LACNIC 23 – Lima, Peru

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The Internet is changing…

AT&T BREAK THROUGH 50% IPV6, SAUDI ARABIA JOIN TOP 20 IPV6 NATIONS

Posted on May 19, 2015 by Mat Ford

Other new entrants this month include MEO who have been building IPv6 deployment in Portugal for some time and are now included in our rankings in 17th position with IPv6 deployment of 44.11%, GVT of Brazil in 23rd position (3.47%), Sprint Wireless of the USA in 40th position (1.6%) and Ziggo, the largest cable operator in the Netherlands, in 64th position (0.53%).

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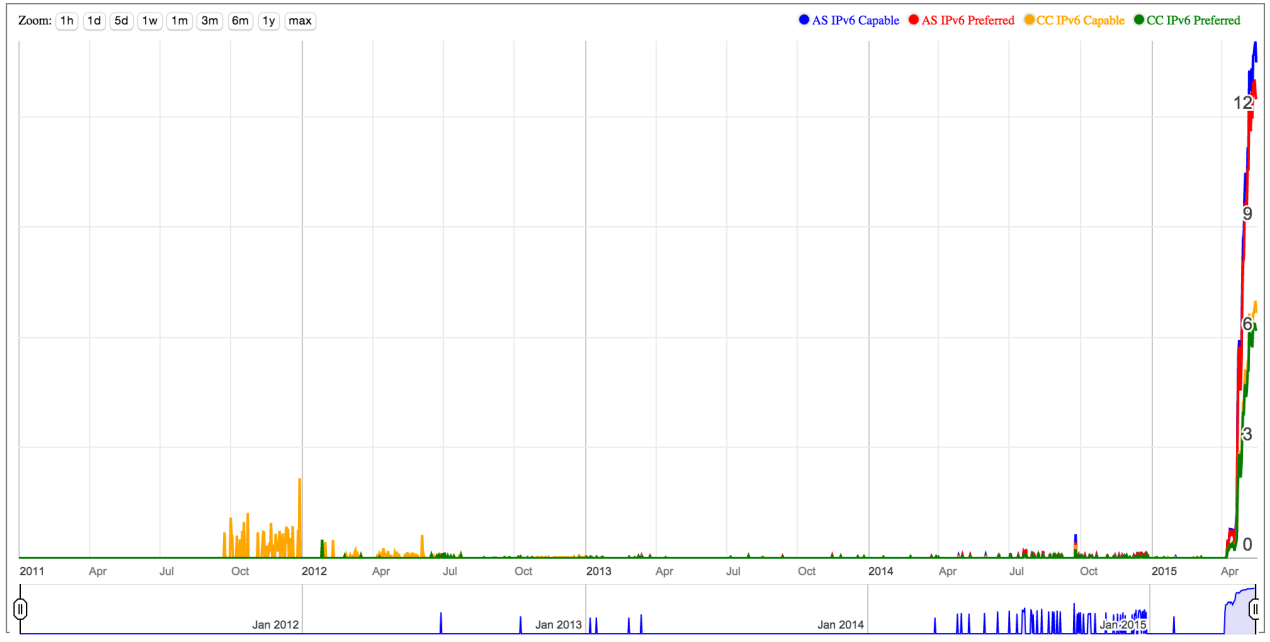
...rapidly

IPv6 Country Deployment for AS25019: SAUDINETSTC-AS Saudi Telecom Company JSC, Saudi Arabia (SA)



Average Interval (days)

1

Hide country ASN List

Hide IPv6 Preference

Hide Country Totals

Redraw

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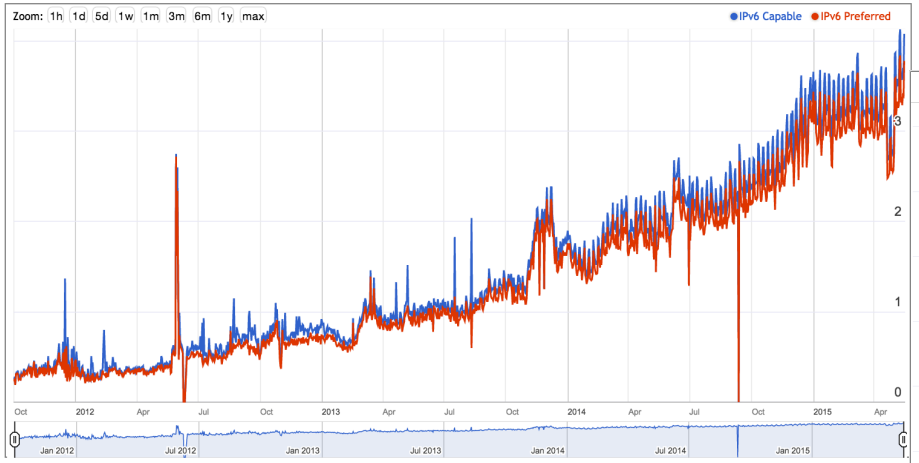
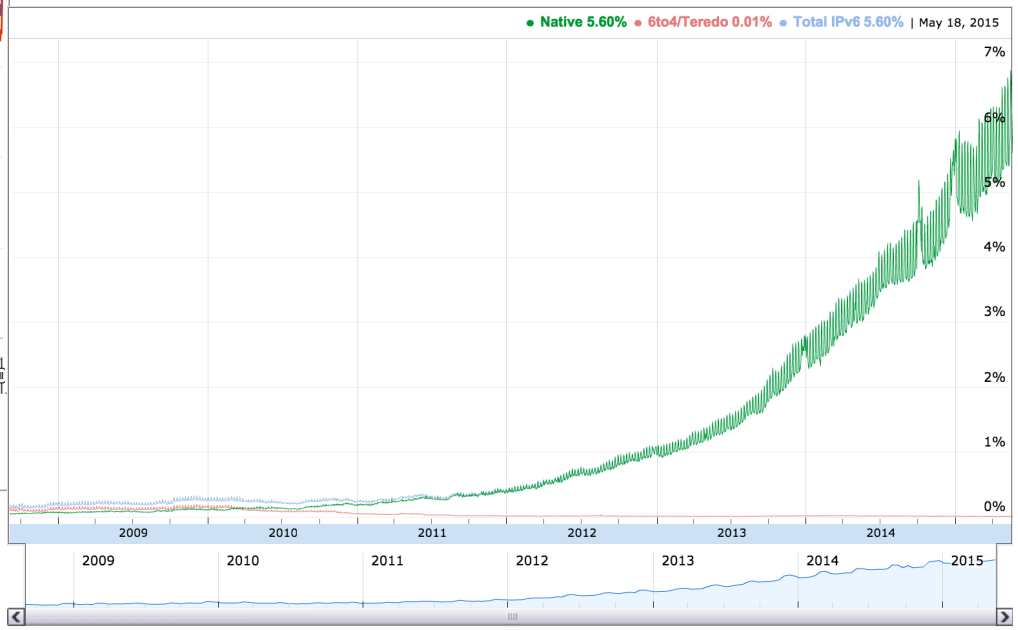
The big picture

IPv6 Country Deployment for World (XA)





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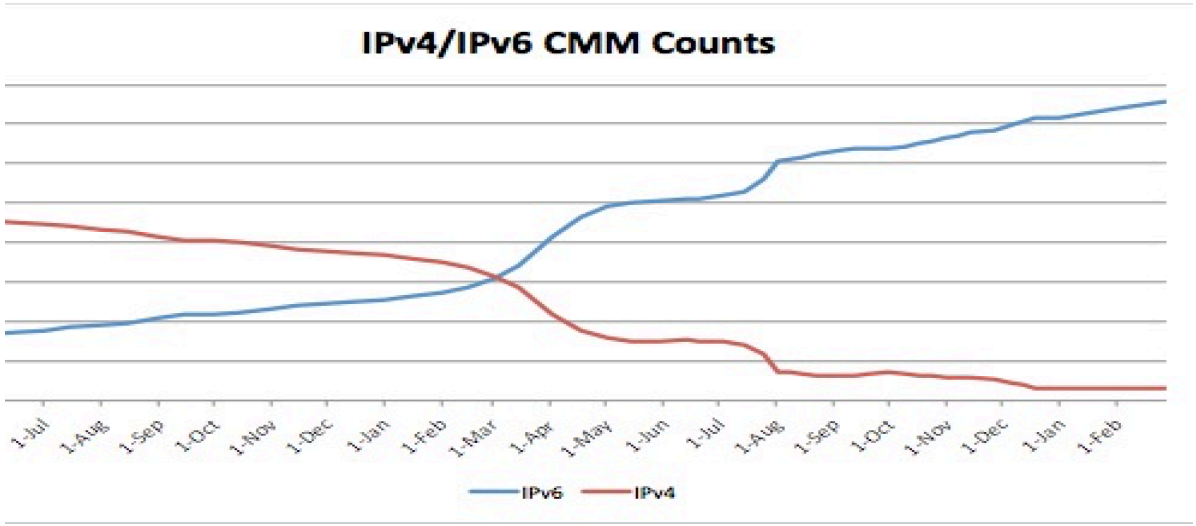
A journey that began nearly 10 years ago…

Millions of devices managed



- 95% of devices are managed using IPv6 only
- Management use of IPv6 only the largest deployment of IPv6
- 100% increase in device managed during CY2014
- Trending to 100% of all new and existing devices managed using IPv6 only, no IPv4

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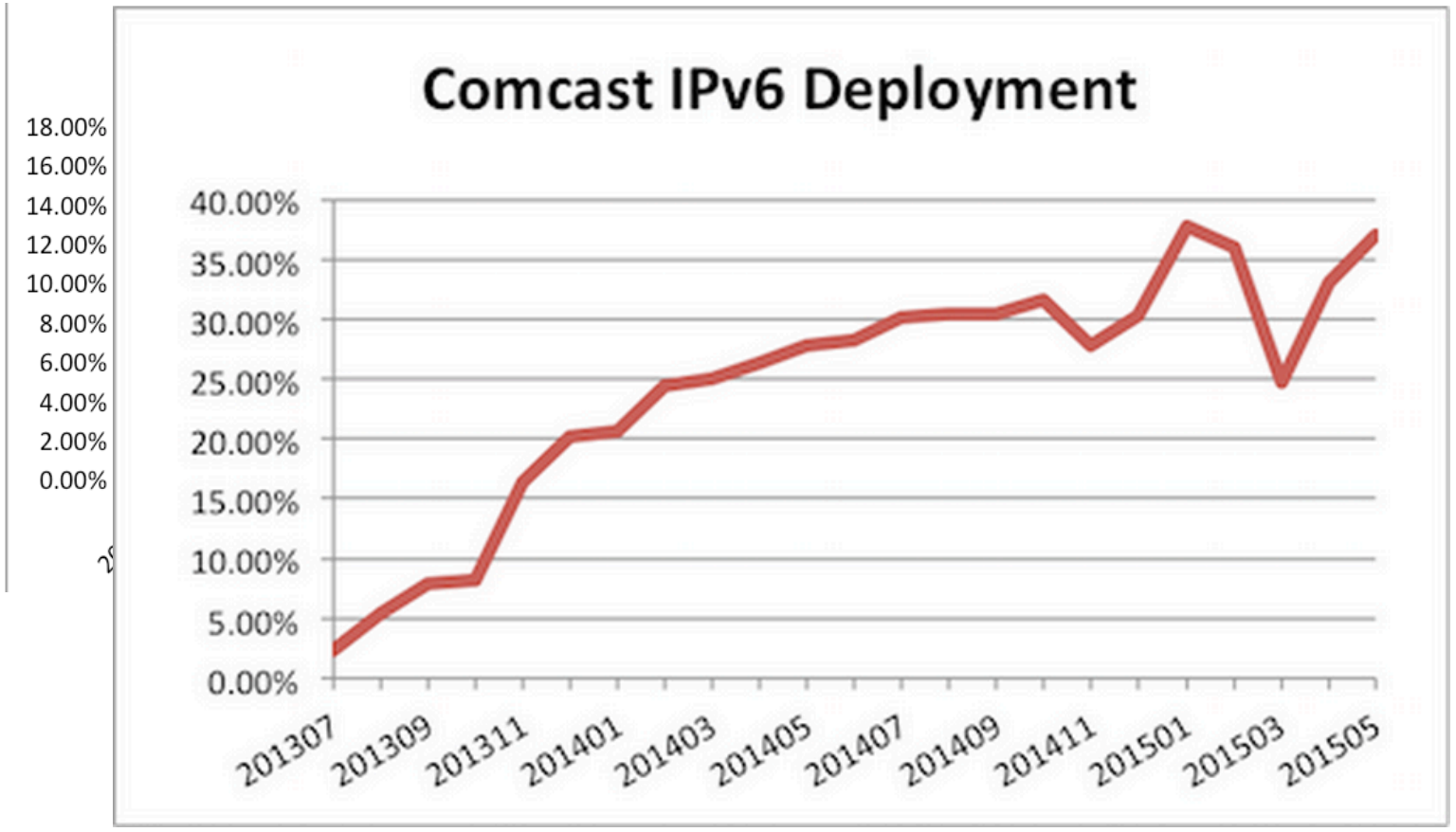
Over one year…



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Then and now…

2014

- 30% of customers provisioned with native dual stack
- Planned for 50% penetration by EOY2014
- IPv6 deployment across 90% of broadband network
- Approximately 5% of overall traffic was IPv6
  - Planned for 50% increase in traffic by EOY2014

2015

- ~60% of customers provisioned with native dual stack
- Achieved 50% penetration by EOY2015
- IPv6 deployed across 100% of broadband network (as of May 2014)
- Currently IPv6 traffic approximately 10%

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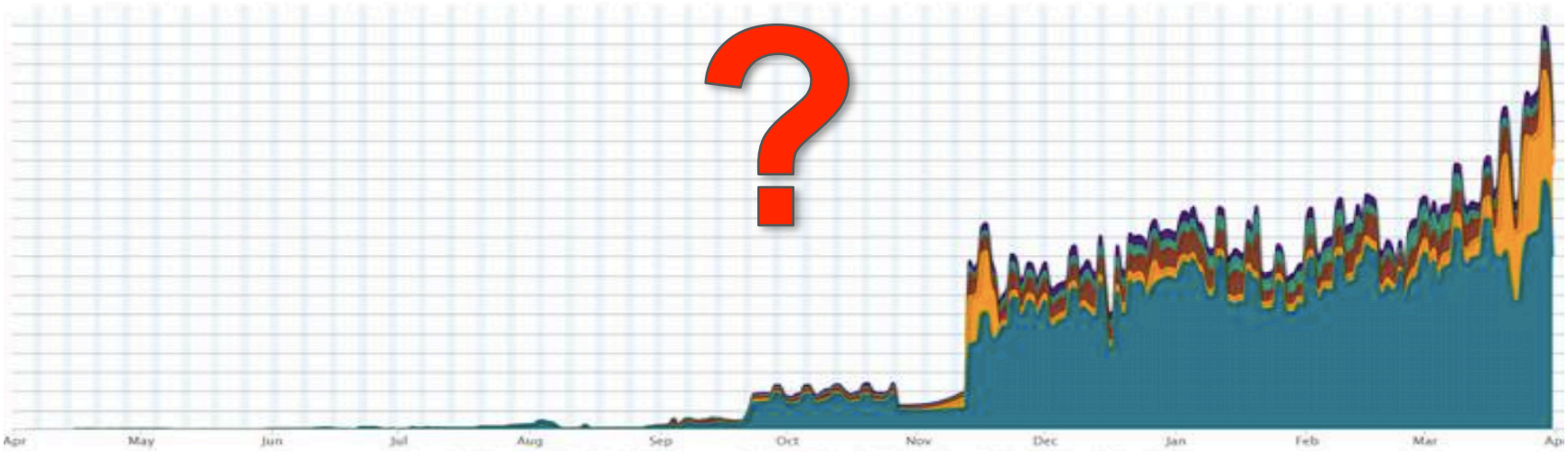
Traffic

60% IPv6 penetration across broadband
!=
~20% IPv6 traffic

But…



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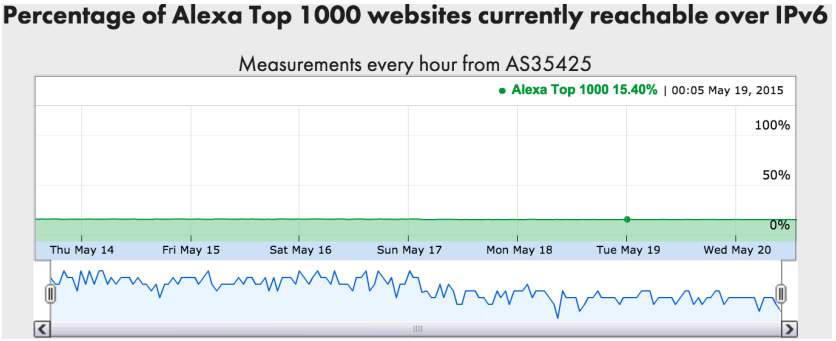
An IPv6 only experience?

- IPv6 enabling www.yourdomain.com is just not enough…
  - This rarely equates to a complete experience over IPv6 only
- So what does IPv6 enabled mean? What should it mean?
- Embedded resources must also be IPv6 enabled
  - Even ads?
  - Only **two** of the top 10 Alexa sites have parity between IPv4 and IPv6
- Significant amount of popular content are hosted from third party networks
  - What if third party network enabled IPv6 by default for current and new customers? Like broadband providers…



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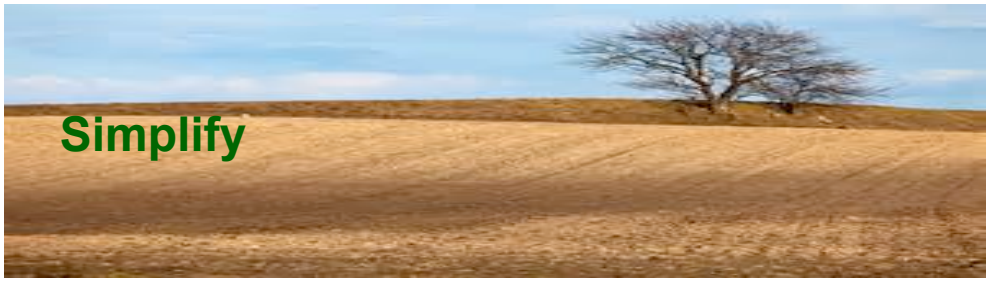
Are we done yet?

We are finally, now, able to get started…

- Next generation products and services for voice, video, and data
  - All IPv6 only that relies on…
- Next generation infrastructure
  - IPv6 lean core
  - IPv4aaS
  - IPv6 Segment Routing
  - Content delivery



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Comcast X1 and IPv6

- X1 is Comcast's next generation entertainment operating system
  - Delivering video and other services to millions of customers
- X1 is going IPv6 only!
  - IPv4 cannot support long term growth
  - All applications updated to support IPv6 only operation
  - All infrastructure enabled to support dual stack operations
    - Mainly to facilitate a seamless migration from IPv4 only to IPv6 only
- Comcast partners, suppliers, and third party providers are required to support IPv6
- Existing IPv6 deployment a critical building block for X1 and IPv6

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IPv4aaS

- Life after IPv4? You bet…
- Leverage pervasively deployed IPv6 support to deliver IPv4
  - IPv6 technology state and deployment can support IPv4aaS, now
- Employ encapsulation and/or tunneling
  - Less state is more
  - GRE over IPv6, MAP, LISP(-ish), etc. – take your pick
- There is more…

Encapsulate

Tunnel

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Software and Virtualization

- Ready…set…virtualize!
- Leverage Comcast's leadership developing IPv6 support in Open Stack
  - Initial objective for Comcast's work to lead the IPv6 development in Open Stack was to support X1
  - Mileage goes far beyond X1, extends to our work with SDN and NFV
- Open Stack and IPv6 are foundational elements for next generation infrastructure
  - Segment Routing, looks like SDN (for real, not just marketing)
  - Service chaining, enabler for NFV
- How about virtualizing IPv4aaS?
  - Virtualized MAP BRs and/or GRE over IPv6 concentrators
- What about orchestration?

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What's next?

- Open Stack/Cloud enhancements
  - True IPv6 only, maybe dual stack floating IP addressing
  - IPv6 beyond a single IPv6 address per instance
- Production ready IPv6 Segment Routing
- Virtualized networking in the cloud
- SDN controllers for orchestration
- IPv4aaS
  - Production ready MAP BR support
  - GRE over IPv6 termination

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Why IPv6?

- IPv6 is not just about more IP addresses, any longer.
- IPv6 performs better than IPv4
- IPv6 is simpler operationally and is not difficult to deploy
- IPv6 is your platform for innovation

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