

# NORTEL EC-1 TO TN1X FOR ALARMS, PROVISIONING, AND SOFTWARE DOWNLOAD USING THE AITC CARD IN A TCP/IP NETWORK APPLICATION NOTE

#### APPLICATION OVERVIEW

The Altc (OSI Tunneling Line Card) makes it possible to connect Nortel TN1X network elements (NEs) and the EC-1 element management system over a standard TCP/IP routed network. The EC-1 connects to the TN1X NEs using open systems interconnect (OSI) protocol. This means a typical router network must be modified and upgraded in order to support the EC-1 to TN1X connection. The Altc card eliminates the need for these changes and provides a scaleable, self-learning solution to attaching your TN1X elements to your existing corporate router network.

## FEATURES & BENEFITS

The Altc addresses many important networking issues and helps you build a solid TN1X management network without implementing an expensive and complicated OSI / connectionless network protocol (CLNP) network. Our customers have experienced improved network performance because all the OSI background traffic (IS-IS Hellos, and LSUs) are blocked at the local network and don't cross your wide area. The ALS makes your Altc network truly "plug-and-play". Every time you attach an element, the system automatically learns it's location and builds a network tunnel.

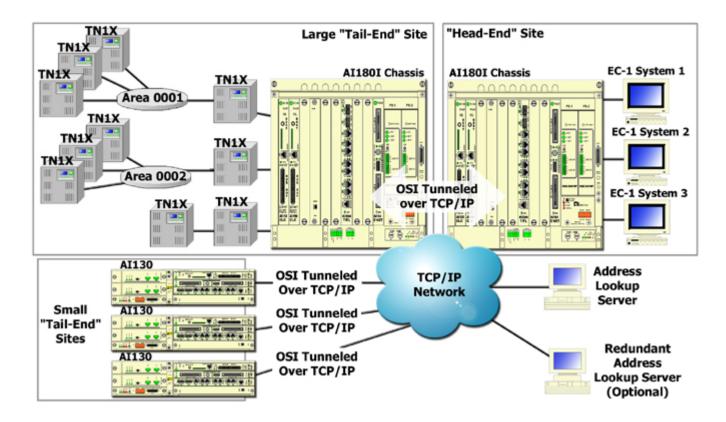
The Altc / ALS system provides a quick, easy, and cost effective way to implement your TN1X management on your current router network.

- · Self-learning architecture
- · Optional redundant address look-up servers (ALSs) to prevent network outages
- · Scales to very large TN1X deployments
- · Works over a standard TCP/IP routed network with standard IP routing protocols
- · Eliminates the need for an IS-IS OSI network, network redesigns, and router upgrades to support IS-IS
- · Eliminates the need to use wide area VLANs (which become congested by the IS-IS background traffic)
- · Provides logical boundaries between local, regional, and national element managers (important to many large telco operations)
- · Provides many useful built-in diagnostics and analysis tools for managing your TN1X network

### AI COMPONENTS

Al Product Model Number	Description
Altc	OSI Tunneling Line Card for OSI operation
	over a standard TCP/IP network
Al294-T or Al294-T/FL	Ethernet Switch Line Card
Al194	24-Port Ethernet Hub Line Card
DP194	Ethernet Hub Distribution Panel
Alals (Address Lookup Server)	NSAP and OSI route caching system for
	address storage and network look ups
Alscout and Alscout-2	Multi-function, small site platform for serial,
	Ethernet, and point-closure applications
	Al180I, Al130, and Al110 chassis and common
Alswitch	equipment are NEBS Level 3 compliant, -48V
	DC enclosure for the telco office environment

#### ARCHITECTURE OVERVIEW



#### This is how it works:

- 1. The TN1X gateway network elements (GNEs) attach to the Al294 (Ethernet Switch Line Card). The Al294 provides logical isolation between the GNEs and isolates the TCP/IP network from the OSI protocol. Groups of GNEs can be clustered on AI194 (24-Port Ethernet Hub Line Card) to provide a scaleable LAN at larger sites.
- 2. The Altc, tail-end location attaches to the Al294 and "watches" the OSI packets from the GNEs. The Altc "learns" all the network address for all the NEs attached to each GNE and builds an address list.
- 3. The Altc "uploads" it's learned addresses to the ALS. The ALS acts as a central database for all the NE addresses
- 4. The Altc, head-end location is connected to multiple EC-1 systems via the Al294. When an EC-1 attempts to connect to an NE the Altc card:
- 5. Looks up the address in the ALS.
- 6. Finds the target Altc card for that NE.
- 7. Builds a generic router encapsulation (GRE) protocol tunnel to the tail-end Altc.
- 8. Forwards the user data back and forth across the GRE tunnel.
- 9. The Altc card forwards only application data, all background traffic is blocked at the Al294. FTAM and other OSI applications can cross the tunnel, so the Altc supports standard NE software download.

Please note, Alscout and Alswitch has the capability to support multiple, diverse applications in addition to the application presented in this document. For information on additional applications, please visit our web site at www.aiinet.com.

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