

**Why Drive When You Can**  
***WARP!***



***Paneagle***

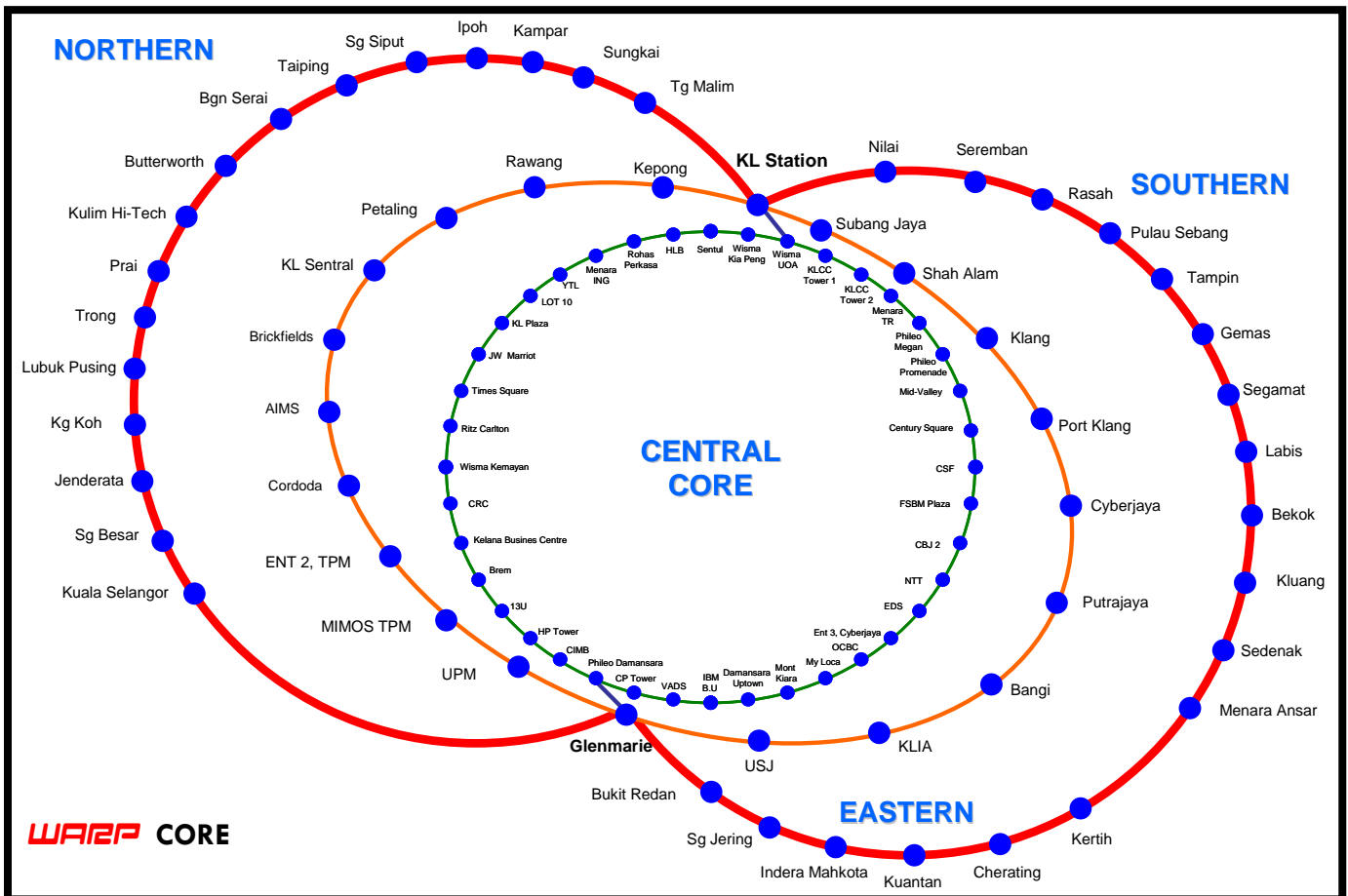
**Paneagle Communications Sdn Bhd**

***"No Frills" Metro Ethernet Provider***



# WARP CORE

The **WARP** Carrier Optical Rapid Ethernet (CORE) is deployed across strategically identified towns and cities to ensure maximum coverage across the nation, utilizing the latest Carrier-Class Gigabit Fibre-Optic technology to ensure high resiliency and Quality of Service to our customers. Additional Points-Of-Presence (POP) are continuously being planned to be deployed, to expand the **WARP** Core to additional cities and buildings, as the demand requires.



## Last Mile Connectivity

We have formed strategic alliances with partners to provide the Last-Mile Connectivity. This can be accomplished by the many available methods:

1. Fibre-Optics
2. Fixed Wireless
3. Free-Space Optics (Laser)
4. WiMax



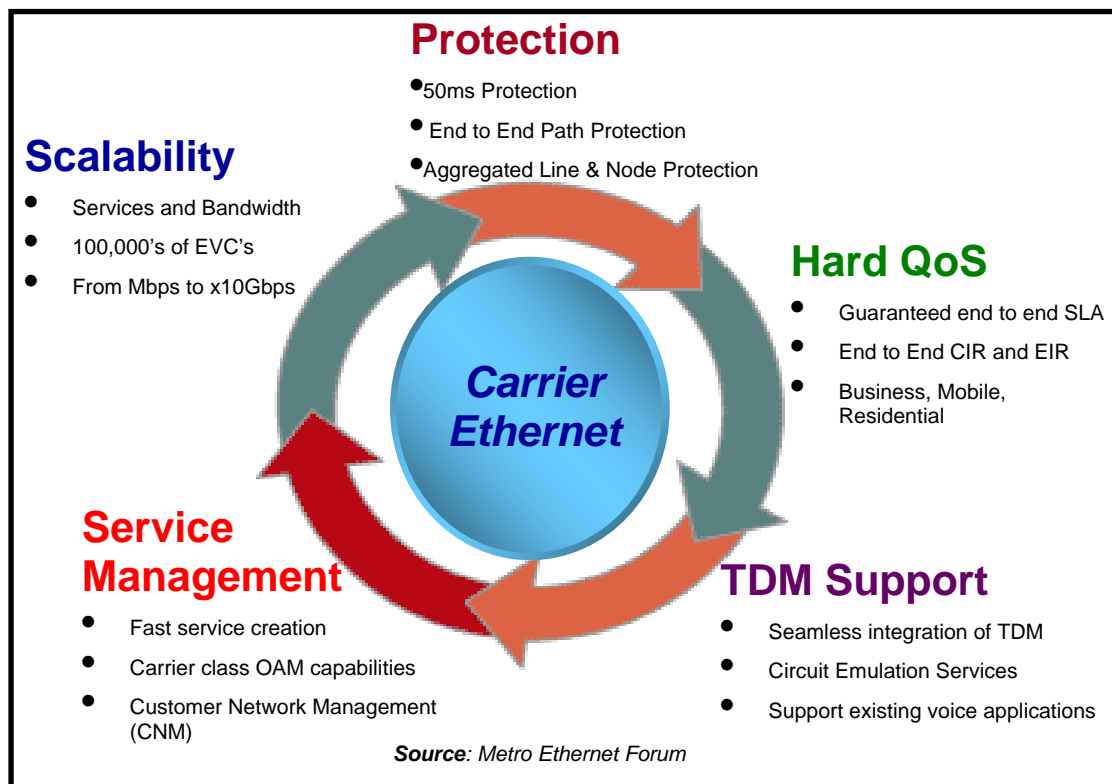
# Why Drive When You Can **WARP?**

Cost-efficiency is the essential key to ensuring that your organization has a competitive edge over your competitors. Within the IT sector, one of the major expenditures for an organization, with multiple branches is the cost of procuring and maintaining the network link.

There are several connectivity options available for organizations to connect their network, depending on their network connectivity requirements and just as important, the available budget. Solutions like ISDN lines are suitable for short-term low bandwidth connectivity, whereas organizations requiring higher connectivity bandwidth have limited choice, but to opt for digital leased lines, which allows for traditional connectivity to speeds of 2Mbps (E1 Lines) for the entry level networks. This connectivity issue is primarily due to the legacy network architecture; however, with the introduction of the **WARP** Core, the legacy network limitation has been surpassed, paving the way for the New Generation Networks to provide much needed bandwidth to the community at large. You are now able to interconnect your offices at scalable bandwidth starting from 10Mbps to 1Gbps.

The **WARP** Core is deployed across strategically identified towns and cities to ensure maximum coverage across the nation. Additional Points-Of-Presence (POP) can be added at any time to expand the warp core to additional cities of buildings as the requirements arise.

## Carrier Ethernet Characteristics





# Superior Quality, Flexible & Scalable

## WARP SERVICE BENEFITS

- ★ High Bandwidth connectivity of between 1Mbps to 1Gbps.
- ★ Supports Multiple VLANs which allows you to securely separate your traffic on the network.
- ★ Network Resilience switchover of less than 50ms.
- ★ Ethernet Connection
- ★ Flexible and scalable bandwidth to match your organization's requirements.
- ★ Easy to maintain, without additional equipment costs.

	Legacy Networks	WARP CORE
Easy to Operate	★ ★	★ ★ ★ ★ ★
Economical Scalability	★	★ ★ ★ ★ ★
Flexible Service Scalability	★	★ ★ ★ ★ ★
Rapid Provisioning on Demand	★	★ ★ ★ ★ ★
Lower Support & Maintenance Costs	★	★ ★ ★ ★ ★
Ethernet Internet Access Services	Not Available	★ ★ ★ ★ ★
Point to Point Connectivity	★	★ ★ ★ ★ ★
Point to Multipoint Connectivity	Not Available	★ ★ ★ ★ ★
Multipoint to Multipoint Connectivity	Not Available	★ ★ ★ ★ ★
Resiliency	★ ★ ★	★ ★ ★ ★ ★
Quality of Service (QoS)	★ ★ ★	★ ★ ★ ★ ★
Security Levels	★ ★ ★	★ ★ ★ ★
Protocol Used for Connectivity	ATM / Frame Relay	Ethernet
Latency	Medium	Very Low
Ease of Inter-working	Rigid	Plug and Play



# Next Generation Network

The **WARP** Core uses MPLS (Multi Point Label Switching), which is able to prioritize packets based on traffic type. Real-time traffic will benefit greatly from the QoS mechanisms as voice and video packets will be sent through ahead of other packets. Based on Ethernet technology, the core uses the OSPF (Open Shortest Path First) routing protocol that ensures high resiliency and fast response times in circumventing network path errors (e.g. re-routing packets when a route is down).

MPLS L2 VPN topology allows multiple connected locations (point-to-point, point-to-multipoint, multipoint-to-multipoint) to be networked in your own Private Wide Area Network. While similar to existing technologies like Frame Relay, MPLS L2 VPN has the added advantage of extremely low latency and significantly higher bandwidth. Using Q-in-Q encapsulation, tunnels can be built easily for a virtual leased line (VLL) from point-to-point, or to build a multipoint mesh between several locations. Within these tunnels, the end users are free to provision their own inter-location VLANs. End users can also run any L3 protocol of their choice across these tunnels.

**WARP** boasts scalable bandwidth at the last mile. It is not bound by TDM-like limitations (whereby higher bandwidths can only be obtained by using multiples of E1 connections). Bandwidth can be increased or reduced instantly without any changes to the physical medium and equipment. Traditionally, subscribing to an additional E1 data circuit to boost a WAN link's bandwidth availability would also mean that there's a new pool of IP addresses to be routed through. Using the **WARP** Core, bandwidth can be increased by any amount without altering the physical connections and IP address pools. This translates to much more flexible network services provisioning and maintenance.

Being a Carrier Ethernet infrastructure, this is a true converged network with the speed and reliability to carry all types of traffic - voice, video and data. An organization will no longer need to resort to different technologies on different platforms to meet all their telecommunications needs. For instance, traditionally a company will subscribe to frame relay leased lines for private data connectivity; an ISP WAN link for public data (to the Internet); and probably E&M tie-lines for private interbranch voice networking.

In recent times, most organizations have resorted to a single connectivity method (leased-line to ISP) that gives access to the Internet by default, and resorted to a number of compromises to give this network a semblance of convergence. For instance - the usage of L3 VPN routers for private networking, and the usage of IP tie lines (from H.323 or SIP enabled PBXes) through the public network or through the VPN tunnels for interbranch voice networking. This solution is quite popular, but comes at the expense of high latency (which gives poor voice performance) and poor quality of service (no prioritization of traffic types).



# “No Frills” Metro Ethernet Network

These issues are addressed at the Core of the network itself. Low latency, high reliability and resiliency, separate tunnels for private and public data, packet prioritization for real-time traffic - all these are inherent to the architecture of the network core. Finally, there is a truly converged network, with high performance and low latency, without using any “smoke and mirrors”.

## NEXT GENERATION NETWORK (NGN)

The **WARP** Core is simple to use. All that is required is a standard RJ45 connection from your standard Ethernet switch or routers to our network. Gone are the days where dedicated legacy network equipment are required or specialist training to maintain the equipment.

## NETWORK COVERAGE

**WARP** Core is Malaysia’s first scalable Carrier Optical Rapid Ethernet network. We are able to deploy network connections nationally and internationally for your organization to connect to your offices or suppliers. Some features may not be available at all locations. Please contact your **WARP** Business Account Manager to assist you to determine the best solution possible for your requirements.

**Paneagle Communications Sdn Bhd** is a service-oriented organization, with the mission to provide an affordable, “No-frills” Metro-Ethernet Network to the Malaysian Community. Call us to discuss your network requirements.



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