Hi-FOCuS 5 – Multi-Service Access Gateway (MSAG)

Deliver Multiple Technologies on One Platform

ECI's **Hi-FOCuS 5 MSAG** delivers fully customizable and flexible high bandwidth services on one shelf. The **Hi-FOCuS 5** can be populated with any combination of ADSL2+, VDSL2 or VoIP line cards, and provides Ethernet aggregation, all with a non-blocking internal architecture to maximize bandwidth availability. The **Hi-FOCuS 5** is based on tested technology that is currently deployed in the field by First-Tier carriers servicing millions of subscribers.

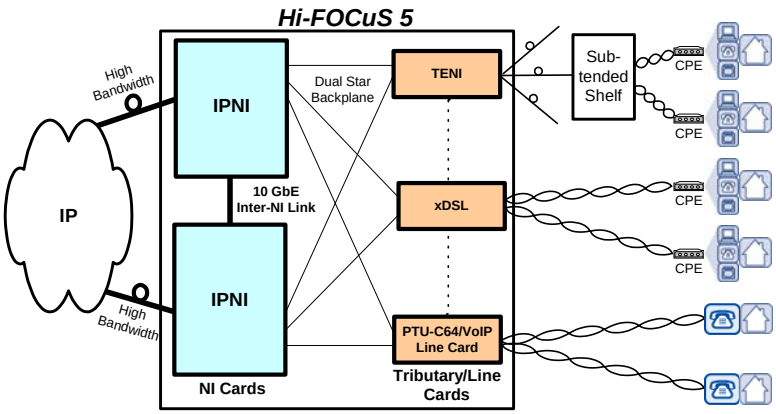
Multiple Technologies-Multiple Deployments

Deployed in a Central Office (CO), the **Hi-FOCuS 5** serves as an infrastructure component within the network and aggregates traffic from other subtended Hi-FOCuS shelves towards the network. The **Hi-FOCuS 5** can also be deployed in Local Loop locations for direct-to-subscriber services. In either case, the **Hi-FOCuS 5** can mix subtending and direct-to-subscriber services for maximum deployment flexibility.

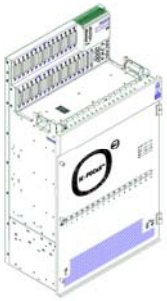
Benefits and Features

- Enables all high-bandwidth services: xDSL, VoD, IPTV, VoIP
- Mixes subtending and direct-to-subscriber deployment
- Combines ADSL2+, VDSL2, and VoIP interfaces on one platform
- Hot swappable line cards, swap without affecting traffic
- Same OPS can manage all shelves-including cross generation
- Allows service providers to upgrade customers currently receiving POTS using existing infrastructure
- Directly serves up to 960 subscribers. More subscriber s served in subtending applications
- Dual-Star FractalLink backplane provides non-blocking, hardware redundancy
- Layer 2 network processing with options for adding L3 IP features
- Multiple deployment scenarios

One of the features that significantly increases bandwidth availability is the multiple NI link aggregation. Multiple Ethernet ports can be aggregated into a single logical group for high bandwidth applications. Lines can be aggregated across NI cards (inter-NI) or within the same card (intra-NI). Aggregation also occurs in the backplane between NIs and line cards, providing both load sharing and redundancy.



Hi FOCuS 5 Specifications

Dimensions and Weight		**Height** 850 mm (33.7")	
		Width 447 mm (17.6")	
		Depth 280 mm (11.0")	
		Weight 34 kg (75 lbs)	(unpopulated)
		50 kg (110 lbs)	(fully populated)
Power	**Power Source** -42 to –75 VDC	**Power Consumption fully populated** 1450W	
Rack Installation	19" rack per IEC 297or DIN 41494 (Including Japanese requirements)	ETSI rack per IEC 60917-2-1	
Slots	2 Network interface slots 15 Tributary/Line slots	**DSL/VoIP Subscribers per shelf** 960	**Hot Swappable** Yes
Alarms	**Internal alarms** Three-level generation (major, minor, hardware) **External alarms** Via up to 8 inputs (48 VDC or GND)		
Security Features	Broadcast suppression per VLAN Per port Source MAC filtering Denial of specific MAC address Customizable Filtering and classification	BRAS MAC address spoofing DCHP DOS prevention Limit number of concurrent MAC addresses per port User-to-user traffic blocking and forwarding	
Management Interfaces	SNMP agent for OAM&P via 10/100Base-T Ethernet connection CLI access via a RS-232 (RJ-45) connection at the IPNI front panel, at the CCP		
Element Management Services	Fault-Configuration-Performance-Security management, Automatic software download,Carrier class management system, Client-server architecture, Remote management, Northbound interfaces for OSS connectivity, User-friendly Graphical User Interface (GUI)		
Redundancy and Load Sharing Modes	**Equipment Redundancy** 1:1 redundancy, NI cards operating simultaneously **Load Sharing** 1+1 redundancy, active backup NI cards with 50msec switchover **Dual Homing** Supports end-to-end packet communication		
Network Capabilities	Layer 2 Functionality Mapping Ports/PVCs to VLANs Multicast Capabilities	IGMP Proxy DCHP Relay DCHP Option 82 Support	
Backplane	**Connectivity** 1 GbE LVDS channel between each NI card and every line/tributary card **Power** Distributed, limiting current and preventing shelf-wide failure **Control** USART connection between NIs, line cards CFU, and Fan Control Card		
Subscriber Interface	ADSL2/2+, VDSL2, VoB, VoIP,		
Available Cards	ATU-C64IP, PTU-C64IP/Hi-GainIP, V2U-C24, IPNI 20, 42, 61,80, 80E, TENI (for point to point aggregation)		
Synchronization Capabilities	1.5/2MHz Clock support, accepts external reference clocks, supplies reference clock to subtending units		
Environmental	**Operating Temperature** -25°C to +70°C **Storage temperature** -40°C to +70°C **Relative Humidity** Operating humidity 93% RH Storage humidity 95% RH **Operation** Compliant with ETS 300 019-2-3 Class 3.3 (temperature controlled locations) and ETS 300 019-2-3 Class 3.1E (temperature controlled locations for reduced performance and full performance when returning to Class 3.1 conditions) **Transportation** Compliant with ETS 300 019-2-2 Class 2.3 (public transportation) **Storage** Compliant with ETS 300 019-2-1 Class 1.1 (storage conditions at partially controlled temperature)		
Safety and EMC	EN 60950, EN 60825, EN 300 386-2000 Class B, 1TR9 (DTAG)		

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