TMG800 VoIP Gateway - 1 to 16 T1/E1

The TelcoBridges ***T*media TMG800** is our entry-level carrier-grade VoIP gateway. Software upgradeable from 1 to 16 T1/E1, the TMG800 is the most cost-effective VoIP gateway solution for service providers that is currently available on the market.

Product Characteristics:

- ✓ 1U VoIP gateway
- ✓ 32 to 512 VoIP channels with universal codecs
- ✓ 1 to 16 T1/E1
- ✓ SIP, SIGTRAN, SS7 ISUP, ISDN PRI, E1 CAS R2, T1 CAS R1, H.248
- ✓ Software upgradeable by single T1/E1 and 32 VoIP channel increments
- ✓ Hot-swap redundant power supplies (AC or DC)
- ✓ Optional *T*media 1+1 solution
- ✓ Software upgradable into a session border controller (SBC) with TDM fallback capabilities
- ✓ Hybrid mode with simultaneous SBC and media gateway functions
- ✓ Performance option for higher CPS rate and support for SIP Registration Forwarding functionality

*T*media 1+1 Protection Characteristics:

- ✓ Passive solution (no power required)
- ✓ Enables full facility protection (TDM and IP)
- ✓ Active/Standby architecture with two TMG800 units
- ✓ No single point of failure
- ✓ Five nine's redundancy

*T*media™ TMG800 Data Sheet

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Call Handling Performance

	Standard CCPS/CAPS	Performance Option CCPS/CAPS
SS7-SIP	50/175	110/275
ISDN-SIP	50/120	100/250
SIP-SIP	40/120	175/275

CCPS = Completed Call per Second
CAPS = Call Attempts Per Second
Contact us for other protocol combinations

*T*media TMG800 1U VoIP gateway, rear view (dual AC power input shown)

Capacity and Voice Processing

PSTN interfaces

1 to 16 T1/E1 (software upgradeable)
Configurable per port for T1 or E1
RJ48C connectors on rear of unit

VoIP interfaces

Up to 6 Ethernet ports 100/1000Base-T
RJ45 connectors on rear of unit
Up to 16 different IP addresses
Ethernet port bonding and 802.1q VLAN support

Vocoding

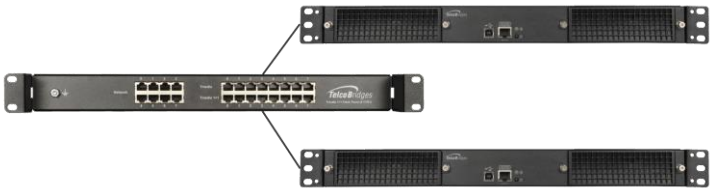
32 to 512 VoIP channels with universal codecs
Universal codecs: G.711, G.723.1, G.726, G.729ab, T.38 V.17, clear mode (RFC 4040)
Other codecs: G.722, G.722.2 (AMR-WB), G.728, G.729eg, iLBC, AMR, EVRC, GSM, FR/EFR, QCELP, T.38 V.34

Fax/modem/data

T.38 fax relay (V.17 and V.34)
Automatic G.711 fallback
Modem and data passthrough, NSE, VBD support
Clear mode (RFC 4040)

DTMF relay

RFC 2833/4733, SIP INFO method, in-band



*T*media 1+1 solution schematic

Echo cancellation

G.168 echo cancellation
128 ms echo tail on all channels simultaneously

Voice processing

Adaptive and programmable jitter buffer (20 to 200 ms)
Voice activity detection (VAD)
Comfort noise generation (CNG)

Voice recording and announcement playback

Up to 512 channels (using optional IVR mezzanine or specially licensed VoIP channels)

High Availability & Redundancy

Power supply redundancy
IP port redundancy
Self-recovery software
Fault tolerant software
MTP2/SS7 links redundancy

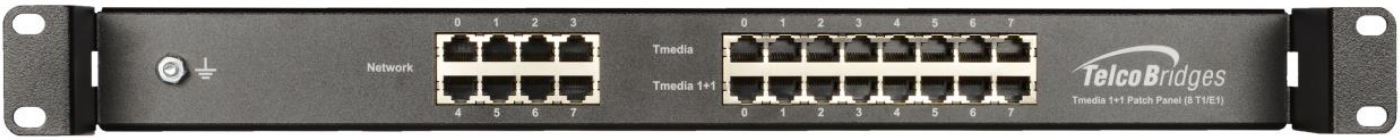
*T*media 1+1 solution (optional)

The *T*media 1+1 solution extends the high-availability and redundancy features of the TMG800

VoIP gateway redundancy (active/standby)
Full capacity protection (TDM and IP)
Configuration database redundancy
Seamless software upgrade
M3UA/MTP3/ISUP redundancy

*T*media 1+1 solution consists of:
1 active unit and 1 standby unit
Up to 2 units 1+1 Patch Panel(s)

1+1 Patch Panels are passive (no power required)



*T*media TMG800-RJ 1+1, Patch Panel (front view)

Signaling

Simultaneously supports any combination or all of the following signaling protocols:

SIP

Supported RFCs: 2327, 2833, 2976, 3204, 3261, 3262, 3263, 3264, 3311, 3323, 3325, 3326, 3372, 3389, 3398, 3515, 3551, 3555, 3578, 3581, 3665, 3666, 3764, 3891, 4028, 4694, 4733, 5806
SIP-I/SIP-T
Extensive SIP header manipulation
SIP registration Forwarding[1]

SS7

Up to 64 MTP2 links (56, 64, n x 56/64 kbps) or 2 x HSL
Multiple redundant MTP2 links
Up to 64 originating point codes and 256 linksets
Up to 256 destination point codes
ISUP variants: ITU 92, ITU 97, ANSI 88, ANSI 92, ANSI 95, Q.767, Telcordia 97, ETSI v3, China, Singapore, UK, SPIROU, Japan NTT, Russia
SCCP routing and global title translation (GTT) based on called/calling party, SSN and Opcode

SIGTRAN

M2PA, M2UA, M3UA (IPSP, ASP, SG), IUA
SCTP (raw IP and UDP)
SS7 termination and/or relay supported
Up to 64 M2UA / M2PA links
Up to 64 M3UA peer server processes

ISDN PRI

Q.931 ISDN PRI (user and network side)
ISDN variants: NI-2, 4ESS, 5ESS, DMS-100, DMS-250, Euro ISDN ETSI NET5 (France, Germany, UK, China, Hong Kong, Korea), Euro Numeris (VN6), NTT (Japan), Australia
ISDN NFAS with D-channel backup

CAS

MF R1 (including E&M, loop start, ground start)
MF R2 (including standard ITU, Brazil, Mexico, Venezuela)
Customizable script files to implement any CAS variant

[1] Requires Performance option

Tctrl (Call Control)

Embedded call control

Call routing based on: trunk group, calling/called numbers (with digit manipulation) and/or various other protocol information/headers.
Customizable routing including priority-based, load-balancing, black listing, call limiting, route retries, etc.
Customizable call cause code mapping
Programmable call routing: Access and manipulation of call parameters (SIP, SS7 and ISDN), including Nature of Address (NOA)
RADIUS authentication and authorization (supports multiple RADIUS servers)
NPA-NXX routing (over 5 million records)
SIP-based local number portability and CNAM lookup

H.248 (MEGACO) call control

ITU-T H.248 versions 1 and 2
UDP, SCTP, IPSec transport
DTMF and fax detection
Call progress, DTMF and COT tone generation
Call quality and inactivity alerts
H.248 control port redundancy (supports virtual IP)

Session management and billing

SIP peer availability polling
RTP inactivity monitoring, RTCP
CDR generation (RADIUS and/or csv files)
Integrated lawful intercept (ETSI ES 201 671 v.2.1.1)

Software upgradable to SBC

Back-to-back user agent (B2BUA)
Maximum signaling/media sessions: 3000
Maximum transcoding sessions: 686
Topology hiding
Line-rate DOS/DDOS protection (64 bytes packets)
Rogue RTP detection
Dynamic blacklisting
Access control list
Session admission control
Session bandwidth control
TDM fallback capabilities

OAMP+T

Operations & Administration

Provisioning, management and status GUI
CLI and configuration file machine-to-machine interface (RESTful)
Configuration change audit logging
Access, user and privilege management
SNMP V2, V3 GET, TRAPs (alarms)
Extensive SNMP call statistics MIBs

Management

2 Ethernet ports 100/1000Base-T
1 USB Type B serial port
1 RJ45 RS232 serial port
GUI-based and CLI system upgrade
GUI-based configuration copy, backup and restore
Storage for multiple software versions
Storage for multiple configuration files
Extensive system status display

Provisioning

Non-service affecting configuration changes
Offline configuration validation
Multiple configuration files archive
Northbound API (RESTful) for automated provisioning

Network Analytics (*TB* Analytics)

Live call trace with protocol information and ladder diagrams
Live test call with media playback and recording
TB Sigtrace – Protocol signaling capture into pcap files
Media call recording (scriptable for calling and called numbers)

Maintenance

Replaceable fan filters

Electrical Characteristics

90 to 260 VAC, 47 to 63 Hz or -36 to -72 VDC
Hot-swap redundant power supply (AC or DC)
Maximum 70W power consumption

Regulatory Compliance

Safety

CAN.CSA C22.2
EN 60950-1:2005
EN 60950-1:2006

EMC

FCC Part 15:2013, Subpart B,
CE Mark (EN55022:2010, Class A, EN61000, ETSI EN 300 386)

HS Code

85176200

Dimensions & Weight

TMG800

1U, 19” rackmount
1.75” (44.5 mm)H x 16.9” (429 mm)W x 16” (406 mm)D
14 lbs (6.4 kg)

1+1 patch panel

1U, 19” rack mount
1.75” (44.5 mm) H x 16.9” (429 mm) W x 5.25” (133 mm) D
3.4 lbs (1.6 kg)

Environmental

Operating temperature:
0 to +70 °C, 95% rel. hum. non-condensing
Storage temperature:
-10 to +85 °C, 95% rel. hum. non-condensing
Designed to meet NEBS Level 3
RoHS compliant