Operating Your Business in Internet Time

A Cisco Small to Medium Business Guide to e-Business Implementation

What began as an efficient communications tool is now key to gaining a competitive advantage in the Internet economy. Today's Internet technology helps companies increase customer satisfaction, streamline operations, improve supplier relationships, and enhance profitability by operating more efficiently than ever before. Productivity increases are so dramatic that companies that do not operate in Internet time run the risk of falling seriously behind their competitors.

The benefits of e-business are available to large and small businesses alike. The road to successful implementation must be carefully planned and monitored to assure maximum return on the investment. Few, if any, businesses can become an e-business overnight. The transition requires change in both process and culture. As service providers transition their business from voice-centric applications to IP and the Internet, a vital first step is developing a scalable, flexible, Internet-based architecture that can sustain data, voice, and video communications and that supports the implementation of integrated Internet applications as company needs require. With an infrastructure in place, wave after wave of benefits become possible. These waves include:

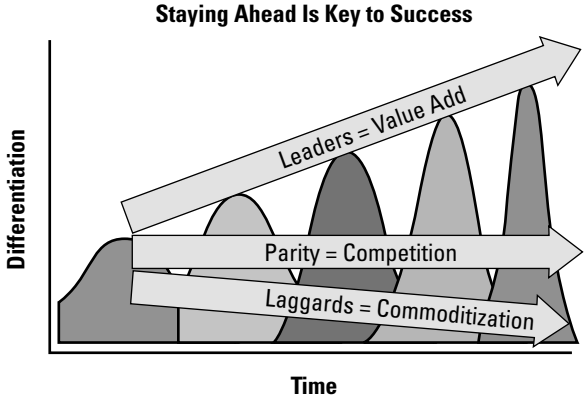
- *e-Mail*—electronic communication
- *e-Marketing*—Web site, electronic marketing
- *e-Commerce*—customer-facing applications such as electronic ordering, online order status, front-line customer support
- *e-Productivity*—internal applications such as workplace collaboration, e-learning, and extranets
- *Ecosystem*—participation in e-marketplaces, supply chain management, and the Internet is fully integrated into core business processes

This paper discusses each of the waves and their benefits. It is important to note that while many businesses will choose to implement e-business solutions in the order we discuss them, some may not. Business leaders should evaluate each application category and determine what order makes the most sense for them based on their business models and priorities.

Implementing Internet-based technologies ahead of your competition is key to achieving competitive advantage. Each wave of applications provides unique advantages, but the competitive advantage is only sustainable until your competitors begin to adopt the tools you have incorporated into your business. When the majority of your competitors adopt a new technology or tool, it transitions from an advantage to a business requirement. The Internet has accelerated the pace of conducting business, allowing companies to achieve tremendous productivity gains, but this accelerated pace means that it is now more important to stay

ahead of the curve because it is easier than ever to fall behind. Just as the pace of business accelerates, so does the pace of technology adoption. The amount of time from when an application delivers a competitive edge to when it becomes commoditized shortens as the chart below demonstrates. Staying ahead of the technology curve is central to staying ahead in your industry. Doing so requires developing an infrastructure that is agile and flexible allowing companies to immediately react to changing business requirements. See Figure 1.

Figure 1 Implementing e-business applications ahead of the competition results in a competitive edge.



While many large enterprises are well on their way toward operating in Internet time, the time is now for growing businesses in many traditional brick-and-mortar industries to begin incorporating the Internet into their everyday business activities.

Just as your brick-and-mortar business has a foundation, so do e-business applications. The e-business foundation is the network. When designing and implementing an e-business solution, it is important to design a network that will evolve with your growing business. The network should be scalable enough to grow with your company and flexible enough to change with your business requirements. It should protect your investment and provide a comprehensive set of features to ensure that your e-business functions as smoothly as the rest of your company. As this paper will discuss, Cisco 1700 Series Modular Access Routers play an important role in making e-business a reality by enabling the five waves of e-business for a number of companies.

e-Mail

Frequent communication within the organization and with customers and suppliers is the best way to ensure efficiency. How many times has a project neared completion when the team realizes that there was a change in situation that was not immediately communicated to the entire team? More often than not a situation such as this results in significant lengthening of the project timeline and frequently results in inefficiently utilized resources including budget and personnel.

E-mail is the first step toward eliminating these types of problems. E-mail has dramatically changed the way in which people communicate both in business and their personal lives. E-mail is becoming as important as telephone communication, with added benefits such as:

- *Increased collaboratio*n—e-Mail allows instant sharing of information, creating a better-informed workforce empowered to make decisions based on knowledge. Keeping coworkers informed no longer requires meetings or lengthy memos; the entire team can be kept abreast of information in real-time, increasing productivity.
- *Customer satisfaction*—What could be more frustrating to customers than a busy or unanswered telephone? Voice mail usually requires a call back, and so the "phone tag," or phone-call exchange, begins. Customer satisfaction begins with offering your customers options on how and when they can communicate with you. Communicating by e-mail assures both you and your customers of prompt answers to their questions and attention to their needs.

• *Cost-effective communication*—E-mail dramatically reduces the need for faxing, printing, copying, postage, and couriers within the company and outside. This can mean dramatic savings, both in direct costs and employee productivity.

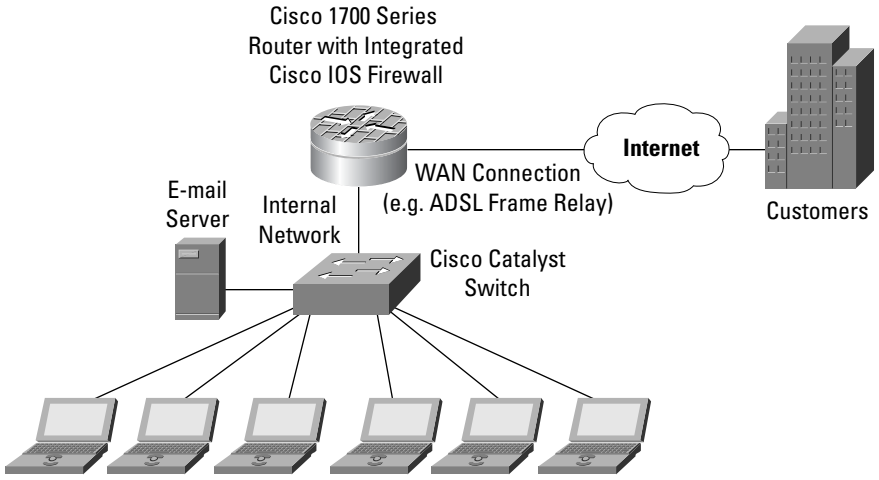
While an e-mail application may seem to only require an Internet connection, it is important to remember e-mail is becoming a communication tool as important and necessary as the telephone. Just as the reliability and confidentiality of telephone interaction is important to your employees and customers, e-mail privacy will also be. Your e-mail network should be designed with an eye on performance, security, and value. As e-mail is an initial step toward fully integrating the Internet into your business, any solution you choose should be flexible enough to not only meet immediate needs, but your future requirements.

Connecting to the Internet

Asymmetric digital subscriber line (ADSL) is a cost-effective access solution for providing high-bandwidth connectivity to the Internet or between remote sites. Cisco 1700 Series Modular Access Routers support business-class DSL. Business-class DSL differs from residential DSL because it offers advanced functionality required for professional environments, such as differentiated classes of service, to guarantee performance levels for mission-critical applications; toll-quality voice/data integration; strong security features to protect intellectual property; and reliability business customers can depend on.

In Figure 2, a small office is connected to the Internet via a Cisco 1700 Series router using ADSL.

Figure 2 e-Mail Implementation



e-Marketing

As companies become e-mail savvy, they quickly recognize the power of the Internet to enhance their e-marketing efforts. Using the Web to communicate with and market to customers is a logical next step. There are many benefits to having a company Web site. A Web site allows companies to:

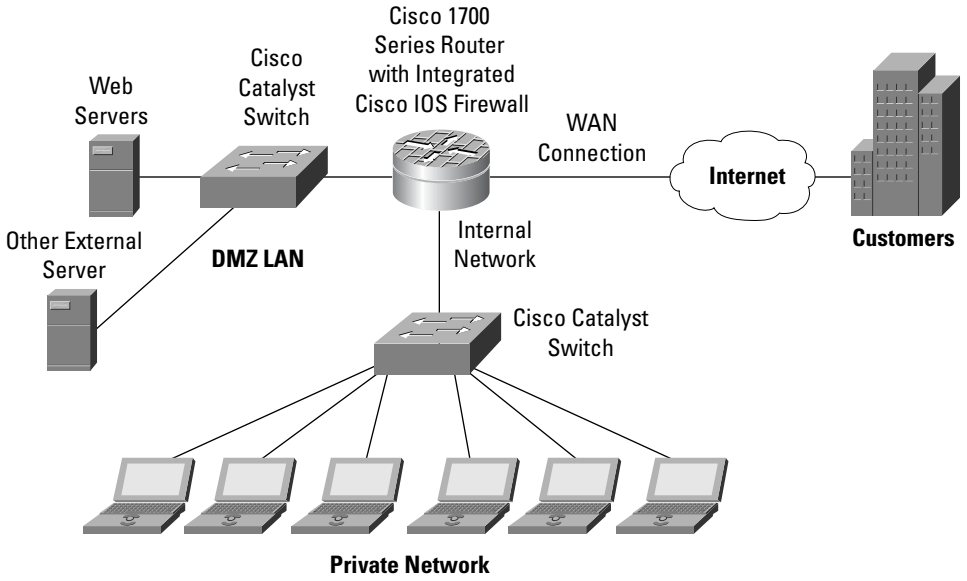
• Create a global presence, accessible 24 hours a day
• Give customers instant access to the latest company and product information
• Update information on product prices or features in real-time
• Empower customers to find answers to questions about your product by publishing frequently asked questions; thus reducing customer service and technical support calls while satisfying customers instantly
• Dramatically reduce literature print, production and distribution costs; with no financial loss for unused inventory as with paper-based literature

A fully-integrated e-marketing strategy takes you well beyond publishing brochures to the Web. Web-based marketing tools allow you to interact with your customers and collect information that will make your entire marketing program more effective. E-marketing communications are more focused and reduce expenses by limiting the need to print and distribute materials to customers. Customers may enjoy individualized views of your Web site tailored to their interests based on self-profiling or past purchasing and navigation behavior. E-mail newsletters provide inexpensive and immediate communication with customers.

Providing Access to Information

While the benefits of giving customers, partners, and employees constant access to information are readily apparent, some information such as human-resource (HR) files, customer databases, and financial information must be kept private. The Cisco 1700 Series Modular Access Router enables you to give your customers, partners, and employees the information they want, while keeping your confidential data private. When deployed with an optional Ethernet WAN interface card (WIC), Cisco 1700 Series routers enable the creation of demilitarized zone (DMZ) local area networks (LANs) that physically separate public information such as a Web server from the private corporate network. DMZ LANs can be deployed with firewalls and intrusion detection systems to further protect your intellectual property. Figure 3 depicts a DMZ LAN created with a Cisco 1700 Series router.

Figure 3 The Cisco 1700 Series Modular Access Router deployed with Dual Ethernet capabilities creates a DMZ LAN to provide secure physical separation between publicly accessible Web-based information and private corporate data.



e-Commerce

E-mail and e-marketing applications are designed to improve the flow of communication, an important step in developing an efficient workforce and understanding customer needs, but a business can do more to increase customer satisfaction. For this discussion, e-commerce refers to solutions designed to improve the customer experience by making it more convenient to do business with your company, whether your focus is business-to-consumer (B2C) or business-to-business (B2B) commerce.

E-commerce uses the Internet to better serve customers and partners by streamlining a vast array of transactions, including ordering, pricing, billing, payment, and customer service. Information flows without human intervention or delay, between functions such as sales, manufacturing, shipping, accounting, and customer support.

The e-Commerce Competitive Advantage

At first, Internet-based e-commerce was considered a novelty, engaged in mostly by businesses designed only to exist on the Internet. However, as more and more brick-and-mortar companies add e-commerce to their distribution mixes, the competitive advantages—reduced costs, enhanced revenue streams, greater customer loyalty, and broader market reach—become so apparent that others are virtually forced into e-commerce in order to compete. Certainly this has been true in retailing, and is becoming increasingly true in business-to-business.

In fact, the Gartner Group estimates that Internet sales of nonfinancial goods and services will grow from $145 billion in 1999 to $7.3 *trillion* by 2004! Here are some of the reasons why:

- Transactions cost less than those processed manually
- Orders are less error-prone than manual orders, reducing fulfillment delays
- Orders are processed 24 hours a day, seven days a week—whenever the customer wishes to purchase
- Orders are tracked electronically, keeping inventory information current at all times
- Geographical markets extend to virtually anywhere on the globe
- Transactions are paid for instantly, by credit card, electronic funds transfer (EFT), or electronic check processing (ECP), improving cash flow and reducing bad debts
- Employing a database of frequently asked questions, first-line customer support is handled over the Web, freeing up expensive, trained staff to answer more complex customer questions. Customers get the information they need instantly, improving their satisfaction, while you lower your support-staff costs.

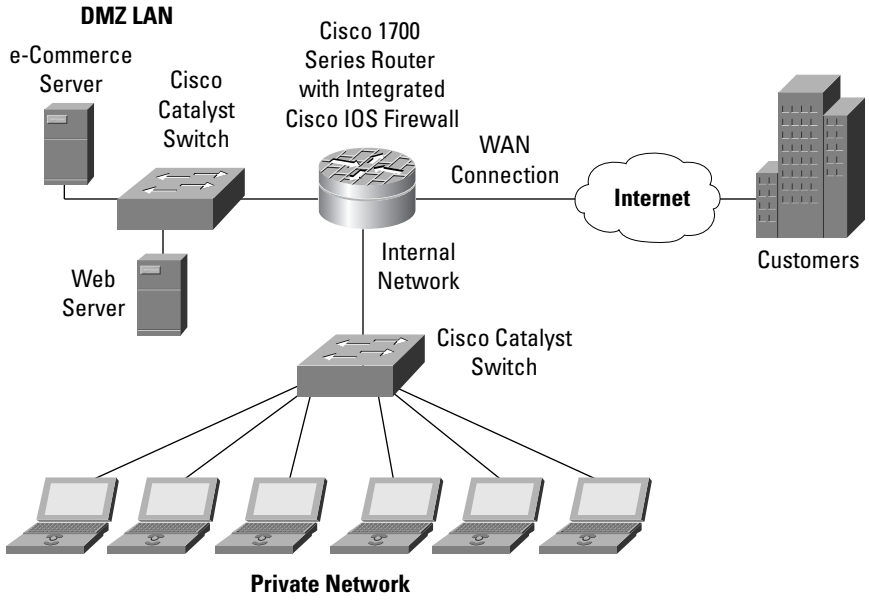
Your Electronic "Face" to Your Customers

E-commerce applications can make doing business with your company more convenient for your customers, improving relationships while streamlining operations and saving your company money. As customers and suppliers begin to rely on the Internet to do business with your company, they'll begin to think of your Internet presence as an extension of your company. A failure in transaction processing would be similar to closing your business in during working hours. When the Internet evolves from a place for customers to get information about your company to a place where they do business with your company—reliability becomes imperative.

When people talk about reliability, they are often referring to the system's availability. When customers visit your site, the e-commerce solutions they want to utilize must be available. Availability requires an Internet access solution that you can depend on. Selecting a service provider is the first step toward creating a reliable high-availability e-commerce system. Cisco Powered Network (CPN) service providers, which have met stringent standards for training and quality, deliver services over end-to-end Cisco networks. Selecting a CPN service provider will help ensure that your network is available (for more information on locating a CPN service provider visit www.cisco.com).

While selecting the right service provider is crucial, so is selecting the right access equipment for your business. Cisco 1700 Series routers are based on Cisco IOS® Software technology, the industry's de facto standard for Internet operations. Cisco IOS Software enables remote troubleshooting and repair, which means that your service provider can often prevent downtime by preventing a disruption, or in the event of a loss of service, resolving the issue without sending out a technician. Disruption to your business is minimized.

Figure 4 The addition of an e-commerce server to the DMZ LAN, enabling secure processing of transactions. The entire network is based on Cisco IOS Software, assuring the highest level of reliability.



e-Productivity

While superior customer satisfaction is an excellent way to stay ahead of the competition, you'll benefit even more if your business is staffed with a productive and efficient workforce. E-productivity applications are designed to streamline operations and increase operational efficiency. They use the Internet to automate recurring processes and free up internal resources to concentrate efforts on your company's core competencies.

One way to increase productivity while streamlining operations and reducing costs is to combine voice and data communications on the same network. By consolidating infrastructures, companies will see reduced technical complexity with only one system to manage. Businesses will also enjoy the cost savings of toll bypass which can be achieved by routing calls between offices over the Internet rather than the public switched telephone network (PSTN). Another exciting benefit of combining voice and data traffic is the myriad available applications to enhance employee productivity and customer satisfaction.

- Branch offices are seamlessly connected to the headquarters, eliminating islands of information
- Telecommuters can function as if they are in the office, increasing productivity and employee satisfaction
- Unified messaging applications make employees more productive and accessible

Employee Mobility

Today's successful companies have learned to address employee quality-of-life issues by offering teleworking or telecommuting opportunities. Teleworking solutions help employees manage their personal and professional lives by enabling them to work from remote locations such as a home. For some employees, this means they travel to the office as needed to interface with coworkers, but they also work from home periodically, giving them more time for both work and leisure. For other employees, this means they are able to enjoy time at their home and extend their work day by accessing the corporate network from home in the evenings. The result is happier—and more productive—employees.

Consolidated voice/data infrastructures allow teleworking employees to function as if they are in the office. An IP phone, for example, can ring at the home as if the employee were in the office. Just as a laptop user can connect to the network from any location and receive e-mail, an IP phone user can access the network from any location to receive or make phone calls and access voice mail.

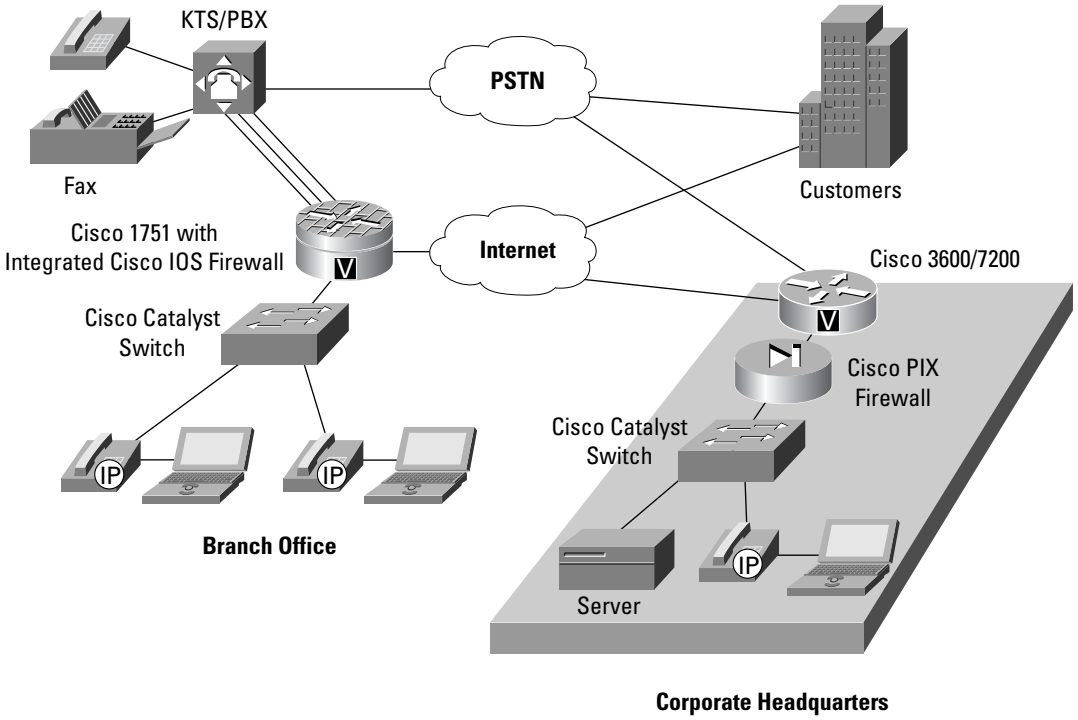
Unified Messaging

Another way to facilitate employee mobility is with unified messaging, which creates a single repository for diverse forms of message communication and retrieval. Unified messaging allows voice mail, e-mail, and faxes to be delivered over a single medium. For example, the text of e-mails can be rendered into artificial speech, allowing voice response to e-mails or e-mail forwarding with a voice introduction. Conversely, voice messages can be converted for reading through the e-mail system. This means:

- All messages are centrally stored, so users need only access one location to manage all their messages
- Users can choose the most convenient medium to access their messages and manage their mailboxes at any time
- With only one corporate-wide directory and message repository to manage and administer, unified messaging reduces the overall operational cost

If you think your company may want to incorporate applications such as IP telephony or unified messaging now or in the future, select a router that can meet this requirement. The Cisco 1751 Modular Access Router is multiservice ready, enabling incorporation of voice applications as business needs demand. Figure 5 demonstrates how the Cisco 1751 can be used to connect a branch office to the corporate headquarters and enjoy the benefits of toll bypass. In addition, applications such as unified messaging could be deployed at the branch or headquarters office.

Figure 5 Cisco 1751 routers combine voice and data traffic providing connectivity to the Internet and the Public Switched Telephone Network (PSTN). By providing interoperation with legacy equipment such as fax machines and key telephone systems (KTS), Cisco 1751 routers enable businesses to take advantage of IP telephony while leveraging existing investment.



Ecosystem

Building a business plan that leverages the Internet to improve internal and external communication, enhance customer satisfaction, and improve productivity is the ultimate step in becoming an e-business. Individual applications become part of the business strategy designed to garner all the benefits the Internet has to offer. Part of that strategy should include participating in a secure online ecosystem of partners, customers, and suppliers that is designed to facilitate collaboration, communication, and productivity.

Trading Communities and e-Marketplaces

Trading communities are a perfect example of an Internet ecosystem. Internet trading communities and e-marketplaces are attractive alternatives to traditional buying and selling of goods and services. Their power lies in their ability to simultaneously link *many* buyers and *many* sellers around the world, for the purpose of auctioning goods and services and transmitting orders. The communities are capable of rapid response to changes in supply and demand: an auction that links one seller to many buyers has the result of increasing prices; a reverse auction, in which one buyer is linked to many sellers, decreases prices.

These communities are often focused on a particular industry. For example, if a buyer needs restaurant supplies, he or she visits a trading community involved exclusively with these products. By focusing on an industry, the engine that drives the community effectively operates as an expert system capable of rapidly adapting to changing market conditions.

Industry trading communities allow companies within one industry to collaborate, sharing information about inventory and production status. If one business faces a slow-down, it can sell costly inventory by making others aware of the situation. Conversely, when a customer backs out of an order, the supplier is able to find another one willing to assume the material. Sharing the inventory burden across many businesses cuts costs and reduces risk. As a result, companies are more willing to accept lower prices for the benefit of increasing their market share.

The Internet-Centric Business

The Internet can become the backbone of your business, automating processes such as closing the books, placing recurring raw materials orders, and paying suppliers. Deploying e-business systems throughout the company allows you to manage your financial picture in real time. Up-to-the-minute data from the supply, demand, and operating sides of the business can be used to close accounting books at any point in time, producing an accurate balance sheet, income statement and other financial reports on demand. This capability gives you unprecedented control over every aspect of your operations.

- Up-to-the-minute data on product demand and supply gives constant and accurate visibility into company finances
- Integration with suppliers ensures consistent availability of product
- Integration with customers gives forward visibility into demand preventing inventory shortage or buildup
- Participation in trading communities enables smaller businesses to enjoy the economies of scale

Supply-Chain Management

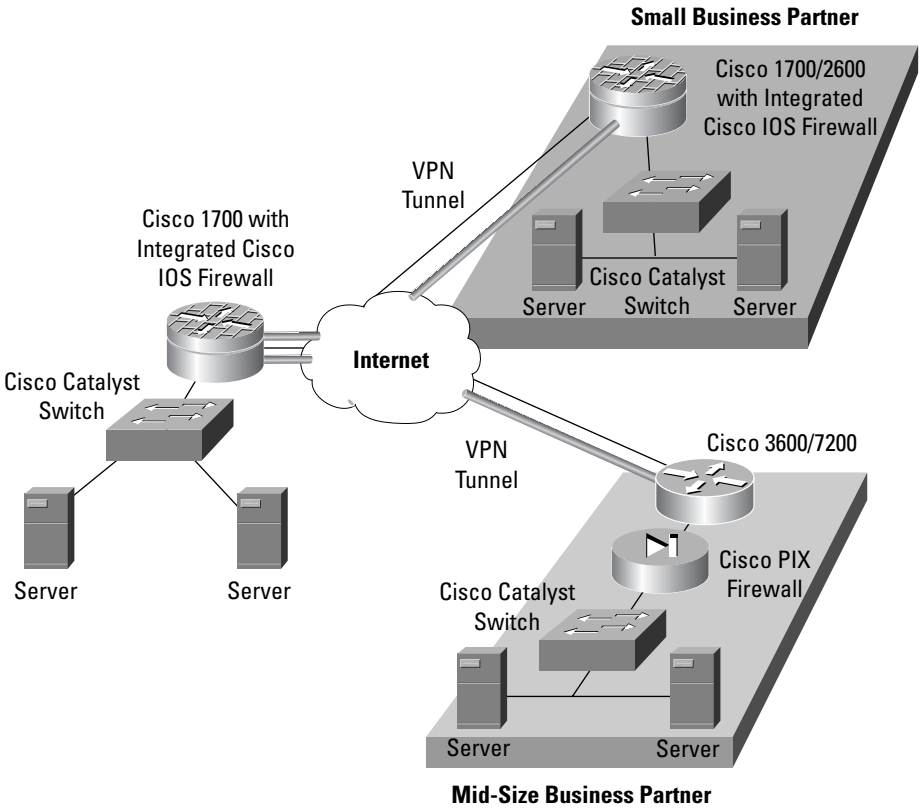
Ecosystems incorporate Internet-based applications into the business processes that control their supply chains. These applications allow them to share information directly with customers and suppliers and avoid costly face-to-face status meetings previously required to avert being caught off-guard by material shortages. By using the Internet to share information, suppliers are more responsive to their customers, diminishing their need for extensive material planning.

Keeping Private Data Secure

Participating in an e-marketplace or a supply chain requires a secure network. Being in an ecosystem can tremendously streamline your business and improve your bottom line, but to do so means that sensitive information must be sent through the Internet. A virtual private network (VPN) can protect your data your customers' and suppliers' data, ensuring privacy, integrity, and authenticity.

VPNs create secure tunnel connections via the Internet to geographically dispersed offices, business partners, and remote users, while providing security, traffic prioritization, management, and reliability equal to that of private networks. The Cisco 1700 Series is optimized to create VPNs. An optional hardware accelerator enables Cisco 1700 Series routers to perform VPN at wire speed (T1/E1), which means that performance will remain high. Figure 6 shows how a Cisco 1700 Series router can be used to create a VPN for an ecosystem that connects various businesses.

Figure 6 Ecosystem



Cisco 1700 Series Routers: Essential to Enabling E-Business

The evolution of your e-business solution will require many different technologies. With the network as the foundation, your network must be flexible enough to support your growing and changing business. Cisco 1700 Series routers are designed and priced to make your e-business implementation successful, providing:

- Flexibility and modularity to adapt easily to changing LAN and WAN access requirements
- Low cost of ownership through integration of multiple network functions
- Protection for current investments, even as demands for new services emerge
- Ease of installation and management

Flexibility—The modular Cisco 1700 Series Router with Integrated Cisco IOS Firewall easily adapts to fit the needs of companies evolving to e-businesses. Interchangeable WAN interface cards (WICs) and voice interface cards (VICs) easily enable additions or changes in WAN technologies without requiring a forklift upgrade of the entire platform. The wide range of WIC and VIC solutions available give customers a choice when implementing WAN and voice technologies, enabling them to begin with a solution that meets current needs and expands functionality as requirements evolve.

Low Cost of Ownership—The Cisco 1700 Series is designed and priced to add maximum value to e-business networks. To maximize value, Cisco 1720 and Cisco 1751 routers come with ample default memory to deploy e-business features such as VPN and multiservice. By integrating multiple functions such as access router, voice capability, firewall, VPN, and data service unit/channel service unit (DSU/CSU) into a single device, the Cisco 1700 series helps reduce deployment and management time and costs. In addition, the series supports remote configuration, monitoring, and troubleshooting, simplifying ongoing support.

Investment Protection—The combination of the Cisco 1700 RISC architecture, Cisco IOS Software, a modular design, and an internal expansion slot provides solid investment protection for easy deployment of emerging Internet technologies.

Ease of Installation and Management—Cisco 1700 Series routers support a range of network installation and management tools:

- *Cisco ConfigMaker*—This Microsoft Windows-based wizard is designed to configure a small network of Cisco routers, switches, hubs, and other network devices. This tool makes it easy to configure value-added security features such as the Cisco IOS Firewall Feature Set; establish VPN policies, including QoS; and configure the Dynamic Host Configuration Protocol (DHCP) server.
- *CiscoWorks for Windows*—a comprehensive network management solution for small to medium-sized networks that provides Web-based network monitoring and device configuration management.
- CiscoWorks 2000—This industry-leading, Web-based family of network management solutions simplifies tasks such as network inventory management and device change, rapid software image deployment, and troubleshooting from a central location.
- *Cisco Secure Policy Manager*—This Windows NT-based application allows users to define, configure, distribute, enforce, and audit network-wide security policies, simplifying Cisco IOS Firewall, VPN, and IDS deployments.
- *VPN Solution Center 2.0*—This VPN management tool for service providers delivers IPSec and Multiprotocol Label Switching (MPLS) VPNs, giving providers the capability to plan, provision, operate, and bill for VPN services.
- *QoS Policy Manager*—This tool offers the ability to define quality of service (QoS) policies across multiple devices, easing the task of creating and configuring QoS policies for users and applications.

There's never been a better time for small to medium-sized businesses, or enterprise small branch offices, to start operating on Internet time. If you haven't started yet, strongly consider an e-business implementation plan.

A secure, modular communications infrastructure, as offered by Cisco 1700 Series routers, is available now to help you optimize performance and maintain the agility needed to stay ahead in today's competitive environment.

For More Information

To learn more about the Cisco 1700 Series, and how to incorporate it into your infrastructure, visit www.cisco.com/go/1700. Then click over to our partner locator at http://www.cisco.com/public/crs/locator to find a reseller or consultant to help you take the next step.

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