

The Latin America Internet Report

MORGAN STANLEY DEAN WITTER

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Internet in Latin America

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In Leaps and Bounds!

Usage is ramping in Latin America — with a likely end-game different than in Europe and the US

- Latin Internet will develop in simultaneous, rather than sequential stages
- We forecast revenues in three markets: Internet Commerce, Internet Advertising, and Internet Infrastructure
- We look at 48 companies, both established players and “pure plays”

Content

Access

data services

e-commerce

February 2000

The Latin America Internet Report

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- **In this report, we look at the evolution of the Internet in Latin America and model three segments of the Latin Internet market: Internet Commerce, Internet Advertising, and Internet Infrastructure Services.** We also provide one-page company profiles of 48 listed and privately held companies.
- **We expect Latin America will go through the five stages of Internet development we saw in the US in a compressed timeframe.** However, we believe that due to early mobilization, Latin brick-and-mortar companies stand less of a chance of being “Amazoned”.
- We see a major battle for Latin users and Internet Commerce dollars between global and local players.
- **We see six key issues for investors to focus on in the coming months:** approaches to company ownership, regulation, infrastructure development, Latin approaches to the Internet, global players in a regional arena, and the “right” Latin Internet model.

This report can be downloaded from www.msdw.com. You can also find other Internet-related research reports published by MSDW on our Web site.

Contents

Key Points	1
Introduction	5
A US View on the Latin American Internet	6
Summary and Investment Conclusions	8
Strategy: El Dorado Online	18
Chapter Summaries	19
Overview:	
Latin Internet: Magnet for Established Money	25
How Many Latin Internet Users?	29
Internet:	
E-Commerce: Look to B2B	48
Business-to-Consumer (B2C)	55
Business-to-Business (B2B)	60
Advertising: Yet to Ramp	70
Internet Infrastructure Services: Data Services and Access:	
Introduction: The Picks and Shovels of the Internet	76
Data Services: Where Does All Internet Traffic Go Through?	78
Accessing the Internet Access Market in Latin America	87
Company Profiles	110
Appendixes:	
Country Models	195
Glossary of Terms and Technologies	207
Companies Mentioned in This Report	219
Major Internet Reports Published	220

Contents (continued)

Exhibit 1

Latin Internet Company One-Page Profiles (sorted Alphabetically)

Company	Description	Company	Description
Alestra	<i>Internet Infrastructure Services</i>	Patagon	<i>Internet Financial Services</i>
Amazon.com	<i>Internet Commerce</i>	Prodigy	<i>Internet Infrastructure Services</i>
America Online Latam	<i>Internet Portal</i>	PSINet	<i>Internet Infrastructure Services</i>
AT&T LA-Firstcom	<i>Internet Infrastructure Services</i>	quepasa.com	<i>Internet Portal</i>
Avantel	<i>Internet Infrastructure Services</i>	Sanborns	<i>Internet Commerce</i>
Banacci	<i>Internet Financial Services</i>	El Sitio	<i>Internet Portal</i>
CANTV	<i>Internet Infrastructure Services</i>	Soriana	<i>Internet Commerce</i>
CBD	<i>Internet Commerce</i>	StarMedia	<i>Internet Portal</i>
CIE	<i>Internet Vertical Portal</i>		<i>Internet Infrastructure Services</i>
	- Entertainment	Submarino.com	<i>Internet Commerce</i>
Cifra	<i>Internet Commerce</i>	Tele Centro Sul	<i>Internet Infrastructure Services</i>
Ciudad Internet	<i>Internet Portal</i>	Tele Norte Leste Part.	<i>Internet Infrastructure Services</i>
Compranet	<i>Internet Vertical Portal</i>	Telecom Argentina	<i>Internet Infrastructure Services</i>
	- Procurement	Telefonica de Argentina	<i>Internet Infrastructure Services</i>
Copel	<i>Internet Infrastructure Services</i>	Telemig Celular Part.	<i>Internet Infrastructure Services</i>
CTC	<i>Internet Infrastructure Services</i>	Telesp Par.	<i>Internet Infrastructure Services</i>
Disco	<i>Internet Commerce</i>	Televisa	<i>Internet Portal</i>
eHOLA	<i>Internet Portal</i>	Telmex	<i>Internet Infrastructure Services</i>
Elektra	<i>Internet Commerce</i>	Terra Networks	<i>Internet Portal</i>
Embratel	<i>Internet Infrastructure Services</i>		<i>Internet Infrastructure Services</i>
Fiera.com	<i>Internet Commerce</i>	Todito.com	<i>Internet Portal</i>
Globex	<i>Internet Commerce</i>		<i>Internet Infrastructure Services</i>
Globo Cabo	<i>Internet Infrastructure Services</i>	UOL	<i>Internet Portal</i>
IFX Corp	<i>Internet Infrastructure Services</i>		<i>Internet Infrastructure Services</i>
Liverpool	<i>Internet Commerce</i>	Yahoo! Latam	<i>Internet Portal</i>
Marti	<i>Internet Commerce</i>	Yupi.com	<i>Internet Portal</i>
MetroRED	<i>Internet Infrastructure Services</i>	Zona Financiera	<i>Internet Financial Services</i>

Contents (continued)

Exhibit 2

Latin Internet Company One-Page Profiles (sorted by Description)

Company	Description	Company	Description
AT&T LA-Firstcom	<i>Internet Infrastructure Services</i>	Marti	<i>Internet Commerce</i>
Globo Cabo	<i>Internet Infrastructure Services</i>	Sanborns	<i>Internet Commerce</i>
Copel	<i>Internet Infrastructure Services</i>	Soriana	<i>Internet Commerce</i>
CTC	<i>Internet Infrastructure Services</i>	Submarino.com	<i>Internet Commerce</i>
Embratel	<i>Internet Infrastructure Services</i>	IFX Corp	<i>Internet Infrastructure Services</i>
ImpSat	<i>Internet Infrastructure Services</i>	Prodigy	<i>Internet Infrastructure Services</i>
MetroRED	<i>Internet Infrastructure Services</i>	Telemig Celular Part.	<i>Internet Infrastructure Services</i>
Tele Centro Sul	<i>Internet Infrastructure Services</i>	America Online Latam	<i>Internet Portal</i>
Tele Norte Leste Part.	<i>Internet Infrastructure Services</i>	Ciudad Internet	<i>Internet Portal</i>
Telefonica de Argentina	<i>Internet Infrastructure Services</i>	eHOLA	<i>Internet Portal</i>
Telefonica del Peru	<i>Internet Infrastructure Services</i>	quepasa.com	<i>Internet Portal</i>
Telesp Par.	<i>Internet Infrastructure Services</i>	El Sitio	<i>Internet Portal</i>
Alestra	<i>Internet Infrastructure Services</i>		<i>Internet Infrastructure Services</i>
Avantel	<i>Internet Infrastructure Services</i>	StarMedia	<i>Internet Portal</i>
CANTV	<i>Internet Infrastructure Services</i>	Televisa	<i>Internet Portal</i>
PSINet	<i>Internet Infrastructure Services</i>	Terra Networks	<i>Internet Portal</i>
Telecom	<i>Internet Infrastructure Services</i>	Todito.com	<i>Internet Portal</i>
Telmex	<i>Internet Infrastructure Services</i>	UOL	<i>Internet Portal</i>
Amazon.com	<i>Internet Commerce</i>		<i>Internet Infrastructure Services</i>
CBD	<i>Internet Commerce</i>	Yahoo! Latam	<i>Internet Portal</i>
Cifra	<i>Internet Commerce</i>	Yupi.com	<i>Internet Portal</i>
Disco	<i>Internet Commerce</i>	CIE	<i>Internet Vertical Portal</i>
Elektra	<i>Internet Commerce</i>		<i>- Entertainment</i>
Fiera.com	<i>Internet Commerce</i>	Banacci	<i>Internet Financial Services/</i>
Globex	<i>Internet Commerce</i>		<i>Internet Commerce</i>
Liverpool	<i>Internet Commerce</i>	Patagon	<i>Internet Financial Service</i>
		Zona Financiera	<i>Internet Financial Service</i>
		Compranet	<i>Internet Vertical Portal</i>
			<i>- Procurement</i>

Source: Morgan Stanley Dean Witter Research

Tele C. Sul

www.telecentrosul.com.br

Internet Infrastructure Services

Ticker: TCS	Mkt Cap: \$5,151MM
L.Carvalho - Outperform	Price (2/15/00): \$77
52-wk H-L: \$98-\$35	Shrs. Out (MM): 66.9

Internet Business Description

Tele Centro Sul, controlled by a consortium led by Telecom Italia, is the main provider of data, access, and other telecommunications services in the Southern Central regions of Brazil. Brasilia and Curitiba are the two most attractive cities in its concession area. Per capita GDP in Tele Centro Sul's market is \$5,044 (slightly higher than the Brazilian average). Tele Centro Sul offers a full range of data services which will allow the company to offer more Internet infrastructure and data services to its regional ISPs and corporate users.

The company is about to introduce a high-speed Internet access product based on digital subscriber line (DSL) technology. DSL technology allows users to connect to the Internet at high speeds. Although this product is still in preliminary testing and rollout, its potential appears to be large. It can be used by local ISPs and offered to Internet users as a high-speed access option. It should help Tele Centro Sul increase its exposure (which has been small so far) to the rapidly growing segment of Internet access and data services for corporate and high-end consumers.

Internet Strategy Assessment

Focus on data and access services, but slow in coming.

Tele Centro Sul is still in the process of completing its new fiber-optic network. As a consequence, it has experienced

www.telecentrosul.com.br



the slowest growth in data revenues of any Latin American wireline operator. The company should be able to make up for lost time as its network comes on line. Demand for Internet access is high in the region, as well as concentrated. The concentration of heavy users in the major cities of its concession should allow Tele Centro Sul to garner customers with relatively small additional expenditures and in large numbers.

Key advantages: presence and size. Tele Centro Sul has a strong presence in the region, where it maintains business relationships with all clients. In addition, the company has the capacity to allocate more resources than any of its main competitors to client relations, due to its healthy financial condition and larger size.

Competition should intensify. Tele Centro Sul should face a much more difficult environment, especially given its relatively slow start. Embratel has built an extensive network and continues to increase its points of presence throughout Brazil. Metrored, Impsat, Diginet, and AT&T Latin America are just a few of the players also vying for customers in the very attractive data/Internet services market. Customer service and the right product offerings will be critical success factors, in our view.

Key Metrics

Network size: 8,600 km fiber optic IP/ATM

Number of near-term DSL subscribers, 2000E: 10,000

Number of medium-term DSL subscribers: 60,000

Lines in service: 4.7 million

Main competitors: Embratel, Metrored, AT&T Latin America, Impsat

Data revenues as % of total: 6.5%

Tele Centro Sul: Income Statement

<i>Brazilian Reais (Thousands)</i>	1999	2000E	2001E	2002E
Long Distance	596	686	743	797
Local	1,903	2,402	2,968	3,510
Data Transmission	266	331	452	585
Network Services	1,166	1,528	1,936	2,307
Other	124	154	190	224
Gross Revenues	4,055	5,101	6,289	7,423
Deductions (ICMS, PASEP, COFINS, other)	996	1,250	1,541	1,819
Net Revenues	3,059	3,852	4,748	5,604
% change	17.4%	25.9%	23.3%	18.0%
Depreciation	1,251	1,309	1,400	1,481
Personnel	391	422	470	523
General and Administrative	72	93	115	135
Third parties, rentals and others	865	1,145	1,485	1,777
Other Op. Expense (income)	237	154	178	210
Total	2,816	3,123	3,648	4,126
Operating Income	243	729	1,100	1,478
% margin	7.9%	18.9%	23.2%	26.4%
EBITDA	1,494	2,038	2,500	2,959
% margin	48.8%	52.9%	52.6%	52.8%
Financial Income	177	128	98	103
Financial Expenses	59	117	185	206
Other Non-Operating Expenses	43	51	63	74
Employee Profit Sharing	16	35	49	67
Income Before Taxes	301	654	901	1,235
Income Tax and Social Contribution	48	137	189	259
Minority Interest	36	77	106	146
% of IBT	11.8%	11.8%	11.8%	11.8%
Net Income	218	439	606	830
% margin	7.1%	11.4%	12.8%	14.8%
Number of Shs. Outstanding (Millions)	334.4	334.4	334.4	334.4
EPS (US\$ per ADR)	1.72	3.55	4.72	6.31
% Growth	-59.6%	106.9%	32.9%	33.8%

E = Morgan Stanley Dean Witter Research Estimates

Telecom Argentina www.telecom.com.ar

Internet Infrastructure Services

Ticker: TEO	Mkt Cap: \$7,913MM
L. Carvalho - Outperform	Price (2/4/00): \$40.25
52-wk H-L: \$40.2-\$24.1	FD Shrs. Out (MM): 196.9

Internet Business Description

Telecom Argentina is the second largest telecommunications provider in Argentina. It offers a full array of services from traditional long distance and local service calls to data and Internet related services. Telecom has a traditional dial-up Internet service provider (ISP) business, as well as innovative new offerings such as an International Virtual Private Network service for business clients.

Internet Strategy Assessment

Offering a comprehensive array of services. The company can provide Internet, data and voice services to business and residential clients. It has an extensive national network and can take advantage of its nearly ubiquitous presence and act as a one-stop shopping location. Telecom also benefits from its exposure to Buenos Aires.

Competition should be intense. Competition for Internet users will be intense throughout Latin America. Argentina, given its high literacy rate and relatively high per capita GDP, should attract multiple players. We expect to see competition in both Internet and data services, leading to price reductions.

www.telecom.ar



RADAr launch. Telecom now has an Internet access product under the brand name RADAr. The importance of this service is that it offers unlimited Internet access at an attractive rate of \$9.99 per month. This should help Telecom, through Telecom Soluciones, continue to garner new subscribers.

Telecom stands to gain. Telecom has a material advantage over new entrants in that it owns the network and thus already enjoys a wide reach. We believe that as content providers enter the market, Internet traffic will increase dramatically. Telecom's exposure to Internet dial-up traffic is already significant, exceeding 2 billion minutes in fiscal 1999.

Data business should make important contribution. Data services represent only about 4.3% of Telecom's total revenues as of fiscal year end 1999. However, as the demand for these services increases, especially among business clients, Telecom should be able to leverage its existing relationships and expand this high-margin business. We expect the data business to grow steadily in importance and as a percentage of total revenues.

Key Metrics

Lines in service, year-end 1999: 3.4 million

Internet accounts (dial-up): 80,092

Internet traffic minutes, F1999: 2.04 billion

Network digitalization: 100%

% of revenues from Internet/data services, F1999: 4.3%

% of revenues from Internet/data services, F2002E: 13.3%

Telecom Argentina: Income Statement

<i>US\$ (Millions)</i>	1999A	2000E	2001E	2002E
Measured Service	1,068.0	1,052.6	1,114.3	1,196.9
Monthly Basic Charge	556.0	539.7	569.7	601.4
Supplementary serv.	144.0	148.0	161.5	174.9
Installation Charges	47.0	45.4	44.8	44.4
Public Phones	177.0	195.1	204.0	213.3
Cellular Usage of the Fixed Network	39.0	37.4	40.3	41.0
Access Charges	38.0	38.6	44.7	51.0
Lease of Lines and Circuits	19.0	19.3	20.6	21.9
Other Revenues	74.0	67.6	72.2	76.5
International Telephony	214.0	142.9	127.7	124.9
Cellular	745.0	849.4	936.8	975.7
Data transmission (Startel)	99.0	123.9	147.8	174.9
Publicom	60.0	61.1	62.2	63.4
Turnover Tax	-97.0	-103.0	-110.0	-116.6
Total Revenue	3,183.0	3,217.9	3,436.7	3,643.5
Salaries and Social Sec. Contrib.	499.0	518.1	554.7	582.7
Depreciation + Amortization	763.0	839.8	925.8	1,000.5
Materials and Supplies	153.0	157.7	168.4	178.5
Allowance for Doubtful Acc.	215.0	160.9	154.7	160.3
Service and Mngt. Fees	217.0	202.7	216.5	229.5
Marketing Costs	104.0	122.3	134.0	145.7
Access Charges	28.0	25.7	24.1	21.9
Other Operating Expenses	458.0	450.5	481.1	510.1
Total Operating Expenses	2,437.0	2,477.8	2,659.3	2,829.3
% Change	3.4%	1.7%	7.3%	6.4%
Operating profit	746.0	740.1	777.4	814.2
Operating Margin	23.4%	23.0%	22.6%	22.3%
EBITDA	1,509.0	1,579.9	1,703.2	1,814.8
EBITDA Margin	47.4%	49.1%	49.6%	49.8%
Other Income (Expenses)	-58.0	3.1	0.0	0.0
Integral Cost of Financing	-186.0	-232.1	-247.0	-262.2
On assets	77.0	80.8	75.0	69.6
On liabilities	-263.0	-312.9	-322.0	-331.7
Income Before Tax	502.0	511.1	530.4	552.1
Pretax Margin	15.8%	15.9%	15.4%	15.2%
Income Tax	147.0	178.9	185.7	193.2
Effective Rate	29.3%	35.0%	35.0%	35.0%
Subtotal	355.0	332.2	344.8	358.8
Minority interest	3.0	0.0	0.0	0.0
Reported Net Income	358.0	332.2	344.8	358.8
Net Margin	11.2%	10.3%	10.0%	9.8%
Number of Shares Outstanding (Millions)	984.4	984.4	984.4	984.4
EPS	1.82	1.69	1.75	1.82
% Change	-4.3%	-7.2%	3.8%	4.1%

E = Morgan Stanley Dean Witter Research Estimates

Tel. de Argentina www.Telefonica.com.ar

Internet Infrastructure Services

Ticker: TAR	Mkt Cap: \$9,863MM
L.Carvalho - ++	Price (2/15/00): \$45.9
52-wk H-L: \$45.9-\$24.0	FD Shrs. Out (MM): 214.9

Estimates for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley Dean Witter policy, Morgan Stanley Dean Witter may be precluded from issuing such information with respect to this company at this time.

Morgan Stanley Dean Witter is currently acting as financial advisor to Telefónica SA, ("Telefónica") in its announced proposed share exchange offer ("The Exchange Offer") for 100% of Telesp Participacoes SA, TeleSudeste Celular Participacoes SA, Telefónica de Argentina SA and Telefónica de Peru SA.

Morgan Stanley Dean Witter is acting as Dealer-Manager for the Exchange Offer in the United States and Brazil.

This report and the information provided herein is not intended to (i) provide voting advice, (ii) serve as an endorsement of the proposed transaction, or (iii) result in the procurement, withholding or revocation of a tender of shares or any other action by a security holder.

Telefónica has agreed to pay fees to Morgan Stanley Dean Witter for its financial services, including transaction fees which are contingent upon the consummation of the proposed transaction.

This report was prepared solely upon information generally available to the public. No representation is made that it is accurate or complete. This report is not a recommendation or an offer to buy or sell the securities mentioned. Please refer to the notes at the end of the report.

**Internet Business Description**

Telefónica de Argentina is the larger of the two incumbent telecommunications companies in Argentina. Telefónica offers a full array of services, from traditional long distance and local service to data and Internet-related services. Telefónica also has an extensive fiber optic network throughout the country, allowing it to offer high-speed data transmission services.

Internet Strategy Assessment

Telefónica offers a comprehensive portfolio of services. Telefónica currently has the ability to offer clients a complete array of services. It can provide Internet, data, and voice services to business and residential clients.

Competition should be intense. Competition for Internet users will be intense throughout Latin America. Argentina, given its relatively high per capita GDP, is attracting multiple players. We expect competition to be evident in Internet and data services, the consequence of which should be price reductions.

www.Telefonica.com.ar**Key Metrics**

Lines in service: 3.9 million

Internet accounts (dial-up): 70,626

Internet traffic minutes, F1999: 2 billion

Network digitalization: 100%

% of revenues from Internet/data services, F1999: 7.8%

Telefónica de Argentina: Income Statement

<i>Argentine Pesos (Millions, As Reported)</i>	1996A	1997A	1998A	1999A
Monthly Basic Charge	393.5	529.2	646.7	622.0
Supplemental Charges	20.7	56.0	71.0	74.0
Measured Service	1,163.0	1,146.6	1,149.8	1,047.0
Installation Charges	148.0	112.1	60.5	47.0
Voice and Intelligent Network	53.8	80.6	112.7	171.0
Public Phones	195.6	196.0	198.8	226.0
Access Charges	100.1	111.5	114.5	91.0
Telintar (ILD service)	309.6	255.0	259.9	248.0
Mobile Phones	109.5	270.6	533.3	561.0
Phone Directories	54.4	57.5	74.4	70.0
Data	0.0	57.2	71.3	94.0
Other	203.6	123.4	142.9	148.0
Total Revenue	2,751.8	2,995.7	3,435.8	3,399.0
% Change	0.7%	8.9%	14.7%	-1.1%
Salaries and Social Sec. Taxes	522.4	485.8	485.0	478.0
Depreciation	686.5	741.5	824.1	841.0
Management Fee	127.8	146.3	157.2	151.0
Material consumption	78.6	80.3	67.8	55.7
Allowance for doubtful accounts	75.2	98.3	340.5	151.0
Other Operating and Maintenance	519.0	537.7	642.4	800.8
% of revenues	18.9%	17.9%	18.7%	23.6%
Total Operating Expenses	2,009.5	2,089.9	2,517.0	2,477.5
Operating profit	742.3	905.8	918.8	921.5
Operating Margin	27.0%	30.2%	26.7%	27.1%
EBITDA	1,428.8	1,647.3	1,742.9	1,762.5
EBITDA Margin	51.9%	55.0%	50.7%	51.9%
Income on Equity Investments	-0.2	0.0	0.0	0.0
Other Expenses (income)	133.9	157.3	78.7	135.1
Integral Cost of Financing	94.7	128.0	146.9	196.0
On assets	35.6	18.4	39.1	39.0
On liabilities	130.3	146.4	186.0	235.0
Capitalized Interest	76.4	81.3	71.1	61.0
Income Before Tax	589.9	701.8	764.3	651.4
Pretax Margin	21.4%	23.4%	22.2%	19.2%
Income Tax	204.8	227.5	252.2	196.0
Effective Rate	34.7%	32.4%	33.0%	30.1%
Subtotal	385.1	474.3	512.1	455.4
Reported Net Income	385.1	474.3	512.1	455.4
Net Margin	14.0%	15.8%	14.9%	13.4%
Number of Shares Outstanding (Millions)	2,358	2,358	2,141	2,141
EPS	1.63	2.01	2.39	2.13
% Change	-15.9%	23.2%	18.9%	-11.1%

Telesp

www.telesp.com.br

Internet Infrastructure Services

Ticker: TSP	Mkt Cap: \$16,732MM
L. Carvalho - ++	Price (2/15/00): \$34.62
52-wk H-L: \$35-\$13.5	FD Shrs. Out (MM): 483.6

Estimates for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley Dean Witter policy, Morgan Stanley Dean Witter may be precluded from issuing such information with respect to this company at this time.

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Internet Business Description

Telesp Part., controlled by the Spanish operator Telefónica, is a main provider of data, access, and other telecom

services in São Paulo, Brazil. The São Paulo region has above average GDP per capita (\$9,000) and a large concentration of business clients. Telesp offers a full range of data services and has recently deployed a new high-speed data network that covers most of its concession area. This network allows the company to offer many IP-based services to its regional corporate users.

Telesp was also the first company in Latin America to launch a high-speed Internet access product based on Digital Subscriber Line (DSL) technology. This product, named Speedy, is being contracted by local ISPs and offered to Internet users as a high-speed access option. Speedy should help Telesp to increase its exposure to the fast-growing segment of high-speed Internet access for small-offices, home-offices (SOHO), as well as to high-end consumers.

Internet Strategy Assessment

Focus on data and access services. São Paulo, with its high concentration of business clients, is an attractive market for these services: corporations are more intensive users of data services. The company's main advantage is its network, which is by far the most extensive in the state.

Competition will be intense. Embratel is building local networks and is increasing its points of presence in the state. MetroRED, and AT&T (Netstream) are also building networks and connecting the main business clients. Customer service and the right product offering will be critical success factors, in our view.

www.telesp.com.br



Key Metrics

Internet users in concession area: about 1 million

% of Internet subscribers using TSP network: > 95%

Internet traffic as % of total voice traffic: about 10%

Data revenues as % of total, 1999: 6%

Number of lines in service, 1999: 8.3 million

Wireless users in company's concession area: 4.6 million

Main competitors: Embratel, MetroRED, AT&T (Netstream)

Telesp: Income Statement

<i>Brazilian Reais (Millions, As Reported)</i>	1998A	1Q99A	2Q99A	3Q99A	4Q99A
Monthly charges	1,132	312.9	327.9	344.1	365.0
Installation Revenues	16	13.7	14.8	31.9	36.7
Local measured service	1,437	359.1	390.6	418.5	415.3
Other local	166	42.9	45.2	42.4	58.0
Domestic LD	1,259	424.8	418.7	413.9	317.1
Fixed to Mobile Access Charges	406	171.3	137.1	147.1	131.0
Interconnection	622	203.6	189.5	233.1	293.0
Public Phones	158	65.9	66.6	54.6	100.5
Data Transmission	302	85.9	83.7	91.5	105.4
Phone Directories	34	6.4	5.3	5.1	2.1
Gross Revenues	5,531	1,515.1	1,542.4	1,635.1	1,693.1
Deductions (ICMS, COFINS, Finsocial)	1,439	410.0	430.4	440.1	473.6
% of Gross Sales	26.0%	27.1%	27.9%	26.9%	28.0%
Net Revenues	4,092	1,105.1	1,112.0	1,194.9	1,219.5
Depreciation	1,309	430.2	432.3	436.1	449.6
Personnel	901	192.8	196.9	192.4	193.3
G&A	878	199.4	283.2	330.5	330.2
Fistel Taxes	29	13.0	1.6	2.4	1.6
Bad Debt Provision	25	0.0	0.0	0.0	0.0
Other Op. Expense (income)	-129	(20.7)	(18.3)	(22.4)	(25.2)
Total	3,013	814.6	895.6	939.0	949.4
Operating Income	1,080	290.4	216.4	256.0	270.0
% margin	26.4%	26.3%	19.5%	21.4%	22.1%
EBITDA	2,388	720.6	648.6	692.0	719.6
% margin	58.4%	65.2%	58.3%	57.9%	59.0%
Employee Severance Program	112	112.2	(10.3)	(21.7)	(47.1)
Financial Income	389	143.9	47.7	54.7	39.7
Financial Expenses	244	(368.2)	(17.8)	(29.2)	(28.1)
Other Non-Operating Expenses	(231)	(252.7)	(54.4)	(55.4)	(828.2)
Income Before Taxes	1,343	(186.6)	181.5	204.3	(593.6)
Income Tax and Social Contribution	258	91.8	(59.0)	(68.6)	217.0
Employee Profit Sharing	44	(9.0)	(9.2)	(9.4)	(14.0)
Minority Interest	364	(59.6)	(85.4)	(77.9)	(0.7)
Net Income	721	99.5	113.7	108.5	414.2
Number of Shs. Outstanding (Millions)	334.4	334.4	334.4	334.4	489.5
EPS (per ADS) in US\$	1.78	0.17	0.19	0.17	0.47

Telemig Cel. www.telemigcelular.com.br

Ticker: TMB	Mkt Cap: \$965MM
V. Rossi - Neutral	Price (2/15/00): \$57.8
52-wk H-L: \$67.5-\$15.5	FD Shrs. Out (MM): 16.7

Internet Business Description

Telemig Celular is a cellular operator in Brazil, controlled by the Canadian group Telesystem. It provides cellular services in the Brazilian state of Minas Gerais.

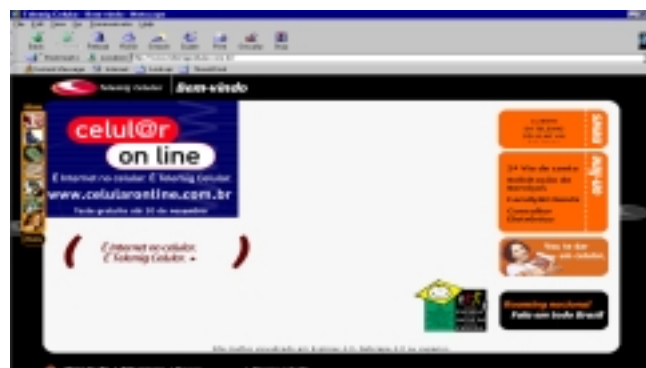
Telemig Celular has always been one of the leaders in the wireless sector in the region. It is constantly among the first to offer new services and pricing plans to its subscribers. It is one of the first wireless operators in Latin America to offer short messaging service (SMS) to its subscribers, and the first in Brazil to do so. This service is being offered through a partnership with Starmedia.

Internet Strategy Assessment

Positive partnership with Starmedia. Telemig and Starmedia have announced an agreement to provide SMS to Telemig Celular's users through their cellular phones. Telemig is offering the service free of charge to all its users for one month, after which we expect the company to begin charging for the service. The messages will be limited to 120 characters in length and will cost R\$0.40 (\$0.20) per message. We see this as a positive development for Telemig Celular because it creates new sources of revenue for the company (wireless data services have been the biggest revenue booster for the European wireless operators).

Wireless data is good for heavy users. We believe that heavy users will be the major clients of wireless data services in Latin America. The highly uneven distribution

www.telemigcelular.com.br



Internet Infrastructure Services



of income in the region suggests that only heavy users will be able to subscribe to "premium" products such as SMS.

New strategy requires high capex. To succeed with its wireless data strategy, Telemig Celular will need more capital to fund the upgrade of its network to allow data services. Currently, about 60% of the company's total traffic is digital, versus 100% for its competitor Maxitel. The new usage patterns of wireless clients, together with the need to transmit data services, have required heavy investments in network capacity by wireless operators.

More competition to come. Although Telemig Celular appears to be ahead in offering new services, the competition has already begun to offer SMS. Maxitel, the new entrant controlled by Telecom Italia Mobile, has been following Telemig Celular's strategy closely, providing the same services. Maxitel limits messages to 120 characters and will charge per message once regulatory approval is received (expected 1Q00). Maxitel, like Telemig Celular, is offering SMS to its users free of charge for one month.

Telemig Celular has an edge. The company has clear advantages relative to its competitors. It has a very strong brand name, a solid balance sheet, and better coverage. We expect these factors to allow the company to consolidate a leadership position in the emerging wireless data segment.

Key Metrics

Internet users in concession area: approximately 150,000

Data traffic as % of total voice traffic: approximately 3%

Data revenues as % of total: 0.3% (1999E)

Number of cellular subscribers: 667,000

Number of messages: 40,000 per day

Market share: 85%

Main competitor: Maxitel (Telecom Italia Mobile)

Telemig Celular: Income Statement

<i>Brazilian Reais (Millions)</i>	1998A	1999E	2000E	2001E
Activation fees	10	0	0	0
Contract subscribers	554	515	578	649
Prepaid subscribers	0	46	139	239
Equipment Sales	0	95	73	70
Gross Revenues	564	655	791	959
VAT taxes	124	157	190	230
% of Gross Sales	22.0%	24.0%	24.0%	24.0%
Net Revenues	440	498	601	728
% change	17.5%	13.3%	20.7%	21.2%
Depreciation	53	106	134	164
Cost of Services	85	116	156	205
Equipment Sale - acquisition cost	0	78	76	80
Personnel & G&A Expenses	75	47	49	50
Selling Expenses	136	82	110	131
Management Fee	4	10	12	15
Other Op. Expense (income)	16	0	1	1
Total	369	440	537	646
Operating Income	71	58	64	82
% margin	16.1%	11.6%	10.6%	11.3%
EBITDA	124	164	198	246
% margin	28.1%	39.1%	36.6%	36.6%
Financial Income	17	23	33	40
Financial Expenses	12	35	11	19
Other Non-Operating Expenses	62	1	2	2
Income Before Taxes & Profit sharing	13	45	84	101
Profit sharing	0	1	2	3
% of IBT&PS	0.0%	2.5%	2.5%	2.5%
Income Before Taxes	13	44	82	98
Income Tax and Social Contribution	3	11	21	26
Minority Interest	0	6	12	14
Net Income	10	26	49	59
% margin	2.3%	5.3%	8.2%	8.1%
Number of Shares Outstanding (Millions)	334.4	334.4	334.4	334.4
EPS (US\$ per ADR)	0.50	0.81	1.59	1.85
% Growth	-88.3%	61.8%	96.3%	16.6%

E = Morgan Stanley Dean Witter Research Estimates

Telmex

www.telmex.com.mx

Internet Infrastructure Services

Ticker: TMX	Mkt Cap: \$50,099MM
L. Carvalho - Outperform	Price (2/15/00): \$66.87
52-wk H-L: \$74-\$26	FD Shrs. Out (MM): 749.2

Internet Business Description

Telmex is the dominant telecommunications operator in Mexico. The company offers traditional dial-up Internet service (ISP) business through its relationship with Prodigy. Connections can be carried via normal modems or ISDN connections. Telmex is also evaluating DSL technology. For corporate clients, Telmex provides a full array of data communication services as well as Internet access. The company has an extensive copper and fiber network throughout the country, and through its agreement with Williams Communications it has access to an extensive fiber optic network in the US.

Internet Strategy Assessment

Impressive list of strategic partners. We believe that Telmex has done an excellent job of aligning itself with strategic partners including Microsoft, Prodigy, SBC, Williams Communications, and IBM. The full outcome and strategy behind all these partnerships is still not clear, but we expect a comprehensive data and Internet services strategy to surface.

Large portfolio of services. Telmex has the ability to offer clients a complete array of services. It can provide Internet, data and voice services to business and residential clients. The company has an extensive national network and can



take advantage of its ubiquitous presence to act as a one-stop shopping location.

Owning the network is a win/win proposition. The strength of Telmex is derived from its ownership of the largest network in Mexico by far. The chances are that any traffic — whether voice, Internet, or data — will at some point have to go through Telmex's network. Accordingly, Telmex will benefit from increased volume regardless of the source. The company estimates that it has 50% of dial-up Internet subscribers in the country. In data services, Telmex's accessibility to clients ensures that even as competitors gain market share, Telmex will benefit as competitors still need to use the Telmex network to reach all areas in the country.

Competition is always a concern. Competition for Internet users and corporate clients is likely to be intense. Competition is already evident in data services, as Avantel and Alestra continue to focus on this attractive segment of the market. Competition has been slow to develop in traditional dial-up ISP. We do expect more competition in this area, but we believe that Telmex has a clear advantage here as it owns the network.

www.telmex.com.mx



Key Metrics

Lines in service: 10.8 million

Internet accounts (dial-up): 402,000

Competitors: Avantel, Alestra, and smaller niche players

Access lines (estimated): 200,000

Network digitalization: 97.5%

Strategic partners: Prodigy, Williams Communications, Microsoft, SBC Communications, IBM, and France Telecom

Telmex: Income Statement

<i>Mexican Pesos (Millions)</i>	1999A	2000E	2001E	2002E
International	11,538	10,515	9,971	10,386
Domestic long distance	20,492	25,269	28,365	31,228
Local service	42,283	52,575	64,985	79,687
Interconnection	5,050	7,884	10,989	14,760
Other	16,958	20,421	24,928	30,311
Revenues	96,321	116,664	139,239	166,372
% change	23.1%	21.1%	19.4%	19.5%
Cost of Sales and Services	23,598	27,728	32,580	37,956
Depreciation	17,447	19,656	22,454	25,546
Commercial, G&A	19,032	24,915	30,645	38,477
Special Costs and Expenses	0	126	163	193
Operating expenses	60,077	72,424	85,843	102,172
% change	23.8%	20.6%	18.5%	19.0%
Operating profit	36,244	44,240	53,396	64,200
Margin	37.6%	37.9%	38.3%	38.6%
EBITDA	53,691	63,896	75,850	89,747
Margin	55.7%	54.8%	54.5%	53.9%
Interest income	4,734	5,364	5,900	6,459
Interest expense	4,923	6,113	8,532	9,701
Foreign exchange gain (loss)	(58)	(1,066)	(939)	(1,045)
(Gain) from monetary position	(376)	(231)	(19)	1,256
Integral (cost) of financing	129	(1,585)	(3,553)	(5,544)
Income before tax and profit sharing	36,373	42,655	49,843	58,656
Net margin	37.8%	36.6%	35.8%	35.3%
Income tax & workers' profit sharing	11,380	14,503	17,445	21,116
Effective rate	31.3%	34.0%	35.0%	36.0%
Income from Equity Investments	135	149	163	178
Net income	25,128	28,301	32,561	37,718
% change	53.2%	12.6%	15.1%	15.8%
Weighted avg. shares - fully diluted	15,372	14,822	14,222	13,922
Number of ADSs - fully diluted	768.6	741.0	711.0	696.0
EPS (US\$)	3.44	3.67	4.15	4.62
% change	60.2%	6.9%	12.9%	11.3%

E = Morgan Stanley Dean Witter Research Estimates

Terra Networks

www.terra.com

Internet Portal / Internet Infrastructure Services

Ticker: TRRA	Mkt Cap: \$35,195MM
Not Rated	Price (2/15/00): \$127.75
52-wk H-L: \$145-\$28	Shrs. Out (MM): 275.5

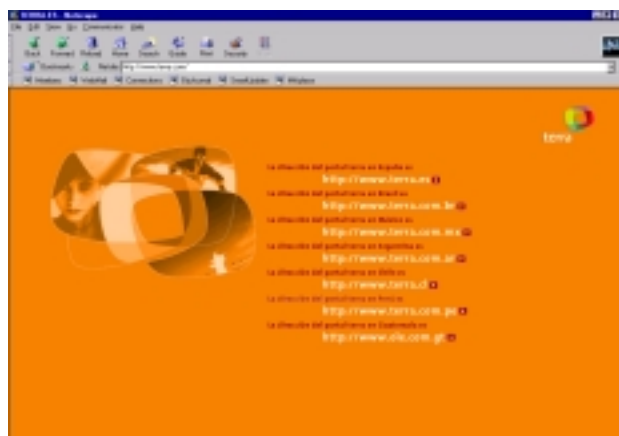
Internet Business Description

Terra Networks is a leading provider of Internet access along with local-language content and services to the Spanish- and Portuguese-speaking markets. The company offers access services and comprehensive portals in Spain, Brazil, Mexico, Peru, Chile, and Guatemala; it also has a portal in Argentina. Terra expects to launch additional Latin American portals and has already begun to address the Hispanic Internet access market in the United States through a recently launched portal. A subsidiary of Spain's Telefónica, Terra Networks was recently spun out in an initial public offering and became Europe's largest publicly-traded Internet stock.

Internet Strategy Assessment

Telefónica lineage provides built-in presence and structure. Telefónica, the dominant telecommunications operator in Spain and Latin America, offers Terra instant access to a large base of existing customers — a formidable competitive advantage, in our view. The Telefónica group also includes several valuable media properties for Terra's portals. These include Spanish soccer broadcast rights, radio stations, and television, cable, and film production companies. Meaningful proprietary content enhances Terra's competitiveness in the portal/destination market.

www.terra.com



Terra has a large subscriber base and large market capitalization. Terra has approximately 1.1 million subscribers (some do not pay for services) and a market capitalization of about \$30 billion. This large size should allow it to gain important advantages as it can easily acquire companies and potential competitors in the region.

Multi-local/global model. Terra intends to have ubiquitous reach in the Spanish- and Portuguese-speaking world. A large subscriber base increases the value of Terra as an e-commerce partner and online advertising distributor. Additionally, this approach increases the probability of achieving scale and profitability, given that Internet penetration is low in Latin America.

Brand name. Terra owns leading Internet brands in Spain and Latin America. In Spain, Terra controls Ole!, the country's leading portal. In Brazil, Terra acquired ZAZ, a leading portal, ISP and e-commerce facilitator. And in Mexico, Terra owns Infosel, another leading ISP with portal and e-commerce offerings. We believe that a strong, recognizable brand name is critical for an Internet portal's battle for online traffic.

Key Metrics

Portals owned: Ole!, ZAZ, Infosel

ASDL access: offered in Spain since October 1999; plans to offer it throughout Brazil by January 2000

Strategic partners: Teknoland Corp., a developer of online services and interactive products, and Ifigenia Plus, a digital provider of art and cultural content

BBVA alliance to promote online banking

Launched free Internet access in Spain

Terra Networks: Income Statement

<i>Euros (Millions)</i>	1997A	1998A
Net Sales	2.50	10.80
Cost of Goods Sold		
Sale, General & Administrative Expense	4.80	16.90
Operating Income	-2.30	-6.10
Interest Expense	0.10	0.10
Interest Income & Net Other Loss	-0.10	0.60
Income Tax Expense	-0.40	-1.30
Minority Interest	-0.47	-1.67
Net Income	-1.51	-3.74

Source: Bloomberg

todito.com (Private)

www.todito.com

Internet Infrastructure Services / Internet Portal

Internet Business Description

A private company, todito.com is a Spanish-language Internet portal focused on Mexico and the US Hispanic market. The company provides users with a web search engine, free e-mail, chat rooms, message boards, links to e-commerce, and local content such as news, weather, and finance. The company's site also hosts a virtual shopping mall in which brick-and-mortar retailers can set up virtual shops using todito's online design and payment software.

todito plans to expand its portal offering to include auctions, job offerings, and a business-to-business center. The company generates sales mainly from advertising and commissions from e-commerce transactions. todito.com is owned by Grupo Dataflux (a computer retailer listed on the Mexican Bolsa), and by TV Azteca. Dataflux is controlled by Guillermo Salinas Pliego, who is the brother of Ricardo Salinas and an EKT and TZA shareholder.

Internet Strategy Assessment

Access to TV Azteca's content. todito has access to a wide array of cultural, business, sports, news, and entertainment-related content produced by TV Azteca. We expect that the need for proprietary and differentiated content will grow in importance as Internet portals fight for online traffic.

Synergies with other Salinas Pliego companies. todito can benefit from access to other Salinas companies such as Dataflux and Elektra. Dataflux can configure the browsers inside its PCs to use todito.com as its homepage in the



Internet, and Elektra's stores serve as promotional and collection centers for todito.com.

Diversified revenue stream. todito's strategy is to have a multi-revenue business model to reduce the dependence of advertising sales. todito.com currently generates sales from advertising and commissions from e-commerce transactions. Soon the company expects to generate revenues from merchandise sales and commissions from auctions and b2b transactions.

Focus on Mexico limits the scale of the business ... todito's content is tailored for the Mexican market. We believe that low Internet penetration and the already heavy competition in the portal business make it harder for a country-specific portal to achieve scale and profitability.

... however, it increases the significance of content. todito attracts users by providing in-depth content with local appeal. Most community-building features such as chat rooms and message boards benefit from having participants sharing similar needs and interests.

www.todito.com



Key Metrics

Number of registered users: 93,000

Number of page views per day: 600,000

e-commerce revenue: \$194,000 for the month of December 1999

Advertising clients: 14 for the month of December 1999

UOL Inc. S.A. (Private)

www.UOL.com.br

Internet Portal / Internet Infrastructure Services

Internet Business Description

UOL is a Brazilian content and Internet service provider, offering subscription-based content, as well as community and e-commerce. It also owns a second portal, Brasil Online (www.bol.com.br), and recently launched its free access service called NetGratuita. UOL currently has a Spanish-language portal in Argentina and has launched portals in Mexico, the US, Spain, Chile, Venezuela, and Colombia in the first part of this year. UOL Inc. is owned by I.H.K. Participacoes, which is jointly owned by Folha (a media group and newspaper publisher in Brazil) and Abril (a media group and magazine publisher based in Brazil).



www.uol.com.br



www.netgratuita.com.br



Yahoo!

www.yahoo.com

Internet Portal

Ticker: YHOO	Mkt Cap: \$85,045MM
Meeker/Mahaney - OP	Price (2/15/00): \$161.56
52-wk H-L: \$250-\$55	Shrs. Out (MM): 526.4

Internet Business Description

Yahoo!, the highly successful US portal, started operations in Latin America in the second half of 1999. The company operates country sites for Brazil and Mexico and a general site in Spanish. In Latin America, Yahoo! offers access to free e-mail, chat rooms, and bulletin boards, as well as several channels of international and local content. Additionally, Yahoo! offers auctions on its Mexican and Brazilian sites. One interesting challenge for Yahoo! is to entice users to its local sites, as opposed to its well-known US site. We believe that many Yahoo! visitors from Latin America first go through the US site rather than the Latin oriented ones.

Internet Strategy Assessment

Brand recognition. Yahoo is one of the most valuable brands on the Internet today. In the push to create a recognizable brand in Latin America, Yahoo! can also leverage its global identity. Even though the company recently entered Latin America, many Latin users recognize the Yahoo! brand. A strong, recognizable brand name is critical for an Internet portal's battle for online traffic.



Crowded field. Yahoo! does not have a first-mover advantage as a local player in any of the Latin countries in which it operates. Latin dedicated players, such as Starmedia, El Sitio, and Yupi, have established Internet networks with considerable user base and brand name recognition. The crowded Latin portal market also has global players such as AOL. However, the market is still young and we expect the number of users to significantly increase in Latin America in the next five years.

Local flavor. Yahoo! has to translate its US image to many Latin flavors. It is rapidly adapting its country specific sites for local flavor and idioms. However, some listings in country-specific sites still refer to other countries and language usage tends to be more formal than is common in the younger more typical Latin Internet user.

www.mx.yahoo.com



www.br.yahoo.com



Yahoo!: Income Statement

<i>US\$ (Thousands, Except EPS)</i>	1998	1999	2000E	2001E
Revenue	\$245,100	\$588,608	\$949,000	\$1,233,700
<i>Advertising</i>	152,691	366,472	591,000	788,700
<i>Sponsorship/Commerce</i>	50,619	130,819	217,000	270,000
<i>GeoCities</i>	17,747	30,909	45,000	60,000
<i>broadcast.com</i>	24,268	59,791	96,000	115,000
Cost of Revenues	48,608	92,334	146,055	172,718
Gross Profit	196,492	496,274	802,945	1,060,982
Operating Expense	182,805	308,374	465,700	598,400
Product Development	33,917	64,097	95,000	123,400
Sales & Marketing	124,734	208,991	314,700	395,000
G&A	24,154	35,286	56,000	80,000
Operating Income	13,687	187,900	337,245	462,582
Other Income (Expense)	18,874	35,157	45,000	52,000
Pretax Income	32,561	223,057	382,245	514,582
Taxes (Benefit)	17,827	80,301	145,253	195,541
Net Income (Operating)	14,734	142,756	236,992	319,041
Extraordinary Items	(27,408)	(121,167)	(14,000)	(5,000)
Net Income (Reported)	(12,674)	21,589	222,992	314,041
Earnings Per Share (Operating)	\$0.04	\$0.48	\$0.75	\$0.97
Reported	(\$0.06)	\$0.15	\$0.71	\$0.95
Shares Outstanding	219,995	298,395	315,000	330,000
Growth Rate				
Revenues (yr-yr)	191%	140%	61%	30%
Revenues (seq.)	—	—	—	—
Expenses (yr-yr)	108	69	51	28
Expenses (seq.)	—	—	—	—
Operating EPS (yr-yr)	NM	998	58	29
Operating EPS (seq.)	—	—	—	—
Margin Analysis				
Gross Margin	80%	84%	85%	86%
Operating Margin	6	32	36	37
Pretax Margin	13	38	40	42
Net Margin	6	24	25	26
Expenses as Pct. of Revenue				
Total Operating Expense	75%	52%	49%	49%
Product Development	14	11	10	10
Sales & Marketing	51	36	33	32
G&A	10	6	6	6
Tax Rate	55%	36%	38%	38%
Headcount (a)	803	1,992	2,300	2,500
Annualized Revenue Run-Rate	—	—	—	—
Annualized Rev / Headcount	—	—	—	—
Annualized Opex/ Headcount	—	—	—	—
Registered Users (MM) (b)	35	100	140	170

E = Morgan Stanley Dean Witter Research Estimates, NM = Not Meaningful

(a) Historical headcount not restated for acquisitions. (b) Page views, registered users, and advertisers pro forma with GeoCities beginning in C2Q99.

Yupi.com (Private)

www.yupi.com

Internet Portal

Internet Business Description

Yupi.com is a privately-held Spanish- and Portuguese-language Internet network consisting of portals and web-based communities. Yupi's online properties include Yupi.com, its flagship portal site; Ciudad Futura, a Spanish-language virtual community; and Bogota.com, a Colombia-based comprehensive city guide that provides information on restaurants, hotels, arts, and entertainment. The features found in the Yupi.com network include a proprietary search technology (Yupi.com's search technology does not utilize web crawlers or spiders — all of its content is manually categorized); a proprietary homepage creation technology; interactive chat environments; virtual greeting cards; personalization technology; and several channels of interactive content. Yupi's principal shareholders include IFX Corp., News Digital Media (a division of News Corp.), and venture capital funds. The company has filed with the SEC in preparation for its IPO.



Internet Strategy Assessment

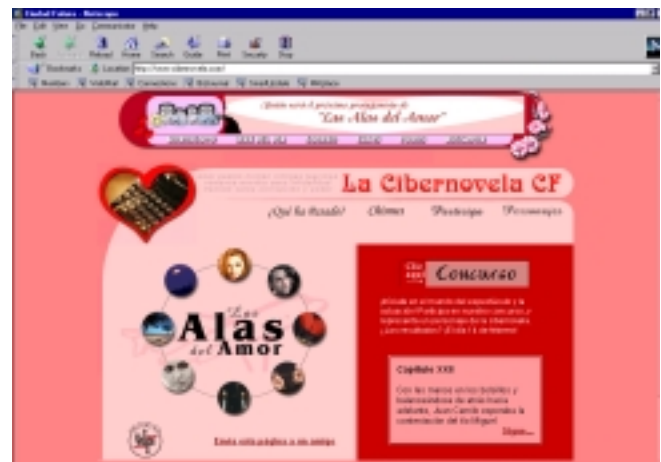
More of a search engine than a content provider. The company uses proprietary search technology to direct traffic to destination sites. The difference between Yupi and most Latin American portals is that Yupi focuses on search functions and content breadth, while the latter focus on content depth and content production.

Relationship with IFX. IFX Corp.'s Internet service provider, Unete, has the goal of establishing points of presence throughout the region. Yupi, partly owned by IFX Corp., is the default portal for all Unete subscribers.

www.yupi.com



www.ciudadfutura.com



ZonaFinanciera.com (Private)

www.zonafinanciera.com

Internet Financial Services

Internet Business Description

Zonafinanciera.com (Zona) is a one-stop financial marketplace geared toward the Latin American and US-Hispanic markets. On a country-specific basis, Zona offers an online center for financial information — to facilitate comparison shopping — and a platform for e-commerce, as well as a community for Spanish- and Portuguese-speaking investors and consumers. Currently, the company focuses on five major business areas — banking, insurance, stocks/brokerage, real estate, and auto sales.

Internet Strategy Assessment

Zona's approach is to simultaneously build a pan-Latin American and US-Hispanic presence in several business verticals. The five major product areas have been grouped together because of their inherent synergies and cross-selling potential. For example, Zona sees the typical auto or home buyer also browsing for insurance products on its web site.

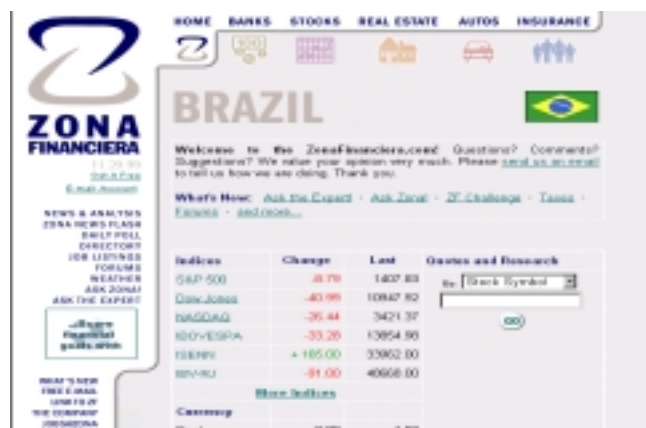
Zona has a first-mover advantage. Zona is establishing its position to best capitalize on the tremendous growth potential of the region. The company is the exclusive content provider of finance information for El Sitio and UOL. It also has signed alliances or distribution agreements with Yupi, MSN, Unete.com, WSJ Interactivo, and others.



Zona aims to create user loyalty through use of "sticky" features on its site. The company wants to create a large pool of registered members and increase per user page views. The company offers free e-mail, instant message capability, chat areas with discussion forums, and personalized web pages.

Competition is likely to be locally driven and in individual verticals. Although Zona appears to have a significant head start in building a pan-Latin American franchise, we see competitors attacking Zona's multi-country, multi-product business strategy. For example, Patagon.com is building a competing presence in the online brokerage business in several Latin American countries.

www.zonafinanciera.com



Country Models

MSDW's Latin Internet Estimates

	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Internet Users														
Internet Unique Users (000s)														
Argentina	201	330	604	1,224	1,849	2,412	2,855	3,527	4,088	4,630	5,198	5,631	6,088	6,637
Brazil	1,034	2,349	3,988	6,128	8,445	10,889	13,897	17,106	19,929	22,442	25,075	27,213	29,470	32,450
Chile	106	199	364	582	805	1,032	1,284	1,546	1,805	2,041	2,287	2,476	2,676	2,952
Mexico	375	714	1,307	2,833	4,332	5,883	7,359	9,140	10,757	12,243	13,812	15,055	16,372	18,090
Rest of Latam	541	1,215	2,373	4,462	6,610	7,919	11,308	14,145	15,607	17,801	20,134	23,427	25,727	27,211
Total Latin America	2,256	4,807	8,635	15,229	22,042	28,135	36,703	45,464	52,186	59,156	66,506	73,802	80,333	87,340
Annual Growth														
Argentina		65%	83%	103%	51%	30%	18%	24%	16%	13%	12%	8%	8%	9%
Brazil		127%	70%	54%	38%	29%	28%	23%	17%	13%	12%	9%	8%	10%
Chile		87%	83%	60%	38%	28%	24%	20%	17%	13%	12%	8%	8%	10%
Mexico		90%	83%	117%	53%	36%	25%	24%	18%	14%	13%	9%	9%	10%
Rest of Latam		125%	95%	88%	48%	20%	43%	25%	10%	14%	13%	16%	10%	6%
Total Latin America		113%	80%	76%	45%	28%	30%	24%	15%	13%	12%	11%	9%	9%
Regional Share														
Argentina	9%	7%	7%	8%	8%	9%	8%	8%	8%	8%	8%	8%	8%	8%
Brazil	46%	49%	46%	40%	38%	39%	38%	38%	38%	38%	38%	37%	37%	37%
Chile	5%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%
Mexico	17%	15%	15%	19%	20%	21%	20%	20%	21%	21%	21%	20%	20%	21%
Rest of Latam	24%	25%	27%	29%	30%	28%	31%	31%	30%	30%	30%	32%	32%	31%
Total Latin America	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Country Penetration (% of population)														
Argentina	0.6%	0.9%	1.6%	3.3%	4.9%	6.3%	7.4%	9.0%	10.3%	11.6%	12.8%	13.8%	14.7%	15.8%
Brazil	0.6%	1.4%	2.3%	3.5%	4.8%	6.2%	7.8%	9.5%	11.0%	12.2%	13.6%	14.6%	15.6%	17.1%
Chile	0.7%	1.3%	2.4%	3.8%	5.3%	6.7%	8.2%	9.8%	11.3%	12.7%	14.1%	15.1%	16.1%	17.6%
Mexico	0.4%	0.7%	1.3%	2.8%	4.2%	5.6%	6.9%	8.4%	9.8%	11.0%	12.2%	13.1%	14.0%	15.3%
Rest of Latam	0.3%	0.7%	1.3%	2.5%	3.6%	4.2%	5.9%	7.2%	7.8%	8.8%	9.8%	11.2%	12.1%	12.6%
Total Latin America	0.5%	1.0%	1.7%	3.0%	4.3%	5.4%	6.9%	8.4%	9.6%	10.7%	11.9%	13.0%	13.9%	15.0%
PCs and Information Appliance Forecast														
PCs and information Appliances (000s)														
Argentina	1,641	1,965	2,656	3,552	4,191	4,762	5,385	5,999	6,572	7,033	7,491	7,913	8,343	8,901
Brazil	4,046	4,970	7,054	10,283	13,228	16,121	18,987	21,859	24,522	26,373	28,223	29,948	31,703	34,338
Chile	652	719	976	1,235	1,429	1,612	1,821	2,026	2,260	2,426	2,592	2,744	2,898	3,150
Mexico	3,470	4,146	5,970	8,732	10,577	12,187	13,876	15,544	17,316	18,618	19,919	21,115	22,337	24,120
Rest of Latam	3,315	3,932	7,965	10,541	13,286	15,915	20,119	23,062	23,785	25,807	27,856	32,006	34,171	34,879
Total Latin America	13,124	15,732	24,621	34,343	42,711	50,597	60,188	68,490	74,455	80,257	86,082	93,727	99,453	105,388
Annual Growth														
Argentina		20%	35%	34%	18%	14%	13%	11%	10%	7%	7%	6%	5%	7%
Brazil		23%	42%	46%	29%	22%	18%	15%	12%	8%	7%	6%	6%	8%
Chile		10%	36%	27%	16%	13%	13%	11%	12%	7%	7%	6%	6%	9%
Mexico		19%	44%	46%	21%	15%	14%	12%	11%	8%	7%	6%	6%	8%
Rest of Latam		19%	103%	32%	26%	20%	26%	15%	3%	9%	8%	15%	7%	2%
Total Latin America		20%	56%	39%	24%	18%	19%	14%	9%	8%	7%	9%	6%	6%

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MSDW's Latin Internet Estimates

Regional Share	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Argentina	13%	12%	11%	10%	10%	9%	9%	9%	9%	9%	9%	8%	8%	8%
Brazil	31%	32%	29%	30%	31%	32%	32%	32%	33%	33%	33%	32%	32%	33%
Chile	5%	5%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Mexico	26%	26%	24%	25%	25%	24%	23%	23%	23%	23%	23%	23%	22%	23%
Rest of Latam	25%	25%	32%	31%	31%	31%	33%	34%	32%	32%	32%	34%	34%	33%
Total Latin America	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Country Penetration (% of population)														
Argentina	5%	5%	7%	10%	11%	12%	14%	15%	17%	18%	19%	19%	20%	21%
Brazil	2%	3%	4%	6%	8%	9%	11%	12%	13%	14%	15%	16%	17%	18%
Chile	4%	5%	7%	8%	9%	10%	12%	13%	14%	15%	16%	17%	17%	19%
Mexico	4%	4%	6%	9%	10%	12%	13%	14%	16%	17%	18%	18%	19%	20%
Rest of Latam	2%	2%	5%	6%	7%	8%	11%	12%	12%	13%	14%	15%	16%	16%
Total Latin America	3%	3%	5%	7%	8%	10%	11%	13%	14%	14%	15%	16%	17%	18%
Home Internet Users														
Internet Home Users (000s)														
Argentina	110	209	397	898	1,410	1,935	2,305	2,684	3,072	3,469	3,874	4,044	4,216	4,393
Brazil	574	1,462	2,784	4,114	5,461	6,831	7,964	9,116	10,289	11,482	12,696	13,183	13,679	14,182
Chile	37	92	213	365	519	675	799	926	1,054	1,186	1,319	1,373	1,429	1,485
Mexico	113	225	625	1,778	2,962	4,182	5,044	5,932	6,846	7,785	8,751	9,170	9,599	10,039
Rest of Latam	177	534	925	2,162	3,452	4,795	5,756	6,754	7,791	8,834	9,909	10,389	10,882	11,388
Total Latin America	1,010	2,521	4,945	9,317	13,804	18,418	21,869	25,413	29,052	32,755	36,549	38,159	39,805	41,487
Annual Growth														
Argentina		90%	90%	126%	57%	37%	19%	16%	14%	13%	12%	4%	4%	4%
Brazil		155%	90%	48%	33%	25%	17%	14%	13%	12%	11%	4%	4%	4%
Chile		149%	133%	71%	42%	30%	18%	16%	14%	12%	11%	4%	4%	4%
Mexico		100%	178%	184%	67%	41%	21%	18%	15%	14%	12%	5%	5%	5%
Rest of Latam		202%	73%	134%	60%	39%	20%	17%	15%	13%	12%	5%	5%	5%
Total Latin America		150%	96%	88%	48%	33%	19%	16%	14%	13%	12%	4%	4%	4%
Share of Country's Total Internet Users														
Argentina	45%	52%	53%	59%	59%	57%	54%	51%	50%	50%	50%	48%	46%	44%
Brazil	49%	53%	59%	57%	54%	51%	48%	44%	43%	42%	42%	40%	39%	36%
Chile	30%	39%	50%	53%	54%	54%	52%	50%	48%	48%	48%	46%	44%	42%
Mexico	24%	25%	38%	50%	52%	52%	49%	46%	46%	45%	45%	44%	42%	40%
Rest of Latam	28%	40%	30%	41%	43%	43%	38%	36%	37%	37%	37%	33%	32%	31%
Total Latin America	38%	45%	47%	51%	51%	50%	46%	43%	43%	42%	42%	40%	38%	36%
Household Penetration (% of HHs with Internet Access)														
Argentina	0%	1%	2%	4%	5%	7%	8%	9%	10%	11%	12%	12%	13%	13%
Brazil	1%	2%	3%	4%	6%	7%	8%	9%	10%	11%	11%	12%	12%	12%
Chile	0%	1%	2%	4%	5%	6%	7%	8%	9%	10%	11%	11%	12%	12%
Mexico	0%	1%	2%	4%	7%	9%	11%	13%	14%	15%	17%	17%	17%	18%
Rest of Latam	0%	1%	1%	2%	3%	4%	5%	6%	6%	7%	8%	8%	8%	8%
Total Latin America	0%	1%	2%	3%	5%	6%	7%	8%	9%	10%	11%	11%	11%	11%

MSDW's Latin Internet Estimates

	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Business Internet Users														
Internet Business Users (000s)														
Argentina	92	126	250	502	825	1,230	1,720	2,297	2,713	3,089	3,493	3,927	4,392	4,989
Brazil	245	528	839	1,893	3,288	5,077	7,270	9,879	11,922	13,567	15,332	17,219	19,233	22,100
Chile	34	66	102	187	289	414	563	737	894	1,018	1,152	1,295	1,448	1,690
Mexico	206	431	726	1,398	2,223	3,252	4,492	5,954	7,187	8,207	9,309	10,497	11,774	13,596
Rest of Latam	188	353	1,410	2,296	3,613	5,265	8,141	10,797	11,529	13,229	15,073	18,782	21,142	22,391
Total Latin America	765	1,503	3,327	6,276	10,238	15,238	22,187	29,664	34,246	39,110	44,359	51,721	57,988	64,766
Annual Growth														
Argentina		36%	99%	101%	64%	49%	40%	34%	18%	14%	13%	12%	12%	14%
Brazil		116%	59%	126%	74%	54%	43%	36%	21%	14%	13%	12%	12%	15%
Chile		97%	54%	83%	55%	43%	36%	31%	21%	14%	13%	12%	12%	17%
Mexico		109%	69%	92%	59%	46%	38%	33%	21%	14%	13%	13%	12%	15%
Rest of Latam		87%	300%	63%	57%	46%	55%	33%	7%	15%	14%	25%	13%	6%
Total Latin America		97%	121%	89%	63%	49%	46%	34%	15%	14%	13%	17%	12%	12%
Share of Country's Total Internet Users														
Argentina	38%	31%	34%	33%	34%	36%	40%	43%	44%	44%	45%	46%	48%	50%
Brazil	21%	19%	18%	26%	33%	38%	43%	48%	50%	50%	51%	53%	54%	57%
Chile	28%	28%	24%	27%	30%	33%	36%	39%	41%	41%	42%	43%	45%	47%
Mexico	44%	48%	44%	39%	39%	40%	44%	47%	48%	48%	48%	50%	51%	54%
Rest of Latam	30%	26%	46%	44%	45%	47%	54%	57%	55%	56%	56%	60%	62%	62%
Total Latin America	29%	27%	32%	34%	38%	41%	46%	50%	50%	51%	51%	54%	55%	57%
Business Penetration (% of Workforce with Internet Access)														
Argentina	1%	1%	2%	3%	5%	8%	10%	14%	16%	18%	20%	22%	24%	27%
Brazil	0%	1%	1%	2%	4%	6%	9%	12%	14%	15%	17%	19%	21%	23%
Chile	1%	1%	2%	3%	5%	7%	9%	12%	14%	15%	17%	19%	21%	23%
Mexico	0%	1%	2%	3%	5%	8%	11%	14%	16%	18%	20%	22%	24%	27%
Rest of Latam	0%	0%	2%	3%	5%	7%	9%	12%	13%	15%	17%	19%	21%	23%
Total Latin America	0%	1%	2%	3%	5%	7%	9%	12%	14%	16%	18%	20%	22%	24%

MSDW's Latin Internet Estimates

	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E
E-Commerce (\$MMs)								
B2B	30	118	288	736	1,585	3,013	5,502	109%
B2C	7	49	121	366	788	1,464	2,130	105%
Total Latin America	36	167	410	1,101	2,373	4,478	7,631	108%
B2B								
Argentina	3	10	31	84	202	445	863	129%
Brazil	14	60	116	304	627	1,273	2,261	110%
Chile	2	5	10	22	43	82	150	98%
Mexico	4	17	55	150	376	702	1,245	118%
Rest of Latam	7	27	76	177	337	512	982	89%
Total Latin America	30	118	288	736	1,585	3,013	5,502	109%
B2C								
Argentina	1	3	8	28	82	193	333	150%
Brazil	4	33	70	186	362	626	893	89%
Chile	0	1	4	10	23	42	72	105%
Mexico	1	5	30	124	273	506	692	119%
Rest of Latam	1	7	8	17	49	97	140	102%
Total Latin America	7	49	121	366	788	1,464	2,130	105%
Total E-commerce as % country's GDP								
Argentina	0.00%	0.00%	0.01%	0.04%	0.09%	0.19%	0.34%	
Brazil	0.00%	0.01%	0.04%	0.08%	0.15%	0.28%	0.45%	
Chile	0.00%	0.01%	0.02%	0.05%	0.09%	0.17%	0.29%	
Mexico	0.00%	0.01%	0.02%	0.05%	0.12%	0.20%	0.31%	
Rest of Latam	0.00%	0.02%	0.05%	0.11%	0.21%	0.31%	0.55%	
Total Latin America	0.00%	0.01%	0.02%	0.06%	0.12%	0.21%	0.34%	
Total e-commerce								
Argentina	3	13	40	112	284	639	1,197	134%
Brazil	18	93	186	491	989	1,899	3,154	103%
Chile	2	6	14	32	66	124	221	100%
Mexico	5	22	85	273	649	1,207	1,937	118%
Rest of Latam	8	33	85	194	385	609	1,122	91%
Total Latin America	36	167	410	1,101	2,373	4,478	7,631	108%
Country Share								
Argentina	9.1%	7.7%	10%	10%	12%	14%	16%	
Brazil	50.6%	55.8%	45%	45%	42%	42%	41%	
Chile	4.7%	3.6%	3%	3%	3%	3%	3%	
Mexico	14.1%	13.1%	21%	25%	27%	27%	25%	
Rest of Latam	21.5%	19.9%	21%	18%	16%	14%	15%	
Total Latin America	100.0%	100.0%	100%	100%	100%	100%	100%	

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MSDW's Argentina Internet Estimates

Argentina	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Internet Users														
Internet Unique Users (000)	201	330	604	1,224	1,849	2,412	2,855	3,527	4,088	4,630	5,198	5,631	6,088	6,637
Number of accounts per user	1.22	1.22	1.23	1.25	1.30	1.40	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
% of population	0.6%	0.9%	1.6%	3.3%	4.9%	6.3%	7.4%	9.0%	10.3%	11.6%	12.8%	13.8%	14.7%	15.8%
% growth		64.6%	82.9%	102.7%	51.1%	30.4%	18.4%	23.5%	15.9%	13.3%	12.3%	8.3%	8.1%	9.0%
Internet Users (includes double counting)	244	402	742	1,530	2,404	3,376	4,283	5,290	6,132	6,945	7,798	8,446	9,132	9,956
Home	110	209	397	898	1,410	1,935	2,305	2,684	3,072	3,469	3,874	4,044	4,216	4,393
Business	92	126	250	502	825	1,230	1,720	2,297	2,713	3,089	3,493	3,927	4,392	4,989
Educ/Govt/other	42	68	95	130	168	211	258	309	347	387	430	476	524	574
Internet Users per Account	1.8	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4
Home	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6
Business	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Educ/Govt/other	3.3	3.1	3.0	3.0	2.9	2.9	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.4
Internet Subscribers (Accounts)	135	238	453	929	1,478	2,112	2,766	3,509	4,088	4,628	5,200	5,706	6,246	6,920
Home	46	91	171	383	595	808	954	1,099	1,246	1,393	1,540	1,592	1,643	1,695
Business	77	126	250	502	825	1,230	1,720	2,297	2,713	3,089	3,493	3,927	4,392	4,989
Educ/Govt/other	13	22	31	44	58	74	92	113	129	147	166	188	211	236
Internet Penetration Assumptions														
PCs & information apps. with Internet use (t	135	238	453	929	1,478	2,112	2,766	3,509	4,088	4,628	5,200	5,706	6,246	6,920
Home	46	91	171	383	595	808	954	1,099	1,246	1,393	1,540	1,592	1,643	1,695
% growth		98%	88%	124%	56%	36%	18%	15%	13%	12%	11%	3%	3%	3%
% of HH	0.5%	0.9%	1.6%	3.6%	5.5%	7.2%	8.4%	9.4%	10.4%	11.4%	12.3%	12.4%	12.5%	12.8%
% of PC and info. apps. w/ Internet service	7%	11%	16%	26%	36%	46%	50%	54%	58%	62%	66%	67%	68%	69%
Business	77	126	250	502	825	1,230	1,720	2,297	2,713	3,089	3,493	3,927	4,392	4,989
% growth		64%	99%	101%	64%	49%	40%	34%	18%	14%	13%	12%	12%	14%
% of economically active population	0.5%	0.8%	1.7%	3.2%	5.1%	7.6%	10.5%	13.8%	15.7%	17.6%	19.7%	21.9%	24.2%	26.6%
% of PC and info. apps. w/ Internet service	9%	13%	18%	27%	36%	45%	55%	64%	67%	71%	74%	78%	81%	85%
Educ/Govt/other	13	22	31	44	58	74	92	113	129	147	166	188	211	236
% growth		70%	44%	39%	32%	28%	25%	22%	15%	14%	13%	13%	12%	12%
% of population	0.1%	0.1%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%	1.3%
% of PC and info. apps. w/ Internet service	7%	11%	14%	17%	20%	24%	27%	30%	32%	33%	35%	37%	38%	40%

MSDW's Argentina Internet Estimates

PC and Info. Appliance Forecast														
PCs and information apps. (000)	1,641	1,965	2,656	3,552	4,191	4,762	5,385	5,999	6,572	7,033	7,491	7,913	8,343	8,901
Home	642	797	1,041	1,449	1,635	1,742	1,892	2,021	2,133	2,232	2,319	2,361	2,402	2,442
Business	820	971	1,391	1,851	2,274	2,707	3,150	3,603	4,032	4,360	4,696	5,040	5,391	5,869
Educ/Govt/other	179	196	224	253	283	313	344	375	407	441	476	512	550	590
PCs (000)	1,641	1,953	2,517	3,274	3,774	4,203	4,672	5,126	5,513	5,802	6,084	6,340	6,600	6,956
Home	642	797	1,023	1,408	1,571	1,655	1,771	1,863	1,937	1,995	2,041	2,054	2,066	2,076
Business	820	962	1,288	1,648	1,973	2,305	2,644	2,992	3,291	3,505	3,725	3,949	4,178	4,504
Educ/Govt/other	179	194	206	218	230	244	257	271	286	301	318	337	356	376
PCs as % of total information apps. (000)	100%	99%	95%	92%	90%	88%	87%	85%	84%	83%	81%	80%	79%	78%
Home	100%	100%	98%	97%	96%	95%	94%	92%	91%	89%	88%	87%	86%	85%
Business	100%	99%	93%	89%	87%	85%	84%	83%	82%	80%	79%	78%	77%	77%
Educ/Govt/other	100%	99%	92%	86%	82%	78%	75%	72%	70%	68%	67%	66%	65%	64%
PCs (000)														
Home	642	797	1,023	1,408	1,571	1,655	1,771	1,863	1,937	1,995	2,041	2,054	2,066	2,076
% growth		24%	28%	38%	12%	5%	7%	5%	4%	3%	2%	1%	1%	0%
% of HH	6%	8%	10%	13%	14%	15%	16%	16%	16%	16%	16%	16%	16%	16%
Business	820	1,156	1,288	1,648	1,973	2,305	2,644	2,992	3,291	3,505	3,725	3,949	4,178	4,504
% growth		41%	11%	28%	20%	17%	15%	13%	10%	7%	6%	6%	6%	8%
% of economically active population w/ PCs	6%	8%	9%	10%	12%	14%	16%	18%	19%	20%	21%	22%	23%	24%
Education/Govt/other	179	194	206	218	230	244	257	271	286	301	318	337	356	376
% growth		9%	6%	6%	6%	6%	6%	5%	5%	6%	6%	6%	6%	6%
% of population	1.1%	1.2%	1.3%	1.3%	1.4%	1.4%	1.5%	1.6%	1.7%	1.8%	1.8%	1.9%	2.0%	2.1%
Information appliances (000)	-	25	139	278	417	559	713	873	1,059	1,231	1,407	1,574	1,744	1,945
Home	-	12	18	41	64	87	121	158	196	237	278	307	336	366
% growth		-	51%	130%	57%	37%	39%	30%	24%	21%	18%	10%	10%	9%
% of HH	0.0%	0.1%	0.2%	0.4%	0.6%	0.8%	1.1%	1.4%	1.6%	1.9%	2.2%	2.4%	2.6%	2.8%
Business and other	-	12	103	203	301	402	506	611	741	855	972	1,091	1,213	1,366
% growth		1,952	780%	97%	49%	34%	26%	21%	21%	15%	14%	12%	11%	13%
% of economically active population	0.0%	0.1%	0.7%	1.3%	1.9%	2.5%	3.1%	3.7%	4.3%	4.9%	5.5%	6.1%	6.7%	7.3%
Education/Govt/other	-	2.0	18.4	35.2	52.2	69.3	86.6	104.0	121.4	139.2	157.2	175.6	194.3	213.3
% growth		-	840%	91%	48%	33%	25%	20%	17%	15%	13%	12%	11%	10%
% of population	0.0%	0.0%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%
Telephone and Cable Penetration														
Telephone lines in service (000s)	6,852	7,323	7,357	7,725	8,111	8,516	8,942	9,389	9,859	10,352	10,869	11,413		
% population	19%	20%	20%	21%	22%	22%	23%	24%	25%	26%	27%	28%		
Internet Accounts / Total LIS	2%	3%	6%	12%	18%	25%	31%	37%	41%	45%	48%	50%		
Basic Cable Subscribers (000s)	4,952	4,977	5,046	5,162	5,281	5,392	5,500	5,610	5,722	5,831	5,941	6,042	6,142	
% population	14%	14%	14%	14%	14%	14%	14%	14%	14%	15%	15%	15%	15%	
% HHs	49%	48%	48%	48%	49%	48%	48%	48%	48%	48%	47%	47%	47%	
Internet Accounts / Cable Subs.	3%	5%	9%	18%	28%	39%	50%	63%	71%	79%	88%	94%	102%	

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MSDW's Brazil Internet Estimates

Brazil	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Internet Users														
Internet Unique Users (000)	1,034	2,349	3,988	6,128	8,445	10,889	13,897	17,106	19,929	22,442	25,075	27,213	29,470	32,450
Number of accounts per user	1.14	1.18	1.18	1.17	1.19	1.22	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
% of population	0.6%	1.4%	2.3%	3.5%	4.8%	6.2%	7.8%	9.5%	11.0%	12.2%	13.6%	14.6%	15.6%	17.1%
% growth		127.3%	69.8%	53.6%	37.8%	28.9%	27.6%	23.1%	16.5%	12.6%	11.7%	8.5%	8.3%	10.1%
Internet Users (includes double counting)	1,179	2,763	4,688	7,182	10,033	13,300	16,731	20,593	23,992	27,017	30,187	32,761	35,478	39,065
Home	574	1,462	2,784	4,114	5,461	6,831	7,964	9,116	10,289	11,482	12,696	13,183	13,679	14,182
Business	245	528	839	1,893	3,288	5,077	7,270	9,879	11,922	13,567	15,332	17,219	19,233	22,100
Educ/Govt/other	360	773	1,065	1,175	1,285	1,392	1,496	1,598	1,781	1,968	2,159	2,358	2,567	2,783
Internet Users per Account	2.1	2.0	2.0	1.8	1.7	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4
Home	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6
Business	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Educ/Govt/other	3.3	3.2	3.1	3.1	3.0	3.0	2.9	2.8	2.8	2.7	2.7	2.6	2.6	2.5
Internet Subscribers (Accounts)	571	1,405	2,377	4,028	6,018	8,402	11,082	14,177	16,736	18,900	21,188	23,310	25,565	28,681
Home	239	636	1,198	1,753	2,304	2,854	3,295	3,734	4,173	4,610	5,047	5,189	5,331	5,472
Business	223	528	839	1,893	3,288	5,077	7,270	9,879	11,922	13,567	15,332	17,219	19,233	22,100
Educ/Govt/other	109	241	339	382	426	471	517	564	641	723	809	902	1,002	1,108
Internet Penetration Assumptions														
PCs & information apps. with Internet use (000)	571	1,405	2,377	4,028	6,018	8,402	11,082	14,177	16,736	18,900	21,188	23,310	25,565	28,681
Home	239	636	1,198	1,753	2,304	2,854	3,295	3,734	4,173	4,610	5,047	5,189	5,331	5,472
% growth		266%	189%	146%	131%	124%	115%	113%	112%	110%	109%	103%	103%	103%
% of HH	0.6%	1.6%	2.9%	4.2%	5.5%	6.8%	7.8%	8.7%	9.6%	10.6%	11.5%	11.7%	11.9%	12.1%
% of PC and info. apps. w/ Internet service	25%	50%	55%	62%	69%	75%	79%	83%	87%	91%	95%	96%	97%	98%
Business	223	528	839	1,893	3,288	5,077	7,270	9,879	11,922	13,567	15,332	17,219	19,233	22,100
% growth		237%	159%	226%	174%	154%	143%	136%	121%	114%	113%	112%	112%	115%
% of economically active population	0.3%	0.7%	1.1%	2.4%	4.1%	6.2%	8.8%	11.9%	13.5%	15.2%	17.1%	19.0%	21.0%	23.2%
% of PC and info. apps. w/ Internet service	10%	20%	23%	31%	39%	47%	56%	64%	67%	71%	74%	78%	81%	85%
Educ/Govt/other	109	241	339	382	426	471	517	564	641	723	809	902	1,002	1,108
% growth		221%	141%	113%	112%	111%	110%	109%	114%	113%	112%	111%	111%	111%
% of population	0.1%	0.3%	0.4%	0.4%	0.5%	0.6%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%	1.3%
% of PC and info. apps. w/ Internet service	12%	23%	29%	29%	29%	30%	30%	30%	32%	33%	35%	37%	38%	40%

MSDW's Brazil Internet Estimates

PC and Info. Appliance Forecast														
PCs and information apps. (000)	4,046	4,970	7,054	10,283	13,228	16,121	18,987	21,859	24,522	26,373	28,223	29,948	31,703	34,338
Home	946	1,264	2,168	2,830	3,358	3,791	4,155	4,483	4,780	5,050	5,297	5,389	5,479	5,567
Business	2,196	2,676	3,719	6,145	8,422	10,739	13,097	15,496	17,718	19,154	20,614	22,100	23,610	26,000
Educ/Govt/other	904	1,030	1,168	1,307	1,449	1,591	1,735	1,879	2,024	2,169	2,312	2,460	2,613	2,771
PCs (000)	4,046	4,921	6,434	9,025	11,341	13,590	15,783	17,966	19,740	20,846	21,939	22,932	23,942	25,595
Home	946	1,251	2,124	2,745	3,224	3,602	3,889	4,134	4,340	4,515	4,661	4,688	4,712	4,732
Business	2,196	2,649	3,238	5,154	6,936	8,749	10,595	12,473	13,978	14,846	15,729	16,626	17,538	19,093
Educ/Govt/other	904	1,020	1,072	1,126	1,182	1,239	1,299	1,359	1,421	1,485	1,549	1,617	1,692	1,770
PCs as % of total information apps. (000)	100%	99%	91%	88%	86%	84%	83%	82%	80%	79%	78%	77%	76%	75%
Home	100%	99%	98%	97%	96%	95%	94%	92%	91%	89%	88%	87%	86%	85%
Business	100%	99%	87%	84%	82%	81%	81%	80%	79%	78%	76%	75%	74%	73%
Educ/Govt/other	100%	99%	92%	86%	82%	78%	75%	72%	70%	68%	67%	66%	65%	64%
PCs (000)														
Home	946	1,251	2,124	2,745	3,224	3,602	3,889	4,134	4,340	4,515	4,661	4,688	4,712	4,732
% growth		32%	70%	29%	17%	12%	8%	6%	5%	4%	3%	1%	1%	0%
% of HH	2%	3%	5%	7%	8%	9%	9%	10%	10%	10%	11%	11%	11%	10%
Business	2,196	2,649	3,238	5,154	6,936	8,749	10,595	12,473	13,978	14,846	15,729	16,626	17,538	19,093
% growth		21%	22%	59%	35%	26%	21%	18%	12%	6%	6%	6%	5%	9%
% of economically active population w/ PCs	3%	4%	4%	6%	9%	11%	13%	15%	16%	17%	18%	18%	19%	20%
Education/Govt/other	904	1,020	1,072	1,126	1,182	1,239	1,299	1,359	1,421	1,485	1,549	1,617	1,692	1,770
% growth		13%	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	5%	5%
% of population	1.1%	1.2%	1.3%	1.3%	1.4%	1.5%	1.5%	1.6%	1.7%	1.8%	1.9%	1.9%	2.0%	2.1%
Information appliances (000)	-	50	620	1,258	1,887	2,531	3,204	3,893	4,782	5,527	6,284	7,016	7,761	8,744
Home	-	13	43	85	134	190	266	350	440	535	636	701	767	835
% growth			243%	96%	58%	41%	40%	31%	26%	22%	19%	10%	9%	9%
% of HH	0.0%	0.0%	0.1%	0.2%	0.3%	0.4%	0.6%	0.8%	1.0%	1.2%	1.4%	1.6%	1.7%	1.8%
Business and other	-	27	481	991	1,486	1,989	2,502	3,023	3,739	4,308	4,886	5,474	6,072	6,908
% growth			1697%	106%	50%	34%	26%	21%	24%	15%	13%	12%	11%	14%
% of economically active population	0.0%	0.0%	0.6%	1.2%	1.8%	2.4%	3.0%	3.6%	4.2%	4.8%	5.4%	6.0%	6.6%	7.2%
Education/Govt/other	-	10.3	95.9	181.5	267.0	352.1	436.6	520.2	602.7	683.8	763.2	842.1	921.8	1,001.0
% growth			831%	89%	47%	32%	24%	19%	16%	13%	12%	10%	9%	9%
% of population	0.0%	0.0%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%
Telephone and Cable Penetration														
Telephone lines in service (000s)	17,045	19,960	24,530	29,418	34,041	37,771	41,014	43,990	46,678	49,380	52,182	55,119		
% population	10%	12%	14%	17%	19%	21%	23%	24%	26%	27%	28%	30%		
Internet Accounts / Total LIS	3%	7%	10%	14%	18%	22%	27%	32%	36%	38%	41%	42%		
Basic Cable Subscribers (000s)	1,783	1,810	1,929	2,585	3,205	3,894	4,743	5,455	5,951	6,457	6,922	7,400	7,784	
% population	1%	1%	1%	1%	2%	2%	3%	3%	3%	4%	4%	4%	4%	
% HHs	4%	4%	5%	6%	8%	9%	11%	13%	14%	15%	16%	17%	17%	
Internet Accounts / Cable Subs.	32%	78%	123%	156%	188%	216%	234%	260%	281%	293%	306%	315%	328%	

MSDW's Chile Internet Estimates

Chile	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Internet Users														
Internet Unique Users (000)	106	199	364	582	805	1,032	1,284	1,546	1,805	2,041	2,287	2,476	2,676	2,952
Number of accounts per user	1.14	1.18	1.17	1.18	1.19	1.22	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
% of population	0.7%	1.3%	2.4%	3.8%	5.3%	6.7%	8.2%	9.8%	11.3%	12.7%	14.1%	15.1%	16.1%	17.6%
% growth		87.3%	82.9%	60.0%	38.3%	28.2%	24.3%	20.5%	16.8%	13.0%	12.1%	8.3%	8.1%	10.3%
Internet Users (includes double counting)	121	234	426	688	961	1,261	1,551	1,869	2,182	2,466	2,764	2,993	3,234	3,568
Home	37	92	213	365	519	675	799	926	1,054	1,186	1,319	1,373	1,429	1,485
Business	34	66	102	187	289	414	563	737	894	1,018	1,152	1,295	1,448	1,690
Educ/Govt/other	51	76	111	136	154	171	188	206	234	262	293	324	358	393
Internet Users per Account	2.0	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Home	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6
Business	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Educ/Govt/other	3.3	3.0	2.9	2.9	2.8	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4
Internet Subscribers (Accounts)	61	131	232	390	562	758	964	1,194	1,411	1,597	1,793	1,968	2,153	2,430
Home	15	40	92	155	219	282	331	379	428	476	524	541	557	573
Business	31	66	102	187	289	414	563	737	894	1,018	1,152	1,295	1,448	1,690
Educ/Govt/other	15	25	38	47	54	62	70	78	90	103	117	132	149	167
Internet Penetration Assumptions														
PCs & information apps. with Internet use (000)	61	131	232	390	562	758	964	1,194	1,411	1,597	1,793	1,968	2,153	2,430
Home	15	40	92	155	219	282	331	379	428	476	524	541	557	573
% growth		260%	231%	169%	141%	129%	117%	115%	113%	111%	110%	103%	103%	103%
% of HH	0.4%	0.9%	2.1%	3.5%	5.0%	6.4%	7.5%	8.4%	9.3%	10.4%	11.3%	11.4%	11.9%	12.1%
% of PC and info. apps. w/ Internet service	8%	19%	24%	34%	44%	54%	58%	62%	66%	70%	74%	75%	76%	77%
Business	31	66	102	187	289	414	563	737	894	1,018	1,152	1,295	1,448	1,690
% growth		217%	154%	183%	155%	143%	136%	131%	121%	114%	113%	112%	112%	117%
% of economically active population	0.6%	1.2%	1.8%	3.1%	4.8%	6.8%	9.2%	11.9%	13.5%	15.3%	17.1%	19.0%	21.0%	23.2%
% of PC and info. apps. w/ Internet service	8%	17%	22%	31%	39%	47%	55%	64%	67%	71%	74%	78%	81%	85%
Educ/Govt/other	15	25	38	47	54	62	70	78	90	103	117	132	149	167
% growth		164%	149%	125%	115%	114%	112%	112%	116%	115%	114%	113%	113%	112%
% of population	0.2%	0.4%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.3%	1.5%	1.7%	2.0%	2.2%	2.5%
% of PC and info. apps. w/ Internet service	16%	21%	28%	29%	29%	29%	30%	30%	32%	33%	35%	37%	38%	40%

MSDW's Chile Internet Estimates

PC and Info. Appliance Forecast														
PCs and information apps. (000)	652	719	976	1,235	1,429	1,612	1,821	2,026	2,260	2,426	2,592	2,744	2,898	3,150
Home	183	210	383	458	498	523	570	612	648	680	709	721	733	744
Business	372	390	460	613	745	879	1,016	1,156	1,329	1,438	1,549	1,662	1,777	1,988
Educ/Govt/other	97	120	133	165	187	210	234	258	283	308	334	361	388	417
PCs (000)	652	712	922	1,112	1,248	1,372	1,515	1,654	1,804	1,898	1,989	2,070	2,152	2,304
Home	183	208	375	444	478	497	534	564	588	608	624	627	630	633
Business	372	386	422	537	632	729	828	929	1,047	1,113	1,180	1,248	1,318	1,458
Educ/Govt/other	97	118	125	132	139	146	153	161	169	177	185	194	203	213
PCs as % of total information apps. (000)	100%	99%	95%	90%	87%	85%	83%	82%	80%	78%	77%	75%	74%	73%
Home	100%	99%	98%	97%	96%	95%	94%	92%	91%	89%	88%	87%	86%	85%
Business	100%	99%	92%	88%	85%	83%	81%	80%	79%	77%	76%	75%	74%	73%
Educ/Govt/other	100%	99%	94%	80%	74%	69%	65%	62%	60%	57%	55%	54%	52%	51%
PCs (000)														
Home	183	208	375	444	478	497	534	564	588	608	624	627	630	633
% growth		14%	81%	18%	8%	4%	7%	6%	4%	3%	3%	1%	0%	0%
% of HH	4%	5%	9%	10%	11%	11%	12%	13%	13%	13%	13%	13%	13%	13%
Business	372	386	422	537	632	729	828	929	1,047	1,113	1,180	1,248	1,318	1,458
% growth		4%	9%	27%	18%	15%	14%	12%	13%	6%	6%	6%	6%	11%
% of economically active population w/ PCs	7%	7%	8%	9%	11%	12%	14%	15%	16%	17%	18%	18%	19%	20%
Education/Govt/other	97	118	125	132	139	146	153	161	169	177	185	194	203	213
% growth		22%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
% of population	1.5%	1.8%	1.9%	2.0%	2.1%	2.2%	2.3%	2.4%	2.5%	2.6%	2.7%	2.9%	3.0%	3.2%
Information appliances (000)	-	7	53	122	181	241	306	372	456	529	603	674	747	846
Home	-	2	8	14	20	26	37	48	60	72	85	94	103	112
% growth			265%	79%	45%	31%	40%	31%	25%	21%	18%	10%	9%	9%
% of HH	0.0%	0.0%	0.2%	0.3%	0.5%	0.6%	0.8%	1.1%	1.3%	1.6%	1.8%	2.0%	2.2%	2.4%
Business and other	-	4	38	76	112	150	188	227	282	325	369	413	459	530
% growth			864%	101%	49%	33%	26%	21%	24%	15%	13%	12%	11%	16%
% of economically active population	0.0%	0.1%	0.7%	1.3%	1.9%	2.5%	3.1%	3.7%	4.3%	4.9%	5.5%	6.1%	6.7%	7.3%
Education/Govt/other	-	1.2	7.9	33.0	48.7	64.6	80.9	97.4	114.3	131.6	149.1	167.0	185.3	203.9
% growth			562%	317%	47%	33%	25%	21%	17%	15%	13%	12%	11%	10%
% of population	0.0%	0.0%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%
Telephone and Cable Penetration														
Telephone lines in service (000s)	2,630	2,977	3,056	3,246	3,514	3,804	4,070	4,355	4,660	4,986	5,335	5,708		
% population	18%	20%	20%	21%	23%	25%	26%	28%	29%	31%	33%	35%		
Internet Accounts / Total LIS	2%	4%	8%	12%	16%	20%	24%	27%	30%	32%	34%	34%		
Basic Cable Subscribers (000s)	637	699	762	824	887	948	1,008	1,066	1,124	1,179	1,229	1,275	1,314	
% population	4%	5%	5%	5%	6%	6%	6%	7%	7%	7%	8%	8%	8%	
% HHs	16%	17%	18%	19%	20%	21%	23%	24%	24%	26%	26%	27%	28%	
Internet Accounts / Cable Subs.	10%	19%	30%	47%	63%	80%	96%	112%	126%	135%	146%	154%	164%	

MSDW's Mexico Internet Estimates

Mexico	1997	1998	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
Internet Users														
Internet Unique Users (000)	375	714	1,307	2,833	4,332	5,883	7,359	9,140	10,757	12,243	13,812	15,055	16,372	18,090
Number of accounts per user	1.25	1.27	1.26	1.26	1.31	1.37	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
% of population	0.4%	0.7%	1.3%	2.8%	4.2%	5.6%	6.9%	8.4%	9.8%	11.0%	12.2%	13.1%	14.0%	15.3%
% growth		90.2%	83.1%	116.8%	52.9%	35.8%	25.1%	24.2%	17.7%	13.8%	12.8%	9.0%	8.7%	10.5%
Internet Users (includes double counting)	468	903	1,651	3,570	5,686	8,052	10,285	12,774	15,034	17,112	19,304	21,041	22,881	25,283
Home	113	225	625	1,778	2,962	4,182	5,044	5,932	6,846	7,785	8,751	9,170	9,599	10,039
Business	206	431	726	1,398	2,223	3,252	4,492	5,954	7,187	8,207	9,309	10,497	11,774	13,596
Educ/Govt/other	150	247	300	394	501	619	748	888	1,001	1,120	1,244	1,374	1,509	1,648
Internet Users per Account	1.7	1.4	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3
Home	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3
Business	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Educ/Govt/other	3.3	3.0	2.9	2.9	2.8	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4
Internet Subscribers (Accounts)	273	626	1,138	2,406	3,838	5,485	7,168	9,082	10,764	12,240	13,807	15,208	16,704	18,751
Home	56	112	309	872	1,438	2,009	2,400	2,794	3,192	3,595	4,001	4,151	4,302	4,454
Business	172	431	726	1,398	2,223	3,252	4,492	5,954	7,187	8,207	9,309	10,497	11,774	13,596
Educ/Govt/other	45	82	102	137	177	224	276	334	384	439	497	560	628	700
Internet Penetration Assumptions														
PCs & information apps. with Internet use (000)	273	626	1,138	2,406	3,838	5,485	7,168	9,082	10,764	12,240	13,807	15,208	16,704	18,751
Home	56	112	309	872	1,438	2,009	2,400	2,794	3,192	3,595	4,001	4,151	4,302	4,454
% growth		200%	275%	282%	165%	140%	119%	116%	114%	113%	111%	104%	104%	104%
% of HH	0.3%	0.6%	1.5%	4.3%	6.8%	9.3%	11.0%	12.6%	14.0%	15.4%	16.9%	17.0%	17.3%	17.7%
% of PC and info. apps. w/ Internet service	7%	12%	17%	27%	37%	47%	51%	55%	59%	63%	67%	68%	69%	70%
Business	172	431	726	1,398	2,223	3,252	4,492	5,954	7,187	8,207	9,309	10,497	11,774	13,596
% growth		251%	169%	192%	159%	146%	138%	133%	121%	114%	113%	113%	112%	115%
% of economically active population	0.5%	1.2%	1.9%	3.4%	5.4%	7.8%	10.6%	13.8%	15.7%	17.6%	19.7%	21.9%	24.2%	26.6%
% of PC and info. apps. w/ Internet service	8%	16%	21%	29%	38%	47%	55%	64%	67%	71%	74%	78%	81%	85%
Educ/Govt/other	45	82	102	137	177	224	276	334	384	439	497	560	628	700
% growth		182%	124%	134%	130%	126%	123%	121%	115%	114%	113%	113%	112%	111%
% of population	0.1%	0.1%	0.2%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%
% of PC and info. apps. w/ Internet service	10%	15%	16%	19%	21%	24%	27%	30%	32%	33%	35%	37%	38%	40%

MSDW's Mexico Internet Estimates

PC and Info. Appliance Forecast														
PCs and information apps. (000)	3,470	4,146	5,970	8,732	10,577	12,187	13,876	15,544	17,316	18,618	19,919	21,115	22,337	24,120
Home	783	946	1,833	3,241	3,897	4,285	4,716	5,091	5,421	5,716	5,981	6,114	6,245	6,374
Business	2,253	2,640	3,491	4,756	5,853	6,982	8,144	9,340	10,681	11,586	12,517	13,472	14,454	15,996
Educ/Govt/other	434	559	646	735	826	920	1,016	1,114	1,214	1,316	1,421	1,528	1,638	1,750
PCs (000)	3,470	4,104	5,617	8,001	9,474	10,706	11,979	13,215	14,449	15,276	16,087	16,819	17,566	18,737
Home	783	937	1,796	3,144	3,741	4,071	4,414	4,694	4,923	5,110	5,264	5,319	5,371	5,418
Business	2,253	2,614	3,237	4,239	5,082	5,949	6,841	7,758	8,721	9,317	9,930	10,559	11,204	12,277
Educ/Govt/other	434	554	584	617	651	687	724	764	805	848	894	941	991	1,043
PCs as % of total information apps. (000)	100%	99%	94%	92%	90%	88%	86%	85%	83%	82%	81%	80%	79%	78%
Home	100%	99%	98%	97%	96%	95%	94%	92%	91%	89%	88%	87%	86%	85%
Business	100%	99%	93%	89%	87%	85%	84%	83%	82%	80%	79%	78%	78%	77%
Educ/Govt/other	100%	99%	90%	84%	79%	75%	71%	69%	66%	64%	63%	62%	60%	60%
PCs (000)														
Home	783	937	1,796	3,144	3,741	4,071	4,414	4,694	4,923	5,110	5,264	5,319	5,371	5,418
% growth		20%	92%	75%	19%	9%	8%	6%	5%	4%	3%	1%	1%	1%
% of HH	4%	5%	9%	15%	18%	19%	20%	21%	22%	22%	22%	22%	22%	22%
Business	2,253	2,614	3,237	4,239	5,082	5,949	6,841	7,758	8,721	9,317	9,930	10,559	11,204	12,277
% growth		16%	24%	31%	20%	17%	15%	13%	12%	7%	7%	6%	6%	10%
% of economically active population w/ PCs	6%	7%	9%	10%	12%	14%	16%	18%	19%	20%	21%	22%	23%	24%
Education/Govt/other	434	554	584	617	651	687	724	764	805	848	894	941	991	1,043
% growth		27%	6%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	5%
% of population	0.8%	1.0%	1.0%	1.1%	1.2%	1.2%	1.3%	1.3%	1.4%	1.5%	1.5%	1.6%	1.7%	1.8%
Information appliances (000)	-	41	352	731	1,102	1,481	1,897	2,329	2,868	3,343	3,832	4,296	4,771	5,382
Home	-	9	37	97	156	214	302	397	499	606	718	795	874	956
% growth			287%	165%	60%	37%	41%	32%	26%	21%	18%	11%	10%	9%
% of HH	0.0%	0.0%	0.2%	0.5%	0.7%	1.0%	1.4%	1.8%	2.2%	2.6%	3.0%	3.3%	3.5%	3.8%
Business and other	-	26	254	516	771	1,034	1,304	1,582	1,960	2,269	2,587	2,914	3,250	3,719
% growth			862%	103%	49%	34%	26%	21%	24%	16%	14%	13%	12%	14%
% of economically active population	0.0%	0.1%	0.7%	1.3%	1.9%	2.5%	3.1%	3.7%	4.3%	4.9%	5.5%	6.1%	6.7%	7.3%
Education/Govt/other	-	5.6	61.6	118.2	175.4	233.0	291.2	349.8	408.8	467.8	527.3	587.2	647.2	707.2
% growth			1002%	92%	48%	33%	25%	20%	17%	14%	13%	11%	10%	9%
% of population	0.0%	0.0%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%	1.2%
Telephone and Cable Penetration														
Telephone lines in service (000s)	9,254	9,927	10,821	11,829	12,955	14,158	15,500	16,986	18,616	20,378	22,349	24,563		
% population	10%	10%	11%	12%	13%	13%	15%	16%	17%	18%	20%	21%		
Internet Accounts / Total LIS	3%	6%	11%	20%	30%	39%	46%	53%	58%	60%	62%	62%		
Basic Cable Subscribers (000s)	1,575	1,859	2,119	2,437	2,783	3,153	3,525	3,902	4,230	4,492	4,708	4,849	4,985	
% population	2%	2%	2%	2%	3%	3%	3%	4%	4%	4%	4%	4%	4%	
% HHs	8%	9%	11%	12%	13%	15%	16%	18%	19%	19%	20%	20%	20%	
Internet Accounts / Cable Subs.	17%	34%	54%	99%	138%	174%	203%	233%	254%	272%	293%	314%	335%	

E = Morgan Stanley Dean Witter Research Estimate

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Glossary of Terms and Technologies

56K Line: A phone-line connection, or leased line, capable of carrying 56,000 bits per second. At this speed, a megabyte of data would take about 3 minutes to transfer, which is twice as fast as the standard 28.800 kbps modem.

Ad clicks: The number of ‘clicks’ by an end-user on an online ad within a certain period of time.

Ad click Rate: Ad clicks as a percentage of ad views, or the number of clicks by end-users on an ad as a percentage of the number of times that ad was downloaded by end-users.

ADSL (Asymmetric Digital Subscriber Line): A member of the digital subscriber line family of copper loop enhancing technologies (see “DSL”), ADSL is asymmetric, meaning that it provides faster transmission rates downstream than upstream. It is therefore well suited to fast Internet access, where requests for Web pages and e-mail sent generally require less bandwidth than the receipt of multimedia and Web pages. ADSL is not well suited for business applications that require symmetric communication, such as videoconferencing and two-way file transfer.

Advertorial: A print advertisement styled to resemble the editorial format and typeface of the publication in which it runs.

Ad views: On the Internet, the number of times an online ad was downloaded by users, often measured as a function of time (‘ad views per day’). The actual number of times the ad was seen by users may differ because of ‘caching’ (which increases the real number of ad views) and browsers that view documents as text-only (which decreases the number of ad views).

All-optical networks: Networks that are entirely optical, and therefore avoid the cost and time delays inherent in converting optical signals to electric signals and *vice versa*.

AM (Amplitude Modulation): The simplest carrier modulation technique, where the radio frequency carrier’s amplitude envelope is modulated.

Application: A software program that carries out some useful task. Database managers, spreadsheets, communications packages, graphics programs and word processors are all applications.

ARPAnet (Advanced Research Projects Agency Network): A Department of Defense data network which tied together many users and computers in universities, government and businesses. It was the forerunner of many developments in commercial data communications, including packet switching, which was first tested on a large scale on this network. The predecessor of the Internet, it was started in 1969 with funds from the Defense Department’s Advanced Projects Research Agency.

ARPU (Average Revenue Per User): A primary element of valuation and analysis of wireless companies. It reflects the average amount of revenue generated by each subscriber.

Asynchronous Transmission: Mode of data communications transmission in which time intervals between transmitted characters may be of unequal length.

ATM: Asynchronous transfer mode (ATM) is an international high-speed, high-volume, packet-switching transmission protocol standard. ATM uses short, uniform, 53-byte cells to divide data into efficient, manageable packets for ultrafast switching through a high-performance communications network. The 53-byte cells contain 5-byte destination address headers and 48 data bytes. ATM is the first packet-switched technology designed from the ground up to support integrated voice, video and data communication applications. It is well-suited to high-speed WAN transmission speeds from 64 Kbps to 622 Mbps. ATM may support gigabit speeds in the future.

Audience accumulation: The net number of people (or homes) exposed to a medium during its duration; e.g., a half-hour broadcast program, or a magazine issue.

Audience composition: The demographic profile of a media audience.

Audience turnover: The average ratio of cumulative audience listening/viewing to the average audience listening/viewing.

Average audience (AA): In broadcast, the average number of homes (or individuals) tuned to a given time segment of a program. In print media, the number of individuals who looked into an average issue of a publication and are considered 'readers'.

Backbone: A high-speed line or series of connections that forms a major pathway within a network. The term is relative, though, as a backbone in a small network will likely be much smaller than many non-backbone lines in a large network.

Bandwidth: Terminology used to indicate the transmission or processing capacity of a system or of a specific location in a system (usually a network system). Bandwidth is usually defined in bits per second but also is usually described as either large or small.

Barter: The exchange of goods and services without the use of cash. Usually the acquisition of media time or space by a media company in exchange for similar time/space in return.

Basic cable: A 'basic' service agreement in which a subscriber pays a cable TV operator or system a monthly fee. Does not include 'pay' services that might be offered by the cable operator.

Baud (bits at unit density): A unit of transmission speed equal to the number of times the state (or condition) of a line changes per second. Equal to the bit-per-second (bps) rate only if each signal element represents one bit of information. The baud rate usually refers to the number of bits transmitted each second.

Bits: A binary digit, either a 0 or 1. The smallest element of a computer program. 8 bits make up one byte. Typically, transmission capacity is measured in bits (kilobits or megabits).

bps (bits per second): A measurement of how fast data are moved from one place to another. A 28.8 modem can move 28,800 bits per second.

Broadband: Loosely used to describe signals of high **bandwidth**. It is specifically used to describe the use of (high bandwidth) **coaxial cable** to transmit radio, television or other **analogue** signals that would typically be sent over the airwaves. Also used as a generic term for high speed telecommunications circuits and services.

Browsers: Software programs that retrieve, display and print information and HTML documents from the World-wide Web. Different browsers support different versions of the HTML standard, sometimes causing illegible information to be displayed.

Bytes: The fundamental unit that a computer uses in its operation. It is a group of adjacent binary digits, usually 8, often used to represent a single character (see **bit**). A byte is typically composed of 8 bits. Memory and storage capacity usually are measured in bytes (megabytes or gigabytes).

Cable TV: Reception of TV signals via cable (wires) rather than over the air (i.e., via a TV antenna).

Cable Modem: Offers high-speed, broadband access service over hybrid coaxial cable, providing up to 27Mbps of bandwidth.

Caching: This phenomenon occurs when access providers or browsers store or buffer Web page data in a temporary location on their networks or in their disk space to speed access and reduce traffic. Reduces the number of measured page views at the original content site.

Central Office (CO): The switching office that connects the mobile telephone switching office (MTSO) to the public switched telephone network (PSTN).

CGI (Common Gateway Interface): Programs or scripts, usually executed on the Web server, that perform actions (like searching or running applications) when the user clicks on certain buttons or parts of the Web screen.

Checkout: The process of entering billing, shipping and credit card information into the merchant system after completing an online shopping excursion.

Circulation: In print media, the number of copies sold or distributed by a publication. In broadcast, the number of homes owning a TV/radio set within a station's coverage area. Or, in cable TV, the number of households that sub-

scribe to cable services for a given network. In out-of-home media, the number of people passing an advertisement who have an opportunity to see it.

CLEC (Competitive Local Exchange Carrier): A competitive access provider (see CAP) that also provides switched local telecommunications services. (Also see LEC)

Click-throughs: Same as **ad clicks**.

Client: A software program used to contact and obtain data from a server software program on another computer, often across a great distance. Each client program is designed to work with one or more specific kinds of server programs, and each server requires a specific kind of client.

Coaxial Cable: Cable capable of carrying much higher bandwidth than copper wire due to its fabrication with one or more pairs in a single sheath.

Co-carrier Status: A relationship between a CLEC and an incumbent LEC that gives each entity the same access to the other's network and provides access and services on an equal basis.

Contention: The process whereby multiple users make requests for transmission bandwidth across a transmission link but the pool of bandwidth is less than the aggregate amount of bandwidth the users could request.

Cookie: A persistent piece of information, stored on the user's local hard drive, that is keyed to a specific server (and even a file pathway or directory location at the server) and is passed back to the server as part of the transaction that takes place when the user's browser again crosses the specific server/path combination.

Cost per thousand (CPT): The cost to deliver 1,000 impressions (associated with delivery of ad views on the Internet, and delivery to people or homes in traditional media).

Coverage: The percentage of a population group covered by a medium. Commonly used with print media to describe an average issue's audience within defined demographic or purchasing groups.

Credit card authorization: The process of sending credit card purchase information to a product or service provider for authorization.

Cyberspace: Term originated by author William Gibson in his novel *Neuromancer*, and currently used to describe the whole range of information resources available through computer networks.

DARPA (Defense Advanced Research Project Agency): The branch of the United States Defense Department that is dedicated to the research and development of military defense systems.

DARPAnet (Defense Advanced Research Project Agency Network): The network developed in 1969 by the United States Department of Defense. The name was later changed to ARPAnet. It is a predecessor of the Internet.

Data Packets: Information requested on the Internet that is broken down into hundreds of smaller pieces or "packets" by TCP/IP. These packets travel separately through different routes over the Internet to their destination where they are reassembled upon arrival.

Dedicated Access: Connection between a customer's premises and a long distance carrier.

Dedicated Lines: Telecommunications lines dedicated to or reserved for use by particular customers along predetermined routes (in contrast to telecommunications lines within the LEC's public network).

Demography: The study of the characteristics of population groups in terms of size, distribution, and vital statistics.

Digital: A method of storing, processing, and transmitting information through the use of distinct electronic or optical pulses that represent binary digits (0 and 1).

Digital Modulation: A method of encoding information for transmission that we expect will eventually replace analog transmission.

Digital Certificates: Digital documents that verify a user's identity and prevent impersonations. Digital certificates are issued by a certificate authority whose identity is known and recognized. This verification process is similar to that provided by a driver's license, which verifies the connection between the photograph and the personal identification. Cryptographic checks, including a digital signature, ensure that the information within the certificate can be trusted.

Domain name: The unique name that identifies an Internet site, such as ‘*microsoft.com*’. A domain name always has two or more parts, separated by periods. The part to the left of the period is the most specific, and the part on the right is the most general. A given machine may have more than one domain name, but a given domain name points to only one machine. It is possible for a domain name to exist but not be connected to an actual machine. This is often done so that a group or business can have an Internet e-mail address without having to establish a real Internet site. In these cases, some real Internet machine must handle the mail on behalf of the listed domain name.

Domain Name System (DNS): This maps Internet addresses registered with Network Solutions, the worldwide coordinator of addresses for the Internet. Each Internet host connected to the Internet, such as a computer, is given a unique Internet address. The DNS translates address names, such as <http://www.online.msdc.com>, into numerical Internet addresses. This allows users of the Internet to route information from one address to another using names, rather than numerical addresses.

Download: The transfer of a file from a server computer to a client computer. Alternatively, sending a file from one’s own computer to any other computer (peer-to-peer transfer, not involving a server). Upload is the transfer of a file in the opposite direction.

Downstream Transmission: The transmission coming into a consumer’s residence or business. Often used with cable modems and DSLs to describe the data rate that can be achieved by the line coming into the home or office.

xDSL (Digital Subscriber Line): A series of technologies (‘x’ usually stands for ‘A’, Asymmetric) that provide broadband capacity over standard telephone lines to end-users. This technology is forecast to compete with cable the airwaves. Also used as a generic term for high speed telecommunications circuits and services.

DS0 (Digital Signal 0): A single voice-grade 64 Kbps circuit.

DS1 (Digital Signal 1): 1.544 Mbps with a payload of 1.536 Mbps bi-directional.

DS2 (Digital Signal 2): 6.312 Mbps, which can transport four DS1s asynchronously.

DSP: Digital signal processing.

DTMF (Dual Tone Multi Frequency): Commonly known as “touch-tones,” this in-bank signaling is made up of two tones (out of a group of 8) and is used to translate dialed digits.

DWDM (Dense Wavelength Division Multiplexing): A high-speed version of wave length division multiplexing. (See WDM).

DHTML (Dynamic Hypertext Markup Language): A technology that adds dynamic behavior to otherwise static HTML pages. It allows developers to modify all portions of the Web page, at any time, dynamically.

Duration time: The length of time between two events, such as successive requests to one or more Web pages (page duration) or visits to a given Web site (inter-visit duration).

EDGE (Enhanced Data Rates for GSM Evolution): An enhanced second generation wireless telephony standard.

EDFA (Erbium Doped Fiber Amplifier): EDFAs are used for amplifying optical signals in long-haul optical networks. Unlike electro-optic repeaters, which convert light to electricity, amplify the signal, and then reconvert it to light, EDFAs amplify the light signal itself. EDFAs have advantages that make them critical components of optical networks: they are fast, very simple, and are not frequency-dependent, meaning that networks may be upgraded by installing new wavelength division multiplexing (WDM) equipment without changing fiber or amplifiers between nodes.

Effective frequency: The level of exposure frequency at which reach is deemed ‘effectively’ delivered.

Effective reach: The percentage of a population group reached by a media schedule at a given level of frequency.

Efficiency: Generally refers to the relative costs of delivering media audiences.

Electronic commerce: Business environment integrating electronic transfer and automated business systems (end-user computing and computer-to-computer capabilities).

Electronic Data Interchange (EDI): Computer-to-computer exchange of structured transactional information between autonomous computers.

E-mail (electronic mail): Messages, usually text, sent from one person to another via computer. E-mail can also be sent automatically to a large number of addresses.

Encrypt: To scramble the contents of a file or message in such a way as to make it unreadable to everyone except those with a software 'key', which makes it possible to unscramble the encrypted file or message.

Encryption: Making a file unreadable by everyone not in possession of a special key, with which an encrypted file can be appropriately deciphered.

ERP (Enterprise Resource Planning): Standard application software which manages all levels of corporate processes from procurement through to payroll.

Ethernet: A popular, cost effective way information can travel through a network, also the easiest type of network to set up.

Extranet: A derivative of Intranet, a private network inside a company or organization, an Extranet is a private network which extends outside an organization to clients and suppliers.

FAQ (frequently asked questions): FAQs are documents that list and answer the most common questions on a particular subject. There are hundreds of FAQs available on the Internet on subjects as diverse as pet grooming and cryptography. FAQs are usually written by people who grow tired of answering the same questions repeatedly.

FDMA (Frequency Division Multiple Access): Systems that transmit one voice circuit per channel. Each conversation gets its own, unique radio channel.

Fiber Mile: The number of route miles installed (excluding pending installations) along a telecommunications path multiplied by the number of fibers along that path.

Fiber Optics: Means of providing a high-speed transmission, using light to send images through a flexible bundle of glass fibers.

File Transfer Protocol (FTP): An Internet utility program to obtain files from another system or to move files between systems. These files may contain information or software programs.

Firewall: Hardware or software that separates information on a computer from outside users not authorized to access this information.

Forms: The capability in many browser/navigator software packages to accept input in text-entry fields displayed on the user's screen. Customized forms can be developed easily to request information for company data, including time cards, expense reports, personnel records, and other such corporate information.

Free ISP: When subscribers are only billed for the local call charges to access the Internet. There is no monthly subscription charge. This business model was pioneered in the UK by Freeserve and has been copied many times. The ISP has a revenue-sharing agreement with the telecom operator which terminates the call and derives the bulk of revenues from advertising and a share in e-commerce revenues.

Freeware: Copyrighted software given away for free by the author. Although it is available for free, the author retains the copyright, which means that you can not do anything with it that is not expressly allowed by the author. Usually, the author allows people to use the software, but not sell it.

Frequency Shift Keying (FSK): The form of frequency modulation that used two separate audio frequencies to transmit binary ones and zeros.

FTP (File Transfer Protocol): A method for downloading and uploading files to and from an Internet site.

FTTC (Fiber to the Curb): Provision of fiber optic cables to the street cabinet, from where copper lines are already connected to buildings. A cheaper alternative to FTTH.

FTTH (Fiber to the Home): Deployment of direct fiber optic connections to consumers' homes, allowing for wide bandwidth connections. FTTH faces technical hurdles (am-

plification of signals in the upstream direction), but the most significant factor holding it back is the cost of laying fiber optic cables. As such, FTTH is not expected to be the only wideband access solution, but will be deployed selectively and will co-exist with DSL access solutions over copper pairs. FTTO (fiber to the office) is more prevalent, as large office buildings contain enough users and demand for services to justify the cost of laying fiber.

Full Duplex: Refers to a communications system that uses two separate transmit and receive paths to allow simultaneous conversation in two directions.

Frequency: The number of times people (or homes) are exposed to an advertising message, an advertising campaign, or a specific media vehicle. Also, the period of issuance of a publication, e.g., daily, monthly.

Frequency discount: A rate discount allowed an advertiser that purchases a specific schedule within a specific period of time, e.g., six ads within one year.

Frequency distribution: The array of reach according to the level of frequency delivered to each group.

Gateway: Any mechanism for providing access to another system, e.g., Freeserve could be called a gateway to the Internet.

GSM: Global Standard for Mobile: European digital cellular standard.

GUI (Graphic User Interface): A program that uses "icons" such as pictures, buttons, and symbols as commands that you "click" on. An example of a GUI interface is the Microsoft Windows operating system. GUI is also used throughout the Internet and in Web browsers making it easy to explore the World Wide Web by using your mouse to "point and click" to travel anywhere in the world you choose to go.

HDSL: High data rate DSL service that symmetrically delivers 1.544 Mbps over two sets of copper twisted pair, which is the same rate as a T-1 type connection.

Hit: Web-speak for any request for data from a Web page or file. Often used to compare popularity/traffic of a site in the context of getting so many 'hits' during a given period. A common mistake is to equate hits with visits or page

views. A single visit or page view is usually recorded as several hits, and depending on the browser, the page size, and other factors, the number of hits per page can vary widely. Modems for market share in the consumer broadband market. For a detailed description of xDSL, please refer to section Internet Access Technologies in Europe.

Home page: The first HTML (hypertext markup language) page that users generally see on a World Wide Web site. The home page represents the image that a company or individual chooses to project to users on the Internet. Most home pages are structured to also provide links to relevant documents or information at other locations on the Internet.

Host: Any computer on a network that is a repository for services available to other computers on the network. It is common to have one host machine that provides several services, such as the Web and Usenet.

HSCSD (High Speed Circuit Switched Data): 14.4 kbs per channel) An enhanced second generation wireless telephony standard.

HTML (hypertext markup language): A simple coding system used to format documents for viewing by World Wide Web clients. HTML can be compared with early word-processing software, in which all special characters, like bold or underline, need to be marked or 'tagged' to let the printer know that the character requires special consideration during output. Web pages are written in this standard specification, which is a data type definition (DTD), or subset of SGML (standardized graphics markup language).

HTTP (hypertext transfer protocol): An Internet computer communication coding standard for the exchange of multimedia documents on the Web.

HTTP linked object: A clickable object (text, picture, or both) that provides a path between documents, directing the browser to a new URL.

Hyperlink: An electronic path that connects two places in a network, often represented as underlined text, buttons, or pointers on Web pages.

Hypertext: Generally, any text on a Web page that contains 'links' to other documents – words or phrases in a

document that can be chosen by a user and which cause another document to be retrieved or displayed.

Image map: A clickable picture that directs the browser to different links, depending on which part of the image is clicked.

Impressions: The gross sum of all media exposures (number of people or homes) without regard to duplication.

internet (lower-case 'i'): Any time you connect two or more networks together, you have an internet.

Internet: The global network of networks that grew out of a US Department of Defense (DARPA) funded research project and that is the subject of this report.

Intranet: An in-house 'internet'. Usually a company's internal Web site, using browsers and HTML (or other software) on a LAN, which communicates general information to employees and may let them communicate with one another using IP technology. An Intranet may or may not be connected to the Internet.

Integrated Services Digital Network (ISDN): Switched network providing end-to-end digital connectivity for the simultaneous transmission of voice, data, video, imaging, and fax over several multiplexed communications channels.

InterNIC (InterNetwork Information Center): A US company where you register your domain name and who maintains a database with all registered names.

Inventory: Normally defined as the quantity of goods or materials on hand. On the Internet, a site's inventory is the number of page views it will deliver in a given period of time, and is thus the amount of product that can be sold to advertisers.

Internet Protocol (IP): The IP in TCP/IP, these are the technical standards which specify how packets on the Internet are routed from one machine to another network. It is the layer of the Internet.

ISDN (integrated services digital network): A digital telephonic system made up of two 64 kbps channels for data and one channel for traffic messaging. While an analog line usually takes up to 10 seconds to dial and make a connec-

tion, ISDN typically makes a dial-up connection within 0.5 seconds, allowing dial-up for a leased-line-like connection.

ISP (Internet service provider): A business that allows companies and individuals to connect to the Internet by providing the interface to the Internet backbone.

ISOC (Internet Society): An international organization that is dedicated to the development and use of the Internet. The purpose of the Internet Society is to promote and encourage global cooperation, use and coordination of the Internet infrastructure and its networking technologies and applications around the world. Members consist of individuals, commercial, government, and non-profit organizations.

IP Number: A unique number that identifies every computer on the Internet. Each unique number has four parts separated by dots.

Java: A new, object-oriented programming language developed by Sun Microsystems that allows Web pages viewed with Java-enabled Web browsers to display applets, which are small programs that can create sound and graphical animations, among other uses.

kbps (kilobits per second): Approximately 1,000 bits per second. An abbreviation for a unit of measure used for gauging the transmission of digital data from one point to another, typically but not necessarily across telephonic networks. Local-area networks (LANs) usually are measured in megabits per second (approximately one million bits per second).

LAN (local-area network): A computer network limited to an immediate area, usually one building or one floor of a single building.

Leased lines: A permanent physical connection between two locations that forms a private wide-area network(WAN) or links a single computer or a network of computers to packet-switching networks such as the Internet. They are called leased lines because they are rented from a telephone company.

Link: The path between two documents, which associates an object, such as a button or hypertext, on a Web page with another Web address. The hyperlink allows a user to point-

and-click on an object and thereby ‘move’ to the location associated with that object by loading the Web page at that address.

LMDS: A new, high-capacity, two-way, wireless, fixed voice and data communication service.

Local loop: The link for the consumer or corporate end-user to a central switch, which in turn is connected to the **backbone**, either directly or through further network connections.

MAE (Metropolitan Area Exchange or Ethernet): A Network Access Point where Internet Service Providers connect with each other.

Mail list (or mailing list): A (usually automated) system that allows people to send e-mail to one address, where upon their message is copied and sent to all other subscribers to the mailing list. In this way, people who have many different kinds of e-mail access can participate in discussions together.

Megabytes: A million bytes or a thousand kilobytes.

Mbps: 1 million bytes per second.

Megahertz (Mhz): 1 million cycles per second.

Mirror site: An alternative site to the main computer Web site that “mirrors” or duplicates the content of the main site. The mirror site helps to handle the high traffic to a popular site.

Modem: A contraction for modulation/demodulation. A modem is a device that converts a digital bit stream into an analog signal (modulation) and converts analog signals back into digital signals (demodulation). A modem typically uses telephone lines, and the analog signals are typically sounds. Fax machines have built-in modems.

MPEG (Motion Picture Experts Group): A proposed international standards organization (ISO) standard for digital video and audio compression for moving images. MPEG-1 was defined with CD-ROM as the primary application. The MPEG-3 concept is similar to MPEG-2 but includes extensions to cover a wider range of applications. The primary application targeted during the MPEG-3 defi-

inition process was the all-digital transmission of broadcast-quality video.

Multiplexing: The transmission of two or more signals over a single channel throughout the Internet and in Web browsers making it easy to explore the World Wide Web by using your mouse to “point and click” to travel anywhere in the world you choose to go.

NAP (Network Access Point): An actual connection to the Internet backbone network.

Netiquette: Short for ‘Net etiquette’, or the traditional way of doing things on the Internet. For example, sending an e-mail message in all caps is considered rude, as it’s the textual equivalent of shouting.

Network: Any time a computer is connected to two or more other computers, so that they can share resources, a network is created. Connecting two or more networks creates an internet. A broadcast entity that provides programming and sells commercial time in programs aired nationally via affiliated or licensed local stations. On the Internet, an aggregator/broker of advertising inventory from many sites.

Newbie: A newcomer to the Internet, particularly someone who, through ignorance or indifference, violates the traditional rules of Internet etiquette, or **netiquette**.

Newsgroups: The name for discussion groups on Usenet. Newsgroups are like publicly accessible mailing lists, which anyone can read or post a message to, although some are moderated, some are private, and some are read-only. Continuing discussions on a particular subject within a newsgroup are called ‘threads’. There are hundreds of newsgroups and newsgroups hierarchies (such as news.answers, for newbies, or comp.sys.palmtops, for those interested in handheld PCs), which can be accessed with newsreader applications for clients (similar to how e-mail clients are used for e-mail and browsers are used to view the Web).

NIC (network information center): Generally, any office that handles information for a network, providing administrative support, user support, and information services for a network.

Node: Any single computer connected to a network.

Operating system: A computer-system-specific set of programs that inter-operate with the computer system to control resources and to process those resources. Examples of operating systems are DOS, Windows 3.1, Windows 98, Windows NT and UNIX.

OSP (Online Service Provider): A paid service that provides a wide variety of interactive services and context to their subscribers. All major online services offer full Internet access to their customers.

Optical Amplifier: An amplifier of optical signals. The most popular optical amplifiers are EDFAs.

Packet switching: The method used to move data around on the Internet. In packet switching, all the data coming out of a machine are broken into chunks; each chunk has the address for where it came from and where it is going. This enables chunks of data from many different sources to come together on the same lines and be sorted and directed to different routes by special machines along the way. This way, many people can use the same lines concurrently.

Page: An HTML (hypertext markup language) document that may contain text, images, and other online elements, such as Java applets and multimedia files. It may be statically or dynamically generated.

Pagemaster: A designation for the person responsible for the contents of a Web site. While the Webmaster is responsible for the technical aspects of a Web site, the pagemaster has content responsibility (see **sitemaster**).

Page view: The number of times a page is downloaded by users, often measured as a function of time ('page views per day'). The actual number of times the page was seen by users may be higher because of 'caching'.

PDA (Personal Digital Assistant): A new form of computer which is meant to fit into a jacket pocket.

PDM (Packet Division Multiplexing): Different applications are assigned to different packets within the message frame, instead of different time slots, as with TDM.

Penetration: The percentage of people (or homes) within a defined universe that are physically able to be exposed to a medium.

Point of Presence (POP): Physical location within a local access and transport area (LATA) at which a long distance carrier's trunk lines are linked to the local carrier's network.

Portals: Web portals are starting points for accessing the wider Internet.

Protocol: A common language between computers over a network, such as hypertext transfer protocol (HTTP), used by the Web, or file transfer protocol (**ftp**), a quick software method of sending or receiving files over the Internet. Another example is Internet **public key cryptography**, a security scheme in which a different key is used for **encryption** and decryption.

PTO (Public Telecoms Operator): A company that owns a public network. A more modern and accurate — and polite— version of PTT.

PTT (Post Telegraph & Telephone): The most common name given to government departments responsible for communication.

Public key cryptography: The system of using digital codes called 'keys' to authenticate senders of messages and securely encrypt message content.

RADSL (Rate Adaptive DSL): This high-speed form of data transmission is derived from ADSL technologies and is geared toward the residential market, with a few added features. RADSL automatically adjusts line speed based on the condition of the line. In areas where there is a large variance in the distance between the central office and the subscriber, RADSL helps to provide a more consistent service for subscribers.

RAM (random access memory): A specific type of memory in which each element can be individually addressed and accessed with the same speed as any other element. RAM is the predominate type of memory in the main memory of a computer. A faster, more recent form of RAM is dynamic RAM (or DRAM).

Rating: The percentage of a given population group consuming a medium at a particular moment. Generally used for broadcast media but can be applied to any medium. One rating point equals one percent of the potential viewing population.

RBOCS (Regional Bell Operating Companies): Local exchange carriers. The seven regional Bell operating companies formed as a result of the breakup of AT&T. Each RBOC was granted a distinct geographic territory, or local access transport area (LATA), in which they could operate.

Reach: The number of different homes/people exposed at least once to an impression (ad view, program, commercial, print page, etc.) across a stated period of time. Also called the cumulative or unduplicated audience.

Reciprocal Compensation: An arrangement that provides for equal compensation for CAPs and LECs when terminating local calls on their respective networks.

Router: A special-purpose computer (or software package) that handles the connection between two or more networks. Routers spend all their time looking at the destination addresses of the packets passing through them and deciding which route to send them on.

Server: Any computer that allows other computers to connect to it. Most commonly, servers are dedicated machines. Most machines using UNIX are servers. Technically, peer-to-peer network nodes are also examples of servers (such as Microsoft's Windows for Workgroups and Windows 98 or Apple's System 7 File Sharing).

Session: A series of consecutive visits made by a visitor to a series of Web sites.

SDH (Synchronous Digital Hierarchy): The standard of the most powerful form of digital transmission technology. SDH is one of the new technologies at the heart of the broadband era, capable of delivering very high capacity links direct to the customer.

Shopping basket: Repository that resides with the client for storing, reviewing, and updating items purchased through the merchant system.

SDH (Synchronous Digital Hierarchy): A set of fiber optic communication standards, similar to SONET but established by the ITU (International Telecommunication Union).

Signaling System 7 (SS7): Sophisticated network signaling system that uses out-of-band signaling, where signaling information is sent over a channel separate from the call itself.

SOHO: Small Office and Home Office.

Sitemaster: A designation for the person with overall responsibility for a Web site. This definition often is applied to the Webmaster, an individual whose primary responsibility is for the technical aspects of a Web site. But the sitemaster must also deal with content, corporate image, legal issues and communication methodologies.

Smart-Build: A strategy competitors use to enter the local market. The competitor owns the switching equipment, which allows it to switch incoming calls and receive fees from long distance carriers, and leases the incumbent's lines (which would require a great deal of time and money to build).

SONET (Synchronous Optical Network): A fiber optic communications standard established by the American National Standards Institute (ANSI) that covers multiple data transfer rates from 51.84 Mbps to 13.22 Gbps. It defines a physical interface, optical line rates known as Optical Carrier (OC) signals, frame format, and an OAM&P (operations, administration, maintenance, and provisioning) protocol.

Splitter: Used to split an optical signal.

Sponsorship: The purchase of more than one commercial within a program, allowing advertisers to receive bonus time via billboards, or exclusivity of advertising within the brand's product category, or both.

Spot: Refers to the purchase of TV or radio commercial time on a market-by-market basis, as opposed to network (national) purchases. Also commonly used in lieu of 'commercial announcement'.

Streaming: A method that allows the ability to start playing a file in real time instead of having to download the completed file.

Switch: A sophisticated computer that accepts instructions from a caller in the form of a telephone number.

Switched Access Transport Services: Transportation of switched traffic along dedicated lines between the LEC central offices and long distance carrier's point of presence.

Switched Traffic: Telecommunications traffic along the public switched network. The traffic is switched at the local exchange carrier's central office.

T-1 Line: A copper connection that allows for speeds up to 1.544 Mbps through the use of multiplexing technology.

TCP/IP (transmission control protocol/Internet protocol): This is the suite of protocols that defines the Internet. Originally designed for the UNIX operating system, TCP/IP software is now available for every major kind of computer operating system. To be truly on the Internet, your computer must have TCP/IP software (see also: **IP** number, **Internet**, **UNIX**).

TDMA (Time Division Multiple Access): A form of multiplexing in which different packets of data are assigned to different time slots, allowing for much greater transmission speeds.

Terminal: A device that allows you to send commands to a computer somewhere else. At a minimum, this usually means a keyboard and a display screen and some simple circuitry. Typically, terminal software is used in a personal computer – the software pretends to be (that is, 'emulates') a physical terminal and allows the user to type in commands to a computer that is somewhere else.

Terminal server: A special-purpose computer that has places to plug in many modems on one side and a connection to a LAN or host machine on the other side. Thus, the terminal server does the work of answering the calls and passes the connections on to the appropriate node.

Thread: An ongoing conversation on a particular subject in a newsgroup. The initial message and its responses are usually linked by the user's software, so that the thread can be followed more easily.

UNIX: An operating system with built-in support for TCP/IP. Most servers on the Internet use UNIX.

Upstream Transmission: The transmission from a consumer's home or office to the network.

URL (Universal Resource Locator): An address system that identifies the service, host, path and file name of a document found on the WWW.

Unique users: The number of unique individuals who visit a site within a specific period of time. With today's technology, this number can only be calculated with some form of user registration or identification.

Universe: The total population within a defined demographic, psychographic, or product consumption segment against which media audiences are calculated to determine ratings, coverage, reach, etc.

Upload: The transfer of a file from a client computer to a server computer. Alternatively, receiving a file from another computer where neither is a server.

Usage: A program available on the Net that many Webmasters use to track Web site usage by visitors. Usage measures the number of accesses to each Web page at a site and cumulatively reports it for a given period, usually one week.

Virtual Collocation: An alternative to physical collocation in which the CAPs connect their equipment to the LECs' facilities from a remote location and request that the LEC install the necessary electronics in its central office, which is then leased by the LEC to the CAP for charges generally higher than the charges for physical collocation.

VPN (Virtual Private Network): A private network delivered over a service provider's shared infrastructure.

Voice Grade Equivalent Circuit: One DS-0. One voice-grade equivalent circuit is equal to 64 kilobits of bandwidth.

VANs (value-added networks): Privately owned and maintained computer networks, in which network bandwidth is leased for use between geographically disparate sites or between autonomous organizations.

Visit: A sequence of hits made by one user at a site. It is important to understand that Internet technology does not maintain a continuous 'connection' (like a radio signal) to a site. The data are sent in packets. If a user makes no request for data from the site during a predetermined (and discretionary) period of time, the user's next hit would constitute a new visit. This length of time is known as the 'time-out' period. While this interval is different for each site, I/PRO currently uses 30 minutes for all sites for purposes of comparability.

Volume discount: The price discount offered to advertisers who purchase a certain amount of volume from the medium, for instance, pages or dollar amount in magazines.

VRML (virtual reality modeling language): A three-dimensional interactive Web standard.

WAN (wide-area network): Any internet or network that covers an area larger than a single building or campus (see also: **Internet, internet, LAN, network**).

WAP (Wireless Access Protocol): A forum of a group of telecom equipment manufacturers to develop an international standard for using wireless devices to receive real-time information from the internet.

WDM (Wavelength Division Multiplexing): The multiplexing of optical signals by transmitting them at different wavelengths over the same fiber. Signals are separated by wavelength at the receiving end.

WCDMA (Wideband Code Division Multiple Access): A proposed third generation wireless telephony standard.

WDM: Wavelength Division Multiplexing

Wearout: A level of frequency, or a point in time, when an advertising message loses its ability to effectively communicate.

Web hosting: Where a telecoms operator offers space on its own web server facilities for rent to small **ISPs** (and possibly corporate customers).

Web housing: Where a telecoms operator rents physical space to an **ISP** for the location of the **ISP's** own Web servers.

Web page: An HTML document on the Web, usually one of many that together make up a Web site.

Web server: A system capable of continuous access to the Internet (or an internal network) through retrieving and displaying documents via hypertext transfer protocol (**http**). Files can be audio clips, video, graphics or text.

Web site: The virtual location for an organization's presence on the Worldwide Web, usually made up of several Web pages and a single home page designated by a unique URL.

Webmaster: Generally accepted term for the person responsible for a Web site.

Worldwide Web: The mechanism developed by Tim Berners-Lee for CERN physicists to be able to share documents via the Internet. The Web allows computer users to access information across systems around the world using **URLs** (uniform resource locators) to identify files and systems and hypertext links to move between files on the same or different systems.

WWW: Generally accepted shorthand for the Worldwide Web. Also called the Web, or **W3**, it is the part of the Internet that is generally used for e-commerce and other online activities.

Companies Mentioned in this Report

Amazon (AMZN, \$70.68, O)	Priceline.com (PCLN, \$53.0, ++)
America Online (AOL, \$52.0, ++)	Prodigy (PRGY, \$22.5, NR)
Banacci (BNCBF, \$3.92, SB, target \$5)	PSINet (PSIX, \$42.5, O, target \$42)
Bradesco (BBQCY, \$8.12, SB, target \$11.25)	Quepasa.com (PASA, \$9.25, NR)
CANTV (VNT, \$38.38, N)	Sanborns (SANB.MX, \$2.3, NR)
CBD (CBD, \$31.38, N)	El Sitio (LCTO, \$26.0, NR)
CIE (CIEB.MX, \$4.4, NR)	Soriana (SNASF, \$4.31, O, target \$5.5)
Cisco (CSCO, \$127.75, SB, target \$115)	StarMedia (STRM, \$56.25, NR)
CompUSA (CPU, \$9.63, NR)	Tele Centro Sul (TCS, \$77.0, O, target \$91)
Cifra (CFRVY, \$24.02, N)	Tele Norte Leste Part. (TNE, \$27.87, O, target \$26)
Copel (ELP, \$9.68, OP, target \$10.5)	Telecom (TEO, \$41.0, O, target \$35)
CTC (CTC, \$21.0, N)	Telefonica de Argentina (TAR, \$45.93, ++)
Dell (DELL, \$38.0, O, target \$50)	Telefonica del Peru (TDP, \$19.43, ++)
eBay (EBAY, \$140.68, O)	Telemig Celular Part. (TMB, \$57.81 N)
Elektra (EKT, \$11.5, N)	Telesp Par. (TSP, \$34.62, ++)
Embratel (EMT, \$26.5, OP, target \$26)	Televisa (TV, \$80.81, O, target UR)
Excite@Home (ATHM, \$34.18, O)	Telmex (TMX, \$66.87, OP, target \$75)
Freemarkets.com (FMKT, \$210.0, O)	Terra Networks (TRRA, \$127.75, NR)
Globex (GLOBE, \$11.21, NR)	VerticalNet (VERT, \$206.0, NR)
Globo Cabo (GLCBY, \$24.5, NR)	Yahoo! (YHOO, \$161.56, O)
IFX Corp (FUTR, \$32.5, NR)	
ImpSat (IMPT, \$31, NR)	
Liverpool (LIVEPOL, \$1.89, NR)	
Marti (MARTI.MX, \$0.67, NR)	
Microsoft (MSFT, \$97.62, O)	

SB = Strong Buy, O = Outperform, N = Neutral, NR = Not Rated. Prices as of 2/15/00.

++ = Ratings and estimates have been removed from consideration in this report because, under applicable law and/or MSDW policy, MSDW may be precluded from issuing such information with respect to this company at this time.

Major Internet Reports Published

Report Title	Author(s)	Date Published
<i>The Internet Report</i>	Meeker/DePuy	December 1995
<i>The Internet Advertising Report</i>	Meeker, with Arthur/DePuy/Russell	December 1996
<i>The Internet Retailing Report</i>	Meeker/Pearson	May 1997
<i>The Global Telecommunications Primer</i>	Global Telecommunications Team	June 1999
<i>The European Internet Report</i>	Winram/Steib, et al	June 1999
<i>The Internet Company Handbook</i>	Internet Research Team	June 1999
<i>The Internet Data Services Report</i>	Camp/Flynn	September 1999
<i>The Internet and Financial Services Report</i>	Internet, Financial Services Research Teams	September 1999
<i>The Latin America Internet Report</i>	Zamora/Carvalho/et al	February 2000
<i>The Internet Advertising and Direct Marketing Report</i>	Russell/Keith	February 2000

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