



# Key Investment Themes for 2003

*February 2003*

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# Global Trends Impacting Asia and the TMT Sector

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# Global Trends Impacting Asia and the TMT Sector

## Macroeconomic Trends

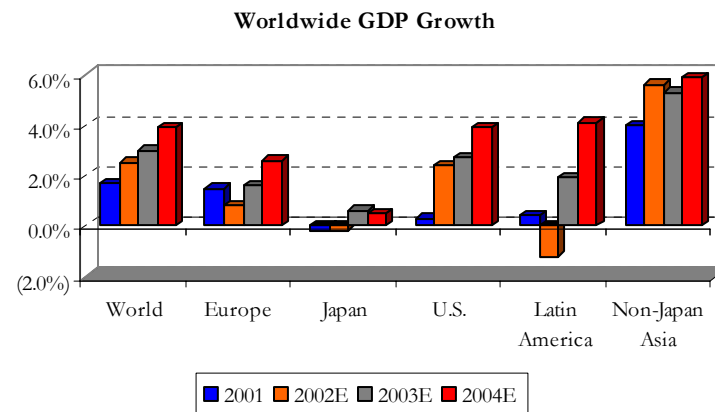
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- 2002 was not the turnaround year for the world economy that some had expected
  - U.S. and Europe both registered sluggish growth, as business spending remained stagnant; on the other hand, non-Japan Asia saw a pick-up in activities, driven by the extraordinary 8% GDP growth in China
  - To dampen growth further, Japan, the world's second largest economy, remained in recession, as bad loans and diminishing capital caused by falling equity values continued to burden its financial institutions
  - Corporate governance scandals in the U.S. resulted in unfavorable investor sentiment worldwide
  - Bankruptcies of large corporations, such as Worldcom, K-Mart and KPN Qwest, also suppressed GDP growth momentum
  - Finally, geopolitical tensions in Iraq and North Korea also raised market uncertainties, as a potential war would raise oil prices and further dampen the lethargic U.S. growth

# Global Trends Impacting Asia and the TMT Sector

## Macroeconomic Trends (Cont'd)

- Looking ahead to 2003, the global economic outlook will likely be **dependent on the status of the U.S. economy** and the U.S. dollar
  - In the first half of 2003, the U.S. economy is expected to continue to be volatile due to geopolitical uncertainties linked to tensions with Iraq and North Korea's move to reactivate its nuclear power plants
  - However, in the second half of 2003, if no war happens, the U.S. is likely to recover from the long-lasting slowdown, and the aggressive fiscal policies undertaken by President Bush prove positive
  - Currently, most institutions are predicting a 2.5-3% GDP growth worldwide, with the **fastest growth predicted in Non-Japan Asia**



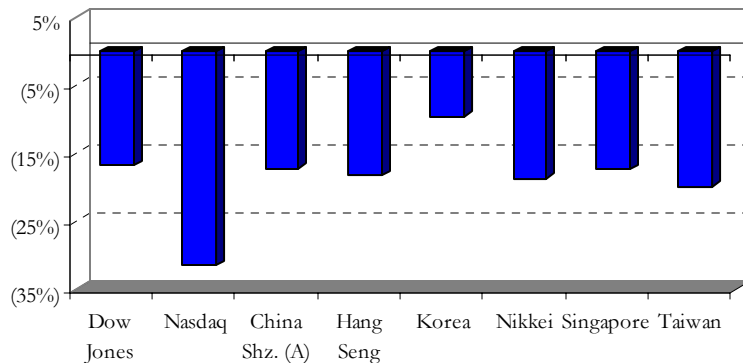
Source: Morgan Stanley, 2003

# Global Trends Impacting Asia and the TMT Sector

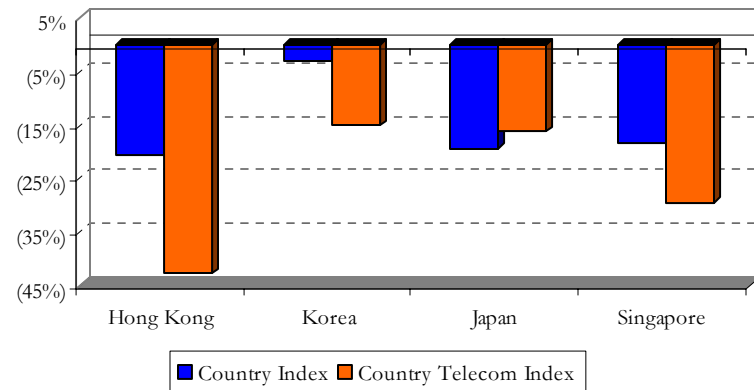
## Equity Markets Performance

- In 2002, falling equity prices were seen across the major capital markets worldwide with similar performance in Asia
- In the telecom sector, investor sentiment was unfavorable due to uncertain business prospects, including massive oversupply, heavy debt loads and accounting irregularities
  - MSCI telecom services indices across the major Asian countries generally underperformed their respective MSCI country indices
  - Japan was the only exception, with telecom providers outperforming the market slightly

Worldwide Equity Market Performances



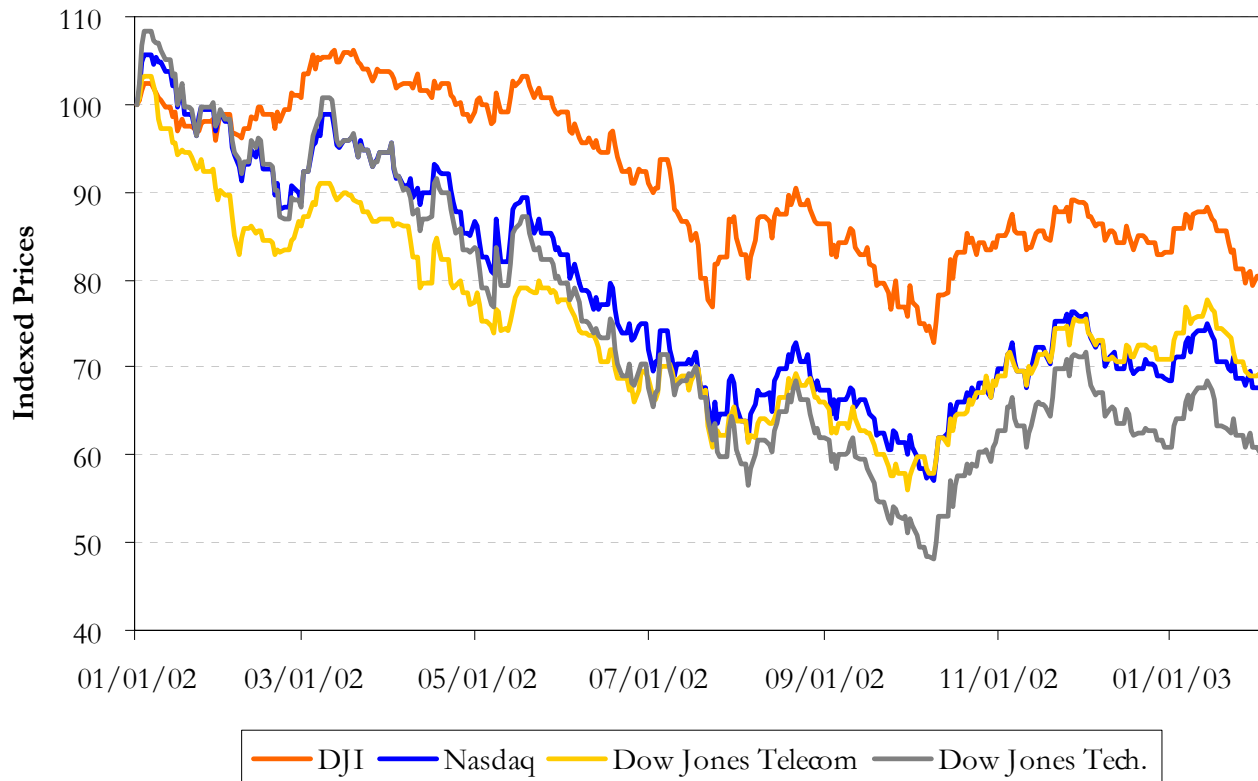
Telecom Equity Market Performance



# Global Trends Impacting Asia and the TMT Sector

## Recent Equity Markets Performance

- However, capital markets have recovered slightly, as all major indices recovered in the recent months from their lows with better investor sentiment and a more favorable outlook for the year
- **The Dow Jones Technology Index and the Dow Jones Telecommunication Index have both outperformed the Dow Jones Industrial and the Nasdaq Composite Index since rising from their lows in October**



# Global Trends Impacting Asia and the TMT Sector

## Trends within the TMT Sector

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- The staggering increase in telecom capacity resulted from significant investment in network infrastructure; the **massive oversupply** sent bandwidth prices into a downward spiral and eroded the revenues of global service providers
- To further escalate the telecommunications providers' problems, many of the providers accumulated a **significant amount of debt** from their infrastructure investment in order to remain competitive
  - British Telecom, Deutsche Telekom, France Telecom and PCCW all have significant debt on their balance sheets
- With deteriorating business prospects and liquidity issues, some of the largest telecom companies had to enter into **bankruptcy protection**
  - WorldCom, crushed by its \$41 billion debt load and accounting scandals, filed for bankruptcy protection in the largest U.S. insolvency in history in July 2002
  - KPN Qwest, with approximately US\$2.1 billion of debt, also filed for bankruptcy protection in May
- **Merger and acquisition activities** continue to be present in the TMT sector in Asia as economies of scale have become crucial in this competitive environment
  - Hutchison Whampoa and Singapore Technologies Telemedia are nearing a final agreement to acquire Global Crossing at less than 10% of invested capital
  - A three-way merger between Equinix, i-STT and Pihana Pacific formed the largest global network-neutral Internet exchange services company
  - Telstra acquired the remaining 40% of Hong Kong CSL Limited from PCCW for US\$475 million



# Global Trends Impacting Asia and the TMT Sector

## Trends within the TMT Sector (Cont'd)

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- As a result of the clouded business prospects, the majority of the foreign telecommunications providers have focused on their home markets, resulting in **exits of their strategic minority stakes in Asian carriers**
  - Financially stressed British Telecom sold its 21% stake in SmarTone to Sun Hung Kai for US\$132 million
  - Deutsche Telecom sold its 25% stake in Indonesian cellular operator, Satelindo, back to its parent company, Indosat
- However, **selected Asian strategic investors continue to make investments** in the sector as they regionalize
  - ST Telemedia purchased 42% of Indosat for US\$634 million
  - Singapore Telecommunications increased its stake in Telkomsel by an additional 12.7% to 35% in a US\$429 million deal
- **Large private equity firms have also increased their activities** in the telecom sector, co-investing along side strategic investors
  - China Netcom, with Newbridge Capital and Softbank Asia Infrastructure Fund as co-investors, acquired Asia Global Crossing for US\$270 million

# Global Trends Impacting Asia and the TMT Sector

## Trends within the TMT Sector (Cont'd)

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- Business Process Outsourcing (“BPO”) continues to be a major trend and is viewed as a key source of growth in the services industry. **China and India, in particular, are evolving into critical customer support and software production centers**
  - JP Morgan Chase signed a 7-year, US\$5 billion contract with IBM for IT services
  - IBM also sealed a 10-year outsourcing deal with DBS Group for information technology services worth an expected US\$679 million
- **Leading portals are beginning to experience a turnaround**, as they leverage their existing user base to extend their business models
  - Yahoo! reported net income of US\$106.9 million for 2002 in comparison to a net loss of US\$92.8 million for 2001
  - All three major Chinese portals – Sina, Sohu, Netease – have turned profitable (after adjustments for non-recurring and intangible items) and are generating positive operating cash flow
- Online gaming has emerged as the major form of online entertainment in Asia; **leading online gaming companies in the region are beginning to expand overseas, migrating to higher growth markets**, such as China
  - Nexon, a leading Korean game developer, has given Shanda the first right of refusal for the distribution of future Nexon online games in China over the next three years
  - Sina, a leading online portal in China, has formed a JV with NCSoft of Korea to operate and market NCSoft’s flagship *Lineage* game in China

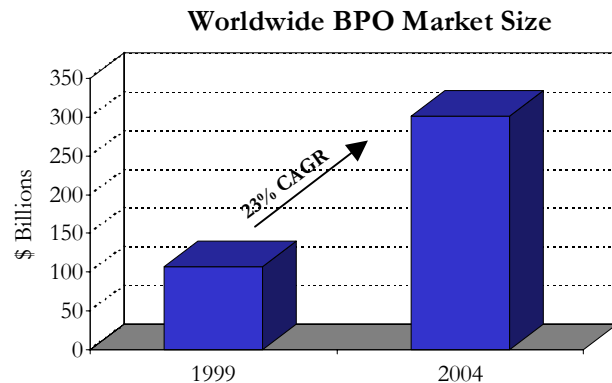
## Key Sector Themes

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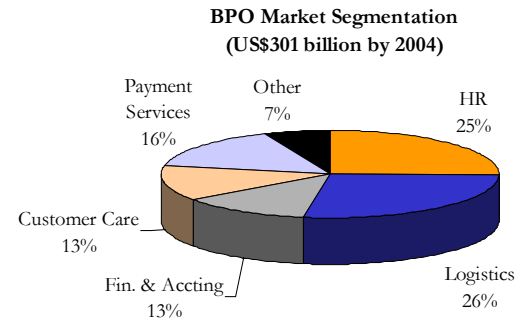
# Key Sector Themes

## BPO / Distribution Outsourcing

- BPO, the outsourcing of non-core, but IT intensive business processes, is becoming one of the most important investment themes in technology services for the following reasons:
  - **Substantially expands the addressable technology services market:** roughly US\$105-170 billion in revenue and growing to US\$300 billion-plus by 2004
  - **Makes fundamental sense for corporates:** provides access to best practices, resulting in greater efficiency and substantial cost savings
  - **Corporations ready for BPO:** good results from early experiments in BPO and increased focus on cost cutting
  - **Attractive economics and competitive landscape for service providers:** (1) lessens competition; (2) adds profitability; and (3) provides a beachhead for smaller firms to gain a foothold in the market
  - **Obstacles to BPO eliminated:** adoption of Internet / intranet technologies and ERP software is making it easier to deliver many corporate functions remotely



Source: Gartner / Dataquest



Source: Gartner Group

# Key Sector Themes

## BPO / Distribution Outsourcing (Cont'd)

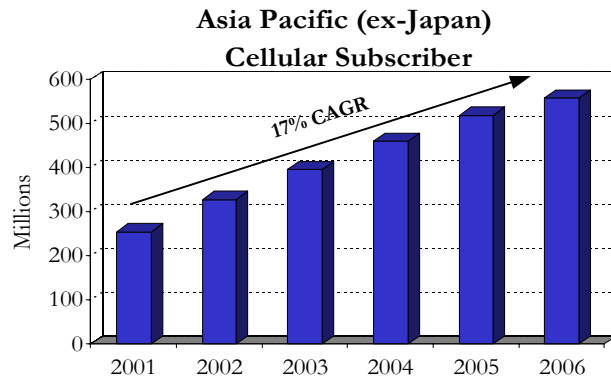
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- BPO service providers in **Asia will be performing a higher proportion of the work**, leveraging Asia's low labor costs and highly technical labor force
  - China along with India are becoming critical software production centers
  - The China Software Industry Association projects that software exports will reach US\$3 billion by 2005
- **Financing from private equity investors is available** to fund development and expansion efforts in the BPO sector
  - VSource, a leader in providing customized BPO services to companies operating across Asia-Pacific, received a US\$7.5 million investment from CDP Capital
- Recent BPO contracts:
  - JP Morgan Chase signed a 7-year, US\$5bn contract with IBM for IT services
  - ABN Amro hired EDS in a 5-year, US\$1.3bn outsourcing contract
  - IBM sealed a 10-year outsourcing deal with DBS Group for information technology services worth an expected US\$679mm

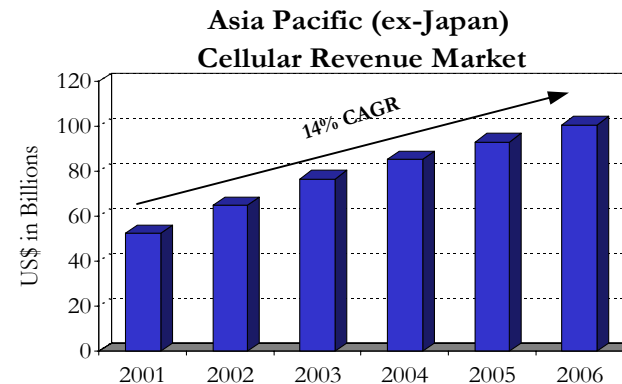
# Key Sector Themes

## Wireless Services

- Wireless subscribers in the Asia Pacific will number 575 million by 2005, topping Europe to take the throne as the **largest mobile communications market**, and the wireless market will grow at a CAGR of approximately 20% in the next 5 years
  - The Japanese and Korean mobile markets are two of the most developed in the world, with over 60% penetration and at the forefront of wireless Internet development
  - China currently boasts the largest mobile user base in the world, with over 200 million subscribers and poised for further growth although China's average revenue per user ("ARPU") (currently at US\$18) lags significantly behind other markets
- The growth of mobile data poses one of the greatest challenges to wireless operators and is requiring **larger infrastructure investments**; approximately 40% of the global wireless infrastructure spending from 2001 to 2005 will be generated in the region, in particular, from Japan and China



Source: IDC, 2002



# Key Sector Themes

## Wireless Services (Cont'd)

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- Operators will need to be more creative and innovative in order to deliver **more sophisticated mobile services** to stimulate flagging ARPU, reduce churn, retain subscribers, increase subscription quality, and differentiate their services from their competitors
- The **interoperability of competing 3G standards** may become a larger issue in Asia as the major markets adopt different technologies (China with TD-SCDMA, Japan with WCDMA and Korea with CDMA2000)
- The trend towards **consolidation into 2-3 dominant wireless providers** per country is expected to continue:
  - Telekom Malaysia Bhd's mobile unit TM Cellular will merge with Celcom; together the combined entity has a market share of about 40% and a subscriber base in excess of 3.2 million
  - Maxis (35% market share) purchased Time dotCom's cellular unit (6% market share) for US\$388 million
- Strategic stakes formerly held by foreign telcos are being replaced by **regional players**
  - ST Telemedia purchased 42% of Indosat (including its cellular subsidiary, Satelindo) for US\$634mm; Deutsche Telecom had sold its 25% stake in Satelindo back to Indosat
  - British Telecom sold its 21% stake in SmarTone to Sun Hung Kai for US\$132mm

# Key Sector Themes

## Fixed Line Services

- **Fixed-line substitution** is one of the most pervasive trends in the telecom sector, as integrated telcos face the risk of losing lines and traffic to competing cable, wireless and broadband carriers
  - The telecom providers must now compete more aggressively for a pool of access lines and traffic that is growing more slowly than previously and slower than wireless
  - Traffic has also continued shifting from wireline to wireless
- Economic wealth, penetration levels for various telecom services, relative pricing between wireline, wireless and broadband and competitive intensity will all play major roles in determining the severity of substitution in any given country
  - Fixed-line incumbents in **Hong Kong, Japan and Taiwan face the greatest risk**, as highly competitive cellular markets have narrowed the differential between wireless and wireline prices
  - The relatively low cost of maintaining a wireline subscription (US\$3 per month) will likely sustain wireline growth in Korea
  - Given relatively low wireline penetration, limited substitution will occur in emerging countries, such as China and Thailand

### Drivers of Fixed Line Substitution

	Monthly Sub. Fee (US\$ / Mth)	Wireline 2nd Line Penet'n <sup>(1)</sup>	Available Substitutes to Wireline (% Penetration of Population)			Access Technology Growth Rates % (2000-05E)			
			Cable						
			DSL	Modem	Wireless	Wireline	DSL	Cable	Wireless
Australia	9	Mid	1%	1%	63%	3%	100%	54%	12%
China	2	Low	0%	0%	15%	13%	93%	NA	30%
Hong Kong	14	Mid	6%	4%	86%	1%	24%	54%	4%
Japan	20	Mid	3%	NA	66%	(1%)	249%	NM	11%
Korea	3	Mid	14%	7%	62%	1%	25%	23%	7%
New Zealand	16	Mid	1%	0%	62%	0%	NA	NA	14%
Taiwan	2	Mid	9%	3%	86%	1%	107%	NA	6%
Thailand	2	Low	NA	NA	26%	30%	NA	NA	128%

(1) The prevalence of second wireline in a single residence.

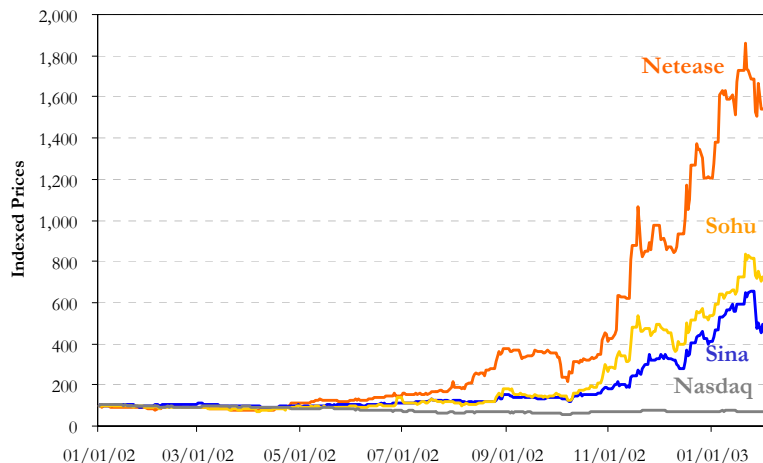
Source: Morgan Stanley, 2002



# Key Sector Themes

## Portals

- **Survival of the fittest** will continue to be the overwhelming theme within the portal sector
  - The trend for two to three dominant portals per country should continue
  - Other smaller portals will either close down due to lack of funds or be merged with the market leaders
- Online advertising continues to be a significant contributor to portal's revenue. However, leading portals are leveraging their existing user bases into **other areas which have greater growth potential**:
  - Online gaming: Netease, PacNet
  - SMS and other mobile related applications: Sina, Sohu
  - Online media and marketing partnerships: Lycos Asia's partnership with Manchester United



**Key Financial Data of Leading Asian Portals**

(US\$ in millions)	Market Cap.	LTM Revenue	LTM Rev. Multiple <sup>(1)</sup>	Rev. Split <sup>(2)</sup> (Ad. / Non-Ad.)
Daum Communications	\$455.8	\$125.3	3.6 x	17% / 83%
Netease.com, Inc.	451.1	16.9	26.7 x	13% / 87%
NHN <sup>(3)</sup>	331.4	62.8	5.3 x	45% / 55%
SINA.com	360.1	38.9	9.3 x	57% / 43%
Sohu.com Inc.	299.6	28.7	10.4 x	41% / 59%
Yahoo! Japan	7,458.4	446.1	16.7 x	22% / 78%

(1) Market cap. divided by LTM revenue.

(2) For the latest financial period.

(3) Revenue split projected by NHN for 2003.

# Key Sector Themes

## Portals (Cont'd)

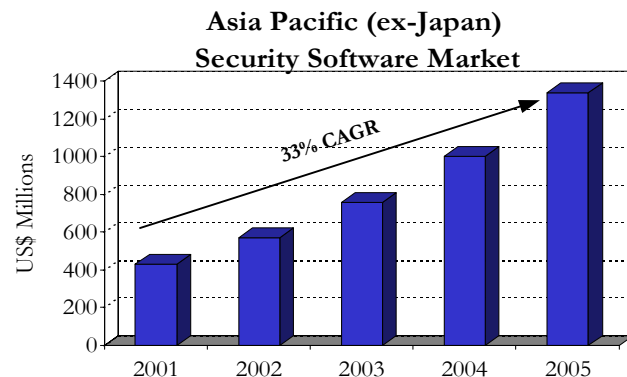
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- As a result of their ventures into non-advertising business segments, some Asian portals have experienced a rapid increase in market capitalization
  - Netease became the best performing stock on the NASDAQ in 2002
  - All three major Chinese portals have turned profitable (after adjustments for non-recurring and intangible items) and generating positive operating cash flow
- Given recent share price performance, the portals will be again challenged to develop revenue and profit models which correspond with their equity market capitalization; an alternative to organic expansion would be through **acquisitions**
  - Sina acquired MeMeStar, a leading independent mobile value-added service provider in China, for a total purchase price of US\$20.8 million in cash and Sina shares

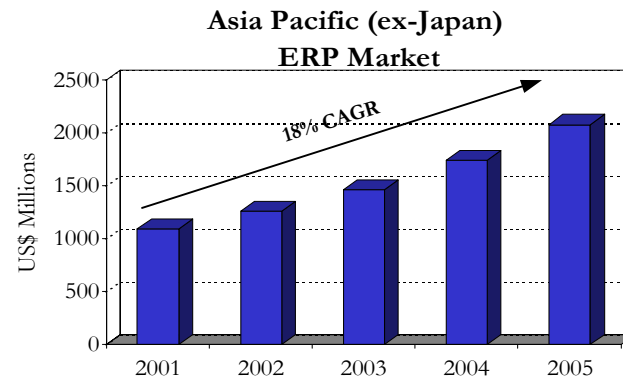
# Key Sector Themes

## Software Solutions and Integration

- The slow and steady transformation towards **a services oriented IT market structure** will continue in 2003, as overcapacity in production facilities continues to drive commodization throughout the hardware market
- **Security solutions and resource optimization** will be some of the key drivers for software growth
  - Given the threat of terrorism, viruses and cyber-terrorism, many businesses and government agencies are justifiably concerned about the adequacy of security and privacy protection measures employed within their networks and across their organizations, escalating the demand for security solutions
  - Corporations are expected to continue to invest in enterprise resource planning software, with the need to improve on internal efficiency and automation of data from various back-end systems



Source: IDC, 2002



# Key Sector Themes

## Software Solutions and Integration (Cont'd)

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- The **small-to-medium enterprise (“SME”)** segment will be the main focus for many vendors as fierce competition drives such companies to be more efficient and invest in software related products
  - In comparison with global players, smaller domestic companies may have a better chance of winning these smaller projects from SMEs given their lower price points, local connectivity, in-depth understanding of local industry practices and customer requirements, and experience working with legacy systems
- Consolidation within industries will continue to increase demand for integration of the information systems of merging companies
- Asian companies will take advantage of large domestic markets or significant cost advantages from an operating point of view, leading to **an active M&A market within the sector**
  - Legend, the leading computer manufacturer in China, has re-entered the IT services market through a US\$7 million investment into Han International Consulting for a 51% stake
  - chinadotcom has established CDC Software and is aggressively expanding into the ERP sector through acquisitions, the establishment of Asian distribution joint ventures and relocation of R&D to Asia

# Key Sector Themes

## Online Gaming

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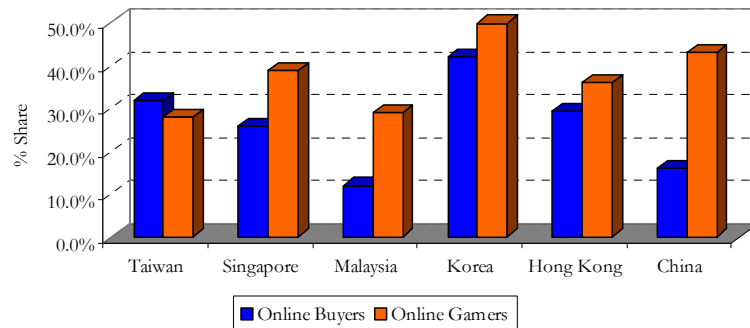
- Online gaming has emerged as the **major form of online entertainment**. By the end of 2002, online gaming was far more common than online buying in many markets in Asia Pacific. Further growth is expected due to the growing number of Internet users, improvements in technology infrastructure, and pick up in broadband usage
- **PC gaming and console gaming are experiencing declines** in game titles and sales, which are largely attributable to the booming online gaming market
- Korea is presently the largest online gaming market, and its exported games continue to drive other markets throughout Asia Pacific. Leading **Korean gaming companies will continue to globalize**, distributing to China, Japan and possibly U.S., in order to strengthen their market leading positions
  - Shanda, a leading online gaming operator in China, has licensed *The Legend of Mir II* from Actoz Soft of Korea. Shanda currently dominates the China's online gaming market with over 60mm+ registered users and 600K+ peak concurrent users for *The Legend of Mir II*, setting the highest records worldwide
  - Nexon, a leading Korean game developer, has given Shanda the first right of refusal for the distribution of future Nexon online games in China over the next three years
  - Sina, a leading online portal in China, has formed a JV with NCSoft of Korea to operate and market NCSoft's flagship *Lineage* game in China

# Key Sector Themes

## Online Gaming (Cont'd)

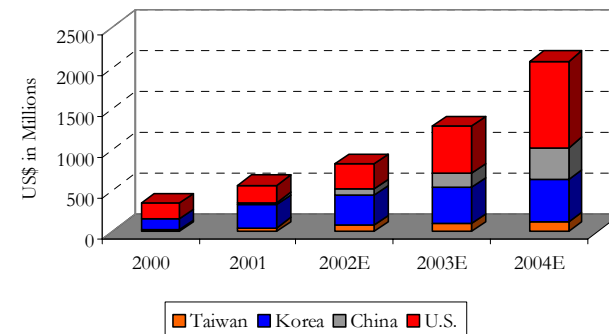
- **Consolidation** will continue to occur among the gaming companies as the industry players are all looking for ways to reap rewards from this emerging trend
  - Enix of Japan, known for its blockbuster *Dragon Quest* series, has acquired Square Co., maker of *Final Fantasy*, for approximately US\$727 million in order to strengthen its position in the face of intensifying competition and rising development costs
  - NCSoft of Korea has acquired ArenaNet, a Seattle-based game development studio for approximately US\$16 million

Online Gamers and Buyers as a Share of Asian Internet Users, 2002



Source: IDC, 2002

Selected Online Gaming Market Size



Source: IDC, CCID, Research reports, 2002

# Key Sector Themes

## Converged Devices

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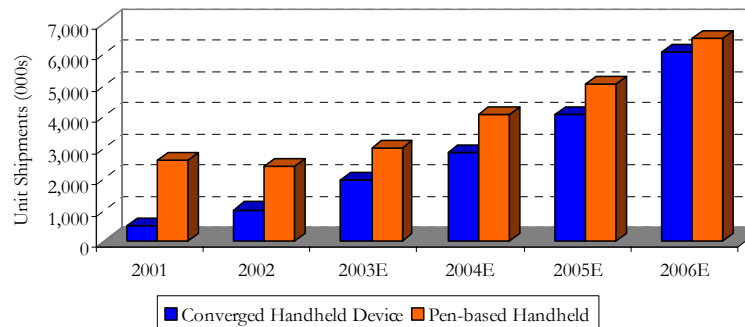
- Converged handheld devices (merger of the handset and the PDA) will witness **mass emergence and adoption in Asia Pacific** as the new converged units are finally starting to appear at more affordable prices with more attractive designs and applications, and improved battery lives. The growth of adoption of converged devices is expected to continue during 2001 – 2006 at a CAGR of approximately 60%, with approximately 5 million units anticipated to be shipped in 2003
  - Samsung, for instance, has introduced a new voice and data converged device, a Palm-compatible smart phone designed for next-generation wireless networks, which has a clamshell design and features an optional digital camera module
- Consumers are demanding more advanced applications, especially for multimedia applications, as fast wireless data and Internet access services, such as 3G, are launched by mobile carriers, thus driving demand for converged handheld devices with **enhanced audio, color video display and data processing capabilities**
  - The launch of mobile camera phones has been well-received by consumers in Japan and Korea since its debut; more than 10 million camera phones were sold worldwide in the first nine months of 2002, 96% of which were sold in Japan and Korea
  - Japan carriers including NTT DoCoMo, J-Phone and KDDI have introduced 3G-enabled converged devices with applications, such as video and audio clips download and videoconferencing

# Key Sector Themes

## Converged Devices (Cont'd)

- **Enterprise adoption of converged devices** will increase as more advanced converged units which satisfy corporate mobility goals and patterns are launched
  - Nokia, which has licensed the Blackberry software and operating system from RIM, will release a new series of converged phones targeting the business market in the second half of 2003
  - Hutchison Telecom and RIM jointly launched the Blackberry wireless e-mail solution for the first time in Asia, offering the services to customers in Hong Kong and Macau
- The proliferation of converged handheld devices will **drive wireless data usage for carriers**, stimulating ARPU, and pose **new growth opportunities for low-cost OEM manufacturers** in the region

Asia Pacific (ex-Japan) Converged Handheld Device Unit Shipments



Source: IDC, 2002



## Potential of Asia

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# Potential of Asia

## China



### Key Statistics

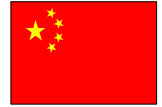
- Population: 1,272 million
- 2002E GDP per Capita: US\$967
- Est. GDP Growth (2002/2003): 8% / 7-8%
- Fixed Line Penetration: 16%
- No. of Cellular Subs.: over 200mm
- Internet Users (2001/2002E): 30mm/44mm
- China Shanghai (A-Share): ↓ 17% in 2002
- China Shenzhen (A-Share): ↓ 18% in 2002
- China Shanghai (B-Share): ↓ 34% in 2002
- China Shenzhen (B-Share): ↓ 30% in 2002

### Macroeconomic Overview

- China's economic performance is far outstripping that of Asia and the world. Key factors driving the rapid development include:
  - Enormous population
  - WTO accession
  - 2008 Olympic Games driving demand for world-class infrastructure and services
  - Favorable government support
  - Emerging low cost manufacturing base, supported by reasonable technology infrastructure and talent pool
  - Record foreign investment
- For 2003, China is expected to remain at the center of attention in the financial community
  - No evidence of a slowdown in exports; composition of exports will shift away from consumer soft goods and into sophisticated electronics
  - Great potential to shift the mix of China's economic growth from external to domestic demand, as seen in signs of an emerging consumer culture and continued focus of government policy on infrastructure spending
  - Foreign institutions will continue to expand/invest into China, as liberalization continues
- Endless deflation and the potential slowdown in private consumption pose the greatest risks in decelerating China's rapid economic growth

### Key Trends within TMT

- **IT Services / Software Solutions / Outsourcing**
  - China may soon step forward as a center for outsourced software. Key advantages of China include: (i) proximity to high margin markets like Japan, (ii) low cost alternative with improving quality and project management skills, and (iii) minimal risk exposures to current geopolitical tensions
  - Domestic demand for software and integration services continues to be enormous, as companies focus on becoming more efficient
  - Leading companies, such as Legend, are looking to diversify from low margin manufacturing into becoming an integrated service provider
- **Online Gaming**
  - Portals are expanding into the lucrative online gaming market (anticipated to be a US\$400mm market by 2004) to drive profitability
  - Games are expected to be licensed from the more developed online gaming markets, such as Korea and the U.S.
  - Financing from private equity investors is available to fund development and expansion efforts
- **Semiconductors**
  - Investments in the IC industry will be in excess of US\$12bn between 2001 and 2005, mostly from overseas firms or non-state owned companies; the market is expected to keep growing by 30 per cent annually across 2002-2005
  - Despite the fast growth, local production currently can only meet 15% of domestic demand, and most IC products are imported from overseas
  - Taiwanese chipmakers are beginning to tap into the China's growing chip market after the government lifted the investment ban in Mar. '02
- **Telecommunications Equipment Manufacturers**
  - China's telecommunications equipment makers, such as Huawei and ZTE, are aggressively competing for a bigger slice of the international market, offering cheaper products to global operators
  - China's telecoms carriers are become increasingly cautious about their spending amid fierce competition, slower subscriber and revenue growth, pushing the local equipment makers to look for opportunities abroad



## Key Investment Themes / Opportunities in China

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- Well-capitalized Chinese companies will be looking to acquire certain cross-border strategic assets at low valuations, possibly with private equity firms co-investing
  - China Netcom, with Newbridge Capital and Softbank Asia Infrastructure Fund as co-investors, acquired Asia Global Crossing for US\$270 million in debt and equity
  - BOE Technology purchased Hynix's flat-panel unit, Hydix, for about US\$380 million
- Consolidation and restructuring are expected in highly fragmented industries, such as IT software and services
  - Selected global and regional players may seek to achieve foothold in China through acquisitions of smaller domestic players (e.g. PCCW acquiring a 75% stake in Unihub Global Network )
- Portals will continue to look for revenue opportunities outside of advertising to drive revenue growth. Potential expansion areas include mobile applications, online gaming and online classified advertising
- As the economy becomes deregulated, foreign investment in China will continue at its rapid pace and bring with it management expertise and best practices to support rapid expansion



## Hong Kong

### Key Statistics

- Population: 7 million
- 2002E GDP per Capita: US\$25,315
- Est. GDP Growth (2002/2003): 2% / 2.1%
- Fixed Line Penetration: 56%
- No. of Cellular Subs.: 5mm
- Internet Users (2001/2002E): 2.1mm/2.6mm
- 2002E Broadband Penetration: 14%
- Hang Seng Index: ↓ 18% in 2002
- GEM Index: ↓ 45% in 2002

### Macroeconomic Overview

- Hong Kong is beginning to demonstrate improved economic fundamentals and sentiment over the past few months, but the economy is yet to be on a clear path to recovery
  - Intra-regional trade is driving the export market recovery
  - Exports of services augmented further, mainly supported by booming tourism, rising offshore trade and a marked rebound in transportation services
  - Unemployment has been falling since reaching record high in July
  - However, consumer prices continued to deflate amongst weak consumer demand given the high unemployment
- Key areas in government economic policies in 2003: (i) fiscal budget, (ii) Pearl River Delta integration, (iii) employment and (iv) supply-side industrial policies and infrastructure
- Consumer price deflation is likely to persist, reflecting a difficult domestic economy; however, strong demand for exports of services, particularly from inbound tourists, will drive GDP growth

### Key Trends within TMT

- With only 7 million people, Hong Kong's own TMT market is rather small, but Hong Kong has a unique place within the world as the entrance point to the enormous potential of China
- Given the difficult financial markets and the small market size, most small local technology companies are struggling to sustain themselves and avoid being shut down; expansion outside of Hong Kong is a key focus
- Similar to the small local firms, large corporations are also stepping up their efforts in investing abroad, mainly in China
- Cyberport, Hong Kong's attempt at creating an Asian IT hub, has had some successes in recruiting the likes of Microsoft and Sybase as tenants



## Key Investment Themes / Opportunities in Hong Kong

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- Corporations in Hong Kong will continue to look for opportunities outside of Hong Kong, given the small size of the market
- Conglomerates will look to divest non-core assets and unprofitable businesses
- A select list of strategic investors will continue to look for undervalued assets both in Asia and globally as well
- Hong Kong companies are likely to look towards China for expansion, given the enormous potential market. Hong Kong companies have certain advantages as they expand into China:
  - Minimal language barrier
  - Excellent geographic location given its proximity
  - Management expertise and experience working with foreign companies, skills lacked in China
- Hong Kong-based venture capital firms will also look to invest in China for better returns



### Key Statistics

- Population: 48 million
- 2002E GDP per Capita: US\$9,410
- Est. GDP Growth (2002/2003): 6.1% / 5-6%
- Fixed Line Penetration: 46%
- No. of Cellular Subs.: 32mm (67% penetration)
- Internet Users (2001/2002E): 22mm/27mm
- 2002E Broadband Penetration: over 50%
- KOSPI Composite: ↓ 10% in 2002
- KOSDAQ ↓ 39% in 2002

### Macroeconomic Overview

- Korea is the other country in Asia besides China experiencing strong positive economic growth. Key notable factors driving the economic growth: (i) one of the world's leading producers in DRAM chips, steel and automobiles, (ii) one of the world's most wired nations, (iii) favorable government support towards technical research and development in the IT industry and (iv) strong foreign investment
- However, for 2003, the overall market has adopted a **more cautious** stance for the following reasons:
  - *Uncertainties over the new presidential administration*: expected to maintain general economic policies but further corporate reforms, especially on chaebol activities, can be anticipated
  - *Deflation of the credit bubble*: tough government administrative measures are deflating the household credit bubble, which will have a serious effect on domestic consumption; the scope for interest rate reduction and tax cuts, plus resilient exports, may soften its impact on the overall economy
  - *Geopolitical tensions in Iraq and North Korea*: potential oil price increase, which, in turn, may amplify the cost of manufacturing and inflation, hurting both export and domestic growth

### Key Trends within TMT

- **Fixed Line Telcos / ISPs**
  - Consolidation continues to take place with 2-3 major groups emerging: (i) Korea Telecom, (ii) Hanaro and (iii) Dacom/Powercomm
  - Mature penetration necessitates focus on higher cost efficiency and the development of value-added services to increase ARPU, as voice/data/video services converged
  - Major telcos are focused on capex to drive data services growth by migrating from ADSL to VDSL
- **Wireless Providers**
  - Data ARPU (growing at 10% MoM) continues to be the key driver for ARPU expansion, but price competition remains stiff
  - Wireless providers are investing heavily in the latest data technologies; both SK Telecom and KTF have launched cdma2000 1x EV-DO services and may accelerate moves to introduce W-CDMA 3G services next year
  - Proliferation of laptops and PDAs are driving wireless LAN usage
- **IT Services / Outsourcing**
  - Chaebols and financial institutions will generally be cautious about IT spending given the macroeconomic risks; chaebols are likely to focus on CRM and PLM applications while financial institutions will be driven by migration to Next Generation Banking Services platforms and PMI
  - The fragmented IT services and security software markets will become rationalized through consolidation and attrition
- **Online Content & Gaming**
  - Consolidation will continue among the portals and gaming companies
  - Key revenue drivers include gaming, premium search, avatars, net storage, MMS, and video/adult content
  - Leading gaming companies will seek to globalize, through distributions to China, Japan and possibly U.S.
- **Traditional Media**
  - Korea pop culture has recently broken across language and geographical barriers, with popularity gaining across Asia
  - There is a continuous push for globalization, principally through the exporting of music and film entertainment properties



## Key Investment Themes / Opportunities in Korea

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- The domestic M&A market is expected to be active within the 'TMT' sector with potential divestitures by the chaebols and consolidation of smaller players across sectors, particularly in:
  - IT software and services (e.g. IBM, EDS, Chaebols' IT spin-offs)
  - Telecommunications providers (e.g. Hanaro, Korea Telecom, SK Telecom)
  - Content and other community sites (e.g. Yahoo!, Daum, NHN, Nexon, NCSoft, Neowiz)
- Furthermore, growth outside of Korea will be sought by many leading 'TMT' companies to diversify their geographic mix and to further capitalize on their proprietary products and advanced technologies
  - Telecommunication providers, with their expertise in broadband, wireless and IDC, are in a position to work with foreign carriers as they develop their technologies
  - Being one of the most active gaming markets and with high quality game developers, Korea is a harbinger for growth prospects for online gaming globally
  - Korean films, music and other entertainment products have found an enormous amount of success across Asia
- Local corporations and venture capital firms are likely to take a very cautious investment stance during the first half of 2003. International equity relationships and alliances will be actively sought to mitigate risk



### Key Statistics

- Population: 127 million
- 2002E GDP per Capita: US\$35,098
- Est. GDP Growth (2002/2003): 0.9% / 0.5%
- Fixed Line Penetration: 48%
- No. of Cellular Subs.: 73mm (57% penetration)
- Internet Users (2001/2002E): 47mm/59mm
- Nikkei 225: ↓ 19% in 2002
- TOPIX: ↓ 18% in 2002

### Macroeconomic Overview

- The export-driven economy is trapped in a cycle of falling prices and rising unemployment as consumers refuse to spend money on the goods that are dropping in value. No signs of recovery are seen in the recent macroeconomic indicators. Government is taking various initiatives, such as aggressive monetary policies, to boost the economy
- Despite these government-driven efforts, majority of the Japanese business leaders are pessimistic about the country's economic outlook, given the slowing U.S. economy and sluggish Japanese consumer spending
- Lackluster consumer spending, curtailment of capital spending by corporations on IT, slowdown in the growth of the wireless market, and continuing difficulties at financial institutions do not bode well for the TMT sector as a whole

### Key Trends within TMT

- **Fixed Line Telcos / ISPs**
  - Many ISPs are starting to look toward value-added services, particularly in IP telephony, as competition intensifies
  - Japan broadband access market will continue to post robust growth at a CAGR of 51.8% from 2001 to 2006, particularly in ADSL. The combination of low prices and intense competition has resulted in the rapid deployment of ADSL technology, solidifying its position as the preferred means for broadband access
- **Wireless Providers**
  - With the wireless market approaching saturation and competition intensifying, the success of 3G wireless services will be the key for the Japanese wireless operators in the medium term
  - However, the development of 3G services elsewhere in the world continues to be below plan and damaging the operators' growth abroad
- **Consumer Electronics**
  - Deflationary trends within the region, plus increased competition from lower-cost manufacturers in China, Korea and Taiwan, are eroding profits for Japanese companies in the sector
  - Research & development efforts to maintain its technological superiority and advertising campaigns to increase its brand appeal will be the key focus for such companies in the near-term
- **IT Services / Outsourcing**
  - Although there are signs that corporate profits are set to improve, investment sentiment remains relatively weak, adversely affecting IT services spending by major corporations
  - As an estimated 20% of total IT services demand is derived from the financial industry, continued difficulties in this sector, caused by high default rate, will negatively impact the industry
- **Console and Online Gaming**
  - Online gaming via a PC platform has undoubtedly under-performed expectations, but industry players are focused on and aggressively jockeying for position around console based online gaming
  - The Japanese game software market is stagnating with the value of shipments shrinking to US\$2.2 billion, while production costs are going up; the Japanese game makers need to look for opportunities overseas
- **Traditional Media/Advertising**
  - Slowing growth in Japan's advertising market is pushing advertising firms to look for opportunities abroad; the move to become global/regional players is difficult, given the cultural and language barriers
  - Japanese comic characters continue to be popular globally, particularly in the U.S. and Asia (Yugio)





- The Japan TMT market is not expected to recover strongly in 2003, due to intense competition, near-saturation in the wireless market and the corporations' cautious attitude toward IT spending
- Consolidation by leading players across sectors will continue and inevitably result in steady M&A activity as smaller players find it difficult to expand market share and improve profitability
- With the anticipated stagnation within the Japanese domestic market, many companies will be looking for opportunities abroad
  - To be more price competitive, major consumer electronics may continue to make new investments in lower-cost countries, while maintaining its focus in developing and commercializing new cutting-edge technologies to sustain their competitive advantage
  - Investors are becoming increasingly critical of the relatively weak success of advertising firms' regional expansion strategy; thus, these firms may look to acquire local players in the region to springboard their efforts
- Within the wireless sector, operators will continue to look for value-added applications (e.g. games, MMS) to stimulate ARPU growth



### Key Statistics

- Population: 4 million
- 2002E GDP per Capita: US\$21,370
- Est. GDP Growth (2002/2003): 2.2% / 2-5%
- Fixed Line Penetration: 49%
- No. of Cellular Subs.: 3mm
- Internet Users (2001/2002E): 1.7mm/2mm
- 2002E Broadband Penetration: 13%
- STI: ↓ 17% in 2002

### Macroeconomic Overview

- Singapore's economy remained stagnant in 2002
  - Singapore witnessed a structural decline in exports, due to the general slowdown in the global economy, particularly in IT / electronics exports
  - Domestic demand faltered because of the rather weak trends in retail sales, employment and consumer confidence
- The market remains quite bearish about Singapore's growth prospects in 2003, due to the following concerns:
  - Possibility of a U.S. double-dip recession
  - Deflation
  - Government inaction in supporting the local economy
- A proactive fiscal stance by the government is needed in 2003; the proposed GST hike in January 2003 (from 3% to 5%) is viewed as a sensible measure, as it enables a structural reduction in income tax; cuts in other indirect taxes and business levied to be implemented should not impact fiscal soundness

### Key Trends within TMT

- Singapore TMT market is characterized as small and fragmented, although some highly sophisticated and advanced technologies have been developed in Singapore
- Most of the smaller players have failed to achieve economies of scale, and are either merged with larger players or are being shut down
- Larger players and government-linked corporations ("GLCs") are aggressively expanding into other regions in Asia
  - SingTel, for example, is aggressively acquiring stakes in companies such as Timedotcom in Malaysia, Globe Telecom in Philippines, and Cable and Wireless Optus in Australia
  - ST Telemedia has successfully won the bid for PT Indonesian Satellite Corporation, allowing ST Telemedia to become a global IP and data communications company
  - ST Telemedia will also combine its Internet infrastructure service business into Equinix and Pihana Pacific, together creating the largest global network neutral Internet exchange service company



## Key Investment Themes / Opportunities in Singapore

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- With their strong balance sheets, GLCs and other large corporations will continue to look to regionalize and invest in opportunities abroad
- Similar to the GLCs and other large corporations, the Singaporean private investment community will also look for investments outside of Singapore
  - Technology, media and telecommunications focused firms are particularly interested in North Asia, particularly in China and Korea
  - The more traditional investment firms with a services or manufacturing interest are still focused on opportunities in Southeast Asia
- Domestic M&A transactions are expected to continue
  - With the lack of capital, smaller companies are shutting down or being acquired by the larger corporations
  - Several large conglomerates are restructuring their portfolios to divest non-core businesses