



Users and clients on the Internet

- **Where does software run?**
 - DNS, BGP, 802.11
 - HTML, Javascript, Flash, Java
 - Apache, php, ASP, mySQL, Oracle,

- **Differences between client and server**
 - Web browser, webserver
 - Online games: poker, WOW, ...

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16.2

What's in a URL?

- http://www.youtube.com/watch?v=D4gw_3nA5G4
 - What does DNS do? What does YouTube do?
- <http://www.youtube.com/watch?v=bPMo14XTTvE&feature=related>
 - What does 'related' mean?
- **Query String**
 - <http://www.duke.edu?user=ola>
 - What processes the query? Utility? Cookie?
- [http://googleads.g.doubleclick.net/aclk?](http://googleads.g.doubleclick.net/aclk?sa=l&ai=...)
[sa=l&ai=...&adurl=https://loopt.com/loopt/%3Fs%3D21&nm=2](http://loopt.com/loopt/%3Fs%3D21&nm=2)
 - What does the query string do?

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16.3

Bits, Hex: TinyURL, YouTube, bit.ly

- [6n7kqv](#) and [D3dKbq5AXz8](#) are links to ...
 - What does 6n7kqv mean? How is it generated?
- **# four digit, base-ten numbers?**
 - 10, 100, 1000, 10000, ...
- **# numbers represented by 4-bits, base-two**
 - 2, 4, 8, 16, 32, ...
- **How many two letter words are there?**
 - aa, ab, ac, ..., az, ba, bb, bc, ..., za, zb, ..., zz
 - $26 \times 26 = 676$, three letter words?

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How do tinyurl/bit.ly work?

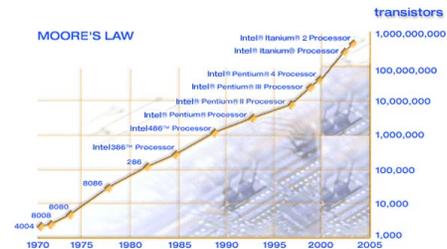
- Enter *any* URL, do some math stuff to turn the string/words into a number
 - If only lower-case letters and digits used, then 36 different “digits”, so six-digit number is
 - $36 \times 36 \times 36 \times 36 \times 36 \times 36 = 2,176,782,336$
 - What about upper and lower case?
 - What about YouTube, number of videos?
- *hashing*, change words to number
 - Any word converted to number? Collisions?

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16.5

Can we double every two years?

- Explaining Moore’s Law:
 - <http://www.youtube.com/watch?v=bLSMn0cNWAw>
 - <http://www.youtube.com/watch?v=D3dKbq5AXz8>



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Moore’s Law

- See Wikipedia entry for complete Info
 - http://en.wikipedia.org/wiki/Moore's_law
- All things digital, Sept 16, 2008: “Hurley’s Law: Like Moore’s Law, but With Doltish Video Clips”
 - <http://tinyurl.com/6n7kqv>
 - Thirteen hours of video uploaded every minute

“Over the next decade, people will be at the center of their video and media experience. More and more consumers will become creators. We will continue to help give people unlimited options and access to information, and the world will be a smaller place.”

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<http://googleblog.blogspot.com/2008/09/future-of-online-video.html>

16.7

Online and Behavioral Advertising

- Google query for ‘campaign contributions’

What are these links?

Google Campaign contributions

Search

Results 1 - 10 of about 3,070,000 for campaign contributions (0.20)

2008 Campaign Donors
maps.google.com/elections Who is contributing the most money to each candidate?

Big Campaign Givers
www.dailymail.com See Ballot's Biggest 2008 Political Contributors

Campaign Finance
www.FollowTheMoney.org View Political Giving At A Glance. See Top Donors & Special Interests.

Campaign Donors : Fundrace 2008 - Huffington Post
Campaign Donors : Fundrace 2008 conditions and other campaign contributions on Huffington Post.
fundrace.huffpost.com/474 - Cached - Similar pages - Note this

Campaign Finance Reports and Data
Search, view, and download campaign finance reports and data available from the Federal Election Commission on the campaign finance activities of Federal ...
www.fec.gov/disclosure.shtml - 10k - Cached - Similar pages - Note this

Contributions to Presidential Campaigns - Election Guide 2008
Contributions of \$200 or more to presidential candidates, as reported to the Federal Election Commission - Campaign Finance Map: Search For Donors ...
elections.nytimes.com/2008/president/campaign-finance/search-contributions.html - 800k - Cached - Note this

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Who Put Them in Congress?
See for yourself! Look up your rep. Money in politics - you add it up. OpenSecrets.org

Track the Money Race
Free Money.org Widgets Track House and Senate Race FEC Data www.Money.org

What are these links?

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16.8