

## JULY 2000 USAGE TRENDS: +57.5% YTD

User growth continues into July and Internet usage remains up dramatically from December 1999. According to Media Metrix's July 2000 data, Internet usage increased 1.6% month/month; the Company estimates that 80.1 million unique visitors accessed the Internet in July. Year-to-date, Internet usage is up 15.8% and is up 1.6% using a 6-month rolling average. Moreover, the amount of time spent online per user, (minutes per month) increased 13.3% sequentially from last month's 991.1 minutes and is up 57.5% year-to-date. We believe that these strong longer-term trends indicate that the Internet continues to become a growing part of people's everyday lives.

Media Metrix's Monthly Unique Visitors																
	May-99	Jun-99	Jul-99	Aug-99	Sep-99	Oct-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Jun-00	Jul-00	
Unique Visitors (000s)	65,369	66,021	66,641	66,956	67,136	67,571	68,795	69,197	72,722	74,629	76,795	77,883	78,263	78,854	80,017	
M/M % Change	0.6%	1.0%	0.9%	0.5%	0.3%	0.6%	1.8%	0.6%	5.1%	2.6%	2.9%	1.4%	0.5%	0.8%	1.6%	
6-mo rolling avg	0.8%	0.9%	0.9%	0.8%	0.5%	0.7%	0.9%	0.8%	1.5%	1.8%	2.3%	2.4%	2.2%	2.2%	1.6%	
Source: Media Metrix															Year-To-Date	15.8%

Usage continued to grow in July, suggesting overall seasonality effects continue to be mitigated by growth in new users coming online. Specifically, eUniverse was the top gainer of the month, with 23.6% growth, due to organic growth in its core properties. Viacom Online also continued to benefit from its rollup of the Paramount and CBS web properties in July. There was no significant drop off of any of the top 25 web properties in July. Askjeeves.com remained essentially flat with a 0.6% drop off, along with other eMedia properties who continued to experience slight seasonal effects of the summer months.

### Additional information is available upon request.

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## Media Metrix: Top 20 Properties

Ranked According to Monthly Unique Visitors (000s)

	% Change				% Change		
	Jul-00	M/M	YTD		Jul-00	M/M	YTD
<b>ALL DOMAIN NAMES</b>	<b>80,097</b>	<b>1.6%</b>	<b>15.8%</b>	<b>ALL DOMAIN NAMES</b>	<b>80,097</b>	<b>1.6%</b>	<b>15.8%</b>
1 AOL Websites*	62,545	5.8%	16.3%	11 Amazon*	15,383	2.4%	7.5%
2 Microsoft Sites*	50,298	0.9%	24.2%	12 Real.com Network*	14,723	6.0%	24.1%
3 Yahoo Sites*	49,045	1.3%	15.8%	13 eUniverse Network	13,958	23.6%	NM
4 Lycos*	32,119	2.7%	5.8%	14 Viacom Online*	13,634	16.0%	112.1%
5 Excite Network, The*	27,115	0.0%	-2.0%	15 LookSmart*	13,374	14.8%	42.1%
6 Go Network*	21,848	-0.3%	2.3%	16 eBay*	12,528	2.3%	20.6%
7 About.com Sites*	18,282	11.1%	45.0%	17 Go2Net Network*	12,527	1.0%	11.5%
8 AltaVista Sites*	17,391	11.8%	49.5%	18 eFront Media*	12,417	NM	NM
9 Time Warner Online*	16,365	11.7%	33.8%	19 Ask Jeeves	11,765	-0.6%	122.4%
10 NBC Internet*	15,434	1.0%	3.4%	20 CNET*	10,850	6.2%	12.5%

\* Denotes that web sites are consolidated.

Source: Media Metrix, Monthly Unique Visitors

# U.S. Home Office Forecast and Analysis, 1999–2004

*Analysts: Mary Porter and Raymond Boggs*

*Check us out on the World Wide Web!*  
***<http://www.idc.com>***

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# Home Office Communications: Internet Use, High-Speed Access, Web Sites, Home Networking, and Wireless Phones

## Home Office Internet Access

The Internet is an increasingly important part of a home office operation, enhancing home-based work styles in a variety of ways. The Internet is one of the primary drivers behind the continued growth in work-at-home activity. Home-based businesses and corporate home workers alike can use the Internet to facilitate communications and work more efficiently. The geographic location of the office becomes less relevant because home-based businesses can establish a presence on the Web that belies their small size, and corporate home workers can access the office network just as if they were at their employer's site. The steadily increasing availability of high-speed broadband access to the Internet will facilitate rapid expansion in home office Internet use and home page development.

Home offices using the Internet will continue to increase in number until nearly all those with computers have Internet access. IDC expects that by 2004, 91.6% of PC-equipped home offices will be on the Internet (see Table 16). Spending for Internet access will increase at a CAGR of 7.8% from a total of \$5,243 million in 1999 to \$7,645 million in 2004, as Figure 4 indicates.

**Table 16**  
**U.S. Home Offices with PCs on the Internet, 1999–2004**

	1999	2000	2001	2002	2003	2004	1999–2004 CAGR (%)
Internet penetration (% of WAH PC households)	80.7	83.9	86.4	88.4	90.2	91.6	NA
WAH households on the Internet (M)	21.6	25.2	28.3	31.3	34.4	37.6	11.7

**Key Assumptions:**

- U.S. economic growth rates will not change significantly.
- The number of work-at-home households will continue to increase at a CAGR of 6.2%.

**Messages in the Data:**

- The current level of PC-owning home offices on the Internet is high and growing slowly.
- By 2004, over 90% of PC-owning home offices will use the Internet.
- The current number of PC-owning home offices on the Internet is increasing at a CAGR of 11.7%.

Source: IDC, 2000

**Table 17**  
**U.S. Home Office Internet Access by Technology, 1999–2004 (%)**

	1999	2000	2001	2002	2003	2004
Traditional dial-up	95.0	92.0	86.9	78.7	66.8	55.1
ISDN	0.3	0.5	0.7	1.0	1.4	1.6
DSL	0.9	2.0	4.2	8.7	16.2	23.4
Cable modem	3.4	4.9	7.0	9.4	12.3	14.8
T1/wireless	0.4	0.7	1.2	2.1	3.3	5.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

**Key Assumptions:**

- The cost of broadband technologies will continue to decrease.
- Cable modem and DSL availability will continue to grow throughout the forecast period.

**Messages in the Data:**

- Dial-up, while retaining the number 1 slot, will lose ground to faster methods of Internet access.
- DSL will overtake cable modem.
- Due to premium pricing, ISDN will have a very small share of the market.

Source: IDC, 2000

**Table 18**  
**U.S. Home Office Internet Subscribers by Access Technology, 1999–2004 (000)**

	1999	2000	2001	2002	2003	2004	1999–2004 CAGR (%)
ISDN	65	113	191	317	471	617	56.9
DSL	195	499	1,178	2,730	5,561	8,804	114.3
Cable modem	735	1,242	1,998	2,954	4,250	5,569	49.9
T1/wireless	86	181	347	651	1,146	1,877	85.1
Total	1,081	2,035	3,714	6,651	11,428	16,866	73.2

**Key Assumptions:**

- The cost of broadband technologies will continue to decrease.
- Cable modem and DSL availability will continue to grow throughout the forecast period.

**Messages in the Data:**

- Dial-up, while retaining the number 1 slot, will lose ground to faster methods of Internet access.
- DSL will overtake cable modem.
- Due to premium pricing, ISDN will have a very small share of the market.

Source: IDC, 2000

### **Home-Based Business Web Sites and eCommerce**

By the end of 1999, 21.6% of income-generating home office households, equivalent to 4.1 million home-based businesses, had built a business Web site (see Table 19). That number will more than triple to 13.3 million by the end of 2004. Growth in home business Web sites will be especially rapid during the next two years.

x |



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**October 2000 Internet Usage Stats**

The average activity for a Web user in October 2000, as reported by Nielsen - NetRatings Inc.

Average Internet Use in October 2000				
	At-Home	% Change from September	At-Work	% Change from September
Number of sessions per month	19	5.6	43	10.3
Number of unique sites visited	10	0	31	10.7
Page views per month	720	4.5	1,514	10.0
Page views per surfing session	38	0	35	0
Time spent per month	10:04:05	4.9	23:11:18	10.5
Time spent during surfing session	0:31:53	1.1	0:32:34	1.5
Duration of page view	0:00:50	1.1	0:00:56	1.5
Average click rate for top banners	0.53	20.5	0.27	12.5
Active Internet Universe (actually surfed)	91.1 million	2.3	36.1 million	6.7
Current Internet				

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Retailing  
Small Biz  
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Wireless

internet commerce

Universe (had access, but didn't necessarily go online)	149.6 million	1.3	38.5 million	7.2
Source: Nielsen/NetRatings				



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- Internet News
- Internet Investing
- Internet Technology
- Windows Internet Tech
- Linux Open Source
- Web Developer
- E-commerce Marketing
- ASP Resources
- Wireless Internet
- Downloads
- Internet Resources
- Internet Lists
- International

- Top 25 Properties of October 2000  
(Nielsen/NetRatings)
- Top 50 Sites of October 2000 (PC Data Online)
- Top 50 Digital Media Web Sites and Properties  
(Media Metrix)

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November 21, 2000



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Nielsen/

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**Apparel And Sports Categories Led Internet Traffic Gains In August,  
According To Nielsen//Netratings**

**NEW YORK, NY – September 14, 2000** – The Internet ratings report for the month of August 2000 from Nielsen//NetRatings, the Internet audience measurement service from Nielsen Media Research, ACNielsen eRatings.com and NetRatings, Inc. (Nasdaq: NTRT), shows that seasonal trends pushed apparel and sport sites to the top among various Internet categories for the at home audience, while toys, games and entertainment and travel sites declined.

Apparel sites topped the category list as consumers shopped at online storefronts to buy their back-to-school and fall wardrobes. The apparel category increased almost ten percent from July to August (see Table 1). Traffic patterns to sports sites also enjoyed a healthy gain of almost six percent as football, baseball and golf fans flocked to sports sites to check out up-to-date news and information on their favorite players and teams.

Online travel sites fell as the category declined more than ten percent from July to August. Internet surfers visited travel sites less in August as the summer holiday season began to wind down. The toys, games and entertainment category experienced a nine percent decline in traffic during August.

"Internet activity continues to be robust across all levels, but seasonal trends will affect the rise and fall of certain categories," said Peggy O'Neill, director of Internet Investment Strategies, NetRatings. "As we approach the holiday season, apparel and other e-commerce sites will continue to garner traffic while online travel sites are poised to make strong gains during peak holiday travel season."

**Table 1. Nielsen//NetRatings Category Gains and Losses, July-August 2000**

**(U.S. At-Home Users)**

	<b>Active Reach Change from July to August 2000</b>
<b>Apparel, Accessories, and Shoes</b>	9.76%
<b>Sports</b>	5.93%
<b>Toys, Games, &amp; Entertainment</b>	-9.25%
<b>Travel</b>	-10.05%

Note: This index comprises 10 representative sites for each category and is meant to act as a barometer to gauge the level of interest at these categories during the summer.

Source: Nielsen//NetRatings, August 2000

**August Internet Audience Ratings**

The following set of at-home and at-work information includes: Top 25 Web Properties, Top 25 Internet Advertisers, Top 10 Banner Ads and Average Web Usage statistics for the month of August 2000.

**Nielsen//NetRatings: Top 25 Web Sites by Property  
Month of August 2000**

Ranking of the Most Visited Web Properties

Advertiser*	Reach %	Creative
1. Bonzi Software	32.6	Warning: Your Internet Connection Is Not Optimized. Download InternetBOOST '99 Now!
2. Capital One	31.9	How FAST do you want your credit decision?
3. Class Mates	24.0	Do you know this person? Who could she be?
4. GetSmart	22.5	Find a mortgage. On your terms.
5. Bonzi Software	22.2	Bonzi.com: Your Internet Connection Is Not Optimized. Download InternetBOOST '99 Now!
6. GetSmart	20.0	Low Rate Loans From Competing Lenders. New Home Loans - Refinance - Debt Consolidation - 2 <sup>nd</sup> Mortgage
7. AmeriDebt	20.0	Danger! Bill Problems? We Can Help You Save \$!
8. MSN/WebMD	16.6	Summer is here. So are swimsuits. Get healthy.
9. GetSmart	16.1	Find: A Loan For Me Refinancing - Second Mortgage - Debt Consolidation
10. E Term	15.6	Save 50%-70% on Term Life Insurance

\*Ad banners that run predominantly on an advertiser's own property are not included in the top banner rankings.

**Nielsen // NetRatings: Average Internet Usage At-Home & At-Work**  
Month of August 2000

Data below represent activity for the average Internet user at-home and at-work during the month.

	At-Home, August	% Change from July	At-Work, August	% Change from July
Number of Sessions per Week	180		41	+10.8
Number of Unique Sites Visited	10	0	30	+7.1
Page Views per Week	719	+1.4	1480	+10.7
Page Views per Surfing Session	41	+7.9	36	0
Time Spent per Week	9: 14: 18	-4.6	21: 53: 31	+8.7
Time Spent during Surfing Session	0: 31: 26	-0.3	0: 32: 13	-0.6
Duration of a Page viewed	0: 00: 46	-7.6	0: 00: 54	-0.6
Average Click Rate for Top Banners	0.47	-7.8	0.23	-17.9
Active Internet Universe (actually surfed)	89.4 million	+1.4	32.8 million	+3.4
Current Internet Universe Estimate (had access, but did not necessarily go online)	146.4 million	+1.7	34.8 million	+1.9

**About Nielsen // NetRatings**

Nielsen//NetRatings, the audience measurement service from Nielsen Media Research and NetRatings, Inc., collects real-time data from more than 65,000 panel members in the United States. The U.S. panel sample consists of 57,000 at-home users and 8,000 at-work users. These panels collectively represent the largest representative media research sample of Internet users in the industry. Worldwide, Nielsen//NetRatings services are provided via a partnership with ACNielsen eRatings.com, a venture between ACNielsen (NYSE: ART) and NetRatings, Inc., and measure the Internet experiences of more than 165,000 Internet users.

Nielsen//NetRatings services use unique technology capable of measuring both Internet use and advertising to provide the most timely, accurate and comprehensive Internet usage data and advertising information in the global marketplace. Nielsen//NetRatings services leverage proprietary data-collection technology from NetRatings, Nielsen Media Research's 50 years of expertise in research and audience measurement, and ACNielsen's international leadership in supplying market research information covering more than 100 countries.

*Editor's Note: Please source all data to Nielsen//NetRatings.* -

# # #

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## **WORLDCOM INC/GA//**

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Wholesale and consumer revenues for the three and nine month periods ended September 30, 2000 decreased 3.6% and 0.1%, respectively, over the same periods in the prior year. The wholesale market continues to be extremely price competitive as declines in minute rates outpaced increases in traffic resulting in revenue decreases of 11.5% and 10.4%, respectively, for the three and nine months ended September 30, 2000, versus the same periods in the prior year. The wholesale market decreases were partially offset by increases of 0.3% and 5.3%, respectively, in consumer revenues as the Company's partner marketing programs helped to drive Dial-1 product gains. Consumer revenue growth was impacted by declines in 1-800-COLLECT, which has been pressured by increasing wireless substitution, and 10-10-321, which the Company no longer actively markets. The Company expects to see continued pricing pressure in both the wholesale and consumer businesses, which will affect both revenue growth and gross margins.

Alternative channels and small business revenues for the three and nine months ended September 30, 2000 increased 18.2% and 20.9%, respectively, over the prior year periods. Alternative channels and small business includes sales agents and affiliates, wholesale alternative channels, small business, prepaid calling card and paging revenues. These increases are primarily attributable to internal growth for wholesale alternative channel voice revenues. The Company expects that pricing pressures in the wholesale and small business markets will continue to negatively affect revenue growth in this area and the Company cannot predict whether or not this level of growth can be sustained in the foreseeable future.

Internet-dial revenue growth for the three and nine months ended September 30, 2000 was 4.7% and 14.6%, respectively, over the same periods in the prior year. The Company's dial access network has grown 76% to over 2.5 million modems as of September 30, 2000, compared with the same period in the prior year. Additionally, Internet connect hours increased 49% to 1.6 billion hours for the three months ended September 30, 2000 versus the third quarter of 1999. These network usage increases were offset by pricing pressure on dial-up Internet traffic as a result of contract repricings in 2000.

Other revenues which, prior to April 1999, primarily consisted of the operations of SHL, were zero for the three and nine month periods ended September 30, 2000 and zero and \$523 million, respectively, for the prior year periods. In April 1999, the Company completed the sale of SHL to EDS for \$1.6 billion.

Line costs. Line costs as a percentage of revenues for the third quarter of 2000 were 38.5% as compared to 39.9% reported for the same period of the prior year. On a year-to-date basis, line costs as a percentage of revenues decreased to 38.6% as compared to 41.7% reported for the same period of the prior year. The overall improvements are a result of annual access reform reductions, more data and dedicated Internet traffic over Company-owned facilities, and improved interconnection terms in Europe. These improvements were somewhat offset by 2000 contract repricings in the dial Internet business, continued competitive pricing

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November 6, 2000

Ms. Dorothy Attwood  
Chief, Common Carrier Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Room 5-C450  
Washington, DC 20554

Re: Ex Parte in CC Docket Nos. 96-98 and 99-68

Dear Ms. Attwood:

On October 12, 2000, I filed a table entitled the "Potential Cost of Reciprocal Compensation for Terminating Internet Traffic" as part of an ex parte submission in the aforementioned proceedings. Line 1 of Scenario 2 shown in that table indicates that the competitive local exchange carriers (CLECs) are currently terminating 18 minutes of local telecommunications traffic originated by an incumbent local exchange carrier (ILEC) for every one minute of traffic that the CLECs' customers originate and subsequently terminate on an ILEC network. The 18:1 ratio was developed by Telecordia.

Telecordia calculated the 18:1 ratio based on data depicted in the attached table. These data were collected from BellSouth, Qwest, SBC and Verizon during the 2<sup>nd</sup> and 3<sup>rd</sup> quarter of 2000. The 1999 data reflect billed revenues and minutes for all types of local traffic – voice, wireless and dial up Internet access minutes. The annualized year 2000 estimates are based on billed revenues and minutes for either the 1<sup>st</sup> quarter of 2000 or actual year-to-date 2000 data that were available at the time the information was compiled.

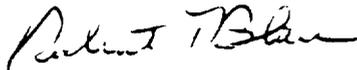
The number of local minutes originated by large ILEC customers and terminated by the CLECs as shown in the attached table differs from the forecasted number of dial up Internet access minutes that are depicted in the table filed on October 12. In part, these differences reflect the fact that minutes used by Telecordia to calculate the aforementioned 18:1 ratio are based on actual traffic for BellSouth, SBC, Qwest and Verizon only. Estimates reflected in the table submitted as part of my Oct. 12 ex parte, on the other hand, are based on forecasts of Internet usage gleaned from the Dean Witter Morgan Stanley report and related data sources that are referenced at the bottom of that table.

Ms. Attwood  
November 6, 2000  
Page 2

These differences notwithstanding, both sets of data amply demonstrate an acute imbalance in the volume of local traffic that the ILECs and CLECs send one another. For the most part, these differences are due to CLEC efforts to collect reciprocal compensation for "terminating" one way dial up Internet access calls. Both tables further indicate that applying current per minute reciprocal compensation rates to dial up Internet access traffic could result in the transfer of \$2 to \$2.5 billion in annual operating revenues from the ILECs to the CLECs -- for reasons that have nothing to do with anything other than the CLECs taking advantage of a completely unreasonable and extremely inefficient regulatory arbitrage which the Commission clearly needs to eliminate.

If you or your staff have any questions about any of the data referenced above, please do not hesitate to call me.

Sincerely,



Robert T. Blau  
Vice President  
Executive and Federal Regulatory Affairs

Attachment

**RECIPROCAL COMPENSATION PAYMENTS  
For BellSouth, Qwest, SBC & Verizon**

ITEM	LARGE ILEC TOTALS		Growth Rate 1999 to 2000
	1999	2000*	
<b>Reciprocal Compensation</b>			
ILEC to CLEC			
Billed Revenues	\$ 2,006,919,868	\$ 2,608,322,072	30.0%
MOUs	250,377,275,872	397,017,031,206	58.6%
CLEC to ILEC			
Billed Revenues	\$ 86,785,786	\$ 117,059,888	34.9%
MOUs	13,884,073,448	21,968,745,093	58.2%

\* Year 2000 revenue data reflect annualized totals.

For companies that reported "Year To Date" (YTD) revenue data, amounts were accordingly multiplied to reflect annualized totals.

Note: For one (1) LEC, MOUs terminated from an ILEC to CLEC were calculated by extrapolating a Revenue/MOU ratio for terminations from a CLEC to an ILEC.



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### INTERNET STRATEGIES

## Percentage of Internet-connected Households Soars to 60% in 2000; In-Stat Report Reveals Results in Buying and Internet Usage Trends

SCOTTSDALE, Ariz. March 28, 2000 - The majority of U.S. households, approximately 60%, will have personal Internet access in the year 2000, predicts Cahners In-Stat Group, a high-tech market research firm. This increase in residential consumers will ultimately spur ISP revenue growth, resulting in an additional \$2.2 billion from dial access subscribers, alone. In-Stat also reports that PC manufacturers will reap the benefits of the residential subscriber increase, as approximately 43% of the 14 million planning to buy Internet access plan to purchase a new PC.

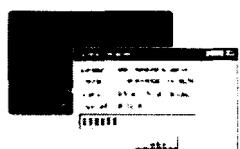
The obstacles to Internet access, price and technology, have fallen, and for the most part, those who want it, have it. According to Kate von Goeler, Industry Analyst for In-Stat's Internet Strategies Group, "the nagging question is, when will the Internet become a must-have technology? For most educated consumers, that time has come. Others will need to be convinced."

In a recent report, In-Stat outlines the results of research conducted with 1500 U.S. consumers on their home Internet usage, access technologies, and ISP preferences. The survey revealed some of the following conclusions:

- The demographic of Internet users is becoming more balanced by gender. By the end of 2000, 49.1% of online consumers will be women.
- Online consumers will still be more highly educated than the population at large. Almost 72% of consumers with a graduate school education are currently online, compared to only 26.7% of those with a high school education or less.
- Despite the increase in households getting connected, 40% of the population remains resistant to the lures of the World Wide Web. "Internet Apathy," (the belief that they neither want, nor need Internet access) is the primary reason that these consumers choose to remain offline.
- Despite the success of AOL, with its \$21.95 a month price point, consumers insist that price matters most when choosing an ISP. Value Added Services do not seem to be a priority, despite the ISP efforts to use them to attract consumers.
- Consumers claim that they spend an enormous amount of time online - an average of 12.2 hours a week.

The report, *Residential ISP Buying Behavior and Internet Usage Trends: A Survey of U.S. Consumers*, (#IS00-01SP), examines consumer buying and usage behavior for Internet access. Broken down by gender, income, age and education, this report identifies plans for obtaining Internet access, ISP selection criteria, how much time is spent online, and how that time is spent.

Cahners In-Stat Group (<http://www.instat.com>) covers the full spectrum of digital communications research from vendor to end-user, providing the analysis and perspective that allows technology vendors and service providers worldwide to make more informed business decisions.



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## **ATTACHMENT C**

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May 24, 2000  
**Disruptive Change: Telecom and Network-Centric Computing**

We have grown increasingly convinced that the telecom industry is on the brink of disruptive change, much like that faced by the computing industry in 1987. If that is the case, we would hope to at least learn from the failure of those who missed the PC revolution. To that end, we have tried to set out some early-stage ideas and forecasts as to the nature and implications of the disruptive change confronting telecom.

*We foresee an economy-wide shift to what we have called in prior reports "network-centric computing" being the catalyst for these changes—driven by new technologies.* In an Annex at the end of this document, we clarify our definition of network-centric computing and why we expect it to have such a profound impact on telecom.

*Network-centric computing should lead to massive demand for telecom services.* We forecast overall industry growth of between 10% and 13% on a facilities basis between 2000 and 2008, vs. GDP growth of 6% (reported revenues including international and resale will be about 2%-4% higher). Other estimates include:

- Local transport volumes increasing at a compound annual growth rate (CAGR) of 90%, with overall revenues growing at 6%
- Long-haul volume growth at a 167% CAGR, with revenue growth at 8% (30% for wholesale only).
- Annual unit price declines of 45% and 60% in local and long haul, respectively.

*We foresee equally massive shifts in demand patterns.* The net effect will be a significant increase in demand for long haul vs. local traffic:

- **Data Overshadows Voice:** Data, which is at least 80% long distance, will overwhelm voice, which is about 80% local.
- **De-Multiplexing:** With increased broadband penetration, we expect tremendous demand for streaming and downloaded content. This will significantly increase the amount of long haul capacity required to support a given number of local customers. Medium-sized and small businesses will also increasingly depend on ASPs (application services providers) and network-centric services. These will require higher quality lines, which cannot be as heavily multiplexed (i.e., fewer signals can be combined for transmission over a single line).

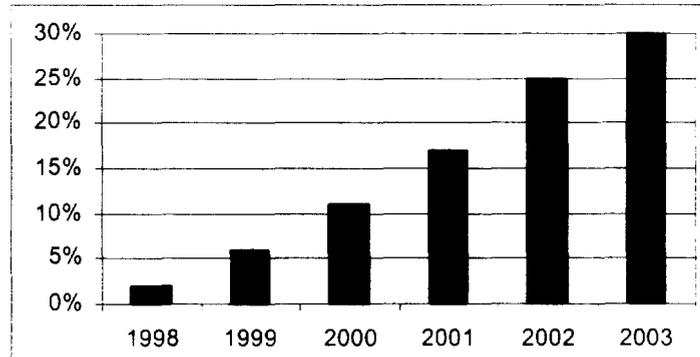
*Even with massive demand, a shakeout in long haul looks likely:* We have made some highly speculative but, we hope, informative estimates about the total built and planned long-haul capacity. *Our conclusion is that theoretical supply far outstrips demand. However,* we do not expect actually oversupply of the market. Rather, we expect to see players gradually fade out/consolidate out of the market, leaving it to a few, highly focused wholesale providers.

*Horizontal segmentation is a necessary element of a network-centric datacom model:* If history is any guide, disruptive market change implies equally disruptive structural change in the industries affected. As we move from telecom to datacom, we expect to see the industry to move towards a more commonplace wholesale/retail structure. We expect further disaggregation as network-centric computing drives a shift away from vertical integration towards a horizontally focused industry model.

that 36% of PC users it surveyed download free music at least once a month and that 17% do so at least once a week. These are surprisingly high numbers, even if one considers college students with high-speed access (free-music Web site Napster led to such strong demand that several colleges—including Yale—blocked access). At the same time, streaming video sites such as Atom Films are beginning to develop a beachhead for Internet-based video.

Streaming demands significantly more bandwidth than static Web pages. For example, Yahoo's home page only requires about 100 kilobits of bandwidth to load, while even a poor-quality video stream soaks up at least 300 kilobits *per second* (TV-quality video runs at more like 1,000-1,500 kilobits per second). Because streaming content pulls down bits continuously over fairly long time periods, the average utilization of a streaming video local access line will be significantly higher relative to the stop-start traffic flows of a Web user's. Higher capacity utilization translates into decreasing opportunities for multiplexing and a higher ratio of long-haul to local lines.

**Exhibit 7: Projected Broadband Penetration of U.S. Households**



Source: International Data Corporation, 2000

Streaming may only be the tip of the iceberg. Currently, consumer Internet usage is tightly clustered into the evening hours, with stop-start traffic patterns based on people randomly calling up individual Web pages (see Exhibit below). Likewise, streaming usage is currently confined largely to times when people are actively seeking it out. *As streaming content become established, how long will it take before people start downloading music/video content during the 18 hours/day when they aren't in front of their home PCs?*

With a high-capacity home caching system (see box at right), consumers can move beyond the on-demand model of today's streaming media. Rather than watching jerky "on-demand" video in a tiny window, people could download hour after hour of high-fidelity video and/or audio overnight. Moreover, if access costs are fixed price and hard drives big enough, the costs of downloading approach zero. At that price, it makes sense to troll for vast quantities of content even if the consumer "throws out" 90% of the night's take. Extrapolating out a few years and it is possible to imagine see certain consumers (e.g., people looking for language or culturally specific content) getting all of their TV and music via overnight download, excluding live

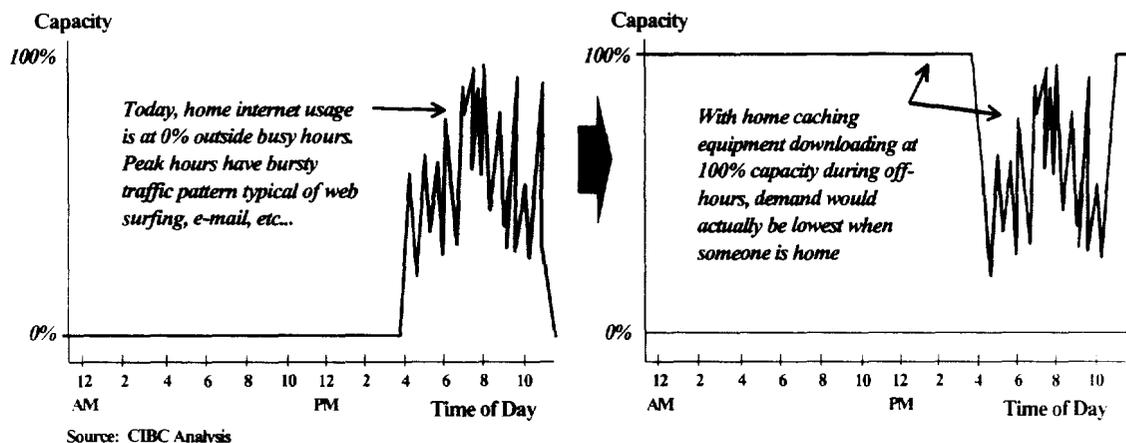
*Digital VCRs such as Phillips' Tivo and ReplayTV are basically home caching appliances, selling at \$300-\$400 (plus \$10 or so a month) with enough capacity to hold 7-14 hours of video. They already offer fairly sophisticated options for tailoring content to personal tastes. In addition, hard disk technology is improving dramatically. A relatively huge 10 gigabyte drive costs about as much as a 5 GB drive did a year ago, while Fujitsu announced it has built 78 gigabyte hard drives to ship in 2001.*

news and sports. This is no pipe dream. With storage and compression technology doubling in price/performance every 12-18 months, it will soon be both cheap and easy to download and store literally hundreds of hours of video and audio at home.

As the diagram below indicates, the result could be a range of automated caching devices designed to download at 100% of available capacity whenever a connection goes idle. In such a situation, network usage would actually *drop* when someone went on-line. If such devices end up in the majority of homes, local line utilization could reach 90%-100%. In that case, there would be almost no local long-haul multiplexing at all. *We estimate this would imply a 210% CAGR in long-haul volume between 200 and 2008 (vs. our estimated 167%).* While this scenario is admittedly extreme, we find it to be entirely plausible.

**Exhibit 7.**

***Consumer "Always-On" Access = Automated Downloading = Massive Traffic Increase***



**LD Growth ⇒ Unforeseen Demand As Prices Decline**

Most important, we would stress the potential for wholly new applications to emerge as bandwidth, processing, and storage prices drop. Some more visionary ideas include:

- using the network itself as a storage device (by running data in a large, continuous ring).
- using bandwidth as a substitute for switching (“broadcasting” all data everywhere and relying on “network edge” devices to identify and pull down the signal destined for them).
- massive multi-player games involving full-motion video and millions of players.

Of course, because the above are actually imaginable, they are probably not even close to approximating the potential for yet-undreamed applications to drive massive demand for traffic in the network core. Misappropriating Socrates, all we can know today is that we have no idea what is coming tomorrow.

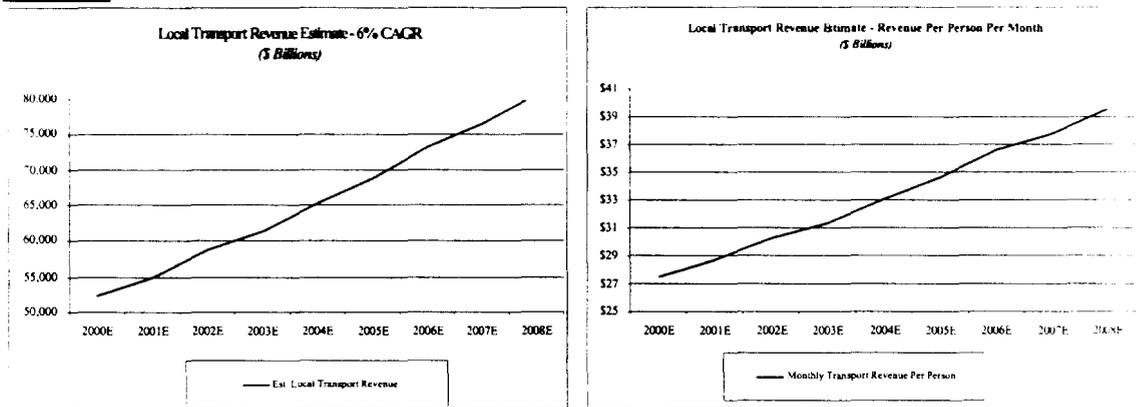
**Strong Local Growth**

Taking the above into consideration, we present our demand forecasts below. We believe these local estimates are, if anything, conservative. We modeled local VGE growth to yield a blended 10 megabits per second per U.S. inhabitant by 2008. Note that is for home, work, and wireless-related local connectivity. This forecast seems quite conservative given that today’s LAN speeds are already 100

Mbps and that new services such as HDTV require at least 18-20 Mbps (although compression is also improving).

Based on these assumptions, we estimated local volume demand will show a compound annual growth rate of 90%, going from 1.9 VGEs<sup>1</sup> per access line in 2000 to 255 VGEs per access line in 2008. However, we believe that local transport revenues will only grow at a CAGR of 6% over the next few years - in line with GDP. We note that year to year revenues and prices will likely fluctuate more than we have modeled. Difficulties in provisioning lines and the persistence of "legacy" services such as T-1 will be working to maintain price levels, while voice over IP and simpler forms of local transport such as metro-area gigabit/terabit Ethernet will be working to reduce them. For simplicity's sake, we modeled pure transport revenues to retain essentially the same share of GDP and, hopefully, disposable income. Note that transport revenues per person remain within a fairly tight band, which seems economically reasonable.

**Exhibit 8.**



<sup>1</sup> VGE—Voice Grade Equivalent. A 64 kilobit/sec line representing a single "phone line." VGE growth is a way to measure demand for higher capacity lines (which offer multiple VGEs "per line"). There are 24 VGE's in a T-1, 672 in a DS-3, 2,016 in an OC-3, and 32,256 in an OC-48.

# WorldCom, Inc. (WCOM)#

**WCOM: 3Q Impacted by Negative Trends But Mix Still Superior to Peer Group**

**1M** (Buy, Medium Risk)  
Mkt Cap: \$73,780.5 mil.

United States

October 26, 2000

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**SUMMARY**

- ▶ WCOM reported 3Q eps of \$0.47 (cash eps of \$0.57) both \$0.01 above our est. rev growth of 10.7% (old way-see text) below our 11.9% est and 11-12% str range. Reclass. of certain items put rev growth at 11.7%
- ▶ Data/IP/Int'l 94% of incr. comm'l rev growth and over 100% of total incr rev growth. WCOM's superior mix of assets leads to rev mix which allows double-digit topline growth even in tough ind environment (comm'l rev growth was 18.7%)
- ▶ Nov 1 analyst mtg likely to detail focused strategy on serving corp enterprises with global on-net data/IP svcs where WCOM is in best pos to be a dominant player. Also, details of restr will materialize and company guidance on eps and rev will be set as floor off which results accelerate
- ▶ Stock dirt cheap Once new guid set and restr details known we believe shares begin long phase of material outperformance **Reit Buy**

**FUNDAMENTALS**

P/E (12/00E).....	11.3x
P/E (12/01E).....	10.5x
TEV/EBITDA (12/00E).....	6.6x
TEV/EBITDA (12/01E).....	5.7x
Book Value/Share (12/00E).....	\$18.55
Price/Book Value.....	1.4x
Dividend/Yield (12/00E)...	\$0.00/0.0%
Revenue (12/00E).....	\$41,283.0 mil.
Proj. Long-Term EPS Growth .....	20%
ROE (12/00E).....	10.0%
Long-Term Debt to Capital(a).....	25.7%
WCOM is in the S&P 500® Index.	

(a) Data as of most recent quarter

**SHARE DATA**

Price (10/26/00) .....	\$25.25
52-Week Range.....	\$60.96-\$21.81
Shares Outstanding(a) .....	2,922.0 mil.
Convertible .....	No

**RECOMMENDATION**

<b>Current Rating</b> .....	<b>1M</b>
Prior Rating.....	1M
<b>Current Target Price</b> .....	<b>\$87.00</b>
Previous Target Price.....	\$87.00

**EARNINGS PER SHARE**

FY ends		1Q	2Q	3Q	4Q	Full Year
12/99A	Actual	\$0.24A	\$0.30A	\$0.37A	\$0.42A	\$1.33A
12/00E	Current	\$0.54A	\$0.56A	\$0.57A	\$0.57E	\$2.24E
	Previous	\$0.54A	\$0.56A	\$0.56E	\$0.58E	\$2.24E
12/01E	Current	NA	NA	NA	NA	\$2.40E
	Previous	NA	NA	NA	NA	\$2.40E
12/02E	Current	NA	NA	NA	NA	NA
	Previous	NA	NA	NA	NA	NA

First Call Consensus EPS: 12/00E \$1.86; 12/01E \$2.20; 12/02E \$2.71

**OPINION**

Before talking about the results, we would like to summarize our current viewpoint about WCOM. We believe WCOM is aggressively focusing the company to achieve growth profitability. The heritage of WCOM is as a business service company and over the years with Wiltel, MFS/UUNET, and MCI. WCOM obtained key assets and scale to serve a full range of business customers on a global basis with a full suite of data/IP services. We are at a point where we believe WCOM's strategic focus has never been clearer. Namely, WCOM will optimize its asset base by becoming the preeminent provider of telecom services to corporate enterprises on a global basis. This entails investing in growth areas such as hosting, VPNs and managed services in order to leverage the world's largest commercial-facing network footprint. WCOM will build its company based on digital initiatives in an e-commerce world utilizing WCOM's array of global IP/fiber network assets. We think the period of distraction has passed. No more wireless thoughts, which are irrelevant to a business-centric, data/IP network-based carrier such as WCOM. The focus is on growing

data/IP services to corporate enterprise users on a global basis. WCOM spends \$9 billion per year on capex (year to date spending is \$7.8 billion, so \$9 billion is likely to be exceeded, which is why 2001 spending could be lower than 2000 as spending on subsea, hosting and softswitches will all occur in this year). Virtually all targeted to building network assets to support provisioning of data/IP services to corporate users in the U.S. and on an international basis. We strongly believe this marks an inflection point where WCOM becomes the WCOM of old -- focused, growing, highly profitable and a great stock.

WCOM reported 3Q results that came in below our expectations in revenues but were a penny ahead of our earnings expectations. It is important to note that WCOM is changing the way it is classifying certain revenue categories and putting them as a contra to cost. This reclassification is a change in presentation that not only adheres to GAAP accounting but more formally comports to GAAP accounting. Specifically, revenue streams such as reciprocal compensation and the PICC charges that WCOM collects with no cost associated to these charges, are being taken out of gross revenues and used as a contra to line costs. This is similar in how AT&T and Sprint reflect growth rates in revenues by taking out PICC charges. In addition, there is a small amount of equipment sales that WCOM included in its revenue streams. These equipment sales relate to selling to Bells equipment, to place in Bells' COs such that WCOM carries traffic on. These items, according to GAAP, are better reflected as contra to cost of goods. This is similar to the 3Q98 change in presentation for international revenues where WCOM's self-correspondence caused them to reflect settlement charges as a net contra to costs as opposed to being carried in revenues. The reclassification of PICC increased the reported revenue growth rate, but reciprocal compensation did not since it was flat year over year and the reclassification of equipment sales actually hurt the revenue growth rate in the new format vs. the old.

The specifics of the revenue breakdown between the new and old presentation including a display of recip comp, PICC and equipment sales are included Table 1-3 below. But the punchline is that on a going-forward basis, WCOM's revenue presentation will comport more closely with GAAP definitions of revenues, i.e. billed revenue where there is a cost associated with it as opposed to billed revenue, which is essentially a pass through with not costs associated with it or revenue that simply reflects the cost associated with a piece of equipment. It is important to note that these reclassifications do not impact EBITDA, EBIT, or net income, hence EPS is unaffected.

**New Way: Revenue Presentation - Business Versus Wholesale & Consumer**

(in \$millions)

The New Way excludes revenue streams in Table 2

**Table 1**

	1Q99	2Q99	3Q99	4Q99	1Q00	2Q00	3Q00	Growth Percentages		
								1Q99	2Q99	3Q99
								vs.	vs.	vs.
Voice	\$2,564	\$2,545	\$2,517	\$2,552	\$2,591	\$2,627	\$2,587	1.1%	3.2%	2.8%
Data	1,382	1,455	1,603	1,652	1,791	1,897	1,966	29.6%	30.4%	22.6%
International	1,022	1,075	1,107	1,192	1,346	1,423	1,570	31.7%	32.4%	41.8%
Internet	309	357	424	492	545	605	640	76.4%	69.5%	50.9%
Internet - dial	320	364	385	428	417	405	403	30.3%	11.3%	4.7%
Commercial Services	5,597	5,796	6,036	6,316	6,690	6,957	7,166	19.5%	20.0%	18.7%
Wholesale and consumer	2,817	2,857	2,970	3,006	2,929	2,860	2,881	4.0%	0.1%	-3.0%
Communications services	8,414	8,653	9,006	9,322	9,619	9,817	10,047	14.3%	13.5%	11.6%
Other	403	120	-10	0	0	0	0	NA	NA	NA
<b>Total</b>	<b>\$8,817</b>	<b>\$8,773</b>	<b>\$8,996</b>	<b>\$9,322</b>	<b>\$9,619</b>	<b>\$9,817</b>	<b>\$10,047</b>	<b>9.1%</b>	<b>11.9%</b>	<b>11.7%</b>

Table 2

	1Q99	2Q99	3Q99	4Q99	1Q00	2Q00	3Q00
Reciprocal compensation							
Voice	\$67	\$69	\$82	\$68	\$96	\$90	\$78
Internet - dial	64	64	66	66	88	74	71
International	21	32	21	35	19	23	21
	\$152	\$165	\$169	\$169	\$203	\$187	\$170
PICC							
Consumer PICC	50	45	61	67	67	66	0
Small business PICC	38	31	33	36	35	35	31
	\$88	\$76	\$94	\$103	\$102	\$101	\$31
Cobra Equipment sales	\$65	\$51	\$49	\$31	\$54	\$88	\$55

Source: SSB &amp; Company Reports

Table 3

**Old Way: Revenue Presentation - Business Versus Wholesale and Consumer**

(The Old Way includes revenue streams in Table 2)

	1Q99	2Q99	3Q99	4Q99	1Q00	2Q00	3Q00	Growth Percentages		
								1Q00 vs. 1Q99	2Q00 vs. 2Q99	3Q00 vs. 3Q99
Voice	\$2,669	\$2,645	\$2,632	\$2,656	\$2,722	\$2,752	\$2,696	2.0%	4.0%	2.4%
Data	1,382	1,455	1,603	1,652	1,791	1,897	1,966	29.6%	30.4%	22.6%
International	1,043	1,107	1,128	1,227	1,365	1,446	1,591	30.9%	30.6%	41.0%
Internet	374	408	473	523	599	693	695	60.2%	69.9%	46.9%
Internet - dial	384	428	451	494	505	479	474	31.5%	11.9%	5.1%
Commercial Services	5,852	6,043	6,287	6,552	6,982	7,267	7,422	19.3%	20.3%	18.1%
Wholesale and consumer	2,867	2,902	3,031	3,073	2,996	2,926	2,881	4.5%	0.8%	-4.9%
Communications services	8,719	8,945	9,318	9,625	9,978	10,193	10,303	14.4%	14.0%	10.6%
Other	403	120	-10	0	0	0	0	NA	NA	NA
Total	\$9,122	\$9,065	\$9,308	\$9,625	\$9,978	\$10,193	\$10,303	9.4%	12.4%	10.7%

Source: SSB &amp; Company Reports

**DISCUSSION OF 3Q RESULTS**

Turning to the results, putting aside one-time charges, WCOM reported earnings from operations of \$0.47 per share, \$0.01 above our \$0.46 per share estimate and 27% above a year ago's \$0.37 per share. Cash EPS was \$0.57 per share, a 21% gain over a year ago.

Revenues were disappointing coming at 10.7% 'old-way' reported number vs. our estimate of 11.9% (we were at the high end of guidance range of 11% to 12%) as WCOM remains impacted by downward trends in voice, wholesale, certain aspects of data (such as private line) as well as dial-up Internet, which continues to see dramatic pricing declines especially on dial-up ports. Relative to our model, WCOM fell short on IP (both dedicated and dial-up) and to a lesser degree on data but outperformed in international. Of course, in 1Q and 2Q, WCOM exceeded our data and dedicated IP estimates but fell short on international. The point is that you don't run a company via a spreadsheet and one has to look at business trends over a cumulative period of time.