

IPv6-only?  
You're kidding, right?

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## Test Environment/OS Notes

- Cable Modem filtering IPv4, directly connected to the host under test
- Host receives IPv6 prefix and IPv6 DNS via DHCPv6
- Windows (7/8) – Works
- Mac OS (10.7+) – Works
- Ubuntu (13.04) – Works

Not tested – Wi-Fi connected devices behind a GW is next phase of testing

- Android – no DHCPv6 support
  - <https://code.google.com/p/android/issues/detail?id=32621>
    - filed in 2012, Medium priority enhancement, **no owner**
- iOS – sorta works
  - Some testing details available from Andrew Yourtchenko's RIPE66 talk
    - here: <https://ripe66.ripe.net/archives/video/1196/>

# What happens when all you have is IPv6?



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\E158182>ipconfig

Windows IP Configuration

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . : corp.twcable.com
    IPv6 Address. . . . . : 2001:1998:601:2003:6820:a8ab:83e1:45ce
    Link-local IPv6 Address . . . . : fe80::cc65:197d:6171:277e%11
    Autoconfiguration IPv4 Address. . : 169.254.39.126
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : fe80::212:d9ff:fe54:11e3%11

Wireless LAN adapter Wireless Network Connection:

    Media State . . . . . : Media disconnected
```

Let's turn off IPv4 and find out...

It just works!



The screenshot shows the NANOG website in a web browser. The browser's address bar displays 'http://nanog.org/'. The website header features the NANOG logo and the text 'North American Network Operators' Group'. A large green 'WIN' watermark is overlaid diagonally across the center of the page.

**MEETINGS WIDGET**  
Jump to Meeting [v]

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- Sponsors
- Mailing Lists
- Membership
- About NANOG
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- Governance
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**QUICK LINKS**

- Log in to NANOG Portal
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- Search Presentations
- Site Map

## Meet us in New Orleans, Louisiana for NANOG 58!

NANOG is traveling to New Orleans, Louisiana for the first time for NANOG 58! We will be gathering at the The Roosevelt Hotel. The city is well known for its distinct French Creole architecture, as well as its rich cultural and multilingual heritage. New Orleans is also known for its cuisine and its annual celebration of Mardi Gras.

NANOG 58 takes place June 3-5, 2013 and will be a great opportunity to network with colleagues, freshen-up skills, learn advanced networking techniques, and discover new network applications. NANOG 58 will be hosted by [Verizon](#) and [Terremark](#) for the 6th time!

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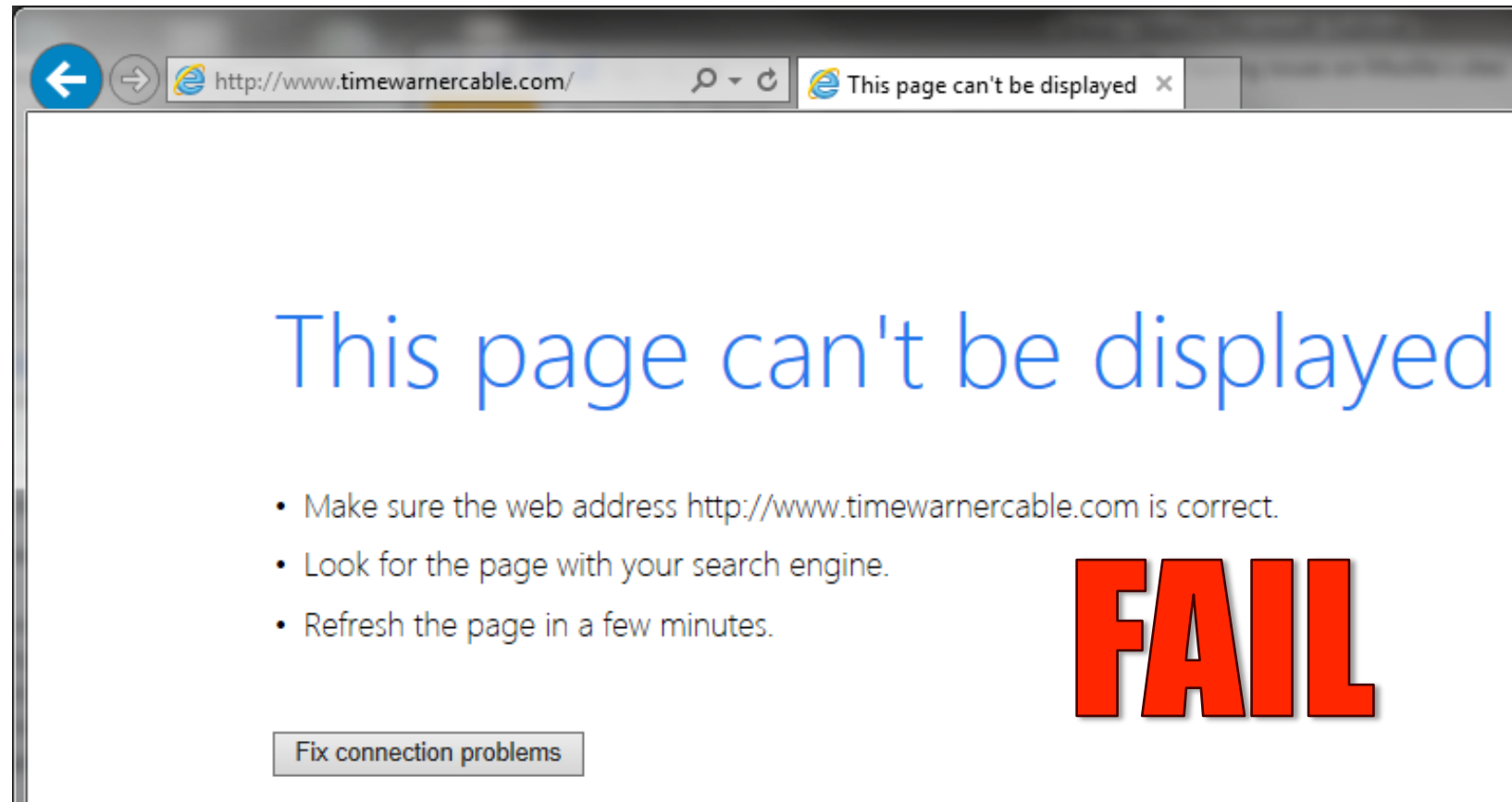
... for some values of “work”



The screenshot shows the Mozilla website in a browser window. The address bar displays <http://www.mozilla.org/en-US/>. The page has a navigation menu with links: [Mission](#), [About](#), [Products](#), and [Get Involved](#). Below the menu is a search bar with the text "Mozilla". The main content area features the heading "We are" followed by "Doing good is part of our code" and "Different by Design". A Firefox logo is displayed. A list of bullet points describes Firefox: "Proudly non-profit", "Innovating for you", and "Fast, flexible, secure". Below this is the section "Download Firefox — English (US)" with links for [Windows](#), [Linux](#), [Mac OS X](#), and [Android](#). At the bottom, a message states "Your system doesn't meet the [requirements](#) to run Firefox." followed by links for [Firefox Free Download English \(US\) Windows](#), [Firefox Free Download English \(US\) Linux](#), and [Firefox Free Download English \(US\) Mac OS X](#).

The screenshot shows a Chrome browser window with the address bar displaying [www.youtube.com](http://www.youtube.com). The page content displays a "This webpage is not available" error message. The message explains that the server at [ad.doubleclick.net](http://ad.doubleclick.net) cannot be found due to a DNS lookup failure. It provides suggestions for troubleshooting, including reloading the page, checking the Internet connection, and verifying DNS settings. Below the error message, there is a "Popular on YouTube" section with a list of categories: Music, Sports, Gaming, Movies, TV Shows, News, and Comedy Week Spotlight. A video player shows a trailer for "We're the Millers" with a duration of 2:40. To the right of the video player, there are three video thumbnails: "WE USE SEMICOLONS EVERYDAY" (2:41), "The Lonely Island - SEMICOLON (f..." (0:32), and "Wait for it..." (0:49).

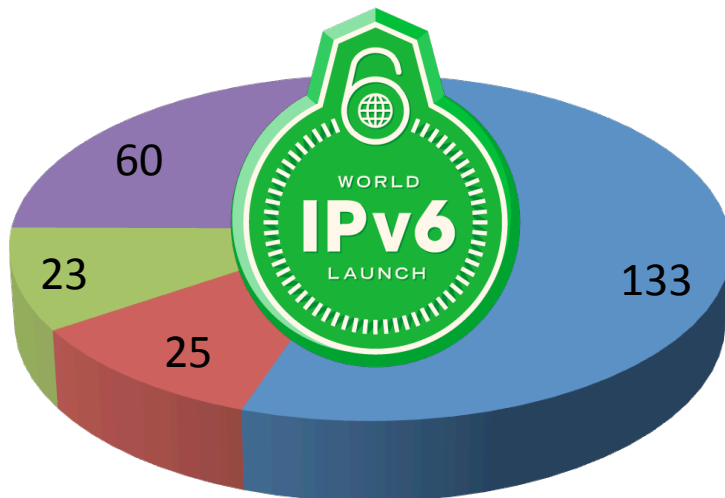
Except... when it doesn't



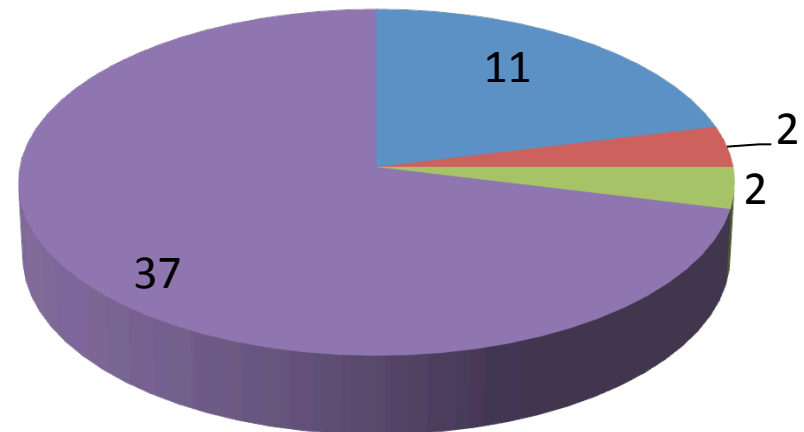
# Test results – Do webpages work over IPv6-only?



**World IPv6 Launch Participants**  
(random sample, mainly US/CA)



**Other sites**



■ Yes ■ Mostly ■ Sorta ■ No

# A little experiment with our favorite NANOG sponsors



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# So does Beer make everything better??



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# Apparently not IPv6 functionality



## Beer 'n Gear Sponsors

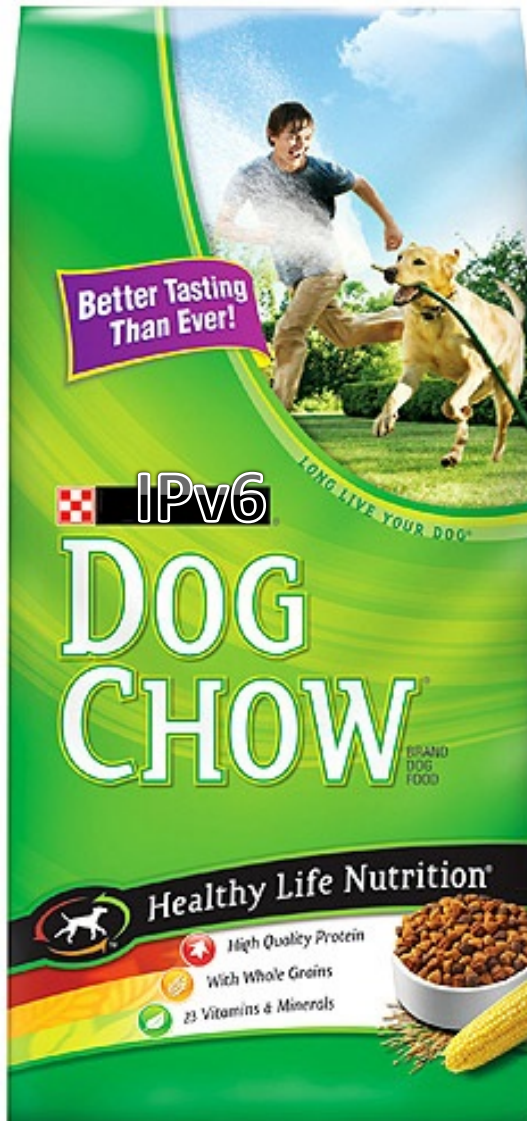


# So what?



- Those with IPv6 websites and apps need to start testing them with IPv4 disabled
  - Dual-stack (especially with Happy Eyeballs) masks problems with your IPv6 connectivity
- Monitor your IPv6 site just like you monitor your IPv4 site
  - Can't fix what you don't know is broken
  - An IPv6 outage should have the same urgency and impact as an IPv4 outage
  - Again, single-stack IPv6 is better at exposing problems
- Those without IPv6 enabled on their websites...

# How committed is your company to IPv6?



"IPv6 is important..."

"We're committed to IPv6..."

"We are your IPv6 partner..."



Time to make that commitment publicly visible:  
Turn on IPv6 on ***all*** of your external services