WanStaX Application Framework

Extensible Control Plane Software for WinPath





Telecommunications equipment manufacturers face the dual challenges of delivering solutions which respond to service providers' constant drive for network evolution, while at the same time driving down costs.

Microsemi's WinPath Network Processor family addresses both challenges in hardware and data plane software by providing flexible, high throughput and high value for money solutions for the mobile and fixed network architectures.

For example, WinPath is particularly well suited to mobile network environments as they evolve from TDM to all-packet networks.

Civica's WanStaX portfolio allows fast development of evolutionary systems based on WinPath.

By providing easy to use software building blocks in the control plane that encapsulate the complexities of the underlying data plane constructs, WanStaX delivers a fast solution for supporting TDM, IP/Ethernet and the Pseudowire services that allow TDM to be emulated in a packet based environment.

WanStaX also provides the necessary timing and synchronization facilities (Synchronous Ethernet and IEEE 1588 PTP) to facilitate islands of TDM nodes, especially 2G and 3G base stations, which require continued support in a network upgraded with Ethernet aggregation and a packet based core.

In addition, the WanStaX Application Framework architecture is constructed to enable migration towards a centralised network intelligence as defined by Software Defined Networking (SDN) standards, by providing the appropriate level of 'smartness' in network elements to make SDN realisable at the same time as facilitating central control via the WanStaX OpenFlow interface module.

Features

- A uniform and simplified application front end to the WinPath WDDI driver layer.
- Fast adaption to new hardware designs via its unique Hardware Abstraction layer.
- Accelerated development of WDDI applications using Civica's off-the-shelf WDDI building blocks, including VLAN VRF Routing, VLAN and Non-VLAN Aware Bridging, IEEE 802.1Q Provider Bridging (Stacked VLAN's), CESOP & SATOP Psuedowires and QoS.
- MEF 6.1.1 & MEF 10.2 Ethernet Services: -Ethernet Private Line (EPL).
 -Ethernet Virtual Private Line (EVPL).
 -Ethernet LAN Multi-Point Services.
 -E-Tree - Routed Multi-Point Ethernet Virtual Circuit.
- Timing and Synchronization using SyncE and PTP (1588).
- Carrier Ethernet Link Aggregation (802.3ad), CFM (802.1ag), L-OAM (802.3ah) & PM (Y.1731).
- Utilisation of the latest WinPath Hardware Accelerators including PCE and IWGP.
- Multi-threaded access to WDDI via the WanStaX Application Framework API layer
- Software Defined Networking compatible via OpenFlow interface module.
- Extensive abstracted interface to the target OS with Linux and VxWorks supported.

Compatibility

Microsemi's WinPath network processor family including WinPath3, WinPath3SL and WinPath4 running WDDI 4.2 or later.

Deliverables

- Software provided in a mixture binary and source code, making it completely configurable.
- Simulation package allowing accelerated x86-based host development and testing.
- Civica offers support and maintenance for all software provided.
- Civica also offers Professional Services from a pool of expert staff that has provided specialist WinPath capability to a large number of customers worldwide.

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The benefits of using WanStaX Application Framework are demonstrated by considering, for example, the underlying WDDI operations carried out 'under the hood' during initialisation and creating a VLAN using the CLI (see below). The simplification of software to control the WinPath device reduces development time and cost.

WanStaX Application Framework Initialisation	 Parsing of WanStaX Application Framework user defined global configuration. Based on the global configuration: Registration of all required WDDI features & callbacks. Creation of host & interworking memory pools & q-nodes. Creation of Ethernet ports & devices. Creation of VLAN priority mapping tables. Creation of default interworking compression context pools. Creation of default interworking flow aggregations for all Ethernet ports. Creation of default interworking multicast groups for all Ethernet ports. Creation of default Parser Classification Engine filters, filter sets, interfaces & iterators. Creation of default Parser Classification Engine. Creation of default Shaping blocks & groups. Creation of all Ethernet channels. Creation of all Ethernet channels.
Creation of VLAN using CLI commands: > interface gigabit 1.100 > no shutdown > end	 When a VLAN is created, the following group of WDDI calls are made: Creation of VLAN port, device & channels. Creation of VLAN interworking flow aggregations. Creation of VLAN interworking multicast group for bridging unknown or broadcast ethernet frames. Creation of VLAN PCE rules for learning & forwarding within the bridge.

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