



The Recession and the Routing Table

Reading the Tea Leaves

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Tough Times, Tough Questions

- We know that Internet transit purchases are sensitive to business conditions (2000 crash)
 - Is the 2008-2009 recession affecting growth in the global/regional routing tables?
- It's tempting for enterprises to scale back provider diversity, choose **cheap** over **reliable**
 - As contracts expire or companies fold, we should be able to see the signs in reduced connectivity
- **Do we, in fact?**

Three Years of the S&P 500

S&P 500 INDEX [Watch this index](#)

1,071.66 **+7.00 (0.66%)**

Sep 22 - Close

INDEXSP real-time data - [Disclaimer](#)

Range 1,064.66 - 1,073.81

52 week 666.79 - 1,255.37

Open 1,066.35

Vol / Avg. 4.31B/0.00

Compare:

Zoom: [1d](#) [5d](#) [1m](#) [3m](#) [6m](#) [YTD](#) [1y](#) [5y](#) [10y](#) [Max](#)

Feb 02, 2007 - Sep 18, 2009 -352.21 (-24.77%)



You probably read about this in the newspaper.

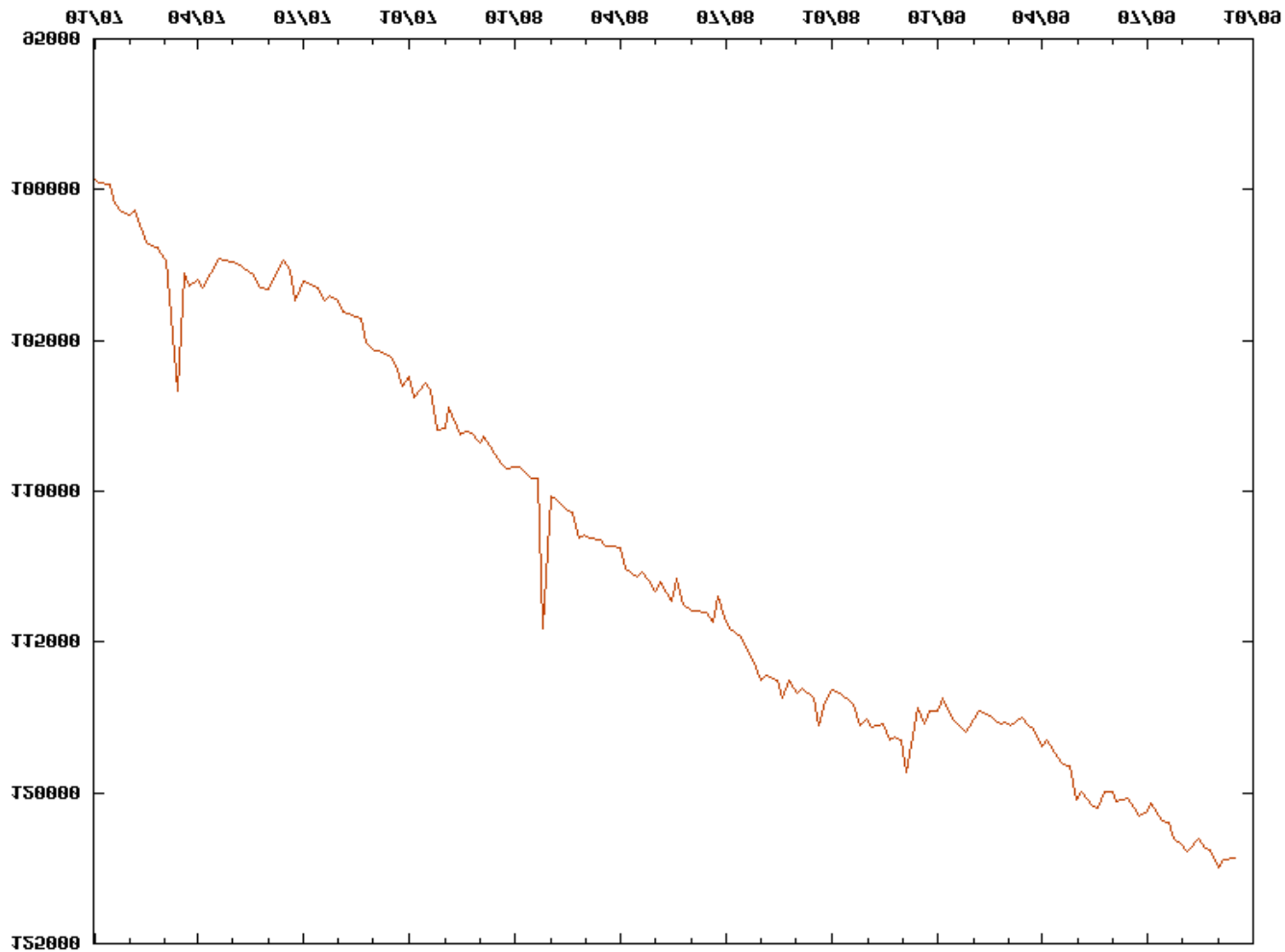
It was big news.

Three Years of the Baltic Dry Index



The cost to ship physical objects across the oceans collapsed by 90% from October 2007 to October 2008.

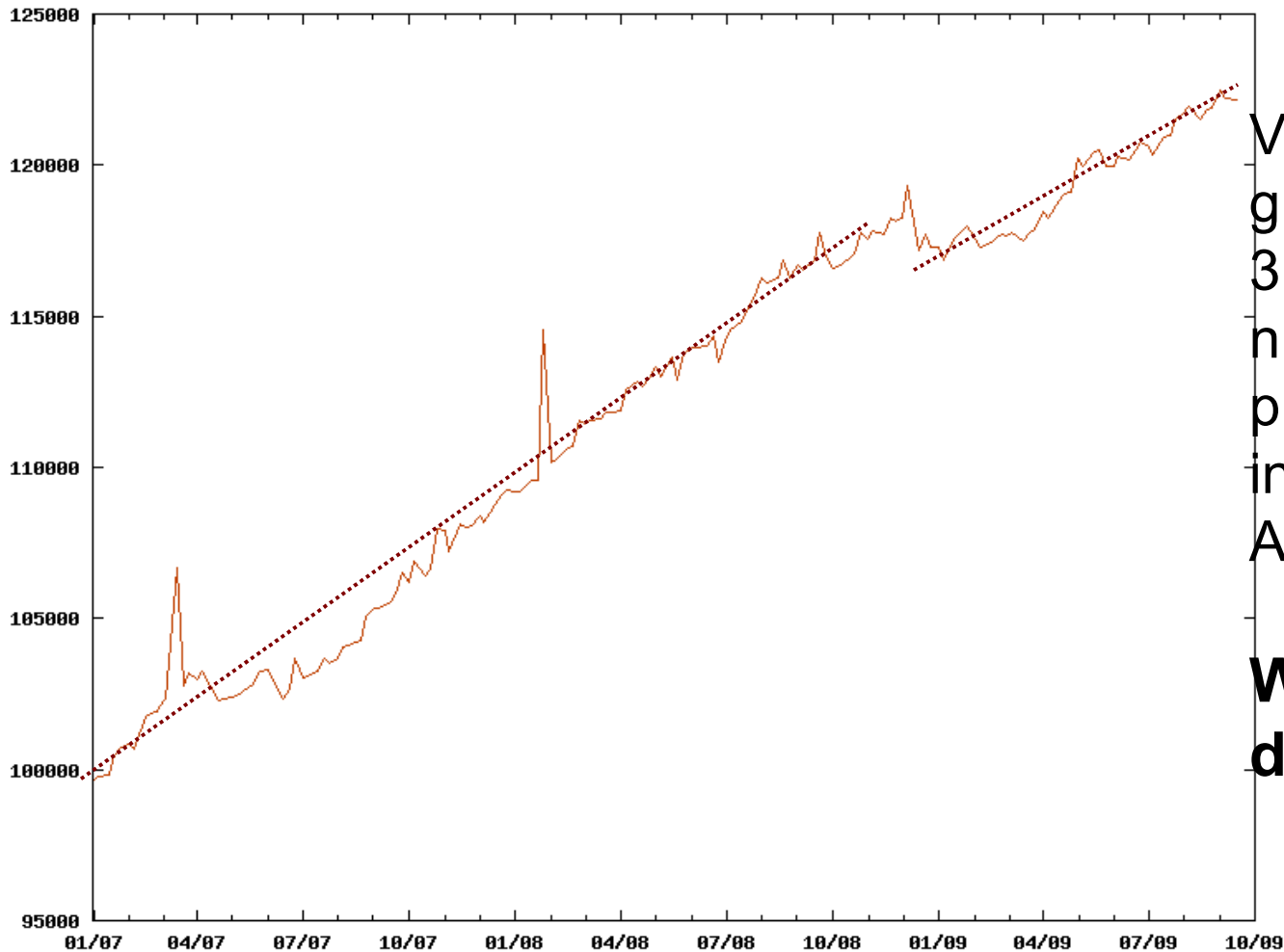
Three Years Of North American Routing



Oh, wait.

**I have it
upside down.**

Three Years Of North American Routing



Very consistent growth over nearly 3 years in the number of Ipv4 prefixes advertised in the North American table.

Where's the depression?!

Why the Table Keeps Growing

- Enterprises don't cut costs by leaving the Internet
- They may cut costs by reducing diversity
- **Cheap transit** getting cheaper acts like “easy money” in the routing table.
- If you want stimulus, you have to be prepared to eat the inflation
- The prospect of v4 exhaustion may be creating “use it or lose it” incentives to route your assets

Global Diversity Transitions, 2006-2009

	Oct'06	Oct'07	Oct'08	Oct'09
Total routes	182K	222K	255K	287K
Annual growth		+40K	+33K	+32K
1 provider	55%	55%	52%	52%
2 providers	29%	29%	29%	29%
3 providers	9.5%	9.2%	9.2%	8.7%
4+ providers	6.5%	7.4%	9.0%	9.6%

Singlehomed get reclaimed, or go multihomed at lower rates

Oct'06 Oct'07 Oct'08 Oct'09

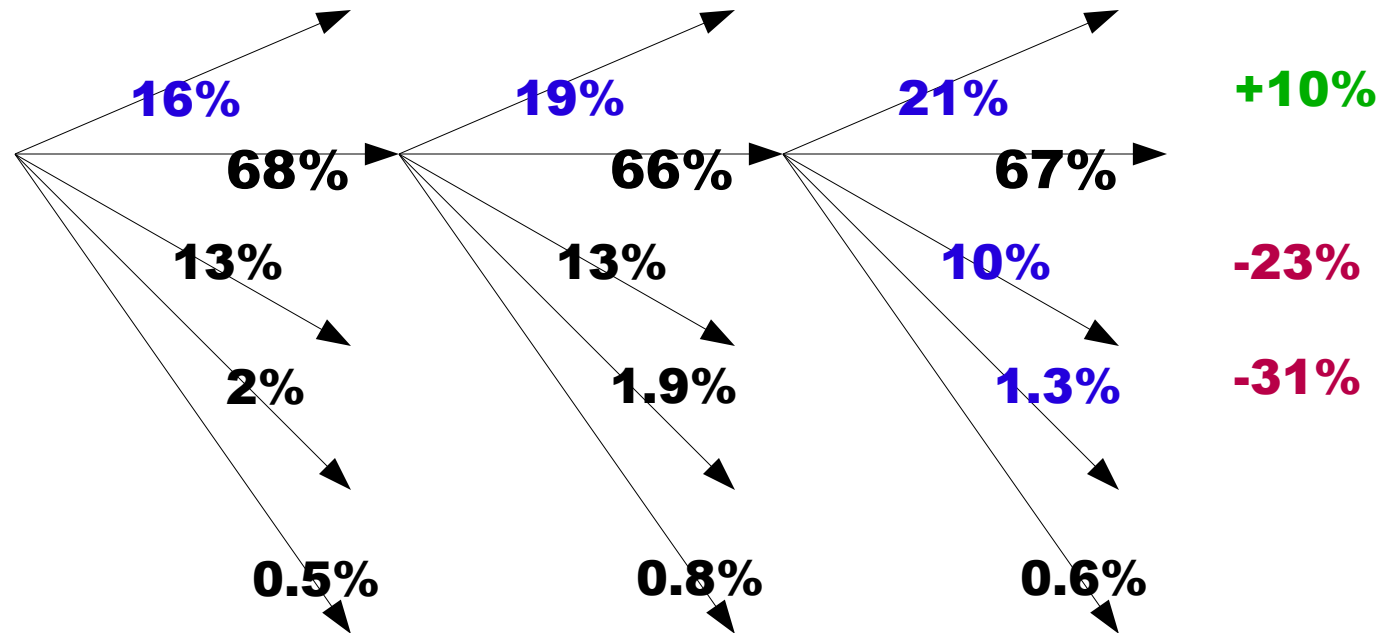
Not advertised

1 provider

2 providers

3 providers

4+ providers



Fewer dual-homed prefixes buying 3rd+ provider

Oct'06 Oct'07 Oct'08 Oct'09

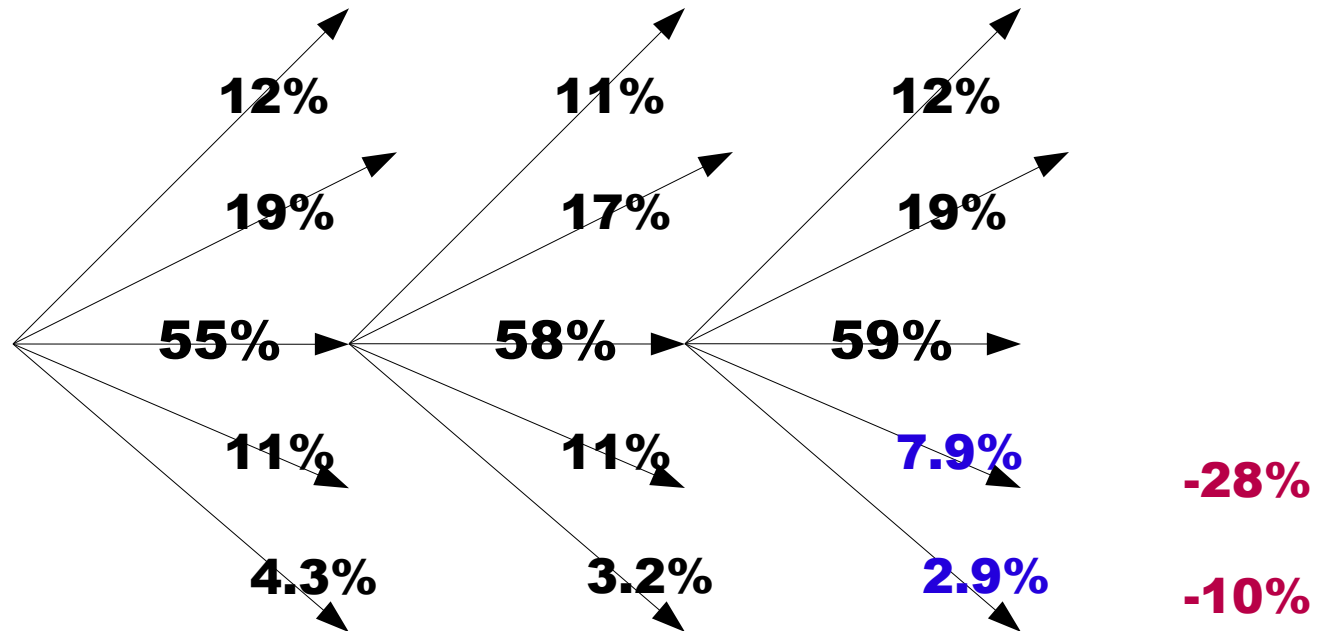
Not advertised

1 provider

2 providers

3 providers

4+ providers



Triply-homed prefixes largely unaffected

Oct'06 Oct'07 Oct'08 Oct'09

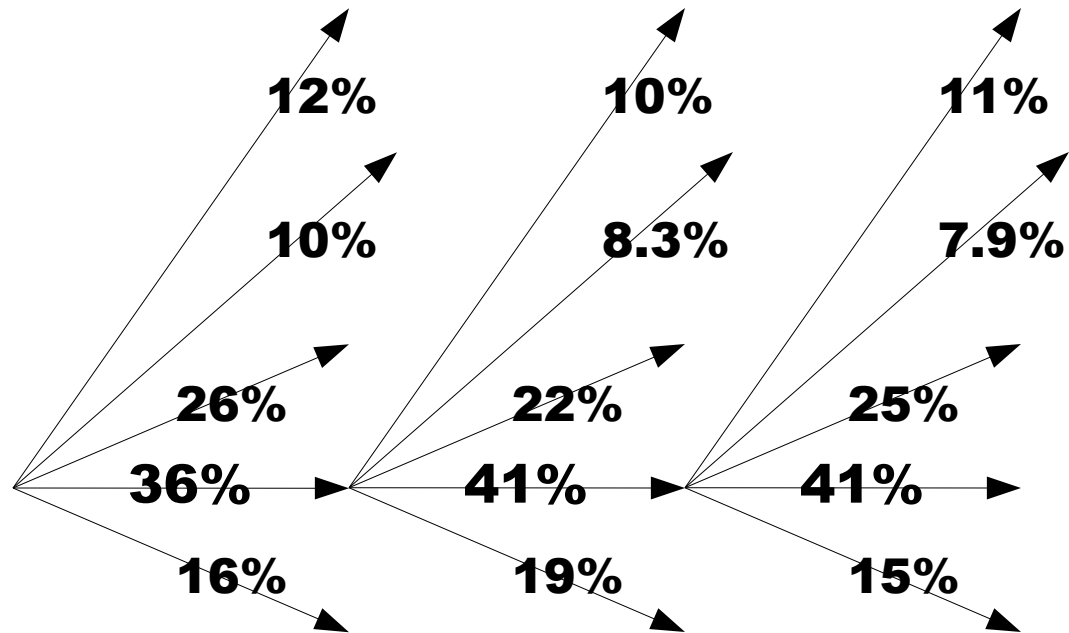
Not advertised

1 provider

2 providers

3 providers

4+ providers



Highly multihomed prefixes becoming a larger and more stable class over time

Oct'06

Oct'07

Oct'08

Oct'09

Not advertised

8.7%

10%

9.8%

1 provider

4.2%

5.6%

3.1%

2 providers

8.2%

6.4%

5.7%

3 providers

17%

10%

13%

4+ providers

61%

67%

68%

Summary

- We thought global recession might give some more breathing space before v4 exhaustion
- Cheap transit appears to have killed that theory
- Some evidence of single- and dual-homed customers putting off the move to higher-order multihoming in 2007-2009
 - *“Obviously practicing for the IPV6 transition, after which, apparently, multihoming becomes unnecessary” --anon*
- Otherwise, growth continues apace
- Bring on the v4 address space aftermarket!



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