SmartNode™ 10100 Series
TDM+VoIP SmartMedia Gateway

The SmartNode 10100 is a carrier-grade media gateway for smaller service providers looking to drive convergence between TDM and IP networks, replacing multiple devices for signaling, connectivity, and media transcoding with a single device.

4 to 8 x T1/E1/J1 in a 1U chassis
Low cost per port; up to 66% rack and space cost savings

128 to 256 VoIP channels (field upgradable)
Simple field upgrade by purchasing our hardware-ready models.

Increased system up-time
SS7 link redundancy, dual power supply support, field-upgradable components

Low operating expense (up to 80% cost savings) significantly improves ROI
Low power consumption (150 W for the SN10100 at full capacity)

Connect with confidence to diverse VoIP endpoints and IP fax
Extensive media handling support for wireline, wireless and fax codecs

The SmartNode 10100 enables the delivery of VoIP services by bridging voice traffic between the public switched telephone network (PSTN)—based on time-division multiplexing (TDM)—and IP networks such as the Internet. Service providers are adding VoIP capabilities to their networks, whether to reduce costs when interconnecting with other carriers, to cost-effectively build out their network footprints, or simply to transport voice traffic across their IP backbones. Whether sitting at the network core or at the edge, SmartNode media gateways enable service providers to introduce VoIP into their networks while maintaining the quality and the reliability of traditional TDM networks.

TDM interfaces

Service providers, whether providing local, long-distance or international voice services, are interconnected with a multitude of other providers using T1/E1/J1 links. It is critical for service providers to be able to rapidly establish new interconnections without having to always deploy new devices.

SmartNode 10100 Series media gateways therefore offer flexibility and can be configured to support T1/E1/J1 interfaces.

Signaling and control protocols

Just as flexibility in the selection and deployment of TDM links is a key requirement for service providers, the need to support multiple signaling protocols across various carrier partners is just as important. Each SN10100 media gateway provides support for the concurrent use of ISDN, SS7/C7, CAS (R2), SIP, and SIGTRAN signaling in the same device. The ability to provide both switching and conversion across multiple TDM and IP signaling protocols at once is paramount to enabling the operational flexibility and cost savings that drive service providers to expand their carrier relationships and converge their networks.

In parallel with the TDM and IP signaling protocols mentioned above, SN10100 devices also support the H.248 media gateway control protocol, which enables any H.248-compliant 3-party softswitch to control a media gateway. While the softswitch manages call control interactions, the SN10100 handles transmission of call media as well as any required transcoding.

SmartNode™ Awards

- *2011 Internet Telephony Product of the Year:* SmartNode™ 5400/2GS
- *2010 Internet Telephony Product of the Year:* SmartNode™ 5400
- *2009 Internet Telephony Product of the Year:* SmartNode™ 4400 Series
- *2008 Internet Telephony Product of the Year:* SmartNode™ 4961
- *2007 Internet Telephony Product of the Year:* SmartNode™ S-DTA
- *2006 Internet Telephony Product of the Year:* SmartNode™ 4960
- *2005 Internet Telephony Product of the Year:* SmartNode™ 4630

PATTON®

Media handling

Service providers will use one or more codecs on their VoIP networks according to their desire to save bandwidth, to provide a certain level of voice quality, or simply to interoperate with other VoIP devices or providers. The ability to support multiple different concurrent codecs and to allocate them in real time based on traffic is the key to delivering true network convergence.

SmartNode 10100 gateways feature extensive support for various wireline, mobile and IP telephony audio formats, delivering seamless transcoding in real-time. The media gateways ship with support for G.711, G723.1, G.726, and G.729ab right out of the box, with no additional license fee required. They also offer optional support for mobile and IP vocoders such as AMR, AMR-WB (G.722.2), GSM-FR/GSM-EFR, EVRC/QCELP, G.728, G.729eg, and iLBC. SN10100 gateways offer independent dynamic codec selection per channel. This means that it is possible to assign different vocoders to different channels, on a channel-by-channel basis. The devices can then run all of these codecs concurrently and do so with no impact on system performance.

SN10100 gateways also provide unparalleled support for Internet-based fax, also known as Fax over IP or Fax relay, using the T.38 protocol, which is used to carry fax communications over an IP network. (They also support the T.30 protocol for fax over the PSTN.)

System density

SN10100 gateways feature the industry's highest system density in a 1U form factor. Beside the capital savings achieved by purchasing less units of equipment, system density also provides operational cost savings in the form of reduced co-location fees as well as lower power and cooling costs.

Energy efficiency

For many, if not most, service providers, the payoff from reducing energy use can be particularly impressive; typically, for every watt of power required to operate a device, another watt is required to cool it. The SN10100 media gateways can play a major role in reducing energy costs, with an average two-thirds less power consumption than competing products of similar capacity.
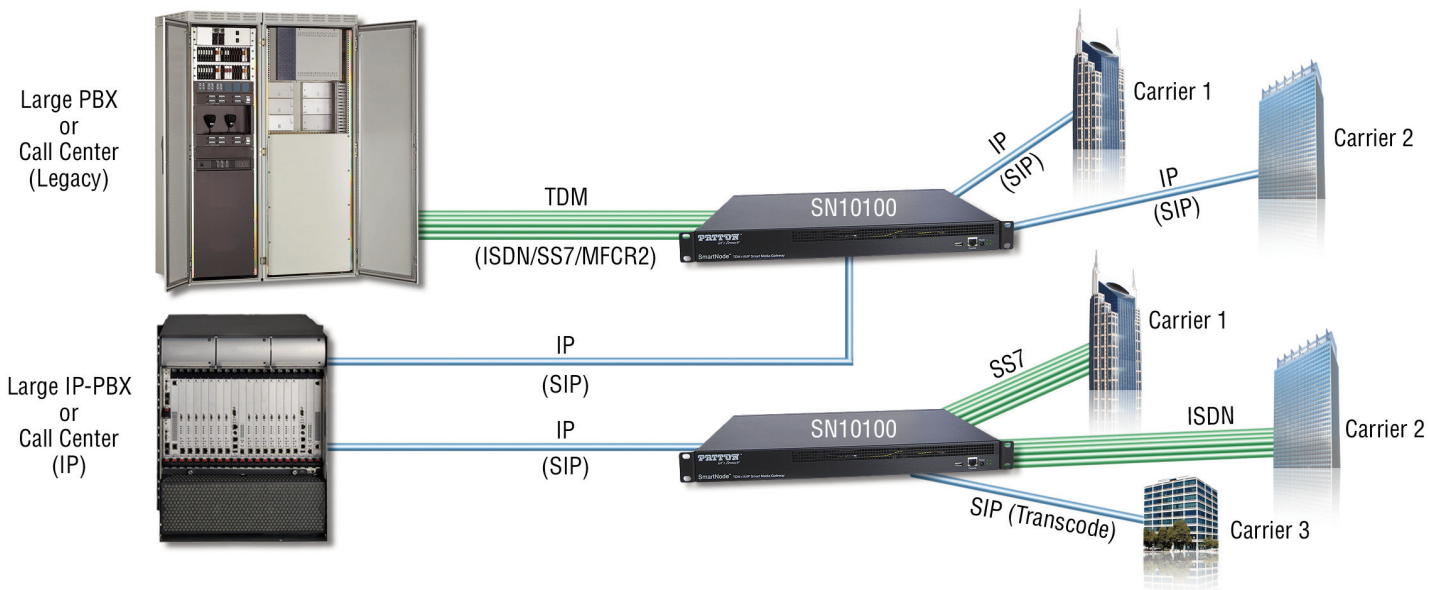
Provisioning and maintenance

For network convergence efforts to contribute positively to revenue and profitability, service providers must maintain their reputation for uptime and availability during the introduction, operation, and maintenance of new services. The SN10100 offers OAM&P, an operations, administration, maintenance, provisioning (OAM&P) solution. OAM&P enables the service provider to perform the initial set-up of the SN10100 media gateway and any subsequent maintenance operations. These range from the simple, such as the collection of statistics and alarms, to the more complex, such as system configuration changes, the addition of new hardware or software components, and the application of software patches or software upgrades.
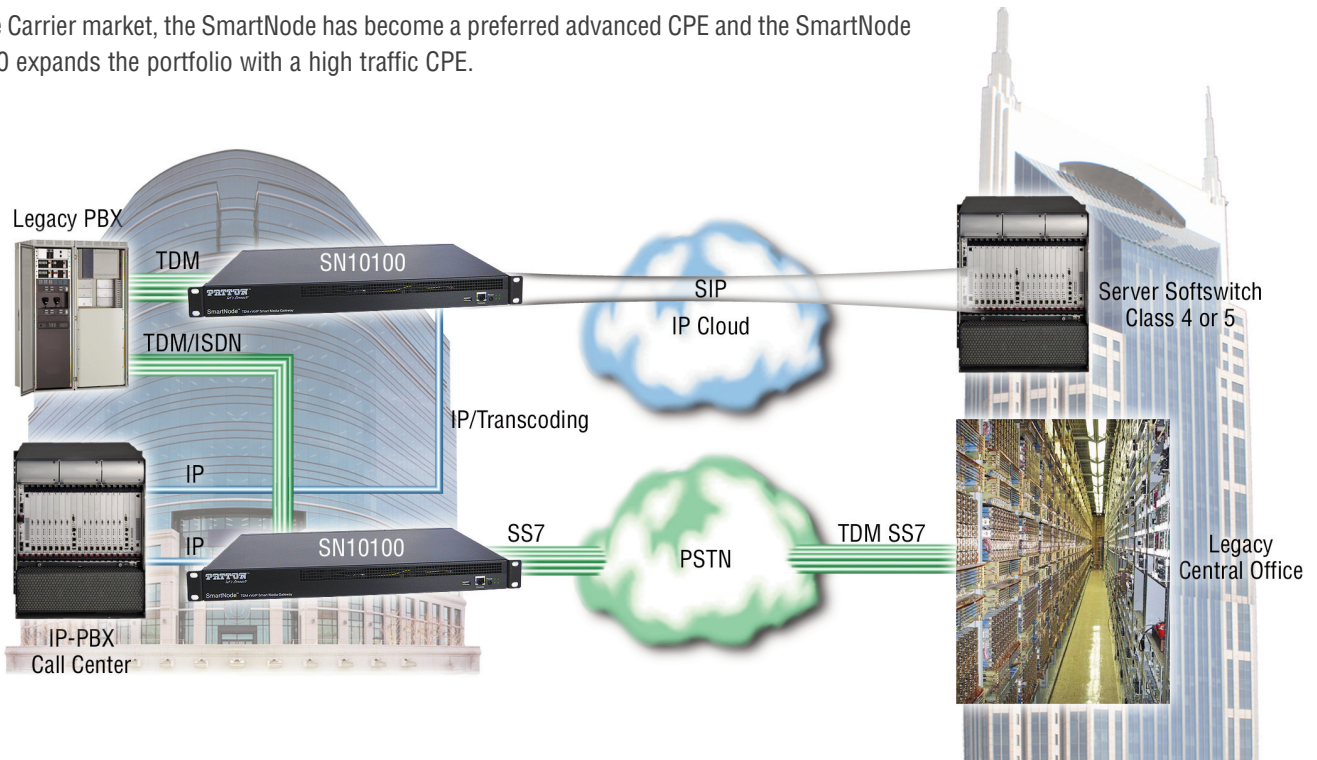
Enterprise Application

In the Enterprise market, SmartNode now offers a solution to the large Enterprise. We are substantially increasing TDM/digital port density to be the best and most reliable high-density Media Gateway going from 128 up to 256 VoIP calls.
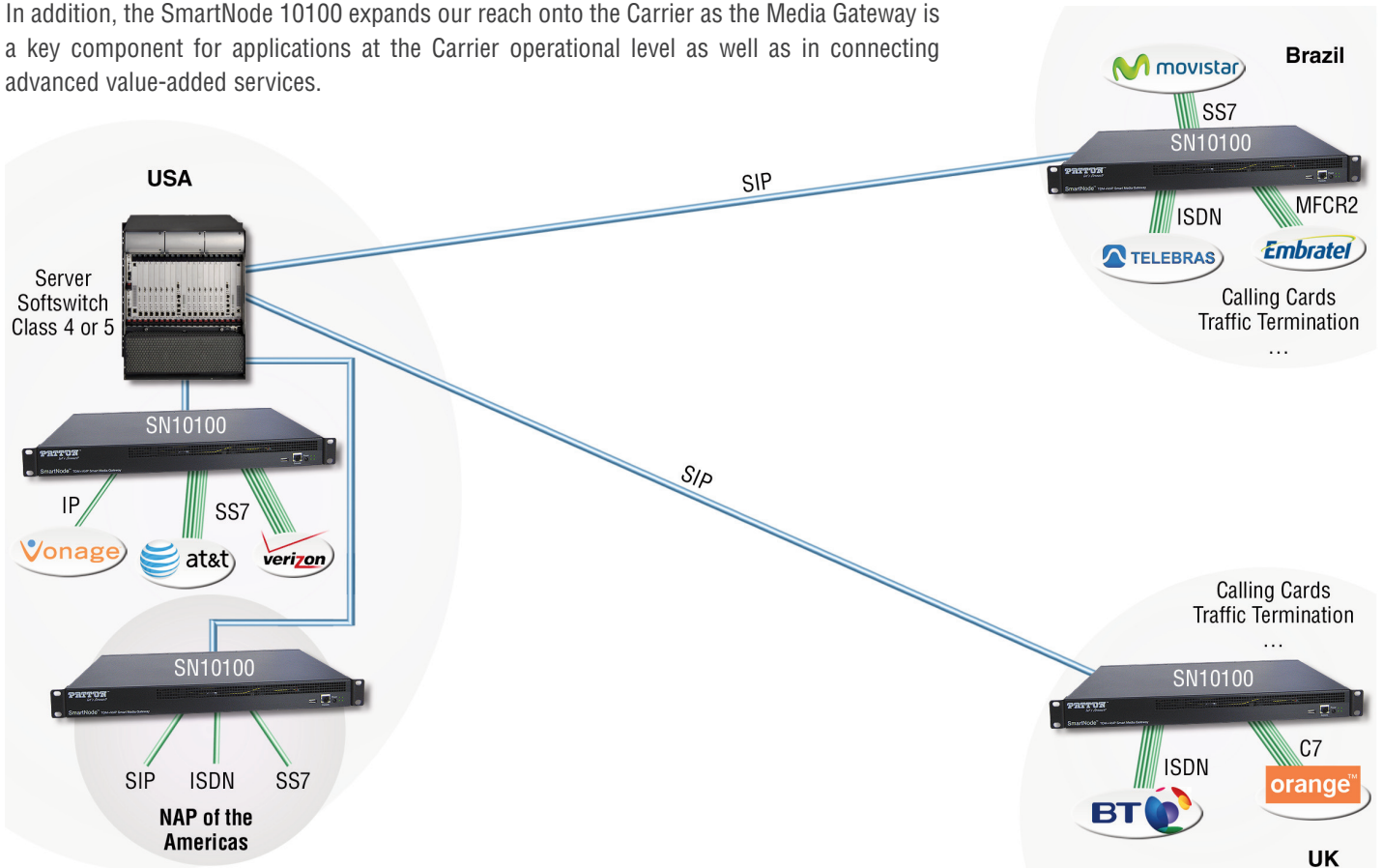
In the Carrier market, the SmartNode has become a preferred advanced CPE and the SmartNode 10100 expands the portfolio with a high traffic CPE.

Legacy PBX

TDM

SN10100

SIP
IP Cloud

Server Softswitch
Class 4 or 5

TDM/ISDN

IP/Transcoding

IP

IP

SN10100

SS7

PSTN

TDM SS7

Legacy
Central Office

IP-PBX
Call Center

In addition, the SmartNode 10100 expands our reach onto the Carrier as the Media Gateway is a key component for applications at the Carrier operational level as well as in connecting advanced value-added services.

movistar

Brazil

SS7

SN10100

USA

SIP

ISDN

MFCR2

TELEBRAS

Embratel

Server
Softswitch
Class 4 or 5

Calling Cards
Traffic Termination
…

SN10100

IP

SS7

Vonage

at&t

verizon

SIP

Calling Cards
Traffic Termination
…

SN10100

SN10100

SIP   ISDN   SS7

**NAP of the
Americas**

ISDN

C7

BT

orange™

UK

Specifications*

Capacity and voice processing

VoIP channels—128 to 256

PSTN interfaces—Dual RJ48C for BITS or T1/E1 for signaling

VoIP interfaces—Dual 100/1000Base-T • RJ45 connectors on rear of unit

Vocoding—Universal codecs: G.711, G.723.1, G.726, G.729ab, T.38 • Other codecs: G.722.2 (AMR-WB), G.728, G.729eg, iLBC, clear mode (RFC 4040)

Fax/Modem/Data—T.38 fax relay (V.17 and V.34) • Automatic G.711 fallback • Modem and data pass-through

DTMF relay—RFC 2833, SIP INFO Method, In-band

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

Voice processing—Dynamic and programmable jitter buffer (20 to 200 ms) • Voice activity detection (VAD) • Comfort noise generation (CNG)

Management interfaces—Dual 100/1000Base-T for OAM&P

Simultaneous signaling support

SIP—Supported RFCs: 2327, 2976, 3261, 3262, 3263, 3264, 3311*, 3323*, 3325*, 3398, 3515*, 3578*, 3764, 3891, 4028 (*partial compliance)

SIGTRAN—M2PA, M1UA, M3UA, IUA • SS7 termination and/or relay supported

SS7—Up to 64 x MTP2 links (56, 64, n x 56/64 kbps, HSL) • Multiple redundant MTP2 links • Up to 64 MTP3 originating point codes and linksets • ISUP variants: ITU 92, ITU 97, ANSI 88, ANSI 92, ANSI 95, Telcordia 97, ETSIv2, ETSIv3, China, Singapore, UK Brazil

ISDN PRI—Q.931 ISDN PRI: NI-2, 4ESS, 5ESS, DMS-100, DMS-250, Euro ISDN ETSI NET5 (France, Germany, UK, China, Hong Kong, Korea), NTT (Japan), Australia

CAS—MFC R2 (standard ITU, Brazil) • Customizable protocol script files

SmartNode-CONTROL

Standalone call control—Any to any call routing (TDM-VoIP, TDM-TDM, VoIP-VoIP with transcoding) • Call routing based on: trunk group, calling/called numbers, nature of address, ASR, time of day, load-based, cost-based, TO:, FROM: Request URI, redirect numbers, and other parameters • NPA-NXX routing (100k+ table entries, Excel or CVS file upload) • Route retries • Call transfer (REFER, AT&T TR 50075)

H.248 (MEGACO) call control—ITU-T H.248 versions 1 and 2 • UDP, SCTP, IPsec transport • DTMF and fax detection • DTMF, announcements and call progress tone generation • Call quality and inactivity alerts

Session management and billing—SIP peer availability polling • RTP inactivity monitoring • CDR generation (RADIUS and text file)

OAM&P

Operation & Administration—Web-based system status and operations • SNMP v2/v3 GET, TRAPs and alarms • Dynamic configuration changes

Maintenance—Web-based interface for maintenance • Automated system upgrade • System backup, restore and copy

Provisioning—Web-based interface for configuration • Dynamic activation

Troubleshooting—Per-call tracing (history and/or live) • Signalling capture tools • SSH command-line interface

Electrical characteristics

Power input—90 to 260 VAC, 47 to 63 Hz • -40 to -60 VDC • Redundant power supply with dual power inputs • Maximum 138 W power consumption

Physical characteristics

Dimensions—1U, 1.719H x 17.4W x 16D in. (43.66H x 442W x 406D mm)

Weight—20 lbs (9.1 kg)

Regulatory compliance

UL/CSA 60950, CSA C22.2—EMC: FCC Part 15:2009, Subpart B, CE Mark (EN55022:2006, Class A, EM60950, EN61000, ETS 300 386)

Environmental

Operating temp— 0 to +55 °C • 95% relative humidity, non-condensing

Storage temp— -10 to +75 °C, 95% relative humidity, non-condensing

NEBS Level 3 compliant

RoHS compliant

Ordering Info

SN10100/4E/UI: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set. Universal AC Power

SN10100/4E/48: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set. 48V DC Power

SN10100/4E8/UI: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set, Software Upgradeable to 8 E1/T1, 240 VoIP Channels. Universal AC Power

SN10100/4E8/RUI: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set, Software Upgradeable to 8 E1/T1, 240 VoIP Channels. Redundant Universal AC Power

SN10100/4E8/48: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set, Software Upgradeable to 8 E1/T1, 240 VoIP Channels. 48V DC Power

SN10100/4E8/R48: SmartNode SmartMedia Gateway 4 E1/T1, 120 VoIP Channels with Standard Signaling Set, Software Upgradeable to 8 E1/T1, 240 VoIP Channels. Redundant 48V DC Power

SN10100/8E/UI: SmartNode SmartMedia Gateway 8 E1/T1, 240 VoIP Channels with Standard Signaling Set. Universal AC Power

SN10100/8E/RUI: SmartNode SmartMedia Gateway 8 E1/T1, 240 VoIP Channels with Standard Signaling Set. Redundant Universal AC Power

SN10100/8E/48: SmartNode SmartMedia Gateway 8 E1/T1, 240 VoIP Channels with Standard Signaling Set. 48V DC Power

SN10100/8E/R48: SmartNode SmartMedia Gateway 8 E1/T1, 240 VoIP Channels with Standard Signaling Set. Redundant 48V DC Power

Upgrades & Options

SNSW-1-SS7: SN SmartMedia Single Link SS7 MTP2, MTP3, ISUP License

SNSW-2-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 2-Link License

SNSW-4-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 4-Link License

SNSW-8-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 8-Link License

SNSW-16-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 16-Link License

SNSW-32-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 32-Link License

SNSW-64-SS7: SN SmartMedia SS7 MTP2, MTP3, ISUP 64-Link License

SNSW-1plus-SS7-1: SN SmartMedia Single Link MTP2, MTP3, ISUP License Upgrade

SNSW-M2PA-SIGTRAN: SN SmartMedia SIGTRAN Termination License for M2PA

SNSW-SN10100-4E: SN SmartMedia 4 T1/E1 Software Upgrade (increases the SN10100 from 4 or 8 E1s and 120 to 240 voice channels)

* Specifications subject to change without notice.