IPv6-only clients experience

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[ an internet citizen without a hat ]

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A dualstack network stands on its own

How good can we bike without training wheels?
How good can we bike without training wheels?

• Content [✓ ]
  - http://www.internetsociety.org/articles/google-ipv6-easy-inexpensive
How good can we bike without training wheels?

• Content [✓]
  - http://www.internetsociety.org/articles/google-ipv6-easy-inexpensive

• Transit [✓*]
How good can we bike without training wheels?

- Content [✓]
  - http://www.internetsociety.org/articles/google-ipv6-easy-inexpensive
- Transit [✓*]
- Eyeballs [❓]
  - Need to have the possibility to move 10% users onto IPv6-only to talk seriously
WiFi clients: a typical HW vendor distribution

Source: Paris IPv6 World Congress 2012 NOC stats
Connecting to IPv6-only WiFi network

- MacOS X: works (if IPv4 is manually off in preferences)
- Ubuntu 12.04: works (if IPv6 configured in Network Manager)
- Windows 7: works
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- Quirks for IPv4 apps on IPv6-only network:
  http://www.ietf.org/id/draft-yourtchenko-ipv6-disable-ipv4-proxyarp-00.txt
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- Android: does not work at all
- iOS 5.1: not supported but kind of works
- iOS 6.x: supported but lots of apps do not work
Android on IPv6-only WiFi

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(waiting for DHCPv6 or RDNSS)
iOS Apps Internet connectivity checks

• Specific UI when there is no internet connectivity
• “Reachability” sample: http://preview.tinyurl.com/6lncyca

    + (Reachability*) reachabilityForInternetConnection;
    {
        struct sockaddr_in zeroAddress;
        bzero(&zeroAddress, sizeof(zeroAddress));
        zeroAddress.sin_len = sizeof(zeroAddress);
        zeroAddress.sin_family = AF_INET;
        return [self reachabilityWithAddress: &zeroAddress];
    }

• Not in current HIG at http://preview.tinyurl.com/c42op9j ?
• Either do it correctly in your app (please!) or not do it at all.
• Apple Bug: 12706040; 15 Nov 2012, still open..
Can we make this work? Yes!

• Local dualstack resolver, for IPv4-DNS-dependent
  - Use IPv6 for recursive lookups (or forwarding)
• Block all other IPv4 with an ACL sending “Unreachable”
• Makes Android “work”
• Makes broken iOS apps “work”
• Makes WinXP “work”
  - Where configured for IPv6

Not “IPv6-only”
At most “IPv5 1/2”
Freedom From Training Wheels program

Takeaways: How to remove the training wheels?

• Create your own “Freedom From Training Wheels” program and start testing (and filing bugs!)

• What is required for 10% of your users to live with IPv6-only connectivity?
Questions?