



Internet Trends 2001

Mary Meeker

July 2001



The State of Capital Markets and An Update on Technology Trends

Mary Meeker

Presented at
The Industry Standard's *Internet Summit 2001*, Carlsbad, Ca.
July 2001



OVERVIEW

Where We Have Been. . .

Where We Are. . .

So, How Long Before Things Improve?

Thoughts On Internet Growth

Where We Have Been . . .

WHAT JUST HAPPENED...

Unprecedented Innovation. . .

Unprecedented Technology Progress...

Significant Wealth Creation...

Significant Wealth Destruction...

INTERNET “BIG BANG” . . . ONCE IN A LIFETIME

150MM PCs primed for **THE BROWSER!**



Aug 8th 1995

Netscape IPO

Apple, IBM, Compaq & Microsoft laid the foundation. . .

Killer Apps – #1 – **email**
#2 – **browser**

INTERNET-TYPE “BIG BANGS” RARELY OCCUR

Big Bang	Catalyst	Inflection	Name Ten Companies?
California Gold Rush	1848 – Gold found at Sutter's Mill, CA	1852 - Hydraulic mining in CA <i>4 years later</i>	Anglogold, Newmont, Barrick, Gold Fields, Rio Tinto, Freeport McMoran, Placer Dome, Homestake, Normandy, Harmony <i>44%</i>



INTERNET-TYPE “BIG BANGS” RARELY OCCUR

Big Bang	Catalyst	Inflection	Name Ten Companies?
Automobile	1886 - Benz and Daimler build first auto, Germany	1913 - Ford assembly line, MI <i>27 years later</i>	GM, Ford, Toyota, Volkswagen, DaimlerChrysler, PSA, Peugeot Citroen, Nissan, Fiat-Iveco, Renault, Hyundai <i>78%</i>



INTERNET-TYPE “BIG BANGS” RARELY OCCUR

Big Bang	Catalyst	Inflection	Name Ten Companies?
Internet	1992 – NSCA creates Mosaic 1994 – Netscape founded, IPO in 1995	2000 – AOL TWX merger 2005? – ~50% homes broadband	???



TECH COMPANY MAXIMS

- **5%** of tech IPOs create **90%+** of the tech wealth
– bottom line, few companies win big...
- On average, **4 “Ten Baggers” IPO’d per year**
since 1980
- **53% of IPOs above IPO price historically**
Only 24% of 1999/2000 IPOs above IPO price

DIGITAL DARWINISM MAXIM

*When Charles Darwin presented his theory of evolution in 1859, he described a world in which **only the fittest survive**...*

*a world in which **species must constantly adapt to their changing environment or face extinction**...*

a world in which organisms must continue to grow in a profitable direction and develop new skills and traits or perish...

a world in which the surrounding conditions for life can, suddenly and drastically, improve or take a turn for the worst.

Evan Schwartz, Digital Darwinism

BUSINESS MAXIM

- **#1 is Awesome**
- #2 can be OK
- #3 can be Brutal
- #4 – Huh? Who? ***Fuhgetaboutit***

INVESTING MAXIM – HUNT FOR “TEN-BAGGERS”

To make a spectacular showing, you only had to find one big winner out of eleven [in a selected portfolio].

The more right you are about one stock, the more wrong you can be on all others and still triumph as an investor. . .

*The occasional five-and **ten-bagger**, and the rarer twenty-bagger, has helped my fund outgain the competition - and I own 1,400 stocks.*

It's amazing how it works.

Peter Lynch, One Up on Wall Street

MAJOR "TECH CYCLE" MAXIMS

Technology



Timing

15 years from PC cycle (1980) to Internet cycle (1995)

MAJOR “TECH CYCLE” MAXIMS (CONTINUED)

Pattern of Company Creation

Boom (1st-2nd inning) ➡ Bust (3rd inning) ➡ Bust/Boomlet (4th inning)

Pattern of Wealth Creation

Boomlet (1st-2nd inning) ➡ Bust (3rd inning) ➡ Boom (4th inning)

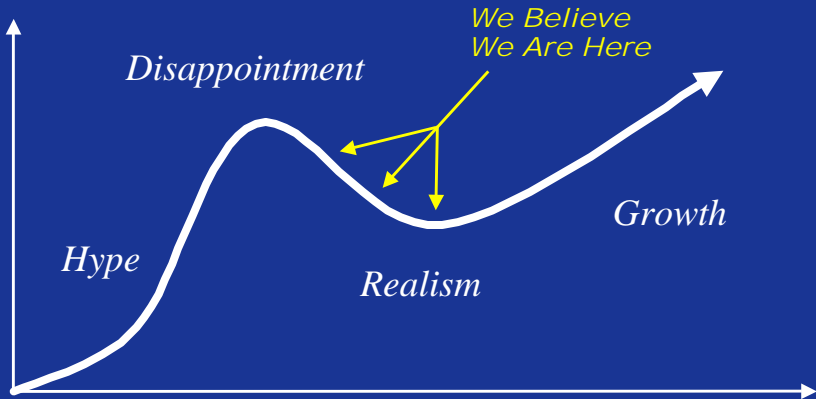
MAJOR "TECH CYCLES" DON'T OCCUR OFTEN

*It's important to remember that the whole notion of the **entrepreneurial cycle** is **messiness** and **creative destruction**. Looking ahead, we'll see a long period of new foundation-building, consolidation and convergence.*

I definitely saw excesses close up and personal in the mid-1980s, but I also learned that some of the greatest companies were also grown out of that too...such as Microsoft, Apple and America Online.

Dan Case, The Wall Street Journal (Kara Swisher)

TECH CYCLE OF CHANGE / GROWTH



Source: Mobile Commerce Report, Durlacher

THESE "CYCLES" CAN BE UGLY FOR STOCKS

Oracle - Oct '90 - down 81% to \$0.13
now at \$19...**up 14,346%**

Compaq - Dec '91 - down 71% to \$1.40
now at \$16...**up 1,019%**

Dell - Jun '92 - down 45% to \$0.24
now at \$27...**up 11,233%**

Cisco - Jul '94 - down 51% to \$1.09
now at \$17...**up 1,473%**

America Online - Oct '96 - down 68% to \$1.42
now at \$45...**up 3,044%**

WHO ARE INTERNET "WINNERS?"

USER INTERFACE: → AOL Time Warner
Microsoft
Yahoo!

COMMERCE: → eBay
Amazon.com

INFRASTRUCTURE: → VeriSign
Cisco
Sun Microsystems
Dell

VERTICALS: → Expedia
CNET Networks
Homestore.com
FreeMarkets
TMP Worldwide

Aggregate Value -- @ Netscape IPO (8/95) → ~ \$90 B

Aggregate Value -- @ Now (7/01) → ~ \$900 B

Greater than the following S&P Sectors:
Energy, Utility, Basic Materials, and Transportation

WEALTH DESTRUCTION HAS BEEN SIGNIFICANT, ACROSS THE BOARD...

Internet Pure-Plays

362 Internet companies

Mkt Cap 12/31/99 **\$1,142B**

Mkt Cap 7/12/01 **415B**

Wealth Destruction (727)B

~\$730B

S&P Non-Tech Companies

26 companies...

Mkt Cap 12/31/99 **\$2,723B**

Mkt Cap 7/12/01 **1,989B**

Wealth Destruction (734)

~\$730B

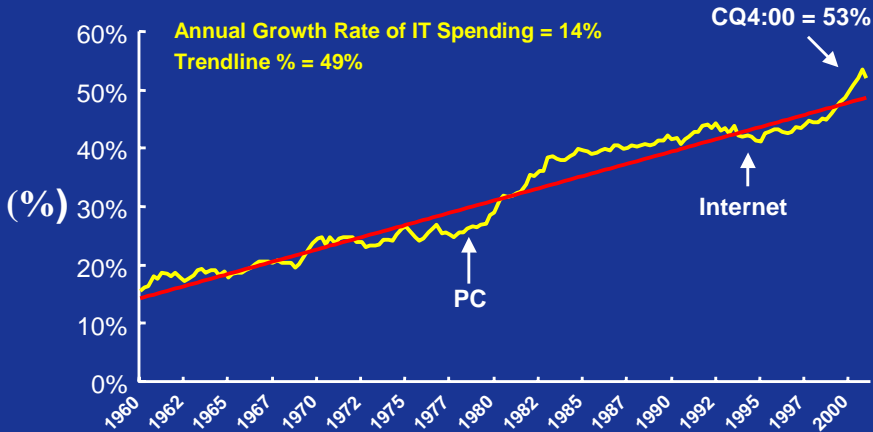
WorldCom, Wal-Mart, GE,
Proctor & Gamble, Home Depot,
Ford, Coca-Cola, American Express,
Bristol Myers Squibb, DuPont, McDonalds,
Clear Channel, Honeywell, Gap,
JP Morgan, Charles Schwab, Gillette,
Merck, Bellsouth, Comcast, Carnival,
Royal Dutch Petroleum, Int'l Paper,
Shering Plough, Interpublic Group, Applera

Where We Are . . .

. . .Right Now We are in the Difficult 3rd Inning,

TECH HAS BECOME LARGE PART OF THE ECONOMY

U.S.-Based IT % of Nominal Business Capital Equipment Spending



Source: Morgan Stanley Internet Research; Data as of 06/31/01

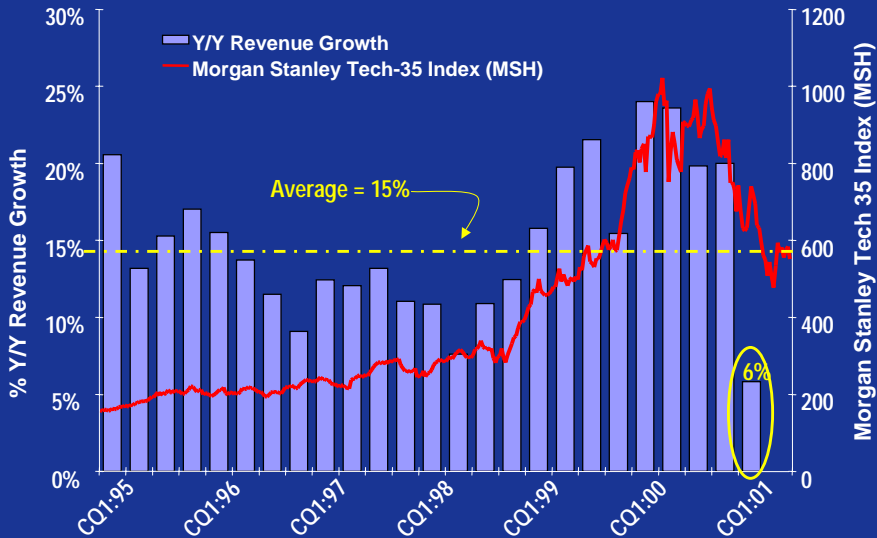
ECONOMY (U.S. GDP) CONTINUES TO SLOW...

	<u>C2000</u>	<u>C2001</u>	<u>C2002</u>
Jan 2000	4.3% ^E	3.6% ^E	4.2% [*]
Jul 2001	5.0% ^A	1.2% ^E	3.0% ^E

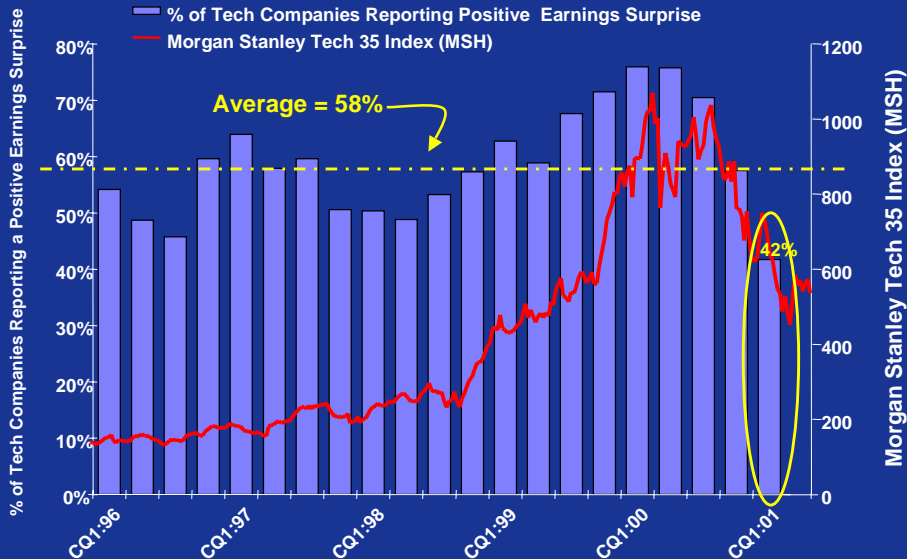
*Source: Morgan Stanley; Data as of 07/0601; *C2002E figures initiated on 12/12/2000*

E – Morgan Stanley Estimate; A – Actual

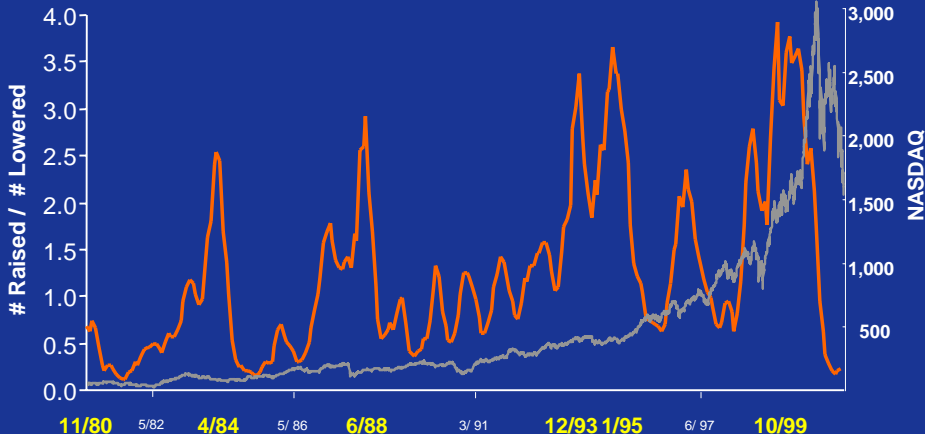
ONLY 6% Y/Y TECH REVENUE GROWTH - CQ1:01



ONLY 42% OF TECH BEAT EPS ESTIMATES -- CQ1:01



CYCLES OF TECH EPS REVISIONS - 1980-2001



Source: IBES, Morgan Stanley Research 3 month moving average of the ratio of upward revisions to downward revisions for the stocks in the S&P 500 tech sector. The gray overlay is the NASDAQ composite.

TECH BECAME A HUGE PORTION OF S&P 500 MARKET CAPITALIZATION

Dec 1989¹ - S&P500 = \$2.3T

Sector	Weight
Consumer Staples	16%
Energy	13%
Consumer Cyclicals	11%
Communication Services	10%
Financials	9%
Health Care	9%
Capital Goods	8%
Technology (8)	8%
Basic Materials	8%
Utilities	6%
Transportation	2%

Total: 100%

¹ as of 12/29/89

Mar 2000² - S&P500 = \$11.5T

Sector	Weight
Technology (1)	37%
Financials	12%
Health Care	9%
Consumer Staples	9%
Consumer Cyclicals	8%
Capital Goods	7%
Communication Services	7%
Energy	5%
Utilities	2%
Basic Materials	2%
Transportation	1%

Total: 100%

² as of 03/10/00

Jul 2001³ - S&P500 = \$10.7T

Sector	Weight
Technology (1)	20%
Financials	18%
Health Care	13%
Consumer Staples	11%
Capital Goods	9%
Consumer Cyclicals	9%
Energy	7%
Communication Services	6%
Utilities	4%
Basic Materials	3%
Transportation	1%

Total: 100%

³ as of 07/09/01

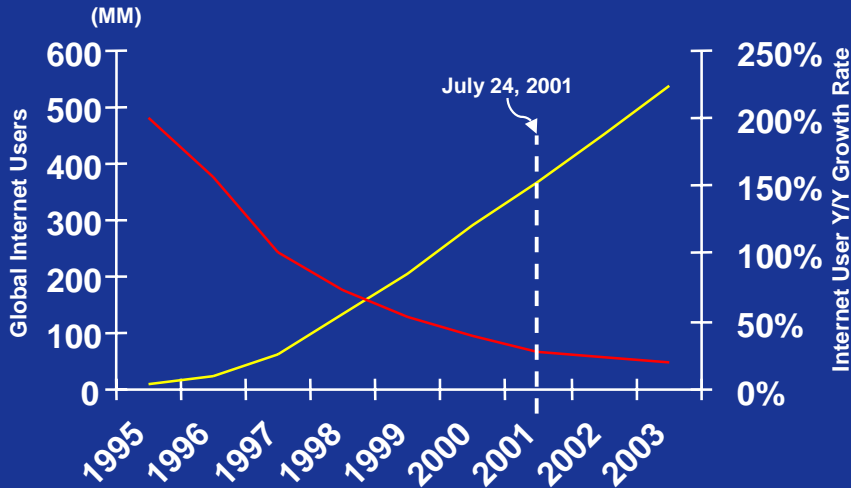
Source: Morgan Stanley Internet Research

So, How Long Before Things Improve?

- Capital Markets
 - Business Climate
-

Capital Markets

GROWTH EXPECTATIONS WERE OUT OF LINE

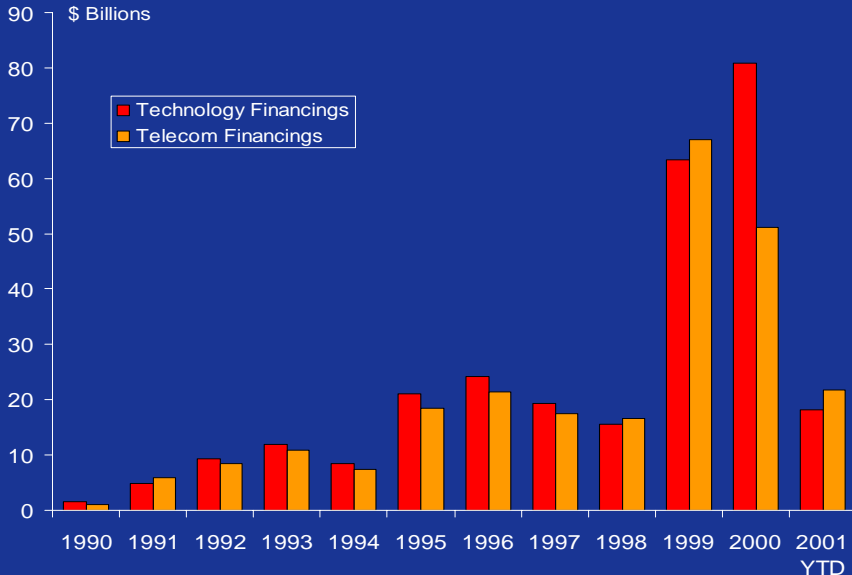


Source: Morgan Stanley Internet Research

WHAT HAPPENED IN 1999/2000...

- **69% of tech venture funding** of the past 25 years...
- **55% of tech public financing** of the past 21 years...

GLOBAL TECH & TELECOM CAPITAL RAISING. . .



Source: SDC; Updated as of 7/10/2001. Included IPOs, follow-ons, convertibles and high yield.

TECH IPO VOLUME PERSPECTIVE

1980-1994

40 IPOs, on average, per year
ranging from **12** (1982) to **98** (1993)

1995-2000

191 IPOs, on average, per year
ranging from **90** (1998) to **318** (1999)

“Normal” tech IPO volume is 79% lower than last 5 year level

WHAT'S WORKING IN THE STOCK MARKET?

S&P Sector	Change			Mkt Cap Leaders
	1999	2000	2001 YTD*	
Transportation	(11%)	17%	6%	Southwest, Union Pacific
Basic Materials	24	(15)	5	DuPont, Alcoa
Comm Services	17	(40)	2	Verizon, SBC
Financials	2	24	(5)	Citigroup, AIG
Capital Goods	27	2	(6)	GE, Tyco
Energy	16	12	(8)	Exxon, Royal Dutch
Consumer Staples	(8)	4	(8)	Coca-Cola, Philip Morris
Health Care	(9)	34	(13)	Pfizer, Merck
Utility	(12)	54	(14)	Enron, Duke
Technology	75	(40)	(19)	Microsoft, Intel

S&P 500	20%	(10%)	(8%)
--------------------	------------	--------------	-------------

* As of 07/19/01

Business Climate

I.T. SPENDING PATTERN RECOGNITION...

- In 2000, U.S. IT spending rose **23% Y/Y**. Only 3 years since 1960 when annual IT spending growth exceeded or equaled 23%.
- Since 1960, **when IT spending growth has fallen below GDP growth**, as we believe it will in 2001...it has taken, on average, **one to two years** for IT spending growth to again exceed GDP growth.
- **Inventory adjustments, company rationalization, more bankruptcies, market confidence, psychology**, and the **passage of time** are key variables for recovery. Note that it is important to differentiate between the recent strong growth in I.T. spending and the excesses in the Telecom Services area.

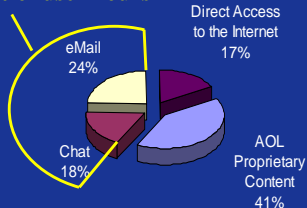
Summary and Thoughts on Internet Growth

The Internet is still in the early innings of its evolution.

Simply put, 'connectivity' and 'convergence' are powerful secular trends, and handfuls of companies should have outsized market shares owing, in part, to network effects.

CONNECTIVITY / USES EXPANSION ARE KEY...

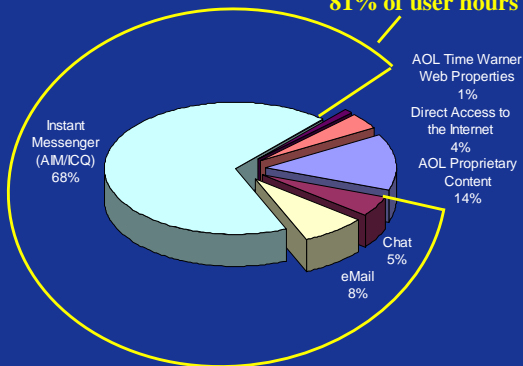
42% of user hours



CQ1:98

AOL: 235MM User Hours/Month

81% of user hours



CQ1:01

AOL: 2,890MM User Hours/Month

Global Internet user growth should rise at an annual rate of 20%+ for the next three to five years or so.

- **300MM+** Internet users today
- **5%** global penetration today vs. **15%** for telephones

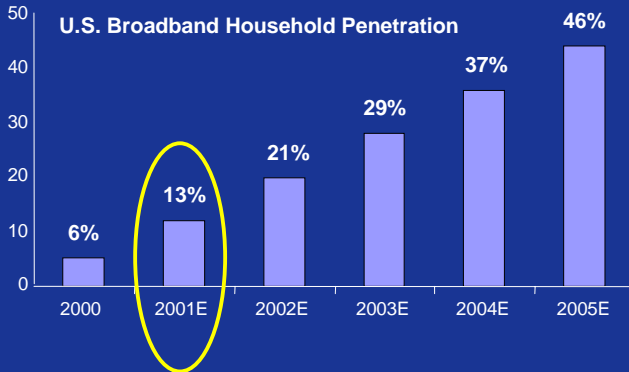
Internet usage growth could continue to rise at a rate of 1.2 to 2.0 times user growth for the next several years, or longer, as *uses* ramp and broadband and wireless access take off – and yes, these are powerful rates of growth.

INTERNET USER/USAGE ECOSYSTEM GROWTH IS STILL STRONG...BUT SLOWING . . .

	Q2:00	Q3:00	Q4:00	Q1:01
User Y/Y Growth - Mean	126%	124%	112%	57%
Usage Y/Y Growth - Mean	164%	145%	107%	86%
Mean Y/Y Usage/User Multiplier	1.30	1.17	0.96	1.50

Source: Morgan Stanley Internet Ecosystem Framework; 6/07/01

BROADBAND WILL BE BIG BUT IT'S STILL EARLY...



Broadband Internet households use the Internet for **134 minutes a day**, **61% higher** than dial-up households.

Source: Morgan Stanley Internet Research,; Arbitron/Coleman Jan 2001

Industry rationalization is occurring rapidly setting the stage for the emergence of clear sector winners.

5

Opportunities for rising online **customer monetization** are likely in the offing.

We are ***likely still in the early stages of wealth creation*** related to the evolution of the Internet, but the ***number of companies that are real winners will be small.***

But, it may take **6-18 months of sluggish conditions** and relative pain to work through many of the excesses created over the past decade. Note that Telecom Services excesses could take longer.

We believe the worst of the declines are over...and...we will get back to normal...

...but people have to remember / realize what “normal” means!

CLOSING THOUGHTS...

- Entrepreneurship is really hard... **and it's REALLY hard to be a great entrepreneur** – why is there only one Michael Jordan and one Tiger Woods?
- And the **people...the team... leadership...** are key...
- **Biggest risk we all face is not being willing to continue to take risks...**

DISCLAIMER

V = More volatile. 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 "volatile" can still perform in that manner.

The information and opinions in this report were prepared by Morgan Stanley & Co. Incorporated ("Morgan Stanley Dean Witter"). Morgan Stanley Dean Witter does not undertake to advise you of changes in its opinion or information. Morgan Stanley Dean Witter and others associated with it may make markets or specialize in, have positions in and effect transactions in securities of companies mentioned and may also perform or seek to perform investment banking services for those companies. This memorandum is based on information available to the public. No representation is made that it is accurate or complete. This memorandum is not an offer to buy or sell or a solicitation of an offer to buy or sell the securities mentioned.

Within the last three years, Morgan Stanley & Co. Incorporated, Dean Witter Reynolds Inc. and/or their affiliates managed or co-managed a public offering of the securities of CSG Systems International, Convergys Corporation, Electronic Data Systems, Galileo International, KPMG Consulting, Palm Inc., Perot Systems, Texas Instruments, Viasystems Group Inc., Vignette, VeriSign, Veritas Software, webMethods, Xerox, Avanan Corp., Unigraphics Solutions, Agila Software, Arbia, Click Commerce, E-Pathway, I2 Technologies, Informatica, McAfee.com, ON Semiconductor, TMP Worldwide, Tickets.com, RealNetworks Inc., pipeline.com Inc., Martha Stewart Living Int'l, Homestore.com, WebMD, FreeMarkets Inc., Extreme Networks Inc., Expedia Inc., Exodus Communications, eBay Inc., drugstore.com Inc., DoubleClick Inc., Avenue A Inc., Aspect Communications, Asiatel Holdings Inc., Ask Jeeves Inc., ARTISTDirect Inc., AOL Time Warner Inc., Amazon.com, 3Com, Broadcom Corporation, Brocade Comm. Systems, CacheFlow Inc., Inktomi Corporation, Redback Networks Inc., Silicon Laboratories, Scient Corporation, Samnina, Power-One, Flextronics International, Celestica Inc., Alcatel Optronics, Advanced Switching, Arrow Electronics, Ciena Corporation, Copper Mountain Networks, Harris Corporation, Level 3 Communications, Lucent Technologies Inc., Motorola, Sycamore Networks Inc., Ingram Micro, Conexant, Compaq Computer Corp., DELL, Advanced Energy Industries, Agilent Technologies, ASIM Lithography Ltd. NV, Axcelis Technologies Inc., BE Semiconductor, Cymer, DuPont Photomasks, Kulicke & Soffa, Lattice Semiconductor, LTX Corporation, Mattson Technology Inc., PRI Automation, Transmeta Corporation, STMicroelectronics, SanDisk, Semtech Corporation, Rambus, NVIDIA Corporation, NaPi Semiconductor, LSI Logic, International Rectifier, GlobeSpan Inc., Atmel Corp, ARM Holdings, AMD/DCS, Illuminet Holdings Inc., MetaSolv Software Inc., AnswerFirst, DiamondCluster Int'l, Digita Inc., Digital Insight Corp., Mainspring Inc., Sapient, VIA NET WORKS, Inc., PSINet Inc., Internet Initiative Japan, InterNAP Network Services, iBeam Broadcasting, Genuity Inc., Equant SA, Digex, Akamai Technologies, Inc., Aether Systems, Inc., Getty Images Inc., SilverStream Software, Marimba and GoAmerica, Inc.

Morgan Stanley & Co. Incorporated, Dean Witter Reynolds Inc. and/or their affiliates make a market in the securities of Cisco Systems, CSG Systems International, Electronic Data Systems, Fiserv, KPMG Consulting, Palm Inc., SunGard Data Systems, TeleTech, Texas Instruments, Vignette, VeriSign, Veritas Software, WorldCom Inc., webMethods, Xilinx, Yahoo!, Apple Computer Inc., Autodesk, ADTRAN Inc., Adaptec, Avanan Corp., Dassault Systemes, Mentor Graphics, Parametric Technology, Structural Dynamics Res., Synopsys, BEA Systems, Click Commerce, CheckFree Corp., Documentum, Informatica, J.D. Edwards, McAfee.com, Novell, Oracle, Openwave Systems Inc., PeopleSoft, PurchasePro, eBay Inc., drugstore.com Inc., DoubleClick Inc., CNET, Avenue A Inc., Aspect Communications, Asiatel Holdings Inc., Ask Jeeves Inc., ARTISTDirect Inc., AOL Time Warner Inc., Amazon.com, 3Com, Broadcom Corporation, Brocade Comm. Systems, CacheFlow Inc., Inktomi Corporation, Juniper Networks, Redback Networks Inc., Silicon Laboratories, Scient Corporation, Samnina, Power-One, Flextronics International, Adobe Systems, ADC Telecommunications, Advanced Fibre, Alcatel, Applied Materials, Anaren Microwave Inc., AudioCodes, Copper Mountain Networks, Ceraon Networks, Ltd., Ericsson, Glenayre Technologies, JDS Uniphase Corp., Level 3 Communications, Molex, Motorola, Polymet, Powerwave Technologies, Proxim, Inc., Tellabs, DMC Strategic Networks, Tech Data, Avid Technology, Conexant, DELL, Gateway, Read-Right, Advanced Energy Industries, ASIM Lithography Ltd. NV, Axcelis Technologies Inc., BE Semiconductor, Cymer, DuPont Photomasks, KLA-Tencor, Kulicke & Soffa, Lam Research, Lattice Semiconductor, LTX Corporation, Mattson Technology Inc., PRI Automation, Silicon Valley Group, Transmeta Corporation, SanDisk, Semtech Corporation, Rambus, Qualcomm Inc., PMC - Sierra Inc., NVIDIA Corporation, Microchip Technology, Maxim Int'l. Products, Linear Technology, Intel Corp., GlobeSpan Inc., Atmel Corp, Altera Corporation, ARM Holdings, Concord Communications, Converse Technology, Illuminet Holdings Inc., Inat Technologies, MetaSolv Software Inc., Micromuse Inc., Visual Networks, AnswerFirst, Cambridge Tech. Partners, DiamondCluster Int'l, Digita Inc., Digital Insight Corp., Mainspring Inc., MarchFirst Inc., Sapient, VIA NET WORKS, Inc., RealNetworks, Omnibay Corporation, Internet Initiative Japan, InterNAP Network Services, Genuity Inc., EarthLink Inc., Digex, Akamai Technologies, Inc., Aether Systems, Inc., Electronics for Imaging, Getty Images Inc., TIBCO Software, SeeBeyond, SilverStream Software, Network Associates, Marimba, Compuware, BMC Software, GoAmerica, Inc., and Hyperion Solutions.

Morgan Stanley & Co. Incorporated, Dean Witter Reynolds Inc. and/or their affiliates or their employees have or may have a long or short position or holding in the securities, options on securities, or other related investments of issuers mentioned herein.

An employee or director of Morgan Stanley & Co. Incorporated, Dean Witter Reynolds Inc. and/or their affiliates is a director of Equifax Inc., Adaptec, AOL Time Warner Inc., DELL, InterNAP Network Services, Equant SA and Eastman Kodak.

The investments discussed or recommended in this report may not be suitable for all investors. Investors must make their own investment decisions based on their specific investment objectives and financial position and using such independent advisors as they believe necessary. Where an investment is denominated in a currency other than the investor's currency, changes in rates of exchange may have an adverse effect on the value, price of, or income derived from the investment. Past performance is not necessarily a guide to future performance. Income from investments may fluctuate. The price or value of the investments to which this report relates, either directly or indirectly, may fall or rise against the interest of investors.

To our readers in the United Kingdom: This publication has been issued by Morgan Stanley Dean Witter and approved by Morgan Stanley & Co. International Limited, regulated by the Securities and Futures Authority Limited. Morgan Stanley & Co. International Limited and/or its affiliates may be providing or may have provided significant advice or investment services, including investment banking services, for any company mentioned in this report. Private investors should obtain the advice of their Morgan Stanley & Co. International Limited representative about the investments concerned.

This publication is disseminated in Japan by Morgan Stanley Dean Witter Japan Limited and in Singapore by Morgan Stanley Dean Witter Asia (Singapore) Pte.

To our readers in the United States: While Morgan Stanley Dean Witter has prepared this report, Morgan Stanley & Co. Incorporated and Dean Witter Reynolds Inc. are distributing the report in the US and accept responsibility for its contents. Any person receiving this report and wishing to effect transactions in any security discussed herein should do so only with a representative of Morgan Stanley & Co. Incorporated or Dean Witter Reynolds Inc. To our readers in Spain: Morgan Stanley Dean Witter, S.V. SA, a Morgan Stanley Dean Witter group company, supervised by the Spanish Securities Markets Commission (CNMV), hereby states that this document has been written and distributed in accordance with the rules of conduct applicable to financial research as established under Spanish regulations.

To our readers in Australia: This publication has been issued by Morgan Stanley Dean Witter but is being distributed in Australia by Morgan Stanley Dean Witter Australia Limited A.C.N. 003 734 576, a licensed dealer, which accepts responsibility for its contents. Any person receiving this report and wishing to effect transactions in any security discussed in it may wish to do so with an authorized representative of Morgan Stanley Dean Witter Australia Limited.

To our readers in Canada: This publication has been prepared by Morgan Stanley Dean Witter and is being made available in certain provinces of Canada by Morgan Stanley Canada Limited. Morgan Stanley Canada Limited has approved of, and has agreed to take responsibility for, the contents of this information in Canada.

Additional information on recommended securities is available on request.

© Copyright 2001 Morgan Stanley Dean Witter & Co.



The State of Capital Markets and An Update on Technology Trends

Mary Meeker

Presented at
The Industry Standard's *Internet Summit 2001*, Carlsbad, Ca.
July 2001

