WanStaX Network Interface Device
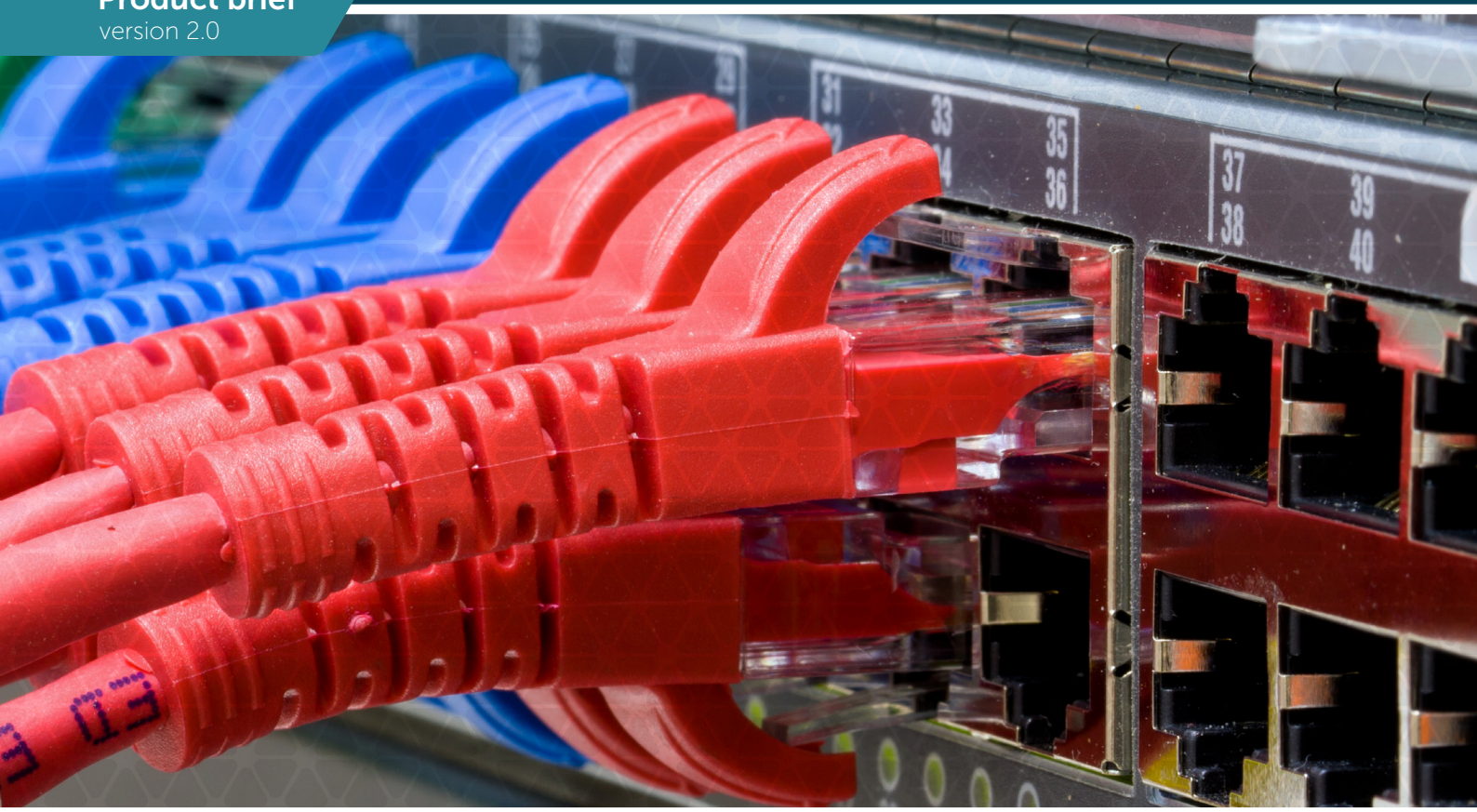
MEF Transport and Service NIDs

CIVICA

Transforming the way you work

WanStaX Ethernet Network Interface Device (NID) packages provide all the software equipment manufacturers need to support all the functional requirements for MEF transport and service NIDs.

WanStaX has been designed to run on all Microsemi WDS3 and WDS4 reference hardware platforms utilising the flexibility and power of the WinPath.

Flexible Commercial Model

A range of WanStaX NID packages exist to allow manufacturers with different functional requirements to select a package best suited to their needs.

Civica's flexible commercial model of providing source code allows WanStaX customers to integrate pre-existing software stacks with WanStaX, thereby allowing continued use of current software assets and/or license agreements with third parties.

Layer 3 Capability

Using the OpenFlow interface it is possible to extend the functionality of the solution to support standard layer 3 link state and distance vector routing protocols.

WanStaX optionally contains a micro OpenFlow controller that runs on the target board providing support for OSPF, RIP, BGP, ISIS and LDP via the Quagga networking routing software suite.

Features

- Full Service and Transport NID support.
- Type 1.2, 2.1 and 2.2 NID solutions are available.
- Full OAM support (with hardware acceleration) , 802.3ah, 802.1ag, MEF 13, MEF 20, Y.1731 and 802.1AX.
- Full VLAN 802.1Q support.
- Support for E-Line/E-Tree and E-LAN as specified in MEF 6.1.
- Comprehensive QoS support.
- Traffic policing and shaping MEF 10.2.
- MPLS-TP G.8131 G.8132.
- Sync E and IEEE 1588v2 support.
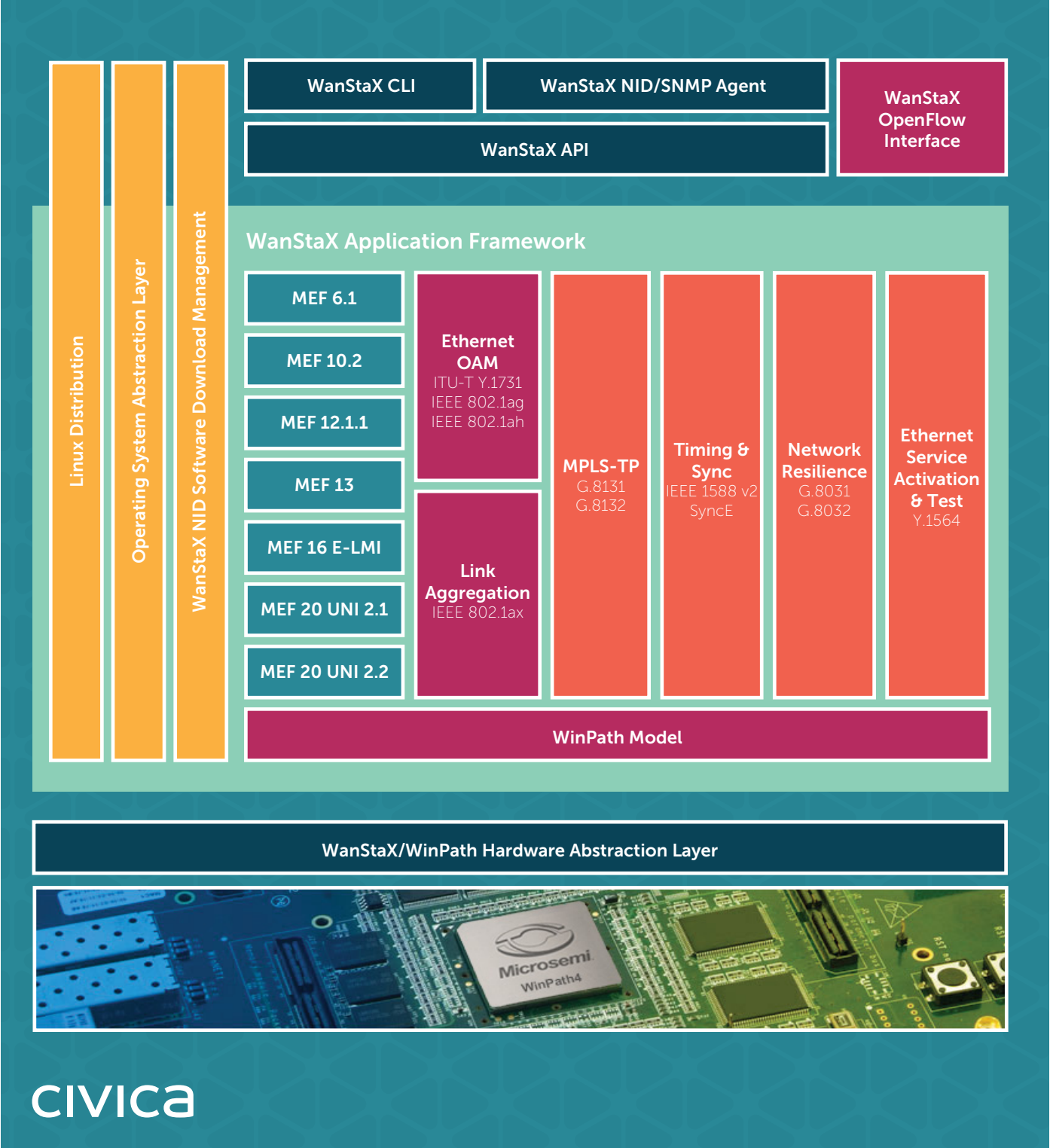- OpenFlow enabled.
- OSFP, RIP, BGP, ISIS, LDP.

Applications

- Ethernet demarcation NID MEF 12.1.1.
- Mobile backhaul.

Benefits

- Full support for WinPath3 and WinPath4 devices, including the SuperLite versions.
- Built in software support for 10 Gigabit, 1 Gigabit and fast Ethernet interfaces with full interconnection.
- Built in support for TDM interfaces with ATM CESoP and SAToP pseudo wires.
- Software provided in a mixture binary and source code, making it completely configurable. Software release includes UBOOT, Linux and build system.
- Management via CLI, OpenFlow and SNMP.

WanStaX Software Portfolio

Linux Distribution

Operating System Abstraction Layer

WanStaX NID Software Download Management

WanStaX CLI

WanStaX NID/SNMP Agent

WanStaX OpenFlow Interface

WanStaX API

WanStaX Application Framework

MEF 6.1

MEF 10.2

MEF 12.1.1

MEF 13

MEF 16 E-LMI

MEF 20 UNI 2.1

MEF 20 UNI 2.2

Ethernet OAM
ITU-T Y.1731
IEEE 802.1ag
IEEE 802.1ah

Link Aggregation
IEEE 802.1ax

MPLS-TP
G.8131
G.8132

Timing & Sync
IEEE 1588 v2
SyncE

Network Resilience
G.8031
G.8032

Ethernet Service Activation & Test
Y.1564

WinPath Model

WanStaX/WinPath Hardware Abstraction Layer

Microsemi
WinPath4

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Specifications

The principal specifications of the Civica WanStaX Network Interface Device include:

Ethernet	- Multiple 10G, 1G and Fast Ethernet ports, based on the hardware configuration - Full wire speed switching and traffic shaping/policing - OAM available on every interface - Full support for 802.1ag - Eight levels of maintenance domains - Configurable number of Maintenance Associations - Connectivity Check Messages from 3ms upwards - Y.1731 performance monitoring - 802.3ah Link OAM - Jumbo frame support - OpenFlow enabled - E-LMI support - Split Horizon Support - Multicast support with storm control - Advanced statistics support - MPLS-TP
VLAN	- VLAN support for S, C and S+C Bridging - PVID Support - VLAN Translation support - VLAN Range support - VLAN and Non-VLAN aware bridging - Per VLAN QoS Support - VLAN VRF routing - Advanced statistics support

Management	- CLI
	- SNMP monitoring with traps
	- SSH
	- TELNET
	- OpenFlow
	- Remote management
	   - In-Band
	- Local management
	   - via onboard serial port or 10/100 Ethernet
	- Customised U-Boot bootloader with dual boot firmware images and dual Linux firmware images.
	- Linux 3.7 Kernel with SMP support

Quality of Service	- Support for EPL, EVPL and ELAN QoS as specified in MEF 10.2 - 8 priority queues per interface per EVC - Traffic priority per ingress traffic type: PCP, DSCP, TOS, Precedence, Protocol, Address, L4 Port, MPLS EXT, MPLS Label - Remarking of PCP/DSCP/EXT - Drop criteria supported - Traffic policing per ingress priority queue, CIR/EIR MEF Coupling/Non-Coupling, Color/Blind, RFC2697, RFC2698, MEF compliant - Traffic shaping per priority queue, Strict, CIR/EIR, Mixed, WRR, WFQ, MEF compliant

Specifications (continued)

The principal specifications of the Civica WanStaX Network Interface Device include:

Synchronisation	- SyncE on all ports
	   - ITU G.8261
	   - ITU G.8262
	   - ITU G.8264
	- IEEE 1588 V2 on all ports
	   - OC, BC and TC
	   - IEEE 1588-2008 Default Delay Request Response
	   - IEEE 1588-2008 Default Peer-to-Peer Delay
	   - ITU G.8265.1 (Telecom Profile)

Bridging	- IEEE 802.12 - 2014 - Support for S, C and S+C Bridging, PBB (Q-in-Q) - PVID - Multicast - MAC Learning and forwarding - MAC pinning - Statistics
Routing	- VRF based IP-Routing - IPv4 and IPv6 - Native ARP and NDP support for address resolution - Default Route/Default Gateway support

Layer 3	- Using included Quagga implementations the following routing protocols are supported
	   - OSPF
	   - RIP
	   - BGP
	   - IS-IS
	   - LDP

Development	- Full build environment based on Buildroot - Virtual Machine build environment - Extensive Network Processor diagnostic/debug capabilities - Detailed documentation on WanStaX modules and APIs

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