Telecommunications Trends: Global Revolution

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The Future of Telecom Is…

- **Wireless**
  - Voice will be 75% wireless in 2009.

- **Asian-dominated**
  - Asia/Pacific will surpass Western Europe & North America in mobile handsets sold by 2007.
  - Asian service providers and suppliers lead.

- **Fashionable**
  - Mobile devices as lifestyle accessories.
  - Consumer branding matters:
    - Content, services, devices

- **IP-based, user-centric and media-rich**
  - Voice, unified communications integrate to applications.
  - Information, entertainment delivered on demand.
  - User-defined communities/social networks proliferate.
  - Usability and user control matter.

Growth and profits are returning to telecommunications (telecom) equipment manufacturers and service providers, but they’re isolated to key sectors and geographies. Strategies will vary widely by market, with the most-obvious split between the developed and the developing world.

Mobile growth in the developing world is significant, and is collectively larger than the developed markets of Western Europe, North America and Japan.

The march of "IP everything" will continue as businesses use the public Internet more frequently for nomadic workers and branch offices, and as IP telephony becomes the norm.

Fashion will dictate the success or failure of many consumer electronics/mobile vendors as music, electronic transactions, video and communications technologies converge in portable consumer devices.

Users will define their own uses for the technology, some of which will be unanticipated. Consider the growth of social networking sites, such as MySpace. To many young people, MySpace is the Internet.

Content and applications will become the focus of consumer and business networks, respectively, as users integrate voice into other applications and entertainment.

In Australia, regulatory uncertainty, as Telstra "games" the Australian Competition and Consumer Commission (ACCC), has blurred the national vision for widely available broadband services — particularly for fixed networks — although mobile futures look "rosy."
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Key Issues

1. What are the principal drivers of change in the telecommunications industry?
2. How will evolving consumer and business demands alter the entire industry’s value chain?
3. How should vendors act on these changes and influence the way IT departments use enterprise networks?
Casual market observers rarely realize the enormity and growth of the global telecom market. It's important to note that the telecom industry is 40% larger than the global computing hardware, software and IT service markets combined.

Although the market is massive, it's far from stagnant. It will continue growing at a healthy 2.1% to 4.6% per-year through 2010. In 2010, the total worldwide market will be $1.9 trillion, driven by:

- Growth in broadband and mobile services
- Conversion to IP infrastructures
- Mobile handset sales
- Impressive growth in emerging economies, particularly Asia/Pacific

Large vendors are becoming dominant: The top-3 equipment vendors control 26% of the market, and the top-5 carriers control 28% of the service market. There's still room for smaller equipment providers, but we anticipate further consolidation in the service provider and equipment vendor markets.
The growth of the telecom industry relies mainly on the network service and mobile sectors. Infrastructure will experience only a limited upturn and won’t return to 2000 levels for the rest of this decade.

The market is significantly stronger in mobile services; the fixed network service sector draws some strength from the acceleration of broadband services and the proliferation of IP-based services, such as Multiprotocol Label Switching (MPLS) and voice over IP (VoIP).

For the first time ever, the fixed voice service market will decline in the developed world in 2006. North America will hang on — barely — as the largest market, with a compound annual growth rate (CAGR) of 5.7%. Meanwhile, the Middle East and Africa will be the fastest-growing region with a CAGR of 12%.

In terms of geographic comparisons, the Asia/Pacific region will surpass Western Europe to become the world's second-largest telecom market in 2008. Asia/Pacific's continued expansion is centered on the strength of emerging markets: China, India, Thailand, Indonesia and the Philippines.
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Market: By 2010, there will be approximately 888 million WCDMA subscribers, and mobile data will count for 27.5% of the total mobile service revenue.

The fixed consumer segment is driven by broadband services. At the end of 2005, the North American market had added 9.6 million lines, or 22% growth compared with 2004, achieving a broadband penetration level of 16 lines for every 100 people. Asia/Pacific grew 11.7 million lines in 2005, or 21% annual growth, yet it had reached broadband penetration rates of less than two lines for every 100 people, leaving plenty of room for additional growth.

Although consumer VoIP will explode with fourfold revenue growth during a five-year time frame, low prices will mitigate the revenue gains that would otherwise offset some of the decline in circuit-switched voice. VoIP over fixed broadband services will be a key substitution for traditional voice, but it isn’t a business model on its own.

In the corporate segment, there’s been a significant migration from traditional managed services to VoIP and IP virtual private networks (IP VPNs). Business spending on VoIP will grow 23.7% (CAGR 2004 through 2009), although it will still equal only 10% of total switched voice revenue in 2009. Managed IP VPN service revenue will grow at similar rates, or 25.6% (CAGR 2004 through 2009), and will account for nearly 11% of the total data market by 2009.

Many developed markets are becoming saturated and highly competitive. Teledensity in the developed world is now 150%. The key challenge for these telecommunication companies (telcos) is managing a decline in traditional services and creating a new suite of services — especially around media and applications. In contrast, the developing world has only 38% teledensity, but is growing at a fast 13.9% CAGR — mostly with wireless infrastructure.
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Strategic Planning Assumptions: By year-end 2008, there will be 25 million additional teleworkers worldwide (0.8 probability). By year-end 2010, Internet-related traffic will represent no more than 15% of worldwide carrier revenue (0.7 probability).

The Internet is critical to the way the world communicates, and not just for consumers — it also plays a big role in corporate networks. Enterprise uptake is driven by the rise in the teleworking and mobile populations, as well as the expansion of small branch office services.

Carriers are also consolidating their backbones, and public Internet and private traffic will be delivered via a common MPLS core. Voice is already being packetized for more-efficient delivery over the carriers' backbones, so many users are already making VoIP calls without realizing it.

The debate over "net neutrality" plays into fears of a "Balkanized" Internet, where access to content and applications is controlled by carriers and fueled by an oversimplified view of recent carrier consolidation.

The open Internet will remain the dominant model for the foreseeable future. As long as access competition exists, no provider can afford to provide a bad experience for users of Google, Amazon.com, or even YouTube or Skype.
Key Technologies Will Affect the Industry

These technologies are drawn from several Gartner Hype Cycles, including collaboration and communications, wireless networking, networking and communications, emerging technologies, and consumer technologies — all markets in which telecom plays an integral role. Some selected technologies:

- **Video on Demand:** Originally provided over cable in 2004, it will be embedded in IP television (IPTV) and has massive implications for cable/telephone companies vying for consumer entertainment.

- **802.16-2004 WiMAX:** Originally known as 802.16d, this wireless broadband standard uses 2GHz to 11GHz frequencies, which can penetrate walls and other dense objects. It provides transmission to stationary devices and replaces the 802.16 and 802.16a specifications. A disruptive technology that may be integrated into every laptop PC by 2008, it uses inexpensive wireless spectrum and equipment (cellular operators view it as a major threat).

- **Session Initiation Protocol (SIP):** Text-based protocol for initiating/managing communications sessions; also a foundation technology used in presence awareness and enterprise network federation.

- **IP Multimedia Subsystem:** A standardized, open architecture based on SIP that defines how applications/services are delivered to customers, regardless of the network on which they run. It separates session control from the actual applications for maximum flexibility, and can be used for centralized user profiles. Infrastructure vendors are delivering emerging platforms to carriers, which will result in a logically unified access network that integrates multiple physical networks (fixed and mobile).

- **Mesh networks:** Ad hoc networks formed by dynamic meshes of peer nodes, each of which includes simple networking, computing and sensing capabilities. Some implementations offer low-power operation and multiyear battery life.

- **Network on-Chip:** An efficient bus architecture that will control the infrastructure of complex semiconductor chips, can reduce the overall power consumption of the device, and will first be adopted in the high-end network processing market. Because the switching and transmission issues on-chip are very similar to those in traditional networks (especially WANs), traditional networking vendors could license their technology to chip and system vendors.

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Mobile Broadband — As Disruptive as GSM to PSTN?

This diagram shows the theoretical peak speeds of selected wireless technologies. The peak is defined by network capabilities and by the silicon chips used to build the client device or wireless adapter. In most cases, real-life speeds will be much lower than peak speeds, depending on such factors as range from the base station, client mobility, network characteristics and loading. A reasonable expectation is 10% to 30% of peak.

WiMAX is the exception in this diagram because the difference between theoretical peak (70 Mbps) and real life will be dramatic and depends on the number of cell users. We expect early WiMAX systems to deliver performance that's approximately equivalent to a 1-Mbps-to-2-Mbps wired broadband link. The "approximate broadband equivalent experience zone" suggests the region in which bidirectional performance and latency achieve levels such that the user experience feels somewhat equivalent to first-generation broadband. This is a subjective assessment because it depends on many factors, including the application, the user's anticipated broadband experience and the network characteristics. Global System for Mobile Communications (GSM) networks won't achieve an approximate equivalence to 2 Mbps wired broadband until High-Speed Uplink Packet Access (HSUPA) networks and client equipment become available (starting in 2008 to 2009).

Action Item: Client equipment, such as wireless adapters, will evolve faster than the devices consuming data, such as notebook PCs. Don't buy embedded wireless in PCs yet.

Strategic Planning Assumption: WiMAX as a 4G technology won't be commercially available globally before 2012 (0.6 probability).
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Strategic Planning Assumptions: In 2010, more than 1.3 billion new handsets will be shipped (0.8 probability). Through 2010 in the U.S. and E.U. markets, the number of consumer handset models will outnumber corporate handset models by more than 10-to-1 (0.8 probability).

The term "networked devices" means much more than personal computers or cellular phones.

Many consumer devices will be connected to various networks. For example, Samsung announced that it will invest about $100 million in home networking appliances. An even larger number of devices will be occasionally connected using technologies such as Bluetooth, ZigBee Alliance, ultrawideband/wireless Universal Serial Bus (USB), radio frequency identification (RFID) or Near Field Communication.

About half of the "heavily connected" devices are mobile handsets, including smartphones. The demand for handsets is huge, but the market is consolidating and becoming very competitive. Being a leading handset vendor requires a large product portfolio with correspondingly high R&D costs.
Complex Device Proliferation Creates New Opportunities

- The three screens (TV, phone & PC) are blending and multiplying.
- Mobile is approaching broadband speeds.
- Very-high-speed wired broadband is emerging.

Our "old view" of the world was based on the three-screen model — TV, cell phone and PC. Each is effectively centered on entertainment or mobility or applications, but no longer. The capability of one device category is blending into the other, along with a proliferation of devices and user choices. The marriage of personal computer technologies and video processing created the digital video recorder (DVR) and its capability to skip ads (the basic revenue stream for television). However, the DVR also enables media companies to better understand users and their behavior, thus providing more-targeted ads and services.

Smartphones and enhanced mobile phones have merged the computer with the cell phone. Smartphones can increase the average revenue per user (ARPU) via high-end data and messaging plans, but a completely open device is also a threat. It enables users to bypass the operator's high-margin services (such as ringtones, games and messaging), potentially attacking the operator's core voice business (such as Skype).

Note the absence of a device in the middle: No single, converged device meets all needs.

Bottom Line: Operators that offer the best usability, flexibility and user control in their environments have an opportunity to market device-neutral solutions.
Convergence

Fixed-line telecom operators are aiming to stem the migration to mobile by launching voice services that merge mobile with fixed-line services. The value proposition is built on the assumption that users make significant portions of their mobile calls from home. The operators can route mobile calls over the fixed broadband network and, thus, offer savings on calls, but without compromising the convenience of using a mobile handset. An operator can provide an access point, home hub or gateway to link a dual-mode mobile phone to a fixed line. This is a converged approach.

Substitution

Mobile service operators, facing stagnating subscriber growth, are using pricing schemes to combine mobile convenience with fixed-line prices. Each provider has its own approach. Many are designing location-based tariffs, with calls made from a specified home or business location charged at lower rates than regular mobile charges. Another alternative is to provide huge "buckets" of minutes to cover all usage. This is a substitution approach.

So far, uptake indicates that users prefer substitution services delivered with location-based offerings.
FTTX Delivers Great Services, Potentially Great Profits — and Redefines Broadband

- Japan has >30% FTTX penetration. By 2009, there will be 5 million U.S. FTTH homes (only 4.1% of U.S. households).
- FTTX equipment sales will surpass xDSL in 2007.
- FTTX costs >US$9 per-month per-household during the investment horizon.
- Current-generation services don’t require 100-Mbps symmetrical bandwidth, but HDTV over broadband does.
- Impact: 30% gross margins are attainable only if the ARPU is >$90 or service delivery costs drop dramatically.

Gross Margin
$30.10 (33%)

Fiber CapEx
$9.13/month

Video COGS
$17.50/month

Internet COGS
$23.85/month

Voice COGS
$9.42/month

$90 per-month triple-play package (voice, video, Internet)

The business case for fiber-to-the-curb/home/premises (FTTX) is complicated. Fiber infrastructure is, by far, the most-significant FTTX cost factor, and it actually has an economic lifetime that equals its physical lifetime (20 years or more). Ultimately, it delivers lower operational expenditures and is the right choice for undeveloped wired environments (such as China).

FTTX providers must split their business cases into near-term and long-term components to account for the varying life spans of the equipment vs. the fiber in the ground. We’ve laid out a simple analysis and listed the assumptions. The bottom line is that deploying fiber costs the service provider an incremental US$9.13 each month over and above established services and infrastructures. FTTX makes economic sense only when the service provider can garner significant, incremental revenue streams that require fiber speeds, such as high-definition (HD) IPTV on demand.

Assumptions on the fiber-to-the-home (FTTH) model: $1,000 per-household to install; 15-year investment horizon; 100% customer takeup and 0% churn; 5% weighted average cost of capital; 3% risk premium for regulatory, technological uncertainty; $90 per-month charge for triple play; and no competing technologies.

Bottom Line: 1) New developments, particularly multitenant buildings, should use FTTX. 2) It makes sense to replace copper with FTTX only in cities and high-value suburbs. 3) Australia and the U.S. will have only a small penetration level of FTTX (<5% by 2010). 4) In the meantime, wireless technologies, cable, xDSL and satellite provide "fast enough" services for most consumer uses, but not the best available entertainment (HDTV).
IPTV — Rapid Growth in the Coming Years

- Driven by high-speed access lines
- Forecast 2010 worldwide:
  - 49 million subscribers
  - $13 billion in revenue
  - 73% CAGR 2004-2010
- User profiles vary by market:
  - Usually targeted at high-income neighborhoods
  - Won't compensate for decline in retail voice
  - By 2010, <2% of total fixed retail revenue from IPTV

Mass-market broadband penetration, coupled with the increasing deployment of video-capable, higher-speed access technologies — for example, advanced DSL (ADSL2+), very high-speed DSL (VDSL) and Ethernet — has enabled the critical platform that allows carriers to move ahead with their IPTV deployments.

- In the long term, large carriers will increasingly focus on IPTV as a potential business to replace diminishing voice revenue. They'll also increase their understanding of how to use the IPTV platform to sell new services, as well as pay TV.
- Customer acceptance of new products and content from the IPTV platform will lead to subscribers adopting a wider range of premium and on-demand options when carriers start offering them.
More than 40% of CIOs cited business process improvement as the IT organization's top imperative to deliver to the enterprise. (The actual question was, "Over the next three years, the biggest shift in the role of IT in my enterprise will be toward …"). This trend cuts across enterprise size, industry and geography. The drivers of this trend include the following:

- Enterprises that have completed the first waves of outsourcing, downsizing and streamlining during the past three years. Their current operations are reaching a point of diminishing productivity gains, so achieving new levels of productivity requires new approaches to business processes.
- Growth through mergers and acquisitions. This requires robust internal processes and the capability to scale to support significant transaction growth.
- Internal complexity, which erodes customer service levels. Enterprises must deliver targeted offerings in the front office without increasing the complexity of back-office operations.
- A completed build-out of transactional systems. This is changing the focus from automating transactions to improving and integrating business processes.

Note the prevalence of network-dependent technologies receiving better-than-average budget increases in 2006. Security is still the top investment area, but in the eyes of the CEO, it's slipped from a No. 1 priority to a No. 7 priority in only two years. The reality is that businesses want IT organizations to just solve security issues. The other areas — collaboration, mobile workforce and workflow management — are indicative of the business contributions that CIOs hope to make in their enterprises.
### Impact of Business Trends on the Market

<table>
<thead>
<tr>
<th>LAN</th>
<th>• Voice application server via IPT; wireless; presence and messaging; security embedded into LAN/WAN.</th>
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<tbody>
<tr>
<td></td>
<td>• LAN and telephony infrastructure converge on IP over Ethernet.</td>
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<tr>
<td>WAN</td>
<td>• Remote offices, SMBs adopt public Internet as &quot;good enough.&quot;</td>
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<tr>
<td></td>
<td>• Large enterprises rely on MPLS for its flexibility.</td>
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<tr>
<td>Applications</td>
<td>• Networks optimize applications.</td>
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<tr>
<td></td>
<td>• Application integration with mobile devices drives fixed/mobile convergence in the enterprise.</td>
</tr>
<tr>
<td></td>
<td>• Consumer products will invade enterprise.</td>
</tr>
<tr>
<td></td>
<td>• Directory, policy, security and presence management are integrated into applications.</td>
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</table>

In summary, the changes affecting the business market are as follows:

- **Convergence of private infrastructure onto IP**: This means IP over Ethernet in the LAN. Voice becomes an application delivered by a voice application server. This means unified communications (UC) can deliver its promised benefits, while online employees use various modes to control calls. Microsoft intends to offer call control capabilities at the desktop or the application server, as indicated by Microsoft Office Communicator — the UC client for Live Communications Server 2005. An IP-enabled infrastructure can support a voice application server, which enables enterprises to integrate UC, various modes of voice and messaging, presence and policy management. The "tipping point" for IP communications applications comes when approximately one-third of locations in the enterprise have fully embraced IP. At that point, the "network" effect drives the adoption of additional features and available functionality.

- **Convergence of public infrastructure onto the public Internet**: For many operators, there's little to no difference between their backbone networks and their public Internet networks. For branch offices and remote workers that are unwilling or unable to pay for more-expensive private networks guaranteed by service-level agreements, the public Internet with basic Secure Sockets Layer or IP Security tunneling is good enough.

- **Convergence of multiple networks and applications means that centralized directory and policy management services assume greater importance in the corporate network**: Although MPLS provides a great common backbone, policy and priority management must still be established to ensure the acceptable performance of all applications when e-mail, voice and video multicasting are routed over the same network.
Strategic Planning Assumption: By 2011, more than 80% of enterprises will permit the use of effective consumer IT solutions as employees' personal productivity tools, but fewer than 20% of enterprises will adopt consumer IT in a way that actively displaces "mission critical" enterprise systems (0.7 probability).

The leading network service provider (NSP) and IT service provider vendors can be readily characterized as above in our SWOT (strength, weakness, opportunity, threat) analysis. Nontraditional voice providers will create new categories to consider. Widely popular consumer IT companies (such as Google or Yahoo in search) can potentially make serious discontinuities in enterprise sourcing behavior.

**Enterprise software application systems and platform vendors:** When voice is carried as an IP traffic stream on a data communications network, it becomes readily integrated into IT applications. As the dominant enterprise solutions vendors — Microsoft Office Communications Server (previously Live Communications Server); IBM Lotus Sametime; SAP NetWeaver; Oracle (acquired Telephony@Work); MYOB uses engin — develop "voice" as a feature in new releases, it's clear that previous architectures such as PBX, computer-telephony integration and interactive voice response will be facing dead-ends.

**Popular consumer "wild cards":** The "giveaway" mass marketing (to sell core products) business model, which became so successful in the "dot-com" era, is creating inexpensive and cheerful alternatives to formal enterprise IT solutions. Today's popular "freebies" include search for text, images and video; e-mail, VoIP, storage, news, information, merchant payments, directories, location images, services and many more single-function services. Prominent players such as Google, Yahoo and eBay (and even Time Warner or Apple/Disney in the future) will be thoroughly occupied with delivering single-function products in their near-term business plans, but many (currently speculative) mash-ups (blended solutions) will launch during the next few years.

**Action Item:** The leading platform vendors must remain on most shortlists for major corporate projects. During planning and procurement, evaluate the effects of emerging alternatives and blended solutions from potential wild-card players that offer enterprise platform functions.

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### Communications Providers' Food Chain: An Enterprise View and SWOT Analysis

<table>
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<tr>
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<th>Strength</th>
<th>Weakness</th>
<th>Opportunity</th>
<th>Threat</th>
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<tbody>
<tr>
<td><strong>NSPs</strong> (Fixed, Mobile Carriers)</td>
<td>Large-scale, stable, reliable, ubiquitous</td>
<td>Future as a bit-pipe commodity, utility</td>
<td>Wealthy partner, deep resources, FTTH</td>
<td>Regulated returns, low profit, poor partnering skills</td>
</tr>
<tr>
<td><strong>ITSPs</strong> (EDS, IBM, CSC)</td>
<td>IT core skills, large facilities, talent pool</td>
<td>Volatile contracts, skills retention risk</td>
<td>Industry consolidation, master new technology</td>
<td>Low margins, must scale for productivity</td>
</tr>
<tr>
<td><strong>Enterprise Solutions</strong> (MS, IBM, ERP)</td>
<td>Huge &quot;mind share,&quot; well-financed</td>
<td>Gargantuan innovation, portfolio challenges</td>
<td>Incremental advance into emerging markets</td>
<td>Nimble start-ups, best-of-breed</td>
</tr>
<tr>
<td><strong>Wild Cards</strong>* (Google, Yahoo)</td>
<td>Overwhelming consumer acceptance</td>
<td>Unrealistic user dreams, expectations</td>
<td>Willing mass markets, try anything once</td>
<td>No business channels, diversity, integration</td>
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During the past five years, the telecom vendor landscape has been thoroughly reshaped. Five years ago, infrastructure vendors Ericsson and Nortel were dominant. Now, they’re less than half the size of the leading vendor, Nokia. Handset vendors were dominant in 2005, thanks to the continued growth of mobile connectivity worldwide (particularly in North America and China). Enterprise vendors (such as Cisco Systems) experienced a significant drop in revenue in 2001 when the global economy slowed, but they’ve since recovered.

The most-spectacular change during the past five years has been the strong growth of Asian vendors in handsets and infrastructure. In the handset market, South Korean vendors (such as Samsung and LG) have benefited from the technical leadership of their home markets. Product road maps in Japan and South Korea are a year ahead of the rest of the world. The high level of domestic competition in these countries is stimulating further innovations. Japanese and South Korean companies have transformed their technical leadership into assets for international expansion.

In the infrastructure market, Chinese vendors ZTE, UTStarcom and Huawei have registered impressive performances. Initially, they grew in the domestic market by providing low-technology/low-cost infrastructure to carriers. These vendors have expanded well beyond China’s borders, initially targeting Tier-3 carriers and emerging country markets. They’ve since won contracts in Asia, Europe (BT’s 21st Century Network), Africa, and North and South America.
NSPs are seeking margin and revenue growth, but there's strong competition in adjacent markets.

The two typical market expansion areas — consumer video entertainment and enterprise IT services — are heavily competitive.

The growth rates and margins available in these businesses are roughly equivalent to operators' traditional fixed and mobile service markets. Without the total addressable market growing faster than their "home" markets, operators' only option is to capture share from established IT service providers or cable/satellite operators. The resulting competition will further reduce gross margins on services and drive continued consolidation in these markets.

The addressable markets by growth/profits make it clear that there are key differences between sectors, but the telecom sector is, by far, the largest, and none of the others are undeveloped opportunities.

Telcos should offer differentiated positioning to compete, but there are some opportunities (in areas such as video on-demand and managed network services) in which growth and margins are relatively attractive.
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Despite operating in a market that's near saturation, Singapore's StarHub has been successful with "quadruple play" bundled service offerings that provide mobile, broadband, cable TV and fixed services on a single bill. The offerings have created differentiation by creating unique cross-platform products and services. The direct benefits have been greater customer retention, customer acquisition and cost efficiencies.

PCCW, the former Hong Kong incumbent carrier, took an early lead in deploying mass-market IPTV services, and was able to justify its strategy of "giving away" (subsidizing) set-top boxes (STBs) to build market share.

BT Global Services and HP are offering telecommunications and IT services for large enterprises. BT covers the connectivity part, while HP covers IT applications, systems integration and hosting.

**Bottom Line:** It's unnecessary to chase leading-edge technologies to deliver profitable services. However, it's critical to understand a unique market's behavior, identify unmet customer needs and craft a suitable business model to fit.
Use consumer-focused industry innovations to your business's advantage:
• Broadband access to public Internet; VoIP; messaging.

Understand the implications of convergence vs. substitution:
• Quality of mobile is lower; convenience and personalization is much higher.
• Wait for fixed/mobile convergence on Wi-Fi-enabled mobile handsets to mature (niche only through 2008).
• Fixed/mobile convergence for consumers is a nonstarter.

Identify business applications and process improvements enabled by IP-based infrastructure:
• That is, if voice is embedded in a sales force automation application, how does that change your booking process?

Learn from providers and users, particularly in Asia/Pacific:
• Asia/Pacific vendors should be on your shortlist for mobile handsets and networking products; user service adoption in the region is well ahead of that in North America and Europe.

Look for IPTV to succeed in some markets (telcos, however, may not be the winning providers).

Watch for telephony and NSPs to evolve into a software-based model:
• Revenue counted in licenses, not boxes.
• Look for integration opportunities from a software as well as a business process perspective.

Recommendations
This is the end of this presentation. Click anywhere to continue.