



Designing Intelligent Networks for the 21st Century

First it was the Industrial revolution and now it is the vast Information at your fingertips. It is wonderful to see how “technology” has come to be, especially after the invention of computers, which literally ushered in a sense of urgency in the techno-centric leaps we seem to be taking now. In the area of IT, Networking and Computers, just when you think it’s over, you have something new and exciting sprouting up.

Business and technology, with their considerable leanings towards each other, form the impetus required for a stellar mutual growth; but no matter how much advancement comes about, there seems to be an insatiable appetite for more.

For IT organizations, most of the times, these changes don’t require a major overhaul of their network designs and hence they resort to “quick fixes” for their incumbent networking issues -- like adding WAN bandwidth which still has its limitations. As these “minor” fixes roll into a huge moss-gathering ball of problems, a need arises for a rather large move. An earnest need for a paradigm shift in the way new intelligent, super-layered, multi-purpose, competent, and cost-effective networks have to be developed, maintained and run.

Benefits of Intelligent Networks

Intelligent information networks will have to be viewed as a strategic asset for the businesses. For instance, Cisco Network Solutions provides a proven 3-point approach to network design and deployment. Firstly, it focuses on convergence of data and voice and brings down lower cost of ownership, allows better network management and performance, provides robust security and more cost-effective scalability, and enables organizations to deploy advanced technologies; secondly, Cisco Intelligence Information Systems Network draws on the benefits of Dynamic Resource Utilization and brings down operational costs; and finally, it extols the benefits of virtualization thereby paving way for the businesses to go “green”; reduce storage and server costs; redundant IT staff and management costs and much more.

An intelligent Network to be designed for the 21st century must have the following attributes:

- 1. Secure and compliant with government regulations:** No network is functional if it cannot be compliant. A great deal of effort is taken to meet the demands laid by literally uncountable number of compliance acts. An Intelligent network must doubtlessly be made compliant at least with regards to some of the more popular ones like Sarbanes Oxley Act, Payment Card Industry (PCI) Data Security Act, and even cater to stringent requirements like *Business Continuity and Data recovery (BC/DR)* ensuring an increased availability of Network resources and work towards the ever challenging state of “Business As Usual”. Non- Compliance has no excuses and can lead to loss of reputation,

profits, and brand image. Any such gaucherie is trouble and all that needs to be done is a little forethought to be applied.

2. **Mobile/Wireless:** Just as most things with technology too, the shift of energy, applications and solutions has always been from the simple to the complex. Most businesses have understood the need for an unshackled access to corporate networks, which saw the emergence of WLAN, Wi-Fi and remote access technology.

While the early networks have been built with single Access Points at regular Intervals tomorrow's Intelligent Network will demand a dynamic shift in deploying these access points with regards to each user who would now move in and out of various ranges of multiple Access Points, each necessitating its own security protocols. The early WLANs could support data-only streams of traffic, but there would be a pressing demand to handle voice-traffic (hence a need to implement QoS in LAN) in the future. Technologies like Mesh Networks; new standards like 802.11n and even Wi-Max would need to be supported.

3. **Cost effective:** Businesses are all about profit and exorbitant costs of networks are a drain. Companies are drawing out elaborate plans to minimize costs and at the same time achieve superior designs when it comes to their networks -- reduction of network sizes; making them smaller but even more efficient; the introduction of concepts like SAN (Small Area Network) and implementing IP storage to meet with the increasing demands for storage of all information passed between clients, businesses, vendors and individual customers. It's expensive and an Intelligent Information network has to be miserly by design. It has to squeeze out more from less; something from almost nothing. It is estimated that the rate of demand for storage would grow at an incredible 40% to 50% and the demand would double every 18 months-- something it has to keep up pace with.
4. **Reliable, scalable, and redundant:** A Network would be a weak link for a business if it cannot be reliable; it would be practically useless if it has to be discarded for a new, larger one when the company grows in size (scalability) and no part of the network should be redundant. A network must stand like the Rock of Gibraltar for a business to function seamlessly and support it throughout.
5. **Unified / Collaborative:** Most businesses today thrive on collaboration. Miracles are achieved through effective collaboration. First heralded by the Internet, collaboration suddenly went spineless but penetrated into hitherto unseen depths. Web 2.0 just pushed the equation and made it even more real. Open Source, Cloud Computing, Wikis and Blogs, have all redefined collaboration. Virtual Conferencing and Telepresence will redefine tomorrow's meetings. Intelligent networks are visionary by design and they will cater to increasingly complex demands, which arise. Collaboration -- the act of getting various groups of people working towards common goals, tending to do it more online over networks than to huddle over desks -- is the future and will be the way business is done.
6. **Support intelligent applications and technologies:** In a study done by the Webtorials Editor/Analyst Division who had brought together 200 IT managers for questioning, it was revealed that about 37% of them thought that their companies honestly *try* to embrace new technologies and Intelligent applications while only 12% of companies *actually* use future technologies like mash-ups, Rich Internet Applications (RIA), Services Oriented Architecture (SOA) and various web 2.0 developments. However,

expectations, excitement and a sense of positive feeling is palpable since the same group of IT managers had expressed that about 46% of the companies would drift towards intensive usage of these Intelligent Application Structures, architecture and technology -- exactly what the new networks will have to learn to handle.

- 7. Going Green is Intelligent:** The writing is clear on the wall, isn't it? Going green is going to be a mighty requirement in the years to come thanks to all the pounding mother earth has had to take so far. For IT companies, starting at the data centers and moving over to each bit of computing resources, conservation and optimization of energy usage will be a critical point in design and use. Companies that don't go green will face higher operational expenses, bad pro-environment support rap and finally might even lose revenue. Tomorrow's Networks will have to be designed to be Green from the go.

Take Action

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