

Why Use Cisco Network Systems?

Cisco® provides a network that can securely and reliably handle all types of traffic, throughout the entire network, over virtually any media, while providing consistent service delivery to all users.

The Challenge

Many companies have learned a hard lesson over the past few years about economics and how to get the most out of their IT budget while still meeting the ever-changing needs of the company and its customers.

In the 1990s, companies were thriving and could afford to devote large portions of their budgets to IT, routinely purchasing the most current networking products. In the early years of the 21st century, companies changed their spending habits to buy only what was absolutely necessary, and held back on equipment upgrades and the adoption of advanced technologies.

Recent trends, however, show that companies are once again investing in improving their networks. The focus is on investing wisely in a network that will promote company growth, position the company to stay ahead of ever-evolving business needs, and help ensure a competitive edge.

According to Cisco CEO John Chambers, "It doesn't matter where we are in the world. Wherever I go, the first thing CEOs talk about is growth." He adds, "The second thing they want to discuss is how to build in the capability to grow, to use information technology (IT) to help enable, and perhaps even change, their business strategy, and how to do that with flexibility and agility."

To enable this growth, companies are not just looking for the fastest switch or the most powerful router. Rather, today's companies are looking for the best system on which to run all of their network services and communications: a network system that addresses the needs of all employees (whether at headquarters or the branch office) along with the demands of customers anywhere, anytime.

The Answer

Cisco has been central to many historic changes in technology and its use. Now, when the technology industry is going through a period of dramatic change, Cisco remains the market leader in multiple areas, such as routing and switching, unified communications, mobility, and security. The company helped catalyze the industry's move toward IP, and, now that it is fully under way, Cisco is at the center of fundamental changes in the way the world communicates.

Based not only on its technical prowess, but also its financial stability, commitment to innovation, and dedication to its customers, Cisco enjoys a reputation as one of the top companies in the world.

Financial Stability and Corporate Citizenship

Since its beginning as a small startup in 1984, Cisco has grown to be a recognized worldwide leader in networking. This success has been in part caused by a sound financial foundation and a strong belief in corporate citizenship.

- In 1989, with only three products and 111 employees, Cisco reported revenues of \$27 million. Today, Cisco employs more than 50,000 people across 70 countries. And for fiscal year 2006, Cisco reported more than \$28 billion in revenue.
- Cisco made its first appearance in the Fortune 500 list in 1997 at number 332. Today, Cisco has risen to number 83 (number 2 in the category of Network and Communications companies).
- In 2005, Cisco began publishing its own report on corporate citizenship. This report illustrates commitment of Cisco to responsible business practices and to society and the environment. According to CEO John Chambers, "From a business standpoint, we are dedicated to listening to the needs of our customers, employees, partners, and shareholders. From a social standpoint, our strategic partnerships and investments are designed to maximize positive social impact by using technology as a platform for social and economic change. From an environmental standpoint, we are striving to improve our energy efficiency, cut our emissions, and increase the recyclability of our products."
- In 2006, Cisco was added to the *Dow Jones Sustainability Index (DJSI) World Index*. The Dow Jones Sustainability Index (DJSI) defines corporate sustainability as "a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments."

Commitment to Innovation

Even more so than its financial history, Cisco is proud of its reputation for innovation. This reputation is caused in part by the Cisco development strategy of "build, partner, and acquire."

- Cisco develops most of its products internally, using a deep pool of global engineering talent. With one of the largest research and development budgets of any technology firm (more than \$4 billion), Cisco invests heavily to enable over 16,000 Cisco engineers working in more than 1100 labs worldwide to develop new products and technologies.
- Cisco also understands the value of partnering and has sought to include primary partners at every phase of the product and technology lifecycle, from concept through delivery.
- Having originated as a "startup," Cisco recognizes that smaller companies often develop new and valuable technologies. To continually enhance its portfolio of leading-edge products and technologies, Cisco has acquired more than 110 carefully chosen innovative companies since its inception.

The company earned its first patent, no. 5,088,032, in 1992 for its method and apparatus for routing communications among computer networks (Interior Gateway Routing Protocol). Since then, more than 2000 patents have been issued to Cisco inventors, with almost 3000 additional Cisco applications pending U.S. Patent Office review.

Beyond corporate innovation, Cisco also helps to shape innovation throughout the industry by actively participating in virtually every group concerned with networking standards. More than 100 Cisco employees have written Internet drafts and RFCs and Cisco employees chair some 20 IETF working groups. This participation helps ensure that Cisco products remain current and compatible with standards and enables Cisco to address the needs of a broad market, giving customers more choices in how they solve their networking problems and customize their networks to meet specific business objectives.

Dedication to Customers

Dedication to its customers and their success has been a critical component in the growth of Cisco since inception. As such, customer satisfaction has been carefully measured and monitored since 1996. This is not an academic measurement; the resulting metric is incorporated into the calculation of each employee's annual compensation.

To help ensure customer satisfaction, Cisco provides extensive online support as well as live phone support 24 hours a day, 365 days a year from its five technical assistance centers (TACs) backed by more than 1300 support engineers across the globe. In 2006, Cisco became the first global networking company to achieve the J.D. Power and Associates Certification for Technology Service and Support Excellence. The certification requires companies to rank in the top 20 percent of the industry and pass an expert audit of their support policies and procedures. Additionally, Cisco's Technical Services earned the J.D. Power and Associates award for Outstanding Technology Service and Support and continued commitment to customer satisfaction.

The high quality of support provided by Cisco support engineers, as well as by the numerous Cisco partners worldwide, is achieved through rigorous certification programs. In addition to Cisco employees and partners, these programs are available to customers to help them maximize the return from their investment in Cisco equipment. To date, more than 500,000 people have been trained and certified on Cisco equipment.

Cisco for Your Network Systems

The success of a company or organization lies in the capabilities of its people. These capabilities are affected, in large part, by the usefulness of the available tools and services. And the usefulness of many of these tools and services is dependent on the network systems that deliver and enable them. In short, a company's success depends on its network systems. As a company whose own success depends on its network systems, Cisco fully understands this relationship.

The need for highly available, responsive, secure network systems is not new. However, in today's environment of mergers, acquisitions, and global expansion, businesses now require network systems that enable technology innovation and business-critical services not only at the headquarters, but across geographically disparate corporate campuses, throughout the branches, and out to remote workers. Cisco can provide an end-to-end network, composed of systems specifically designed to address the unique needs of each place in the network, connected by a common infrastructure and a common operating system and manageable from a central location as a single, cohesive entity.

Because Cisco envisions the network as a whole, it designs and develops products, technologies, and solutions that provide business benefits across the entire network. Consider, for example, the enablement of advanced technologies. Advanced technologies, such as voice over IP (VoIP), require the support of intelligent network services. Although many networking vendors support these services, the level and methods of support often vary from one device to another and from one place in the network to another, making configuration and interoperability difficult. With Cisco network systems, intelligent network services, such as quality of service (QoS) and encryption, are consistently supported and preserved across the entire network, enabling the same secure, high-quality service delivery regardless of whether the user is at headquarters or in a local branch.

Cisco applies this same broad view to network management, providing tools to manage the network as a whole. For example, the Cisco integrated services routers use 802.1ag to provide end-to-end service manageability. Another example is the Cisco Network Application Analysis (NAPA) Solution, which also takes a holistic approach to management, providing an end-to-end view as it monitors and analyzes the entire network to optimize the relationship between application performance and network resources.

Moreover, Cisco understands the relationship between all elements of the network: that an improvement in management or security capabilities can often mean a decrease in performance. Cisco is constantly looking for innovative ways to eliminate these types of tradeoffs. One such innovation is the Cisco Catalyst® 6500 Supervisor Engine 32 Programmable Intelligent Services Accelerator (PISA), which eliminates the tradeoff by providing hardware acceleration of intelligent services, such as stateful application intelligence and day-zero security services, at multigigabit speeds.

Network Systems for Places in the Network

In most cases, the network of a company or organization is not a single island. It is likely made up of multiple networks, including one or more campuses, some number of branches, remote teleworkers, and one or more data centers, all connected through a WAN or MAN. These businesses and organizations require solutions that work across the entire network, throughout all “places in the network.”

Cisco understands and addresses the unique requirements of each place in the network:

- **Campus:** Market factors are causing a shift in corporate structures. Reduced time to market translates to a greater need for interaction throughout a company. And as these companies become more adept and more dependent on technologies for this interaction, the network must provide a platform that enables and promotes enhanced communication and collaboration.

Cisco provides a platform designed for collaboration with the Campus Communication Fabric, which enables application proficiency, secure multimedia communications, improved productivity and innovation, business continuity, and efficient operations over a flexible infrastructure.

- **Branch/WAN:** Historically, branch users have not been given the same priority as users at headquarters, enduring less-than-optimal response times, receiving a subset of services, and experiencing downtimes that are not tolerated at headquarters. But this is changing. Because of the increased number of acquisitions and mergers, along with the focus on local presence and global expansion, remote office workers have gained significant

importance in the equation for business success. Today's branch users require the same consistent delivery of services and applications as headquarters users.

Cisco gives branch users an equal status with the Empowered Branch, which integrates the widest set of services and applications while optimizing their interoperability and performance for a consistent branch experience. At the WAN headend, Cisco offers services aggregation solutions that combine virtualized services integration, bandwidth optimization, and application intelligence to provide secure, intelligent routing of applications across the enterprise WAN.

- **Data center:** The rapid proliferation of new applications combined with the increased complexity of these applications mean that IT managers require data center architectures that are more resilient, more adaptable, more manageable, and capable of serving users across geographically dispersed locations.

Cisco data center solutions are built on the principles of consolidation, virtualization, and automation to provide the security, availability, manageability, and optimized application delivery that enable superior service delivery and application performance.

Network Systems Components

When you look closer into each of these network systems, you find components that are industry leaders in their own right. Cisco provides one of the most robust, intelligent lines of integrated services routers, along with one of the most comprehensive, feature-rich portfolios of network switches.

Routing

Cisco routers allow organizations to build a foundation for an intelligent, self-defending network, featuring best-in-class security services and routing technologies for a low total cost of ownership and a high return on investment. These routers offer:

- Industry-leading services densities, bandwidth, availability, and performance options for maximum configuration flexibility and scalability for the most demanding networking environments
- Superior services performance and investment protection
- An integrated systems approach to embedded services that speeds application deployment and reduces operating costs and complexity

For the branch, Cisco provides a portfolio of routers designed for secure wire-speed delivery of concurrent wireless, data, voice, and video services with superior investment protection. Cisco integrated services routers embed security, mobility, LAN switching, and voice services inside the router as a single resilient system for ease of deployment, simplified management, and lower operating costs. They also support leading-edge WAN technologies, such as:

- Optimized Edge Routing (OER), which helps enable intelligent network-traffic load distribution and dynamic failure detection of data paths at the WAN edge
- Group Encrypted Transport (GET) VPNs, a highly-scalable, tunnelless form of virtual private networking
- Wide-Area Application Services (WAAS), which combine application acceleration technologies with WAN optimization techniques

In addition to convenience, the Cisco integrated services routers provide investment protection. The integrated design enables a 70 percent reduction in operational expenses when compared to

deploying multiple overlaid components in a branch to achieve the same services. Additionally, the modular design of the Cisco integrated services routers allows for easy integration of new services as well as the expansion of existing ones.

At the headend, Cisco offers an extensive WAN and MAN aggregation platform portfolio, which also provides a comprehensive set of highly secure, concurrent, and integrated services. Cisco services aggregation routers provide exceptional performance with aggregation speeds of up to 2 Mpps and support for as many as 16,000 Point-to-Point Protocol (PPP) sessions and 5000 VPN sessions per chassis. For optimization, these routers also support Network-Based Application Recognition for application optimization and OER. To help ensure the security of your network, these routers include support for IP Security (IPsec) encryption, an integrated stateful firewall, and support for identity-based access control.

Switching

Cisco offers a comprehensive portfolio of intelligent network switches, with a continuously expanding suite of intelligent services and advanced technologies to strengthen, simplify, and extend the value of the network infrastructure. As a leader in switching technology innovation, Cisco is constantly developing new ways to enable its customers to get more from their network infrastructure. Many Cisco innovations have evolved into industry standards, including Cisco EtherChannel[®] (now the 802.3AD standard), Power over Ethernet (now the 802.3af standard), Multiple Instance Spanning Tree (now the 802.1s standard), and Interswitch Link (now the 802.1q standard).

Cisco Catalyst switches are based on a superior design that employs a centralized architecture, which simplifies expansion and upgrades. They also use application-specific integrated circuit (ASIC) technology, which is better suited than merchant silicon (used by many other switch vendors) for the delivery of advanced features.

Additionally, Cisco Catalyst switches provide:

- Superior service delivery from the wiring closet to the core, from the data center to the WAN edge with 10/100/1000 to the desktop, Fast Ethernet through 10 Gigabit Ethernet connections, and predictable wire-rate switching performance (even with QoS enabled)
- High level of availability with In-Service Software Upgrade (ISSU) and hot-swappable modules, which enable easy upgrades without service interruption, and nonstop forwarding with stateful switchover (NSF/SSO), which reduces the mean time to repair (MTTR) by allowing extremely fast supervisor switchover that is virtually transparent
- Exceptional scalability through options such as virtualization, which provides for the centralization of services and security policies while preserving the high-availability, manageability, security, and scalability benefits of the existing campus design (centralized management and security), and Power over Ethernet, which simplifies the addition of new endpoints
- Superior security with integrated support for identity-based access control and Cisco Catalyst integrated security features, as well as firewall and intrusion detection modules
- Industry-leading support for converged applications, including voice, video over IP, and mobility

Summary

John Chambers recently observed, "In the next decade or two, interactions will bring a whole new level of innovation to us: the ability to drive productivity at results that are 5, 10, maybe 12 times greater than what we have seen in the past. And one of the technologies that helps them increase the value of their transactions, and to move from transactions to interactions, is the network."

For your business growth and success, this network should be a Cisco network. When you join the intelligent, resilient routing offered by the Cisco routing portfolio with the innovative high-performance switching offered by Cisco Catalyst switches; connect them through reliable, scalable Cisco IOS® Software innovation; and manage them with the automated, integrated management offered by the Cisco network management portfolio, the result is a highly available, adaptable infrastructure that delivers secure, pervasive services through a cohesive network platform upon which you can deploy technology solutions that address today's business challenges and enable tomorrow's business success.

Having Cisco network systems throughout your network helps to accelerate deployment of new technologies, reduce the learning curve in your IT staff, protect the integrity of your network and the data that crosses it, and enable your users to achieve higher levels of productivity and responsiveness.

Add to this Cisco industry leadership, financial stability, commitment to innovation, and dedication to customers, and it is clear that Cisco is an excellent choice for your network systems: yesterday, today, and tomorrow.



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