# ORION TELECOM NETWORKS INC.

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# VCL-STM-1/4 Multi-Service Provisioning Platform

## Product Overview

The VCL100 STM-1/4 is a cost-effective and modular bandwidth provisioning equipment designed to manage and derive services from the optical core to access.

The product supports end-to-end provisioning and management of services across all segments of the optical network. It combines innovative optical networking software with the intelligence of SDH to deliver a flexible solution to today's service providers. It is well suited for applications where multiple services need to be aggregated and transported across an optical backbone.

The VCL100 STM-1/4 can be configured as a Terminal Multiplexer (TMUX), Add-Drop Multiplexer (ADM), Regenerator, In-Line Amplifier or as a stand-alone Cross-Connect. A variety of service interfaces such as E1/DS1, E3/DS3, E4, STM-1e/o and 10/100 Mbps Ethernet tributary interfaces and trunk interfaces at STM-1/4 rates are supported. The product features non-blocking cross-
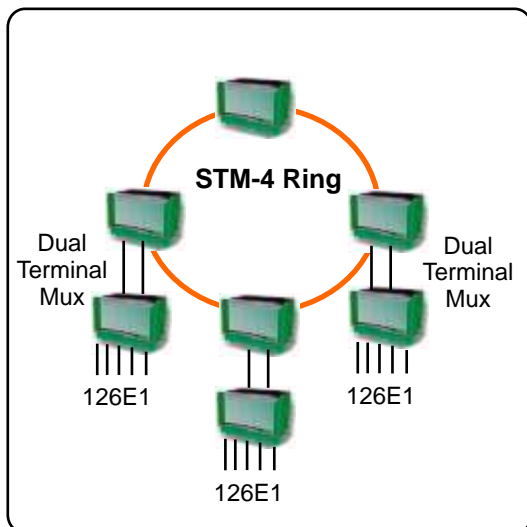
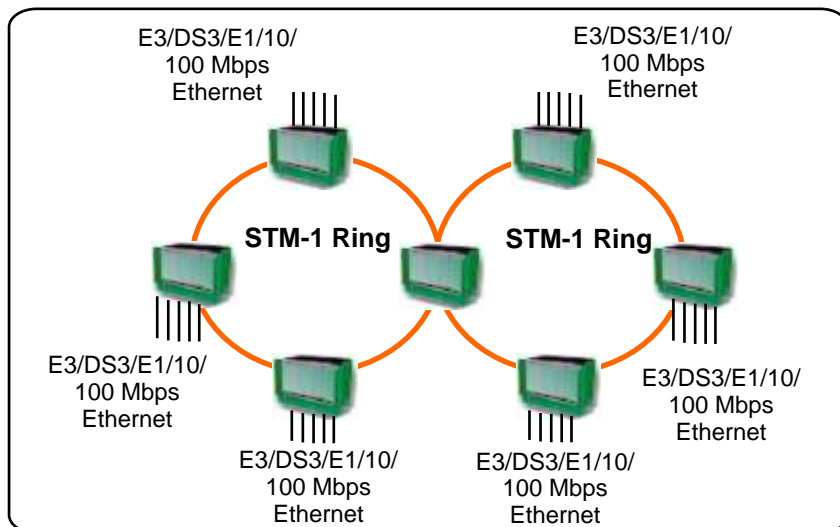connect at VC-3, VC-4, and VC-12 granularity and supports drop-and-continue functionality.

As transmission networks are gradually being dominated by data traffic, VCL100 provides 10/100 Base-T interfaces to efficiently carry inter-office data traffic from a corporate LAN, traffic from an ISP, DSL or cable networks.

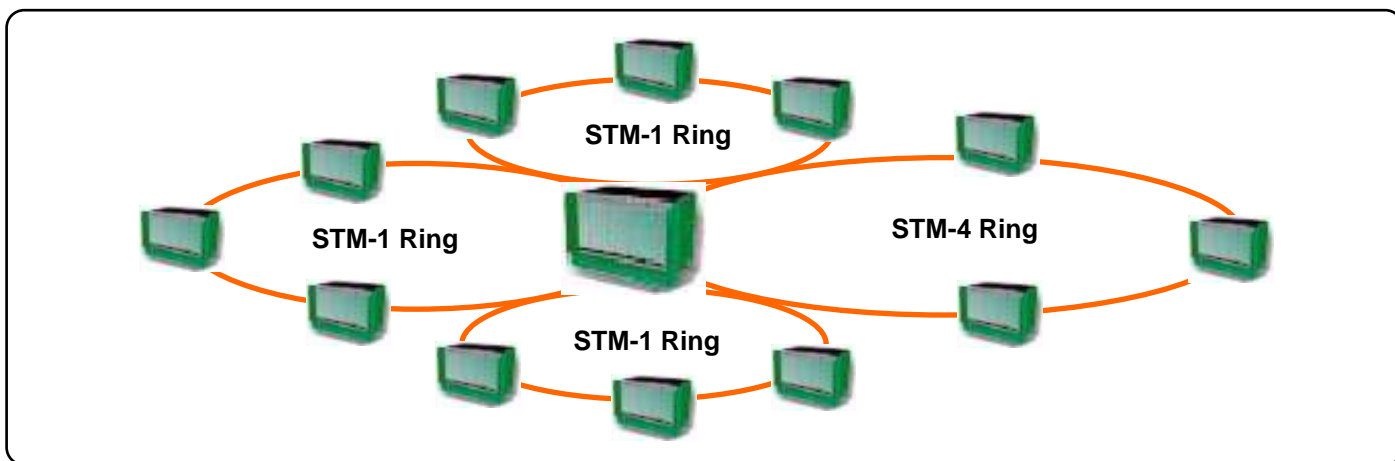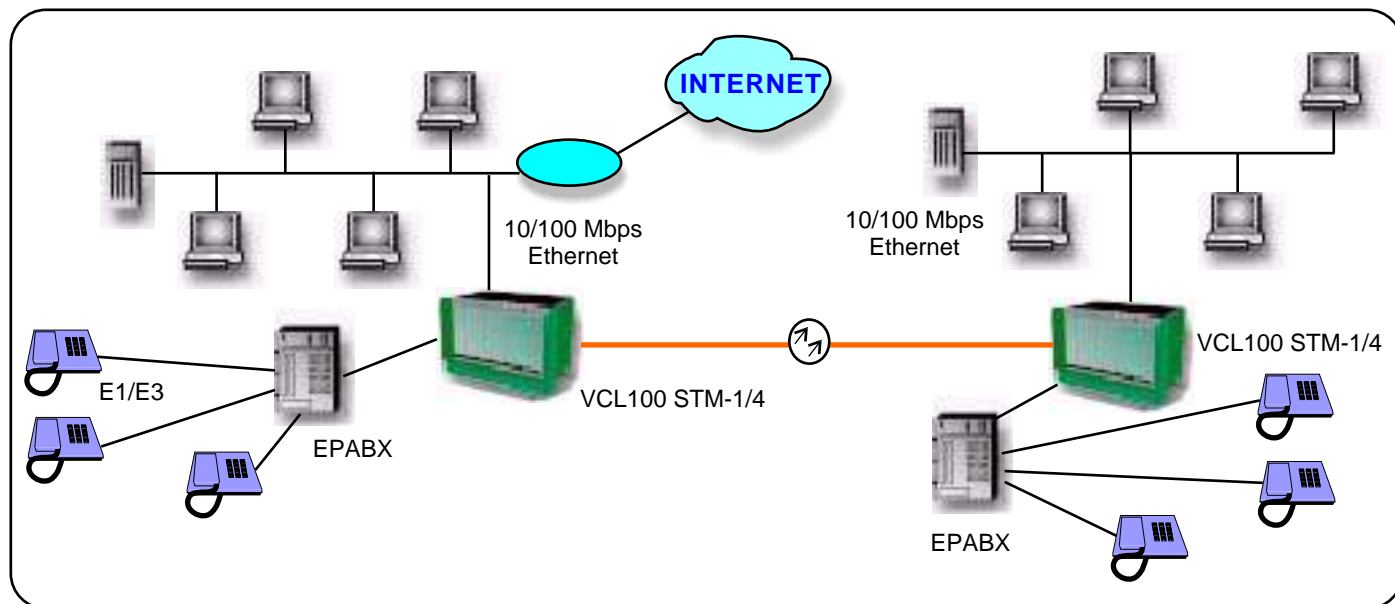| Features | Advantages | Benefits |
|---|---|---|
| Multi-slot chassis system | Flexibility, modularity and scalability in configurations. Allows easy upgrade from STM-1 to STM-4 without service disruption. Capability enhancement in traffic drops can be achieved with expansion chassis | "Build as you grow". Pay for capability you require today. Provides improved cashflow control with minimum initial capital outlay |
| Compact size | Half depth rack allows two VCL100 STM-1/4s to be placed back to back on standard rack | Better utilization of available rack space |
| Integrated multi-service delivery | Provision both voice and data services from the same platform. Efficient use of transport bandwidth by supporting per-port rate adaptive Ethernet services | Future-proof architecture protecting investment |
| Redundant cards with hot insertion capability | Guaranteed availability and superior network resiliency | Carrier-class redundancy and high network uptime with minimum loss of revenue |
| Point to point, linear, ring and mesh topologies | Diverse topology support to cater to all customer network scenarios | Flexible and cost-effective network solutions |
| Multi-level protection schemes MSP, SNCP or MS-SPRing | Advanced protection schemes enable you to cater to differing customer protection requirements | Creation of differentiated services to enhance the portfolio of service offerings |
| Advanced networking software with support for open standards such as GMPLS and OSPF | Enables automatic topology discovery, shared mesh restoration and Point-and-Click Provisioning (PNCP). User friendly GUI based Network Element Software for local and remote provisioning | Reduction in operational costs and increase in efficiency through lower provisioning time and operator intervention |
| Integrated optical amplifier | Extended link lengths of the order of 200kms can be realized | Minimize regenerator sites and attendant real estate, construction and OAMP costs |

# Applications



**STM-4 Ring**

Dual Terminal Mux

Dual Terminal Mux

126E1

126E1

126E1

**Ring Topology with Dual Terminal Multiplexer in Linear chain**



E3/DS3/E1/10/ 100 Mbps Ethernet

E3/DS3/E1/10/ 100 Mbps Ethernet

**STM-1 Ring**

**STM-1 Ring**

E3/DS3/E1/10/ 100 Mbps Ethernet

E3/DS3/E1/10/ 100 Mbps Ethernet

E3/DS3/E1/10/ 100 Mbps Ethernet

E3/DS3/E1/10/ 100 Mbps Ethernet

**Ring Connected 4x4 STM-1 Cross-connect**



**STM-1 Ring**

**STM-1 Ring**

**STM-4 Ring**

**STM-1 Ring**

**Three Subtended STM-1 Rings Connected with STM-4 Rings**



INTERNET

10/100 Mbps Ethernet

10/100 Mbps Ethernet

E1/E3

EPABX

VCL100 STM-1/4

VCL100 STM-1/4

EPABX

**Private Networking**
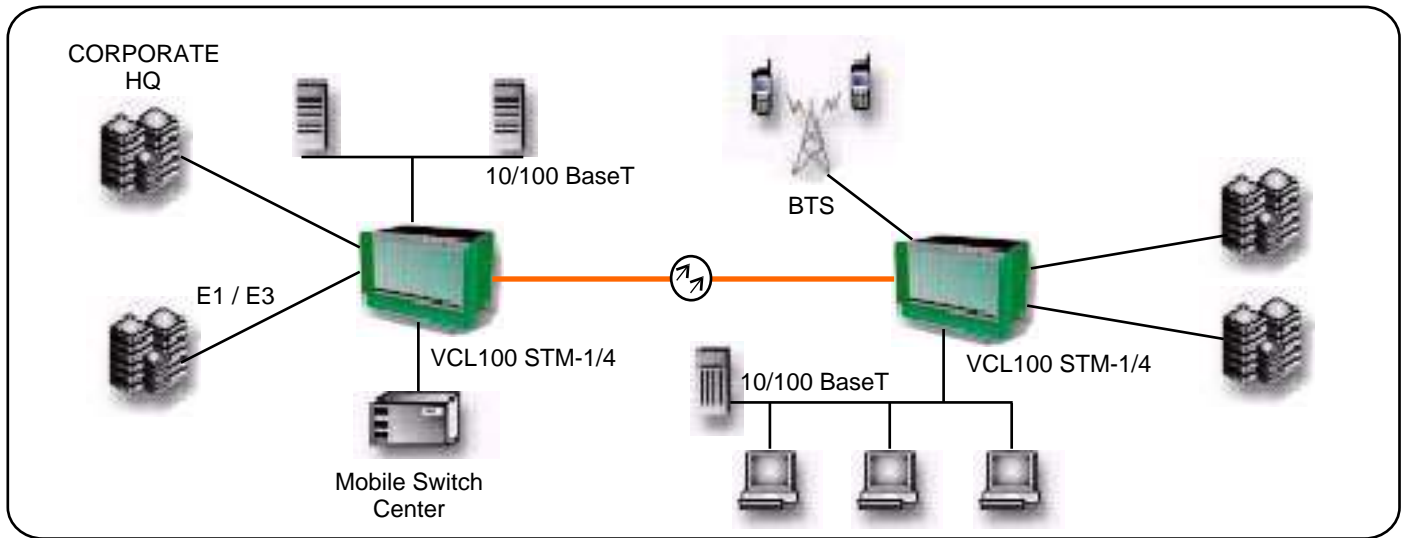
**E1 / E3 and Ethernet Services**

# Technical Specifications

**Network Topology**
- Linear, Ring, Mesh

**Network Element Configurations**
- Single/Dual Terminal Multiplexer (Dual TMUX)
- Add-Drop Multiplexer (ADM)
- Regenerator
- In-Line Amplifier
- Cross Connect

**Aggregate Interfaces**
- 2 X STM-1/4 1310 or 1550 nm (ITU-T G.957 Compliant)
- S/L 1.1, S/L 1.2, S/L 4.1, S/L/V/U 4.2
- L 1.2JE, L 4.2JE (Joint Engineering)

**Tributary Interfaces**
- E1/DS1, E3/DS3, E4
- STM-1o/STM-1e
- 10/100 Ethernet

**Modularity**
- Modular in design, capable of upgradation to STM-4
- Separate aggregate and tributary cards
- Mix and match tributaries – E1, DS1, E3, DS3, E4, STM-1o/e, 10/100 Ethernet

**Cross Connect**
- 1008 X 1008 VC-12
- Fully non blocking
- Line to Line, Line to Tributary, Tributary to Line, Tributary to Tributary

- Technical specifications are subject to change without notice.
- All brand names and trademarks are the property of their respective owners.

**Protection**
- SNCP/ 1+1 MSP (as per ITU-T G.841)
- VC-12, VC-3, VC-4 level path protection
- Optional Hardware redundancy: Power Supply, Processor, Cross-connect and Aggregate Card
- 1:3 E1 tributary protection

**Maintenance**
- Higher-order and Lower-order POH, SDH level alarms and performance monitoring (as per ITU-T G.826 and ITU-T G.784)
- Local & remote loop back
- Software Downloads

**Network Management**
- Element Management System: VCLNES (VCL Network Element Software), supports full FCAPS functionality.
- RS-232 port for craft interface
- V.24/V.28 Modem interface for remote management
- In-band control supported using SDH Overhead bytes
- E1 management channel support with drop facility
- 10/100 Base-T/RJ45 management interface
- Alarm Signaling Indicators and External Contacts

**Power Supply**
- Power Input: -48V DC nominal, -36V to 60V DC
- Power consumption: less than 100W

**Timing & Synchronization**
- Timing & Synchronization of System (as per ITU-T G. 813)
- Internal and External Timing interfaces: Two E1 BITS interfaces (as per ITU-T G.703)
- Internal oscillator capable of supplying a ITU-T G.813 compliant Stratum-3 SEC
- Support of SSM byte

**Order wire support and User data Channel**
- E1/E2 bytes used for Express order wire (Omnibus / Selective calling facilities)
- F1 byte for user data channel

**Physical Dimensions**
- Dimensions (H X W X D): 267 mm x 462 mm x 244 mm (10.5 in x 18.2 in x 9.5 in); Can be mounted on a 19" or 23" or 600mm rack
- Weight: 2.5 Kg (6 Kg fully loaded)

**Environmental**
- Operating Temperature: 0° to 50°C
- Relative Humidity: 10% to 90%, non-condensing

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