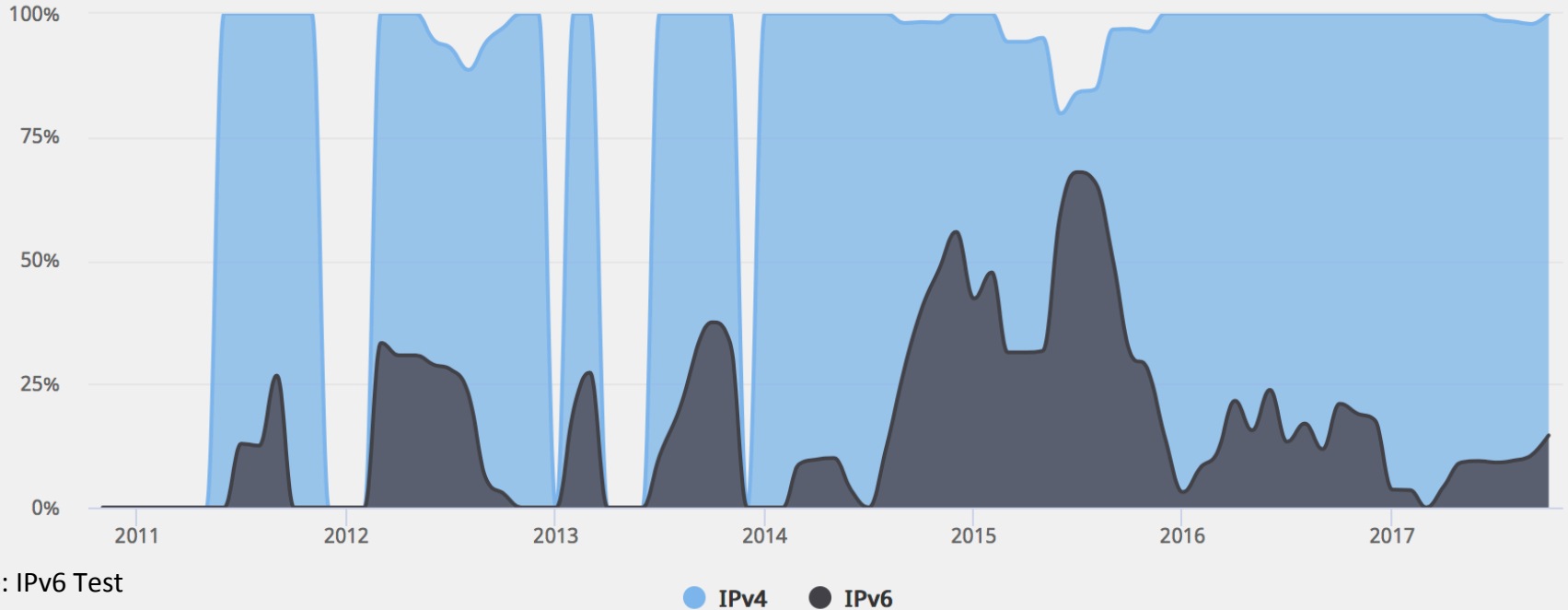# IPv6 Enabled top 500 web sites

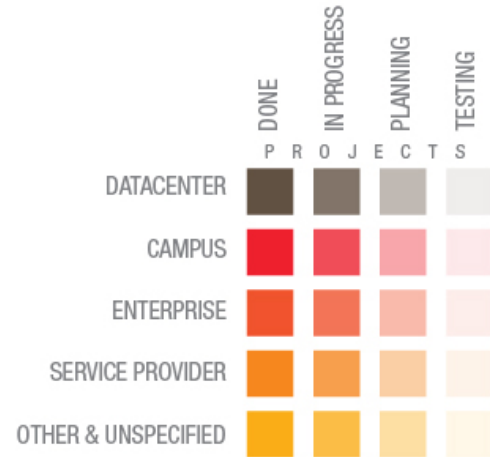Source: CISCO 6LAB
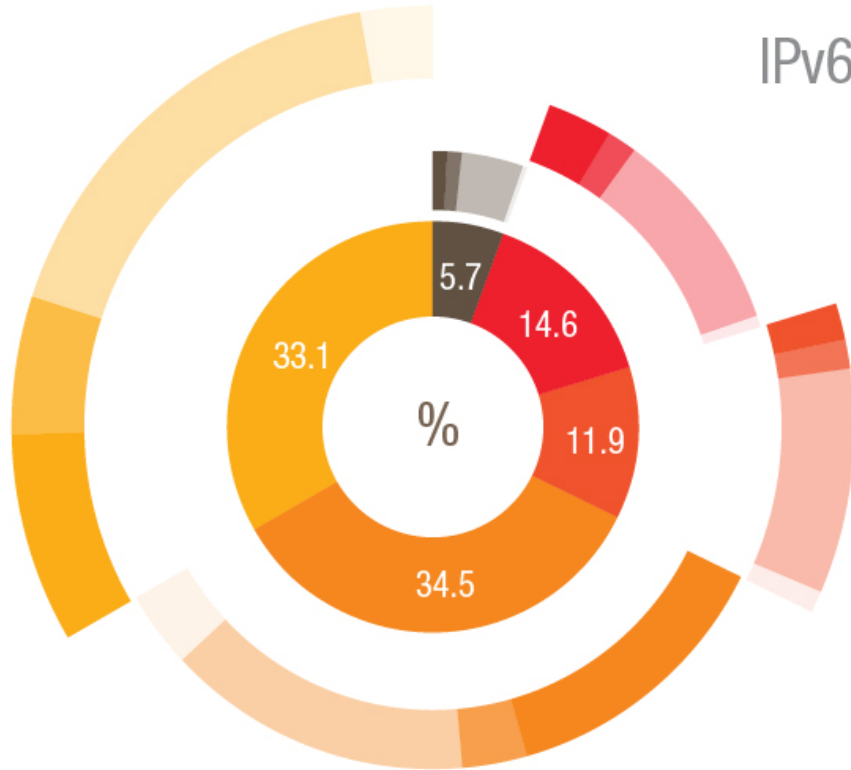
IPv6 and v4 Support: Kenya

Overall IPv6 and v4 protocol support in Kenya

Source: IPv6 Test

IPv4   IPv6
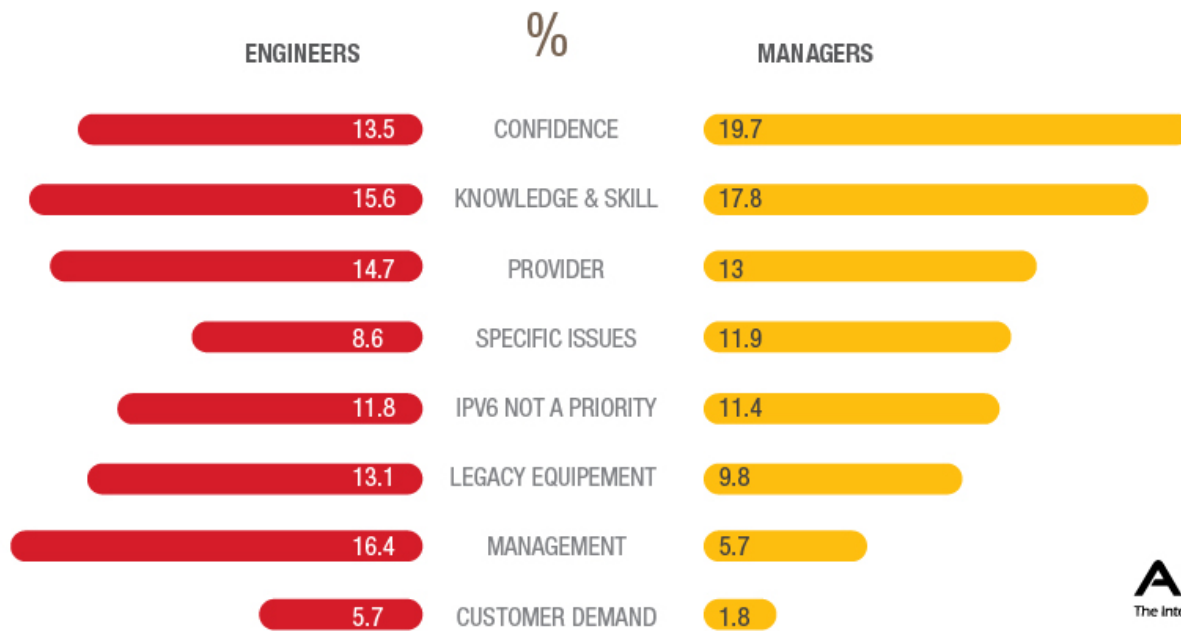
IPv6 Implementation in Africa

IPv6 IMPLEMENTATION IN AFRICA

IPv6 Deployment Challenges

IPv6 IMPLEMENTATION CHALLENGES

ENGINEERS	%	MANAGERS
13.5	CONFIDENCE	19.7
15.6	KNOWLEDGE & SKILL	17.8
14.7	PROVIDER	13
8.6	SPECIFIC ISSUES	11.9
11.8	IPV6 NOT A PRIORITY	11.4
13.1	LEGACY EQUIPEMENT	9.8
16.4	MANAGEMENT	5.7
5.7	CUSTOMER DEMAND	1.8

AFRINIC IPv6 Capacity Building

- IPv6 Training: Over **600** Engineers trained in **18** countries through **20** workshops in 2017
- **Certi6:** a multi-tiered program of written exams created by AFRINIC Ltd under the IPv6 Forum certification programme
- 4 Partners Signed Up in Tunisia, Nigeria, Egypt and Sudan under Certi6
- 10 Beta Testers

Thank you.

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