PRODUCT QUICK REFERENCE

PATTON ELECTRONICS COMPANY

Product Brief

Enterprise WAN Access Solutions

Product Model	**IpLink™ Model 2888**
Product Name	**Multi-Megabit Inverse Mux**
Usage	**Transparent Ethernet Extender over Bonded T1/E1 Circuits**

Product Description

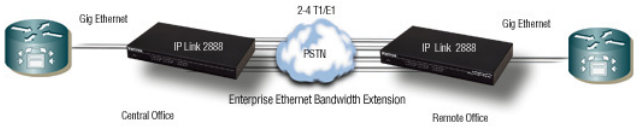
The Model 2888 Multi-Megabit Inverse Mux is a managed Ethernet bridge with two (2) Gigabit Ethernet ports and either two (2) or four (4) T1/E1 ports. The Inverse Mux transports jumbo Ethernet frames over bonded T1/E1 circuits using Multi-link PPP, creating up to an 8 Mbps transparent Ethernet connection. Complete with Layer 2/3 filtering, Layer 2/3 traffic shaping and Active Layer 2/3 QoS, the Model 2888 enhances an enterprise's ability to address the Wide Area Network (WAN) bandwidth requirements of most Ethernet applications.

Who is it for?

The Model 2888 Multi-Megabit Inverse Mux is designed to bridge the Ethernet/IP bandwidth gap between a single T1/E1 and a T3/E3. Bandwidth hungry applications such as database/Intranet, VoIP and surveillance video over IP that need to be transported over the WAN will benefit from a resilient multi-circuit solution.

Position Statement

For enterprise IT Managers needing to bridge the bandwidth gap between a single T1/E1 and a T3/E3, the IpLink™ Multi-Megabit Inverse Mux transparently transports Ethernet over bonded T1/E1 circuits. Unlike solutions from Cisco and others, which are difficult to configure, the Multi-Megabit Inverse Mux makes it easy to transparently pass ALL Ethernet frames over the WAN while applying ACTIVE Layer 2/3 QoS, traffic shaping and filtering.



Feature Benefit Summary

Feature	Advantage	Benefit
Bonded T1/E1	**Bridge the bandwidth gap between a single T1/E1 and a T3/E3**	**Provide symmetric high-speed network interfacing that is affordable to and right-sized for the application's need**
Transparent Ethernet Bridging	**Transparently bridge Ethernet traffic and pass any application traffic**	**Avoid complicated IP routing configurations needed to create redundancy**
Active QoS	**Provide the managed tools to ensure network up-time & application availability to different traffic flows**	**Guarantee real-time application services with bandwidth on demand**

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Solution Description

As enterprise IT managers leverage the convergence of voice, video and data over Ethernet, the need to transport Ethernet over the WAN at speeds greater than a single T1/E1 increases. Avoid switching to an expensive T3/E3 circuit, transitioning to an unproven Ethernet based WAN service or spending endless hours configuring IP routing redundancy. Use the Model 2888 to bond multiple T1/E1 circuits and increase point-to-point Ethernet bandwidth without overcomplicating configurations or sacrificing resiliency.

Problem	Issue	Impact	Our Solution
Need faster point-to-point connections	**A single T1/E1 is not fast enough any more**	**T1/E1 alternatives introduce cost, risk, complexity and are not available everywhere**	**Stick with well-known & reliableT1/E1 circuits and bond them together for maximum bandwidth**
Complex Router Configurations	**Configuring IP load balancing is complex**	**Increases risk router is misconfigured**	**Simplify by bridging Ethernet traffic over the WAN**
Prioritizing some applications over others	**Real-time applications need dedicated bandwidth and higher priority**	**Without active QoS voice and video applications will be unusable**	**Apply active layer 2/3 QoS and guarantee applications the bandwidth they need**

Unique Selling Position

The IpLink™ Model 2888 Multi-Megabit Inverse Mux increases point-to-point Ethernet/IP bandwidth over standard T1/E1 circuits, reducing configuration complexity, and providing active QoS for real-time application requirements.

Top FAQs

Q. If all my traffic is IP why should I use Ethernet bridging?

A. The other alternative, configuring a router for load-balancing can be a difficult task. First of all, a router can load balance outbound traffic only. To get bidirectional load balancing requires complex configuration at both ends. Secondly, both routers must be configured to assign the same administrative distance and cost to a destination. Lastly, load balancing at the IP packet layer creates a situation where packets can reach the destination out of order, creating a problem for streaming media such as video. By using Ethernet bridging and relying on ML-PPP, the configuration is simplified and the out of order packet problem eliminated.

Q. What happens if one of my T1/E1 fails, does my entire link go down?

A. No, with ML-PPP, if a T1/E1 goes down, the Ethernet traffic will continue to flow across the active links. When the failed link comes back up, full bandwidth is automatically restored without manual intervention.

Q. Does the Inverse Mux use ATM to multiplex the T1/E1 circuits?

A. No. The Inverse Mux uses Multi-Link PPP (ML-PPP) which is 18% more efficient than ATM when using 256 byte packets. Efficiency increases further with packet sizes of over 1,000 bytes which are typically used by streaming video.

Q. Does the IpLink™ Inverse Mux support VLANs?

A. Yes. The Inverse Mux can be configured to apply QoS based on VLAN tags as well as tag untagged VLAN traffic. It can likewise transparently pass VLAN, Cisco ISL and MAC-in-MAC (PBB) frames as well as MPLS tagged traffic.