

CONFIDENTIAL

# The Future of the Internet



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# The Future of the Internet



• Where have we come from?

• Where may we be going in the future?

• How are some people making money today?



## The “Internet Community” is a real phenomenon with world changing values



- Ensuring a single, end-to-end interoperable Internet
- Bottom-up technical policy making and decision making
- Participation open to all who wish to do so
- Legitimacy determined by open participation and the value of the contribution to the joint effort, rather than power
- Consensus based decision making, but not full ‘census based’ consensus
- Cooperation, Coordination and Consultation among participants and groups pushing forward initiatives
- Yet, VERY spirited and blunt public debate
- Swift decision making, if possible
- Private agreement or contract approach to creating and managing linkages among and to the network
- Global efficiency in the allocation of resources, such as Internet Protocol addresses
- Encouraging innovation, particularly at the fringe of the network
- Building on layers of protocols to ensure stability
- Respecting the layers
- Running code – this is a value as strong as consensus: “Walk the walk, not just talk the talk”
- The RFCs embody another important principle: standards are to be respected until obsolete
- Meritocracy



















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## It is difficult to be definitive about what the Internet will look like in ten years, but...



- Usage limited by access to electricity - 3 billion
- Many, perhaps most, will access by mobile devices
- Significant increase in broad band access (over 100 mb/sec)
- Machine to machine Internet overtaking a person to person Internet
- Billions of Internet-enabled appliances at home, work, in the car, in the pocket
- Internet used by third parties to monitor all sorts of activities and utilities - washing machines, to cars, to electricity meters
- Geo-location and geo-indexed systems much more common and emergency services will be more precisely dispatched
- Significant improvement in spoken interaction with Internet-based systems
- A wide range of delivery methods for intellectual property (movies, sound tracks, books, etc). VOIP will be prevalent and SIP may be the principal protocol means by which calls are set up. Voice communication will be essentially free except perhaps for calls that terminate on traditional PSTN devices including mobiles.
- Almost no industry will be offline since most will rely on the net for customer interaction, customer discovery, sales, service, advertising, etc.
- Group interaction, collaborative support tools (including distributed games) will be very common.
- Internationalised Domain Names and much more multilingual Internet content



## What will you be able to do then that you can't now?



- Manage your appliances, home security systems, through online systems.
- Use mobiles as remote controllers.
- Download videos, music and books as a normal practice (video on demand will be more about watching previously downloaded video than watching streaming, real-time video). This is really just an obvious extrapolation of the iPod/TiVo paradigm.
- You will be able to talk to the net (search for information, interact with various devices.) and it will respond.
- Search systems will be more precise because meta-tagging of information will have become more common (semantic web).
- Maintenance histories of products that can be serviced will be keyed to RFID (or bar codes) associated with the devices - potential use of IPv6

## What will the technical underpinnings of the Internet look like by then?



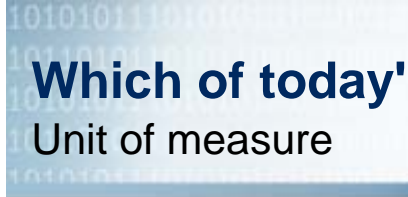
- Terabit per second local networking will be available - backbones and local nets.
- The domain name system will be operating in multiple language scripts.
- IPv6 will be widely deployed.
- Better confidentiality and authenticity will be provided through the use of public key crypto - more authentication of the network
- Much more inter-device interaction will be common incorporating position location, sensor networks, and local radio communication.
- SPAM and various forms of denial of service attacks will continue a “cold war” arms race with defences and better authentication techniques.
- Operating systems will continue to be troublesome sources of vulnerability.

## What will be the dominant language on the Web, English, Chinese, something else?



- Any language can be represented now in the Web using UNICODE and that is an important part of the Web's attraction.
- Chinese will probably represent a substantial fraction of online information but...
- For international discourse and commerce, English will probably remain the preferred language. Increased language content from, say, Spanish, Arabic, Hindi, Farsi and other language speakers flowing increasingly into the web.





# Which of today's Internet technologies will remain?

Unit of measure

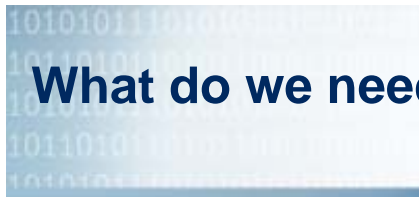


- We will not have eliminated IPv4 and NAT boxes entirely but we will have much more flexibility with IPv6.
- Email, WWW will persist, as will remote interaction with servers.
- Dial up modems may still be around but most access will be wireless or through broadband.
- Television will remain - but morph in usage and form

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\* Footnote

Source: Source



## What do we need to worry about



- Spam and Phishing
- Attacks at DNS
- Attacks at routing
- Fraud/IP spoofing
  
- Defense is not just technology - response planning is essential



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## January 2006 Predictions

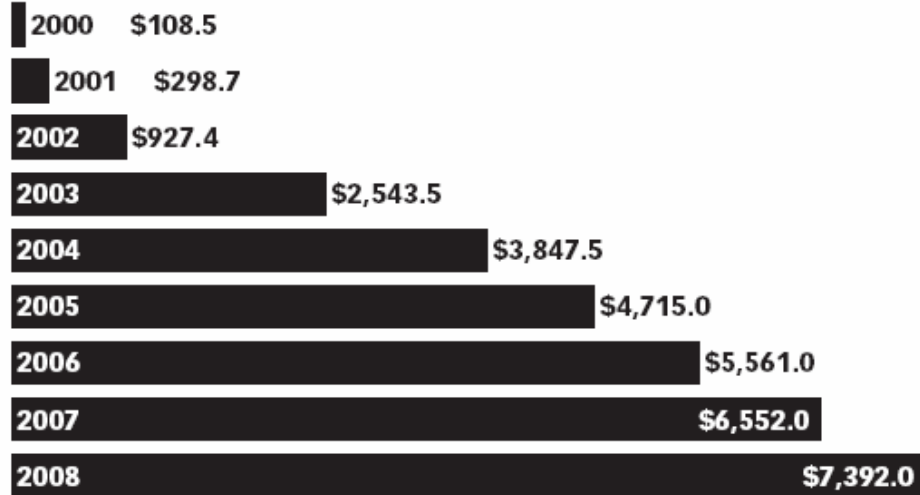


- Online advertising will pass 5.4% of total U.S. advertising spent on online.
- Retail e-commerce will grow from \$87 billion in 2005 to \$105 billion, a 21% increase.
- The U.S. broadband market will grow to 124 million users, from 105 million users in 2005.
- Spending on Internet video advertising will increase by 71% to \$385 million.
- The number of video phone users in the U.S. will more than double from 1.2 million to more than 3 million.
- Search engine users will grow to 146 million, from 138 million in 2005.
- The number of VoIP access lines will grow to just fewer than 14.5 million, from an estimated 10 million in 2005.

# Paid Search Ad Spending 2000-2008



## Paid Search Ad Spending in the US, 2000-2008 (in millions)



*Note: includes paid search, paid inclusion and contextual search; eMarketer benchmarks its US online ad spending projections against the Interactive Advertising Bureau (IAB) - PricewaterhouseCoopers (PwC) data, for which the last full year measured was 2003*

*Source: eMarketer, January 2005*

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[www.eMarketer.com](http://www.eMarketer.com)

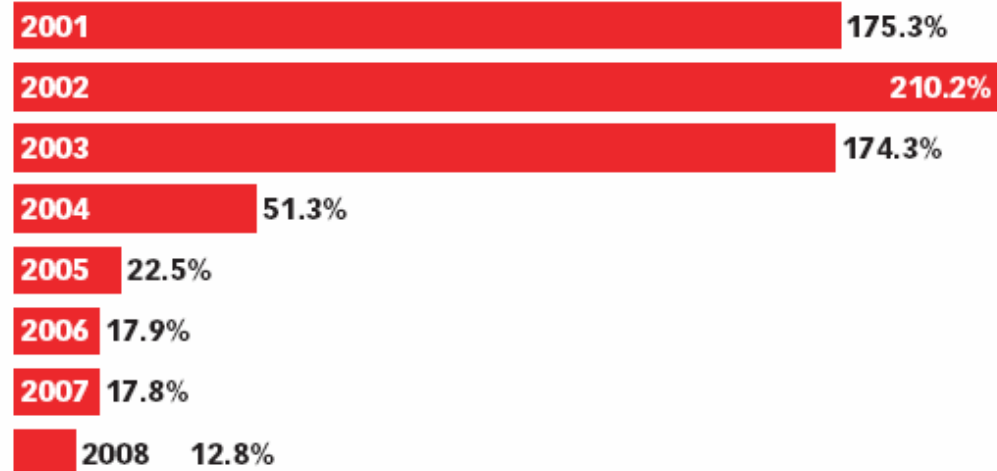
Paid search analysts expect the industry to grow to over \$7 billion in 2008

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# PPC Spending Growth



## Paid Search Ad Spending Growth in the US, 2001-2008 (as a % increase vs. prior year)



*Note: includes paid search, paid inclusion and contextual search; eMarketer benchmarks its US online ad spending projections against the Interactive Advertising Bureau (IAB) - PricewaterhouseCoopers (PwC) data, for which the last full year measured was 2003*

*Source: eMarketer, January 2005*

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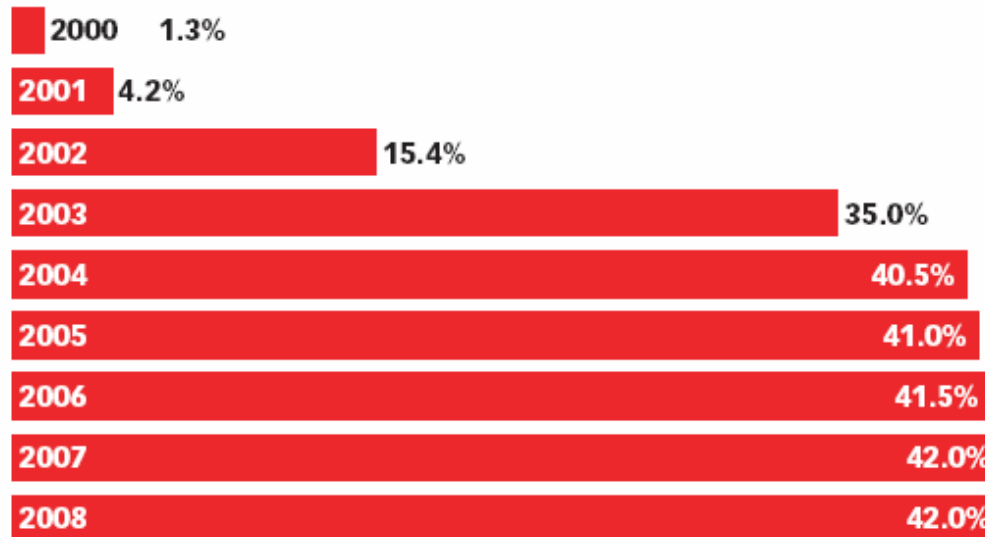
The search industry is stabilizing. In the Post Bubble-Boom-Bust era, this flattening of the growth rate is considered **by analysts** to be a very healthy sign.



# PPC in the Online Media Mix



## Paid Search Ad Spending in the US, 2000-2008 (as a % of total online ad spending)



*Note: includes paid search, paid inclusion and contextual search; eMarketer benchmarks its US online ad spending projections against the Interactive Advertising Bureau (IAB) - PricewaterhouseCoopers (PwC) data, for which the last full year measured was 2003*  
*Source: eMarketer, January 2005*

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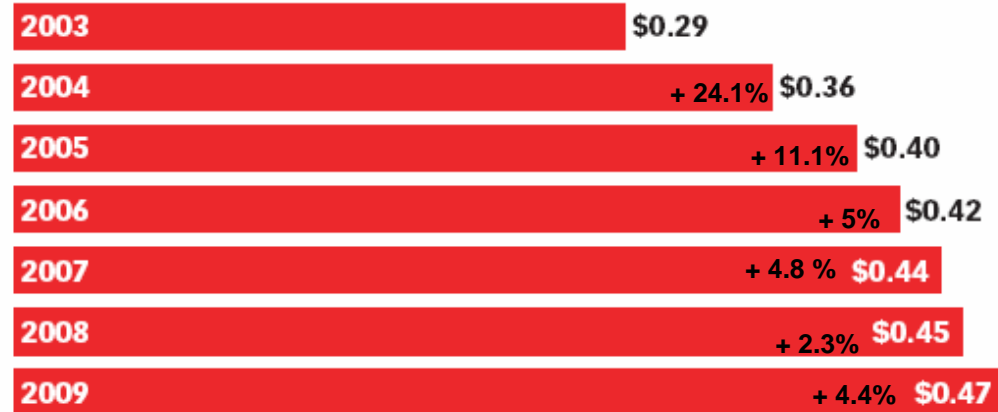
[www.eMarketer.com](http://www.eMarketer.com)

Paid search dominates all other forms of interactive marketing, including email, banner ads, rich media.

# Average Cost-Per-Click



## Average Price per Click for Paid Search in the US, 2003-2009



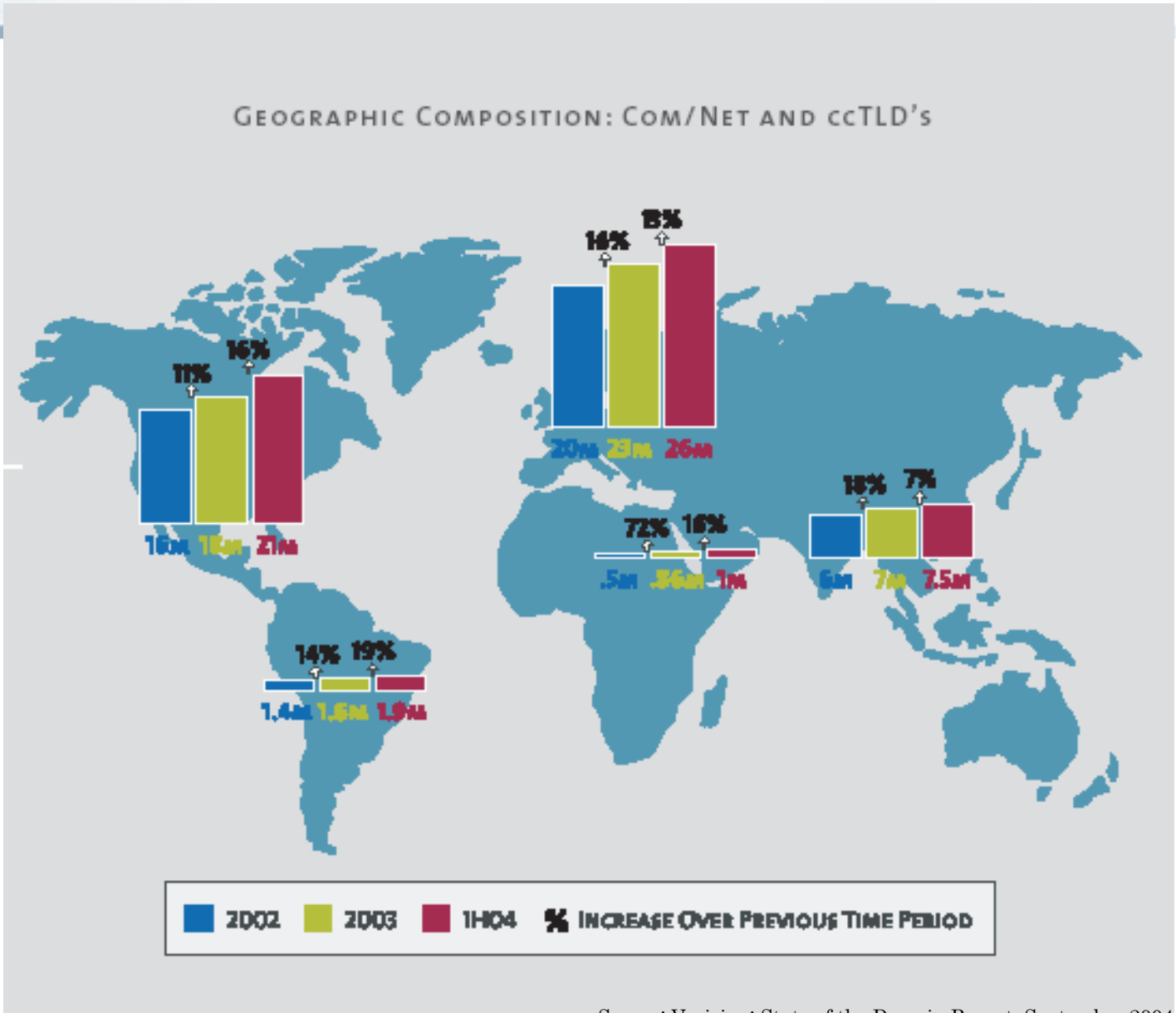
Source: JupiterResearch, August 2004 appeared in Morgan Stanley presentation, September 2004

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Average CPC's are stabilizing

# Global growth in domain names



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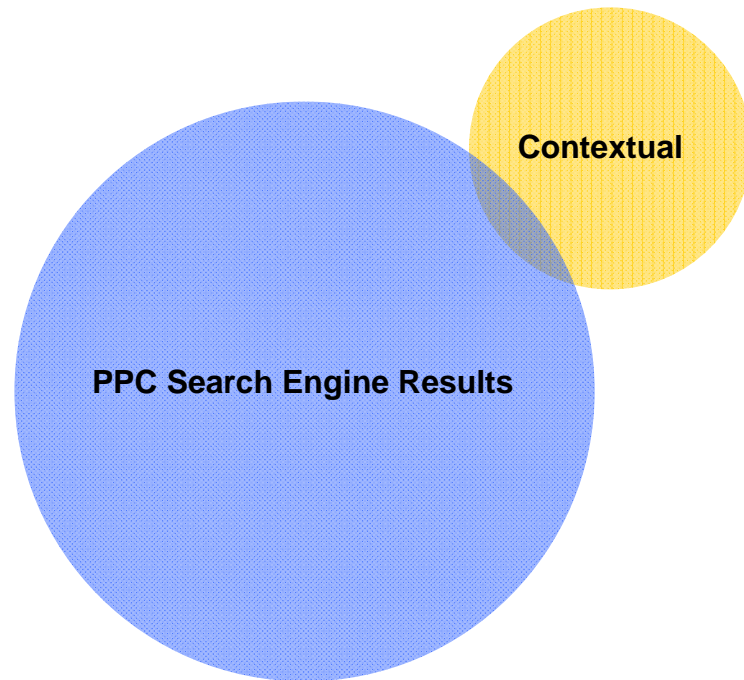
Source: Verisign: State of the Domain Report, September 2004

# What is contextual search?



Contextual search advertising is the syndication of text-based search ads into new channels beyond the search engine

Contextual advertising is not really search

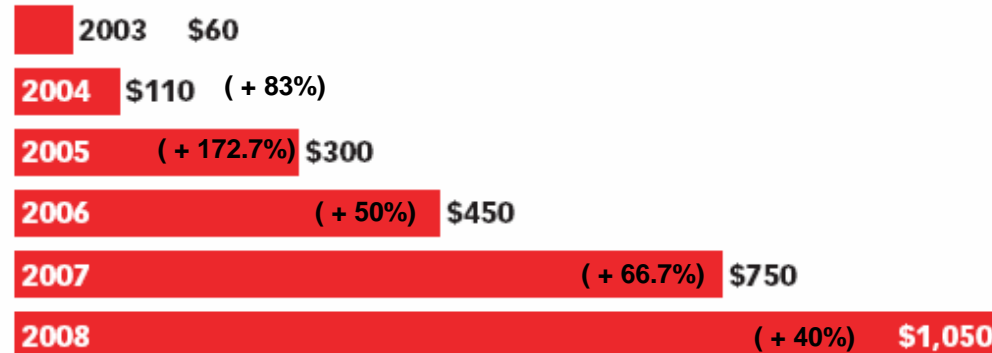


Type-in domains are the only true search placement in the contextual channel

# Online Contextual Ad Spending in the US 2002-2008



## Online Contextual Ad Spending in the US, 2003-2008 (in millions)



Source: eMarketer, January 2005

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[www.eMarketer.com](http://www.eMarketer.com)

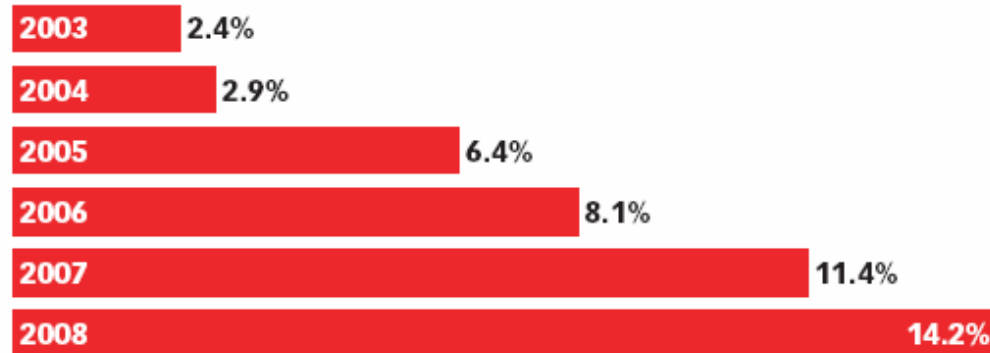
Projected to reach over \$1 billion per year in ad spend by 2008



# Contextual Ad Spending (as a % of paid search)



## Online Contextual Ad Spending in the US, 2003-2008 (as a % of total paid search ad spending)



Source: eMarketer, January 2005

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Contextual spending and distribution is still growing by leaps and bounds.

