

# *Internet Trends*

**Web 2.0 – October 6, 2005**

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# Outline

- Perspective
- Communications Changing / Being Changed
- Broadband Meets Mobile Meets WiFi – Around the World
- Broadband / Mobile / WiFi Drilldown
- Closing Thoughts
- Disclosures
- Slides available at [www.morganstanley.com/techresearch](http://www.morganstanley.com/techresearch)

# Perspective

# Global Internet Data Points...

<b>Google</b>	→	7.6B global searches (+74% Y/Y, 5/05); 384MM global unique visitors (+36%, 5/05) per comScore
<b>Broadband</b>	→	179MM global subscribers (+45% Y/Y, CQ2); 57MM in Asia; 45MM in N. America
<b>Yahoo!</b>	→	917MM streaming video (music...) sessions (+119% Y/Y, CQ4)
<b>Digital Music</b>	→	695MM cumulative iTunes as of 9/05; 6MM iPods sold in CQ2:05 (+295% Y/Y)
<b>Personalization</b>	→	40MM+ estimated My Yahoo! users
<b>Blogging</b>	→	27% of US Internet users read blogs, 11/04
<b>Tencent</b>	→	16MM peak simultaneous Instant Message users, China, CQ2
<b>Ringtones</b>	→	\$3B annualized ringtone sales (Informa 5/05) - vs. \$495MM cumulative iTunes sales (7/05)

## ...Global Internet Data Points

- VoIP** → 54MM registered Skype users (9/05) - fastest product ramp ever?
- Denmark** → VoIP minutes > landline voice minutes
- Mobile Messaging** → 1.1T SMSs sent with \$50B in revenue in 2004 (Informa 5/05); more emails sent in Japan via mobile than PC (DoCoMo 2005)
- PayPal** → 79MM accounts (+56% Y/Y, CQ2); 23MM users (+48% Y/Y)
- Mobile Payments** → 4MM+ NTT DoCoMo wallet phone users (CQ1) in Japan
- Global** → N. America = 23% of Internet users in 2005; was 66% in 1995
- S. Korea** → Broadband penetration of 70%+ - No. 1 in world
- China** → More Internet users < age of 30 than anywhere

# What We Have Lived Through

## Patterns

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**Company Creation**

Boom

Bust

Boom-let

---

**Wealth Creation**

Boom-let

Bust

Boom

# Top 5 Global Internet Market Cap Leaders

**Google + Yahoo! + eBay + Yahoo! Japan + Amazon.com**

- \$ 2B = market value - pre-2000 IPO
- \$178B = market value - Nasdaq peak – 3/10/00
- \$ 32B = market value - Nasdaq trough – 10/9/02
- \$261B = market value - 10/3/05

*For Google we include \$100MM in post-money valuation*

# Pace of Change Accelerating

<b>Event</b>	<b>Date (2005)</b>	<b>Approximate Value</b>	<b>Focus</b>
Baidu IPO	8 / 5	\$4B <sup>(1)</sup>	Flexibility
Yahoo! / Alibaba	8 / 10	\$4B	China
Microsoft / Teleo	8 / 30	--	VoIP
eBay / Skype	9 / 12	\$4B <sup>(2)</sup>	VoIP
Google Financing	9 / 14	\$4B	Flexibility
Microsoft Reorganization	9 / 21	--	Agility

Source: Morgan Stanley Research. (1) Market capitalization using first trading closing price. (2) Includes \$1.5B performance based earn-out payment.

# Significant Infrastructure Builds...

	Capital Expenditures		
(US\$ in Millions)	C2003	C2004	C2005E
Google	\$177	\$319	\$700
Y/Y	375%	80%	104%
Yahoo!	\$117	\$246	\$405
Y/Y	128%	109%	65%
eBay <sup>(1)</sup>	\$365	\$293	\$396
Y/Y	163%	(20%)	35%
Amazon.com	\$46	\$89	\$172
Y/Y	17%	94%	93%

Source: Company filings, Morgan Stanley Research. Figures exclude capital expenditures from acquired companies.  
 (1) C2003 includes \$125.1MM purchase of additional office space.  
 E = Morgan Stanley Research estimates.

## ...Significant Infrastructure Builds

*To organize all the world's information and make it universally accessible and useful.*

# Communications Changing / Being Changed

# Communications (Data and Voice) Changing

1975



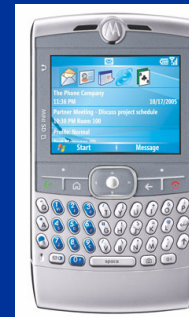
Landline Phone

2005

Pace of innovation across communication devices, services and networks continues to rise



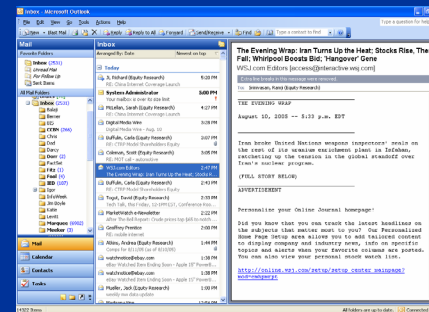
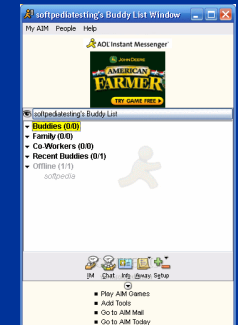
Mobile



VoIP



IM



Email

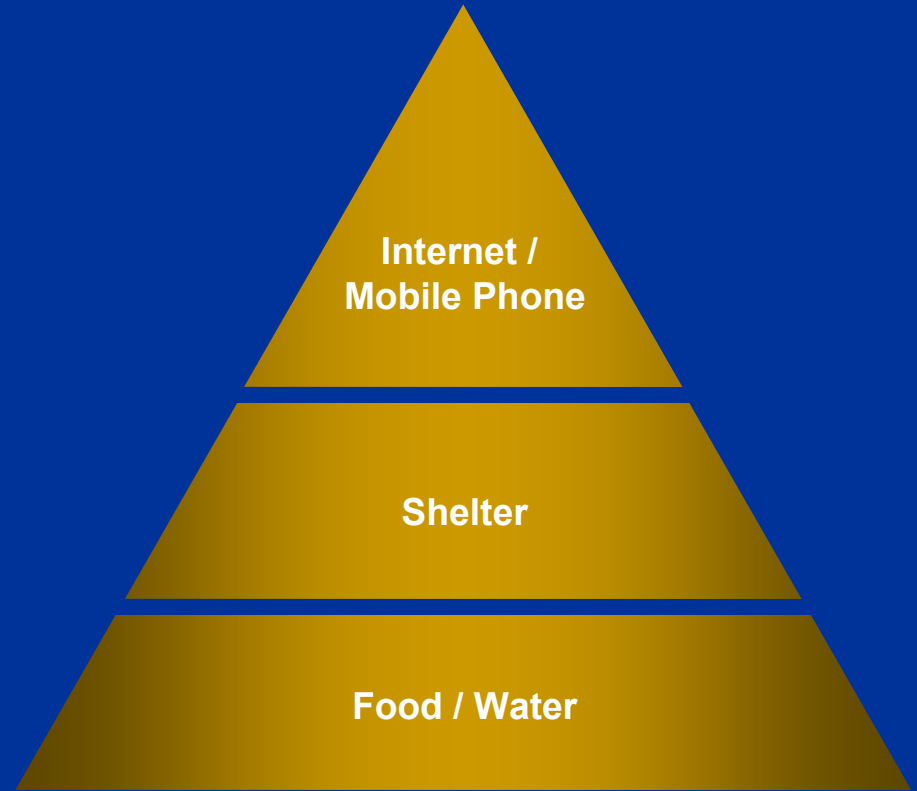
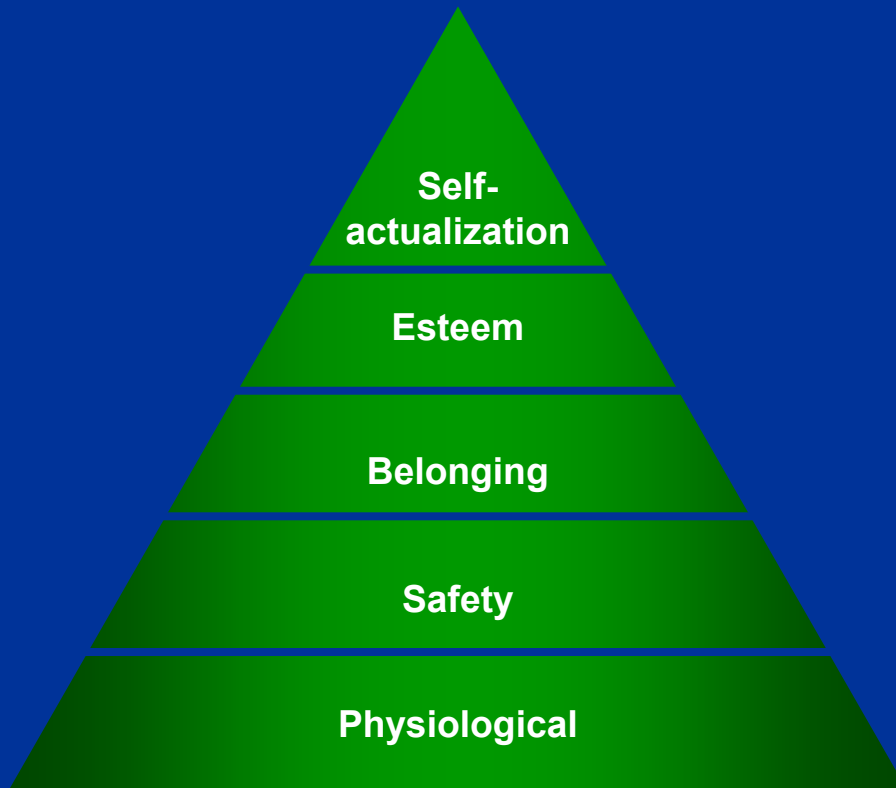


Blogs

# Hierarchy of Needs?

1970 - Maslow

2005 - ? ;)



*Created for discussion purposes and perhaps a bit of humor. Not intended to discredit Maslow's hierarchy of needs which we believe to be accurate.*

# Broadband Meets Mobile Meets WiFi – Around the World

# Just Another Computing Cycle?

## 4 major computing cycles over past 50 years

Mainframe → Minicomputer → PC → PC Internet (Narrowband)

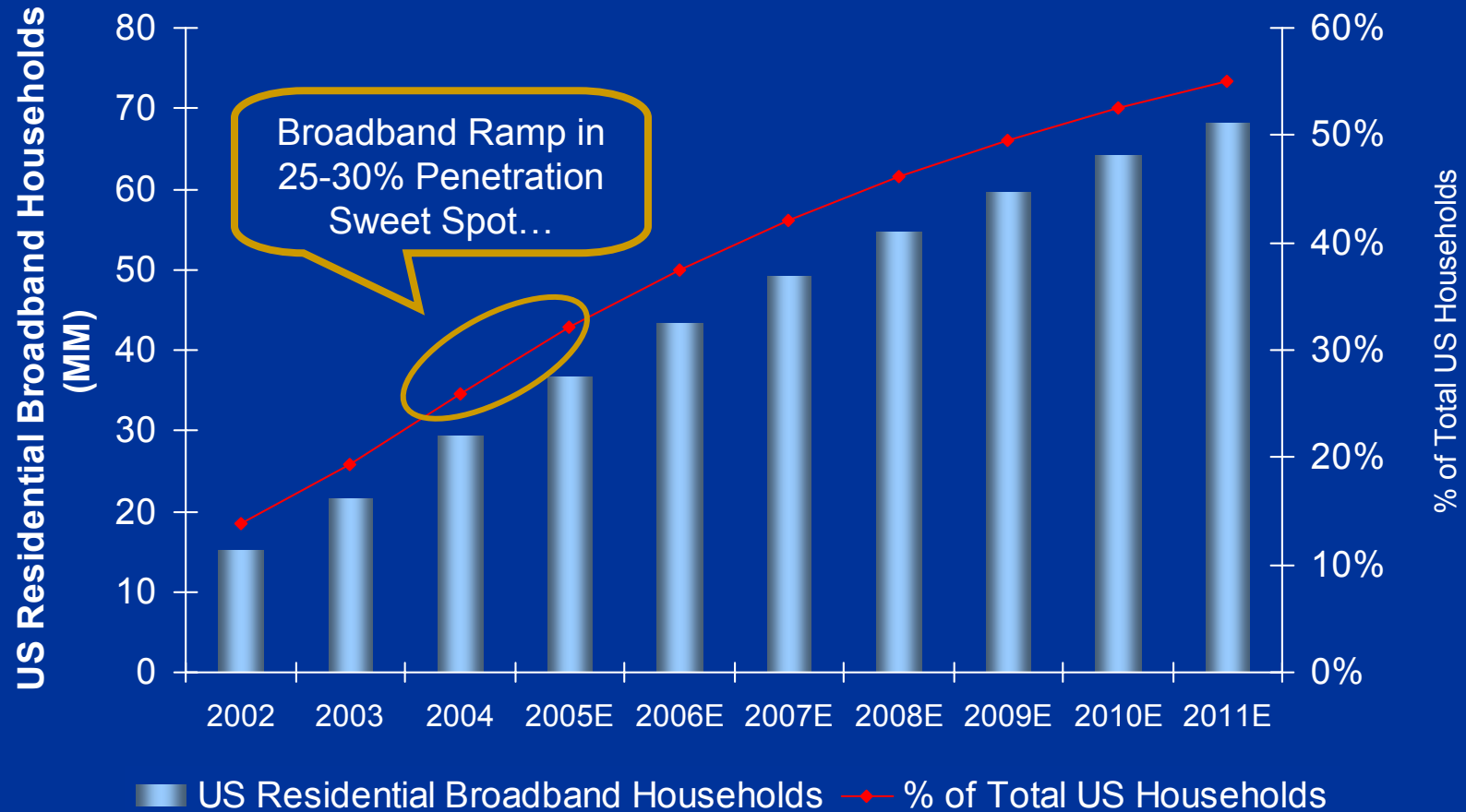
## In / entering 2 most profound cycles ever

PC Internet (Broadband) → Mobile Internet

## Why now?

- 1) Broadband becoming pervasive
- 2) Internet-enabled mobile devices becoming pervasive - in effect, becoming small / functional computers
- 3) Global technology innovation may be at all time high

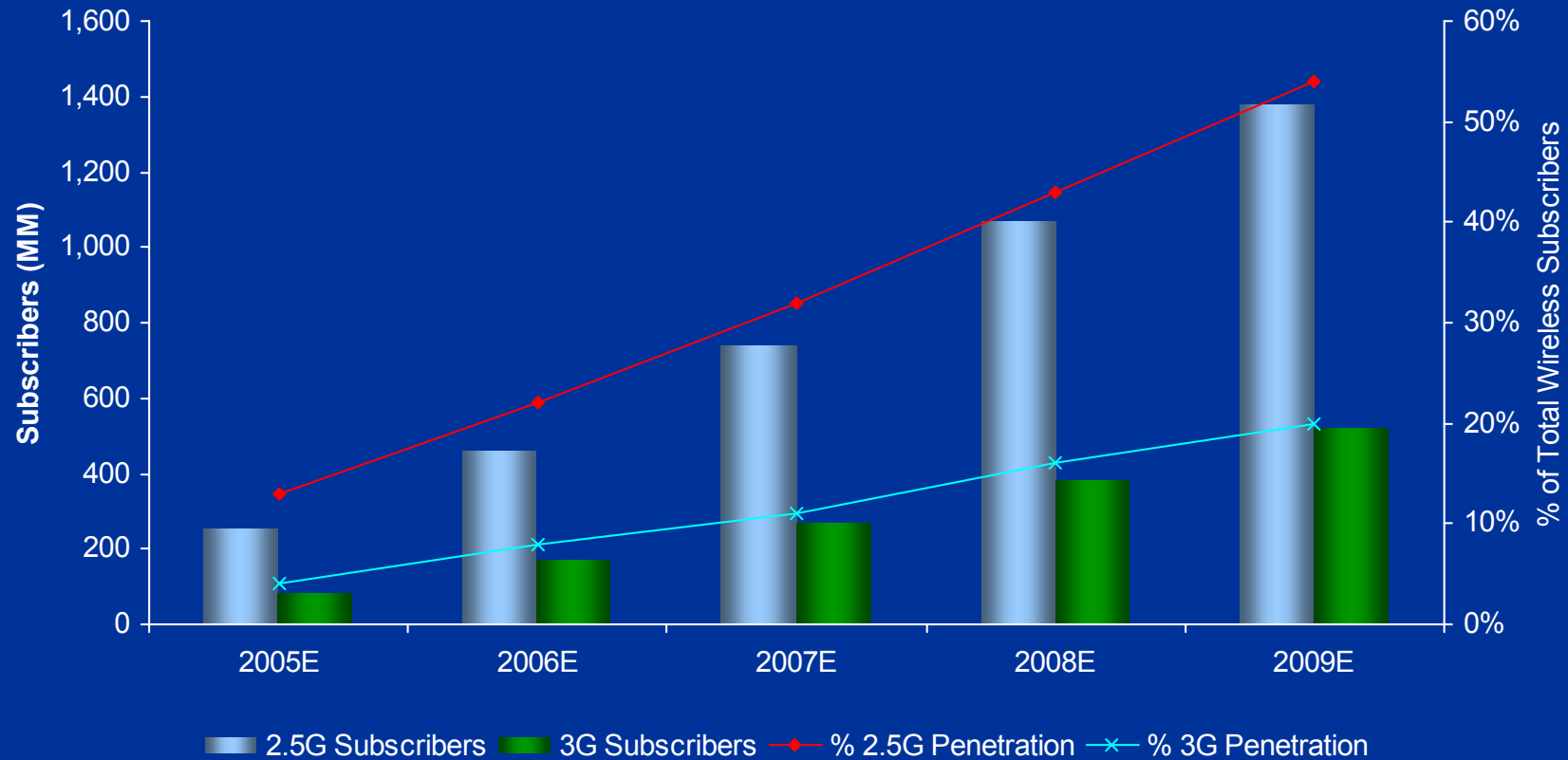
# Broadband Becoming Pervasive



Morgan Stanley Research.

# Mobile Broadband in Early Stages

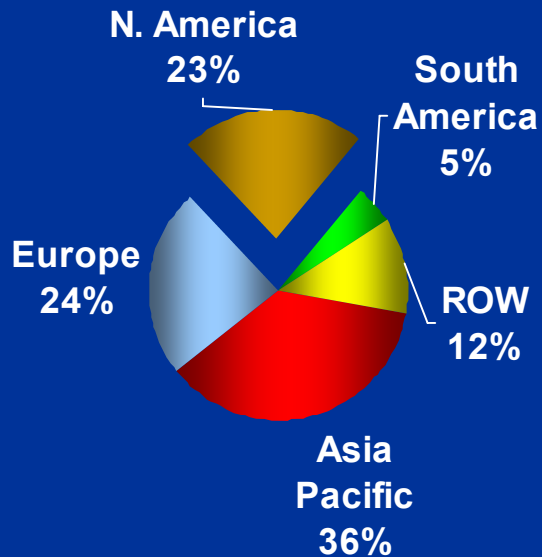
## Global 2.5G / 3G Penetration



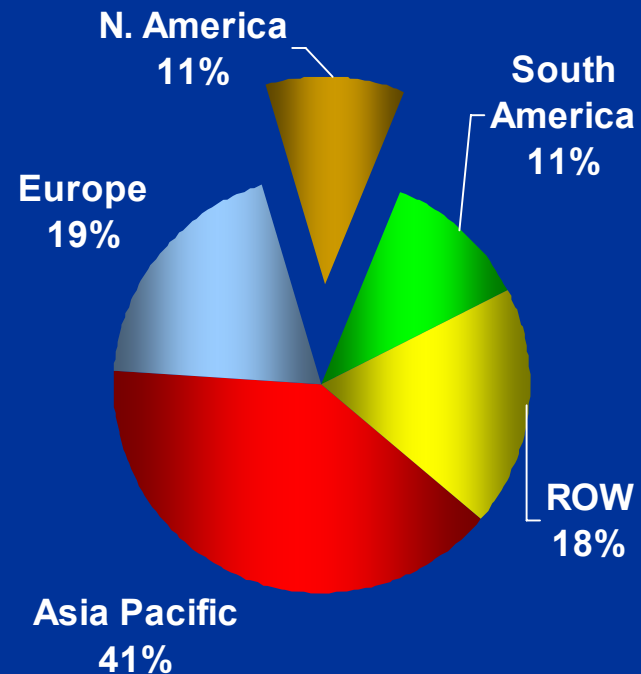
Source: Morgan Stanley Telecom, Internet Research.

# Global Tech Usage / Innovation at All Time High

**Internet Users – 1B**  
**C2005E (1)**



**Mobile Subscribers – 2B**  
**C2005E (2)**



(1) Source: Morgan Stanley Research.

(2) Source: Morgan Stanley Communications Equipment Research: Scott Coleman, John Marchetti.

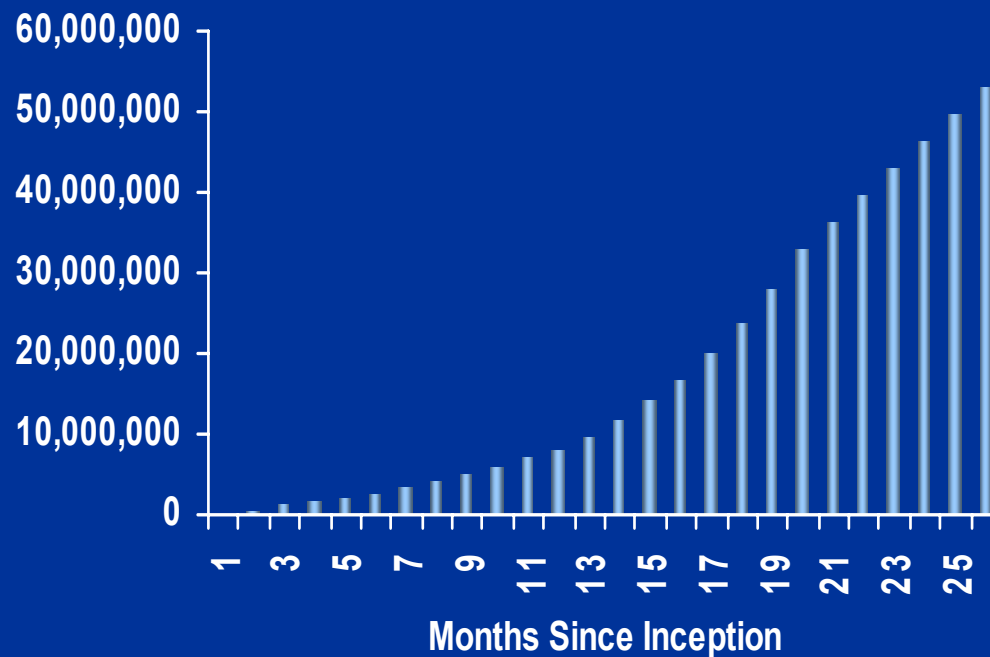
# Convergence of Internet / Mobile – US Lags

<b>Country</b>	<b>Mobile Phones (MM)</b>	<b>Internet Users (MM)</b>	<b>Mobile Phone to Internet User Ratio</b>	<b>Installed PCs (MM)</b>
<b>China</b>	<b>363</b>	<b>100</b>	<b>3.6 : 1</b>	<b>53</b>
<b>US</b>	<b>177</b>	<b>211</b>	<b>0.8 : 1</b>	<b>207</b>
<b>Japan</b>	<b>88</b>	<b>78</b>	<b>1.1 : 1</b>	<b>55</b>
<b>Germany</b>	<b>69</b>	<b>51</b>	<b>1.4 : 1</b>	<b>39</b>
<b>UK</b>	<b>54</b>	<b>37</b>	<b>1.5 : 1</b>	<b>26</b>
<b>Italy</b>	<b>54</b>	<b>32</b>	<b>1.7 : 1</b>	<b>16</b>
<b>S. Korea</b>	<b>37</b>	<b>32</b>	<b>1.2 : 1</b>	<b>27</b>

*Euromonitor, CNNIC, World Bank, Morgan Stanley Research – June 2005 estimates*

# Skype (VoIP) – Fastest Growing Application Ever?

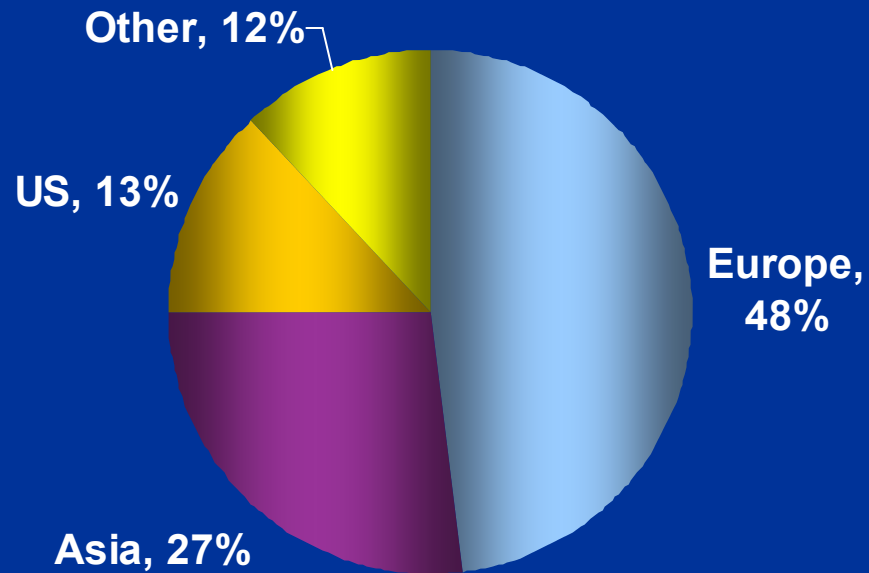
Skype Registered Users



(1) Source: Company Data, Morgan Stanley Research.

# Skype – 87% of Usage Outside N. America

## Skype Revenue Distribution – Q2TD



## eBay + Skype

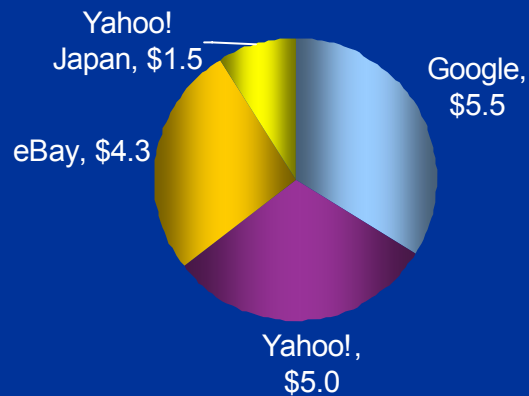
- Best example (along with VeriSign / Jamba) of leading US-based technology company purchasing a leading non-US technology that had leadership in foreign markets with intent, in part, to bring technology into US market
- More - potentially a lot more - to come...

# Broadband / Mobile / WiFi Drilldown

# Broadband Internet vs. Mobile Internet Revenue

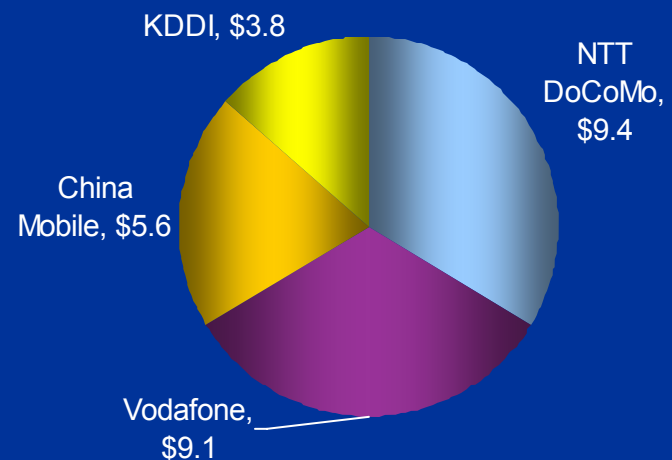
## Broadband Internet CQ2 Annualized - \$16B

(Figures in US\$ Billions)



## Mobile Internet Data CQ2 Annualized - \$28B (Majority SMS/MMS related)

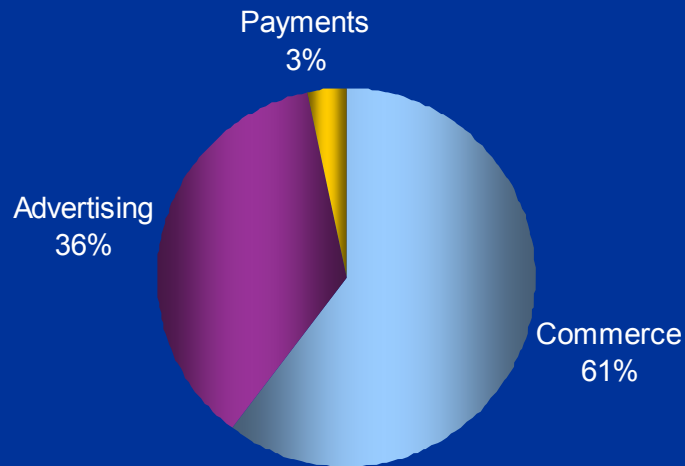
(Figures in US\$ Billions)



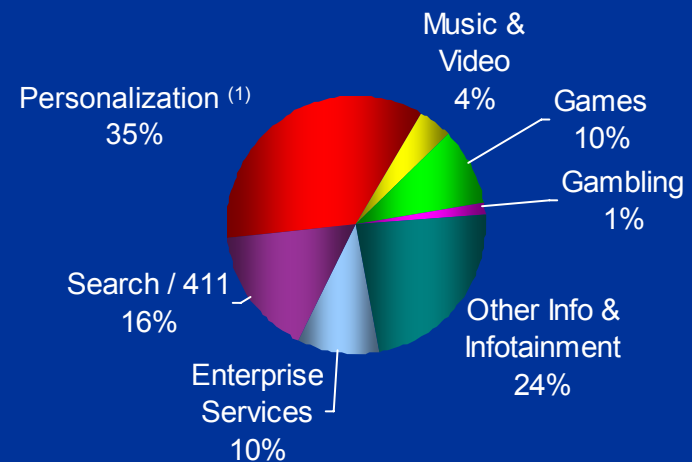
Source: Top four revenue generators for broadband Internet and mobile data. Left Chart - Morgan Stanley Research Estimates, Right Chart - Company Filings.

# Broadband Internet vs. Mobile Internet Revenue Composition

**Top 10 Internet Companies - Revenue Composition**  
**CQ2 Annualized - \$28B**



**Revenue Composition - Mobile Internet**  
**C2005E - \$19B**

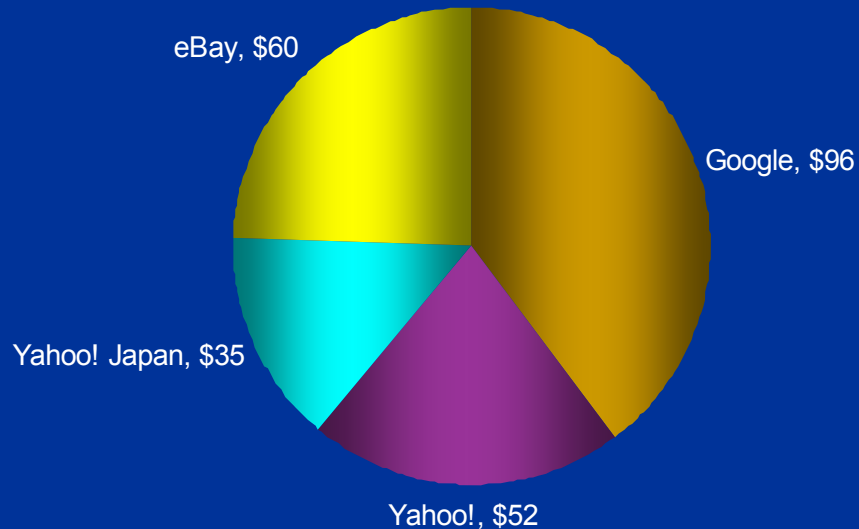


Source: Left Chart - Morgan Stanley Research estimates: includes revenue from Google, eBay, Yahoo!, Yahoo! Japan, Amazon.com, T-Online, InterActive, Time Warner (AOL only), Microsoft (MSN only), and Rakuten. Right Chart – Morgan Stanley Research estimates, Global Data. Informa (5/05), Ovum (5/05). (1) Personalization includes ringtones, wallpapers, and screensavers.

# Broadband Internet vs. Mobile Internet Valuations

## Pure Play Broadband Internet - \$242B

(Figures in US\$ Billions)



## Pure Play Mobile Internet - \$2B

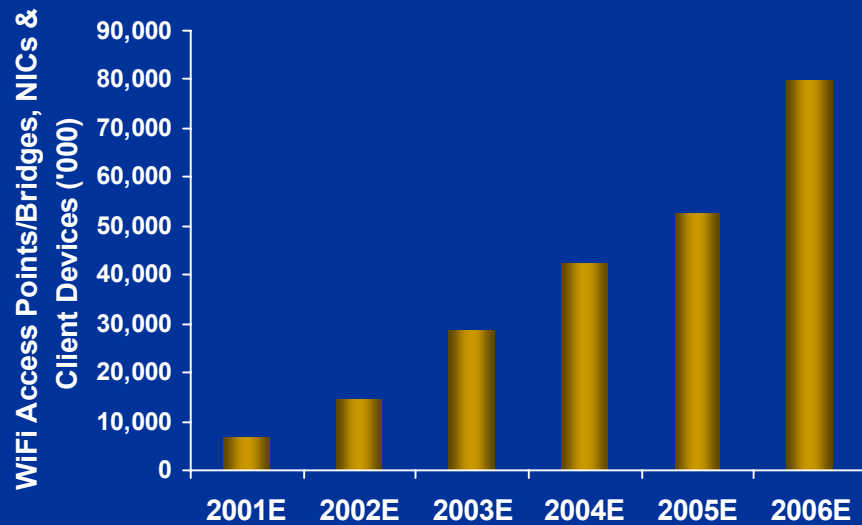
(Figures in US\$ Billions)



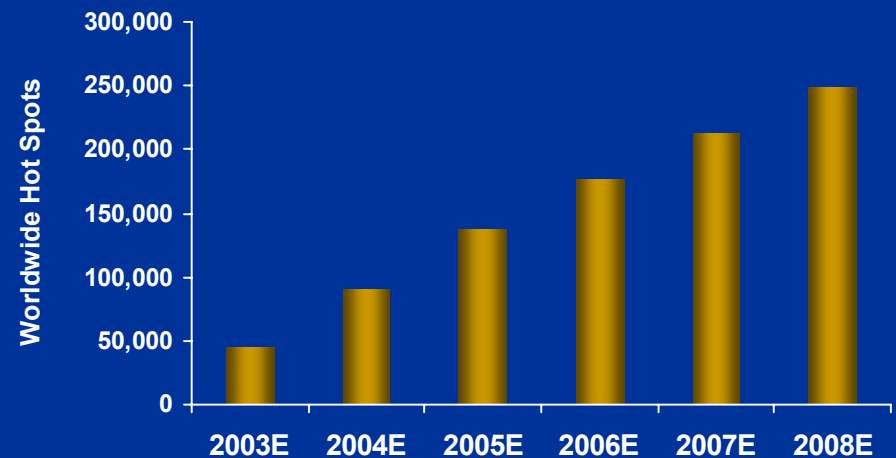
Source: Morgan Stanley Research, based on pricing data as of 10/3/05.

# WiFi Usage Ramping

## US WiFi Access Points/Bridges, NICs & Client Devices



## Worldwide Available Hotspots by Region, 2003E-2008E



Left Chart Source: Morgan Stanley Research Estimates: S. Coleman, J. Marchetti. Right Chart Source: IDC (12/04)

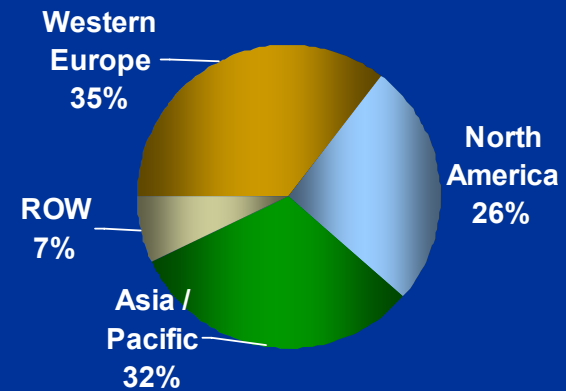
# WiFi (or Equivalent) – Glue for Ubiquitous Connectivity?

- Boingo & T-Mobile Hot Spots - 18K+ each
- Search 'Omaha, Nebraska' - 10 Boingo Hot Spots

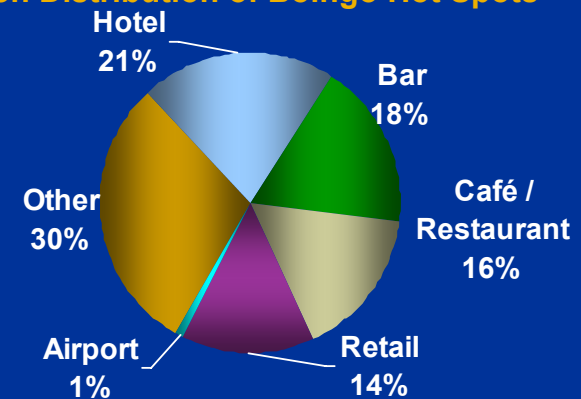
The screenshot shows the Boingo Wireless website interface. At the top, there are navigation links: Home, Locations, Select Location, Sign Up, Download, Locations, Support, and My Account. Below this is a search bar with 'Omaha, Nebraska' entered. A prominent yellow callout box with a red border says '10 Locations found in Omaha'. Below the callout, there are icons for Airports (203), Hotels (4669), Retail (3195), and Cafes (3509). A table lists the following hotspots:

Location	Description	Address	Details
Barnes & Noble	Bookstore	7400 Dodge Street Suite 325 Omaha, NE 68114	
Barnes & Noble	Bookstore	3333 Oakview Dr Omaha, NE 68144	
Doubletree Hotel Omaha Downtown	Hotel	1616 Dodge Street Omaha, NE 68102	Hotel Lobby
Embassy Suites Hotel Omaha Downtown-Old Market	Hotel	555 South 10th Street Omaha, NE 68102	Lobby and Public Area Wireless Access Powered by Wayport
Hawthorn Suites Omaha	Hotel	11025 M Street Omaha, NE 68137	In-Room, Lobby, and Public Area Wireless Access Powered by StayOnline
OMA - Omaha Airport/Eppley Airfield	Airport	4501 Abbott Drive Omaha, NE 68110	Signal available at Southwest Gates 16 & 17 in North Terminal, Northwest Gates 1, 2 & American Snack bar (Gate 4) in the South Terminal. Coverage (pre-security) available at Omaha Steak Shop, Hangar Lounge and center of Main Terminal.

Worldwide Available Hotspot Share by Region, 2004 <sup>(1)</sup>



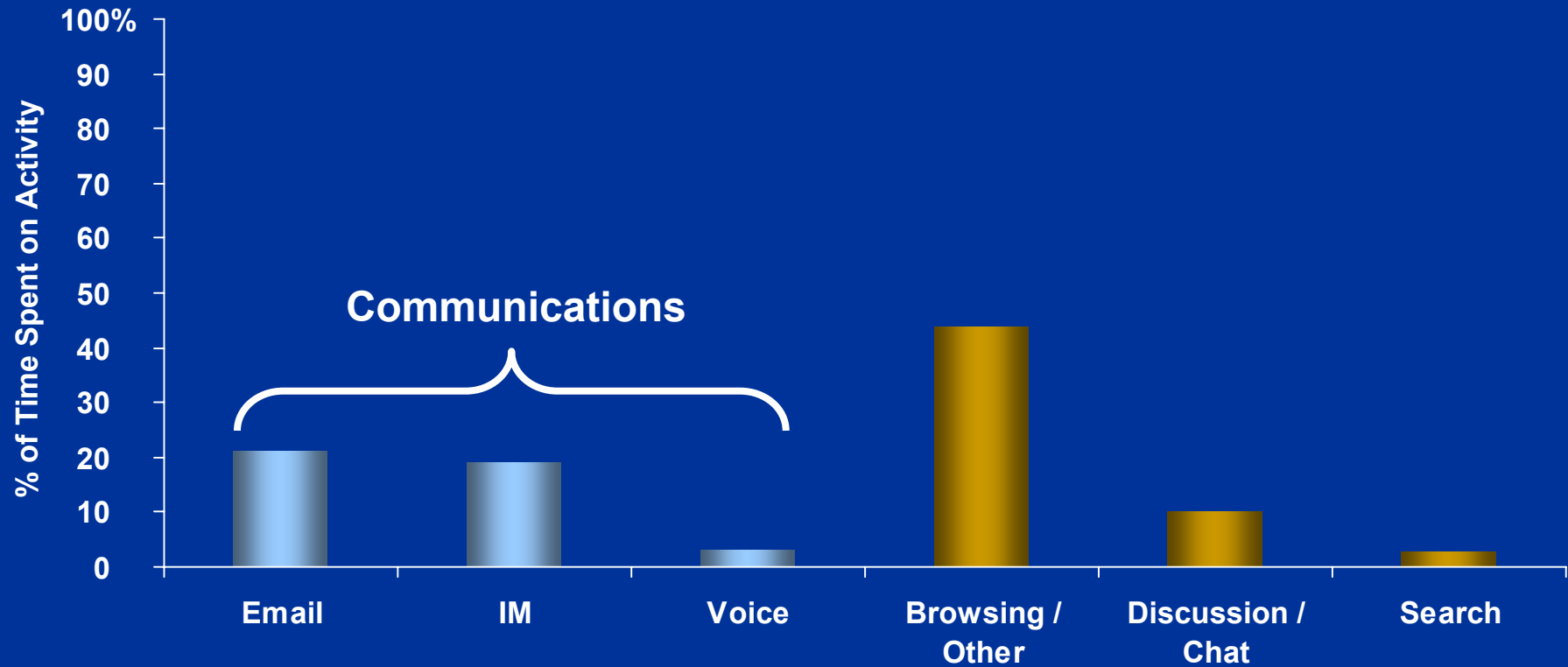
Location Distribution of Boingo Hot Spots <sup>(2)</sup>



(1) Source: IDC(12/04). (2) Source: Boingo Wireless (9/05).

# Closing Thoughts

# Communications = 44% (& Rising) of US Online Usage



Source: comScore Media Metrix, based on average minutes per visitor by category (8/05). Browsing / Other includes general web-surfing activity not listed in other categories, including anything from news sites (cnn.com) to retail (Amazon.com) to job sites.

# Next Generation Communications Hubs?

## Internet Sites

**MSN**  
Unique Visitors <sup>(2)</sup>  
(420MM)

**Google** <sup>(1)</sup>  
(384MM)

**Yahoo!**  
Unique Visitors <sup>(2)</sup>  
(379MM)

**eBay** <sup>(1)</sup>  
(187MM)

**Amazon.com**  
Active Customers <sup>(2)</sup>  
(50MM)

**AOL**  
Subscribers <sup>(2)</sup>  
(30MM)

**MySpace.com** <sup>(1)</sup>  
(21MM)

## Search Engines

**Google** Search <sup>(1)</sup>  
(218MM)

**Yahoo!** Search <sup>(1)</sup>  
(207MM)

## Email Providers

**Yahoo!** Mail <sup>(1)</sup>  
(219MM)

**MSN** Hotmail  
Active Accounts <sup>(2)</sup>  
(205MM)

**Google** GMail <sup>(1)</sup>  
(27MM)

## IM Services

**MSN** Messenger Active  
Accounts <sup>(2)</sup>  
(175MM)

**Yahoo!** Messenger <sup>(1)</sup>  
(79MM)

**AOL** Instant Messenger  
(AIM) <sup>(1, 3)</sup>  
(64MM)

**ICQ** <sup>(1)</sup>  
(31MM)

## VoIP Services

**Skype / eBay**  
Registered Users <sup>(2)</sup>  
(54MM)

## Payments

**PayPal / eBay**  
Accounts <sup>(2)</sup>  
(79MM)

- **Convergence is happening (~10% of Yahoo! IM sessions end in phone call). Opportunities exist for non-mobile players to leverage existing subscribers.**
- **Who has the most valuable customer base as transition occurs? Who will have it when it is over?**

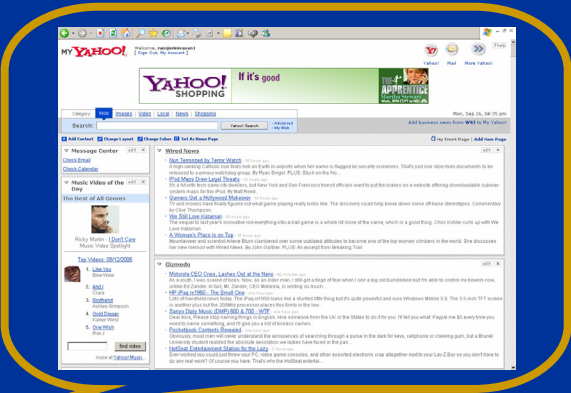
(1) Source: Unique Visitors, comScore Media Metrix (5/05).

(2) Source: Company Reports, as of CQ2:05. Skype data as of 9/12/05.

(3) Source: Company Web site, as of 4/04.

# Mobile-PC Becoming New Client-Server Model?

Server



User programs content on PC

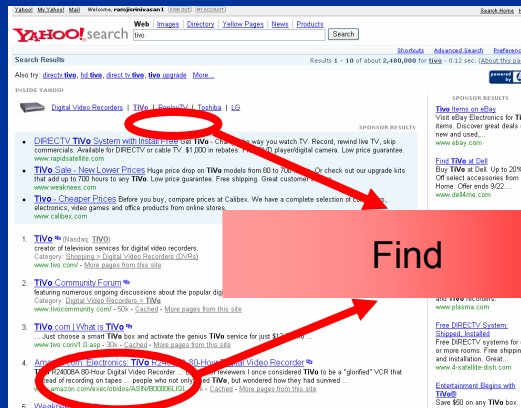


Abbreviated version of content syncs wirelessly with mobile device

Client

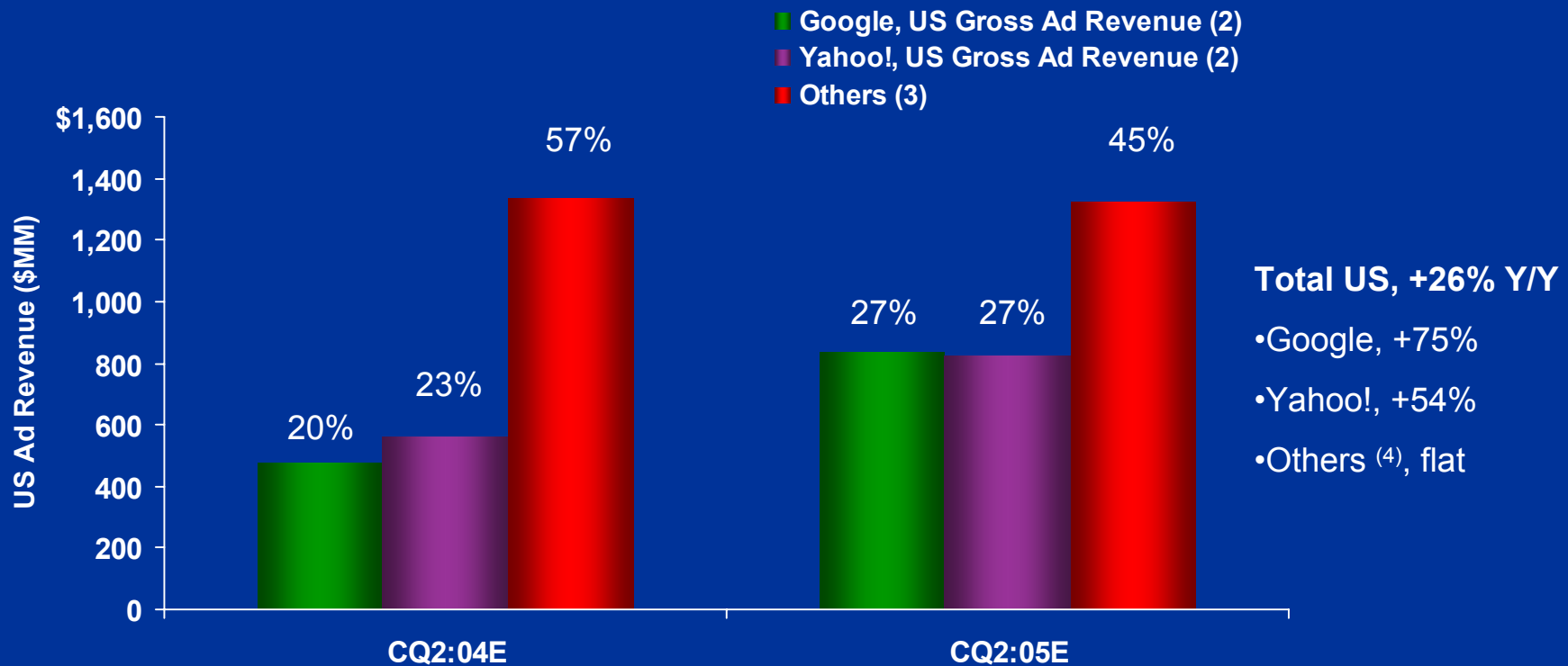


# SFO - Will There Be a Difference Between Advertising / Marketing / Selling?



# SFO – Future Role of Google / Yahoo!?

## US Online Ad Revenue Mix (1)



- (1) Source: Ad revenue totals from IAB/PriceWaterhouseCoopers Interactive Advertising reports.  
 (2) Calculated as reported revenue multiplied by the reported percentage of US Ad Revenue.  
 (3) Calculated as the difference between total IAB US revenue and the sum of Google, Yahoo! gross revenue.  
 (4) Assuming that TAC of Google and Yahoo! was included in others total, this segment would have been up 16% Y/Y.

## Power of Google / Yahoo! Ecosystems

- While Google generated \$1.4B in gross online advertising revenue in CQ2 it **PAID OUT** \$494MM to thousands of partners like AOL, Ask Jeeves and iVillage
- While Yahoo! generated \$1.1B in gross online advertising revenue in CQ2 it **PAID OUT** an estimated \$378MM to thousands of partners like MSN, ESPN and *The Wall Street Journal*

## \$674 in US Ad Spend for Newspaper Home vs. \$145 for Internet?

Medium	2004E US Advertising Spending (\$B)	US Households (MM)	US Ad Spending / Household (\$)
Promotions	\$101	99	\$1,022
Direct Telephone	91	105	865
Newspapers	48	72	674
<i>Classifieds</i>	17	55	302
Direct Mail	51	99	514
Broadcast TV	45	108	416
Radio	20	60	334
Cable TV	18	74	240
Magazine	21	99	216
Yellow Pages	15	99	151
<b>Internet / Online</b>	<b>10</b> ↑	<b>66</b> ↑	<b>145</b> ↑
<b>Total</b>	<b>\$420</b>	<b>881</b>	<b>\$4,575</b>
<b>Average</b>	<b>42</b>	<b>88</b>	<b>458</b>

Morgan Stanley Research, PricewaterhouseCoopers, IAB, Jupiter Research, McCann-Erickson, RAB; Newspapers include Classifieds. Promotions (\$101B) include: incentives (\$27B), promotional products (\$22B), POS (\$17B), specialty printing (\$8B), coupons (\$7B), premiums (\$6B), promotional licensing (\$6B), promotional fulfillment (\$5B), product sampling (\$2B), and in-store marketing (\$1B). Households may use multiple advertising mediums.

# Email is 'Free' - What About Voice?



Image Source: [www.pw-x.com/unified.htm](http://www.pw-x.com/unified.htm).

## \$1 Content – Make it Up On Volume?

- Very low-priced downloadable digital content (including the likes of ring tones and iTunes), assisted by easy-to-use payment systems (from the likes of mobile operators and PayPal), is generating billions in revenue.
- Maybe, just maybe, if one has truly great low-priced content – and makes it very easy to search / find / obtain (SFO) - one can make it up on volume...

# Innovation / Network Effects Will Drive Usage Growth

- Broadband
- Mobile
- User experience
- Search
- Personalization with more effective targeting
- User-generated content (RSS, blogs, reviews, video, images, audio...)
- Music
- Payments
- Short- and long-form video
- Interactive entertainment
- VoIP
- Local
- Pay per call
- Digital Rights Management (DRM)
- Ubiquitous connectivity

# Changes Just Beginning

- We believe first ten years (1995-2005) of commercial Internet were a warm up act for what is about to happen
- Opportunities / dislocations will be significant
- John / Tim – thanks for helping keep us informed! ;)

# Disclosures

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Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)		
	Count	% of Total	Count	% of Total IBC	% of Rating Category
<b>Overweight/Buy</b>	689	35%	265	40%	38%
<b>Equal-weight/Hold</b>	902	46%	312	47%	35%
<b>Underweight/Sell</b>	379	19%	93	14%	25%
<b>Total</b>	<b>1,970</b>		<b>670</b>		

Data include common stock and ADRs currently assigned ratings. For disclosure purposes (in accordance with NASD and NYSE requirements), we note that Overweight, our most positive stock rating, most closely corresponds to a buy recommendation; Equal-weight and Underweight most closely correspond to neutral and sell recommendations, respectively. However, Overweight, Equal-weight, and Underweight are not the equivalent of buy, neutral, and sell but represent recommended relative weightings (see definitions below). An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations. Investment Banking Clients are companies from whom Morgan Stanley or an affiliate received investment banking compensation in the last 12 months.

### ANALYST STOCK RATINGS

**Overweight (O).** The stock's total return is expected to exceed the total return of the relevant country MSCI index, on a risk-adjusted basis, over the next 12-18 months.

**Equal-weight (E).** The stock's total return is expected to be in line with the total return of the relevant country MSCI index, on a risk-adjusted basis, over the next 12-18 months.

**Underweight (U).** The stock's total return is expected to be below the total return of the relevant country MSCI index, on a risk-adjusted basis, over the next 12-18 months.

**More volatile (V).** We estimate that this stock has more than a 25% chance of a price move (up or down) of more than 25% in a month, based on a quantitative assessment of historical data, or in the analyst's view, it is likely to become materially more volatile over the next 1-12 months compared with the past three years. Stocks with less than one year of trading history are automatically rated as more volatile (unless otherwise noted). We note that securities that we do not currently consider "more volatile" can still perform in that manner.

Unless otherwise specified, the time frame for price targets included in this report is 12 to 18 months.

### ANALYST INDUSTRY VIEWS

**Attractive (A):** The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

**In-Line (I):** The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

**Cautious (C):** The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index; Europe - MSCI Europe; Japan - TOPIX; Asia/Pacific - relevant MSCI country index.

Stock price charts and rating histories for companies discussed in this report are available at [www.morganstanley.com/companycharts](http://www.morganstanley.com/companycharts) or from your local investment representative. You may also request this information by writing to Morgan Stanley at 1585 Broadway, (Attention: Equity Research Management), New York, NY, 10036 USA.

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