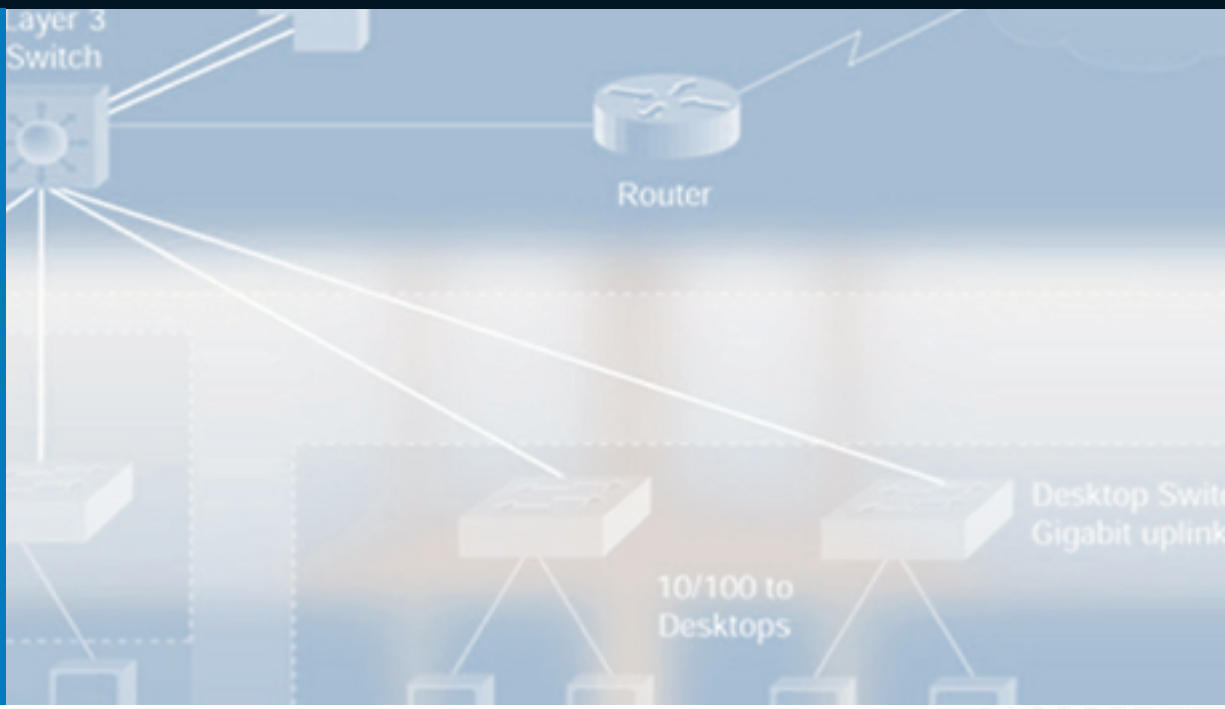
Cisco Systems

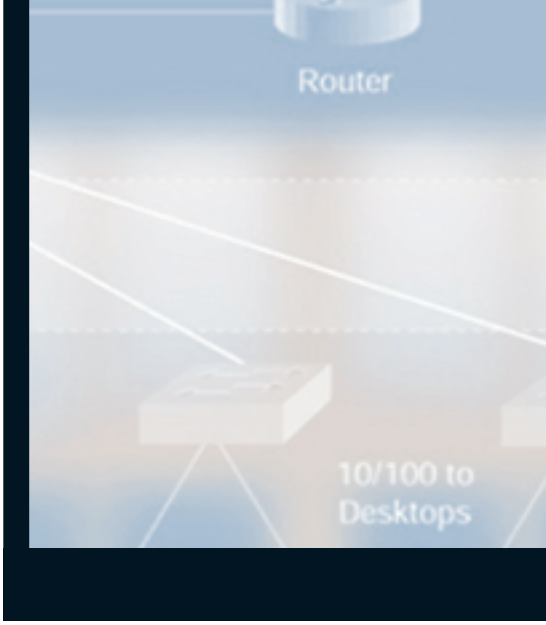
E-Seminar



Branch Office Connectivity

Internet Technology Solution

Seminar



Branch Office Connectivity

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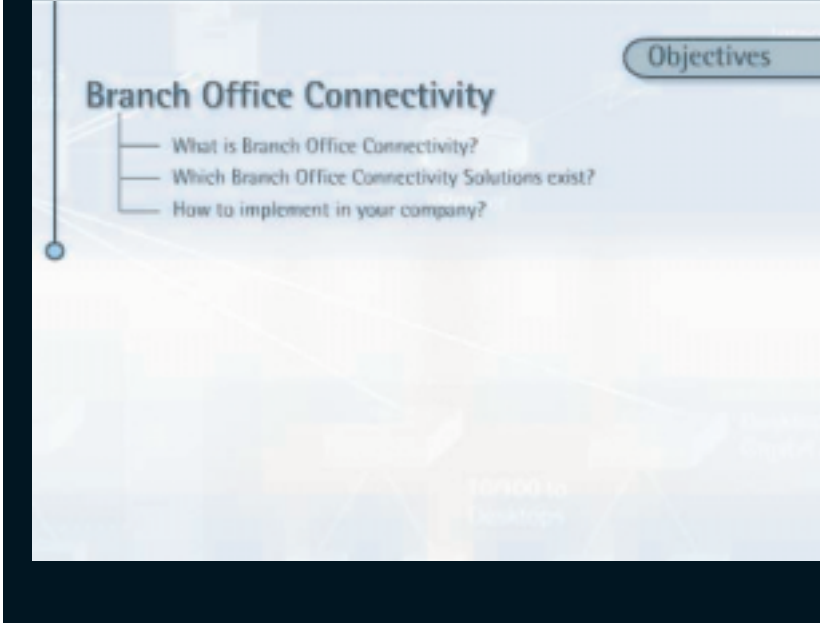
Welcome

Welcome to the Technology E-seminar on Branch Office Connectivity.

For most companies today, internal and external communications have become mission-critical. Companies frequently need to share customer information, check inventory, look up sales data, transfer files, process invoices, and exchange e-mail.

For small and medium-sized companies with branch offices, such communications may become challenging, as employees located at these branch offices today require the same level of voice and data communications as their colleagues in the company headquarters.

A dispersed organisation cannot communicate effectively and efficiently without the right technology.



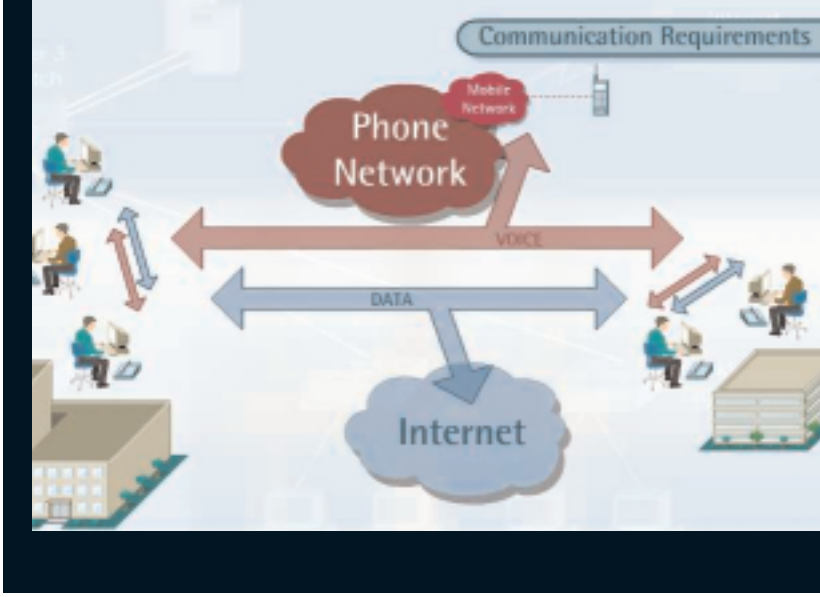
Objectives

In this seminar, we will discuss the technical aspects of branch office communications.

At the end of the seminar, you will have a good understanding of what exactly Branch Office Connectivity is about.

You will also learn which Branch Office Connectivity Solutions exist, for both voice and data communications.

Finally, we will discuss the technical requirements of these Branch Office solutions.

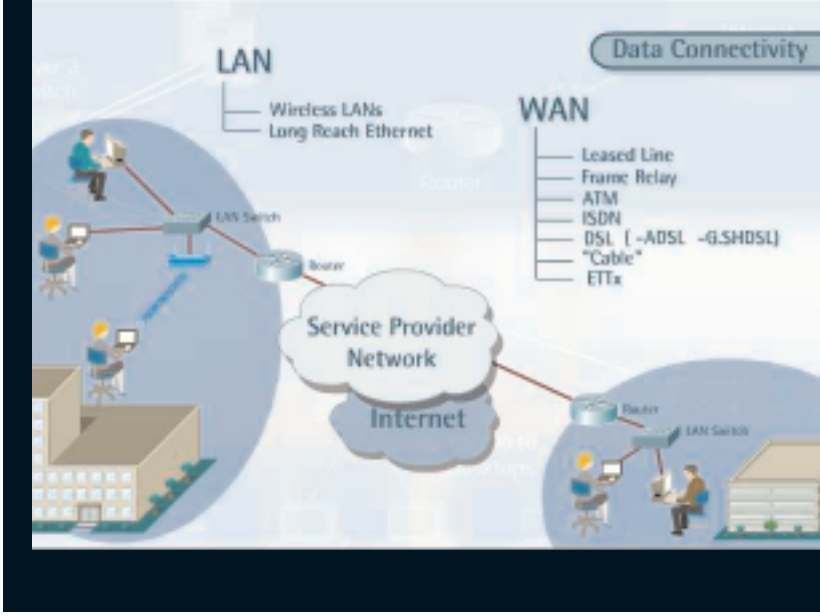


Communication Requirements

Many companies in different sectors rely heavily on their remote branch offices, in order to bring people and products closer to their customers.

Communications requirements of a branch office include voice and data communications: within the office, between different sites, and between an office and the external world of customers, suppliers or partners. Employees need to be able to communicate with each other in the same office or in remote offices, and to access internal data as well as the Internet.

Company-wide, network-based business applications are becoming ever more important in a company's operation. Business solutions such as E-Commerce, Customer Relationship Management or Supply Chain Management require involvement and access of many employees, no matter in which site they are located. In order to provide consistent customer care or sales follow-up, branch office employees therefore require an IT infrastructure which is as robust, manageable and powerful as the headquarters infrastructure.



Data Connectivity

In most companies, local data connectivity is already available in many sites. Computers are connected in a LAN using a hub or a LAN switch. Recently, new LAN technologies, such as Wireless LANs and Long Reach Ethernet, have become available, and can significantly increase the flexibility of a company's network infrastructure.

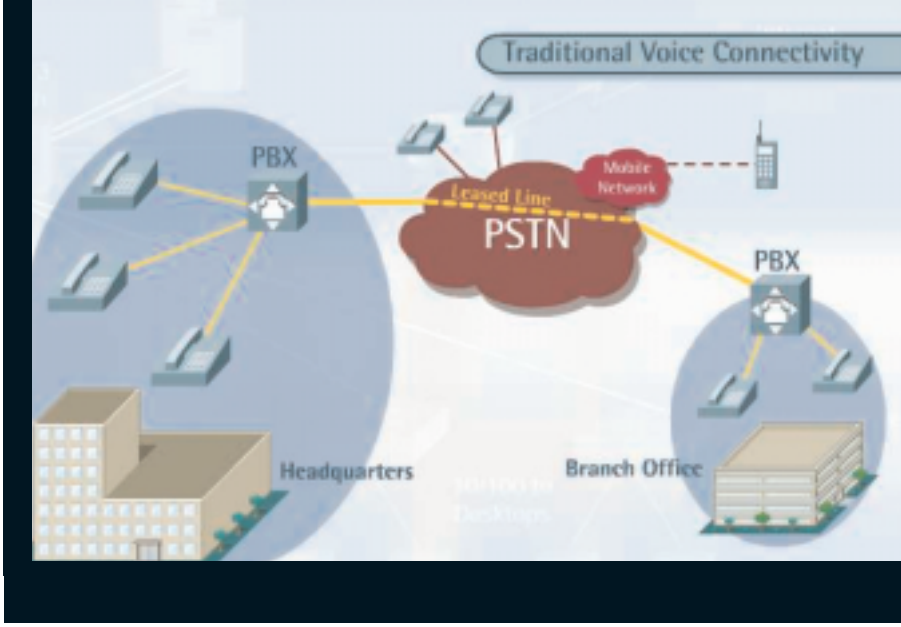
Going beyond local networking, routers are used to connect these LANs to the Internet, or to the other offices. The network that interconnects these LANs is called a Wide Area Network, or WAN.

WAN connections are usually provided by a Service Provider. Traditionally, these WAN links were established as Leased Lines between the different sites of a company. Later, Frame Relay and ATM became increasingly popular as network technologies for Wide Area Networks. Today however, more and more Service Providers use the IP protocol to deliver WAN connectivity to their customers. The Service Provider usually also delivers connectivity to the Internet.

More recently, many companies have started using ISDN as underlying connectivity technology for their branch offices. Today however, broadband technologies such as DSL and "Cable" are becoming increasingly popular, providing companies with higher bandwidth at lower costs. DSL, or Digital Subscriber Line, exists in different flavours, such as the already well-known Asymmetric DSL, or ADSL, and G.SHDSL, which is single-pair, symmetrical, high-speed DSL, with a longer distance reach than ADSL.

Finally, Ethernet to the Home, Building or Business, generally abbreviated as ETTx, brings Ethernet connectivity, over fibre, to companies located in multi-tenanted business buildings. It is increasingly offered by Service Providers in metropolitan areas.

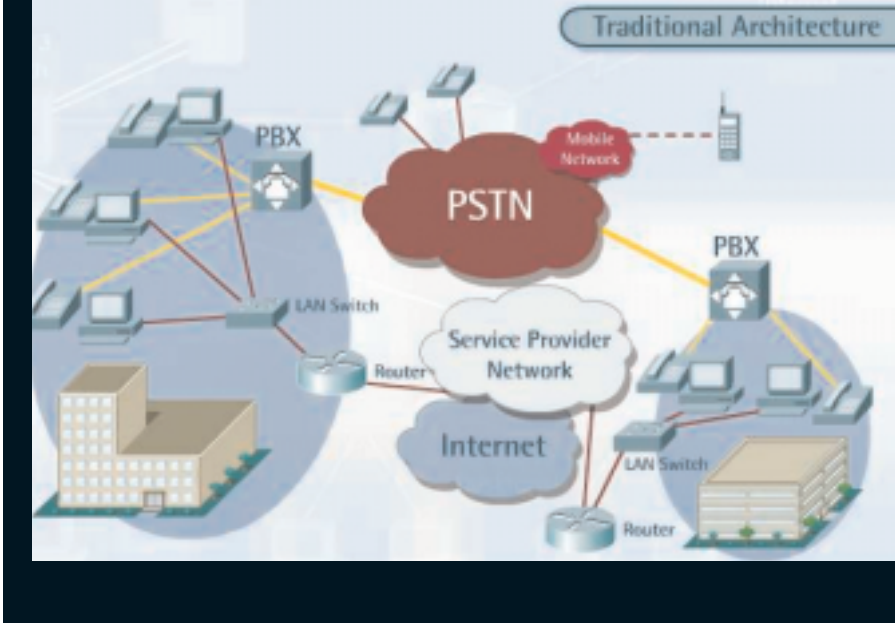
Using IP over any of these technologies brings many powerful business applications seamlessly to such remote offices, at performance levels which equal those of the headquarters network.



Traditional Voice Connectivity

For voice communication, most companies today are still using a traditional telephone network, designed around PBX's: Private Branch Exchanges. A PBX is a private telephone system within a company, that switches internal calls - between internal users - on local lines. At the same time, a certain number of external phone lines are shared between all users. By using a PBX, phone costs are lower, because it is no longer necessary to have a separate external phone line for every user.

The PBX is connected to the Public Switched Telephone Network, or PSTN, for external calls to users of a mobile or fixed phone, or to users in a branch office, which could also be equipped with a PBX. When a company has a lot of phone traffic occurring between remote offices, leased lines could bring down phone costs significantly.



Traditional **Architecture**

As seamless communication with customers is essential for customer satisfaction and sales success, the importance of these voice and data networks is still increasing for most companies every day. Effective communication at a low cost can be a strong competitive advantage.

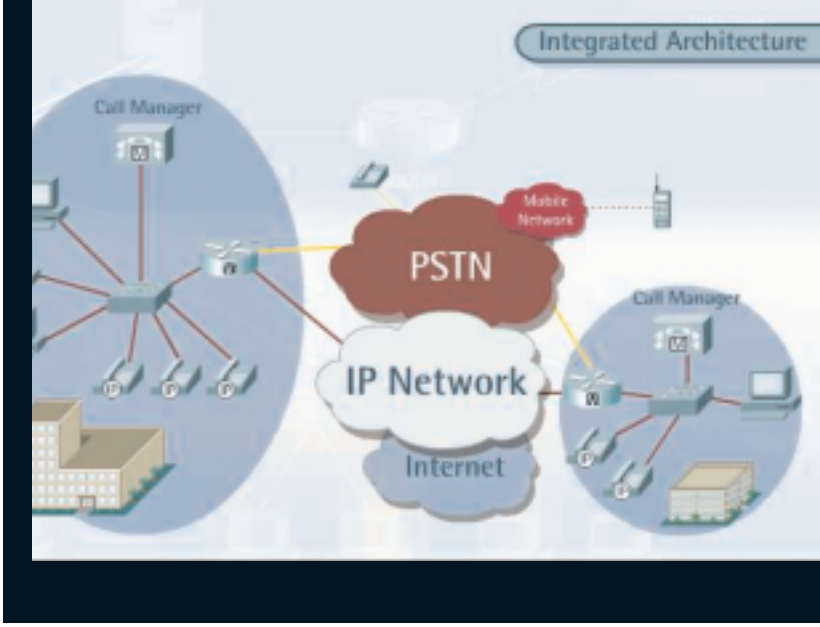
The traditional use, however, of two separate networks for voice communications on the one hand, and data communications on the other, is both expensive and unnecessary. Voice, data, and even video communication can be integrated, and implemented over the same, IP-based, local and wide-area network infrastructure.

AVVID

By converging data, voice and video onto a single IP network, companies are not only able to reduce communication costs, but can also take advantage of Internet or network-based Business Solutions.

Cisco has created an architecture that provides companies the foundation to do this successfully: AVVID, which stands for “Architecture for Voice, Video and Integrated Data”.

Networking solutions and technologies, based on this AVVID architecture, unify voice, video and data onto one network. They enable today's Internet business solutions, such as Internet-based Customer Care, Web Marketing and E-Commerce.



Integrated **Architecture**

So what does an integrated network design, based on the AVVID model, look like ?

First of all, integration of data, voice and video can be accomplished over the total company network infrastructure, including LANs and WANs, headquarter offices, branch offices and home offices. Cisco has developed a step-by-step migration process, to help companies evolve from a traditional, separated voice and data architecture to an integrated architecture.

Voice communication over the IP network is possible using IP Telephony, which relies on Voice-over-IP technology.

Using IP telephony, internal company calls are kept locally and happen over the company LAN, requiring only one network infrastructure for local calls. In the same way, calls between remote offices or home offices can also happen over the existing IP network infrastructure used for data communications. Finally, calls to external users with traditional telephones are still routed over the conventional PSTN.

For more information, please refer to the Technology E-Seminar on Voice-over-IP.

Branch Office Connectivity Seminar

Security and **VPN's**

Company information must be protected from eavesdroppers, so the ability to provide authenticated, confidential communication between remote offices is essential.

Virtual Private Network - or VPN - technology provides such private connections, by separating data into “tunnels”. In this way, a private network can even be created over public networks such as the Internet. VPN technology uses a combination of tunnelling, encryption, authentication, and access control mechanisms and services used to carry traffic over the Internet, or over a managed IP network or a Service Provider's backbone. Additionally, firewalls may be added to protect the network from access by unauthorised users..

The collection of all internal company sites, connected in this way, is often referred to as the company’s Intranet. An Intranet VPN provides the same level of connectivity and reliability as a fully private network. It extends internal company resources and applications from the headquarters office to employees in branch offices, and supports voice, video and data traffic.

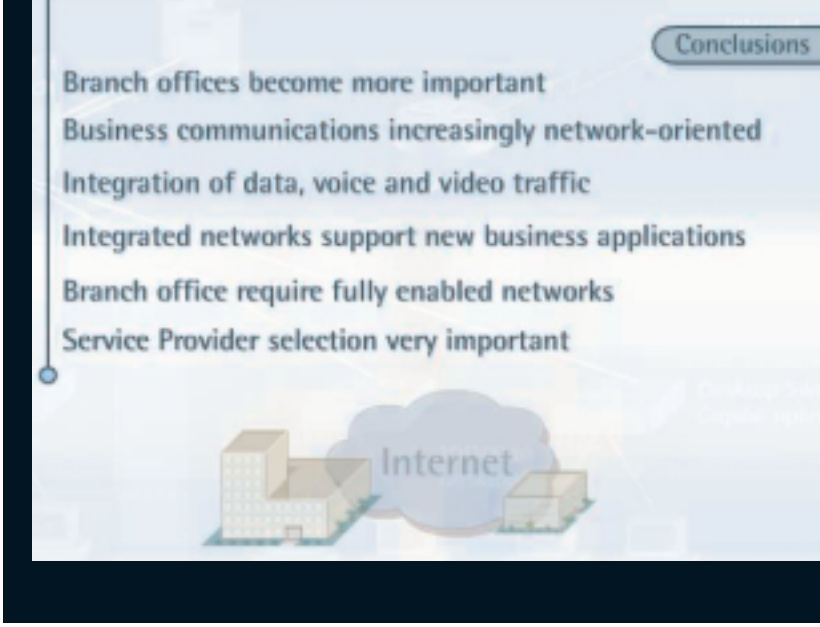
For further information about securing your company’s Intranet, please refer to the Technology Solutions e-seminar about Network Security.

Service Provider **Considerations**

Security is not the only consideration to make when creating an Intranet VPN between different sites. A complete VPN solution also incorporates Quality of Service, Service Levels, management, and provisioning capabilities, in order to create a reliable communications infrastructure.

Therefore, when a company wants to implement a VPN between its different sites, the Service Provider becomes an important partner in the solution. In other words, the selection of a Service Provider should be considered carefully.

Service Providers who have achieved the Cisco Powered Network - or CPN - designation, can supply a range of services with respect to the design, operation, service levels, security and quality of service of your Wide Area Network. CPN Service Providers offer the highest levels of quality and reliability in their network services.



Conclusions

Let's summarise the most important aspects of creating Branch Office Connectivity.

With competition ever increasing, companies are decentralising more and more business processes towards their branch offices, closer to their customers. At the same time, as the foundation of modern business communications is becoming increasingly network-oriented, plans to integrate data, voice, and video traffic into a single network infrastructure are on the drawing boards of many forward-thinking organisations.

Such integrated networks support network-based business applications, which bring many new possibilities, while reducing a company's total cost of network ownership.

As effective communications are essential for gaining and keeping competitive advantage, companies need to fully enable their branch offices in terms of communications capabilities.

Companies who truly want to conduct mission-critical business functions over the Internet, and over their own internal network, require a reliable and scalable network infrastructure, with predictable application availability, performance and security. Selection of the right Service Provider therefore becomes a key requirement.

With the emergence of the Internet as a business platform, small companies now have the same opportunity as large enterprises to leverage strategic IP applications, that allow them to work more efficiently and to compete with companies of any size.