



# PowerWAN

DATASHEET

**PowerWAN** delivers a powerful and flexible Next Generation Network to enterprises using Jcom's PureEthernet™ VPLS/MPLS core network. This core network acts as the ideal platform for converging Voice, Data and other services - we call it the Service Creation Platform (SCP). This tool set is at the heart of the Service Creation Platform (SCP) concept and allows the service groups on the SCP to be brought to the enterprise with simplicity, economy of scale, security, separation and quality of service.

## PowerWAN Link

**PowerWAN** Link is a high security, low latency means to connect sites or services, either point to point or as a mesh. It lies at the heart of our Next Generation Network approach to creating converged, simplified WANs.

**PowerWAN** Link delivers a highly secure, ultra-low latency layer 2 Ethernet connection to link up your sites nationally and internationally. Multiple **PowerWAN** Link connections can exist on the same physical connection enabling convergence of voice, data and business services on one connection and opening the door to a huge range of innovative network solutions to business problems. You retain control of your routing and receive access to Quality of Service features that allow you to prioritise traffic as well as set minimum and maximum bandwidths. This puts you back in the driving seat of your business network.

**PowerWAN** Link connections can be used to form point to point connections or mesh connected networks. This enables not only the connection of your sites but also your business services, such as those on the Jcom Service Creation Platform or from ASP providers, allowing you to build your network to drive competitive advantage.

Features	Benefits
Customer retains control of routing	Improved agility & flexibility
Converge voice & data networks on multiple PowerWAN Link connections	Reduced administration effort, easier network planning & lower cost
5 Levels of QoS prioritisation & bandwidth control	Ensures that your voice, video & mission critical services always perform
Protocol transparent Ethernet	Easy planning & administration
Bespoke design	Solution tailored to meet your unique business requirements
24x7 monitoring & fault management	Fast, effective professional support
Industry leading SLA	Guaranteed performance

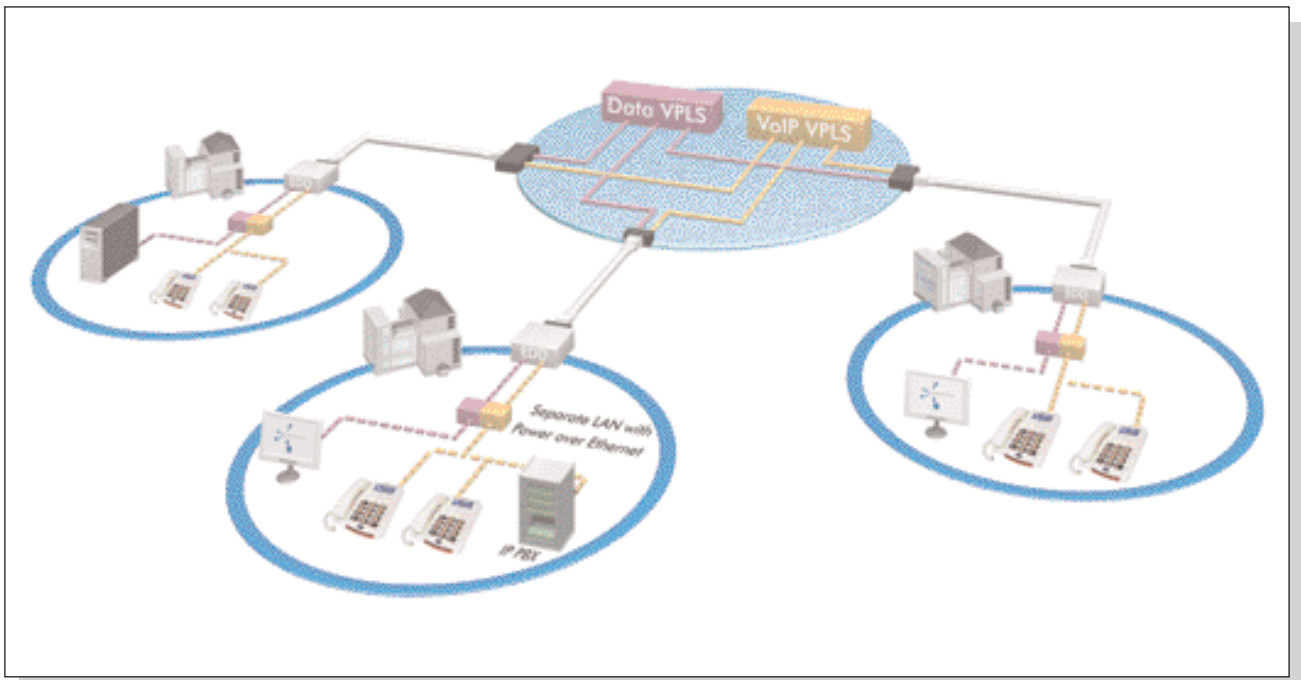


Fig.1 - Enterprise converged voice and data mesh network built with PowerWan link.

## Next Generation Quality of Service

In traditional networks, for each service delivered to a customer, a different technology approach was used that was specifically developed to support that service. For example voice services were carried over ATM networks which had their packet sizes set to 48bits to accommodate the small size of voice packets where as Frame Relay was designed to carry data.

Next Generation Network technology is all about using the same technology for all services, be it voice, video or data and being able to converge them all onto the same physical access circuit. This demands the ability to tune the performance of the network so that each service experiences different performance characteristics uniquely set to maximise quality of the particular service. This is no mean feat when you consider the conditions under which this has to be done, with each service just another stream of packets amongst all the others on the same connection. Without advanced Quality of Service tools to help, the only solution would be to provide so much bandwidth on your WAN that no service would ever need to compete for resource from another – a very expensive 'sledgehammer to crack a nut' approach. The first tool Jcom uses is the ability to create multiple [PowerWAN](#) link connections on a single physical connection which allows separate VLAN-style virtual circuits or mesh networks to be created either to separately support different organisational groups which have different service 'bundles' or to separate particular service types that have different quality, management or security requirements e.g. VoIP and data could run as separate VLAN networks and so maintain better security for both.

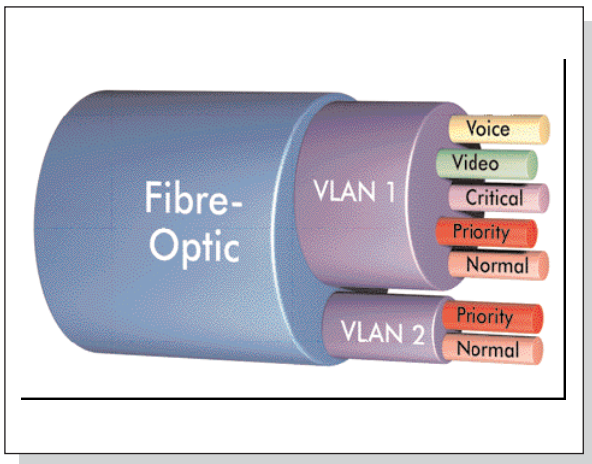


Fig.2 - Quality of Service options

The five QoS options have been carefully developed by Jcom to meet your business requirements:

**Voice:** This is engineered to provide MOS 4, toll quality voice regardless of data traffic levels.

**Video:** This is engineered to provide the optimum conditions for video conferencing and video streaming.

**Critical:** Highest priority data traffic for applications that require guaranteed bandwidth however busy the network may be.

**Priority:** This is given priority over best effort services, ideal for line of business applications such as CRM and ERP.

**Normal:** Best effort data traffic ideal for Internet browsing or email.

These QoS levels are defined and tuned to ensure that the key network performance criteria of bandwidth, latency, jitter and packet loss are set to optimise the performance needed by the service running at that QoS level. Naturally for a service this important to our customer's business we offer SLA guarantees for the performance.

End-to-End and Automatic QoS

These QoS levels are so important to our customer's ability to deliver the required network performance that we have made sure that this is not just available when the service travels across our core network, as is the case with most of our competitors. Instead it starts from the moment it begins its journey at a customer site and continues all the way to the point when it arrives at its destination. To achieve this, the customer sets their network to mark the traffic priority and this is acted on by the Jcom demarcation device at the customer site.

Marking of priority traffic is an excellent and proven approach to implementing QoS but in a complex business environment it is not always possible to do that. For example, if a customer has a requirement to deal with traffic from a partner or supplier, such as a market data feed, it is unlikely that they would mark the traffic appropriately. However, our Next Generation technology has the ability to inspect packets and automatically set the correct priority when it first arrives on the Jcom network. In the example given we would identify the traffic from the market data provider and automatically prioritise it in to the mission critical QoS level to ensure it took precedence over the routine traffic on that customer's WAN.

These powerful network optimisation and performance tools are cost effective features built in to the Jcom [PowerWAN](#) Link service.

# The Advantages of VPLS Wide Area Networks

Businesses operate in an increasingly complex environment with ever increasing regulation, highly competitive economic conditions and consumers who are becoming more diverse in their needs. Fortunately, the development of the Next Generation Network technology has provided some of the tools necessary to ensure business operations are able to meet this demanding environment. There are two types of WAN service that will be offered by Service Providers with NGNs. The most commonly seen today is usually just referred to as 'MPLS VPN' but actually is a particular type known technically by the standard that defines its operation - '2547bis'. This type of WAN operates using layer 3 protocols whereas the Jcom WAN uses a different technical standard to deliver its service over the MPLS core known as Virtual Private LAN Service (VPLS). The differences in the two approaches are tabulated below :

## Comparison of VPLS with other IP-VPN Technology

Attributes	VPLS	2547bis MPLS VPN
Enterprise protocol	Multiprotocol	IP only
WAN connectivity topology	Multipoint bridged solution	Multipoint routed solution
Routing responsibility	Enterprise routes and provider switches	Shared between enterprise and provider
Scalability when adding new sites	Multipoint - new sites need only local provider edge (PE) updates	Multipoint - new sites need all PE routing tables updated
Complexity of troubleshooting	Low	Higher (due to routing complexity)
Protocol conversion from LAN to WAN	No	Yes

Jcom is the leading company in the UK for the delivery of VPLS WAN services to enterprise. We believe that VPLS offers the most flexible and feature-rich private networking solution available and is the best choice for business addressing the challenges of today's competitive environment.

# Applying Jcom VPLS Network to Create Business Value

---

Different businesses clearly have different approaches to building and managing their wide area network. In general though they are either looking to control it from their in-house team or they are looking for a managed solution. VPLS solutions provide significant benefits in both situations. However they are particularly valuable where a business has complex networks or is working on a converged network strategy. A summary of the key benefits for each type of business is shown below:

## In-house Strategy

- Control of IP routing.
- Transparent WAN so they can connect between their routers without needing to look at the service provider.
- Clear demarcation allows them to maintain good control of their network and service provider.

## Outsourced Managed Strategy

- Sustainable lower cost of service because VPLS reduces the fault calls, the time to fix and the skill level of staff needed to carry out the work.
- Higher SLA targets possible in fault management and change management because it is so much simpler.

## Converged or Complex Network Requirements

- True convergence of multiple networks and services on to a single pipe (Layer 3 MPLS can only have one instance per physical circuit).
- Lower cost with least possible number of access circuits.
- Wider range of options to configure network because you can separate different services or functions on to different VLANs - whether VPLS or 'Martini tunnel' style.

To show how this works in practice, below is an example of how the Layer 2 VPLS solution creates business value for a large financial company has the following requirements:

The requirements:

- Bank operations team has separate LAN and must connect securely and privately to BACS and international banks (Extranet) to support back office systems data traffic and private email traffic.
- Offices must have telephone services, video conferencing and data connections to support email, web browsing and access to mission critical services? between London and two branch offices
- HQ PBX must connect to PSTN service provider
- Public Internet for the Online banking servers must be kept separate from all other elements of the network.

The Jcom solution:

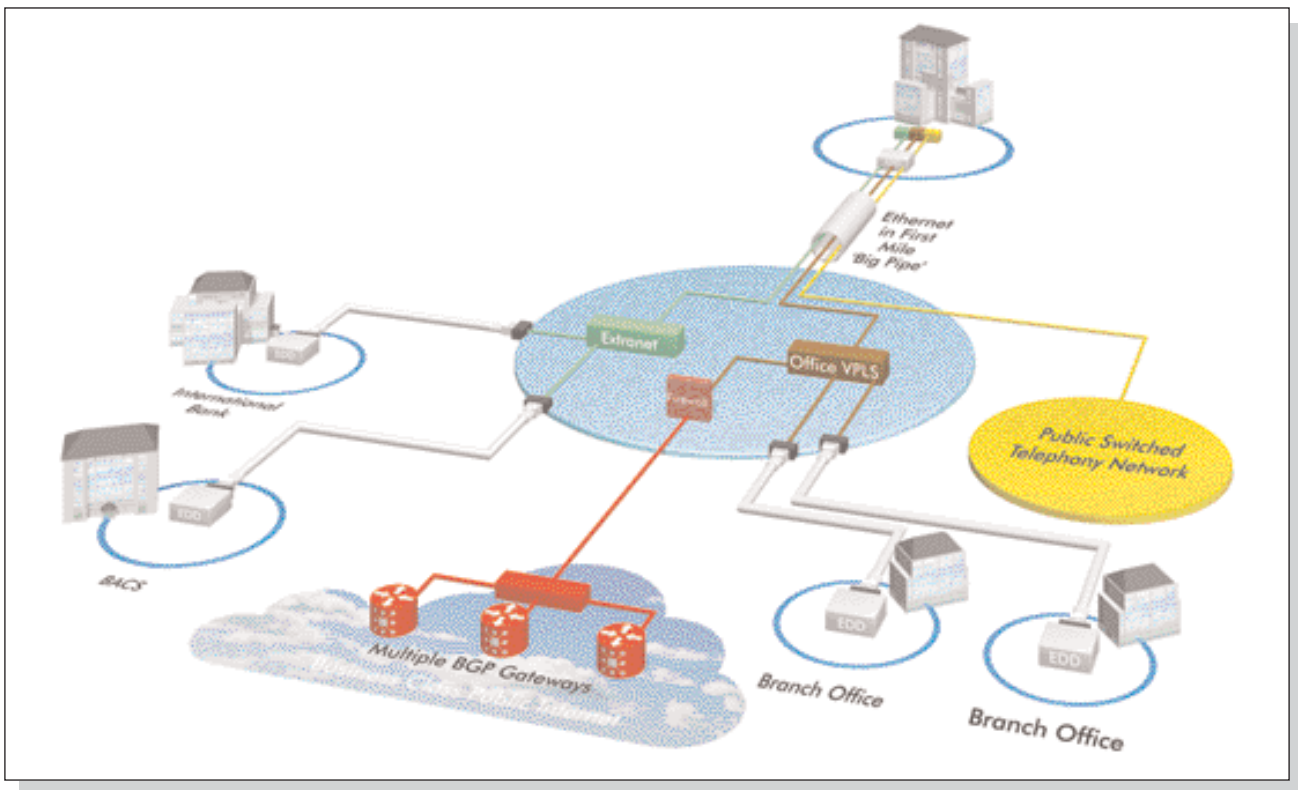


Fig.3 - How layer 2 VPLS solutions create business value

- Reduced administration and capital cost:  
The use of Ethernet throughout the WAN makes it easy for the business's IT team to administer the solution and reduces the cost of hardware at the LAN gateways.
- Reduced complexity and cost:  
The ability of the Layer 2 VPLS technology to create multiple separate, private networks on a single large capacity access connection reduces the cost of access circuits to a minimum.

- Maximise existing assets and reducing telephony costs:

The Next Generation Network provider emulates a traditional TDM circuit across the Ethernet VPLS network to directly connect the customer's HQ PBX to one or, more likely, several Global PSTN Carriers at wholesale minute rates.

- Security:

A high capacity, resilient firewall is hosted 'on-net' with 'clean' connection to the Office VPN and 'DMZ' connection to the public facing web servers. This improves resilience because the Internet is not dependant on any single site's availability and larger firewalls are built to higher availability levels. It also improves and simplifies security by having a single point of policy enforcement. In practice it is likely that other security gateway devices would be used this way such as, Intruder Prevention Systems, content filtering and security proxy servers such as Microsoft ISA server.

- Control, business agility and reduced administration:

Each office location is connected with a layer 2 VPLS connection and the standard architecture would have a router at the gateway of each office – these routers appear to be as directly connected to each other allowing the business's IT team to take full control of the routing between offices and achieve real improvement in business agility.

- Security and privacy without the cost of multiple networks:

The Extranet is a separate private network that is set up as if it were 2 traditional ATM/SDH WAN services being supplied by the same service provider. The Network Termination Equipment (NTE) at the HQ site provides the network with a physically separate port with no possibility of crossing from one VPLS to the other.

Powered by Exponential-e Ltd



Jcom UK Ltd, Riverside Centre House, 63-67 High Street, Teddington, Middlesex, TW11 8HA

Tel: +44 (0)20 8943 2222 Fax: +44 (0)20 8943 1010

info@Jcom.co.uk www.Jcom.co.uk