Service Provider Solutions:
Monetize New Services While Building the Most Reliable Network

Grow your Services, Grow your Revenue, and Satisfy your Customers with Transition Networks.

Mobile Backhaul
Business Services
Carrier Exchange Network
Fiber Conservation (WDM)
Transition Networks is an industry leader with over 25 years experience designing and manufacturing carrier grade products which make it simple to grow your revenue, grow your services, satisfy your customers, and stay ahead of the competition.

Our vast product portfolio is designed to support a wide range of expanding market needs including mobile backhaul, business services, carrier exchange networks, and fiber conservation. Transition Networks products provide true carrier-grade quality, reliability, performance and protection for TDM, Circuit Emulation Services (CES) and Carrier Ethernet services. Transition Networks provides cost-effective products to build your next generation network or to ease the migration of legacy services while increasing revenue and reducing operating expenses.

At Transition Networks we strive to help our customers identify products to solve today’s business problems while future proofing for tomorrow. This consultative approach enables us to better understand your unique requirements and to ensure you are able to grow your revenue, grow your services, and satisfy your customers.

Transition Networks Advantages
- A leader in carrier grade products for mobile backhaul and business applications
- Successfully deployed over 100,000 NIDs
- Active member of ITU, IEEE and MEF
- Unrivaled technical advisory services
- Simple to use EMS for network wide provisioning and fault management
- Turnkey solutions for a variety of applications
- Established relationships and quarterly business reviews with customers
- Experts in fiber integration
- Strong understanding of our customer’s problems and markets
- MEF CE 1.0 and CE 2.0 certified products
- Financially stable company founded in 1987
- Outstanding customer and technical support 24 x 7 x 365
- ISO 9001 and 14001 certified
- Global Customer Base and Sales Force

Transition Networks Difference
- Future proofing for tomorrow
- Identification of products to solve today’s business problems
- Consultative approach to better understand your unique requirements
- Ensure ability to grow revenue, grow services, and satisfy customers.

Mobile Backhaul
For backhaul requirements for any generation cell service Transition Networks’ manufactures a variety of demarcation and aggregation devices. Whether TDM, Circuit Emulation Services (CES) or Carrier Ethernet; Transition Networks simplifies your backhaul network by providing advanced performance statistics with an easy to use management platform.

Business Services
From simple demarcation to fully protected services, Transition Networks’ portfolio of TDM and Carrier Ethernet products allow you to realize faster return on investment and reduced operating expenses while maximizing customer uptime.

Carrier Exchange Network
When meet-me-room and customer connections are beyond the reach of your copper infrastructure, Transition Networks offers high quality, low latency, layer one, copper to fiber extension devices designed for plug-n-play installation.

Challenge
Service Providers are facing new challenges of growth, convergence, business transformation, technological change and customer pressures in increasingly difficult economic conditions. The demand for rich content and more bandwidth is ever increasing, putting an increased weight on a service provider’s network and testing its ability to perform and troubleshoot while also keeping up with its competition. To further complicate issues, most Service Providers still have legacy protocols to deal with in their current infrastructure and their transition strategies will have to address this legacy protocols for a number of years. Yet there is an urgent need to develop and deliver new data-enabled services that will continue generate new revenues from new and current users. Customers have little patience for providers who cannot meet or exceed their expectations, which are driving the convergence of the network layer with the services layer to deliver the highest Quality of Service (QoS) with more visibility and easy integration. While an all-Ethernet converge application is the goal for the future, Transition Networks provides the path forward to allow TDM networks to evolve to IP/Ethernet using cost-effective upgrades to your network as needed—rather than throwing out your existing technology investment and start from scratch.
Mobile Backhaul

Carrier Ethernet
To support new 4G LTE and 3G expansions and builds for an all IP/Ethernet fiber backhaul network, Transition Networks offers a series of intelligent Network Interface Devices (NIDs) in both stand-alone or chassis based models. Built for complete end-to-end connectivity fault and performance management, each multiprotocol NID can be independently provisioned for IEEE 802.3ah, IEEE 802.1ag and ITU Y.1731. These devices support IEEE 1588v2 and SyncE methods needed to ensure SLA requirements, while optimizing the fiber plant by combining up to 16 different wavelengths across a single fiber pair.

TDM over Fiber
Existing 2G/3G services supported by a copper TDM network topology are finding new challenges: Depleted copper infrastructure, new next generation technologies, distances to the tower, and increased user traffic. Transition Networks’ fiber access and optical multiplexers allow service providers to reclaim copper infrastructure and maximize the new fiber plant by transporting, and remotely managing, up to 32 T1/E1’s and Ethernet over a single strand of fiber. Transition Networks CWDM mux/demux can be utilized to further optimize the fiber plant by reusing existing single strand of fiber. Transition Networks offers a complete “carrier class” CES platform that helps converge TDM to Ethernet utilizing either SAToP or CESoP technology. Available in a wide range of Ethernet and T1/E1 interfaces these products offer highly-accurate distributed clocking features that exceed ITU G.823 synchronization standards. CES is optimized for new mobile services, while retaining investments in legacy backhaul equipment. Transition Networks CES products are designed for ultra-low latency and have advanced clock recovery algorithms for critical timing and synchronization required in mobile backhaul networks. CES provides a means to converge any TDM service (Voice, Video, Data) to any IP, MPLS or Ethernet network transport.

Circuit Emulation Services (CES)
Next generation Ethernet networks are being deployed to cell towers on a large scale. Supporting these new 3G and 4G LTE bandwidth demands cause many mobile backhaul providers to have these same cell towers with revenue generating, 2G & 3G base stations already in service. Built exclusively for 2G/3G mobile backhaul, Transition Networks offers a complete “carrier class” CES platform that helps converge TDM to Ethernet utilizing either SAToP or CESoP technology. Available in a wide range of Ethernet and T1/E1 interfaces these products offer highly-accurate distributed clocking features that exceed ITU G.823 synchronization standards. CES is optimized for new mobile services, while retaining investments in legacy backhaul equipment. Transition Networks CES products are designed for ultra-low latency and have advanced clock recovery algorithms for critical timing and synchronization required in mobile backhaul networks. CES provides a means to converge any TDM service (Voice, Video, Data) to any IP, MPLS or Ethernet network transport.
Business Services

Carrier Ethernet

In today’s fast-paced environment, the ability to provide businesses with applications that run over reliable Ethernet-based services is more critical than ever. Business class Ethernet has become the choice for small, medium, and large businesses as industry standards have evolved to include stringent high-availability networking requirements. Commercial enterprises, both private and public, including government agencies and service providers, are quickly migrating to an all packet-based network for transparent Wan/Lan, VPs, VOP, Video Conferencing, and other mission critical applications. Most service providers are responding to these changing requirements by offering flexible bandwidth services, multi-point connectivity and flow-level CoS Profiling, policing, and shaping. Transition Networks understands that business class Ethernet services require reliable, scalable and flexible architectures that offer significant bandwidth cost savings without sacrificing control or traffic characteristic information. The ability to add additional Ethernet services and applications while growing the number of users on a network must be completely transparent all while guaranteeing uptime. Transition’s extensive portfolio of product class Network Interface Devices that enable you to effectively deploy TDM networks and manage them remotely for optimal cost savings.

TDM over Fiber

Efficient, cost-effective solutions are critical in today’s tumultuous financial climate. Network Interface Devices (NIDs) can help you leverage legacy T1/E1 and T3/E3 TDM (Time-division multiplexing) equipment to reduce CapEx and OpEx costs. TDM services will remain a cost-effective option for specific scenarios and applications when you can’t afford to miss your Service Level Agreement (SLA) targets, but lack capital to deploy next-generation technology. Transition Networks offers world-class Network Interface Devices that enable you to effectively deploy TDM networks and manage them remotely for optimal cost savings.

Circuit Emulation Services (CES)

Customers worldwide continue to use TDM/SDN networks for specific applications including the Public Switched Networks (PSTN) for voice traffic but are aggressively looking to reduce operational and management costs by merging all traffic (voice, video, data) to an all IP Ethernet infrastructure. Transition provides an economical path forward to cost effectively migrate all TDM/SDN traffic to IP Ethernet using carrier-class technology offered in our PacketBand TDM/SDN products. PacketBand offers a wide range of both Ethernet 10/100/1000 copper and SFP port options, advanced Layer 2 features, and a variety of T1/E1 electrical interfaces to choose from. Equally important is the performance requirements for the T1/E1 services. These TDM over IP circuits must continue to meet or exceed legacy Sonet/SDH network performance characteristics, including G.823, G.824, and G.821 in order for Ethernet to be used reliably in place of circuits. Knowing that all networks are not designed the same; PacketBand is tunable to accommodate any IP network including MPLS, Ethernet, and Pseudo-wire over IP also commonly known as TDM over IP. Designed and proven for transporting highly-accurate clocked TDM/SDN circuits over packet switch networks, PacketBand offers G.703/4, and X.21/X.35 over IP/Ethernet and is available in a variety of AC/DC power options and extended temperature versions. These products provide an evolutionary path for bridging the gap between TDM/SDN and packet based networks.
Central chassis for remote management and fault detection
Configure via dip switches or management module
Transparently pass customer traffic including VLANs
Alarms and traps for quick fault detection
Plug-n-Play installation
AutoCross™
Automatic Link Restoration

Many Carrier Hotels and large Data Center facilities are often met with the distance limitation of copper cabling. Adding Transition Networks' Copper to Fiber products to your Data Center allows you to maintain a Physical Layer, Transparent, Pass-through connection between the customer cage and the Meet-Me-Room (MMR). The use of media conversion gives the customer and carrier the reassurance that the data is NOT passing through a switched network. This guarantees that the customer will have no added latency, no jitter, no packet inspections and no potential traffic sniffing.

Data Center / Colocation

Ethernet

4 x T1/E1

DS3/E3

Accessories

Power Supplies

Chassis

Management Module

Product Features

- Central chassis for remote management and fault detection
- Configure via dip switches or management module
- Transparently pass customer traffic including VLANs
- Alarms and traps for quick fault detection
- Plug-n-Play installation
- AutoCross™
- Automatic Link Restoration
Wave Division Multiplexing (WDM)

Users of today’s voice, video, and data networks are becoming more complex — requiring more bandwidth and faster data transmission rates over increasing distances. In order to meet these demands, Service Providers and Enterprise Corporations are relying more and more on fiber optic infrastructures. But what happens when all available fiber lines are exhausted?

To counteract the expense and time associated with trenching more fiber, many network managers are using Coarse Wavelength Division Multiplexing (CWDM) technologies to increase capacity on existing fiber optic infrastructure. By multiplexing multiple optical signals on a single strand of fiber, users are able to reclaim and maximize existing fiber strands with next to no down time. This layer-one, plug and play solution for increasing fiber capacity eliminates the cost and time constraints associated with deploying more fiber, while allowing for up to 16x the capacity on existing fiber strands.

**Product Features**

- Instantly increased bandwidth/capacity on existing fiber
- Attractive cost versus new fiber deployments
- Ability to mix multiple protocols and network speeds over the same fiber
- Completely passive solution
- Layer-One connectivity and plug and play provisioning
- Modular design allows for pay-as-you-grow expansion.

**CWDM**
Product Overview

Ethernet NIDs
- TDM Ethernet Media Converters
- Extended operating temperature range
- Triple power inputs for redundancy and uptime
- Advanced timing IEEE 1588v2 plus known as Precision Time Protocol, PTP and SynE
- Sub-Slot Ring Protection: ITU-G.8032v2, STP, RSTP, MSTP
- IPv4 and IPv6 support
- Interfaces from 10M to 10Gbps
- MEP CE 1.0 (v1, v2 and v2i) and MEF CE 2.x certified

Ethernet Switches
- Ethernet: OAM support including IEEE 802.3ah (Link OAM), IEEE 802.1ag (Service OAM), and ITU Y.1731 (Performance Monitoring)
- IEEE 802.1q Quality of Service (QoS)
- IEEE 802.1Q VLANs including C-Tag / S-Tag
- Advanced security features: SSL, SSH, Multi-layer Access Control Lists (ACL), RADIUS, TACACS+ and Management VLANs

Ethernet Media Converters
- Central chassis for remote management and fault detection
- Configure via drop switches or management module
- Transparently pass customer traffic including VLANs
- Alarms and traps for quick fault detection
- Plug-n-Play installation
- AutoCross™
- Automatic Link Restoration

TDM
- Local and Remote Loopback
- Access to complete status information on local and remote device
- Excellent diagnostics and link performance statistics
- Extended Operating Temperature
- SFP port for COWM, Bi-Gl or standard SFPs
- Variety of clocking options

TDM over IP
- Multi-standard TDM passthrough support: CESoPSN, SATOP, TDM over IP
- Highly accurate and stable clock recovery
- G.823 Synchronization levels
- Remote management
- Extended Operating Temperature
- Redundant, hot-swappable power supplies

Product Matrix

<table>
<thead>
<tr>
<th>Carrier Ethernet</th>
<th>Description</th>
<th>Remote Management</th>
<th>Advanced Timing</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2203 (-5, -15,T)</td>
<td>Stand-Alone NID: 4 x 10/100/1000Mbps copper port and 1 x 10/100/1000 SFP port (Any port can be network in client)</td>
<td>CLI/Web, SNMP</td>
<td>Transition/Recovery EMS</td>
<td>IEEE 1588/1580, SynE</td>
</tr>
<tr>
<td>S2300</td>
<td>0°C - 55°C Operating Temp</td>
<td>None</td>
<td>Transition/Recovery EMS</td>
<td>Operating Temp 100 - 240VAC (EC available with SPS-2460-xx)</td>
</tr>
<tr>
<td>SM24-1000SFP-AH</td>
<td>Aggregates 24-port Gigabit Ethernet Switch: 24 x Gigabit SFP Ports and 2 x 10G SFP Port (2 x Gigabit expansion ports)</td>
<td>CLI/Web, SNMP</td>
<td>Management/Recovery EMS</td>
<td>Transition Networks EMS for details</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>Description</th>
<th>Remote Management</th>
<th>Advanced Timing</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>x2110</td>
<td>0°C - 55°C Operating Temp</td>
<td>None</td>
<td>Transition/Recovery EMS</td>
<td>Operating Temp 100 - 240VAC (EC available with SPS-2460-xx)</td>
</tr>
<tr>
<td>x2110</td>
<td>0°C - 55°C Operating Temp</td>
<td>None</td>
<td>Transition/Recovery EMS</td>
<td>Operating Temp 100 - 240VAC (EC available with SPS-2460-xx)</td>
</tr>
<tr>
<td>x2110</td>
<td>0°C - 55°C Operating Temp</td>
<td>None</td>
<td>Transition/Recovery EMS</td>
<td>Operating Temp 100 - 240VAC (EC available with SPS-2460-xx)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TDM</th>
<th>Description</th>
<th>Remote Management</th>
<th>Advanced Timing</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDM Chassis or Stand-Alone NID: 4 – 32 T1/E1's ports and 2 x 10/100/1000Mbps Ethernet ports + 1 x 1000 Mbps fiber port</td>
<td>Transition/Recovery EMS</td>
<td>Internal Gateway OUI/Client</td>
<td>Clock from any TDM port Remote or Slave Clock</td>
<td>Operating Temp -20°C - 75°C (Service OAM)</td>
</tr>
<tr>
<td>x2120</td>
<td>TDM over IP Ethernet Chassis or Stand-Alone NID: Multi-standard TDM passthrough support: CESoPSN, SATOP, TDM over IP</td>
<td>None</td>
<td>Transition/Recovery EMS</td>
<td>Operating Temp -20°C - 55°C Extended Temp Option</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MediaBand</th>
<th>Description</th>
<th>Remote Management</th>
<th>Advanced Timing</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>MediaBand</td>
<td>Time and Data Chassis or Stand-Alone NID: Multi-standard TDM passthrough support: CESoPSN, SATOP, TDM over IP</td>
<td>Transition/Recovery EMS</td>
<td>Internal Gateway OUI/Client</td>
<td>Clock from any TDM port Remote or Slave Clock</td>
</tr>
</tbody>
</table>

* For complete product details, please visit www.Transition.com/service