

Network Transition Unit (NTU)

Data Sheet

The Network Transition Unit (NTU) delivers Fast and Gigabit Ethernet transport or mixed-mode broadband transport – Fast/Gigabit Ethernet plus TDM – for SONET OC3 and NxDS3 platforms by integrating the field-proven Eclipse technology onto existing microwave or wireline connections.

The NTU is a single-step install that will enable IP migration at a low CAPEX instead of a forklift upgrade. Mobile operators can concentrate on their Node B or WiMAX deployment using parts of their existing equipment instead a complete network overhaul.

Network operators can extend the lifecycle of their TDM links – wireline or wireless – by installing the Harris Stratex Network Transition Unit, or NTU, with customer-facing Fast, Gigabit Ethernet and NxDS3/DS1 connections. By adding IEEE 802.3-compliant interfaces to their existing links and networks, operators can immediately deliver high value, data-intensive services based on 3G, WiMAX and WiFi.

The NTU is effective with any manufacturer's SONET OC3 or NxDS3 microwave radios, as well as leased DS3 wireline or OC3 fiber, that are already deployed. The NTU's WAN connections are standards-compliant (electrical and optical) OC3, or electrical DS3, so a simple cable connection is all that is needed to connect to existing equipment.

IP Migration with Mixed Mode support in one step

Network operators with TDM-only radios, such as the Constellation, MegaStar, TRuepoint 6400 or other manufacturers' brands, can now address Fast Ethernet and Gigabit Ethernet transport requirements by re-using an existing link or network, or even plan for new deployments. For mixed-mode transport, the NTU will combine Ethernet, NxDS3 and NxDS1 for simultaneous transport across the same link.

Key features

- Fast and Gigabit interface (IEEE 802.3 compliant) available as electrical RJ-45 and optical (LC connector pair)
- WAN interface can be OC3 or DS3 (up to 4x)
- Carrier Ethernet enhanced Layer 2 capabilities
- RWPR for Ethernet ring protection less than 50 msec
- Ultra-low latency for VoIP and live video transport
- Hot standby protection using a second OC3 or NxDS3 WAN connection
- Radio Ready – turn into a microwave link with the addition of an Eclipse radio unit
- Embedded SNMPv2 agent for fault and configuration management using Eclipse Portal, Provision or NetBoss NMS systems
- 48V DC power (24VDC option available)
- Certified to Metro Ethernet Forum (MEF) 9 and 14

MEF Certified



Key Benefits

- Transition to mixed mode TDM+Ethernet or all-Ethernet with minimal CAPEX
- Ability to multiplex mixed-mode DS1 and GigE into DS3 or OC3 bearers from carrier leased lines, enterprise WAN connections, and unlicensed or FSO wireless platforms
- Field-proven Eclipse equipment, technical support and management for lowest CAPEX and operational excellence.
- Integrated management using Eclipse Portal, Provision, NetBoss NMS for complete configuration and fault management
- Protection options – HSB OC3 and NxDS3 WAN and protected GigE and DS3 line interface

Key Applications

- Convert legacy TDM links – wireless or wireline – to deliver data-intensive applications: VoIP, live video for surveillance and distance learning.
- Reassign and re-purpose long-term TDM leased lines for mixed-mode or all-IP transport for new network overlays including Node B or WiMAX backhaul
- Augment IP migration using existing connections at lower cost than new Ethernet links
- Retain Primary status at cell sites by reusing existing licenses
- Right-of-way and government users can upgrade to Gigabit Ethernet applications using existing connections

NTU Transport Combinations

- Fast/Gigabit Ethernet over an OC3 or multiple DS3 link or multiple single DS3 links
- Fast/Gigabit Ethernet + NxDS3^[1] and/or NxDS1 over an OC3 link
- Fast/Gigabit Ethernet + NxDS1 over an NxDS3 link

The NTU is available in two base models – OC3 and NxDS3 WAN interfaces. These connections can also be 1+1 Hot Standby (HSB) protected. For HSB, a 2RU height chassis may be used.

[1] Only channelized DS-3 is supported at the user- or customer-facing interface.

Base Model: GigaBit Ethernet NTU with OC-3 WAN connection (non-protected)



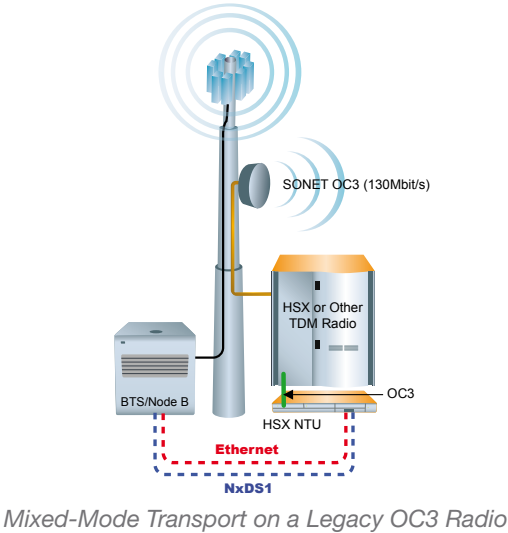
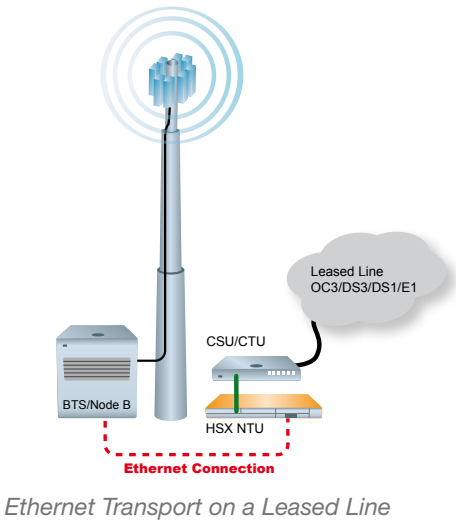
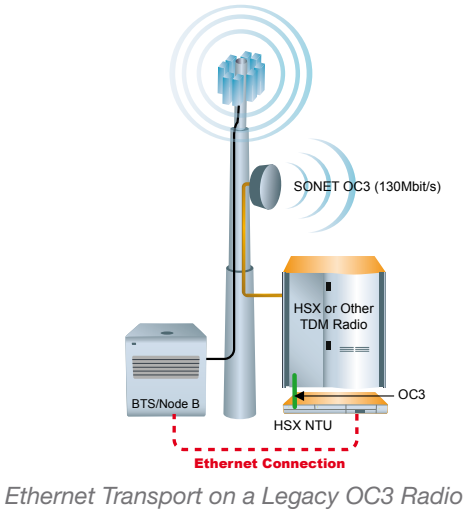
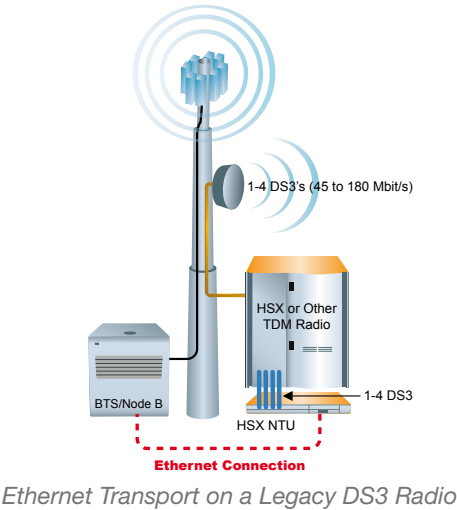
WAN Platform	NTU to WAN connection	NTU Throughput ^[2]
MegaStar	3 x DS3	125 Mbps Ethernet
Constellation	OC3	Up to 125 Mbps Ethernet
Constellation	1 thru 4x DS3 ^[4]	Up to 165 Mbps Ethernet
TRuepoint 5000	3 x DS3	Up to 125 Mbps Ethernet
TRuepoint 5000	OC3	Up to 125 Mbps Ethernet
TRuepoint 6400	OC3	Up to 125 Mbps Ethernet
Legacy radio	DS3 ^[3] ; OC3	45 Mbps; up to 125 Mbps Ethernet
Leased wireline	DS3 ^[3] ; OC3	45 Mbps; up to 125 Mbps Ethernet

[2] Maximum capacity thru the NTU cannot exceed the wireless or wireline capacity.

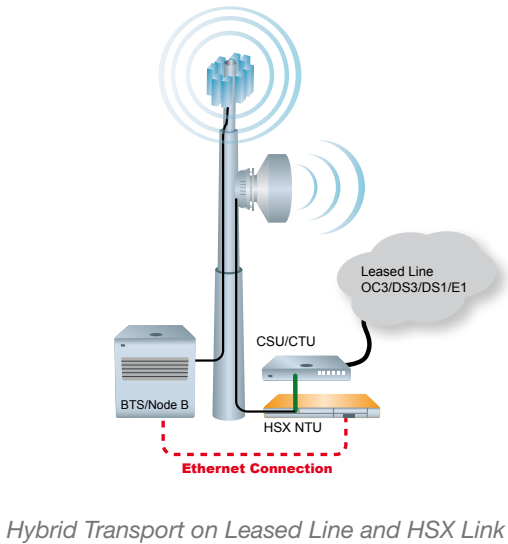
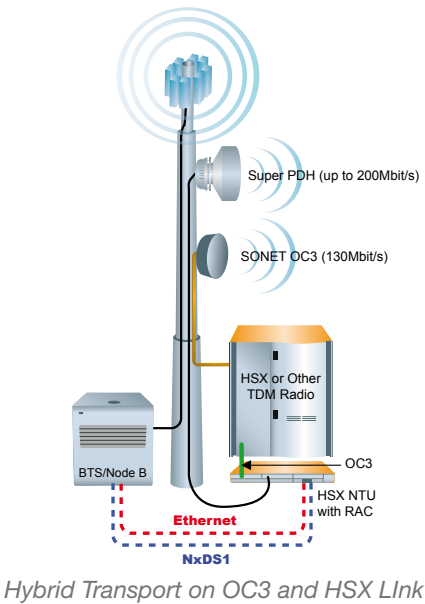
[3] Unframed (transparent) DS3 connection is required end-to-end over the radio or wireline network connection between NTUs.

[4] Unframed DS3 supported only using 3DS3 Constellation Line Interface Unit

Typical applications and installations



All NTU configurations are “radio-ready”. The NTU, with additional RAC and outdoor RF unit, becomes a complete microwave terminal that can operate in parallel with the legacy radio (see below) or as a new microwave link.



Network Transition Unit (NTU) Specifications

Interfaces

WAN Interface			
Interface, selected by module	DS3 (DAC DS3M)	Electrical	44.736 Mbit/s (DS3)
	OC3 (DAC 155oM)	Optical	155.52 Mbit/s (OC3)
Electrical interface parameters	Standards Compliance	DS3	Telcordia GR-499, GR-253
		OC3	Compliant to ITU-T Rec. G.957, G.825
		DS3	B3ZS
		OC3	G703 (CMI)
	Connectors	DAC DS3M	Slimline BNC, 75Ω unbalanced
		DAC 155oM	Short range S-1.1, SC type connector

User Interface DS3/DS1

Throughput capacity ^[1]			
Up to 125 Mbit/s using OC3 WAN, Up to 165 Mbit/s using 4xDS3 WAN			
Interface	DAC 16x	Electrical	1.544 Mbit/s (DS1)
	DAC DS3M	Electrical	44.736 Mbit/s (DS3)
	Standards Compliance	DS1	Telcordia GR-499, GR-253
		DS3	Telcordia GR-499, GR-253
Electrical interface parameters	Line code	DS1	AMI or B3ZS
		DS3	B3ZS

User Interface Gigabit Ethernet

Throughput capacity ^[1]			
Up to 125 Mbit/s using OC3 WAN, up to 165 Mbit/s using 4xDS3 WAN			
Ethernet Traffic Interface, electrical	Interfaces		3x 10/100/1000baseT
	Connectors		3x 8-pin RJ45
Ethernet Traffic Interface, optical	Interfaces		1x optical IEEE 802.3z 1000BASE-LX
	Connectors		1x LC (SFP)
LED Indicators			1x Tri-state ("Status")
Frame sizes supported			64 - 9600 bytes

Fault and Configuration Management

Protocol			SNMPv1 and v2
Interface, electrical			Ethernet 10/100 Base-T or RS232
Interface, physical			RJ-45
Local/remote Configuration and Support Tool			Eclipse Portal
Performance Monitoring			To ITU-T Rec. G.826
Routing Protocols supported			Static and dynamic routing, RIP I, RIP II, OSPF
Network Management			Harris Stratex Networks ProVision or NetBoss

NMS

NMS LAN interface	Type		4-port 10/100baseT Hub
	Connector		4x 8-pin RJ45
Serial Maintenance Interface	Standard		Complies to TIA/EIA-561
	Speed		1200 bps to 115.2 kbps
	Connector		8-pin RJ45
Configuration memory, removable			Up to 128 Mbyte CompactFlash card (on-board)

Protection Options

WAN Interface	Non Protected, 1+0; Protected Hot Standby, 1+1
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Electrical

Input Voltage Range		-40.5 to -60 VDC
		+24 VDC option available
Power Consumption		12 W for Gigabit Ethernet to OC-3, NP
		Up to 24 W for 4xDS3, Protected

Mechanical

Dimensions (including mounting brackets)	IDC , Indoor chassis 1 RU	44mm (1RU) x 482mm (19in) x 282.5mm (11.1in)
	IDCe, Extended Indoor Chassis, 2RU	88mm (2RU) x 482mm (19in) x 282.5mm (11.1in)
Weight	OC-3 (non-protected)	2.6 kg (5.8 lb)
	4xDS3 (non-protected)	4.8 kg (10.6 lb)
	Other configurations	up to 11 kg (including 2RU chassis)

Standards Compliance

EMC	EN 301 489-1, EN 301 489-4 (EN 55022 Class A)
	EN 301 489-1, EN 301 489-4 (EN 55022 Class B)
Operation	ETS 300 019, Class 3.2
Storage	ETS 300 019, Class 1.2
Transportation	ETS 300 019, Class 2.3
Safety	UL 60950-1

Environmental

Operating Temperature	Guaranteed	-5° to +45° C (23° to +113° F)
	Extended	-5° to +55° C (23° to +131° F)
Humidity	Guaranteed	0 to 95%, non-condensing
Altitude	Guaranteed	4,500 meters (15,000 ft)

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Gigabit Ethernet throughput cannot exceed the WAN wireless or wireline capacity. Maximum throughput also limited by the WAN connection - OC-3 or NxDS3 - from the NTU to the legacy equipment.