



ETHERNET LEASED LINES SERVICE DEFINITION

SERVICE OVERVIEW

With new corporate technology standardising on Gigabit Ethernet NIC cards that deliver high speeds directly to desktop users that require demanding applications such as video conferencing, storage networking and e-business operations across the LAN, a new challenge has arisen of connecting these high speed LANs throughout a wide area. Present alternatives for connecting locations with "high bandwidth" E3's and ATM circuits are extremely limited in flexibility, bandwidth and cost.

Sapphire Networks offers a cost effective and scalable layer 2 Ethernet leased line service. With connection speeds ranging from 2 to 1000 megabits per second, we provide a highly reliable and secure method for data transfers. Multiple network topologies are available, including point-to-point and point-to-multipoint (hub and spoke).

The service uses our carrier grade Ethernet services infrastructure. The connection pathways are dedicated to you and do not interconnect with the Internet or public telephone system. We also provide the option of quality of service (Class of service) for the data transported over the connection. The scalable nature of Ethernet means that service speeds can be contracted at the required level rather than at the next available SDH pipe size.

The service provides simplicity as there are no tunnelling or complex configurations required. You simply plug-in and connect to your layer 2 WAN. The service is transported by redundant infrastructure that automatically provides high speed re-routing of traffic in the event of a fibre cut or node failure.

WHY USE THIS SERVICE

- Network consolidation
 - Eliminate duplicate services required to achieve a higher speed.
 - Reduce the number of network connections required.
- SLA and Reporting
 - Sapphire provides a high-level SLA for your circuit as well as usage graphs.
- 24 * 7 support
 - Access to our onsite NOC at all times.
- Scalable, secure bandwidth.
 - Private dedicated bandwidth as available with traditional IPLC services.
- Optional CoS on connection traffic.
 - Four classes of services available to allow customers to prioritise their traffic inside their WAN connection.
- Cost effective when compared to traditional SDH technologies.
- Network Reach
 - With our connection partners we are able to deliver Ethernet services throughout the globe.
- Simplicity and ease of use.
 - Plug and play functionality to extend Ethernet services.
- Ethernet interfaces common place.
 - High speed Ethernet interfaces are common place and very cost effective.



TECHNICAL OVERVIEW

Connection speeds available:	2 - 1000 mbps
Maximum Layer 2 Frame Size:	1596 Bytes - 1950 Bytes
Framing Format:	IEEE 802.3
Physical Presentation (MDI):	RJ45, SC/PC - LC/PC (Optical Only)
Physical Interfaces:	10BaseT, 100BaseTX, 1000Base SX, LX, LH, ZX, T
MAC address Limits:	50 addresses per endpoint
Service Protection:	Fully protected over Sapphires infrastructure
Service Availability:	99.99%

TECHNOLOGY OVERVIEW

Sapphires Networks Carrier Ethernet network is based upon IEEE 802.1ah (Provider bridging). This allows complete customer separation such as is achieved with competing technologies (MPLS VPN, Frame Relay and SDH circuits). Sapphire's network is deployed using fully redundant equipment and links, with service restoration times of 50ms (equivalent to SDH).

QUALITY OF SERVICE

Sapphire networks implement a class of service classification system for data traffic passing through the connection.

The customer must tag their packets upon entering the circuit with the relevant CoS value.

802.1q tagged frames will be based on the 802.1p bit in the VLAN header.

DSCP code-point values will be used for non VLAN tagged frames.

Unmarked traffic is set by default to Best Effort service.

ADDITIONAL BENEFITS

Sapphires service supports 802.1q tag re-writing so that VLAN numbering can be flexible. Single VLAN or Multiple VLAN service is available.



CLASS OF SERVICE MARKINGS

Overall Mapping Table					
Traffic type	DSCP/class selector description	DSCP Value	802.1pbit	CoS Queue	
Best Effort Traffic - Default	Best Effort - BE	0	0	Standard	
Scavenger Class	Class Selector 1 - CS1	8	1		
Bulk Data	Assured Forwarding - AF11	10	1		
	Assured Forwarding - AF12	12	1		
	Assured Forwarding - AF13	14	1		
Network Management	Class Selector 2 - CS2	16	2	Silver	
Transactional Data	Assured Forwarding - AF21	18	2		
	Assured Forwarding - AF22	20	2		
	Assured Forwarding - AF23	22	2		
Call Signalling	Class Selector - CS3	24	3	Gold	
Mission Critical Data	Assured Forwarding - AF31	26	3		
	Assured Forwarding - AF32	28	3		
	Assured Forwarding - AF33	30	3		
Streaming Video	Class Selector - CS4	32	4		
Interactive Video	Assured Forwarding - AF41	34	4		
	Assured Forwarding - AF42	36	4		
	Assured Forwarding - AF43	38	4		
Interactive Video Signalling	Class Selector - CS5	40	5	Premium	
Voice	Express Forwarding - EF	46	5		
IP Routing	Class Selector - CS6	48	6		
Network Control Traffic	Class Selector - CS7	56	7		