

VP6010 Integrated Softswitch

Wireline Class 5 Switch Migration

The VP6010 Integrated Softswitch offers a compact, self-contained solution for small to medium scale Class 4 or Class 5 switch replacement or for VoIP service delivery. Based on a combination of selected MetasShere telephony applications running directly on processor blades in the Universal Media Gateway platform, the Integrated Softswitch is highly cost-effective and exceptionally simple to deploy.

End-Office Scalability

Supporting up to 400,000 busy hour call attempts and 70,000 subscriber lines in just 3 rack units (RU), the VP6010 scales cost-effectively from small end-office to highly distributed network applications. The VP6010 is built on a 2-slot commercial off-the-shelf (COTS) ATCA open modular computing platform that features a dual-star PICMG 3.1 compliant 10 Gigabit Ethernet fabric. This native, non-blocking, packet-based backplane avoids unnecessary VoIP decode/encode operations for maximum voice quality.

The VP6010 is populated with two redundant Integrated Softswitch processor blades. Each blade incorporates a powerful digital signal processor (DSP) farm sufficient to deliver echo cancellation, announcements, tone detection, silence suppression, and transcoding to every channel. This removes the need for dedicated DSP cards or media servers, simplifying configurations and reducing spares.

Flexibility for Every Application

The VP6010 supports the widest range of protocols of any softswitch on the market, with comprehensive next generation and legacy capabilities including SIP, MGCP, H.248, AIN, GR-303, CAS, ISDN, MF and ISUP.

In addition, the VP6010 can be deployed as a signaling gateway, enabling cost-effective termination of SS7 signaling links anywhere within the network and transport of ISDN signaling messages to the Gateway Control function of MetaSphere, over IP. It even provides a media server function for playing network and service announcements and for mixing multi-way calls.

Future-Proof Open Architecture

Metaswitch preserves your investment by ensuring that our products remain relevant at every stage of your network deployment: from a pre-IMS solution, all the way to a fully realized, distributed IMS core. The VP series functions as 'IMS in a box', enabling you to realize the new revenue streams that IMS ap-



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plication servers enable with the simplest possible deployment model. When you're ready to migrate to full IMS, Metaswitch protects your investment by providing a seamless phased migration path which allows you to repurpose our VP series platform for Media Gateway (MG) or Access Gateway (AG) functionality.

Carrier-Grade Reliability

The NEBS Level 3-certified VP6010 was designed from the outset for 99.999% ("five nines") system reliability. It achieves this goal through a fully redundant, hot-swappable hardware design, with a combination of 1:1 redundancy for processor blades and power supplies, as well as all TDM and IP interfaces. Even the internal packet bus is powered by two redundant switches. In addition, a sophisticated application-aware software fault tolerance scheme ensures that, in the event of a program logic error, the backup processor takes over control of the chassis ensuring uninterrupted service.

Specifications

Physical

- Height: 5.2" (132mm, 3U)
- Width: 19" (483mm)
- Depth: 16.5" (420mm)
- Weight: 44 lbs (20kg)
- Mounting options: 19" or 23" racks, 14 chassis per 7' rack
- Operating temperatures: 41°F to 104°F (5°C to 40°C), 23°F to 131°F (-5°C to 55°C) short-term (up to 96 hours)
- Operating humidity: 5% to 90%
- Maximum operating altitude: 9800' (3000m)

Power

- Dual feed -48V to -60V DC nominal (-40V DC to -72V DC)
- Fused 1500W (20A)
- AC: dual feed 110V to 250V AC, 950W

System Architecture

- 2 Universal Media Gateway Resource blades (1:1 redundancy): one of DX6705, DX6710, DX6720 or DX6730 depending on capacity requirements
- 2 rear transition modules: one of RT6701, RT6703 or RT6705, depending on connectivity requirements
- CB1000 and CB3000 breakout panels for connecting T1/E1 and DS3 connections on the VP6010 to the network
- 2 SMC6010 chassis shelf managers
- 2 IO6010 User Cards for dry alarm connections
- Timing: BITS, TDM carrier (T1/E1, DS3 or SDH/SONET) or internal clock source (stratum 3)
- Also deployable in lower-cost non-redundant single-blade mode with reduced availability

Network Interfaces

- TDM: T1/E1, DS3, OC3/STM1, OC12/STM4
- VoIP: Auto-detecting Fast/Gigabit Ethernet
- Management: Ethernet and serial console access

Scalability

- RT6701 RTMs and 1xCB1000: 48xT1/E1
- RT6703 RTMs and 1xCB1000 + 2xCB3000: 16xT1/E1 and 24xDS3
- RT6705 RTMs and 1xCB1000: 16xT1/E1 and 8xOC3/STM1 or 2xOC12/STM4
- 70,000 subscribers
- Up to 400,000 Busy Hour Call Attempts (BHCA)

PSTN Emulation

- Full Class 4 and 5 functionality including tandem routing, residential and business subscriber services
- Bellcore AMA GR-1100 call detail records (CDRs)
- See PSTN Emulation Brochure for details

Carrier-Class Reliability

- GR-512-CORE (99.999% availability)
- Redundant resource blades and shelf managers
- Redundant, hot-swappable user cards, power supplies and fans
- Fault-tolerant software architecture with calls preserved on resource blade failover
- 1+1 APS for optical TDM
- CB1000/CB3000 breakout panels provide passive Y-junction for copper TDM

Network Management

- SNMP for alarms
- CORBA for provisioning
- SQL database for statistics and reporting
- Management of multiple chassis via MetaView NMS or integration with third-party OSS

Protocols

- Media Gateway Control: H.248 v1 and v2 / Megaco, MGCP 1.0bis
- Signaling Gateway Control: M3UA and M2PA
- Internet Protocol version 6 (IPv6) and Internet Protocol version 4 (IPv4)
- Session Initiation Protocol (SIP) v2
- T1 Channel Associated Signaling (CAS)
- SS7 Support: ANSI, ITU-T, ETSI and national variants
- ISDN PRI (ETSI, NI-2, Lucent and Nortel variants), NFAS
- PacketCable Network-based Call Signaling (NCS)
- GR-303
- Multi-Frequency (MF) trunks (1-way, 2-way)
- Ground start, loop start, E&M immediate/wink start
- V5.2 signaling*
- TR-08*

Codecs

- G.711 (64kbps PCM)
- G.726 (32kbps ADPCM)
- G.729AB (8kbps CSACELP)
- G.722 (WB)
- G.722.2 (AMR-WB)
- AMR
- EVRC
- EVRC-B
- GSM-HR
- GSM-FR
- GSM-EFR
- iLBC
- Automatic fallback to G.711 for fax/modem calls
- Clearmode pseudo-codec for 64kbps data calls
- T.38 Fax Relay

Media and Quality of Service

- QoS: IP Differentiated Services (DiffServ) with 802.1p prioritized weighted fair queuing
- Echo cancellation: G.165, G.168 (up to 128ms)
- Idle channel suppression
- Silence suppression and comfort noise generation
- Tone generation / detection (DTMF, MF, FSK)
- Onboard mixing and announcement server

Compliance and Approvals

- Bellcore NEBS Level 3: Standard (GR-63-CORE), Verizon TEEER VZ.TPR.9205, ATIS 0600015, AT&T TP.76200
- Environmental: ETSI EN 300 132, EN6100-4-5, EN 300 753, EN 300 019
- Safety: UL 1950-1, IEC 60950-1, ETSI EN 60950-1, CAN/CSA C22.2 60950-1-07
- Electro-magnetic compatibility: FCC Part 15 Class A, ICES-003, EN 55022, ETSI EN 300 386, VCCI V3, CISPR22, AS/NZS CISPR22
- Lawful intercept: CALEA TIA J-STD-025A / T1.678, ETSI TS 101 331, ES 201 158, TS 101 671
- SS7: Verizon, BellSouth, Verisign, SBC, Qwest, Bell Canada, BT, INS
- MultiService Forum (MSF) Release 3 Architecture

* Full support to be delivered in a future release