



GarrettCom®

Industrial Networking at Its Best™

DynaStar

Network Integration System

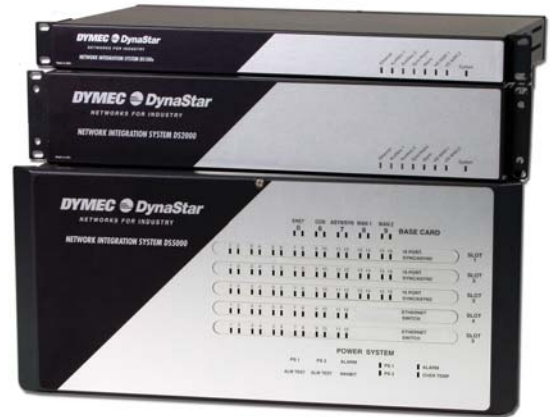
DYMEC's DynaStar Network Integration System (NIS) provides a comprehensive solution for distributed industrial networking. The DynaStar combination of Ethernet switching, routing and legacy protocol support in a modular, hardened platform is ideal for SCADA, carrier OSS, point-of-sale and other industrial applications throughout utilities, carriers, transportation and other challenging environments.

The DynaStar NIS connects distributed sites to corporate or carrier network services with IP, Frame Relay, X.25, TDM and extended Ethernet interfaces, and can form a private network using dedicated fiber optics or leased lines. Advanced Quality of Service (QoS) and Virtual Private Networks (VPNs and VLANs) assure application specific performance and security.

DynaStar integrates LAN/WAN switching, access routing, terminal server and legacy protocol mediation in a single device. Industry specific interfaces such as TL1, VISA, PMS91, BX.25 and contact alarms are supported on the same platform as high speed Ethernet, PPP terminal services and IP.

The DynaStar NIS is available in several physical and functional configurations and are compliant with IEEE 1613 for utilities and NEBS level-3 for carriers. The operating temperature range is -20°C to $+60^{\circ}\text{C}$. DynaStar also provides a rich set of tools for remote system management, including configuration, monitoring and measurement at the platform or application level.

DYMEC's DynaStar Network Integration System provides a simple, modular and expandable solution across a wide range of distributed application requirements. It is the single platform needed at the edge of the modern industrial network.



Networking Functions

- Async Terminal Server
- Ethernet Switch
- IP Access Router
- Frame Relay Access Device (FRAD)
- X.25 PAD / Switch
- Protocol Mediation Platform

Physical Interfaces

- Serial data to T1/E1
- 10/100 Ethernet copper and fiber
- Gigabit Ethernet
- Integral CSU/DSU
- Contact closure

Key Features

- Legacy protocol mediation
- VPN and VLAN
- Traffic Prioritization
- IEEE 1613 and NEBS certification

Major Applications

- SCADA networks
- Substation automation
- Carrier OSS
- Industrial LAN/WAN



DS100, DS100i, DS100e
5-21 Ports



DS2000, DS2000H
5-37 Ports

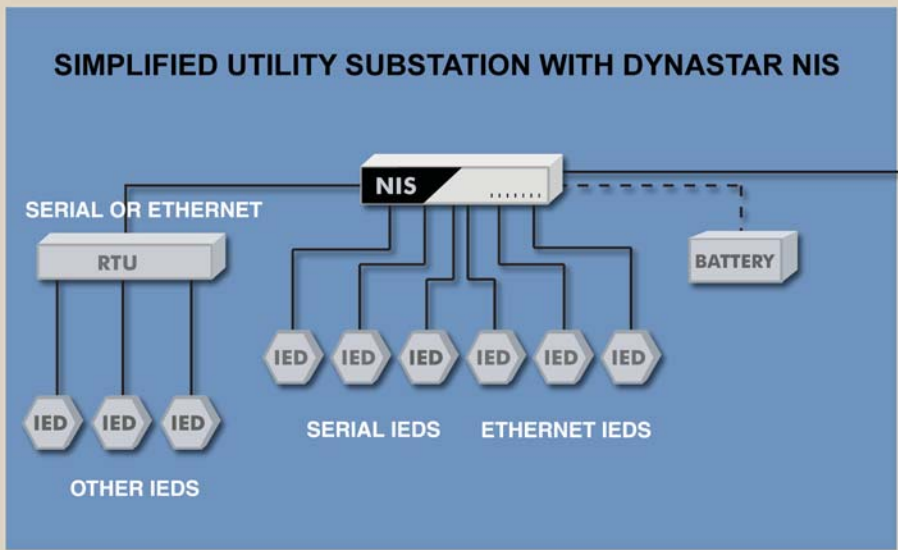
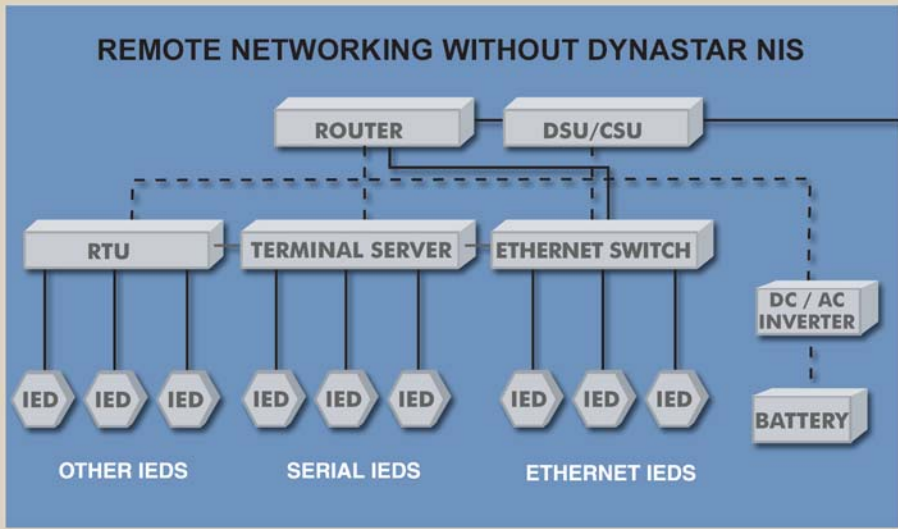


DS500, DS5000
5-85 Ports

DynaStar Product Line

DynaStar Network Integration Systems are provided in three rack-mountable models of one, two and five vertical units, respectively.

Each base model is available in several modular port configurations. All configurations run the same operational software, providing a consistent solution across sites having widely varying interface requirements.

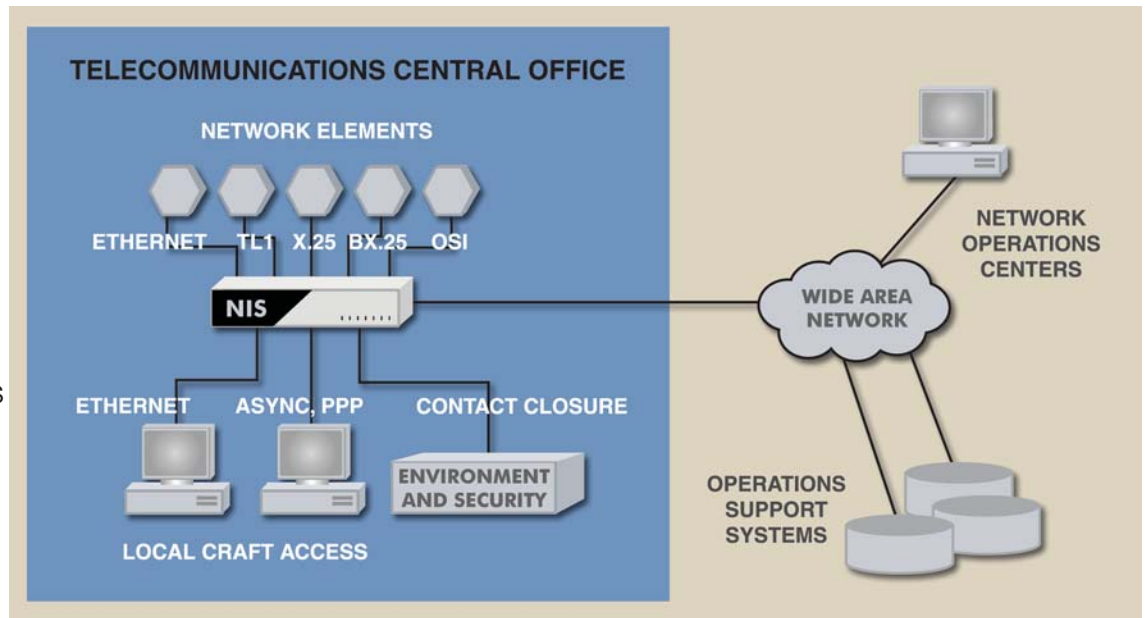


Utility Network Simplification

DynaStar combines multiple functions in a single product to simplify local connectivity and provide wide area network access at distributed industrial sites such as power utility substations.

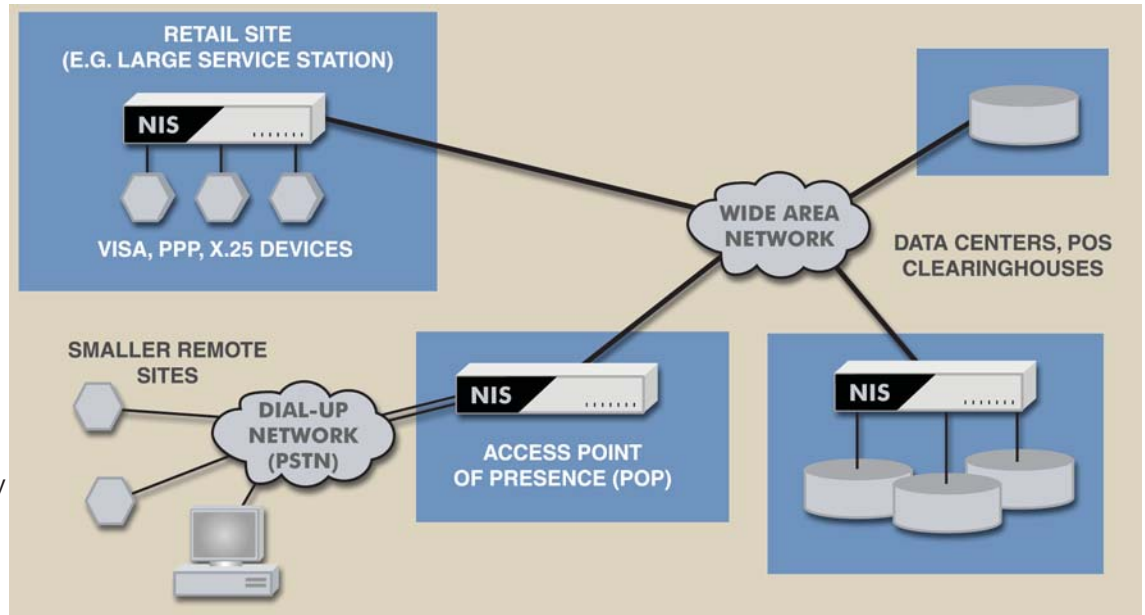
Central Office Operations Networking

For carrier OSS applications, DynaStar mediates diverse interfaces and protocols while providing both LAN and WAN switching among NEs, OSS and network operations positions.



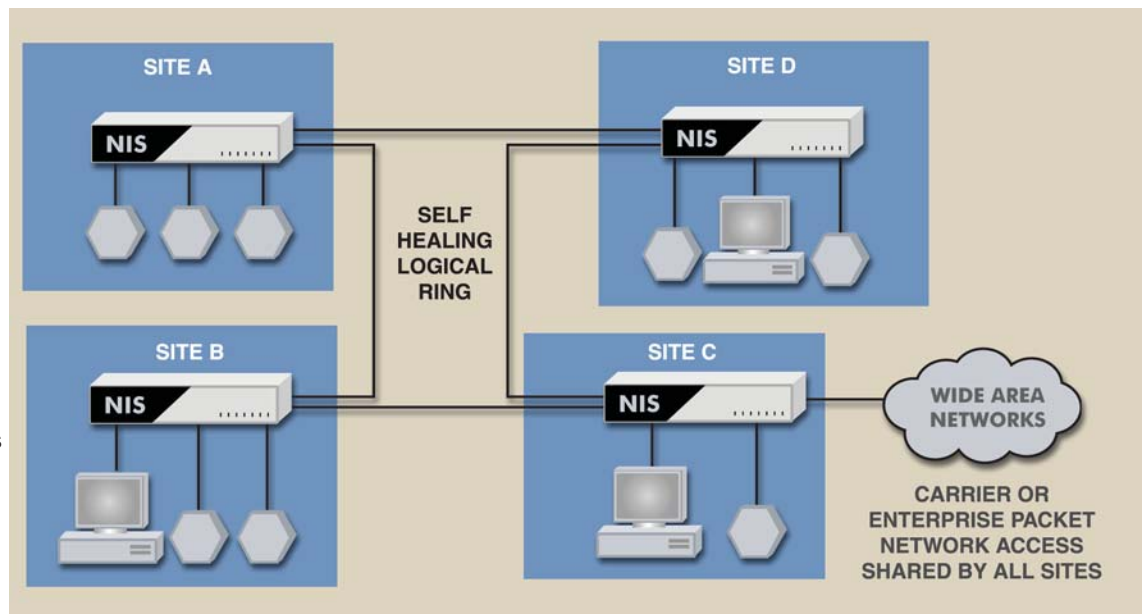
Point of Sale and Remote Access Services

DynaStar mediates and concentrates Point of Sale (POS) and other remote access applications involving both dedicated and dial-up connections from remote sites. Traffic is securely routed to the appropriate central host and protocols are efficiently mediated over a shared network infrastructure.



Private Network Interconnection

DynaStar NIS can form private networks using either dedicated fiber facilities or carrier leased lines, in addition to accessing packet-mode services. A self-healing ring configuration with Ethernet-over-fiber, Serial-over-fiber or T1/E1 facilities is among many topology options that DynaStar supports.



SPECIFICATIONS

ROUTER

Physical Interfaces:

- Single or Dual T1/E1 with integral CSU/DSU, Copper or Fiber
- Fractional T1/E1
- Single or Dual DDS with integral CSU/DSU
- RS232/V.24, V.35, X.21 Serial
- Ethernet 10/100/1000Mbs copper and fiber
- ISDN BRI and PRI

Protocols:

- IP / Ethernet
- PPP, Async PPP
- Frame Relay
- X.25/BX.25
- XOT (X.25 over TCP/IP)

Routing:

- IP routing
- RIP, RIPII and OSPF
- DHCP and BootP Services
- IP Address Filtering

MANAGEMENT

Management system configuration and monitoring is performed using any of the following methods:

- Telnet
- SNMP
- Console serial ports
- Remote serial connection
- Third party network management software using DynaStar MIB

Menu-driven Supervisor:

- Configuration
- Fault alarms and diagnostics
- Performance monitoring
- Security administration

TERMINAL SERVER

Physical Interfaces:

- RS232/V.24, RS485, V.35, RS449, X.21, EIA530
- V.24/RS232 Async interfaces available with MM or SM Fiber

Protocol Mediation:

- Async / IP
- X.25 / IP
- Modbus IP / Serial

Support For:

- X.25/XOT – X.25 tunneling through IP Networks
- HDLC/XOT – Transparent HDLC tunneling through IP Networks
- STUN – Client support for X.25 STUN
- PMS91 – SCADA 32-bit protocol transport over Frame Relay

SECURITY

Communications and systems security are provided using:

- Multi-Level passwords
- Password enforcement
- Password aging
- External attack with auto back-off and logging
- PAP/CHAP on PPP Links
- Secure ID Client support for Dial or IP access control with logging
- Port Access Security for port level access control with logging
- IP VPN using IPsec with DES/3DES
- VLAN support on Ethernet Switch segments.

ETHERNET SWITCH

Physical Interfaces:

- 10/100BaseTX
- 10BaseFL MM
- 100BaseFX MM
- 100BaseFX SFP (MM or SM)
- 1000BaseLX or EX SFP SM
- Mixed configurations

Features:

- 8192 MAC address table
- Full and half duplex port control
- Link Loss Management
- VLANs per 802.1Q
- Prioritization per 802.1p
- Rapid Spanning Tree per 802.1w
- IEEE 802.3X Flow Control

ENVIRONMENTAL

Telco Systems:

- NEBS LEVEL III
- UL, CSA, FCC-15, CE, CISPR 22
- Power 90-250Vac or –48Vdc
- Dual power options available
- Operating Temperature 0-50°C

Substation Hardened Systems:

- IEEE 1613
- Power 90-250Vac/dc or 24/48Vdc battery bus powered
- Operating temperature –20°C to +60°C

Environmental Monitoring:

- Dry Contact Alarms, 48 Inputs and 8 control outputs
- Provides TL1 or SNMP alarms/controls

