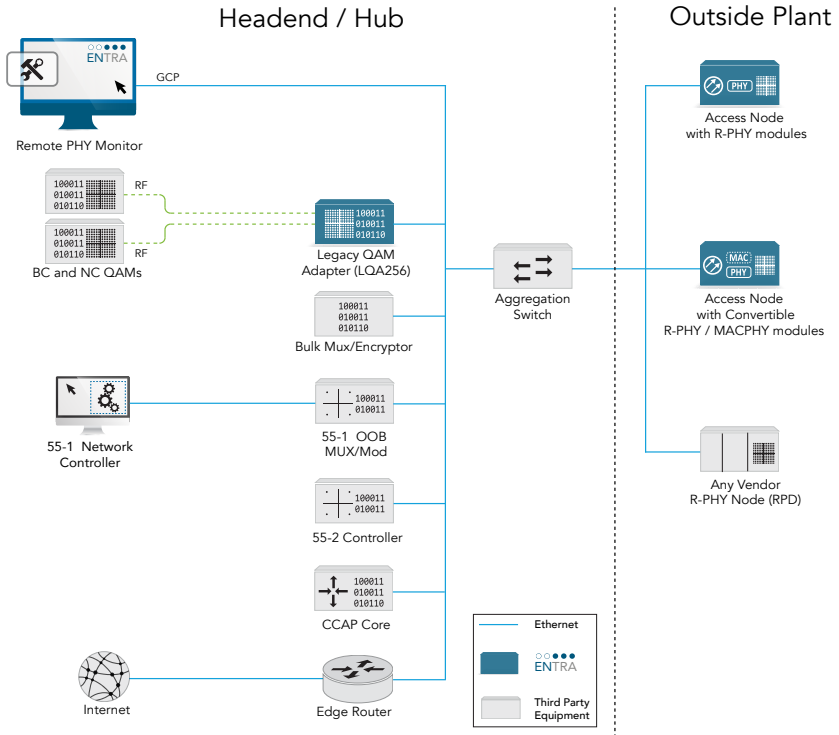
*The **Entra** Distributed Access Platform is Vecima's realization of the next generation of HFC nodes as optical transport moves away from analog RF distribution to all-digital Ethernet.*

Entra is optimized to support all distributed access architectures and facilitate the delivery of existing video and data services over hybrid fiber coax (HFC) and direct Ethernet connections.



Entra Video QAM Solution

Legacy QAM Adapter

The Legacy QAM Adapter (LQA) allows operators to leverage their existing installed edge QAM infrastructure for new R-PHY and R-MACPHY deployments. The LQA minimizes new headend/hub equipment, mitigates interoperability risk, and easily supports mixed deployments of centralized and distributed access. The LQA accepts RF from existing edge QAM equipment, demodulates the QAM carriers, encapsulates in the MPEG MPTS streams in unicast/multicast R-DEPI, RTP, or UDP which is sent over the Ethernet/IP network to the Access Node / RPD for re-modulation to RF.

Legacy QAM Adapter Features

- 256 agile demodulators in 1RU
- Flexible front end RF architecture provides access to 64 demodulators in each of 4 demodulation groups:
  - Demodulation groups are independently configurable to any of the following modes: 64 demodulations on 1 port, 32 demodulations on each of 2 ports, 16 demodulations on each of 4 ports
- Northbound RF interface input power range allows a direct connection to an edge QAM or to a test point
- Southbound IP interface to Access Nodes
  - Full bit rate MPTS over R-DEPI, RTP or UDP (including all nulls)
- Supports any vendor RPD

Legacy QAM Adapter - Specifications

RF Inputs

RF Input Port	F-type, Female
RF Input Impedance	75 Ω
Total Demodulation Capacity	256 channels (output limited; 1 x 10GE)
Total Number of RF Input Ports	16
Number of Demodulation Groups	4
Number of RF ports per Group	4
Demodulation Group Modes Supported	64 demodulations on 1 RF Input Port, 32 demodulations on each of 2 RF Input Ports, 16 demodulations on each of 4 RF Input Ports
Demodulation Supported	ITU-T J.83 Annex A/B
RF Tuning Range, per-channel	57 MHz - 999 MHz center frequency
Input Power*	+6 to +45 dBmV per channel
*Note: All channel powers on a given RF Input Port must be within ± 3dB	
Maximum Aggregate Power Per RF Port	60 dB (when two or more carriers are present.)
Input BER	Better than 1e-10 Pre-Correction, typical
Port-to-Port Isolation	70 dB, 54-750 MHz 65 dB, 750-1006 MHz
Return Loss	15 dB, 54-1006 MHz
Clock Stability	± 10 PPM over temperature and 10 years aging

Ethernet Ports

SFP/SFP+ Ports	1 x 10GE (video out) 1 x 1GE (management)
SFP Module Support	1000BASE-SX on standard FDDI-grade MMF 1000BASE-T on Cat-5 or better
SFP+ Module Support	10GBASE-SR on standard FDDI-grade MMF 10GBASE-LR on standard SMF per [G.652] SFP+ Direct Attach (Twinax)
IP Assignment Methods	IPv4: DHCP, Static IPv6: DHCP, Stateless autoconfig, Static
Output Stream IP Support	Unicast/Multicast
Output Stream Encapsulation	MPEG-2 TS over R-DEPI over IP MPEG-2 TS over RTP over UDP over IP MPEG-2 TS over UDP over IP 7 MPEG packets per Ethernet frame
Output Stream Network Jitter	< ± 1 ms per stream

Control & Management

Management Interfaces	CLI access with XML config file HTTP access with XML config file
Monitoring & Alarms	HTTP access SNMP MIBs & Traps
Troubleshooting Interface	SSH over 1G/10G Ethernet Interface Serial Console over Front Panel USB

Front Panel Console

Connector	USB type B
Connection Type	Serial UART
Serial Port Settings	115200 baud, 8 data bits, no parity bit, 1 stop bit, no hardware flow control

Chassis / Power / Environmental

Form Factor	1RU, Standard 19" Rack-mount
Dimensions (H x W x D)	4.5 cm x 48.3 cm x 50.8 cm (1.7 in. x 19 in. x 20 in.)
Weight	6.05 kg (13.4 lb)
Power	Single power supply (standard) ***Optional*** dual load-sharing redundant power supplies (hot-swappable)
Input Voltage	90-264 VAC,50/60 Hz -48 VDC (order option)
Power Consumption	<150W
Temperature (Operational)	0 to 50°C (32 to 122°F)
Humidity (Operational)	5 to 95% (non-condensing)
Altitude (Operational)	-60m to 4000m (-196ft to 13123ft) AMSL
Regulatory Standards Compliance	CSA/UL IC, FCC, CE RoHS & WEEE

Legacy QAM Adapter - Chassis

Entra Legacy QAM Adapter (Front and Rear views)

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