# Enhance Sales of Router and VPN Products with ML-IP

Broadband, T-1/E-1 and Dialup Acceleration Fills Bandwidth Gaps

Multilink IP is a patent-pending protocol, developed by ePipe, which allows a site to use multiple IP-capable communications links simultaneously, in order to increase the bandwidth and reliability of Internet access or site-to-site communications over a VPN. Multilink IP operates across a variety of last mile connections such as dialup, G.Lite ADSL, G.SHDSL, T-1/E-1 dedicated lines, broadband and narrow band satellite links – anything which transports IP traffic.
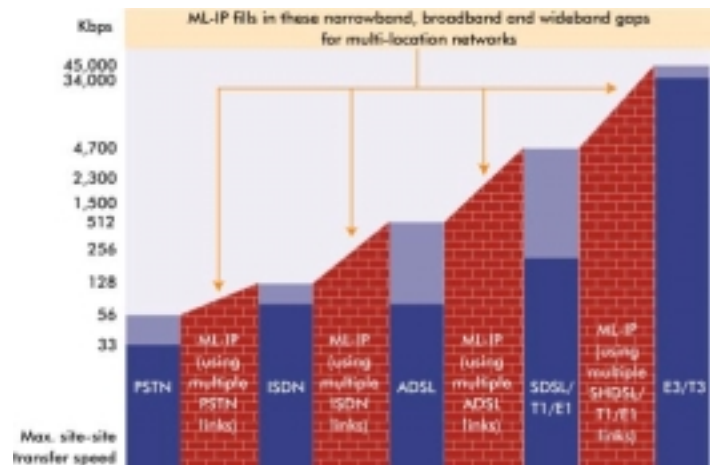

Unlike other aggregation methods such as IMA or MPPP, ML-IP doesn't require support within the carrier or ISP network access infrastructure, as it works end-to-end over IP. ML-IP is truly data transport neutral and delivers solutions that fill key bandwidth gaps from analog modems to broadband (below 512Kbits/sec), between T-1/E-1 and 10M Ethernet (1.5 to 10Mbits/sec) and up to factional T-3 (20 Megabits/sec).

ML-IP automatically falls back to fewer primary links if a broadband link becomes inoperable and fails over to multiple dial back-up links if all broadband links fail. No longer will customers hit the T-1/E-1 bandwidth brick wall. They will not have to put up with a single xDSL connection because the leap to T-3/E-3 is not affordable or available. With ML-IP they can utilize multiple xDSL connections from multiple backbones. If broadband is not available at a location multiple analog modem and ISDN connections can be aggregated by ML-IP up to 512Kbits/sec, providing a viable solution.

Accelerating Site to Site Data Communications

In order to accelerate site-to-site VPN bandwidth an ML-IP Concentrator is installed at the head office to terminate multiple links from each branch office. The VPN traffic (typically IPSec) benefits from the bandwidth of multiple connections. The ML-IP CPE device is usually placed in front of existing VPN/firewall devices, presenting the VPN router at each location with a single transparent IP pipe (made up of multiple links). ML-IP allows for multiple broadband connections spanning different ISPs, improving VPN availability. ML-IP works transparently with a wide range of site-to-site VPN routers. This allows customers to increase bandwidth when they need to, by simply ordering an extra DSL line (or other links) without waiting for special carrier provisioning. Each site can use multiple links, or the head office can rely on a single higher speed link (with built in redundancy).
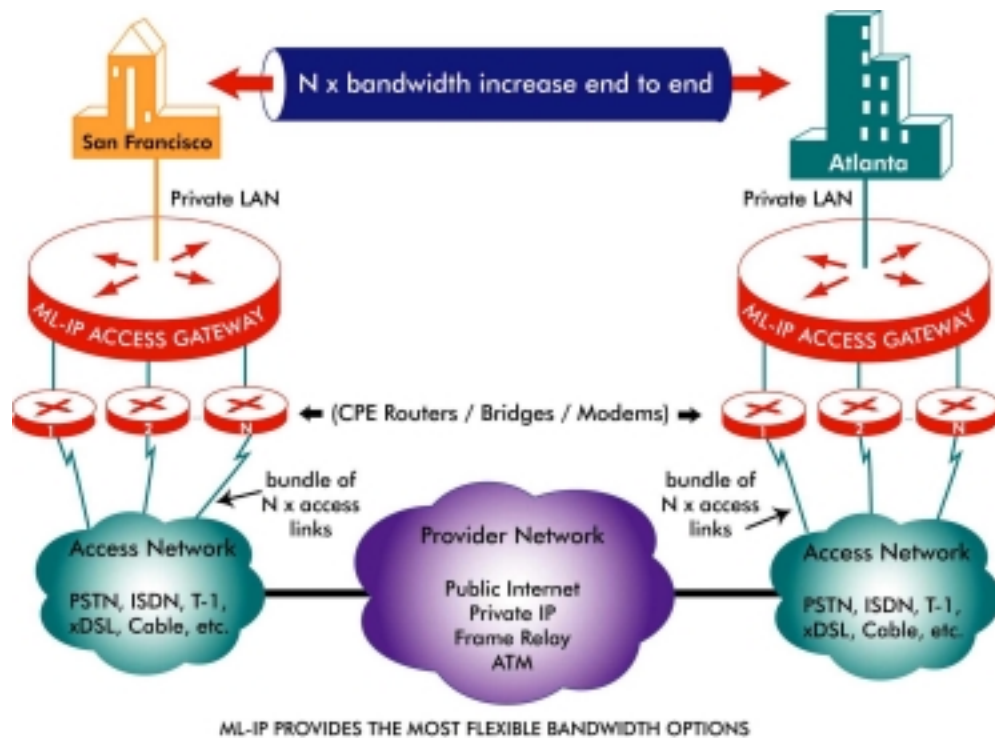
Standalone Internet traffic balancing Capabilities

ML-IP devices can also operate in single-end installations to accelerate Internet access at a site by load balancing outgoing requests. A capability known as 'Intelligent Internet Balancing (I2B)' is incorporated into ML-IP devices and it allows Internet traffic to be balanced across multiple Internet links. This delivers faster web surfing and more simultaneous file downloads. The links can span multiple ISPs for higher availability with link fall back and fail over to multiple dial backup links.

Accelerated Broadband Services from Providers to Subscribers

The ML-IP capability can easily be embedded in the ISP network to provide broadband subscribers with a general-purpose bonded xDSL or bonded T-1 pipe to the Internet for onsite web hosting, improved web surfing or faster access to a managed VPN. The ML-IP Concentrator at the ISP only requires a single fast Ethernet connection for ML-IP termination and packet forwarding to the main Internet router. This solution requires such a minimal investment when compared to multiple bonded T-1 connections (NxT-1) or similar solutions. The latter mandates significant dedicated hardware purchases and Multi-megabit services can only be offered where there is local multilink capability at the carrier access points or ISP PoPs.

NxT-1 CPE devices are very expensive and complex. ML-IP CPE devices and Concentrators eliminate much of the complexity associated with other link bonding solutions. They reduce the cost by an order of magnitude, operate over the entire range of last mile connections and give the widest possible coverage. This allows ISPs both with and without xDSL infrastructure to create a larger portfolio of Multi-megabit broadband products. These include: G.Lite ADSL service with full rate ADSL performance, G.SHDSL service with fractional T-3 Performance and VDSL-speed broadband services over full rate ADSL circuits for multi-tenant installations.

A number of ISPs are already providing accelerated broadband Internet services based on ML-IP CPE devices and Concentrators using a variety of xDSL-based connections. ML-IP works transparently with the gamut of branch office, small business and SOHO routers.
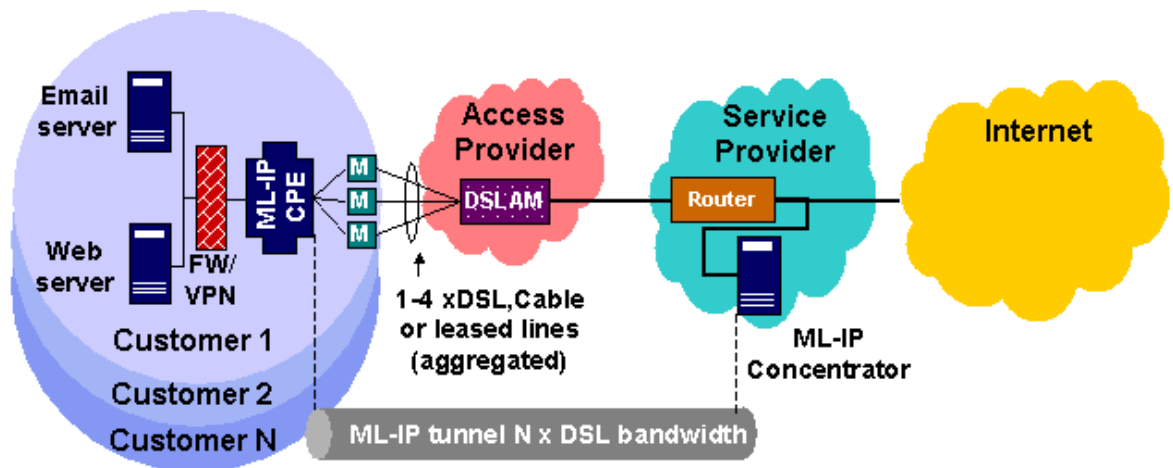
ML-IP capable Appliances and Concentrator

ML-IP capable products from ePipe include the 2344 ML-IP Gateway (CPE device), which is best suited to branch offices, and the Multilink-IP Concentrator for Linux which is designed to operate on a server computer. The 2344 ML-IP gateway aggregates the bandwidth of up to three access routers or broadband modems between it and an ML-IP Concentrator. The ML-IP Concentrator is normally a head end solution and can be installed at the head office or ISP in order to terminate multiple links from ML-IP gateways, for up to 100 branch offices or subscribers. The ML-IP Concentrator software can also be configured on a CPE appliance such as a Linux set-top box or small footprint PC with multiple network ports when bandwidth above 6Mbits/sec is required.

ML-IP can increase sales of access routers, broadband modems & VPN devices

ML-IP provides near linear broadband speed increase and higher link availability by aggregating 2, 3 or 4 broadband or dial up connections end-to-end over IP through the Public Internet (VPN), Private IP, Frame Relay, etc.   The thirst for more bandwidth seems unquenchable and ML-IP can go a long way to filling the bandwidth gaps that exist.

Access router (T-1, xDSL, ISDN, etc.) and broadband modem vendors can simply leverage additional sales from the existing installed base of access routers as ML-IP devices can be easily be added after market to accelerate Internet bandwidth at a site with I2B (Intelligent Internet Balancing). Collaboration with your partner ISPs means that they can also offer their subscribers ML-IP accelerated bandwidth services using more broadband links for access to managed VPNs (or Frame Relay) or wider pipes to their onsite web servers. Embedding an ML-IP Concentrator into an ISP network is cost-effective and simple. VPN vendors can leverage additional sales from the existing installed based of VPN routers as ML-IP devices can be easily be added after market to accelerate site-to-site VPN bandwidth without specific carrier or service provider involvement.

The business opportunity is particularly strong in large replicated sites such as restaurant chains, retail stores, educational institutions, etc. In some cases hundreds or thousands of additional broadband connections can be added to improve Internet access and VPN performance and reliability at each site over a wide bandwidth spectrum. Continual upgrades are probable, as sites seek to increase bandwidth.

Evaluate ML-IP for free - demonstrate Accelerated Broadband to Key Partners

Try ML-IP today with your range of access routers, broadband modems and VPN devices. An evaluation version of ML-IP Concentrator software is available from ePipe at no charge allowing you to test accelerated broadband access easily through two PC-based systems. You will experience fractional fiber speed over broadband copper and broadband speed over dial copper for a range of applications. ePipe can also help you to create a demonstration network for your major customers and service providers without having to deal without provisioning additional broadband circuits in advance. Just follow these links.

> http://www.ml-ip.com/html/solutions/mlip-evaluate.html
> http://www.ml-ip.com/html/infocenter/partners.html