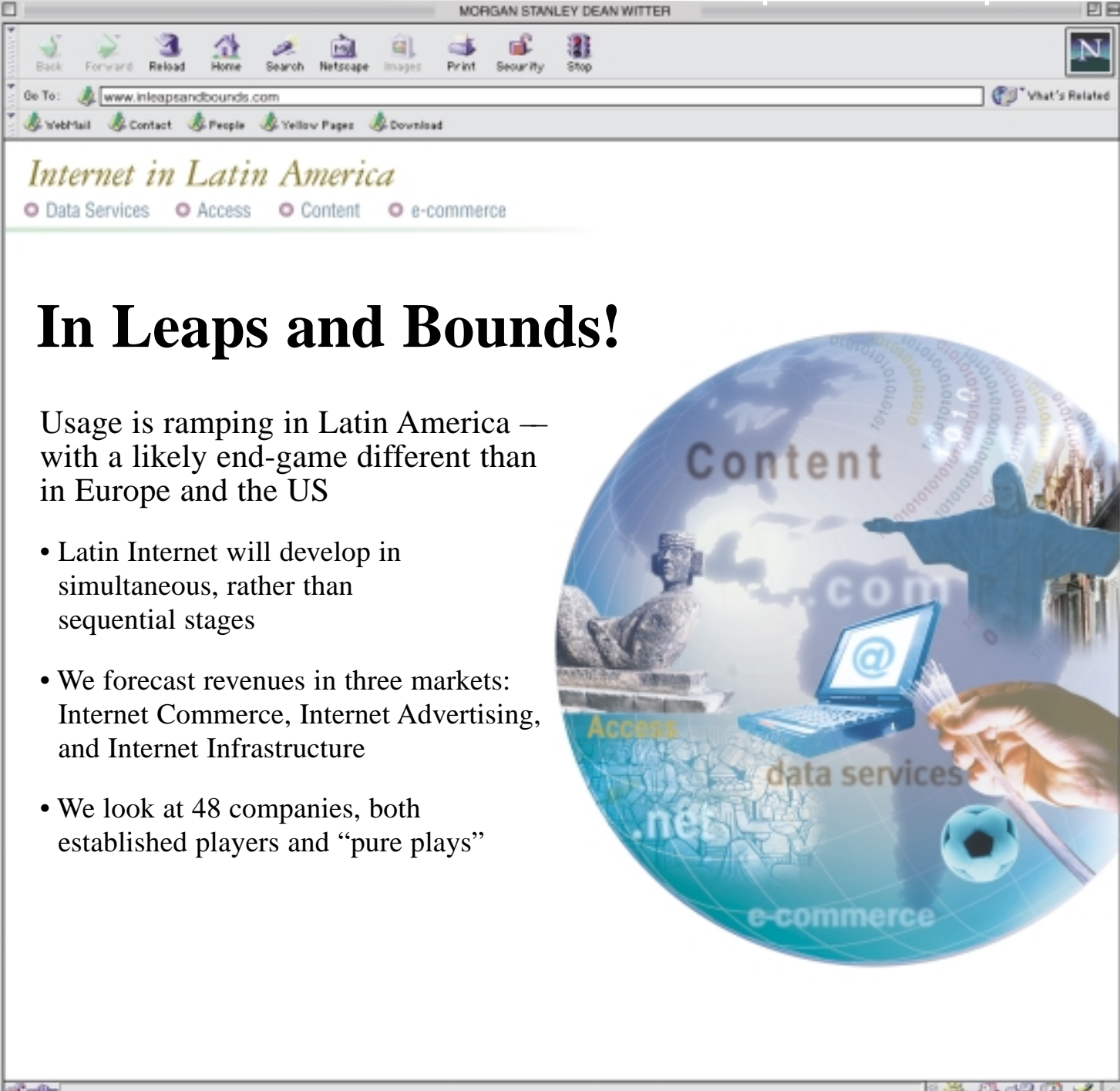


The Latin America Internet Report



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”

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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>- Entertainment</i>	Submarino.com	<i>Internet Infrastructure Services</i> <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> <i>- Procurement</i>	Telecom Argentina	<i>Internet Infrastructure Services</i>
Copel	<i>Internet Infrastructure Services</i>	Telefonica de Argentina	<i>Internet Infrastructure Services</i>
CTC	<i>Internet Infrastructure Services</i>	Telemig Celular Part.	<i>Internet Infrastructure Services</i>
Disco	<i>Internet Commerce</i>	Telesp Par.	<i>Internet Infrastructure Services</i>
eHOLA	<i>Internet Portal</i>	Televisa	<i>Internet Portal</i>
Elektra	<i>Internet Commerce</i>	Telmex	<i>Internet Infrastructure Services</i>
Embratel	<i>Internet Infrastructure Services</i>	Terra Networks	<i>Internet Portal</i> <i>Internet Infrastructure Services</i>
Fiera.com	<i>Internet Commerce</i>	Todito.com	<i>Internet Portal</i> <i>Internet Infrastructure Services</i>
Globex	<i>Internet Commerce</i>	UOL	<i>Internet Portal</i> <i>Internet Infrastructure Services</i>
Globo Cabo	<i>Internet Infrastructure Services</i>	Yahoo! Latam	<i>Internet Portal</i>
IFX Corp	<i>Internet Infrastructure Services</i>	Yupi.com	<i>Internet Portal</i>
Liverpool	<i>Internet Commerce</i>	Zona Financiera	<i>Internet Financial Services</i>
Marti	<i>Internet Commerce</i>		
MetroRED	<i>Internet Infrastructure 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

Internet

Internet – Chapter 1: **E-Commerce: Look to B2B**

Key Points

- We anticipate the total value of Internet Commerce will represent \$7.6 billion or 0.34% of the region's GDP by 2003. B2B will represent the majority at \$5.5 billion.
- The opportunity for businesses in Latin America to take advantage of the Internet as a transaction medium is likely to be greater than in the consumer market.
- However, we believe it will be difficult to play B2B directly in Latin America. At this time, it seems that most Latin companies are choosing to join existing global initiatives rather than craft new ones, and we do not see Latin America as having the scale to be the starting point for new global pure plays in B2B.
- We expect that the structural limitations to B2C will be worked around. Some solutions like payment at a physical store probably will not be as purely virtual as Internet Commerce proponents envision, but they should be efficient and palatable to Latin needs.
- Chapter 1 lays out our estimates for Internet Commerce, while Chapters 2 and 3 focus, respectively on B2C and B2B.

How Large Could Latin E-Commerce Be?

We estimate that Internet Commerce in the region reached \$410 million in 1999, or 0.02% of GDP, and will grow to \$7,631 million by 2003, a CAGR of 109%. Our forecast assumes that Internet Commerce will represent 0.34% of the region's GDP by 2003. For Latin America, our opinion is that B2B offers the largest Internet Commerce opportunities

in absolute market size and impact, particularly considering the low per capita GDP of consumers. By 2003, B2B could reach \$5.5 billion, or 72% of the total Internet Commerce market, up from \$288 million in 1999. B2C, in contrast, will grow to \$2.1 billion by 2003, up from \$121 million in 1999, a CAGR of 105%.

Two key drivers of our Internet Commerce models are the proportion of Internet users making a purchase and the yearly online expenditure by user. Our Internet Commerce estimates are built up from individual country estimates for Argentina, Brazil, Chile, and Mexico, plus a general one for the rest of Latin America. As in our user model, we took IDC's 1997 and 1998 estimates for Internet Commerce, both B2C and B2B, as starting points. We believe our estimates will prove to be conservative, as we are benchmarking them against other regions.

We assigned business and other user transactions to B2B and home user transactions to B2C. We understand the distinction is artificial, since business users can be making personal purchases from their office access and vice-versa.

We estimate the proportion of Latin users making a purchase will grow to 16% of total users in 1999, up from the 15% estimated by IDC for 1998. By 2003, we estimate the proportion of purchasing users will reach 26%. The main driver in the increasing number of purchasing user should be the business users. We estimate business users making a purchase will rise to 16% in 1999, from IDC's 15% estimate for 1998 and will reach 27% in 2003. In the same period, we estimate home users making a purchase will reach 20% in 1999, up from IDC's 19% estimate for 1998 and ascend to 27% by 2003.

Exhibit 37

Latin America B2B E-Commerce Market Size

US\$ MMs	1997*	1998*	1999E	2000E	2003E
Argentina	2.8	9.9	31.4	83.5	863.4
Brazil	13.9	60.3	115.5	304.3	2,261.3
Chile	1.5	4.7	9.7	21.7	149.9
Mexico	4.2	16.8	55.3	149.6	1,245.0
Rest of Latam	7.1	26.5	76.5	176.5	982.0
Total Latin America	29.5	118.2	288.4	735.7	5,501.5

E = Morgan Stanley Dean Witter Estimates
 * Based on IDC estimates.

We estimate the average Latin B2B purchaser (business and government/education) will spend \$383 per year online in 1999, up from the \$305 estimated by IDC for 1998. We estimate purchasing will grow at a 21% CAGR in the 1999-03 period, reaching \$833 per user per year in 2003. The \$383 per year per user in 1999 is equivalent to 5% of GDP per employee, while the \$835 raises the proportion to 9% of GDP per employee in 2003.

We estimate the average Latin B2C purchaser will spend \$124 per year online in 1999, up from the \$101 estimated by IDC for 1998. We estimate purchasing will grow at a 30% CAGR in the 1999-03 period, reaching \$357 per user per year in 2003. The \$124 per year per user in 1999 is equivalent to 4% of GDP per capita, while the \$357 raises the proportion to 8% of GDP per capita in 2003.

In a May 1998 survey, IDC found that 12% of European Internet users were shopping on the Web. And according to the same survey, the average German user spent \$187 on line in the prior three months; the average French user, \$36; the average UK user, \$419; and the average user from Norway, \$354.

The largest market should continue to be Brazil, with 45% of total Internet Commerce in 1999, or \$186 million. Brazil's share should fall slightly, to 41% or \$3.15 billion, as Internet Commerce ramps in the other countries in the region. The fastest-growing Internet Commerce should be Argentina's, with a 1999-03 CAGR of 134%. Argentina's share in Internet Commerce should rise from 10%, or \$38 million, in 1999 to 16%, or \$1.2 billion in 2003. Mexico should have the second-fastest growing market and the second-largest market share. We estimate Mexico's Internet Commerce will grow from 21% of the total, or \$85 million in 1999, to 25% or \$1.93 billion in 2003. The 1999-03

CAGR for Mexico's Internet Commerce is estimated at 118%.

Exhibit 39 summarizes our Internet Commerce forecast for Latin America. Additionally, at the end of this chapter we provide details on the individual forecasts for Argentina, Brazil, Chile, and Mexico.

B2B Is Where It'll Be At

We believe B2B Internet commerce in Latin America reached \$288 million in 1999, and we forecast that it will grow to \$5.5 billion by 2003, for a 1999-03 CAGR of 109%.

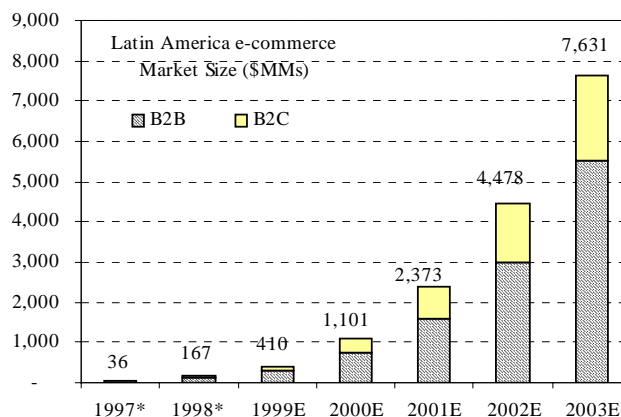
The largest B2B market should continue to be Brazil, with 40% of the total in 1999, or \$116 million. Brazil's share should rise slightly, to 41% or \$2.26 billion. The fastest-growing B2B should be Argentina's, with a 1999-03 CAGR of 129%. Argentina's share in B2B should rise from 7%, or \$31 million, in 1999 to 16%, or \$863 million, in 2003. Mexico should have the second-fastest-growing market and the second-largest market share. We estimate Mexico's B2B will grow from 19% of the total, or \$55 million, in 1999, to 23% or \$1.24 billion in 2003. The 1999-03 CAGR for Mexico's B2B is estimated at 118%.

Latin B2C Will Be Smaller

We believe B2C Internet commerce in Latin America totaled \$121 million in 1999 and will reach \$2.13 billion in

Exhibit 38

Latin E-Commerce Market Size



E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

2003, a 1999-03 CAGR of 105%.

The largest B2C market should continue to be Brazil, with 58% of the total in 1999, or \$70 million. Brazil's share should fall to 42% or \$893 million. The fastest-growing B2C should be Argentina's, with a 1999-03 CAGR of 150%. Argentina's share in B2C should rise from 7%, or \$8 million, in 1999 to 16%, or \$330 million, in 2003. Mexico should have the second-fastest-growing market and the second-largest market share. We estimate Mexico's B2C will grow from 25% of the total, or \$30 million, in 1999, to 32% or \$692 billion in 2003. The 1999-03 CAGR for Mexico's B2C is estimated at 119%.

Argentina

For Argentina, we estimate that Internet Commerce reached \$40 million in 1999, or 0.01% of GDP, and will grow to \$1,197 million by 2003, a CAGR of 134%. Our forecast assumes that Internet Commerce will represent 0.32% of the country's GDP by 2003. By 2003, Argentina's B2B could reach \$863 million, or 70% of the total Internet Commerce market, up from \$31 million in 1999. B2C, in contrast, will grow to \$333 million by 2003, up from \$8 million in 1999, a CAGR of 150%.

We estimate the proportion of Argentine users making a purchase will grow to 12% of total users in 1999, up from the 10% estimated by IDC for 1998. By 2003, we estimate the proportion of purchasing users will reach 26%. The main driver in the increasing number of purchasing user should be the business users. We estimate business users making a purchase will rise to 13% in 1999, from IDC's 9% estimate for 1998 and reach 26% in 2003. In the same period, we estimate home users making a purchase will reach 12% in 1999, up from IDC's 11% estimate for 1998 and ascend to 27% by 2003.

We estimate the average Argentine B2B purchaser (business and government/education) will spend \$820 per year online in 1999, up from the \$644 estimated by IDC for 1998. We estimate purchasing will grow at a 21% CAGR in the 1999-03 period, reaching \$1,760 per user per year in 2003. The \$820 per year per user in 1999 is equivalent to 4% of GDP per employee, while the \$1,760 raises the proportion to 8% of GDP per employee in 2003.

Exhibit 39

Latin America B2C E-Commerce Market Size

US\$ MM's	1997*	1998*	1999E	2000E	2003E
Argentina	0.5	2.9	8.5	28.2	333.5
Brazil	4.4	32.7	70.2	186.4	892.9
Chile	0.2	1.3	4.0	10.1	71.5
Mexico	0.9	5.0	30.1	123.7	691.7
Rest of Latam	0.7	6.7	8.4	17.1	140.2
Total Latin America	6.7	48.6	121.2	365.6	2,129.9

E = Morgan Stanley Dean Witter Estimates

*Based on IDC estimates.

We estimate the average Argentine B2C purchaser will spend \$180 per year online in 1999, up from the \$130 estimated by IDC for 1998. We estimate purchasing will grow at a 32% CAGR in the 1999-03 period, reaching \$540 per user per year in 2003. The \$130 per year per user in 1999 is equivalent to 2% of GDP per capita, while the \$357 raises the proportion to 6% of GDP per capita in 2003.

Brazil

For Brazil, we estimate that Internet Commerce reached \$186 million in 1999, or 0.04% of GDP and will grow to \$3,154 million by 2003, a CAGR of 103%. Our forecast assumes that Internet Commerce will represent 0.45% of the country's GDP by 2003. By 2003, Brazil's B2B could reach \$2,261 million, or 69% of the total Internet Commerce market, up from \$116 million in 1999. B2C, in contrast, should grow to \$893 million by 2003, up from \$70 million in 1999, a CAGR of 89%.

We estimate the proportion of Brazilian users making a purchase will grow to 20% of total users in 1999, up from the 18% estimated by IDC for 1998. By 2003, we estimate the proportion of purchasing users will reach 34%. The main driver in the increasing number of purchasing user should be the home users. We estimate business users making a purchase will rise to 19% in 1999, from IDC's 16% estimate for 1998, and will reach 33% in 2003. In the same period, we estimate home users making a purchase will reach 20% in 1999, up from IDC's 18% estimate for 1998, and ascend to 37% by 2003.

We estimate the average Brazilian B2B purchaser (business and government/education) will spend \$400 per year online in 1999, up from the \$360 estimated by IDC for 1998. We estimate purchasing will grow at a 20% CAGR in the 1999-03 period, reaching \$820 per user per year in 2003. The

\$400 per year per user in 1999 is equivalent to 6% of GDP per employee, while the \$820 raises the proportion to 10% of GDP per employee in 2003.

We estimate the average Brazilian B2C purchaser will spend \$110 per year online in 1999, up from the \$100 estimated by IDC for 1998. We estimate purchasing will grow at a 29% CAGR in the 1999-03 period, reaching \$300 per user per year in 2003. The \$100 per year per user in 1999 is equivalent to 3% of GDP per capita, while the \$300 raises the proportion to 16% of GDP per capita in 2003.

Chile

For Chile, we estimate that Internet Commerce reached \$14 million in 1999, or 0.02% of GDP, and will grow to \$221 million by 2003, a CAGR of 100%. Our forecast assumes that

Internet Commerce will represent 0.29% of the country's GDP by 2003. By 2003, Chile's B2B could reach \$150 million, or 64% of the total Internet Commerce market, up from \$10 million in 1999. B2C, in contrast, will grow to \$72 million by 2003, up from \$4 million in 1999, a CAGR of 105%.

We estimate the proportion of Chilean users making a purchase will grow to 36% of total users in 1999, up from the 34% estimated by IDC for 1998. By 2003, we estimate the proportion of purchasing users will reach 40%. The main driver in the increasing number of purchasing user should be the home users. We estimate business users making a purchase will rise to 29% in 1999, from IDC's 26% estimate for 1998 and will reach 32% in 2003. In the same period, we estimate home users making a purchase will reach 45% in 1999, down from IDC's 46% estimate for 1998 and ascend to 47% by 2003.

We estimate the average Chilean B2B purchaser (business and government/education) will spend \$170 per year online in 1999, up from the \$120 estimated by IDC for 1998. We estimate purchasing will grow at a 40% CAGR in the 1999-03 period, reaching \$640 per user per year in 2003. The \$170 per year per user in 1999 is equivalent to 1% of GDP per employee, while the \$640 raises the proportion to 5% of GDP per employee in 2003.

We estimate the average Chilean B2C purchaser will spend \$40 per year online in 1999, up from the \$30 estimated by

IDC for 1998. We estimate purchasing will grow at a 46% CAGR in the 1999-03 period, reaching \$190 per user per year in 2003. The \$40 per year per user in 1999 is equivalent to 1% of GDP per capita, while the \$190 raises the proportion to 4% of GDP per capita in 2003.

Mexico

For Mexico, we estimate that Internet Commerce reached \$85 million in 1999, or 0.02% of GDP, and will grow to \$1,937 million by 2003, a CAGR of 118%. Our forecast assumes that Internet Commerce will represent 0.29% of the country's GDP by 2003. By 2003, Mexico's B2B could reach \$1,245 million, or 61% of the total Internet Commerce market, up from \$55 million in 1999. B2C, in contrast, will grow to \$692 million by 2003, up from \$30 million in 1999, a CAGR of 119%.

We estimate that the proportion of Mexican users making a purchase will grow to 19% of total users in 1999, up from the 14% estimated by IDC for 1998. By 2003, we estimate the proportion of purchasing users will reach 27%. The main driver in the increasing number of purchasing user should be the home users. We estimate business users making a purchase will rise to 18% in 1999, from IDC's 15% estimate for 1998 and reach 26% in 2003. In the same period, we estimate home users making a purchase will reach 23% in 1999, up from IDC's 17% estimate for 1998 and ascend to 29% by 2003.

We estimate the average Mexican B2B purchaser (business and government/education) will spend \$325 per year online in 1999, up from the \$180 estimated by IDC for 1998. We estimate purchasing will grow at a 31% CAGR in the 1999-03 period, reaching \$970 per user per year in 2003. The \$325 per year per user in 1999 is equivalent to 3% of GDP per employee, while the \$970 raises the proportion to 7% of GDP per employee in 2003.

We estimate the average Mexican B2C purchaser will spend \$210 per year online in 1999, up from the \$130 estimated by IDC for 1998. We estimate purchasing will grow at a 23% CAGR in the 1999-03 period, reaching \$470 per user per year in 2003. The \$210 per year per user in 1999 is equivalent to 4% of GDP per capita, while the \$470 raises the proportion to 8% of GDP per capita in 2003.

Other Estimates

IDC estimates that the value of the Latin Internet Commerce market was \$166.8 million in 1998, up from only \$36.2 million the previous year. B2B Internet commerce accounted for 71% of the total, or \$118.2 million, in 1998, and 71% in 1997, according to IDC. As of August 1999, IDC estimated Latin America Internet Commerce at \$459 million in 1999, \$1 billion in 2000, \$2.4 billion in 2001, \$4.6 billion in 2002, and \$8 billion in 2003.

As of August 1999, eStat estimated Latin Internet Commerce at \$740 million for 1999, \$3 billion in 2000, \$13 billion in 2001, \$37 billion in 2002, and \$84 billion in 2003.

BCG estimates for B2C in Latin America for each of the years in the 1999-03 period were \$76.7 million, \$215 million, \$757 million, \$2,000 million, and \$3,800 million, respectively.

Exhibit 40

Latin America E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Total Latin America E-commerce	36.2	166.8	409.6	1,101.3	2,372.8	4,477.6	7,631.4	108%
-- Annual growth	0%	361%	146%	169%	115%	89%	70%	
B2B	29.5	118.2	288.4	735.7	1,585.0	3,013.3	5,501.5	109%
-- Annual growth		301%	144%	155%	115%	90%	83%	
B2C	6.7	48.6	121.2	365.6	787.8	1,464.3	2,129.9	105%
-- Annual growth		625%	149%	202%	116%	86%	45%	
Participation in e-commerce								
B2B	81%	71%	70%	67%	67%	67%	72%	
B2C	19%	29%	30%	33%	33%	33%	28%	
Total e-commerce spending								
Dollars spent per user per year	139.1	192.6	237.1	318.9	411.2	507.3	607.4	27%
as % of per capita GDP	3%	5%	7%	9%	10%	12%	14%	
-- Annual growth		38%	23%	35%	29%	23%	20%	
B2B spending								
Dollars spent by business and other users, per year	229.0	305.4	383.3	492.5	622.7	744.3	833.2	21%
as % of GDP per employee	2%	3%	5%	6%	7%	8%	9%	
-- Annual growth		33%	25%	29%	26%	20%	12%	
B2C spending								
Dollars spent per home user per year	51.0	101.5	124.3	186.6	244.3	306.4	357.3	30%
as % GDP per cap	1%	3%	4%	5%	6%	7%	8%	
-- Annual growth		99%	22%	50%	31%	25%	17%	
% of Internet users making a purchase	10%	15%	16%	19%	21%	24%	26%	
Home	13%	19%	20%	21%	23%	26%	27%	
Business	10%	15%	16%	19%	21%	23%	27%	
Educ/Govt/other	6%	10%	10%	12%	13%	14%	16%	
Internet users making a purchase (000)	260.2	866.1	1,727.7	3,453.0	5,770.8	8,826.9	12,564.4	64%
-- Annual growth		233%	99%	100%	67%	53%	42%	
Home	131.3	479.0	975.1	1,959.3	3,225.3	4,778.4	5,961.8	57%
-- Annual growth		265%	104%	101%	65%	48%	25%	
Business	76.5	225.5	516.3	1,185.2	2,144.4	3,560.9	5,986.9	85%
-- Annual growth		195%	129%	130%	81%	66%	68%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Exhibit 41

Latin America E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Total Latin America e-commerce	36.2	166.8	409.6	1,101.3	2,372.8	4,477.6	7,631.4	108%
Argentina e-commerce	3.3	12.8	39.9	111.8	284.4	638.7	1,196.9	134%
Brazil e-commerce	18.3	93.0	185.7	490.7	988.5	1,899.1	3,154.3	103%
Chile e-commerce	1.7	6.0	13.8	31.8	66.0	123.5	221.4	100%
Mexico e-commerce	5.1	21.8	85.4	273.3	648.5	1,207.4	1,936.6	118%
Rest of Latin America e-commerce	7.8	33.2	84.9	193.6	385.4	608.9	1,122.3	91%
Participation in total								
Argentina	9%	8%	10%	10%	12%	14%	16%	
Brazil	51%	56%	45%	45%	42%	42%	41%	
Chile	5%	4%	3%	3%	3%	3%	3%	
Mexico	14%	13%	21%	25%	27%	27%	25%	
Rest of Latin America	22%	20%	21%	18%	16%	14%	15%	
Annual growth rate								
Total Latin America e-commerce		361%	146%	169%	115%	89%	70%	
Argentina		288%	211%	180%	154%	125%	87%	
Brazil		408%	100%	164%	101%	92%	66%	
Chile		253%	130%	131%	107%	87%	79%	
Mexico		327%	292%	220%	137%	86%	60%	
Rest of Latin America		326%	156%	128%	99%	58%	84%	
Total Latin America B2B	29.5	118.2	288.4	735.7	1,585.0	3,013.3	5,501.5	109%
Argentina B2B	2.8	9.9	31.4	83.5	202.3	445.5	863.4	129%
Brazil B2B	13.9	60.3	115.5	304.3	626.7	1,272.7	2,261.3	110%
Chile B2B	1.5	4.7	9.7	21.7	43.2	81.7	149.9	98%
Mexico B2B	4.2	16.8	55.3	149.6	375.9	701.8	1,245.0	118%
Rest of Latin America B2B	7.1	26.5	76.5	176.5	336.9	511.7	982.0	89%
Participation in total								
Argentina	9%	8%	11%	11%	13%	15%	16%	
Brazil	47%	51%	40%	41%	40%	42%	41%	
Chile	5%	4%	3%	3%	3%	3%	3%	
Mexico	14%	14%	19%	20%	24%	23%	23%	
Rest of Latin America	24%	22%	27%	24%	21%	17%	18%	
Annual growth rate								
Total Latin America B2B		301%	144%	155%	115%	90%	83%	
Argentina		254%	217%	166%	142%	120%	94%	
Brazil		334%	92%	163%	106%	103%	78%	
Chile		213%	107%	123%	99%	89%	84%	
Mexico		300%	229%	170%	151%	87%	77%	
Rest of Latin America		273%	189%	131%	91%	52%	92%	
Total Latin America B2C	6.7	48.6	121.2	365.6	787.8	1,464.3	2,129.9	105%
Argentina B2C	0.5	2.9	8.5	28.2	82.1	193.2	333.5	150%
Brazil B2C	4.4	32.7	70.2	186.4	361.8	626.4	892.9	89%
Chile B2C	0.2	1.3	4.0	10.1	22.8	41.9	71.5	105%
Mexico B2C	0.9	5.0	30.1	123.7	272.7	505.6	691.7	119%
Rest of Latin America B2C	0.7	6.7	8.4	17.1	48.5	97.2	140.2	102%
Participation in total								
Argentina	7%	6%	7%	8%	10%	13%	16%	
Brazil	66%	67%	58%	51%	46%	43%	42%	
Chile	3%	3%	3%	3%	3%	3%	3%	
Mexico	13%	10%	25%	34%	35%	35%	32%	
Rest of Latin America	10%	14%	7%	5%	6%	7%	7%	
Annual growth rate								
Total Latin America B2C		625%	149%	202%	116%	86%	45%	
Argentina		480%	192%	233%	191%	135%	73%	
Brazil		643%	115%	166%	94%	73%	43%	
Chile		550%	211%	151%	125%	84%	71%	
Mexico		456%	501%	311%	120%	85%	37%	
Rest of Latin America		857%	25%	104%	184%	100%	44%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Internet – Chapter 2: Business-to-Consumer (B2C)

Key Points

- The payment system and fulfillment deficiencies that are widely expected to hold back B2C development will be worked around, in our view.
- We believe B2C Internet Commerce will reach \$2.1 billion in 2003. By comparison, the sales of the top five listed retailers in the region totaled \$14.82 billion in 1998.
- The most attractive online plays probably will combine a strategy of aggregating products from many suppliers (horizontal), with first-mover advantage and excellent execution to generate loyal customers. It also seems to us that a “click and mortar” strategy is very attractive for the region.
- A pleasant shopping experience, and not a time-saving one, will be key to Latin customers, in our view.

B2C Primer

Business-to-consumer Internet Commerce includes the sale of goods and services from manufactures and intermediaries to the individual consumer. Online retail is the most common form of B2C Internet commerce. B2C Internet Commerce is built on the premise of providing consumers a wide selection accompanied with a large amount of value-added information and a high level of shopping convenience.

Exhibit 42

B2C E-Commerce Models

Category	US-based Company	Latin Example
Product Website	Dell, Cisco	
Shopping Destination	Amazon.com	Submarino
Portal with Shopping	AOL, Yahoo!	UOL, todito
Web Auction of held goods, Merchant to buyer and vice-versa	On Sale	
Person to person virtual Web auction	eBay	Subasta
Lowest price destination: Cost plus Zero	Buy.com	
Consumer buying service: Cost minus Zero	Priceline.com	
Shopping Bots, Best Price	Jungle, My Simon	

Source: Morgan Stanley Dean Witter Research

Several B2C Internet Commerce models exist now, and many have not made an appearance in Latin American-oriented sites. The range of models is still evolving, but Exhibit 37, based on one of Mary Meeker’s presentations, summarizes them, with Latin examples.

In general, however, one may say that Internet Commerce sites generate revenue in two ways: one, by selling their own products and services through the Internet, and two, by charging commissions on transactions executed by third parties.

Revenues from products or services — Here we include both virtual and brick-and-mortar companies selling products and services to consumers or corporations such as books, groceries, music, electronics, commodities, and other products over the Internet. In Latin America these companies include retailers such as Pao de Acucar (groceries), Submarino.com (books and music), and decompras.com (consumer electronics), and service companies such as porvenir.com (financial end economic content) and vuelabarato.com (travel services).

In our view, key success factors for these companies include: first-mover advantage, suitability of products, market opportunity, leading brand, low cost structure with economies of scale, fast, effective fulfillment and distribution, use of the latest technology, and creating a sense of community.

Retailers under this revenue model normally carry a cost-plus pricing proposition. Prices are fixed and result from a desirable profit margin above total cost. In general, Latin American land-and-virtual base retailers price products on the Internet at the same prices as at their stores. This is contradictory to what we’ve seen in the US, where land-and-virtual base retailers have lower online prices. In our view, the lack of competition from pure virtual retailers in Latam allows land-and-virtual players to maximize online prices.

Revenues from commissions — Companies generating revenues from commissions on transactions done by third parties

at their sites include Internet portals and destinations, auction sites, and electronic marketplaces.

Latin American portals and destinations such as StarMedia, El Sitio, Yupi, and UOL generate or plan to generate Internet Commerce revenue from commissions on sales done by retailers advertising products or operating their storefronts on the portal's sites.

Auction sites, bringing buyers and sellers together, enhance the efficiency and the return for both parties by increasing supply and demand for products and services. Auction sites in Latin America include deremate.com, subasta.com, and mercadolibre.com. Auction sites can have pricing models that are demand- or supply-driven. In consumer-to-consumer auctions sites, such as eBay and its Latin similars (deremate.com, subasta.com, and mercadolibre.com), prices are determined by demand.

We believe key success factors for companies generating Internet Commerce revenues through commissions include first-mover advantage, critical user mass or traffic, strategic or exclusive relationships with sellers, superior data bases and use of leading technology, and creating a sense of community.

Three B2C business models are available in Latin America: horizontal, vertical, and auctions. A horizontal Internet Commerce strategy is based on offering multiple product categories in one storefront. An example of this approach is Amazon.com, as it has broadened its offerings from just books.

A vertical Internet Commerce strategy is similar to a "category killer", where the company intends to have the deepest selection of products under a single category. Vertical Internet Commerce also allows the integration of value-added information to increase the interest for the products offered. Dominating a "vertical" creates competitive advantage, but the larger opportunities are in "horizontal", with a leverageable equation, in our view: We think first-mover advantage and excellent execution generate loyal customers.

Some examples of vertical Internet Commerce in Latin America include Submarino.com, a virtual retailer of books and music; decompras.com, a virtual retailer of consumer electronics; Celebrando.com, a virtual wedding planner and

online gift registry; and Patagon.com, a virtual online broker.

Auction sites have also begun to appear in Latin America. These sites generate new commercial activity, by bringing together buyers and sellers with minimum friction. Several alternative business models exist: person to person, merchant to buyer, buyer to merchant. An example of these is eBay, with a Latin example in Subasta.com.

Many things have changed since we wrote our first report on Internet Commerce in Latin America six months ago. Pure-play virtual retailers have entered the stage in Latin Internet commerce, not only in online retailing, but also banking, travel, real estate, and other services. Computer sales and Internet penetration have ramped in Latin America. Recently, Dataquest announced that PC sales in Latin America grew 40% year-over-year in 3Q99, with sales in Mexico up 87% for the period.

However, one premise from our first report continues unchanged — B2C commerce still faces obstacles to development in Latin America. We have warmed, however, to the prospects for pure virtual retailers in Latin America in the short term, as both clicks-and-mortar and pure-play online retailers have found ways to work around the many limitations to Internet Commerce in the region. We name a few examples of workarounds, Latin style, in our "Issues that Limit B2C" section below.

We believe that virtual retailers participating in the B2C market should develop a long-term orientation regarding the Internet. Initial marketing expenses are high in order to gain online traffic and retain customers. Creating and maintaining a distribution infrastructure is expensive and requires minimal economies of scale. And it's still questionable if third-party delivery companies will be able to handle efficiently the additional traffic from online orders.

Latin B2C

The Internet Commerce battleground is still developing in Latin America, and we think it is too early to point out the winners. Nearly all the purely virtual B2C retailers started operations in the second half of 1999, and we expect to see a broad range of companies start operations in 2000. In addition, clicks-and-mortar strategies continue to add to the shopping options of online Latins.

First-mover advantage is undeniable, in our view. The winners on Internet commerce must capture the largest subscriber/customer base by whatever means and as fast as possible. The key will be in translating that advantage into a winning business, that has a strong brand name and execution with high standards of quality, consistency, and reliability.

So far, there are no pure Internet Commerce plays listed in Latin America. All companies remain private, although most have received money from listed and non-listed private equity funds and other financial institutions.

We note, at this time, the operation of Submarino.com and Fiera.com. Submarino.com is a retailer of CDs, books, and toys, and operates in Argentina, Brazil, Mexico, and Spain. We like Submarino's regional approach. The company also adopted a multi-revenue business plan, hoping to make money from product sales and from third parties advertising on its site. Fiera.com seems to be giving priority to developing its logistics and fulfillment capabilities, and is also adopting a multi-revenue, regional approach.

Most of the other pure virtual retailers we found are country-specific and started operations in the last 6-10 months. These include auction sites Subasta.com, Deremate.com, and Mercadolibre.com; consumer electronics site Decomparas.com; and travel services sites Vuelabarato.com and Viajo.com

We believe clicks-and-mortar as an Internet Commerce strategy is attractive in Latin America, more so than in the US or Europe. Brick-and-mortar retailers are adopting the Internet as an additional channel of distribution, leveraging their purchasing and distribution capabilities, financial muscle, as well as their brand name. The key challenge for pure-play online retailers, in our view, is to craft a brand identity quickly, spending heavily on marketing and customer acquisition.

In Latin America, the leading clicks-and-mortar retailers are CBD, Sanborns, Disco, and Globex. CBD and Disco offer online grocery shopping served from their stores in Brazil and Argentina, respectively. Sanborns' product offering ranges from CDs to books to cakes, delivered through messenger service anywhere in the continent. Globex sells consumer electronics from its distribution centers in Brazil.

The four companies benefit from their strong brand names, local expertise, access to capital, existing IT know-how, and leverage with suppliers.

As listed companies, CBD, Globex, and Sanborns are the three most interesting clicks-and-mortar plays in the region, in our view. CBD and Globex have been online for over two years and have captured the largest customer base in the markets they operate in. Sanborns only opened its online store in 3Q99. We believe it will benefit from its strong brand name, product suitability (books, music, and drugs), deep pockets, and particularly from synergies with other companies Grupo Carso is involved in: Telmex (telecom), Prodigy (ISP), Televisa (media), and a recent joint venture with Microsoft to operate a pan-Latin Internet portal.

Other listed clicks-and-mortar retailers include Cifra (groceries), Liverpool and Palacio de Hierro (department store), and Marti (sporting goods). Cifra recently revamped its Superama Web site. While we believe the new site is an improvement over the previous one, we still do not see it as a leading site. In particular, we think customers will not react favorably to spending time entering information prior to shopping. The lack of graphics on the site to illustrate the products is also a drawback, in our opinion.

(For a detailed description of the companies mentioned in this chapter, see the one-page company profile section near the end of this report.)

We do not believe the lack of experience in catalogue shopping will hold back B2C in Latin America. After all, not having landlines did not preclude Latins from buying cell phones.

Clicks-and-mortar strategies have attracted considerable attention, as they provide a means to overcome some of the key obstacles B2C faces in Latin America, such as distribution, payment, and customer service. Clicks-and-mortar retailers have organized their online businesses at low marginal cost. Most use their stores to fill orders and charge customers for delivery. Customers can pay with a check or cash at the time of delivery, so there is no need to use a credit card.

We believe that by setting up Web sites, traditional retailers can bolster their overall operations (brick-and-mortar plus Internet) in three ways:

Marketing: Information gathered through Internet purchases can be valuable for targeted marketing. Through e-mail, retailers can communicate with shoppers about sales and promotions at both stores and Web sites.

Product Information: Through the Web, retailers can fully explain the benefits/characteristics of products at their stores and link consumers to chat lines or related sites, thus raising interest in their products.

Increase Product Offering: Retailers can offer a wider selection of products through their sites than can be presented at the stores.

Who, What, and Why: Latins Shopping on the Internet

According to a recent study by Nazca Saatchi & Saatchi, the typical Internet shopper in Latin America is in his or her late 20s. Males represented 74% of total buyers.

The majority of shoppers agree that time saving is the No. 1 reason to buy over the Internet. However, as Latins are less pressured for time, we believe a pleasant experience will be important in retaining customers. Buying products not available in stores, better prices and brands, and more information on a product were other reasons Latins offered.

The top five articles bought over the Internet are software, books, music, magazine subscriptions, and PC accessories.

Issues that Limit B2C

While we are more favorable toward B2C than six months ago, some issues continue to limit growth: payment system and fulfillment deficiencies, as well as regulatory issues. These issues must be addressed, if not alleviated, before the full potential of Internet Commerce is seen in Latin America, in our view. What is encouraging is how quickly companies are finding ways around these issues and are able to generate e-transactions.

The use of credit cards is not widespread in the region, though all formal retailers accept them. Credit card purchases are almost nonexistent in traditional retail channels. Lower-income consumers have essentially no access to these cards. What's more, extended periods of high interest rates have discouraged the use of credit cards. Surprisingly, a challenge for Internet Commerce companies has been the exchange of information with credit card companies. With

the exception of Brazil, it seems some Latin payment systems do not allow electronic exchange of information outside of their proprietary networks, which requires reentering of transaction data.

Latin retailers that offer Internet shopping have found alternatives to online credit card payment. Customers can pay with a check or cash at the time of delivery. Many online retailers are selecting couriers that handle cash, enabling them to offer COD purchasing. Other retailers are partnering with financial institutions to offer direct account transfers. Still other online companies offer the option of payment at physical offices, such as their stores. We're confident that soon, some Latin retailer will begin offering Internet-based credit, a simple product extension of what's already being offered at Elektra and Globex. Many players are offering electronic wallets, generally in tandem with financial institutions.

On the topic of financial institutions, a key issue is the availability of credit, both to finance the acquisition of computers and to carry out commerce.

Logistics are part of the fulfillment issue. In most of Latin America, the postal system is inefficient, requiring the use of expensive third-party courier services for delivery. B2C players have gotten around this in three ways. One, filling orders from existing stores or distribution center, which limits the service radius to the type of delivery mechanism and the retailer's footprint. A second choice is to require the customer to pick up the item at the store, which eliminates the selling points of B2C — no need to visit the store. The third is to simply use the relatively more expensive services of courier companies. It seems that customers are willing to pay as long as the service is of good quality and they are made aware of the cost.

The last part of the fulfillment issue is returns, an area particularly critical for pure online plays. Customer service has not been an area where Latin retailers have traditionally excelled, so return handling, it seems to us, will not be the prime concern it has been in other markets, since buyers would have lower expectations. Nevertheless, we think this traditional attitude provides an area of opportunity for online retailers to gain market share and loyalty. Clearly the online shopper, more savvy and upwardly mobile, will be able to tell the difference.

In addition, there are many undefined areas in the regulation of Internet Commerce in Latin America. The main issues are the validity of transactions, taxation and customs, and privacy and security concerns. The existing laws of some Latin countries, such as Mexico, do not contemplate Internet Commerce contracts and transactions. The authentication of transactions is then problematic, not to mention payment delinquency, consumer protection, and return problems. Our understanding is that so far transactions over the Internet are being registered as phone orders.

Taxation and customs represent another set of issues, which can mainly detract from the B2C experience. Assuming the electronic transaction is legal, then where is it booked, such that taxes are paid? Latin sites seem to be collecting local taxes, even when goods are shipped out of the country. In the case of imports, the time spent in customs, the use of tariffs and other taxes, or even the requirement of import licenses can further delay the shipment of goods.

Privacy and security concerns are a third category of regulatory issues that can limit the growth of Internet Commerce, particularly B2C. Most Latin consumers have traditionally been uncomfortable providing their credit card numbers over the telephone; making them available over the Internet requires another level of trust. We are sure that the interest of financial institutions, credit card systems, and Internet Commerce participants will combine to educate the consumer and enhance the experience, through the use of electronic pocket books, secure sites, maybe even the use of Internet currency.

Privacy, particularly the proper use of customer information, is an issue that has surfaced in more developed economies. It is not too early for Latin Internet companies to focus on this, in our view, since current online consumers are early adopters and usually very attentive to global trends. Thoughtful responses to privacy issues should go far toward increasing the number of Latin Internet users who participate in Internet Commerce.

A last issue, of secondary importance, in our view, is the time factor. Latin consumers are less time-pressured than

developed-country consumers, diminishing the attraction of timesaving e-tail. Shopping is still a family affair and serves as entertainment, as illustrated by the success of hypermarket promotions that offer children's attractions in the parking lot. The consideration of saving time should increase with the growing participation of women in the work force. Still, though each year more women in Latin America are working, the rate of change isn't high (Exhibit 43). However, it seems that to date the novelty of online shopping has been more important.

Exhibit 43

Females in Labor Market

	1988	1993	1995
Argentina	29.8%	31.4%	32.5%
Brazil	43.0	45.4	45.1
Chile	30.7	33.7	34.8
Mexico	34.7	36.7	37.7

Source: Inter-American Development Bank

Foreign Competition

Time, language, logistical, and payment-system barriers should help isolate Latin consumers from foreign virtual retailers. We believe most of the barriers can be overcome, but doing so will require focus from global players, in a first stage, and probably a local presence in a second stage to solve logistical and fulfillment issues. At this point, however, we believe most global players are focusing their attention in regions other than Latin America, which provides our first element of isolation: time.

Latin online shoppers, however, have visited many US-based shopping sites and made purchases in them. Delivery can be directed to friends or relatives living abroad, to post office addresses maintained across the border, or even to local addresses, provided the consumer is willing to take a chance on customs and pay the delivery fee. Language customization and working through the payment system labyrinth in Latin America should be a workable challenge for online retailers. After all, brick-and-mortar competitors have shown that in Latin America, they can become competitive players very quickly. The question for Latin B2C merchants is whether online users can be lured to Latin sites before global players turn their attention to Latin America.

Internet – Chapter 3: **Business-to-Business (B2B)**

Key Points

- The opportunity for businesses in Latin America to take advantage of the Internet as a transaction medium is likely to be greater than in the consumer market. Companies interested in re-engineering, process streamlining, cost cutting, and working-capital savings will likely lead the effort. Topics such as customer retention and providing customers with value-added services should make developing B2B capabilities indispensable.
- However, we believe it will be difficult to play B2B directly in Latin America. At this time, it seems that most Latin companies are choosing to join existing global initiatives rather than craft new ones, and we do not see Latin America as having the scale to be the starting point for new global pure plays in B2B.
- Technology and market factors combine to make B2B attractive globally, and Latin America will not be a stranger to this wave, in our view. The movement to B2B should represent a window of opportunity for less automated companies to leap ahead. Internet-based solutions appear cheaper and quicker to implement than other proprietary solutions, such as EDI.
- Most of the benefits in B2B should accrue to the buyers (and competition may pass them on to the final consumer), but suppliers should get some benefits.
- Fast adoption of B2B in Latin America will likely be supported by the prevalence of EDI at the large, listed companies and the keen awareness of what is happening in the US and European markets.
- We'd watch for joint ventures á la Telefonica/Ariba or Banacci-CommerceOne to bring B2B to Latin America.

What Is B2B?

Business-to-business commerce includes sales of merchandise or services to retailers, other wholesalers, or industrial, commercial, government, farm, construction, or other pro-

fessional business users, as well as companies acting as agents or brokers in buying or selling merchandise to other companies.

B2B Primer

The total B2B transacted dollar amount is likely to be greater in size than the consumer market. In the US this wave was the fifth stage of Internet development (see Exhibit 4 in Summary and Investment Conclusions), which the Latin companies will start momentarily, in our view.

At this point, it looks like Latin companies are more preoccupied with jumping on the existing exchanges, than with creating new models. We believe, however, that the information inefficiencies and long distribution chains prevalent in the region present important opportunities for the development of B2B amidst regional players.

Thus, we expect B2B Internet commerce to ramp suddenly. As exchanges prove their value propositions by lowering costs and increasing effectiveness and in some cases by providing value-added services, the users of a market will move online, joining early adopters.

The key to companies jumping to B2B online market places is liquidity, in our view. For Latin America, the high market shares boasted by few large players represents a challenge and an opportunity, in our view: moving one or two key players online should give a new exchange instant liquidity and credibility. And once a market moves online, it will likely stay there.

Technology and market factors combine to make B2B attractive globally, and Latin America will not be a stranger to this wave, in our view. We think the right technology is now in place for B2B:

- **Web Infrastructure** — Browser pervasiveness is a new enterprise application platform and the Web can be leveraged for Internet Commerce
- **XML** — Provides for more intelligent data exchanges between Web sites and back-end systems

- ERP Infrastructure Investment — Strategic information and decision-making tools are connectable to the Web
- Security Technology — PKI provides a secure trading network — and increased consumer confidence helps corporate confidence
- Directory/Searching — Makes it easier to find the right URL than the right phone number

At the same time, market factors are pushing decision-makers to adopt B2B:

- Market-leading companies have growth problems
- Business media are full of Internet stories and advertising
- Business executives are increasingly attracted to Web businesses
- Venture capital is chasing after new Internet-related ideas

Companies will likely be attracted to B2B by the lure of cost savings and efficiencies, plus the larger market opportunity. Competition should be more intense, with well-financed strong players vying to update the electronic networks in place. A key difference is that price will probably not be the driving factor in B2B the way it is in B2C; rather, B2B will focus on transactions conducted on time.

B2B allows companies to confront three problems in developing their businesses, in our view:

- Market reach is fragmented by geography, which creates market inefficiencies
- Business interactions are complex and labor intensive, and usually not scaleable
- Supply chains are inefficient, bloated with excess inventory, and informations, increasing the distance between manufacturer and consumer

In our view, moving business interactions to the Internet brings greater transparency to the market, clearly benefiting the buyer. More price transparency allows the buyer to identify price variations by geographic area or by customer size, and act accordingly. We think the buyer is also better

able to gauge the availability of product and figure out who is offering it beyond traditional suppliers. Buyers may even be better informed as to alternatives for a given product.

The direct impact of greater transparency is greater market discipline, in our opinion. As buyers have more and better information, they are more likely to rotate among suppliers and force them to focus on their comparative advantages. We believe the sellers also see benefits, such as the ability to aggregate small orders, a centralized market, lower customer acquisition costs, and the ability to discover competitive advantage more quickly.

Latin companies are no strangers to electronic commerce. Other mediums of electronic communication between companies already exist in the region, such as electronic data interchange (EDI), and companies are very aware of the benefits associated with electronic transactions and should be quick adopters of Web-based communications.

Web-based business-to-business exchanges are a new twist on the old EDI commerce model, in which buyers and suppliers conduct transactions across expensive proprietary networks. EDI networks are expensive to create and to maintain. Small buyers and suppliers are unable to participate. Only large companies can use EDI profitably, but no special hardware or software other than a Web browser and Internet access is needed for a company to participate in these new Web-based exchanges. The lower entrance requirement creates large opportunities, especially in Latin America. In the US, our Internet Infrastructure Services Analyst, Jeff Camp, estimates 80% of electronic commerce was actually conducted through EDI.

The opportunity for the less automated companies to leap ahead is huge, in our view. Moving transactions to the Internet provides an open platform and universal standards that significantly lower the cost of entry. Those not yet connected through EDI or other communication platforms can turn to Internet-based communications relatively quickly and cheaply to boost efficiency in order placement and fulfillment. Internet B2B commerce is based on open architectures (such as XML) and does not require technology convergence among companies, as EDI does.

In Latin America, we are in the process of seeing companies take their sites from “brochure ware” to actual transaction sites. “Brochure ware” sites simply took existing marketing

materials and made them available electronically. Data update was more frequent than with printed brochures, but transactions are still offline.

Latin companies are often skipping to the purchase site designed for one transaction at a time, complementing it with links for B2B exchanges for purposes such as providing supplier information.

B2B Business Models

Although B2B is just starting worldwide, a number of models have already popped up. Once more, an example from a Mary Meeker presentation makes the case:

Exhibit 44

Distinct B2B Business Models Have Begun to Emerge

- * *Auctions* -- "Vertical eBays"
Competitive bidding to either buy or sell -- Freemarkets.com, Manheim Online
- * *Distributors* -- "Collapsing the Supply Chain"
Multiple suppliers to multiple buyers -- ChannelPoint, Chemdex
- * *Enabling Services* -- "Creating New Commerce Networks"
Manage complex business processes -- BidCom, Hurricane
- * *Exchanges* -- "Traditional Industries Move Online"
From steel...to energy... -- AltraNet, National Transportation Exchange
- * *Information Aggregators* -- "Empower Buyers with Information"
Act as the trusted intermediary -- T estMart, VerticalNet
- * *Software* -- "Powering B2B Commerce"
Solutions for buyers and sellers -- Ariba, Tradex
- * Some companies will have multiple business models:
Ariba, VerticalNet, National Transportation Exchange...

Source: Morgan Stanley Dean Witter Research

B2B exchanges can fill a number of market functions:

- *Capacity Brokers* — Rid the industry of excess capacity; solves a problem and helps pricing; anonymous trading
- *Gray Market Facilitators* — For used and resold equipment away from the original manufacturer
- *Collaboration Platforms* — Long-time trading partners can use the Internet for improved efficiency, pre-negotiated terms, and many business processes beyond buying and selling
- *Spot Buying* — Emergency supplies and ad hoc needs for research

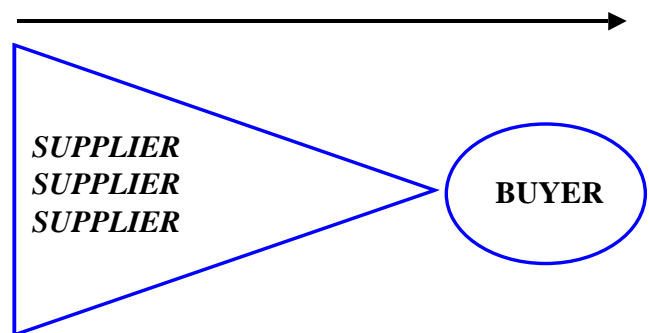
- *Distributor Networks* — Distributors can load balance inventory with each other; car dealer model
- *Proposal Publishing* — Request for Proposals to initiate complex transactions in time; start of process but post-contract project management may continue for months
- *Private Exchanges* — Closed communities; supply chains dominated by one anchor tenant; private sourcing networks
- *Industry Community Boards* — Industry meeting place; trade journal replacement; discussion forums; Web conferences

We believe B2B business models can be aggregated into four main categories: buy-side procurement, virtual distributors, market makers, and business process managers.

Buy-side procurement empowers the buyers to unify their suppliers' products in a single user interface — giving the buyer a better opportunity to compare products, pricing, and availability on a real-time basis. It also allows procurement managers to better manage the procurement process within an organization — enforcing approval process, controlling rogue buying, etc.

Exhibit 45

Buy-side Procurement — Empowering the Buyer



Source: Morgan Stanley Dean Witter Research

B2B distributors aggregate a large number of suppliers. Mostly, B2B distributors operate as virtual distributors and do not hold inventory or ship products. B2B distributors

conduct the financial transaction by billing the buyer and paying the supplier, but rely on the supplier to deliver the product to the buyer directly. Revenue is primarily generated through supplier discounts — the difference between the distributor’s cost and the market place.

B2B market makers create an online market for companies to competitively bid to buy or sell products. Market makers generate revenue from subscription and/or transaction fees. These exchanges allow any participant to be both a buyer and a seller. Online exchanges are popping up in almost every industry — especially those that are traditionally seen as technology laggards. Some online exchanges are simply moving a current market onto the Internet, while others are creating new markets that don’t currently exist.

Market makers exist in four different models:

Auctions — sellers list products for sale and buyers bid the price up. This model is especially appropriate for excess/surplus materials as well as with perishable inventories.

Reverse Auctions — buyers list products they want to buy and sellers bid the price down. An online reverse auction discovers the true market price for a product or service by allowing sellers to competitively bid, forcing the price downward.

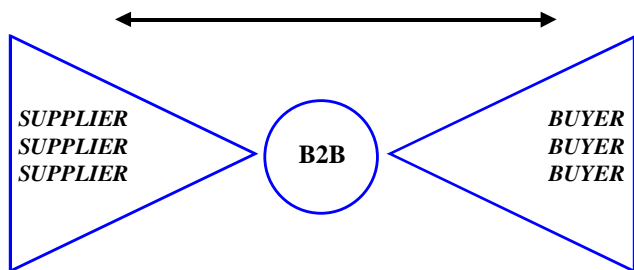
Set-Price Marketplaces — sellers or buyers list products with fixed prices. These markets are most appropriate for buyers or sellers that do not have time constraints. Set-price marketplaces operate much like newspaper classifieds and are most prevalent in vertically-focused exchanges.

Commodity exchanges — operates like a traditional commodity exchange with competitive bids/asks and futures trading.

B2B business process managers connect trading partners and facilitate Internet Commerce with a secure transactional network. Business process managers primarily generate revenue from subscription and/or transaction fees. B2B business process managers create a new information supply chain by tightly integrating suppliers, buyers, and intermediaries to increase profitability through the chain.

Exhibit 46

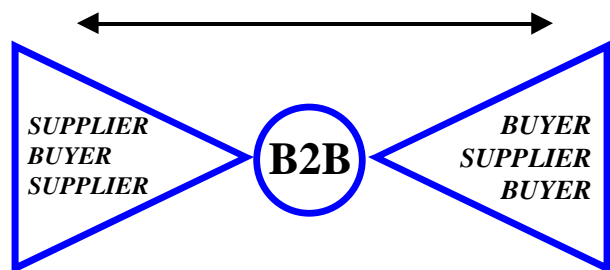
Virtual Distributors —
Many buyers to many suppliers



Source: Morgan Stanley Dean Witter Research

Exhibit 47

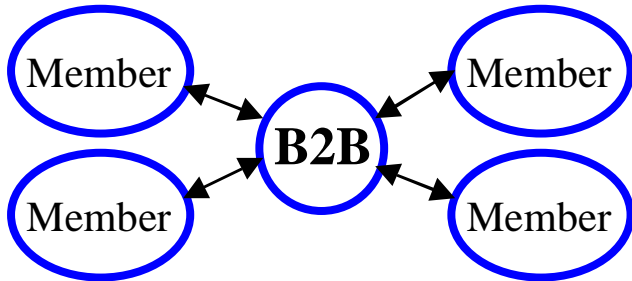
Market Makers —
Vertical eBays



Source: Morgan Stanley Dean Witter Research

Exhibit 48

Business Process Managers — Manage Complex Business Process Online



Source: Morgan Stanley Dean Witter Research

Benefits of B2B

In addition to greater market transparency, we identify five reasons that B2B Internet Commerce should expand rapidly in Latin America: expanded geographic reach, productivity enhancement, inventory management, cost savings, customer service — all directly related to a company's return on investment.

Expanded geographic reach— Making it easier to put together sellers and buyers, and making transactions more transparent and cheaper, Internet Commerce contributes to enlarging markets for all goods.

Productivity enhancement — The Internet speeds up communications between buyers and suppliers. This results in shorter process lead times, just-in-time delivery, and reduced inventory holdings, which allow reductions in working capital requirements.

Inventory management — Online inventory management helps increase inventory turnover and therefore profits.

Cost savings — Internet communication reduces the cost of the creation, recording, and storage of paper documents and records. Additionally, electronic markets create more efficient competition and increase a purchasing manager's potential for cost savings. Marketing and sales expenses can be shaved by moving more activities online, such as customer and supplier communications.

Customer service — Providing online access to product information, technical support, and delivery tracking can help reduce customer care expense for companies and boost customers' satisfaction levels.

What We Look for in B2B Markets

We believe the key elements for a successful B2B Internet Commerce strategy are as follows:

Large, fragmented markets — probably the most important element for success is not having a buying or selling cartel. B2B creates value as a large number of participants enter the market with competitive bid/offers.

Transaction randomness — efficient exchanges need buyers who change suppliers on a regular basis and are constantly looking for the best price.

Dynamic products— i.e. products with a limited shelf life are more attractive

Supply chain inefficiencies — offer the best potential to create value through supply chain optimization. B2B success will be based on increasing customer's productivity by reducing cost, improving service, and/or saving time.

First-mover advantage and critical mass — moving first is important, but whomever signs up the buyers, suppliers, and/or partners first will have a strong potential to keep them, in our view. The networking effect is particularly valuable in creating an efficient market.

B2B in Latin America

In Latin America, B2B Internet commerce is at an even earlier stage than B2C. The number of corporations embracing the Internet as a transaction medium is growing, but the number of electronic intermediaries or Internet exchanges operating in the region is minimal.

Rather than using the Web for B2B Internet commerce, today, Latin companies use their Web sites as substitutes for marketing pamphlets, as well as for investor relations and employment opportunities. However, the potential exists for Latin companies to join existing exchanges or create their own.

Given the relative size of Latin America, we believe it will not be a breeding ground for pure B2B plays, but a region where the impact of B2B, with the greater transparency and more intense competitive environment it engenders, will be felt in the many listed players. In our view, the integration to the global economy will be a key differentiating factor between winners and losers. Commodity producers in Latin

America, many of which are already globally competitive, are well prepared to face the rigors of greater transparency that B2B emergence will bring, in our view. Manufacturing companies are likely to fall into two categories, in our view — the globally competitive ones, many of whom already have strong links as global suppliers, and the others, likely to lose market share rapidly. Companies not currently competitive have a short window to re-engineer their processes, in our view.

A Latin B2B venture currently under construction but worth noting is that between Banacci and CommerceOne. The companies formed a joint venture to operate a B2B electronic marketplace that will link buyers and sellers throughout Latin America and the rest of the world. Banacci will license the CommerceOne Solution for the development of the B2B platform, and CommerceOne will provide technical, marketing, and deployment expertise. Banacci will provide access to its large corporate customer base.

Other important B2B efforts worth mentioning in Latin America include those of Soriana and Compranet. Mexican food retailer Soriana has set up a sophisticated Web-based supplier module, where suppliers can access information on account balances, delivery and payment dates, as well as receive orders through the Internet.

Compranet is the online procurement system of the Mexican government. The site allows suppliers of goods and services to enter public-sector bids via the Internet. We highlight Compranet because its a unique B2B proposition that is only possible through the Internet and could not exist without it. Compranet is the only answer to every constituency's needs in the procurement process. Government agencies create an efficient market to ensure competitive pricing and reduce operating costs. Suppliers gain access to more business prospects and have an equal opportunity to participate. Finally, the public in general can oversee the government's procurement process in an integral and transparent way.

Exhibit 49

Argentina E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Argentina E-commerce	3	13	40	112	284	639	1,197	134%
-- Annual growth		288%	211%	180%	154%	125%	87%	
B2B	3	10	31	84	202	445	863	129%
-- Annual growth		254%	217%	166%	142%	120%	94%	
B2C	1	3	8	28	82	193	333	150%
-- Annual growth		480%	192%	233%	191%	135%	73%	
Participation in e-commerce								
B2B	85%	77%	79%	75%	71%	70%	72%	
B2C	15%	23%	21%	25%	29%	30%	28%	
Total e-commerce spending by user (\$/user)								
Dollars spent per user per year	261	334	464	549	699	855	1,075	23%
as % of per capita GDP	3%	4%	6%	7%	8%	10%	12%	
-- Annual growth		28%	39%	18%	27%	22%	26%	
B2B spending by business and other users (\$/user)								
Dollars spent by business and other users, per year	566	644	820	960	1,211	1,474	1,758	21%
as % of GDP per employee	3%	3%	4%	5%	6%	7%	8%	
-- Annual growth		14%	27%	17%	26%	22%	19%	
B2C spending by home user (\$/user)								
Dollars spent per home user per year	65	126	178	242	343	434	536	32%
as % GDP per cap	1%	2%	2%	3%	4%	5%	6%	
-- Annual growth		94%	41%	36%	42%	27%	23%	
% of Internet users making a purchase	5%	10%	12%	13%	17%	22%	26%	
Home	7%	11%	12%	13%	17%	23%	27%	
Business	4%	9%	13%	15%	18%	22%	26%	
Educ/Govt/other	3%	6%	6%	9%	11%	15%	17%	
Internet users making a purchase (000)	12.7	38.4	85.9	203.7	406.8	747.3	1,113.5	90%
-- Annual growth		203%	124%	137%	100%	84%	49%	
Home	7.7	23.0	47.6	116.7	239.7	445.0	622.4	90%
-- Annual growth		199%	107%	145%	105%	86%	40%	
Business	3.7	11.3	32.5	75.4	148.6	270.6	447.1	93%
-- Annual growth		207%	188%	132%	97%	82%	65%	
Educ/Govt/other	1.3	4.1	5.7	11.7	18.5	31.7	43.9	66%
-- Annual growth		220%	41%	104%	59%	71%	39%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Exhibit 50

Brazil E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Brazil E-commerce	18	93	186	491	989	1,899	3,154	103%
-- Annual growth	0%	408%	100%	164%	101%	92%	66%	
B2B	14	60	116	304	627	1,273	2,261	110%
-- Annual growth	0%	334%	92%	163%	106%	103%	78%	
B2C	4	33	70	186	362	626	893	89%
-- Annual growth	0%	643%	115%	166%	94%	73%	43%	
Participation in e-commerce								
B2B	76%	65%	62%	62%	63%	67%	72%	
B2C	24%	35%	38%	38%	37%	33%	28%	
Total e-commerce spending by user (\$/user)								
Dollars spent per user per year	135	184	200	290	371	459	554	29%
as % of per capita GDP	3%	4%	6%	8%	10%	12%	14%	
-- Annual growth	0%	37%	9%	45%	28%	24%	21%	
B2B spending by business and other users (\$/user)								
Dollars spent by business and other users, per year	280	356	402	524	643	727	824	20%
as % of GDP per employee	3%	3%	6%	7%	8%	9%	10%	
-- Annual growth	0%	27%	13%	30%	23%	13%	13%	
B2C spending by home user (\$/user)								
Dollars spent per home user per year	51	97	110	168	214	262	303	29%
as % GDP per cap	1%	2%	3%	5%	6%	7%	8%	
-- Annual growth	0%	90%	13%	53%	27%	23%	16%	
% of Internet users making a purchase	12%	18%	20%	24%	27%	31%	34%	
Home	15%	23%	23%	27%	31%	35%	37%	
Business	10%	16%	19%	22%	23%	29%	33%	
Educ/Govt/other	7%	11%	12%	14%	17%	20%	23%	
Internet users making a purchase (000)	136	506	927	1,692	2,667	4,142	5,690	57%
-- Annual growth		272%	83%	82%	58%	55%	37%	
Home	86	336	640	1,111	1,693	2,391	2,947	46%
-- Annual growth		290%	90%	73%	52%	41%	23%	
Business	24	85	159	416	756	1,472	2,399	97%
-- Annual growth		245%	89%	161%	82%	95%	63%	
Educ/Govt/other	25	85	128	165	218	278	344	28%
-- Annual growth		237%	50%	29%	33%	27%	24%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Exhibit 51

Chile E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Chile E-commerce	2	6	14	32	66	124	221	100%
-- Annual growth		253%	130%	131%	107%	87%	79%	
B2B	2	5	10	22	43	82	150	98%
-- Annual growth		213%	107%	123%	99%	89%	84%	
B2C	0	1	4	10	23	42	72	105%
-- Annual growth		550%	211%	151%	125%	84%	71%	
Participation in e-commerce								
B2B	88%	78%	71%	68%	66%	66%	68%	
B2C	12%	22%	29%	32%	34%	34%	32%	
Total e-commerce spending by user (\$/user)								
Dollars spent per user per year	43	74	89	124	178	248	364	42%
as % of per capita GDP	1%	2%	2%	3%	4%	5%	7%	
-- Annual growth	0%	74%	20%	39%	44%	40%	47%	
B2B spending by business and other users (\$/user)								
Dollars spent by business and other users, per year	73	122	167	234	326	453	643	40%
as % of GDP per employee	1%	1%	1%	2%	3%	4%	5%	
-- Annual growth	0%	68%	37%	40%	40%	39%	42%	
B2C spending by home user (\$/user)								
Dollars spent per home user per year	10	31	42	62	95	132	190	46%
as % GDP per cap	0%	1%	1%	1%	2%	3%	4%	
-- Annual growth	0%	195%	36%	47%	55%	38%	44%	
% of Internet users making a purchase	33%	34%	36%	37%	39%	39%	39%	
Home	52%	46%	45%	45%	46%	47%	47%	
Business	22%	26%	29%	30%	31%	32%	32%	
Educ/Govt/other	26%	28%	26%	27%	28%	28%	28%	
Internet users making a purchase (000)	40	81	154	257	371	498	609	41%
-- Annual growth	0%	103%	92%	66%	44%	34%	22%	
Home	19	42	96	164	239	317	376	41%
-- Annual growth	0%	121%	128%	71%	45%	33%	18%	
Business	7	17	30	56	90	133	180	57%
-- Annual growth	0%	133%	72%	89%	60%	48%	36%	
Educ/Govt/other	13	21	29	37	43	48	53	16%
-- Annual growth	0%	60%	36%	28%	17%	11%	10%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Exhibit 52

Mexico E-Commerce Market Forecast

<i>(US\$ Millions, except where otherwise indicated)</i>	1997*	1998*	1999E	2000E	2001E	2002E	2003E	CAGR 99-03
Mexico E-commerce	5	22	85	273	649	1,207	1,937	118%
-- Annual growth		327%	292%	220%	137%	86%	60%	
B2B	4	17	55	150	376	702	1,245	118%
-- Annual growth		300%	229%	170%	151%	87%	77%	
B2C	1	5	30	124	273	506	692	119%
-- Annual growth		456%	501%	311%	120%	85%	37%	
Participation in e-commerce								
B2B	82%	77%	65%	55%	58%	58%	64%	
B2C	18%	23%	35%	45%	42%	42%	36%	
Total e-commerce spending by user (\$/user)								
Dollars spent per user per year	90	168	272	330	451	573	704	27%
as % of per capita GDP	2%	4%	5%	6%	8%	10%	12%	
-- Annual growth	0%	86%	62%	21%	37%	27%	23%	
B2B spending by business and other users (\$/user)								
Dollars spent by business and other users, per year	95	183	326	429	618	786	967	31%
as % of GDP per employee	1%	2%	3%	3%	5%	5%	7%	
-- Annual growth	0%	93%	78%	32%	44%	27%	23%	
B2C spending by home user (\$/user)								
Dollars spent per home user per year	73	131	209	258	329	417	473	23%
as % GDP per cap	2%	3%	4%	5%	6%	7%	8%	
-- Annual growth	0%	80%	60%	23%	28%	27%	13%	
% of Internet users making a purchase	12%	14%	19%	23%	25%	26%	27%	
Home	11%	17%	23%	27%	28%	29%	29%	
Business	15%	15%	18%	21%	24%	25%	26%	
Educ/Govt/other	9%	11%	13%	14%	15%	13%	16%	
Internet users making a purchase (000)	57	130	313	829	1,438	2,106	2,751	72%
-- Annual growth		129%	141%	164%	74%	46%	31%	
Home	12	38	144	480	829	1,213	1,463	79%
-- Annual growth		209%	276%	234%	73%	46%	21%	
Business	31	65	131	294	534	813	1,168	73%
-- Annual growth		109%	102%	125%	82%	52%	44%	
Educ/Govt/other	13	27	39	55	75	80	120	32%
-- Annual growth		102%	43%	42%	36%	7%	49%	

E = Morgan Stanley Dean Witter Estimates * Based on IDC estimates.

Internet – Chapter 4: Advertising: Yet to Ramp

Key Points

- Internet advertising should be the fastest-growing segment of the advertising market. We estimate the Latin Internet market will grow at a 110% CAGR from 2000 to 2003, compared with 6% for the total advertising market. We estimate total Internet advertising in Latin America will reach \$1,200 million by 2003.
- Latin Internet advertising growth has yet to take off, in our view. Internet ad spending is barely taking off in the US. The first impact of Internet-related ad spending will be the Latin Internet companies as buyers of advertising to create their own brands. So, the first Internet play is in established media companies, like Televisa and TV Azteca, in our view.
- As in other media, we expect advertising revenue to concentrate in the few players with the largest market share. As portals and destinations will likely be the largest advertising recipients, page views would be a determinant metric.

Internet: Advertising Machine

The Internet's unique potential as an advertising medium is that it is the only one where advertising can be directly converted into transactions. Although still in a start-up stage in more developed Internet markets, advertising is expected to become a key factor for various properties, particularly for portals and destinations.

As in other media businesses, the Internet generates large audiences that are valuable targets for advertisers. In Latin America, the Internet audience should be especially prized, as it offers a direct window to a wealthier, more educated, and younger consumer. In general, the Internet offers many advantages over traditional media, such as ubiquitous reach, greater targeting, and tracking potential.

Ubiquity – the Internet is accessible at home, in the office, and on the road.

Targeting and tracking potential – the Internet allows advertisers to target and deliver direct messages to an audience with specific demographics and interests.

Transaction capability – The Internet allows advertisements to become point-of-sale opportunities.

Internet ad spending is currently in a start-up mode in Europe and the United States. Our colleagues in the US estimate that up to 90% of advertising inventory in Internet goes unsold currently. We believe Latin unsold inventory is around the same levels. And although click-throughs are falling in the US, we remain bullish on the prospects of Internet advertising, for what is the click-through rate of a TV or newspaper ad?

What will it take for Internet ad spending to grow? In our view, two basic elements are necessary: more information about the effectiveness of the medium and more experience with it. Internet advertising is uniquely suited to provide effectiveness information, from click-through rates to demographics of consumers. In a way, the solution is in the maturation of the medium, as more information becomes available, more advertising buyers will use it and a virtuous circle will begin, with rapid growth as a result.

Will current Internet advertising continue to be basically banners? Not necessarily. We already see pop-up windows, interactive spots, and directed e-mail. However, different modes of advertising that really leverage on the multimedia capabilities of the Web, incorporating sound and video, will depend more on speed of access.

How to Play Advertising on the Internet?

As Internet advertising and usage ramps, we will look for two effects on traditional media. Printed media stands to lose revenues from classified advertising as the population, or at least the most attractive segment of it, moves online. Going forward, as data transmission technology improves, we expect the Internet to acquire TV-like properties (video and sound). As usage grows, initially the Internet is new (or additional) media use, but usage should eventually reach a level where it will be taking time from other activities such

as watching TV, in a sense a zero-sum game of media usage. As the Internet gains mind share, it must also gain market share.

In our view, ad spending in the Internet will follow the model of other mass media, like radio and television: those with the highest viewership will take the greater share of advertising. In other words, follow the page views, to see which companies have the greater reach. Currently, Latin America does not have reach measurements provided by third parties, so we must rely on the page view data provided by the different sites.

Portals and destinations will take the lion's share of advertising, in our view, as their reach will tend to be greater than, say, ISPs or pure Internet Commerce sites. Portals and destinations can be seen as media companies fighting for audience share by aggregating and creating relevant, high-quality content or information. A quick distinction: portals organize and direct Internet traffic to content created by other companies, while destinations create and distribute proprietary content. This difference, however, has been fading as portals incorporate proprietary content to their sites and destinations incorporate sophisticated Web search engines.

Content providers generate revenues mainly from advertising. However, most portals and destinations are trying to diversify their revenue stream and generate revenues through commissions on Internet Commerce transactions and by charging subscriptions fees for premium content and services.

To attract and retain users, portals and destinations offer value-added services such as email, chat rooms, personal Web page hosting, and more.

Latin portals and destinations include StarMedia, UOL, El Sitio, Yupi, Todito, Quepasa, eHOLA, Ole, Ciudad Internet, among others. Additionally, Spanish and Portuguese versions of US portals such as Yahoo!, AOL, and MSN are also competing in the region.

How to Pick the Winners?

As in Internet Commerce, we believe it is too early to call the winners and the losers in Latin Internet advertising. What we can offer is our current thinking on key issues to separate the winners. Experience indicates that advertising

expenditure is very concentrated: In the US, approximately 70% of Internet revenues went to the top 10 Web properties in 1998. The pressure is on for Latin portals/destinations to secure a dominant position in the market.

Independently of their business model, we believe three factors will be key in making sticky sites (that is, locations that attract return viewers): content, commerce, and community.

Content — Content includes news, weather, sports, entertainment, classifieds, educational programs, recipes, and more. Internet users go to a site if the content is appealing and useful. Content can be bought or created. Proprietary content differentiates a site and can be charged for.

Community — To attract and retain users, portals and destinations offer value-added services such as e-mail, messaging, chat rooms, personal Web-page hosting, and personalization, which are intended to create a sense of belonging to the site. Once a user has invested time in personalizing the home page, has registered his or her e-mail account, and knows that friends are reachable through the site's messaging, it will be harder for the user to leave. The attendance in chat rooms is important to a site's success; after all, who wants to go to a poorly attended party?

Commerce — Increasingly, portals are turning to commerce as a way to increase loyalty and control the customer relationship. Simpler buying, through universal shopping carts and the use of e-wallets or the use of frequent buyer points, are some of the allures portals are using to keep visitors shopping at their sites. In more than one sense, portals are facing off against online retailers.

Some questions that we believe winners will figure out early:

How to own the eyeballs? Making the users return will be a first key metric. In this, we believe the content producers, most of whom are not currently in the Internet, like Globo and Televisa, have a competitive advantage: they control properties that audiences have already voiced preferences for. However, the longer these companies delay in entering the space, the narrower their competitive advantage becomes: other competitors in need of content are striking deals with artists on individual bases and are searching for ways to create their own content. The main players could

find that by delaying their entrance, their product becomes irrelevant.

How to exploit the medium? Traditional incumbents in the US and Europe have not proven to be the most agile in grasping the potential of the Internet. Although Latin incumbents have not joined the fray, they are actively working on their Internet sites. Several players are already active and in the process of adapting their sites to the demands of Internet users. Language customization, for example, is being rapidly addressed as sites with a Pan-Latin approach mushroom.

Which audience to target? The challenge of a Pan Latin approach (including the US Latino community) we believe will be rewarded with the prize of higher ad rates. Given the size of the market (see estimates below), we believe it makes sense for players to be active in most of Latin America and offer media buyers a sort of one-stop shopping for their Internet ad exposure.

How to deal with the global guys? Once more: yes, but not now. As in Internet Commerce, we believe global players are not yet focused on the region, with bigger fish to fry elsewhere. The opportunity for some local players to be first movers and entrench themselves is clearly out there. It is by no means certain that the dominant position will be as hard to overtake as in the US. We think the largest challenge for local players is to create brand names that are recognizable.

The Latin Advertising Market

Advertising expenditures tend to be closely related to economic activity. Adjusting Zenith Media's estimates of advertising for extremely high participation of GDP in the smaller Latin nations, we believe the total Latin market was \$19 billion, or 1.1% of GDP, in 1998. This compares with an advertising market of approximately \$400 billion in the US, or 4.4% of GDP. Over the next several years, we believe advertising expenditures in Latam will remain above 1.2% of GDP.

A key differentiating aspect of the advertising market in Latin America is the dominance of television. According to Zenith Media, television had around 64% share of total Latin advertising expenditures. In the US and Europe,

Quick Aside: US Advertising and the Internet

As mentioned earlier, Internet ad spending is beginning to ramp in the US. Michael Russell, our US Media Analyst, in his November 11, 1999, report on Internet Advertising, wrote the following 4 paragraphs.

Internet companies affect advertising both as buyers and suppliers. At this point, the Internet represents 2.3% of our US advertising forecast for 1999 as a buyer (\$3.5 billion) and almost 2.1% as a supplier (\$3.2 billion).

Our studies find that the "dotcoms" are spending about 16% of their annualized revenues on advertising. This is at or near the top of all industries. While this portion of revenues is unlikely to be sustained, the maintenance level of advertising capital expenditures would likely be 25% below current levels — 12% of revenues. However, by our calculations, with revenue growth of "only" 35%, this level could be reached without reducing advertising expenditures. In fact, higher dotcom revenue growth will likely lead to increased absolute ad spending.

The Internet is an advertising medium, and thus many Internet companies are suppliers of advertising. In 1999, we expect that Internet companies (creative, publisher networks, etc.) will receive \$3.2 billion in advertising. This represents approximately 2% of our projections for all advertising in the US in 1999. In 2000, we expect Internet advertising will rise 47% to \$4.7 billion. According to our forecasts, this will represent 35 of US advertising.

Due to the huge Internet-related growth in incremental advertising, we believe that an incremental 100 basis points of growth has been added to 1999 US advertising. In 2000, we believe that an incremental 40 basis points of growth in advertising will be added because of advertising on the Web.

eStats estimates the US Internet advertising market will be worth \$8.9 billion, or approximately 4.5% of the total advertising expenditures by 2002, up from \$2.6 billion, or 1.7% in 1999. In Europe, our research analysts estimate the Internet will take 5% of total advertising revenues by 2004, or \$5.5 billion.

Television represented 34% and 33% of total advertising expenditures in 1998, respectively. Television dominance in Latin America responds to lower socio-economic and literacy levels.

Latin newspapers have the second largest share, with 18% of the 1998 advertising market in Latin America. Magazines and radio represented 7% each, and outdoor advertising and other took the remaining 4% share.

The largest country advertising market is Brazil's, with 46% of the total in 1998, or \$8.7 billion. The second-largest market was Argentina, with \$2.7 billion or 14% of the total. Mexico came in third place, where our own estimates place the total market at \$2 billion, or 10% of the Latin total. Chile's market of \$0.6 billion was the fourth largest in the region, representing 3%. The combined total the remaining Latin American countries represented almost one-fourth of the total market.

Over the 2000-2003 period, we estimate the participation of the four major countries to remain roughly the same, with Brazil averaging 46%, Argentina 14%, and Chile 3%. We believe the market in Mexico will grow faster than the others, with two main drivers. First, the main television broadcasters, Televisa and TV Azteca, are raising rates significantly, both focused on increasing profitability and cost per thousand viewers. Second, the coming presidential elections should provide a boost for 2000. Overall, we believe Mexico will average 13% share of the total market, up from 10% in 1998.

Latin Internet Advertising

Internet ad spending is in an even earlier stage of development than in the US and Europe. At this time, we believe the largest impact Latin Internet companies will have on the market will be as consumers of advertising, as they try to build their own brands and generate consumer interest in their sites. Thus, we believe the first impact of Internet advertising, will be, paradoxically, market expansion that will benefit the established media players, such as Televisa and TV Azteca.

In the coming two to three years, ad spending on Latin Internet as a medium should ramp, following the pattern we saw in the US and Europe, as more of the population goes online.

We are forecasting that Internet advertising will initially take a 0.7% share of the total pie in Latin America, rising to 5% by 2003. Consequently, we are looking for Internet advertising to grow from \$130 million in 2000 to \$1,200 million in 2003. To put this in perspective, Televisa's total revenues for the year 1998 were \$1.9 billion.

Our Latin America forecast is based, as is our Internet Commerce forecast, on individual estimates for Argentina, Brazil, Chile, and Mexico, with the rest of Latam treated as one. Our estimate was based on the expected share of total advertising for the Internet. In our estimates, we used Zenith Media's 1999-2001 total advertising market estimates for Argentina, Brazil, Chile, and the rest of Latin America, and our own advertising market estimate for Mexico.

We estimate Internet advertising expenditures in Chile, Mexico, and Argentina will behave similarly, starting from a 0.5% share in 2000 and rising to 5.8% of country's total advertising market by 2003. We estimate Mexico's Internet advertising market will grow from \$13 million in 2000 to \$179 million by 2003. In Argentina, we estimate the market will grow from \$14 million in 2000 to \$189 million in 2003. We estimate Chile's market will grow from \$3 million in 2000 to \$38 million by 2003.

In Brazil, we estimate Internet advertising would start from a higher base than Argentina and Mexico, 1% of the total, and would reach a similar 6.8% by 2003. We anticipate Brazil will have the largest Internet advertising expenditures, rising from \$91 million in 2000, to \$732 million by 2003.

For the rest of Latin America we used a 2003 share of 1.2%, starting from 0.7% in 2000. The end-point is considerably lower than for the other countries, but reflective of even lower purchasing power and Internet usage.

Attractive Demographics

For Latin American advertisers, the Internet offers an ideal medium to reach the upper-income population. As mentioned earlier, we believe Internet usage in Latam will be initially focused on the wealthiest 20% of the region's population.

According to a recent study by Nazca Saatchi & Saatchi, the typical Internet user in Latin America is in his or her mid-20s. The average age fell in 1999 to 26 from 31 in 1997. In 1999 62% of individuals online were male and 38% female, with females increasing their participation from 24% in 1997.

In 1999, the 30% of the Web users were from the high socio-economic level, 47% from the middle, and 24% from the low level. This compares favorably with the region's population distribution of 13% high, 34% middle, and 53% low. Additionally, 33% of the Web users were professionals, compared to only 10% of the population.

Exhibit 53

Internet Advertising Expenditure Forecast

	1998	1999E	2000E	2001E	2002E	2003E	CAGR 00-03
Total Latin America							
Advertising Market (MM\$)	19,008	19,309	19,972	21,571	22,660	23,752	6%
% GDP	1.09%	1.26%	1.21%	1.22%	1.21%	1.22%	
Annual growth		1.58%	3.43%	8.00%	5.05%	4.82%	
Internet share (% of advt mkt)	0.00%	0.00%	0.65%	1.17%	2.35%	5.10%	
Internet Advertising Market (MM\$)	-	-	130	253	532	1,210	110%
Annual growth				94.4%	109.9%	127.7%	
Internet Advertising Expenditure (\$ per 000s people)			256	491	1,016	2,281	
Internet Advertising Market (MM\$)							
Total Latin America	na	na	130	253	532	1,210	
Argentina	na	na	14	29	70	189	
Brazil	na	na	91	170	342	732	
Chile	na	na	3	6	14	38	
Mexico	na	na	13	27	66	179	
Rest of Latam	-	-	-	-	-	-	
Share in Advertising market							
Argentina	14%	14%	14%	13%	14%	14%	
Brazil	46%	46%	45%	46%	46%	45%	
Chile	3%	3%	3%	3%	3%	3%	
Mexico	10%	11%	13%	13%	13%	13%	
Rest of Latam	26%	26%	25%	25%	25%	25%	
Share in Internet Advertising							
Argentina	na	na	11%	11%	13%	16%	
Brazil	na	na	70%	67%	64%	61%	
Chile	na	na	2%	2%	3%	3%	
Mexico	na	na	10%	11%	12%	15%	
Rest of Latam	na	na	8%	9%	8%	6%	

Source: Morgan Stanley Dean Witter Research

Exhibit 54

Internet Advertising Expenditure Forecast

	1998	1999E	2000E	2001E	2002E	2003E	CAGR 00-03
Argentina							
Advertising Market (MM\$)	2,701	2,761	2,824	2,894	3,099	3,254	5%
-- Annual growth		2.2%	2.3%	2.5%	7.1%	5.0%	
% GDP	0.91%	0.97%	0.97%	0.94%	0.94%	0.94%	
Internet share (%)	0.00%	0.00%	0.50%	1.00%	2.25%	5.80%	
Internet Advertising Market (MM\$)	-	-	14	29	70	189	137%
-- Annual growth				105.0%	141.0%	170.7%	
Internet Advertising Expenditure (\$ per 000s people)			379	768	1,830	4,894	
-- Annual growth				102.5%	138.1%	167.5%	
Per capita GDP	8,343	7,856	7,905	8,292	8,758	9,007	
-- Annual growth		-5.8%	0.6%	4.9%	5.6%	2.8%	
Brazil							
Advertising Market (MM\$)	8,750	8,800	9,080	9,988	10,357	10,771	6%
-- Annual growth		0.6%	3.2%	10.0%	3.7%	4.0%	
% GDP	1.13%	1.68%	1.51%	1.54%	1.54%	1.54%	
Internet share (%)	0.00%	0.00%	1.00%	1.70%	3.30%	6.80%	
Internet Advertising Market (MM\$)	-	-	91	170	342	732	101%
-- Annual growth				87.0%	101.3%	114.3%	
Internet Advertising Expenditure (\$ per 000s people)			522	968	1,932	4,103	
-- Annual growth				85.3%	99.5%	112.4%	
Per capita GDP	4,780	3,170	3,594	3,814	3,897	3,919	
-- Annual growth		-33.7%	13.4%	6.1%	2.2%	0.6%	
Chile							
Advertising Market (MM\$)	663	551	561	594	617	656	5%
-- Annual growth		-16.9%	1.9%	5.9%	3.8%	6.3%	
% GDP	0.91%	0.82%	0.84%	0.85%	0.85%	0.85%	
Internet share (%)	0.00%	0.00%	0.50%	1.00%	2.30%	5.80%	
Internet Advertising Market (MM\$)	-	-	3	6	14	38	138%
-- Annual growth				111.8%	138.8%	168.1%	
Internet Advertising Expenditure (\$ per 000s people)			185	388	918	2,436	
-- Annual growth				109.7%	136.4%	165.4%	
Per capita GDP	4,904	4,457	4,359	4,492	4,600	4,917	
-- Annual growth		-9.1%	-2.2%	3.1%	2.4%	6.9%	
Mexico							
Advertising Market (MM\$)	1,952	2,177	2,514	2,702	2,858	3,094	7%
-- Annual growth		11.5%	15.5%	7.5%	5.8%	8.3%	
% GDP	0.48%	0.44%	0.49%	0.49%	0.48%	0.50%	
Internet share (%)	0.00%	0.00%	0.50%	1.00%	2.30%	5.80%	
Internet Advertising Market (MM\$)	-	-	13	27	66	179	143%
-- Annual growth				115.0%	143.3%	173.0%	
Internet Advertising Expenditure (\$ per 000s people)			123	261	625	1,682	
-- Annual growth				111.8%	139.7%	169.0%	
Per capita GDP	4,331	5,128	5,267	5,600	5,919	5,836	
-- Annual growth		18.4%	2.7%	6.3%	5.7%	-1.4%	

Source: Morgan Stanley Dean Witter Research

Internet Infrastructure Services: Data Services and Access

Introduction:

The Picks and Shovels of the Internet

Internet Growth Drives the Demand for Data Services

With the new millennium, it is clear that businesses and consumers are embracing the Internet for strong economic and social reasons. Users want to improve productivity, heighten efficiency, and explore new business opportunities created by the Internet.

This drive to interact online is generating a big demand for the Internet Infrastructure Services that facilitate this interaction. In fact, we believe that this Internet segment — including access and data services — in Latin America will grow significantly, reaching revenues of some \$19.9 billion by 2004, versus some \$4.1 billion by year-end 1999.

Digging for Gold? You Need the Picks and Shovels

MSDW's Internet Infrastructure Services Analyst, Jeff Camp, uses an analogy that we think is very useful to describe the Internet infrastructure segment.

In "The Internet Data Services Report" (August 1999), Jeff points out that the relationship between those exploring the Internet Commerce market and the firms operating in the IDS market is like that between the gold prospectors of the mid-1800s in the US and the merchants selling the picks and shovels needed to pursue their fortunes.

We think the analogy is helpful in clarifying the economic differences in the structure of the two markets. We believe that the **Internet Commerce and content segments of the Internet will be dominated by a handful of extremely successful companies**, and littered with the remains of their less-adept brethren. **However, the Internet Infrastructure Services market is likely to be dominated by none and fodder for many.**

Like those digging for gold a century and a half ago, the content and Internet Commerce prospectors face fantastic rewards and equally high risks; few are likely to strike gold, but those that do might become very wealthy. However, the steady stream of these fortune seekers creates a vibrant market for firms catering to their needs, driving demand for the access, hosting, and network service markets.

The Benefits of Sharing: Lower Costs, More Users

We believe the shared infrastructure of the Internet is one of its greatest strengths. By spreading the cost of common infrastructure over many users, Internet infrastructure providers are able to bring new firms and consumers into the Internet that, up till now, have been unable to enter the digital economy.

We believe falling costs, in essence, are *the* factor that will allow these small and medium companies — and middle-class consumers — to go online for the first time. The emergence of these small and medium-sized enterprises in Latin America could be one of the most significant trends in the Internet in the coming years, in our view.

Alleviating the Internet's Bottlenecks

There are three primary bottlenecks on the Internet: access, servers, and routing. We see early signs of these bottlenecks being alleviated, although somewhat slowly, which should lead to a significant increase in the quality of the Internet experience. Firms that are able to alleviate these bottlenecks will be positioned to create considerable value for both their users and investors, in our view. As an example, the DSL (digital subscriber line) and cable-modem markets are currently addressing the access bottleneck.

In Latin America, we believe the Internet will have a tremendous impact. Not only will more companies engage more intensively in electronic transactions, but also a larger number of small and medium-sized enterprises will be able to afford communication services that previously could only be obtained by large companies. This should help a large portion of the economy lower its operating costs and create completely new business opportunities.

Quality Is Improving, Leading to More Outsourcing

While falling costs are coaxing many small and medium-sized enterprises and price-sensitive consumers online for the first time, many companies have been loath to move mission-critical data onto the public Internet for security and reliability reasons. However, improvements in hosting, networking, and security systems are giving many companies the confidence needed to move an increasingly large proportion of their Internet needs out-of-house. While we

believe it will be some time before the public Internet offers the security and reliability needed for mission-critical services, closed, but shared, networks are approaching the quality levels required by many firms. This should lead to significant demand for high-end Internet Infrastructure Services.

Vertical Integration by Product and Target Market

Companies operating in the Internet Services market more likely than not began life as a single-product firm, a Web-hosting company or access firm, for example. In future, we believe, companies will have to expand their menu of services to raise revenue per customer and reduce churn. We expect companies to integrate product lines vertically, as well as target a more diverse set of end-users. In essence, we believe that Latin American firms involved in the Internet infrastructure services are likely to offer not only data or access services but also Web hosting, application housing, and other Web-related services.

Internet Infrastructure Services: Data Services and Access – Chapter 1: **Data Services: Where Does All Internet Traffic Go Through?**

Too Much Demand and Not a Lot of Supply

We think it is easy to see why telecom and Internet infrastructure companies in Latin America gain with the growth of the Internet. The increase in Internet penetration in the region, its quick adoption by all segments of the economy, and the ever-increasing demand for image- and sound-rich applications is fueling the demand for more data transmission capacity.

Strong growth in fixed and mobile phones in the region is also boosting demand for transmission capacity. In essence, the infrastructure providers — incumbent telecom operators and new entrants — are benefiting from the new data communication requirements that are being created.

In addition, we believe, the Latin American data providers can profit from this situation for three main reasons:

- Data communication, especially transmission, is a **capital-intensive business** (high barrier for entry);
- **Cost of capital is high** in the region, making it more difficult for new entrants; and
- Because the telecom sector was only fully privatized during the 1990s, the **infrastructure available is not enough to match the new demands**. It is a seller's market, essentially, despite all of the new investments being made.

Internet and Corporate Users Driving the Demand

Data communications is, by far, the fastest-growing sector of the telecom services business. Latin America is no exception, as the data business keeps expanding at a remarkable rate. In our view, the main drivers of this strong growth are as follows:

- **The number of Internet users in the region is booming.** Individual users and corporations are making increasingly more intense use of the Internet. The demand for data services is directly related to the growth in Internet usage.

- **Data communications requirements are rising significantly at the corporate level.** The number of companies in need of data communications is increasing rapidly, and bandwidth requirements (the data transmission capacity) keep growing in every business sector as new Internet and data communications-related applications are developed.
- **New applications are driving the demand for more bandwidth.** Voice, image, and video-based applications consume substantially more bandwidth than conventional alphanumeric-based applications. Current trends indicate that as more data capacity becomes available, the applications developed will consume even greater amounts of bandwidth.

Creating Value: Opportunities and Challenges

The companies in Latin America with exposure to the data business have an opportunity to create significant shareholder value, in our view. And the region's infrastructure providers of today have the benefit of owning the largest data businesses. But they face considerable competition from new entrants.

We expect new entrants will capture significant market share in data services. However, despite the intense rivalry, incumbent telecoms in every region of the world have been able to quickly expand their data businesses.

Exhibit 55

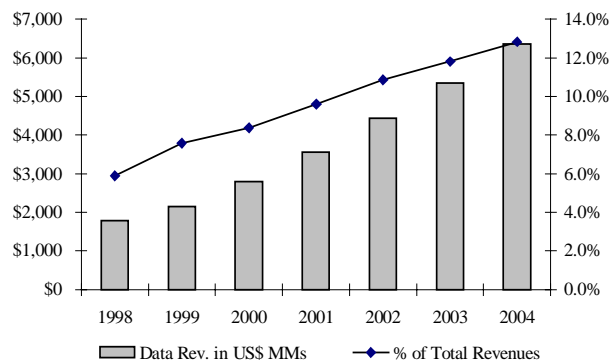
Increased Competition in Data Services

Country	Incumbents	Main competitors
Argentina:	Telecom Telefónica	Impsat (BT) MetroRED (Fidelity)
Brazil:	Embratel Telesp Tele Norte Leste Tele Centro Sul	MetroRED (Fidelity) Netstream (AT&T) Impsat (BT) Intelig (France Tel.) Vesper (Bell Canada)
Mexico:	Telmex	Avantel (MCI WorldCom) Alestra (AT&T)
Chile:	Telefónica CTC	FirstCom (AT&T)

Source: Morgan Stanley Dean Witter Research

Exhibit 56

Data Business to Gain Importance in Latin America



Includes TMX, TNE, TSP, TCS, EMT, CTC, TDP, TAR, and TEO

Source: Morgan Stanley Dean Witter Research Estimates

Relatively Small Now, Much Bigger in the Future

By the end of 1998, total services data represented an average of only 5.9% of total revenues generated by the incumbent telcos in Latin America. In developed countries, the story is different. On average, data services already represent some 11% of total US RBOCs' revenues; that figure is slightly lower for the major telecom operators in Western Europe.

We are encouraged by the data business' prospects in Latin America for two main reasons:

- Despite the big decline in prices for data services, Latin companies continue to expand their data revenues at a rapid pace, driven by a huge increase in demand.
- Data revenues continue to increase quickly even in more mature markets, such as US, Japan, and Europe.

Data in Latin America: Getting Bigger and Bigger

By our estimates, the data communications businesses in Latin America will grow at a compound annual rate of some 37%, in US dollars, over the next five years. By 2004, we forecast that the average fixed-line operator in Latin America will derive some 13% of revenues from data services.

Exhibit 57

Data Revenues: Benefiting the Incumbent Telcos

(US\$ millions)	1998	1999E	2000E	2001E	2002E	2003E	2004E
Telesp	\$185	++	++	++	++	++	++
Tele Norte Leste	\$130	\$265	\$321	\$392	\$477	\$585	\$721
Tele Centro Sul	\$97	\$123	\$162	\$206	\$252	\$291	\$324
Embratel	\$566	\$537	\$778	\$972	\$1,179	\$1,302	\$1,426
Tel. CTC Chile	\$114	\$226	\$263	\$307	\$350	\$392	\$431
Tel. de Argentina	\$71	++	++	++	++	++	++
Telecom	\$95	\$100	\$113	\$182	\$236	\$298	\$368
Tel. del Peru	\$59	++	++	++	++	++	++
Telmex	\$474	\$600	\$778	\$983	\$1,238	\$1,562	\$1,940

E = Morgan Stanley Dean Witter Research Estimates. ++ Ratings and 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.

Exhibit 58

Data and Access Projections: Latin America

	1999E	2000E	2001E	2002E	2003E	2004E	2005E	2006E	2007E	2008E	2009E	2010E
DATA + ACCESS												
Revenues (US\$ millions)												
Argentina	\$301	\$464	\$649	\$907	\$1,204	\$1,537	\$1,819	\$2,062	\$2,309	\$2,588	\$2,876	\$3,212
% Change		54%	40%	40%	33%	28%	18%	13%	12%	12%	11%	12%
Brazil	\$1,264	\$1,870	\$2,703	\$3,788	\$5,066	\$6,547	\$7,897	\$9,102	\$10,266	\$11,590	\$12,915	\$14,490
% Change		48%	45%	40%	34%	29%	21%	15%	13%	13%	11%	12%
Chile	\$224	\$323	\$438	\$583	\$740	\$912	\$1,074	\$1,221	\$1,357	\$1,509	\$1,657	\$1,841
% Change		45%	36%	33%	27%	23%	18%	14%	11%	11%	10%	11%
Mexico	\$890	\$1,365	\$1,950	\$2,703	\$3,528	\$4,431	\$5,254	\$5,982	\$6,675	\$7,447	\$8,205	\$9,102
% Change		53%	43%	39%	30%	26%	19%	14%	12%	12%	10%	11%
Others	\$1,393	\$2,214	\$2,688	\$3,608	\$4,983	\$6,561	\$7,380	\$8,027	\$8,991	\$10,528	\$12,099	\$13,038
% Change		59%	21%	34%	38%	32%	12%	9%	12%	17%	15%	8%
Total	\$4,072	\$6,237	\$8,428	\$11,589	\$15,520	\$19,987	\$23,425	\$26,395	\$29,599	\$33,661	\$37,751	\$41,684
% Change		53%	35%	38%	34%	29%	17%	13%	12%	14%	12%	10%
DATA												
Revenues (US\$ millions)												
Argentina	\$108	\$164	\$225	\$309	\$402	\$503	\$583	\$647	\$709	\$777	\$843	\$919
% Change		51%	37%	37%	30%	25%	16%	11%	10%	10%	9%	9%
Brazil	\$506	\$737	\$1,049	\$1,446	\$1,903	\$2,418	\$2,867	\$3,247	\$3,596	\$3,984	\$4,355	\$4,791
% Change		46%	42%	38%	32%	27%	19%	13%	11%	11%	9%	10%
Chile	\$134	\$193	\$259	\$343	\$432	\$528	\$618	\$697	\$769	\$849	\$925	\$1,019
% Change		44%	35%	32%	26%	22%	17%	13%	10%	10%	9%	10%
Mexico	\$311	\$469	\$657	\$893	\$1,142	\$1,404	\$1,629	\$1,813	\$1,977	\$2,153	\$2,314	\$2,501
% Change		51%	40%	36%	28%	23%	16%	11%	9%	9%	7%	8%
Others	\$515	\$805	\$960	\$1,266	\$1,716	\$2,217	\$2,445	\$2,605	\$2,857	\$3,274	\$3,679	\$3,874
% Change		56%	19%	32%	36%	29%	10%	7%	10%	15%	12%	5%
Total	\$1,575	\$2,368	\$3,151	\$4,257	\$5,595	\$7,070	\$8,142	\$9,010	\$9,909	\$11,036	\$12,115	\$13,104
% Change		50%	33%	35%	31%	26%	15%	11%	10%	11%	10%	8%
ACCESS												
Revenues (US\$ millions)												
Argentina	\$193	\$300	\$424	\$598	\$802	\$1,034	\$1,236	\$1,415	\$1,600	\$1,812	\$2,033	\$2,294
% Change		56%	41%	41%	34%	29%	20%	15%	13%	13%	12%	13%
Brazil	\$759	\$1,133	\$1,654	\$2,342	\$3,163	\$4,128	\$5,030	\$5,855	\$6,670	\$7,605	\$8,560	\$9,700
% Change		49%	46%	42%	35%	31%	22%	16%	14%	14%	13%	13%
Chile	\$89	\$131	\$179	\$240	\$308	\$383	\$456	\$524	\$588	\$660	\$732	\$821
% Change		46%	37%	34%	28%	24%	19%	15%	12%	12%	11%	12%
Mexico	\$578	\$896	\$1,293	\$1,810	\$2,386	\$3,027	\$3,626	\$4,169	\$4,698	\$5,294	\$5,891	\$6,600
% Change		55%	44%	40%	32%	27%	20%	15%	13%	13%	11%	12%
Others	\$877	\$1,409	\$1,727	\$2,342	\$3,266	\$4,344	\$4,935	\$5,422	\$6,134	\$7,254	\$8,420	\$9,164
% Change		61%	23%	36%	39%	33%	14%	10%	13%	18%	16%	9%
Total	\$2,497	\$3,869	\$5,277	\$7,332	\$9,925	\$12,916	\$15,283	\$17,385	\$19,690	\$22,625	\$25,636	\$28,580
% Change		55%	36%	39%	35%	30%	18%	14%	13%	15%	13%	11%

E = Morgan Stanley Dean Witter Research Estimates

Virtual Private Networks: The Benefits of Sharing

Virtual private networks (VPN) represent one of the Internet market's fastest-growing new business opportunities. **Using the shared network structure of the Internet, companies are able to greatly reduce communications costs**, while enabling an increasingly mobile workforce to stay in constant touch with the home office.

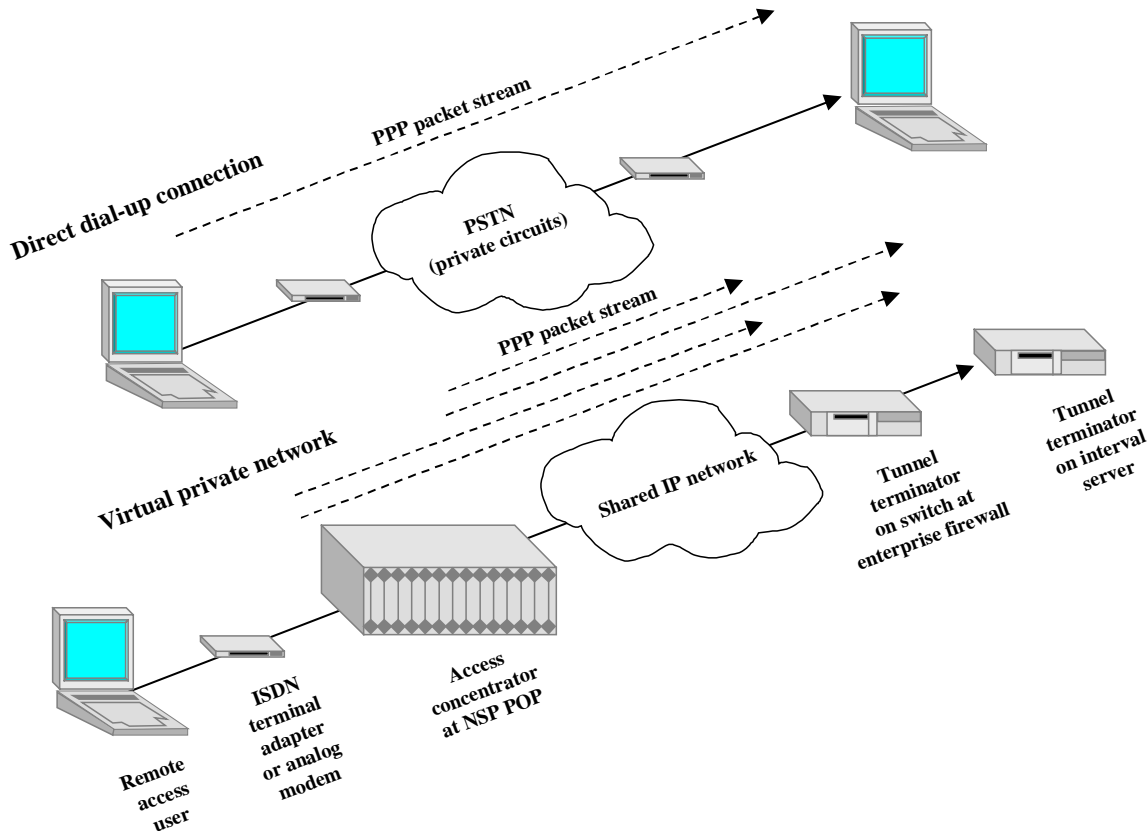
VPNs operate over a shared-network infrastructure in the same way that private networks do over dedicated facilities. Exhibit 59 shows the basic structure of a typical dedicated private network relative to a typical VPN. By adopting VPNs, companies are able to reduce costs for leased-line and long-distance services, remote user support, and equipment and infrastructure investment.

According to an analysis made by MSDW's Internet Infrastructure Services Analyst, Jeff Camp, VPN can result in savings of 20% to 50% over wide-area network (WAN) costs by replacing leased lines to remote sites with VPNs. For remote-access VPNs, savings can be 60% to 80% of corporate remote access dial-up costs. This is an important factor, considering that more and more corporate workers are expected to have a mobile computing devices, making ubiquitous network access essential to businesses in the next century.

In summary, **we expect that Internet-based VPNs will eventually replace most private leased-line networks**, resulting in strong revenue growth for the VPN industry.

Exhibit 59

Virtual Private Network Structure vs. Private Networks



Source: 3COM

VPN Basics: Shared Infrastructure

VPNs operate in much the same way that private networks do, the primary difference being that VPN services make use of a shared infrastructure rather than the dedicated infrastructure of a private network. In doing so, VPNs offer advantages to customers in such critical areas as costs, scalability, and network coverage. For details on the technology behind VPNs, please see Jeff Camp's "The Internet Data Services Report", dated August 1999.

The VPN Opportunity

Virtual private networks offer large companies with existing private network infrastructures the opportunity to reduce greatly their communications costs and network management responsibilities. At the same time, VPNs are enabling small and medium-sized companies that to date have not been able to justify the cost of a dedicated network to join the Net.

We see three critical factors driving demand for VPNs:

- **Lower Costs:** VPNs reduce costs in three ways. First, by sharing network infrastructure, VPNs are able to deliver site-to-site communications for 20-40% less than what is possible over dedicated leased lines. Second, VPNs reduce the need for companies to maintain equipment and technical staff to support remote computing. In addition, by enabling remote users to access the network through a local ISP connection, rather than a WAN or 800 connection, VPNs reduce remote access costs by 60-80% relative to a private network.
- **Expand Customer/Supplier Relationships:** With VPNs driving down network costs, many small and medium-sized businesses have been able to join the Internet Commerce market for the first time — greatly increasing their ability to transact with customers and suppliers, and likely lifting productivity and profitability at the same time. This is especially important in Latin America, where the high costs of private networks and dedicated lines have kept small and medium-sized companies away from the Web.
- **Remote Services and Ubiquitous Coverage:** We believe that mobile computing will play a critical role in the future of the network industry. Internet-based VPNs offer a significantly larger coverage footprint

than private networks do, and should allow mobile computer users access to corporate network services from almost any location. This should enhance the value of a corporate network and the ability of companies to mobilize their workforce.

VPN Still Faces Some Important Hurdles

Whatever the technology deployed, VPN providers will have to address certain issues for customers: security, performance, convenience, cost, and network management. Of these five issues, we believe three are critical to the smooth development of VPN services:

- **Security:** To ensure that unauthorized users do not enter the network and access or alter confidential data, VPN operators use a combination of data encryption and authentication measures. Data encryption is generally done through a "key" system, where users are given access codes to unlock restricted areas. Encryption, authentication, and key management, however, are extremely complex, and require intensive computer processing power. This adds significantly to the cost of VPN services. In addition, important potential users of VPN (such as the main financial institutions in Latin America) become more reluctant to adopt VPN for some "security-sensitive" applications.
- **Performance:** Performance is measured by how quickly and accurately a network is able to process information. Once data navigate through the public Internet, performance and quality are difficult to guarantee. Therefore, operators who are able to carry data across their own network from end-to-end are at an advantage in offering quality-of-service guarantees, compared with operators who are dependent on sometimes unreliable networking peers.
- **Network management services:** This relates to the monitoring of network security, performance, and cost, as well as network growth. VPN providers must be able to provide management tools for installing and provisioning secure network equipment, expanding the network along with customer needs, measuring network performance and security, and assessing costs. We believe the ability to offer high-quality management solutions in-house will be critical to a successful VPN strategy.

The Full-Service ISP: Offering VPN Services

The VPN market is highly competitive, with few barriers to entry. We believe that full-service network-based ISPs will have an advantage over the niche players in offering VPN services. Their key advantages we see are as follows:

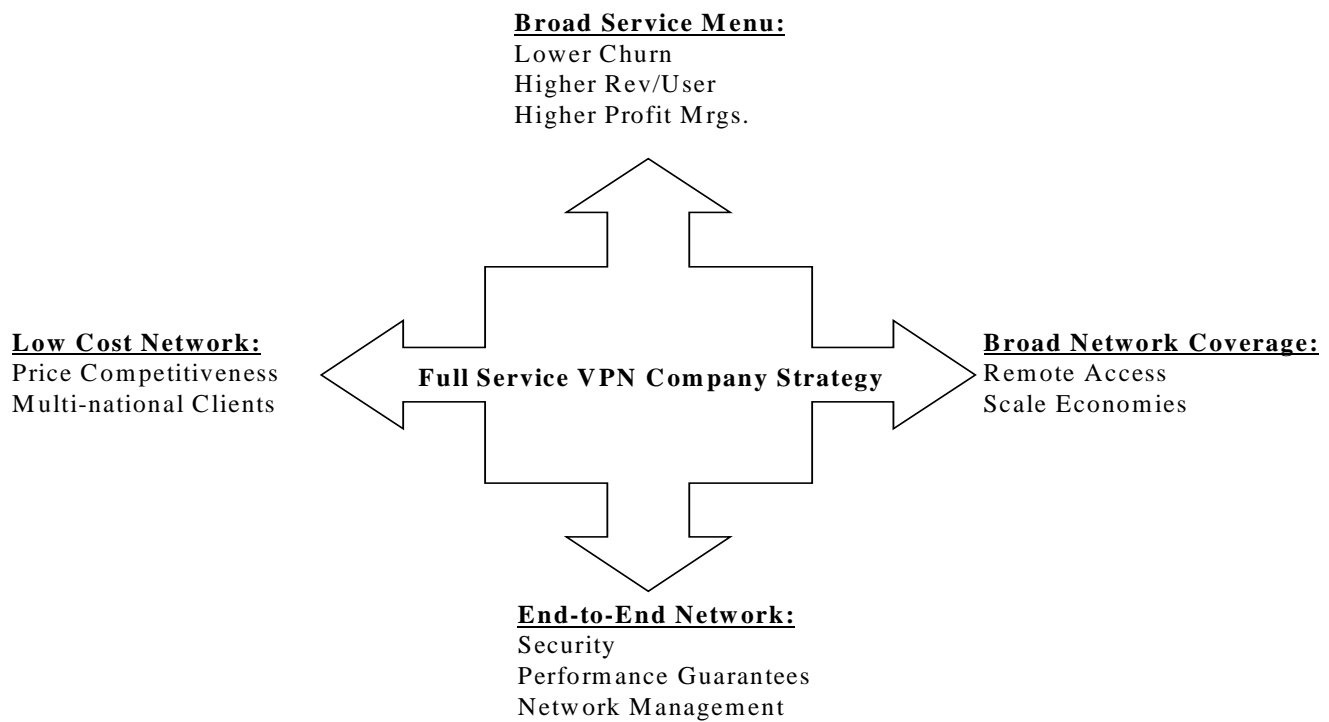
- **Broad Service Menu:** By offering VPN services in conjunction with other products, such as Web hosting, Internet access, and Internet Commerce, ISPs can reduce churn. Higher revenue per customer and lower churn should lead to better profitability.
- **End-to-End Service:** Network security and performance top the concerns of potential VPN customers.

ISPs that can route traffic from end-to-end over their own network will be able to guarantee quality and performance better than those that have to route traffic over public infrastructure.

- **Broad Geographic Scope:** Companies with a large number of points of presence (POP) should be in a position to service the mobile computing community better than companies with limited geographic scope.
- **Low-Cost Network:** By offering VPN services in conjunction with other products, full-service providers should be able to increase traffic, and therefore lower their network costs per unit.

Exhibit 60

Successful VPN Strategies



Source: Morgan Stanley Dean Witter Research

Web and Application Hosting: Value Creation Opportunities

Along with VPN and access services, we believe that the **Web-hosting industry will experience exceptional growth** in the coming five years in Latin America, as one of the key tools enabling companies and consumers to interact on the Internet.

Web-hosting companies provide organizations or individuals with a presence on the Internet through the lease of server disk space. **The typical Web-hosting infrastructure consists of a group of servers, routers, and switches that are connected to the Internet by means of a high-speed access line.**

In addition to disk space on one of the servers in the data center, successful **Web-hosting companies must provide maintenance, security, 24x7 network monitoring, and bandwidth.**

Web servers are connected to the Internet by multiple high-speed connections, such as a T-3 line, leading to one of the Internet backbone providers such as Embratel in Brazil and Telmex in Mexico. Information is routed through the network by routers and switches.

The Web-Hosting Market: Types of Services

The Web-hosting market is only beginning in Latin America, and most of the players are small. Few companies host many sites, a necessary step to achieve significant scale economies. On the other hand, the opportunities in this segment are impressive, in our view.

The market can be divided by type of service and by target market. Web-hosting companies provide three types of hosting services: **shared, dedicated, and co-location**, for which they may or may not provide the user with a domain name.

- **Dedicated hosting** is similar to shared, except that the server is exclusive to the user. Users that have Web sites with heavy traffic (100,000 hits per day or above) or sensitive or mission-critical information on their server will usually adopt a dedicated Web platform.
- Users of **co-location** hosting assume almost all of the responsibility for maintaining and monitoring their Web site, and merely house their server on the premises of the Web-hosting company.

While most companies today elect to adopt their own domain name on the Internet, such as Morgan Stanley Dean Witter's www.msdc.com, some individuals and small businesses do not wish to assume the added costs. Hosting companies in the US can charge up to \$15 per month for non-domain-name hosting, but many Internet service providers offer it for free to Internet access customers.

The Web-Hosting Market: Different Segments

As with most segments of the Internet market, the requirements of Web-hosting companies differ depending on the size of the user. While individuals and small companies tend to adopt shared Web-hosting services that often cost less than \$20-100 per month to maintain, large companies can pay several hundred thousand dollars per month to a Web-hosting company for dedicated service.

While many companies continue to own and operate their own Web servers, outsourcing is becoming increasingly popular, and we believe that will be the dominant form of hosting going forward. We believe this will be especially true in Latin America, where the initial costs of servers and other fixed assets can be higher than normal. The key benefits for outsourcing is its lower cost relative to privately owned facilities at the same level of performance and reliability.

We believe that the need to join the Web to offer Internet Commerce services and the trend toward outsourcing Web-site management will benefit companies that get involved in the Web-hosting market in Latin America.

Exhibit 61

The Web-Hosting Market — Types of Services

Type of Service	Domain Name	Non-Domain Name
Shared Hosting	Users outsource their hosting services to a Web hosting company which stores, maintains and monitors the information on servers owned by the web hosting company. The servers are shared with other users, and costs are lower than for dedicated or Co-location services. The user is given its own domain name such as "www.msdw.com", giving them a unique web identity.	Similar to Domain Name shared hosting except that the user is given a name on the Internet that is contained within a larger Domain Name such as www.verio.com/my.company. This service is generally used by individuals or very small businesses.
Dedicated Hosting	Users outsource their hosting services as they do in a shared hosting environment. The servers, however, are not shared, but rather are used only by the company in question. Users receive their own Domain Name. Costs are higher than for shared services, and this is generally used for mission critical services by larger companies.	There are very few, if any, Non-Domain Name dedicated web hosting services. Given the cost associated with this type of web host services, most companies will also elect to secure their own Domain Name.
Co-Location	For Co-location web hosting services, the user maintains and monitors its own information. The user will own the server on which the information is housed, and will merely use the web hosting companies facilities to store the server. This tends to be more expensive to the user than does shared hosting	There are very few, if any, Non-Domain Name co-location web hosting services. Given the cost associated with this type of web host services, most companies will also elect to secure their own Domain Name.

Source: Morgan Stanley Dean Witter Research

Application Hosting: Another Fast Growth Area

The hosting market in Latin America remains, we believe, in its infancy. Hosting services are not, in fact, limited to corporate Web sites. Companies, having seen the efficiencies obtained by outsourcing Web sites, are looking for other opportunities as well. In particular, **software applications for businesses are prime candidates for a hosted environment, in our view.**

To date, companies have used application software to automate and improve the efficiency of core business functions. Traditionally, these applications were custom-designed, requiring several million dollars to develop and as much as two years to implement.

More recently, however, software companies have begun to develop packaged software applications, which allow developers to lower production costs, and therefore sales prices, by standardizing software applications for multiple users. Historically, Latin American companies were unable to afford the time and expense of developing customized soft-

ware applications. With the development of Internet services, they have turned to the packaged application market enthusiastically.

The application-hosting model takes this concept one step further. Rather than access business applications from an in-house server, a user would access the information from a hosted server located at a hosting company's data center. From the user's perspective, there is no difference between the two methods of access. From the provider's point of view, however, the hosted method offers significant cost savings. There are few limits on the type of applications that can be hosted, with companies able to move low-end e-mail or mission-critical type applications off-site.

Using the same network architecture found in the Web-hosting market, companies are able to spread the cost of business applications over many users, reducing costs and complexity in the process. **Rather than keeping all infrastructure, staff, and connectivity in-house, companies can realize significant gains by sharing common elements among multiple users.**

Internet Broadband Access: Speed Matters!

Introduction

The Internet access market should expand at an impressive rate in Latin America. In our view, the users of Internet in the region — especially the business users — have been eagerly waiting for access solutions that could give them high-speed connections and attractive prices. Fortunately, they are just about to get what they were waiting for, as incumbent telecoms and new entrants begin to offer broadband access at reasonable prices, thanks to technologies such as DSL, cable modems, and wireless.

We forecast that the total Internet access market in Latin America will reach \$15 billion by 2005, versus \$2.5 billion today. In our view, the following are the main drivers for the strong growth outlook:

- the increase in Internet usage, especially by businesses;
- the rise in demand for high-speed connections as the quality and speed of dial-up connections cannot be improved for technological reasons; and
- the development of new image/video/voice-intensive applications that engender more demand for bandwidth.

The prospects of strong growth in the segment are affecting the capital expenditure patterns of the incumbent telecom operators in the region and bringing new entrants to the market. Given the strong demand and lack of infrastructure, there is a “rush” — similar to the 19th Century gold rush in the US — to build broadband infrastructure in Latin America.

Who Gains?

We believe there is a lot of value to be generated from the Internet access market in Latin America. The companies that provide broadband access should benefit the most. In most countries, we believe that **the main beneficiaries will be the incumbent telecom operators**. The two companies that will benefit the most, in our view, are **Telmex** and **Em-**

bratel. The following are the main reasons that support our positive opinion about these two stocks:

- nationwide presence — ability to serve clients on a nationwide basis;
- ability to bundle many services (voice, data, LD, Internet services);
- strong financial capacity;
- heavy exposure to business clients; and
- more extensive networks than their competitors.

In addition to the incumbent telecom operators, we believe that **new entrants in the region should also gain**. In order to compete successfully, these new players need to build their own networks. In contrast to other regions of the world, Latin America offers very limited space for an entry strategy based on reselling only. In addition, reselling margins are low and resellers do not guarantee the quality-of-service levels.

Exhibit 62

More Players in Internet Infrastructure Services

Country	Incumbents	Main competitors
Argentina	Telecom Telefónica	Impsat (BT) MetroRED (Fidelity)
Brazil	Embratel Telesp Tele Norte Leste Tele Centro Sul	MetroRED (Fidelity) Netstream (AT&T) Impsat (BT) Intelig (France Telecom) Vésper (Bell Canada) Diginet Globocabo
Mexico	Telmex	Avantel (MCI WorldCom) Alestra (AT&T)
Chile	Telefónica CTC	FirstCom (AT&T) Diginet Entel

Source: Morgan Stanley Dean Witter Research

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