

Part 2 - Predicting the Future: 04 Mar 06

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In part 1 of the article, we discussed how the business environment is driven by the globalised economy, the always connected infrastructures; proliferation of digital contents and the need for Business Intelligence tools.

In this concluding part, we will discuss some specific IT developments and trends that show clear signs of supporting the environment that we have painted above.

More Power to the Desktop

Hyper-threading, a technology launched by Intel in early 2003 to enable multi-threaded software applications to process multi-threads in parallel is now a standard feature in most desktops and notebooks. Last year, AMD and Intel started the dual-core processor war and this year, the event is going prime-time with more offerings on the plate. Even Apple is putting dual-processor into its latest models.

With 2MB cache, you'll get 4MB of cache in total for the dual processors. Complemented by PCI Express, the new Input/Output (I/O) bus standard; SATA to eventually replace the old IDE interface for hard-disk; dual graphic card technologies for motherboard and a 64-bit operating system, we are going to see "better, faster and bigger" desktops that act both as a workhorse and entertainment machine.

To the mobile workers, such powerful PCs and notebooks are personal tools with greater processing power to crunch more complex worksheets, view and simulate intrigue business scenario in 3-D graphic models, plan and organise large project resources and of course, play the most graphical and memory intensive online games for entertainment and to seek refuge from the real world.

This year, we can expect to see more dual-core PC and notebooks that come equipped with other complementary peripherals to boost the processing speed. More applications that capitalised on 64-bit computing and dual-core technologies will be developed to meet the never ending demand of the mobile workers for speed, more speed and less patience.

Connectivity and Communication Technologies

As the world evolves into a globalised community, faster transportation vessels and communication technologies play a major role in hastening the pace. Downward revisions of broadband price plans over the past 2 years, availability of more potent wireless technologies and launch of 3G networks that challenged wired services, and wide spread adoption of the Internet Protocol (IP) have led to easier and cheaper access to the Internet's global networks.

One of the key elements that challenge the status-quo of the tradition communication networks is the deployment of IP-based technology by "non-traditional" new service providers such as Skype. Net telephony which encompasses voice over Internet protocol (VOIP), broadband, IP services and 3G technologies are forcing telcos to rethink the way they have been protecting their turf through "walled garden" and network switches to control end users access and billing. IP-based technology potentially facilitates the shift of control away from the telcos who manage the networks to the consumers who own the end devices such as mobile phones, PDAs, notebooks and desktops.

Imagine with a VOIP-enabled mobile phone or PDA, the consumer could use the phone's built-in Wi-Fi functionality to make long-distance calls over the Internet at local charges. The same phone can also be used to send emails, videos and other digital contents. As the mobile phone and PDA are comparatively more user friendly and portable than the notebooks, wider adoption by consumers is expected in the months ahead and telcos and network service providers are definitely keeping a close watch over their radar on this development.

Network Resilience

With work taking place anywhere, anytime and any place; the employees are increasingly moving out of the traditional work stations into homes, hotels, air port lounges, and locations that provide internet or wireless accesses. 9-to-5 work hours will extend to 24x7 operations thereby demanding the network to be always available and always connected.

The "always connected" service levels required by different business units within the enterprise coupled with the possibility of disruptions caused by natural disasters, terrorist attacks, planned and unplanned downtime, administrator errors, malicious internal or external cyber attack posed serious challenges to the organisation. To achieve a resilient data centre infrastructure, the IT department should evolve its diverse and disparate environments into a more homogenous and structured infrastructure that provides a more deterministic response to disruption.

A high-availability network is the foundation of a resilience network. While high availability requires heavy investment in both capital and operational expenses; these investments pays off with significantly higher uptime, greater end users satisfaction, higher productivity, minimise business losses and for some industries, reduced exposure to regulatory penalties. A resilient network also increases applications resilience.

While a highly available and resilient network is not a new phenomenon, more organisations will view network resilience as a key strategy to support the continuous operation of critical business processes and to ensure business continuity during any eventualities. To this end, we will definitely see greater emphasis in detailed network design, operational reviews, network performance monitoring, application design and development.

Enterprise Security

One of the key threats is that organisations are increasingly opening up their network to the outside world. The increasing level of always-on connectivity to the Internet means that systems in the enterprise are wide open to attack and can also be used as launch pads for attacks on other systems.

As the organisations rely on increased connectivity, sharing of resources and rapid exchange of information in order to derive enhanced business benefits, the organisations are also exposing more of their business processes and intellectual assets into software applications as well as opening up these applications to employees, customers and partners. Even if the threat level remains constant, the risks faced by organisations increased due to these exposures.

Adding to the list of vulnerabilities is the increased usage of web services, peer-to-peer computing and mobile phone capabilities. A few years back, security attacks on mobile phones are rare but this is no longer the case. According to McAfee's Avert antivirus labs, there was a 10-fold increase in mobile-device related threats in 2005 compared to computer viruses and this trend is expected to continue in the coming years. With mobile devices gaining more and more functionality, it is becoming critical for organisations to secure their devices to the same level as their desktop computing infrastructure. One of the steps to secure mobile computing is to standardise which types of devices are permitted onto the enterprise network and to establish sound authentication, access control and encryption policies and procedures.

Conclusion

We are already moving into an era where information and transactions are moving seamlessly across location boundaries, device boundaries and even physical and virtual boundaries. Users especially the mobile workforce will be able to interact with office and other shared applications from practically anywhere, on any device or via any interface. Government in some countries such as Japan, South Korea and Singapore are either building or playing an active role facilitating the development of high-speed broadband and wireless national infrastructures to push their countries into the globally connected economies.

For instance, in early Mar this year, the Singapore Government unveiled details for the country's Next Generation National Broadband Network that will utilise fibre-optic cables to offer download speeds of between 100 megabits per second (Mbps) and 1 gigabit per second (Gbps). The current broadband services in the country maxed out at between 20-30 Mbps. In addition, the government is also pushing for a shared "open access" network which means there will be new competitors challenging existing incumbents resulting in further lowering of broadband prices which have fallen by 70% since 2001. The plan is to push the country broadband penetration from its current 52% to 85% by 2015.

In addition, to support mobility; an island-wide wireless network will be set up so that there will be seamless wireless connection for users who use portable devices such as PDA, smart phones or notebook. There is no need to look for hotspot cafes or locations.

These longer term trends are taking place today and it is important that organisations understand how these developments will affect their businesses, their employees and more importantly, how to recognise the potentials and leverage on them to create a competitive advantage.

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