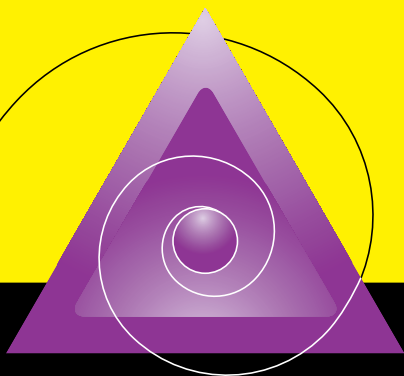


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The Guide to Hosting Strategies for Web-enabling the Enterprise



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“The significant problems we face cannot be solved
by the same level of thinking that created them.”

Albert Einstein

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The Guide to Hosting Strategies for Web-enabling the Enterprise

In order to remain competitive, today's enterprises must radically transform themselves. They must depart from yesterday's hierarchical business model in order to embrace a newer, Internet-inspired e-business model. This e-business model is based on global services and business agility. It is enabled by outsourcing, partnerships, alliances and by a full and total integration with the Internet, through e-tools, Web sites and hosting.

Transitioning the enterprise to an e-business model however, is a complex management task that can be fraught with hazards. Trying to implement too many changes too quickly can result in business confusion, degradation of service, lack of fulfillment and lost customers. On the other hand, trying to do it too slowly and incompletely could also result in lost business when customers migrate to other suppliers that offer the faster services and round-the-clock convenience promised by Internet startups.

A well-defined, well-planned Web hosting strategy will provide a clear path for the enterprise to follow, to achieve its e-business goals in a timely manner and with little or no disruption to existing services. This Guide provides a roadmap for decision-makers charged with achieving this task. The Guide will be of interest to chief executives, business development managers, marketing managers, IT managers and others in corporate enterprise leadership positions.

Introduction

Enterprises everywhere are feeling the pressure. In today's Internet driven economy, maximizing business value through a viable Web presence and the deployment of Internet technology is a widely recognized mission-critical imperative. Enterprises **must** be increasingly Web-enabled in order to achieve or maintain a winning market position.

Four of the primary forces driving businesses to adopt new Web-based imperatives are as follows:

- The emergence of the **global marketplace** as the new universal playing field for business success; global competition, along with global opportunity.
- The emergence of new **competition from 'dot.com' companies**. The wide access to and low cost of Internet services has lowered the bar for market entry by new companies. At the same time, it has placed vast resources (the resources of the Net) at their disposal. Cost barriers for market entry have become virtually non-existent.
- The change from static to a **new dynamic business model**. In order to remain competitive, today's enterprises need to be able to make split second decisions, responding to changing market conditions on an as-needed basis. Enterprises that cannot respond quickly and as an integrated whole, to meet changing market demands, will not be able to succeed in the new economy.
- The emergence of a new, **Internet-savvy breed of customer**. Empowered by the increased availability of information via the Web, customers have become more market aware. The ease of accessing business information via the

Web has made it easy for customers to “comparison shop” among competing products and services. Customers are also becoming used to the availability of faster response times, along with 24x7x365 shopping and customer self-service. The availability of these new services is driving consumer demand for more of the same. Today’s enterprises need to be able to offer 24x7x365 Web-based service. They also need to be able to deliver products, services and support faster and better than ever before. Today’s drivers for business change are not just temporary upheavals in the marketplace. The dynamic nature of the Internet has unleashed a new set of rules about the ways in which business will be transacted from this point forward.

The challenge for the established enterprise is a daunting one: to discover strategies that will quickly position the enterprise to leverage the power and wealth of the Internet, while at the same time, protecting valued enterprise assets for investors and shareholders.

Key Questions

When considering this, enterprise leaders will need to address the following key questions:

1. How can the enterprise move quickly — perhaps much more quickly than has been the case in the past to meet the demands of the new economy?
2. How can the enterprise achieve its goal to meet these demands without straining precious resources or risking the disruption of existing services?

3. How can the enterprise develop a strategic relationship with a knowledgeable enterprise-class **Managed e-Business Service Provider (MeSP)** in order to speed up the e-business transformation?

Reasons for Establishing an Internet Presence

The primary reason enterprises establish an Internet presence is to attain or enhance a competitive business advantage. Web sites can accomplish this for enterprises in a number of ways. When properly planned and implemented, enterprise Web sites can:

1. **Increase customer reach** - The World Wide Web is a highly cost-effective medium with a truly global reach.
2. **Decrease advertising costs** - In general, it is less expensive to advertise via the Web than it is to advertise in comparable print or broadcasting media.
3. **Enhance Industry collaboration/Extend the enterprise** - The World Wide Web makes it possible for companies to collaborate without the barriers of time and space - the Internet is always “on”. Through private IP-based enterprise networks that operate over the Web (VPNs and Extranets), businesses can communicate with mobile employees, partners, customers and members of their supply chain no matter where they are located.
4. **Enhance business operations and processes/Advance enterprise integration** - It is possible to increase business efficiency and realize dramatic time savings by creating enterprise-wide standardized business processes that can be accessed at any time by any authorized users within the extended enterprise.

The Role of Outsourcing

Although it is theoretically possible for enterprises to host their own Web servers on the company premises, realistically this is possible for only a few of the very largest enterprises — and it is becoming increasingly impractical. Unless Web hosting is a core business function for the enterprise, outsourcing Web hosting services to a professional hosting organization is really the only way to achieve the security, the reliability and the connectivity necessary to support business-critical Web sites and related IP services. Without recognition of the economies of scale, technical agility, professional expertise and scalability features that are available to Managed e-Business Service Provider (MeSP) and their clients, businesses will lack the critical infrastructure and resources needed to remain competitive.

In some cases, businesses may wish to outsource basic connectivity and server space with the MeSP. In these cases, the business provides its own servers, along with related software and hardware. These servers are housed in the MeSP's data centers, and benefit from the controlled environment, security and connectivity resources of the data center.

In other cases, organizations may wish to lease servers and/or additional services from the MeSP. Additional services may include network and/or server management, Web site design, consultation and planning services, database services, integrated application services, customer profiling, back-end connections to enterprise legacy systems, network access directory management, advanced security services, load balancing and/or other related IP services.

Definition of Web hosting and related terminology

Web Hosting - Simply stated, Web hosting is the process of maintaining and operating one or more Web servers (computers that are distributing data over the World Wide Web). Although this may sound simple, in reality Web hosting is a complex process, which includes:

- Providing and managing network connectivity
- Providing high-speed internet access
- Monitoring Web site traffic
- Dynamically allocating additional bandwidth where necessary
- Dynamically re-routing Web traffic where necessary
- Providing network and Web site logging, reporting and analysis
- Providing and administering environmental, security and reliability controls
- Providing, monitoring, troubleshooting and repairing network hardware and software
- Providing seamless integration with Web site applications and databases
- Providing network help desk and support services
- Managing multiple servers for load balancing
- Geographically mirroring Web sites to allow dynamic re-routing traffic where needed
- Managing servers in multiple data centers
- Providing multiple security mechanisms, such as managed firewalls, digital IDs and encryption

Additional elements might require providing a number of related, value-added services and tools, such as: application hosting and integration, Web site design, customer profiling, extra layers of security measures, database management, and back-end connectivity to enterprise LANs, WANs, mainframe and midrange servers.

Web Content - The information that is displayed on Web sites or Web pages. This may exist as static information, embedded in the Web pages themselves, or as dynamic information, or even rich content such as audio and video that is accessible through interactive programming and databases.

Web Page - An electronic document that appears as a single page of information when accessed via Web browser software, such as Netscape or MS Explorer.

Web Site - An organized group of Web pages with a common navigational theme.

Web Presence - A Web site or combination of Web sites belonging to one company or user group.

Managed e-Business Service Provider (MeSP) - A professional services organization that provides all of the services described above including essential network connectivity and bandwidth, a secure controlled data center environment, network management, servers and/or server space and other services necessary to create an optimum operating environment for Web servers. In addition, the organization may provide value-added services and consultation in areas such as communications management, enterprise integration, global business, Web site strategy planning, Web site design and customer profiling. MeSPs may be referred to by other designations such as: Internet

Services Providers (ISPs), Service Providers (SPs), Managed e-Business Providers (MeP), Hosters or Hosting Services.

Web Hosting Strategy - A plan for utilizing Web hosting and related IP services to generate business benefit. Web hosting strategy should be seen as a subset of enterprise business strategy. It consists of developing a business plan that includes:

1. Evaluating and stating the company's business goals
2. Evaluating the efficacy of those goals in the light of the current state of the market, along with the current state of Internet-enabled technology
3. Determining what Web hosting and IP resources are needed to achieve the stated business goals
4. Sending a Request for Information (RFI) to enterprise-class MeSPs
5. Evaluating MeSPs and their value-added services in the context of assisting the enterprise in achieving its business goals
6. Selecting an MeSP with which to partner
7. Together with the selected MeSP, planning an iterative strategy for employing outsourced Web hosting and other IP services to effectively position the business for short-term and long-term e-business success

Types of Web Hosting

In reviewing Web hosting options, enterprise managers will be faced with an array of somewhat

confusing information, including various categories of available Web hosting. In general, these categories can be summarized as follows:

Virtual (shared) Web Hosting - Web hosting arrangements in which more than one business shares space on the same Web server. This is the least expensive way for an organization to create a Web presence. Although these arrangements can provide sufficient reliability and security assurances for basic Web sites, they are generally not sufficient to meet the needs of business-critical, highly trafficked, enterprise-class Web sites. Enterprises running mission-critical information over Web sites generally desire the added layers of security that can be integrated into dedicated servers. Such Web sites demand the high bandwidth availability of a dedicated server. Without this, the Web site is likely to load too slowly on the browser to be practical or it will be completely unable to accommodate large numbers of user requests.

Co-location - A hosting arrangement in which the enterprise provides the servers, but leases data center space, essential connectivity and other services from the MeSP. This forces businesses to retain control of their servers and Web site operations, while benefiting from the greater security, high-speed access, environmental control and economies of scale provided by the hoster's data centers and network infrastructure. This option is sometimes selected by enterprises with a large, in-house IT departments who are capable of handling their own network management, or by mission-critical businesses seeking greater control of Web site security.

Dedicated Web Hosting - A Web hosting arrangement in which one or more Web servers are dedicated to the needs of one business enterprise or

organization. Dedicated Web servers provide additional security and reliability assurances often needed to accommodate the high traffic and the high bandwidth needs of business-critical Web sites. For extra high traffic sites, load balancing servers can be configured. Even enterprises electing to start out with a basic Web site and virtual hosting should seek out a full service hoster that has the capability of handling dedicated Web hosting. This will be an essential for business growth and the implementation of additional IP services.

Company Migration to a Web Hosting Strategy

Web Hosting Phases of Migration

When considering a Web hosting strategy, managers should take into consideration the three main phases of Web site development and migration and how they apply to their business. They are listed below in order of complexity depending on the business needs and resources. During planning, enterprises may want to start with any of these types of Web presence, while still having a clear migration path for answering future business needs:

- **Simple Internet Presence Web Site(s)** - This is the most basic type of Web site, which is generally the simplest and least expensive to set up. This type of Web site acts as a type of electronic calling card and résumé of the business. It contains general information about the enterprise's vision, mission, news, press releases, products, services and contact information. It may contain annual reports

and specialized news bulletins for shareholders, as well as more general press releases, news items and a dedicated area for Web site visitor feedback in the form of an email, guest book entry or automated online forms. Customer profiling features may be added at this basic stage of Web site development. Individually targeted Web pages may also be integrated to meet the interest needs of Web site visitors. This feature generally results in increased ordering and fast, hard-dollar ROI for the enterprises that choose to use it.

• **Basic E-commerce/E-business Web Site(s)** -

This Web site category includes the same type of information as the simple presence Web site, but adds a number of functional enrichment features that can save businesses substantial time and money and increase value for their customers. Some of these enhancements may include:

1. An online catalog with secure ordering capabilities - creating an instant virtual “store” that is open 24x7x365 and accessible from anywhere in the world and in any timezone. Secure ordering may be enabled by one or more off-the-shelf e-commerce software solutions. Larger “stores”, such as Amazon.com, with literally millions of product offerings also need integrated databases to manage and correlate the data relating to each product.
2. Integrated online call centers - Web site patrons who need additional help can follow simple onscreen instructions, such as “click here” and be automatically linked to a “live” service person in those instances where more personalized service is needed.
3. Self-service customer support - FAQs, fact sheets, product specifications and instructions,

interactive technical support and product use training. Self-service customer design of custom products may also be enabled. At an interior design Web site, customers might design a virtual room, in which they can coordinate all elements of the room to their liking. They could then go on to order the necessary components for the room that they have just created. Providing a Web site for customer self-support also cuts business costs and eases the administrative burden on “live” support staff.

- **Advanced E-Commerce/E-business Web Site** - Increased functionality Web sites include advanced capabilities such as Web-based software for integrating and updating enterprise legacy systems and/or core applications to dynamic IP-based systems and applications. Off-the-shelf and custom software applications can be integrated with enterprise Web sites to enhance business-to-business, intra-business and e-commerce processes in a number of areas. Some of these are listed below:

1. Automated business process software - can enable IP-based Customer Relationship Management (CRM), Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP) and value chain automation systems with streamlining and standardization of these processes across the organization. This provides a means of increased productivity, shortened cycles and reduced costs. This software is generally used in conjunction with IP-based Virtual Private Networks (VPNs) that establishes secure intranet and/or extranet connectivity.

2. General business applications - such as office suites, productivity and project management software and email software can be shared across the enterprise via application hosting at a remote data center. It's the old mainframe concept – but the applications now reside in a secure offsite data center, with no maintenance requirements on the part of the enterprise. Advantages to the enterprise include ease of upgrades, version uniformity, easy technical support and no need to configure software on multiple distributed systems. One upgrade to the central system assures that the same version is in use enterprise-wide and off-site data stores won't slow down network traffic on legacy LAN systems.
3. Data management functions and automated software - can help to turn miscellaneous raw data into useful enterprise knowledge via information indexing, storage and retrieval capabilities at secure offsite data centers. These can be remotely accessed from the enterprise premises or by mobile workers from other remote locations.
4. Private IP-based networks operating in the Web environment - can be created or extended through Web-based Virtual Private Network (VPN) technology, increasing both the reach and the efficiency of enterprise and extended organizations.
5. Back-end service connectivity - allows legacy applications to be interfaced with the Web by using a browser-based interface that provide network users access to key applications.

• **Fully Integrated E-business Web Presence -**

At this fourth stage of development, the enterprise has become a fully integrated e-business with intranets, extranets and discrete enterprise systems working together as one seamless whole. From time to time, the entire e-business function, plus all of the other key information systems reside at the MeSP site. Back-office and front office functions work together as an integrated system for ease of ordering, asset management, inventory management and knowledge management throughout the enterprise. In this scenario, the enterprise has become a true e-business designed with new opportunities for products and services as well as new opportunities for restructuring the organization along virtual lines. In this model, the enterprise can focus on its core competencies and leave the administration and running of the network to the MeSP. The benefits are clear:

- Capital expense reduction
- Elimination of technical obsolescence
- Growth and scalability
- Freedom to add new applications without concern for building new facilities or teams of network professionals
- Expanded market opportunity
- Faster time to market with new products

Web Hosting as Part of IP Strategy Planning

Web hosting and enterprise revitalization systems that try to do too much too fast or that are too large and complex are likely to place an inordinate burden upon enterprise IT resources. This in turn could result

in system downtime and unmanageability. In contrast, Web hosting efforts that are planned with too small a vision, may not be useful as part of an overall e-business strategy. In addition, they may also not be able to scale or integrate well with future components. In summary, a coordinated planning effort for Web integration is much more likely to achieve success than piecemeal efforts aimed at upgrading individual components of enterprise systems. However, evolving such a plan may seem so daunting a proposition that it never gets off the ground.

A plan that will allow the enterprise to quickly reap the maximum benefits in real time, along with an iterative implementation and planning process is essential. This allows the enterprise to scale towards greater realization of e-business functionality over time. This modular approach will allow enterprises to safely ramp up to e-business success, without endangering existing processes and enterprise assets. Enterprises can expect to achieve the highest degree of success in this effort by partnering with a solutions-oriented business-centric MeSP who understands that it is not the Web sites themselves, but the overall results that make a difference to today's business enterprise.

MeSP Client Categories

When considering Web hosting, an organization might consider itself to be in one of these four client categories, as defined by Forrester Research¹:

- Minimalist
- Customizer
- Maximalist
- Trailblazer

¹ The Forrester Report – User's Guide to Hosting – July 1999 by Jeanne M. Schaaf

Minimalists - This organization has a requirement for only site branding with perhaps some basic e-commerce. With little or no application integration requirement and few Web or e-commerce skills, this group requires a simple hosting solution using either shared or dedicated servers as well as basic system monitoring and administration. Templates or basic e-commerce packages may also be needed.

Customizers - These organizations have e-commerce as a priority and typically have an extensive legacy environment with a global scope. They have in-house software engineers with mature integration skills. This group requires managed hosting with the full array of co-location services including a customized server management configuration, back end integration and systems/application monitoring.

Maximalists - These organizations are typically established with a mature and complex legacy environment, but with minimal e-commerce, custom programming or Web skills. Enterprises of this nature have a need to move into e-commerce quickly, but need everything to be done at once. Their requirement is for full time hosting with complete managed services including systems integration, consulting, design, configuration and management.

Trailblazers - Trailblazers are those organizations who are leaders and trendsetters in the e-commerce space. They have lots of technology experience as well as ample network and application integration skills. They require collaborative hosting with the MeSP supplying racks, cages, physical security, redundant power, bandwidth, network redundancy, multiple peering, system monitoring and remote administration.

Evaluating MeSPs

When evaluating MeSPs as potential partners to meet the needs of one of the types described above, enterprise managers may want to ask the following questions:

1. How can the enterprise use its Web presence and related Internet services to improve its relationships with its customers, i.e. improved sales, support and value added services?
2. How can the organization's Web presence and related Internet services be used to streamline business operations and to enhance business critical knowledge — both within the company itself and between the enterprise and its suppliers and allies?
3. What is the best, most cost-effective and most timely means of building an effective Web presence and an integrated IP strategy?

When considering these questions and their answers, enterprises should have and be able to provide the MeSP with a good understanding of where they are now, in regard to the various stages of Web development and what immediate and long-term goals they seek to attain. In a nutshell, companies must do a thorough self-analysis and figure out into what category they fall.

Benefits of a Web Hosting Strategy using an MeSP

Being fully Web-enabled with the support of the right service should deliver the following business benefits:

1. Realizing fast, measurable, hard-dollar ROI - All business Web sites have one central underlying purpose - the ability to deliver tangible, real value to the business enterprise. They should enhance the businesses bottom-line through fast, measurable hard-dollar ROI, which may be delivered through cost savings and/or revenue generation. Full service enterprise-class MeSPs understand the tools and positioning necessary to enable fast hard-dollar ROI from Web site deployment, offsetting initial costs and supporting the needs of the enterprise to move forward with integrating additional IP services. They can be valuable partners in enterprise efforts to sustain a competitive advantage in the Internet economy.
2. Enhanced Intra-Business and Business-to-Business Productivity/Efficiency - A Web-enabled organization eliminates waste and ensures that communications are globally distributed throughout the value chain. It provides the capability of distributing information in seconds - a virtually timeless connectivity.
3. Better Customer Service - Self-service Web sites (such as on-line banking) allow customers to have 24x7x365 access to information, freeing "live" support personnel to address the needs and solutions that go beyond what is available on the Web site. The new generation of hybrid Web/live sites take this one stage further; all of these models take advantage of full service MeSPs.
4. Answers to Today's Business/Technology Challenges - Outsourced Web hosting arrangements need the right MeSP that has the depth to support customer-focused, strategy-centric quality whilst taking away the technological barriers that often encroach on the full attainment

of the objective. This can provide businesses with the scalable resources and industry insights necessary to meet changing demands.

5. A Sustainable Competitive Advantage – By adding to in-house resources, an MeSP will deliver increased sales with speedier processes, collaborative efforts, better resource utilization and a faster, more complete customer response. Most organizations do not have the level of technical skills or resources necessary to ensure that their hosted solution works well.

Important Caveat

Although Web hosting with a quality MeSP will provide all of the above - a poorly managed program for Web hosting can be a disaster. Unrealistic or poorly structured approaches to e-business development can result in poor return and increased expense. In the worst cases, damage to the enterprise's valuable reputation, not to mention legal difficulties and eventual business failure. It is critical that a strategy in partnership with a provider is undertaken.

Key Attributes of an Enterprise - Centric MeSP

A top quality, enterprise-class MeSP is a full service provider that is able to provide the business enterprise with a full spectrum of reliable, trusted end-to-end IP services. While the term “Web hosting” implies secure, reliable, high-speed network connectivity and support for company Web sites, a top-quality business-centric MeSP provides much more than this. The MeSP is customer focused, strategy-centric and knowledgeable about global markets. The MeSP may provide services via their internal resources, only in conformance with an emerging trend, in concert with industry partners and allies that are part of their extended enterprise. Essential features of these MeSPs include:

1. Ability to Provide a Full Service Offering - Full availability and integration capability of IP services including Web hosting, application hosting, database and application services. These may include such services as Customer Relationship Management (CRM), Sales Force Automation (SFA), Enterprise Resource Planning (ERP), targeted ad hosting, data warehousing/data mining applications, content management and delivery and front and back office connectivity.
2. Superior Network Infrastructure and Data Centers - Most MeSPs have access to some type of high-speed network infrastructure. Top-quality MeSPs are facilities-based. They own and manage their own high-speed private network infrastructure and data centers and provide global access with numerous Points of Presence (PoPs) in various cities throughout the world. MeSPs are able to demonstrate network scalability features and planning to allow for Web site upgrading when increased bandwidth is needed. They are able to scale and grow their infrastructure and data centers to serve their clients' current and emerging business needs.
3. Superior Network Monitoring and Optimization - Top quality MeSPs have reputations for excellence in network monitoring optimization with superior network reporting and self-monitoring customer feedback mechanisms. They offer unqualified security, reliability and Web site availability assurances, backed by solid metrics and clear Service Level Agreements (SLAs).
4. Superior Platform/Engine, Hardware and Software - Platinum-quality MeSPs have a commitment to using only “best of breed” components. They can provide the necessary services to ensure that each product is optimally interworking with other network components for optimum Web site performance.

5. Superior Knowledge of Strategic Business Issues - The ability to utilize that knowledge to help new and existing businesses to map out a plan for the gradual planned deployment of business Web sites and integrated IP services. The MeSP must have some level of vertical expertise in the marketplace.
6. Strong Global Presence and Global IQ - Data center facilities and private network infrastructures extend across the globe. These are supported by help desks experienced in dealing with multinational and global regulatory issues. This includes knowledge of international technology preparedness, cultural and ethical awareness, country-specific, trans-border business as well as interpersonal customs, protocols and standards.
7. Superior Customer Service - Top-quality MeSPs are strongly customer focused and dedicated to continuous service improvement. They are committed to ‘partnering’ with their customers and to building enduring business relationships, not providing just a one-time service.
8. SLAs - As discussed earlier, MeSPs define their responsibilities and actions through a Service Level Agreement (SLA). When choosing an MeSP, make sure that the MeSP and SLA have teeth. Requesting a skills matrix of the people supporting the implementation is also quite valuable.

Detailed Platform Attributes

The capabilities of Web servers to initiate a fast response are based, in part, upon the operating system that is running on the server. Leading operations systems normally support, at minimum, current versions of Windows NT, Sun Solaris (UNIX) OS and/or (Red Hat) LINUX operating systems, together with extensions such as free BSD running on “best of breed” high-speed servers. Each operating system has

unique strengths and weaknesses, which may render one OS better than another for use with specific applications. Servers tend to be somewhat OS specific. Sun or HP RISC platforms are generally used to run UNIX. HP, Compaq and Dell Intel platforms may be used to run a number of operating systems, most commonly Windows NT, Windows 2000 and LINUX.

A secure offsite data backup and retrieval capability is a minimum requirement for protecting business-critical data. With multiple data centers, mirrored servers can be used to assure redundant server capability with network re-routing to the mirrored server in case of an outage. Heavily trafficked Web sites may use multiple servers for load balancing to ensure optimum data throughput. All of these things need to be checked carefully and if the “best of breed” philosophy is understood, then it allows business issues to become pre-eminent.

Data Centers

Quality Web hosting services are usually deployed at multiple data centers with redundancy and diversity to ensure that critical components are protected by a set of redundant facilities. MeSPs will provide the business enterprise with specific data about cabling, environmental controls, redundancy and diversity measures, data center security and disaster recovery systems. Where global business is an important consideration, the data centers should be globally distributed.

Network Infrastructure

Top quality MeSPs own and control their own private high-speed network over which traffic can be routed away from normal Internet channels. This provides higher reliability and security controls than are possible when traffic is being routed over the public Internet. In addition, this enables the provisioning of private end-to-end Virtual Private Network (VPN) connections providing maximum reliability and secu-

rity for company extranets or intranets and linking enterprise employees and/or customers, suppliers and allies for business critical functions. This allows such time saving steps as broadcasting critical information to all users. It also allows for streamlined business processes such as Web-enabling and automating the enterprise value chain. In the past, implementing company intranets and extranets required formidable programming skills, as well as, the dedication of significant corporate resources. Today, however, off-the-shelf software and the use of third-party expertise, available through outsourcing, combined with increased security measures for IP-based VPNs, have made this process considerably simpler and more secure. Top quality MeSPs can assist the enterprise in getting intranets and extranets up and running, both quickly and smoothly, eliminating administrative overload and increasing bottom line profitability.

Security

In general, information security applies to three vitally important areas of the business enterprise. These are:

1. Privacy/Confidentiality - Expressed as protection of the data from unauthorized access.
2. Integrity - Data arrives at its destination in its intended form.
3. Availability - The data is available to be used by its authorized users at the time that they need to use it.

Fraud, theft, unauthorized use and tampering (viruses, data inaccuracies) are all potential actions that security systems must guard against. This is generally accomplished by employing various means of:

1. Authorization - Access restriction to only authorized users or groups of users.

2. Authentication - There are various means of authenticating or verifying that the transmission is coming from an authorized source - including pass-code access, digital and real-time signatures, photo IDs, electronic badges and secure access key cards.
3. Encryption - Encryption encompasses various means of scrambling data allowing only those with the correct "key" or "keys" the ability to decode the data.
4. Recovery - Is employed as a failsafe mechanism when data or system functionality has been temporarily or permanently damaged or destroyed.
5. Security at the Physical Level - Includes the physical protection of the data center and its components by such means as access restrictions, interior and exterior video surveillance, security guards, video monitoring, closed circuit TV, motion detectors, gates, locks, secure key cards, alarms, personal ID cards and biometric controls. Disaster protection is also considered to be an aspect of physical security.
6. Logical Security - Protects the data and systems at the network or system level. This includes various hardware and software mechanisms aimed at enhanced data protection. Security at the logical level may include various systems of firewalls and intrusion detection as defined below.
7. Firewalls - Firewalls are hardware and/or software mechanisms, which serve to separate out authorized from unauthorized data and/or users through such means as data and proxy servers that hide the true IP address from hackers who may try to secure it for access purposes.
8. Intrusion Detection - Intrusion Detection Systems monitor traffic to determine illicit activities.

Network Management and Monitoring Capabilities

Enterprise-class MeSPs employ highly trained personnel and sophisticated automated network monitoring tools to ensure optimum bandwidth utilization and allocation, secure communications and maximum network, Web site, server and component uptime. Various tools specifically designed for Web site monitoring and reporting are also employed, providing the enterprise with critical data for measuring Web site performance and consumer/user response. Top quality MeSPs provide the business enterprise with clear, meaningful reports, distributed online for immediate real time updating. These reports are based on metrics containing important usability, demographics and other information for the business enterprise.

Summary

Today's established enterprises need a plan that will allow them to scale quickly and realize Web-enabled benefits immediately. Plans that will safeguard existing business resources are also needed. Finally, an interactive implementation and planning process that will allow the enterprise to scale towards greater realization of e-business functionality over time is essential. Enterprises can expect to achieve the highest degree of success in this effort by outsourcing Web hosting efforts and partnering with a solutions-oriented business-centric MeSP. These MeSPs can serve as vital business allies in the quest for new cyber-abilities and Internet market share. The best of these can provide the business enterprise with a full service offering as well as valued insights as to what works and doesn't work in the new marketplace. Benefits that businesses can expect to realize include:

- An integrated approach providing both speed and ease in the transition from traditional business to E-business, with a clear path to achieving a hard-dollar ROI and positioning the business for additional IP services.
- Easy scalability with capacity to provide support for new features, system upgrades and/or increased Web site traffic. This ensures that enterprise Web features will be able to grow as needed to support the extended enterprise and the most up to date technology solutions.

- Cost effective, high value, quality-based solutions through automated applications, skilled personnel and secure VPN deployment. Top-quality MeSPs also assure that the highest quality of skilled personnel are working for the enterprise through a continued commitment to ongoing training and continuous improvement.

Appendix A

Blueprint for Developing a Request for Information (RFI) to select the Correct MeSP

This blueprint is a helpful step-by-step guide for businesses enterprise leaders seeking to Web-enable their business through carefully constructed outsourcing arrangements with a business-centric solutions-oriented enterprise-class MeSP. CEOs and senior management staff need to work together to define and/or discover core business values, e-business readiness, as well as immediate and emerging needs. The Business Development Manager, IT Manager and Marketing Manager - those responsible for these functions, need to be included as part of the e-business development team. Working together, they define the following key components of business strategy, realizing that this is an iterative process and may evolve to new dimensions in the future.

There are five steps to the process described below, along with a sample set of questions to ask in step 3 - the RFI process.

Step I. Identify areas of potential new business development through technology partnerships with an MeSP.

The MeSP, and perhaps more importantly, the relationship with the MeSP will be a key dynamic. It is important to see the MeSP as a partner - one who will adapt to the needs of the business and allow the client to add more requirements over time as the Internet becomes a key strategy component. Part of this dynamic defines the role that e-commerce is taking in the business. Within that role, it is important to look at the elements that will be needed to succeed and which

of those you can do - then look for the MeSP to fill in the rest on an ongoing basis!

Step 2. Self-classify the Enterprise

Consider where the enterprise is positioned along the spectrum of Web customers discussed earlier (see page 17 for these details).

Step 3. Begin the formal request for information (RFI) process

Identify several prospective MeSPs that are able to meet the organization's needs. This is best done after the organization has a clear picture of its objectives. The MeSP's basic understanding of the business is the key aspect of this evaluation. (Detailed questions are listed in the following section.)

Step 4. Visit the Service Center

It is important to actually visit the service center to obtain a first hand sense of the operation - Are staff on station? Is the site organized appropriately? Are the principals available? Since the relationship will, in many ways, be a deep partnership, its important to understand how the working relationship will support the goals of the venture.

Step 5. Appoint a key member of your staff to serve as primary point of contact

The job of the primary point of contact will be to manage the relationship and to report internally to several essential functional heads in the company - business managers and IT managers, or a mix of these functions, including the e-business development team where all of the important company views are taken into consideration.

Sample RFI Questions for the RFP: Part I - General Questions and History of the MeSP

1. Is the MeSP a Full Service Provider?
2. Years Experience
3. Client Base
4. Differentiation from other MeSPs
 - Strengths
 - Weaknesses
5. Knowledge of business strategy and e-business development
6. Can the MeSP assist in mapping out a plan to help the organization to become increasingly streamlined and customer focused via Web hosting and other IP services? How?
7. What can the MeSP do to help the organization ramp up to e-business status, with the least amount of disruption to existing business processes?
8. How can it deliver fast, hard-dollar ROI via Web hosting and other IP services? Are there Service Level Agreements to ensure this?
9. What is their expertise in global business development?
10. Are Web site design services available?

Part 2 - Detailed Questions

A. Infrastructure

1. Network Infrastructure - What is available? Is global access provided?
2. Does the MeSP own its own private Infrastructure?

3. Will the network support QoS for variable traffic, such as voice, data and multimedia all over a single pipe?
4. What is the maximum bandwidth capacity of the network?
5. What network exchange points are used?
6. Is private peering utilized for Internet connectivity? If so, how extensive is it?
7. How does the MeSP ensure SLAs? What is their monetary penalty policy in the event there is a failure to meet SLAs?
8. How does the MeSP address the issues of:
 - Scalability
 - Reliability
 - Manageability
 - Security
 - Ease of use
 - Internet/Intranet/Extranet Compatibility
 - Compatibility with Legacy Systems/Databases
9. Can it provide Web hosting, along with a clear scalable migration path from business to e-business through Web hosting in conjunction with other IP services, such as: VPN, firewall and remote access?
10. What combinations of technology are used?
11. What Operating Systems are supported?
12. What hardware and software is supported?
13. Is server load balancing available?
14. What types of system access is supported for Web site management?
15. How is data backed up? How often? What system is used?

16. Is off-site server mirroring available?
17. How many data centers are part of the global network?
18. What expansion plans are part of future planning?

B. Service Issues

1. What is the provider's service history of working with network and systems interoperability issues?
2. How is bandwidth utilization monitored?
3. What Service Level Agreements are available?
4. What sort of disaster protection and recovery planning exist?
5. What Web hosting availability and performance assurances exist?
6. What are the Web Hosting Implementation time-lines that will be required for various projects?
7. Is "live" Web site reporting with customer self-service available for 24/7 Web site statistics?
8. What hard copy reports are available? How often are they issued?
9. What performance metrics are available?
10. Are various global services help desks available? If so, list these.
11. What is the MeSP's history of handling network and bandwidth optimization? Component interoperability issues?
12. Is the MeSP prepared to address these issues from a business strategy as well as from an IP perspective?

Part 3 - Costs

1. How are costs measured and assessed?
2. What are the costs for various services?

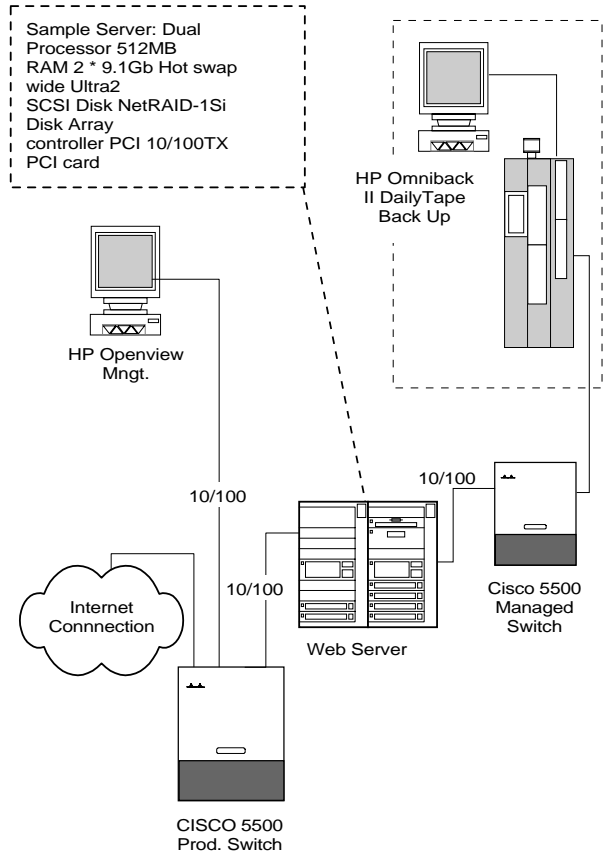
Part 4 - Customer Support

1. What will the MeSP do to ensure that customer support needs are met?
2. What specific activities?
3. What are the specific skills of the MeSP support team?
4. Are you able to contact the service and support team directly?

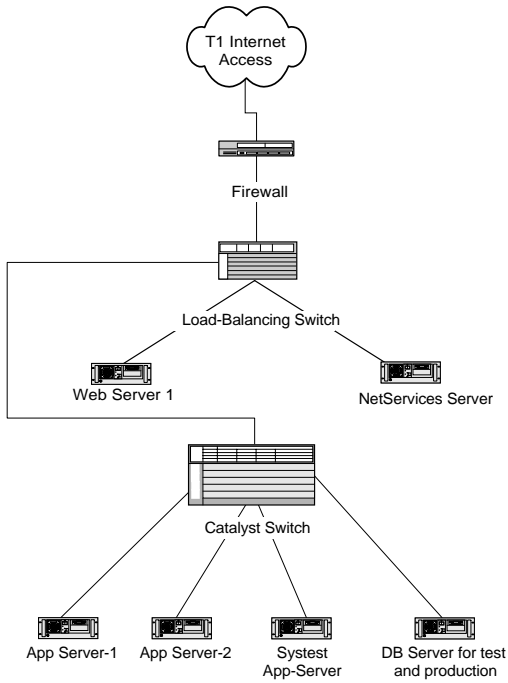
Appendix B

Example Scenarios for MeSP Installations

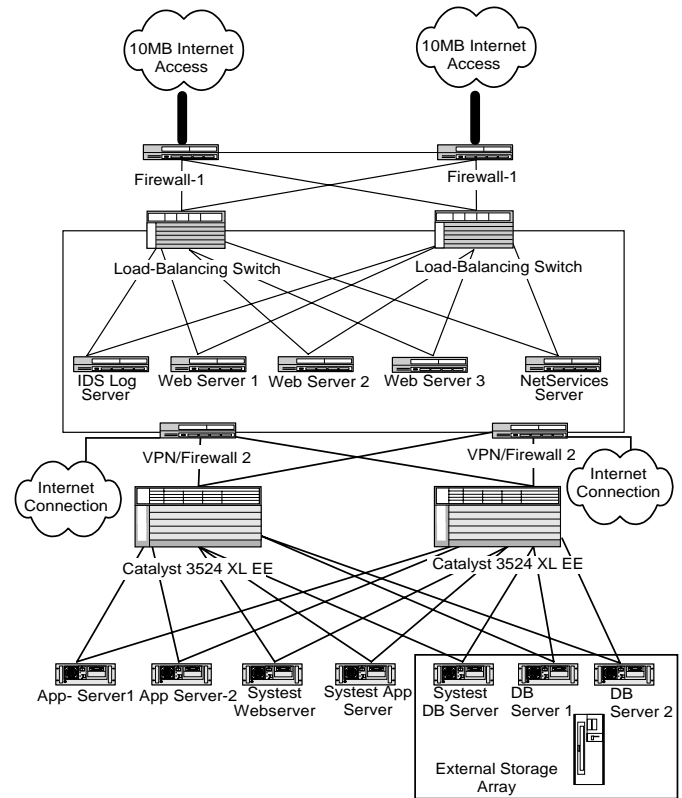
Example Scenario: Fully Managed Single Server



Example Scenario: Fully Managed App. & Web Servers with/Daily Back-up



Example Scenario: Fully Redundant Managed Network w/Full Daily Back-up



Glossary of Terms

Application — A program that performs a function directly for a user. FTP, mail, and Telnet clients are examples of network applications.

Backup — A copy of computer data that is used to recreate data that has been lost, mislaid, corrupted or erased.

Bandwidth — The range of frequencies a transmission line or channel can carry: the higher the frequency the higher the bandwidth and the greater the information carrying capacity of a channel. For a digital channel, this is defined in bits per second or BPS. For an analog channel, it is dependent on the type and method of modulation used to encode the data.

Broadband — A high-speed, high-capacity transmission channel equal to 1.544 Mbps or higher. Broadband channels are carried on coaxial or fiber-optic cables that have a wider bandwidth than conventional telephone lines, giving them the ability to carry video, voice, and data simultaneously.

Back-end Connectivity — Web Hosting connectivity to enterprise LANs and WANs separate from public access.

Cache — A high speed dynamic memory used as a buffer between the CPU and physical disk storage to mitigate or eliminate potential speed differences between access times to physical disks and faster system memory. In storage arrays cache implementation is usually non-volatile to ensure data integrity.

Connectivity — The ability of a device to connect to another. This includes not only the physical issues associated with the busses, connector topologies and other such matters, but also the support of the protocols required to pass data successfully over the physical connection.

CRM — Customer Relations Management.

Data Center — The location of the main frame central processor and data repositories.

Data Warehousing — (1) A generic term for a system for storing, retrieving and managing large amounts of any type of data. Data warehouse software often includes sophisticated compression and hashing techniques for fast searches, as well as advanced filtering. (2) A database, often remote, containing recent snapshots of corporate data. Planners and researchers can use this database freely without worrying about slowing down day-to-day operations of the production database.

Digital ID — A secure, unique digital identification for an individual.

Domain Name — The “address” or URL of a particular Web site. This is also how you describe the name that is at the right of the @ sign in an Internet address. netlingo.com is the domain name of this Internet dictionary. There is an organization called InterNIC that registers domain names for a small fee and keeps people from registering the same name.

Electronic Commerce (EC) — The automated transaction of business—including the transfer of both information and funds—via computers.

Encryption — Applying a specific algorithm to data so as to alter the data’s appearance and prevent other devices from reading the information.

Enterprise Systems — IT systems that encompass the entire business enterprise.

Extranet — The connecting of two or more intranets. If you think of an intranet as a company’s internal Web site which allows users inside the company to communicate and exchange information, now imagine connecting that virtual space with another company’s

Intranet, thus allowing these two (or more) companies to share resources and communicate over the Internet in their own virtual space. This technology greatly enhances business to business communications.

ERP — Enterprise Resource Planning

Firewall — A device that protects a private network from the public part. A computer set up to monitor traffic between an Internet site and the Internet. It's designed to keep unauthorized outsiders from tampering with a computer system therefore increasing a servers security.

Hacker — A computer enthusiast who enjoys learning everything about a computer system and, through clever programming, pushes the system to it's highest possible level of performance. Also known as crackers, these computer hobbyists are also skilled programmers with a mischievous bent who break into secured computer systems. In 1989, the New York Times published an article headlined "Invasion of the Data Snatchers" culminating in a ridiculous series of Secret Service raids in which federal agents confiscated the computer systems of these "dangerous" individuals.

Hi-speed Internet Access — Access to the Internet via high bandwidth circuits.

Host — Any computer that can function as the beginning and end point of data transfers. An Internet host has a unique Internet address (IP address) and a unique domain name.

Internet — Originally designed by the U.S. Defense Department so that a communication signal could withstand a nuclear war and serve military institutions worldwide, the Internet, was first known as the ARPAnet. A system of linked computer networks, international in scope, that facilitates data communication services such as remote login, file transfer, electronic mail, and newsgroups. The Internet is a way of

connecting existing computer networks that greatly extends the reach of each participating system.

Internet Protocol (IP) — A scheme that enables information to be routed from one network to another.

Internet Service Provider (ISP) — A company that provides access to the Internet. Before you can connect to the Internet you must first establish an account with an Internet Service Provider (ISP). ISP's have a wide range of prices and packages for users to choose from. There are accounts custom tailored for high level users and Web designers and accounts for the more moderate Internet user. The best thing to do when choosing an ISP is to be sure they have a local access number so you won't have to dial long distance to connect, also try to get an account that offers unlimited access as well as storage on the company's server to house your own Web site.

Intranet — A private network inside a company or organization that uses the same kinds of software that you would find on the public Internet, but that is only for internal use. As the Internet has become more popular many of the tools used on the Internet are being used in private networks, for example, many companies have Web servers that are available only to employees. Note that an "Intranet" may not actually be an Internet, it may simply be a network.

Latency — In networking, latency and bandwidth are the two factors that determine the speed of your connection. Latency is the time it takes for a data packet to move across a network connection.

LINUX — A freeware operating system based on UNIX.

Load Balancing — Allocating a work flow across several servers to speed the process.

Local Area Network (LAN) — A network that connects computers in a small area (like a room, a building, or a set of buildings.)

Managed e-Business Service Providers (MeSP) — An application service provider that supports clients' Web-based activities.

Mirror — A server that provides copies of the same files as another server. Some servers are so popular that other servers have been set up to mirror them and to spread the load on to more than one site. Many international sites have mirrors set up in other countries to allow quicker access for its international users.

Network — A collection of computers and other devices that are able to communicate with each other over some network medium.

Network Infrastructure — The architecture and physical elements that make up the network.

Online Transaction Processing — Processing that supports the daily business operations. Also known as Operational Processing and OLTP.

Packet — The unit of data sent across a network. Packet is a generic term used to describe a unit of data at any layer of the OSI protocol stack, but it is most correctly used to describe application layer data units (“application protocol data unit”, APDU).

Perimeter Firewall — There are two types of perimeter firewalls; static packet filtering and dynamic firewalls. Both work at the IP address level, selectively passing or blocking data packets. Static packet filters are less flexible than dynamic firewalls.

Private Peering — Providing network access via privately owned facilities.

Proxy/Proxy Server — A technique used to cache information on a Web server and acts as an intermediary between a Web client and that Web server. It basi-

cally holds the most commonly and recently used content from the World Wide Web for users in order to provide quicker access and to increase server security. This is common for an ISP especially if they have a slow link to the Internet.

QoS — Quality of Service

Remote Access Server — Access equipment at a central site that connects remote users with corporate LAN resources.

Return on Investment (ROI) — A financial term which measures the worth of a project by measuring what benefits (return) accrue from a particular investment in resources.

Routing — The process of finding a path to the destination host. Routing is very complex in large networks because of the many potential intermediate destinations a packet might traverse before reaching its destination host.

Routing Protocol — A protocol that accomplishes routing through the implementation of a specific routing algorithm. Examples of routing protocols include IGRP, RIP, and OSPF.

Security — Protection against unwanted behavior. The most widely used definition of (computer) security is *security = confidentiality + integrity + availability*.

Security Policy — A security policy is the set of rules, principles and practices that determine how security is implemented in an organization. It must maintain the principles of the organization's general security policy.

Server — A host computer on a network that answers requests for information from it. The term server is also used to refer to the software that makes the process of serving information possible.

Service Level Agreements (SLA) — Contracts between the service provider and the customer guaranteeing certain performance criteria.

Transmission Control Protocol/Internet Protocol (TCP/IP) — This set of protocols makes TELNET, FTP, e-mail, and other services possible among computers that don't belong to the same network.

UNIX - SUN Solaris — A high powered desktop workstation that supports the UNIX operating system.

Virtual Private Network (VPN) — A network service offered by public carriers in which the customer is provided a network that in many ways appears as if it is a private network (customer-unique addressing, network management capabilities, dynamic reconfiguration, etc.) but which, in fact, is provided over the carrier's public network facilities.

Web — Web, used as a noun, is shorthand for the World Wide Web.

Web Browser — A program that allows users to access documents on the World Wide Web (WWW). Browsers can be either text or graphic. They read HTML coded pages that reside on a server and interpret the coding into what we see as Web pages. Netscape Navigator and Microsoft Internet Explorer are examples of Web browsers.

Web Enabled — An application written to operate in a Web environment.

Web Page — An HTML document on the Web, usually one of many that together make up a Web.

Web Server — (1) A networked host computer that contains HTML pages and possible other forms of content served to clients via HTTP. (2) A server that stores and retrieves HTML documents and other Internet or intranet resources using HTTP. Also called an HTTP server.

Wide Area Network (WAN) — A network that connects computers over a large geographic area.

World Wide Web (WWW) — A global (Worldwide) hypertext system that uses the Internet as its transport mechanism. In a hypertext system, you navigate by clicking hyperlinks, which display another document which also contains hyperlinks. Created in 1989 at a research institute in Switzerland, the Web relies upon the hypertext transport protocol (http), an Internet standard that specifies how an application can locate and acquire resources stored on another computer on the Internet. Most Web documents are created using hypertext markup language (html), an easy to learn coding system for WWW documents. Incorporating hypermedia (graphics, sounds, animations, video), the Web has become the ideal medium for publishing information on the Internet. With the development of secured server protocol (https), the Web is quickly becoming an important commercial medium whereby consumers can browse online catalogs and purchase merchandise without worrying that their credit card information will be intercepted.

NOTES

Madge.web fully managed hosting

Madge.web provides a range of secure hosting solutions for today's most demanding e-businesses. Our internationally-deployed data centers and network solutions encompass best practice security policy, data archiving and system availability.

You benefit from premium levels of application, security, systems management and service and are left free to concentrate on your core business.

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