



Technical Training and Consultancy to the NEW Communications Era

VoIP & Virtual Private Networks (VPN's)

What is a VPN?

A Virtual Private Network (VPN) often means different things to different people. In the 'Voice' sense, it typically sees multi-site connectivity via lease line or a 'hosted' telephony service from a service provider – in a 'mainly circuit' switched environment, producing topologies such as 'star', 'linked' and 'mesh' like in design. In the 'Data' sense, similarly from a topology sense - however, as 'Data' has evolved using addressing for local and distant end 'hosts', the network topology sees the infrastructure itself, providing control and decision making in determining network route control and selection. Voice VPN's have very much evolved in partnership with service providers, Data VPN's have evolved with internet service providers (ISP's) and the world wide web (Internet).

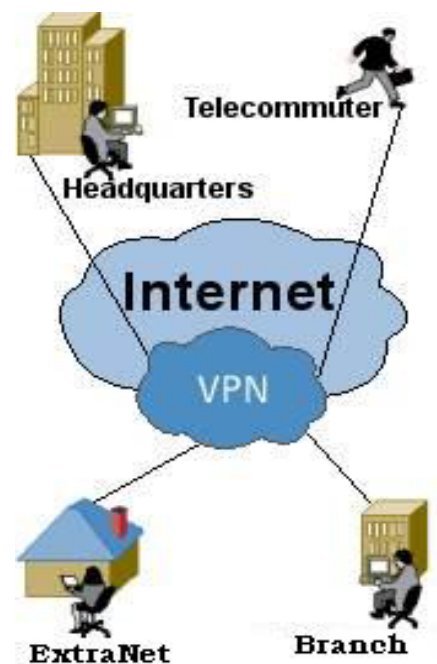
Why use a VPN?

In today's worldwide marketplace, enterprises both big and small need to implement a global communications strategy. Corporate network managers have significant obstacles to overcome - the geographical constraints of their corporate communications networks, the high cost of leased lines, and fragmented phone bills to name just a few. Whether a multinational corporation with dozens of large campuses around the globe, or a smaller firm with remote offices and home workers, enterprises are asking their telecommunications service provider for a way to deploy and manage new services centrally, seamlessly available to everyone, everywhere.

Types of VPN's.....

Data VPN's often leverage the internet to provide an extension to business / company / corporate intra-nets. Different 'types' of VPN services are provisioned (see opposite diagram) to accommodate topology and connectivity requirements. Eg. an ExtraNet VPN service could be used to provide business partners / suppliers access to business related documentation, tools and databases.

VPN's in this way, with added security, can create functional, flexible and very cost effective multi-site network services. However, when looking to propagate voice (VoIP), prove a challenge to support 'Quality' voice & telephony services



Voice & VPN's.....

VPN's created across the web are very successful for allowing 'data' traffic & communications (web, email, FTP etc...). VPN's are also extremely attractive when it comes to voice communications (VoIP). However, unlike many of these standard data traffic types, voice is a 'real time' media, and to maintain consistent Quality, MUST be treated as such as it traverses networks and VPN's. This time dependency (often termed as end to end latency), requires thought to the design and implementation of networks to support both time tolerant and time dependant traffic such as voice and video.

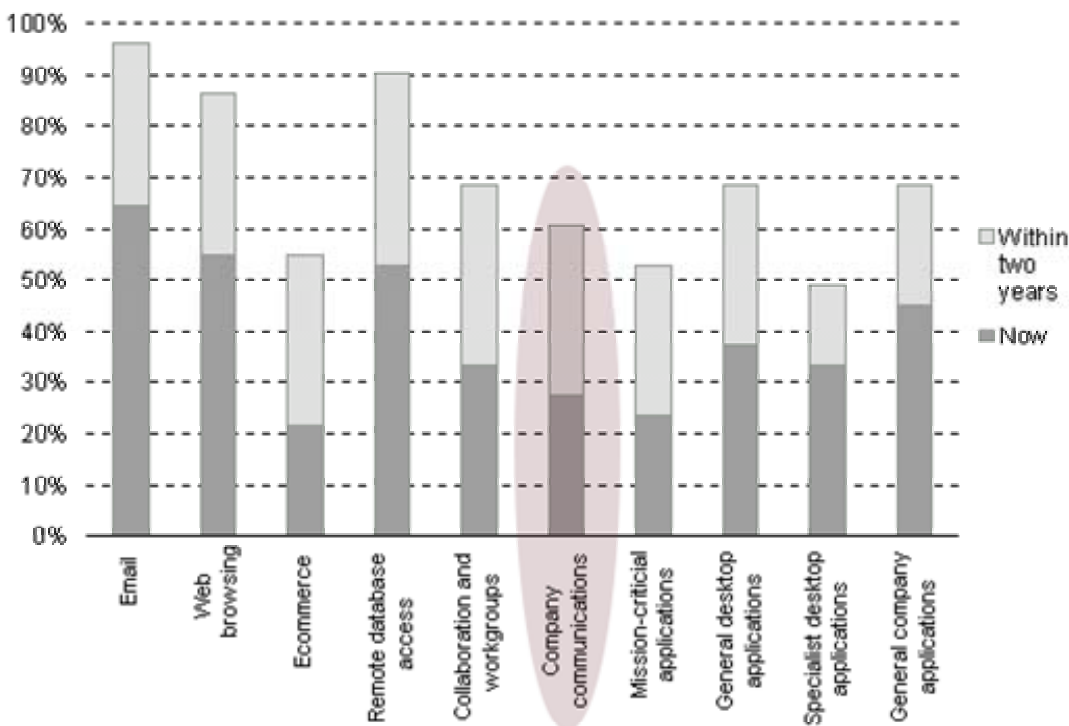
Voice and Internet VPN's

Enterprise based networks can be strategically designed to allow prioritization to real time media such as voice. However, using the standard internet as a means to create VPN's and propagate voice, is a very hit or miss affair. The reason is simple: when the internet sees heavy demand, it's slow, throughput decreases, packets can and are discarded – all extremely bad news for voice. What is needed is a VPN service with some guarantees. Services such as these, are separate from the internet, and are becoming more and more available, allowing customers / enterprises to work 'Service Levels' with the provider, guaranteeing availability, throughput and reliability – all very good news for voice. (eg. MPLS IPVPN's).

Voice and Service Level VPN's.....(MPLS)....

Multi-Protocol Label Switching (MPLS) is a standard that exists for multi-standard communications (ATM, Frame Relay, Ethernet etc...), to be 'switched' from place to place, host to host. Once 'labelled', MPLS does this at layer 2 of the OSI stack, simplifying routing & improving performance.

Over the last couple of years we have seen MPLS based VPN's become the de Facto standard for providing secure, scalable, deployable IP VPNs within service provider networks. Of particular interest, many service providers offering these VPN's will work with customers to draw up Service Level Agreements and Guarantees SLA / SLG's, and even allow you to 'prioritise' types of traffic for propagation from place to place, enterprise to enterprise, site to site - great news for time dependent traffic (voice and video)!



VPN customer applications 2002-2004

Src: ISP Planet