

ETHERNET SWITCHING FEATURE ADD-ON FOR THE 8 x GE ACCESS MODULE

Ethernet Switching Feature License

The Ethernet Switching Feature License enables the usage of MAC level switching on an Nimbra 600 series 8 x Gigabit Ethernet Access Module running system release GX4.5 or later.

The basic Ethernet Transport Service (ETS™) provides a high QoS transport service that transports Ethernet packets in secure, bandwidth configurable, point-to-point or point-to-multipoint channels with no packet loss and with very low packet jitter.

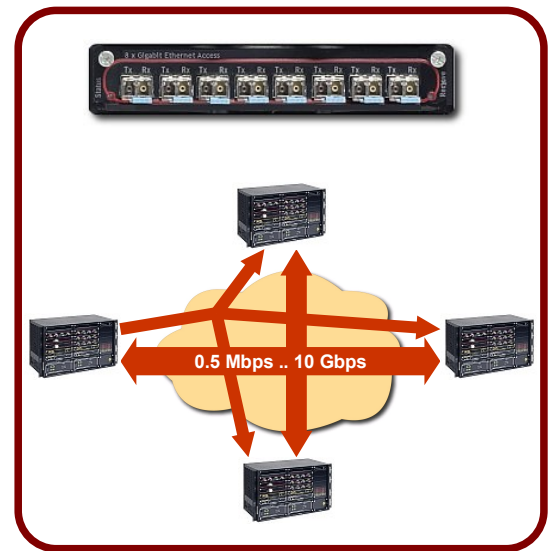
The Ethernet Switching Feature License enhances this functionality with IEEE802.1D/Q multipoint-to-multipoint MAC layer switching. All Metro Ethernet Forum service types are thus supported with this feature, see Table 2 on the other side.

The design comprises a number of unique features. On each board up to 8 physical Ethernet switches can be configured, each with its own MAC learning tables and VLAN space. Each configured switch can allocate any number of switch ports from a set of 8 physical + 247 logical Ethernet ports. Logical ports corresponds to ETS channels of configurable bandwidth, connecting to other Ethernet switches or physical ports in the Nimbra network. Each Ethernet switch can also be configured in a Transparent mode for completely transparent transport of packets, port-to-port.

With this unprecedented level of flexibility it is possible to form virtual networks for any application, such as QoS multicast transport of IPTV/CATV traffic, distributed office LAN applications, file transfers or live broadcast video, and mix it with native video/audio/telecom services in one and the same Nimbra network.

	No-MAC	MAC
Transparent	Forwards all incoming Packets (Nimbra 600)	Switching mode IEEE802.1D VLAN transparent (Nimbra 600)
VLAN	Forwards packets based on VLAN (Nimbra One/300/600)	Switching mode IEEE802.1Q VLAN aware (Nimbra 600)

Table 1. Forwarding modes of each configurable ethernet switch function. The Ethernet Switching Feature License enables the "MAC" modes.



CARRIER CLASS ETHERNET SERVICES USING THE NIMBRA 600 SERIES 8 x GE ACCESS WITH THE ETHERNET SWITCHING FEATURE



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KEY FEATURES

The most important characteristics of the Ethernet Switching Feature are:

Up to 8 Forwarding Functions. A Forwarding Function represent a complete instantiation of an Ethernet switch. Up to 8 FFs can be configured on one 8 x GE Access Module. A FF can also be configured for transparent port-to-port mapping.

Port flexibility. There are 8 physical ports and 247 logical ports to allocate to the Forwarding Functions. Logical ports are ETS channels, with configurable bandwidth that can connect to other FFs or to Nimbra One/300 Ethernet ports.

Switching mode. MAC layer switching between up to 255 ports, each with two priority queues.

Transparent mode. Port-to-port mapping mode allowing transparent transport between for example “Q-in-Q” enabled switches/routers, or for transport of premium (non-switched) flows with guaranteed QoS.

User/service separation. Separation of users or services can be performed on several layers, such as box, board, Forwarding Function or VLAN.

Resilience. Ethernet traffic is protected on several layers, for example by rapid spanning tree and automatic re-establishment of ETS channels.

System release	Pre GX4.5	GX4.5 and later		
	Nimbra One/300/600	Nimbra One/300	Nimbra 600	Nimbra 600 w. Eth X
MEF Service Type				
Ethernet Private Line			X	X
Ethernet Virtual Private Line	X	X	X	X
Ethernet Private LAN				X
Ethernet Virtual Private LAN				X
Ethernet Private Tree			X	X
Ethernet Virtual Private Tree	X	X	X	X

Table 2. Supported Ethernet Service Types according to the Metro Ethernet Forum definitions

Unsurpassed flexibility and QoS. The unique features of the Ethernet Switching Feature together with the properties of the Nimbra system (multi-service QoS transport over any media, optical control plane and more) provides for a one system solution covering the needs of broadcasters, media network and IPTV/CATV operators as well as for Metro Ethernet and telecom operators.

TECHNICAL SPECIFICATIONS:

Ethernet service with Ethernet Switching Feature License

Switching (Forwarding Function):

Number of Modes	1 – 8 configurable	
	Transparent (Private LAN/Tree)	
	Transparent VLAN aware (Virtual Private Line/Tree)	
	Switching (Private LAN)	
	Switching Vlan aware (Virtual Private LAN)	
Capacity	18 Gbps (in total, distributed over the Forwarding Functions)	
Ports	8 x 1 Gbps external, 0 – 247 logical (ETS channels) The 255 ports are divided between the Forwarding Functions.	
Priority	2 queues per port, High (strict) and Low priority Diffserv/User priority support	
Standards	IEEE 802.1D	MAC Bridges
	IEEE 802.1Q	Virtual LANs
	IEEE 802.1p	Ethernet Precedence
	RFC2474	Diffserv Precedence
Max frame size	9208 B	

Mapping:

QoS channelization	ETS (Ethernet Transport Service) according to ETSI ES 201 803-7.
ETS Channel cap.	n x 512 kbps (n = 1 to 19512)

Fault management:

Communication/Equipment alarms

Performance management:

MIB-2/RMON counters statistics group

Network Management:

SNMP	v1/v2c/v3
Element Manager	Web GUI, CLI

Ordering information:

NPM0020-6001	Ethernet Switching Feature License
NPS0043-6001	8 x Gigabit Ethernet Access Module

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Net Insight delivers the world's most efficient and scalable optical transport solution for Broadcast and Media, Digital Terrestrial TV, Mobile TV and IPTV/CATV networks.

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World class customers run mission critical video services over Net Insight products for more than 100 million people in more than 30 countries. Net Insight is quoted on the OMX Nordic Exchange Stockholm. For more information, visit: www.netinsight.net

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