

The Pulse GWT-2200 is a **carrier-grade** media gateway that meets the needs of service providers, solution developers, and system integrators looking to cost-effectively expand their network footprint and deploy enhanced value-added services. With the ability to easily add additional hardware capacity and functionality with field-upgradable modular hardware components, and perform software license upgrades without rebooting the system, the 1U form factor GWT-2200 media gateway provides the **reliability** and **responsiveness** that leading-edge service providers require to deliver on their aggressive growth plans. A single GWT-2200 media gateway unit provides **capacity** of 2,048 voice ports and the **flexibility** to mix and match TDM and IP across T1/E1/J1, DS-3 and STM-1 interfaces.

Whether sitting at the network core or the edge, the GWT-2200 provides essential media gateway functionality allowing it to bridge TDM and IP networks, intermediate between various wireless, PSTN and IP voice protocols, and deliver hosted IP-PBX, Fax over IP, SIP trunking and other advanced services. Leveraging the **TelcoBridges Toolpack™** media gateway software, on-board application server, and built-in storage (compact flash drive or SATA disk), the GWT-2200 media gateway provides a low footprint approach to developing and provisioning unique subscriber-specific services and value-added applications such as unified communications, ring-back tones, and prepaid / postpaid services. With separate chipsets for signalling, voice processing and interactive voice response (IVR), the GWT-2200 media gateway provides true full channel availability.

Offering the industry-leading highest port **density** and the lowest operating cost for a media gateway in a 1U form factor, the GWT-2200 media gateway easily scales as service uptake increases, with expansion cards for IVR, VoIP and TDM. With an average 2/3rds less power consumption than competing products of similar capacity, the GWT-2200 media gateway supports the drive by service providers to reduce the environmental impact of their network footprint and increase their **green** credentials.

FEATURES & BENEFITS

Carrier-grade: Architected to exacting industry standards such as NEBS level 3, the GWT-2200 is designed to meet the need for five 9s reliability that service providers and their customers demand. The GWT-2200 media gateway offers an optional hot-swappable power supply redundancy* and the ability to scale from 96 to 2,048 ports.

Flexibility: A network agnostic platform, the GWT-2200 media gateway supports multiple 'any-to-any' switching across multiple network interfaces and protocols from different carriers as well as transcoding support for all major wireline, wireless and internet codec.

Density: Supporting up to 64 T1/E1/J1, 3 DS-3 or 1 STM-1 interfaces in a single-unit, the

GWT-2200 offers significant density in a 1U form factor. The GWT-2200 media gateway provides up to 2,048 IP voice ports at an industry-leading lowest cost per port.

For more information on how the Tmedia GWT-2200 media gateway can help transform your offerings, visit www.pulsewan.com.

* Requires 2U form factor.

> GWT-2200



GWT-2200 SPECIFICATIONS

NETWORK INTERFACES

Telephony

4 to 64 T1/E1/J1 TDM ports (hardware & software upgradeable)
 1 to 3 DS3 + 2 T1/E1/BITS (software upgradeable)
 1 OC3/STM-1 (with Automatic Protection Switching (APS)) + 2 T1/E1/BITS

Capacity

TDM: 96 to 2048 channels

VoIP: 96 to 2,048 universal ports per device; even more using less complex codecs such as G.711; up to 32,768 universal channels across 16 units

WAN IP

Dual 100/1000 Base-T for VoIP traffic

LAN

100/1000 Base-T access to internal Linux host

MEDIA PROCESSING

PCM Coding	A-law to μ -law encoding conversion
Universal Codecs	G.711, G.723.1, G.726, G.729ab, T.38 (2048 channels)
Other Wireline Codecs	G.728, G.729eg
Internet Codecs	iLBC
Wireless Codecs	AMR, GSM-FR/GSM-EFR, EVRC/QCELP Independent dynamic codec selection per channel
DTMF Relay	RFC2833, SIP INFO method, in-band
Echo Cancellation	G.168 – 128ms tail length on all channels simultaneously
Fax Support	T.38 fax relay, Group 3, Fax/modem bypass, G.711 fax fallback

DEVELOPMENT ENVIRONMENT

Toolpack Application Development Tools
 > Pre-developed C++ classes (call bridging, call routing, IVR, embedded web-based GUI, voicemail, ODBC database access/RADIUS for CDRs, etc.)
 > On-board Linux host based on Fedora core 8

MANAGEMENT & CONTROL

TelcoBridges Element Management System

> Live configuration and software upgrades via HTTP
 > Monitoring via HTTP
 > Configuration of multiple GWT-2200 appliances in the same system with a single interface
 > SNMP v2 GET of individual GWT-2200 limited configuration and stats
 > RADIUS accounting CDR support

REGULATORY COMPLIANCE

EMC	FCC Part 15, EN55022, EN61000, ENV50204
NEBS Level 3	Designed to meet
Safety	CE, UL60950, CSA C22.2 No.60950-1-03

* 32 to 64 trunks via external 1U patch panels

SIGNALING

PSTN

SS7 (20+ variants) MTP2, MTP3, SS7/C7 TCAP and ISUP
 SIGTRAN (currently in development)
 Up to 64 SS7 links, up to 2,048 CICs, HSL, 1+1 SS7, single or multiple point codes
 ISDN PRI (14+ variants), National ISDN-2, Euro ISDN, DMS100, DMS250, 4ESS, SESS, JATE/Japan INS-NET1500

IP

SIP: RFC 3261 User Agent, SIP Authentication

QUALITY OF SERVICE (VoIP)

Dynamic jitter buffer (adaptive and fixed), Packet loss concealment, DiffServ/Tos, Silence Suppression; Denial of Service (DoS) protection for VoIP media

IVR FEATURES

DSP-based plug-in modules with options of 128 to 512, 1024, 1536 and 2048 channels
 > Play and record
 > Conferencing; up to 132 active participants
 > DTMF detection, generation, suppression
 > AGC (Automatic Gain Control), Voice Activity Detection (VAD), Comfort Noise Generation (CNG)

CALL ROUTING FEATURES

> Fully scriptable call routing engine
 > CLI (ANI)-based routing and translation
 > DDI (DNIS)-based routing and translation
 > Least cost routing (with time of day/week/year scheduling and other criteria)
 > Routing based on Nature of Address
 > Pre-and post-routing digit translation
 > TDM-to-TDM, IP-to-TDM, IP-to-IP switching

MANAGEMENT INTERFACES

1 RJ45F serial console port with RS-232C adapter
 1 100/1000base-T management interface

HARDWARE SPECIFICATIONS

Physical Interfaces

PSTN: 4 to 64 T1/E1/J1 via RJ45*, 1 to 3 dual BNC DS3, 1 STM-1 optical or electrical link (with APS). Interface or BITS synchronization
 IP: Dual 100/1000 Base-T Ethernet VoIP ports
 OAM & Control: 100/1000 Base-T Ethernet port

CPU: On-board host running Linux OS (Fedora 8)
 Freescale 400MHz CPU, 512 MB RAM, 4GB Flash disk or 80GB SATA hard drive

Dimensions

1U with single power supply
 > 1.75" H (44.5 mm) x 17.4" W (442 mm) x 16" D (406 mm)
 2U with dual power supply
 > 3.5" H (88.9 mm) x 17.4" W (442 mm) x 16" D (406 mm)
 Weight: 20 lb (9.1 kg)

AC Power: 90 to 260 Volts AC, 47/63 Hz

DC Power: -40 to -60 Volts DC

Power Consumption: 138 W fully loaded

Operating temperature range: 0 to +55 °C, 95% rel. hum. non-condensing

Storage temperature range: -10 to +75 °C, 95% rel. hum. non-condensing