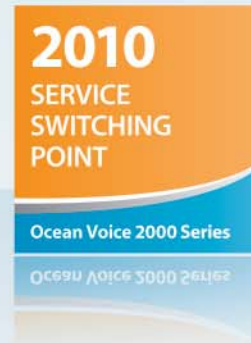


Ocean 2010

Service Switching Point

- ~ Carrier grade
- ~ Non-blocking
- ~ External application control
- ~ Up to 1920 channels in a single shelf
- ~ Up to 7680 channels in a single cabinet
- ~ TDM and Voice over IP (available in modules of 480 channels)
- ~ Comprehensive TDM signalling – SS7, ISDN, DASS 2, DPNSS, QSIG
- ~ Industry standard SIP v2.0 signalling for VoIP (option)
- ~ Internal programming environment (option)
- ~ Integral DTMF and voice detection (option)
- ~ Integral voice announcements (option)



The Ocean 2010 can support a combination of TDM and VoIP interfaces. It can be used as a bridge between TDM and packetbased domains, providing a smooth transitional path between traditional and next-generation networks. On-board programmability, via its 'C' style NODAL programming language, enables applications to control call handling from call arrival to final clear-down.

The Ocean 2010 is provided with a rich set of applications, which can be modified if required. This ensures that the Ocean 2010 is revenue-ready from the moment of installation. NODAL provides a secure, protected development and execution environment.

The Ocean 2010 optionally supports DTMF and voice detection, together with audio announcements on every port simultaneously, accessible by both TDM and packet-based interfaces. These facilities are controlled by NODAL applications, making it easy to host simple high-volume interactive services entirely on the Ocean 2010, without the need for separate, specialised resources.

Internal routing tables, configured by the 'Route' graphical interface, enable routing on both the originating and terminating addresses. The programming environment

also allows applications to detect and switch calls based on signalling parameters such as bearer capability.

The Ocean 2010 management environment provides a real-time view of system activity and alarm conditions. The presentation format is similar to Windows Explorer, for ease of use and for minimising training costs and time.

A true carrier-grade solution, the Ocean 2010 is built around a backplane that uses multiple point-to-point connections, so that dedicated connections are used between cards, which ensures that the Ocean 2010 will continue to operate even in the event of a device, bus, card or system clock failure, offering availability greater than 99.999%. Additionally, all cards are hot-swappable and software changes, including signalling protocol changes, can be carried out on live systems.

Ocean 2010

Specification

Configuration

- ~ Fully non-blocking switch with up to 7680 channels per cabinet

Modularity

- ~ 480 TDM channels or 480 VoIP channels

Traffic capacity

- ~ Up to 500 000 Busy Hour Call Attempts

VoIP Audio (option)

- ~ G.711 A-law PCM audio codec over RTP
- ~ G.711 μ -law PCM audio codec over RTP
- ~ Packet size configurable as 10, 20 or 30 milliseconds
- ~ RTP (Real-time Transport Protocol) to RFC 1889
- ~ G.168 Echo Cancellation (option)
- ~ In-band DTMF
- ~ Silence Suppression

Redundancy

- ~ Full duplication of all system modules: processing, signalling, LAN and power supplies
- ~ Non-stop operation
- ~ All cards are hot swap replaceable
- ~ Live software updates
- ~ Availability in excess of 99.999%

Routing facilities

- ~ Internal routing tables:
 - Full 'A' and 'B' party number analysis (32 digits each)
 - 'Wild-carding' on both 'A' and 'B' party numbers
 - Incoming trunk groups analysis
 - Up to 2000 in-rules
 - Up to 2000 out-rules
- ~ E.164 Numbering
- ~ SIP Domains configurable per VoIP card
- ~ External control from Ocean 2180 Application Server, IVR or other system via TCP/IP and ISDN Keypad protocol

Interfaces

- ~ Dual TCP/IP interfaces provide redundant connections to a LAN/WAN for:
 - System management
 - CDR retrieval
 - Database access
 - Statistic storage
 - External system control
 - Applications enabling external control using Ocean Control Protocol (OCP) are pre-loaded

- ~ Full duplex single 100BaseT Ethernet interface per VoIP card with two additional Ethernet interfaces per VoIP card reserved for future enhancement

Audio announcements (option)

- ~ Up to 4 hours of audio announcement storage
- ~ Up to 8000 audio announcement files
- ~ Start-at-beginning play on all channels

Caller interaction (option)

- ~ DTMF detection and voice detection (dedicated per channel resource)

Live feed

- ~ Up to 100 audio sources (channels), can provide live feed material for any other channels to use for music-on-hold, live radio feeds, etc.

Signalling

- ~ Signalling System No.7:
 - Integrated Services Digital Network User Part (ISUP)
 - (White Book, Q.761 – Q.766 series) and national variants, in particular:
 - UK-ISUP (PNO-ISC/SPEC/007)
 - Australian I-ISUP (G500 interconnect)
 - German ISUP
 - Spanish ISUP
 - SS7 NUP: BTNR 167
 - SS7 IUP: PNO-ISC/SPEC/006
 - SS7 MTP: ITU-T Q.701-Q.704
 - L2 and L3 MTP congestion control
- ~ DSS1 / ISDN primary rate
 - European Telecommunication Standard (ETS) 300-102 and SIN232/261
- ~ DASS 2
 - BTNR 190
- ~ QSIG
 - ECMA-143
- ~ DPNSS
 - BTNR 188 (NICC ND1301:2001/03)
- ~ SIP (Session Initiation Protocol) version 2.0 to RFC 3261 (Basic Call Set-up) with support for segmented UDP (option)

Inter-working

- ~ Any-to-any conversion of supported protocols including between SIP and any Trunk Card-supported signalling protocols (SS7, ISDN, DASS 2, QSIG and DPNSS)

Pre-loaded applications

- ~ Answer Test Call
- ~ Audio Feed Source
- ~ Emergency Call Reject
- ~ Generate Test Call
- ~ Generic Announcements
- ~ Live Feed
- ~ Manage DST [Daylight Saving Time]
- ~ Monitor Audio
- ~ Monitor Signalling
- ~ OCP Caller
- ~ OCP Link Manager
- ~ OCP System Manager
- ~ Play File
- ~ SNTP (Simple Network Time Protocol) Client
- ~ Switch
- ~ Switch International
- ~ Switch Supplementary Services
- ~ Synchronise Time
- ~ Telnet Server
- ~ Virtual Switch

Programmable Applications (option)

- ~ Event driven, 'C' style syntax, programming language – Ocean 2010 NODAL
- ~ Access to signalling parameters including Bearer Capability
- ~ HLC, LLC, Calling Party Category
- ~ TCP/IP support
- ~ Keypad support (in ISDN)
- ~ DTMF and voice detection support
- ~ Audio support
- ~ Date and time functions
- ~ Signalling event triggers
- ~ Caller applications triggered by calls to the switch
- ~ Management applications for background tasks e.g. TCP/IP socket opening and link maintenance
- ~ TCP/IP interface for connection to external systems for routing, control, database access and statistics storage
- ~ Customised alarm generation
- ~ Customised CDR data generation
- ~ Ocean 2010 NODAL debugging via Telnet
- ~ Access to SIP Domain
- ~ Routing of SIP/VoIP signalling to user specified IP addresses and UDP ports

Operations and Management

- ~ Platform Manager and Route – Windows-based management applications for configuration and status analysis including:
 - Channel status information (including partner channel)
 - User accounts administration
 - Signalling scheme and parameter configuration
 - Interactive feature configuration
 - Routing table, Trunk Group and Application configuration
 - Automated Route Loading
 - Busy / Enable channels and trunks
 - Loop back audio on trunks
 - Statistics
 - Visual alarm status, alarm counts and textual descriptions
- ~ Alarm relays
- ~ Simple Network Management Protocol (SNMP) via the Ocean SNMP Alarms Proxy

Call Detail Records

- ~ Created on clear-down of both inbound and outbound calls
- ~ Partial CDR generation for long duration calls
- ~ Local storage on dual hard disks (with FTP access for retrieval)
- ~ Disk Storage rate up to 500 000 CDRs per Ocean 2010 shelf, per hour

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