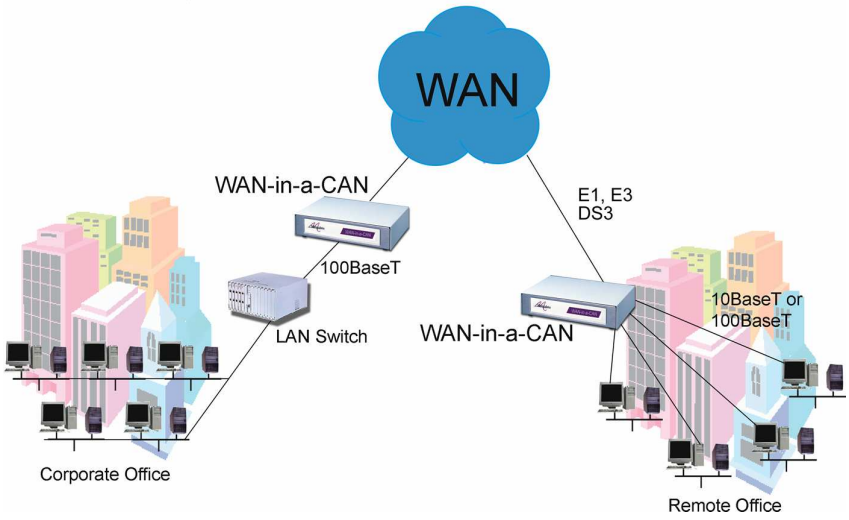
APPLICATION NOTE

WAN-in-a-CAN

The WAN-in-a-CAN family enables Layer 3 Ethernet switches to be linked directly over the Wide Area Network **(WAN)**



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Application note

Introduction and background

In the beginning there was the Bridge (layer 2 device) which enabled two separate local area networks (LAN) to appear as one large LAN. This solved one problem and created another, the larger LAN now suffered congestion.

Then there was the Router (layer 3 device) that enabled two LAN's to be joined together whilst keeping the traffic separate. The router also solved the problem of connecting different protocols together like TCP/IP, DecNet, XNS, SNA, IPX etc.

Then customers wanted to join networks over longer and longer distances had to buy Routers with serial ports (X.21 or V.35) that could be connected to BT Kilostream circuits. This solution was fine until customers wanted speeds greater than BT's Kilostream service could provide.

This identified a gap in the market where a device (CSU/DSU) that converted E1 and higher speeds to X.21 or V.35. This enabled companies like Metrodata to fill this need.

With the emergence of TCP/IP as the only viable protocol for local area networks the need for a router to convert between two or more protocols was removed. The Router was still needed to handle the conversion to X.21 or V.35 interfaces.

Finally there was the Ethernet Switch (layer 3 device) which segmented a LAN. This increased the throughput and therefore the performance at the expense of losing the ability to cheaply join two or more LAN's in separate locations.

The Metrodata **WAN-in-a-CAN** now removes the need for a Router to handle the wide area connectivity *and* provides an integral 4-port Ethernet switch.

When a company wants to connect remote sites to the head office, they normally need a large router at the head office and smaller routers on their remote site with a leased line between them. They will also require an interface converter between the Routers and the leased line. These routers will need to be configured and managed, adding to the complexity of the provision of your remote site.

Metrodata have introduced this new product that will make your life so much easier, and cheaper. The **WAN-in-a-CAN** enables an Ethernet system to be connected to a remote site using simple bridging protocol over standard E1, E3 and DS3 leased lines.

Key Features of the WC range

- Low cost, feature rich LAN extension over Serial, E1, E3 or DS3 leased lines.
- Quad ports Ethernet switch on the subscriber ports.
- 4 off 10/100BaseT auto sensing & auto MDI/MDIX switching.
- Wire speed local switching between subscriber ports.
- Wire speed filtering of local packets.
- High efficient HDLC Packet Handling on WAN port, over 80,000 PPS over a DS3

Product Overview

The **WAN-in-a-CAN** range of network extender products provides the ability to extend a LAN connection over a wide area link. The highly efficient, encapsulation of packets ensures maximum throughput is achieved on the WAN link, which coupled with MAC address based filtering on the subscriber LAN ports ensures that maximum benefit is gained.

The **WAN-in-a-CAN** product family performance is shown in the table below and shows the maximum performance gained against a LAN tester.

Product	Link speed	Maximum Performance (PPS)
WC1000	E1, 2.048 Mbps	4,040
WC3445	E3, 34.368 Mbps	62,734
WC3445	DS3, 44.736 Mbps	80,250

The products present a pair of BNC connectors to the leased line.

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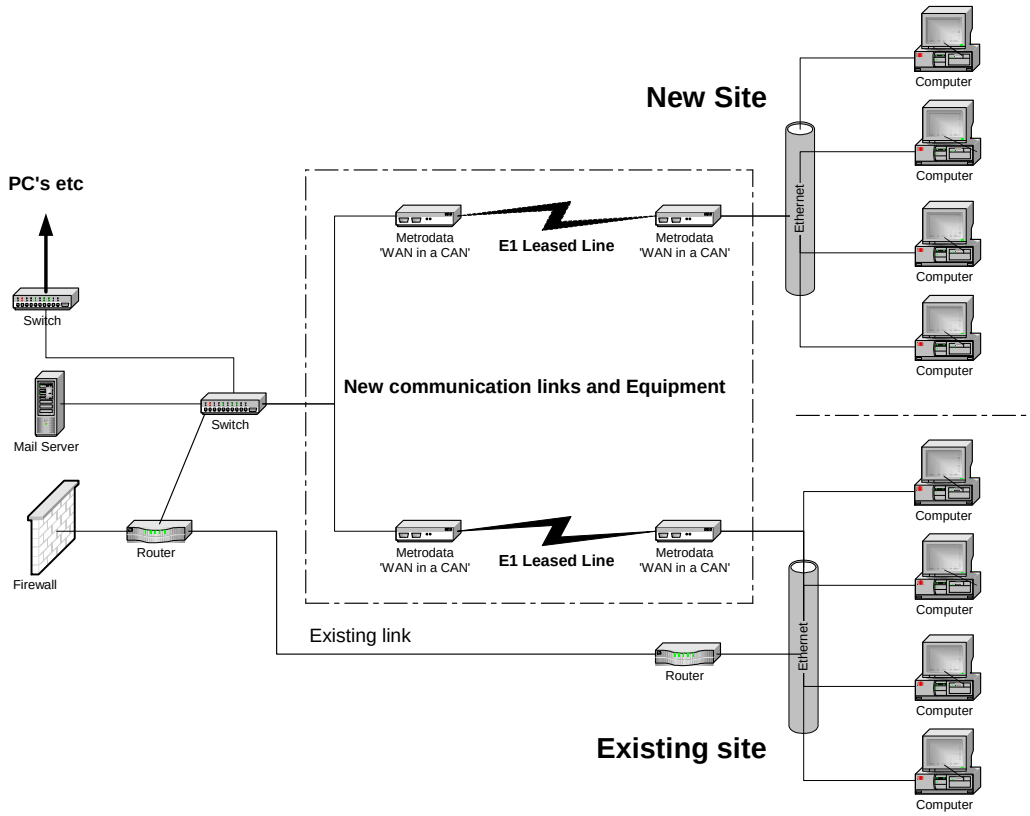
Applications for the Metrodata WAN-in-a-CAN

The diagram below shows an example of the **WAN-in-a-CAN** in action

The head office has an existing link via the Router to a remote site. They need to upgrade this link to E1 (2048kbps) leased line and connect the head office to a new site via another E1 leased line. Using the **WAN-in-a-CAN** ports on their Ethernet switch can be used and this avoids the need to upgrade the Router and the buying of X.21 to E1 DSU (Data Service Units). This enables the engineers at the head office to remove the existing router making it easier to manage both remote sites' requirements from this central location. These requirements being:

- Internet access via a Firewall
- Mail Server
- VPN system to home users

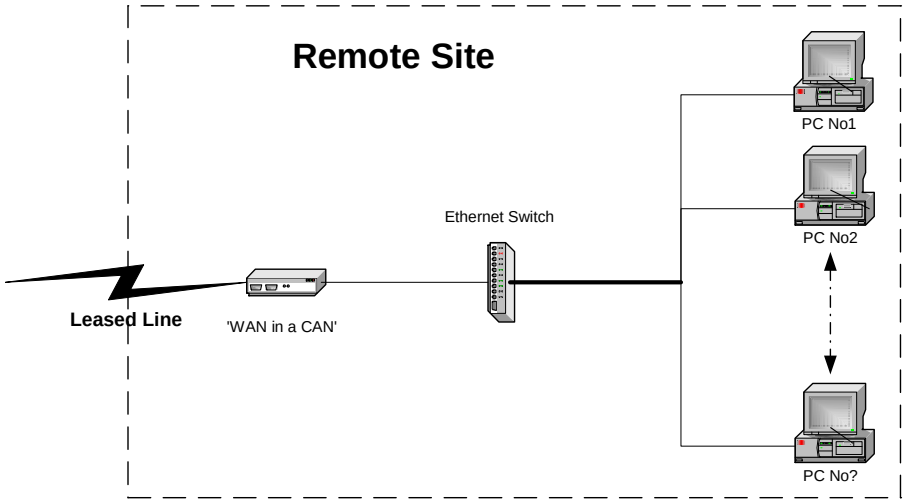
The diagram below shows a typical system consisting of a head office and two remote sites, one existing and a new site to be added. If the remote sites have more than 4 PC's they can use Ethernet switches or hubs to expand one or more of the Ethernet outputs.



Connecting an Ethernet Switch directly to a leased line

If an existing site has an Ethernet Switch, this can be directly connected to a leased line by the WC range. This leased line can be at any speed - DS3, E3, E1.

This solution also saves on the cost of the WAN interface on the Switch, which can be quite expensive.



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Contact Details

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