

case study

Providing Virtual Private Network Services in the Edge Network – Wintegra WinPath DPS Customisation and Augmentation

A major telecommunications equipment manufacturer engaged Asidua to design and develop the software for a new MPLS LER service offering which would allow providers equipment (PE) to provision point to point Layer 2 VPN services.

These Virtual Private Wire Services utilise the Ethernet Pseudowire Emulation Edge-to-Edge (PWE3) to enable customer equipment (CE) to be connected to remote equipment via the existing MPLS or IP backbone network creating an emulated Ethernet service.

□ technology mix

platform

- AMX running on PowerPC

network Pprocessor

- WinPath2

telecommunications

- Ethernet
- 802.1q
- Ethernet PWE3 (rfc4448)
- MPLS (rfc3031)
- Layer 2 VPN
- Traffic Engineering

Programming the highly customisable WinPath DPS to fulfil the customer's needs required the key skill sets of underlying DPS architecture knowledge and DPL coupled with an in-depth understanding of Ethernet and Pseudowire technologies. The customer identified that Asidua brought these key skills to the table and as a result were tasked to complete this project due to the requirements for not only WDDI customisation but also WinPath DPS customisation and augmentation services.

□ key objectives & specification

The key objective was to design and develop Ethernet Pseudowire support in the Wintegra WDDI and DPS layers providing the following main features:

- Ethernet Tagged and Raw mode support
- Egress VLAN rewrite functionality
- Ingress and Egress VLAN PRI mapping
- MPLS Label EXP bit mapping
- Memory limitation and performance considerations

A major challenge in this project was that prototype hardware would not be available until late in the software development process.

□ successful outcomes

Asidua met the key performance critical requirements of the system and memory constraints required to support up to 4096 VLANs across several Ethernet interfaces.

Being aware of the performance issues related with customising and augmenting wire speed solutions operating at up to 1000 Mbits/sec enabled Asidua engineers to create a highly optimised solution with minimal processing overhead.

Using the detailed knowledge of the DPS TRS limitations and the data packet lifecycle the solution was applied within the tight bounds of the WinPath DPS architecture. [continued...]



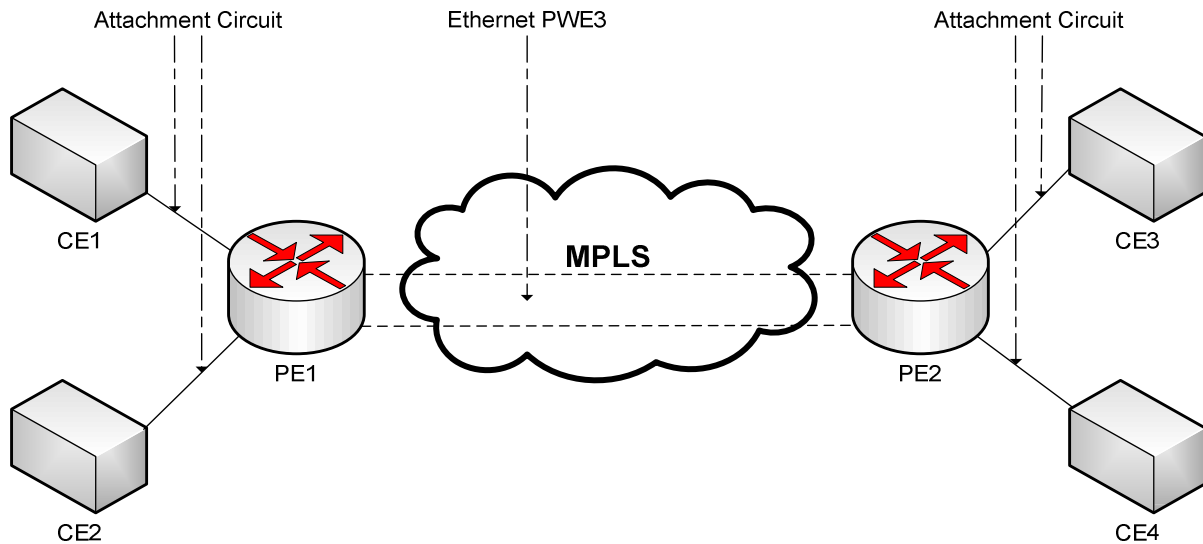


Figure 1: Ethernet PWE3

□ **extra dimension:** beyond the basic programming environment

Working closely with Wintegra engineers in Israel enabled Asidua engineers to exploit their existing Wintegra WinPath skill base developed over the previous years providing WDDI application services to WinPath customers. The extra dimension of providing WDDI and DPS design capability gave Asidua customers a new flexibility to customise and augment the basic building blocks and “off-the-shelf” solutions provided by Wintegra with powerful solutions to suit their needs in the ever changing telecommunication market.

- Regular engagements with the customer systems engineers from an early stage enabled validation of the project goals and provided the customer with confidence the proposed solution would meet their requirements.
- As in most projects there were late changes to the requirements and the priorities but Asidua was able to demonstrate how they can adapt to a changing environment to limit any changes to the delivery schedule.
- Engineers within Asidua were able to utilise their extensive experience with testing end-to-end network traffic scenarios using advanced traffic analysers to demonstrate and verify the robustness and validity of the delivered solution.
- Asidua’s teamwork, experience, commitment to quality and customer satisfaction ensured the project was delivered on time and to an exceptional standard of quality which was illustrated by its seamless integration into the customer’s service offering.

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