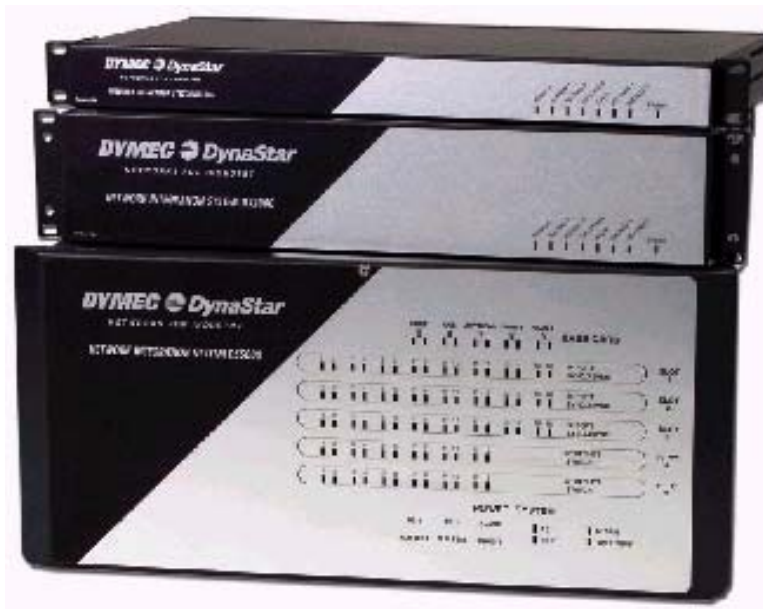


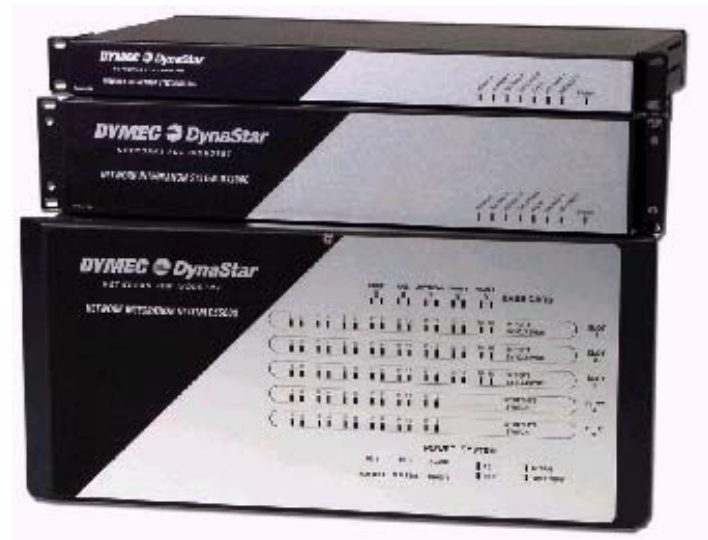
DynaStar

Network Integration Systems



DynaStar Network Integration System (NIS)

- Superset of IFR features
 - E.g., X.25, Contact Alarms, Dual WAN interfaces
- Highly modular configurations
- More physical interface types
- Higher port density



DS100e, DS2000, DS5000

DynaStar Family



DS5000

5-85 ports
Large Central
Sites



DS2000

5-37 ports
Hardened for
Substations



DS100e

5-21 ports
Non-Hardened
Remote Sites

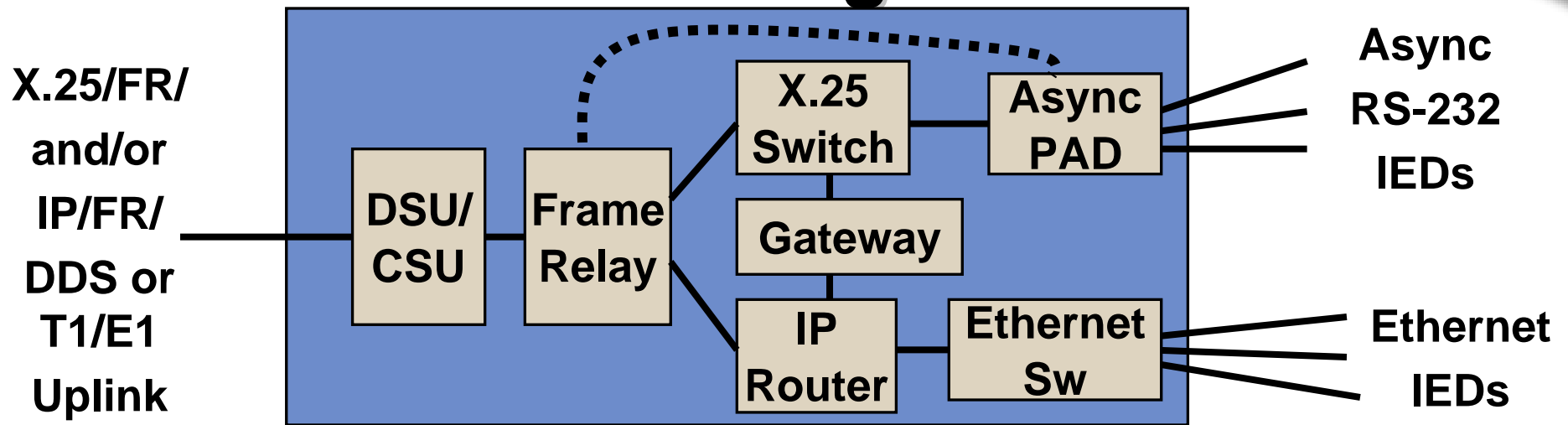
DS1500

14 ports

Hardened



NIS Functional Configuration



- Frame Relay Access Device (FRAD)
- Async and Ethernet local interfaces
- X.3/X.28/X.25 PAD/Switch for legacy network support
- Optional X.25--TCP/IP gateway
- IP- and X.25-over-FR uplink
- Integrated 56/64 kbps DDS or T1/E1 CSU/DSU

NIS Base Models



DS100e
5-21 ports

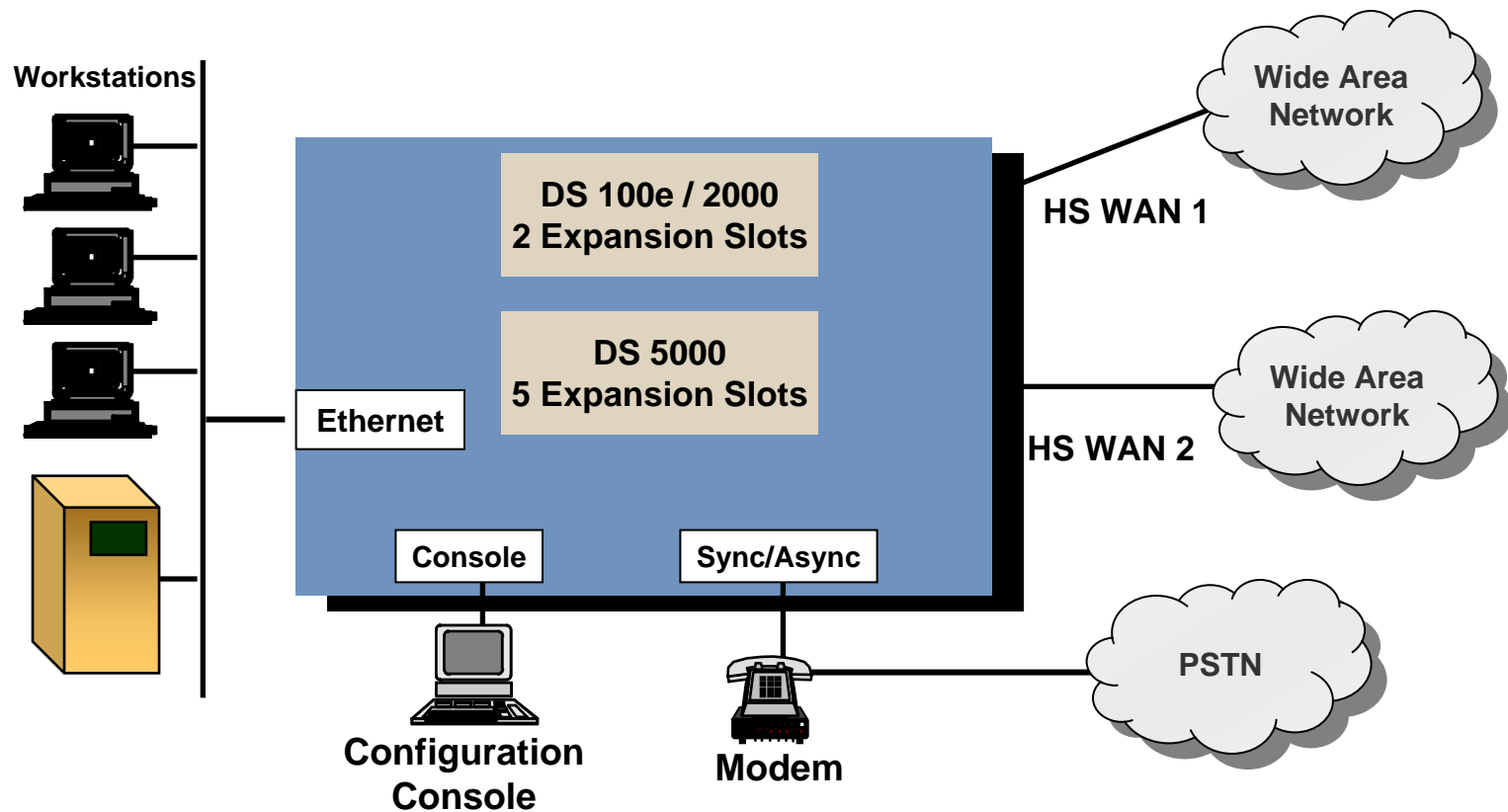


DS2000
5-37 ports

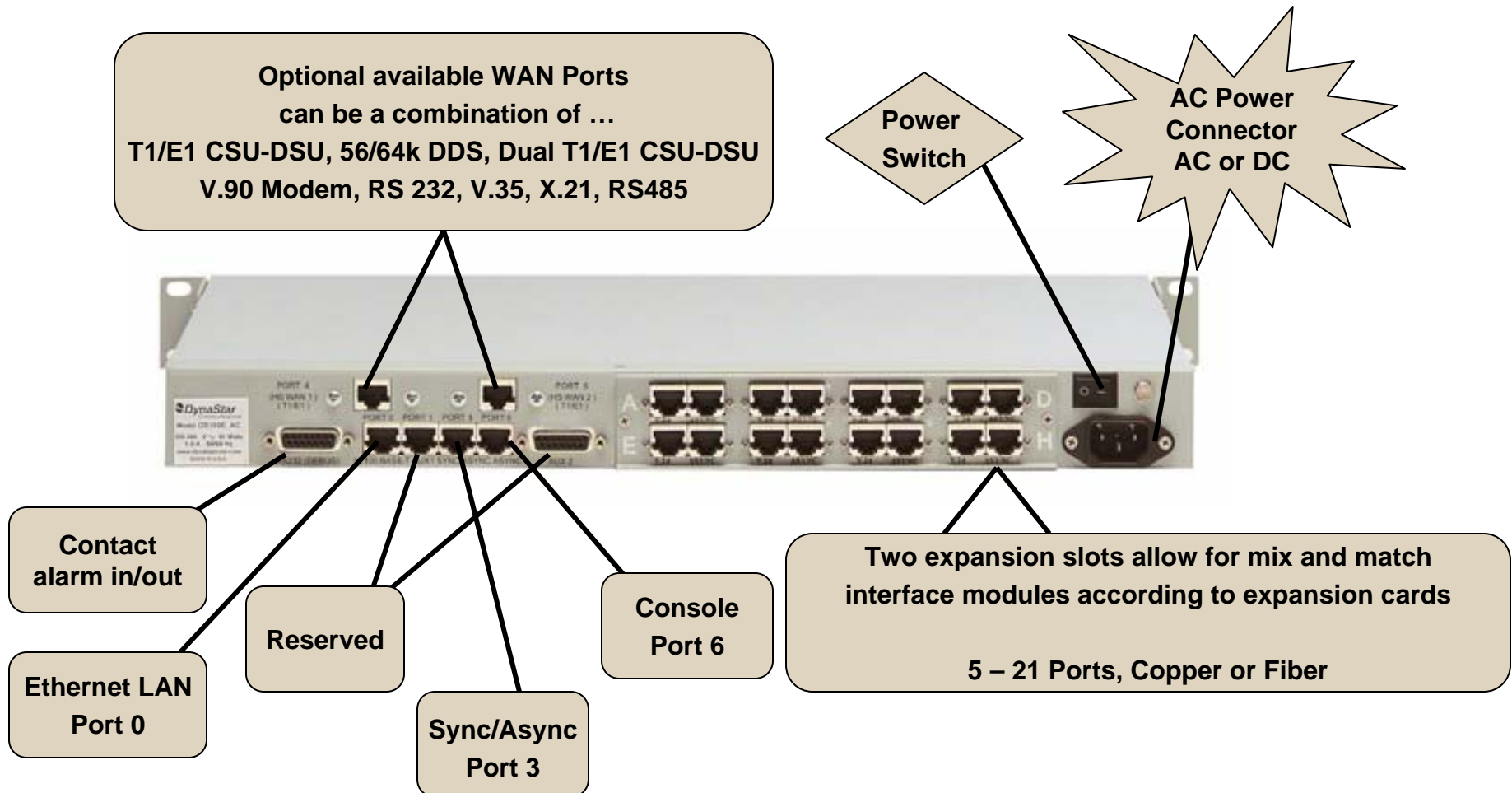


DS5000
5-85 ports

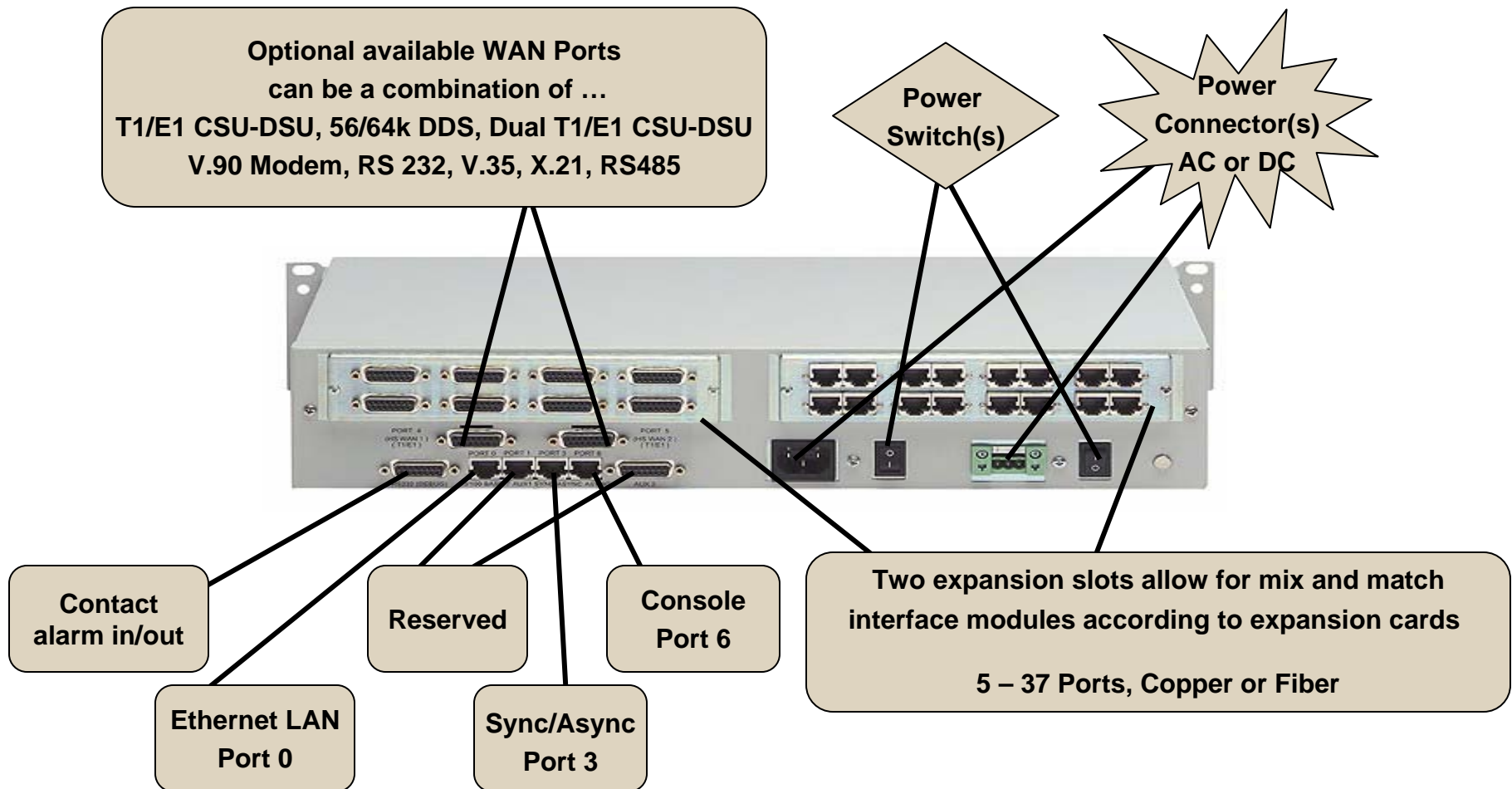
DS100e, DS2000 and DS5000



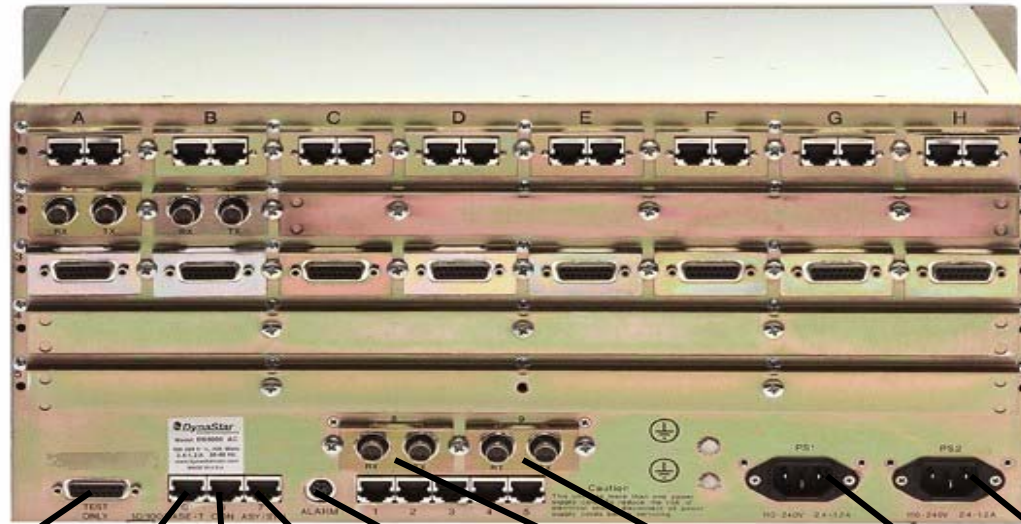
DS100e



DS2000



DS5000



5 expansion rows;
Up to 40 serial I/O modules;
Up to 80-ports

Reserved

Ethernet LAN Port 0

Console Port 6

Sync/Async Port 7

Contact alarm in/out

WAN Ports 8 & 9

Power Connector(s)
AC or DC

Hardware Interface Options

■ Serial interface modules/kits

- **8 Port Low Speed Async**
 - Up to 19.2 Kbps
- **4 Universal Serial Ports**
 - Sync/Async 256 Kbps/115 Kbps
 - X.21, V.35, V.24
- **8 Universal Serial Ports**
 - Sync/Async 256 Kbps/230.3 Kbps
 - X.21, V.35, V.24
- **16 Universal Serial Ports**
 - Sync/Async 64 Kbps/115 Kbps
 - V.24 Only

■ Base WAN ports (2)

- 56/64 kbps DSU/CSU or V.35/RJ
- T1 or E1 DSU/CSU
- V.90 modem

■ Dual Channelized T1/E1

- Expansion card)
- Nx64, Nx56
- Add/drop Nx64

■ Ethernet

- **1 Base 10/100 TX port**
- **“Ethernet Smartswitch:**
 - **Up to 12 Ethernet 10Base T / AUI; Fiber optional**
- **“ECM”**
 - **8 10/100 TX or**
 - **6 TX, 2 FX-SFP, 2 GE**
 - **ESS feature set**
 - **DS2000 only**

NIS Flexibility

■ Serial interfaces

- RS-232, RS-485, Copper and fiber
- Pt-to-pt and polled multidrop
- Bit-oriented SCADA protocols

■ Ethernet

- 10/100FX, 10FL, 100FX, GE interfaces
- STP/RSTP, 802.1Q VLANs

■ IP Router

- Static routing, RIP, RIP-II, OSPF
- IP address filtering, IPsec, DHCP client/server

■ X.25

- SVC, PVC, Multicast, Address mapping
- Frame Relay RFC 1490 encapsulation
- Gateway: TCP/IP in/out, XoT

Two Variants of *DynaStar*

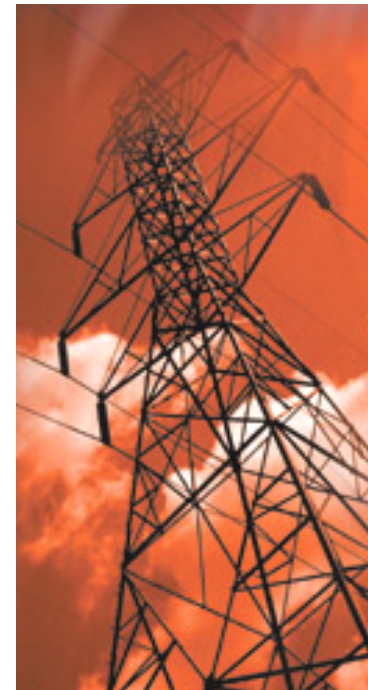
- Hardened substation version
 - Powered from battery bus
 - 18-56 Vdc or 100-250 Vac/dc
 - C37.90 surge and transient rated
 - -20° to +60° C environment

- NEBS compliant version
 - GR-63-CORE physical protection
 - GR-1089-CORE electrical safety
 - Used in a controlled environment
 - AC and/or DC power options

Power Options

- DS100e & DS5000
 - AC only 100-250v
 - DC only 42-56v

- DS2000
 - AC only 100-250v
 - DC only 42-56v
 - Hardened AC/DC 100-250v
 - Hardened DC only 18-56v



NIS Products Feature:

- Single 19 " Rack Enclosure
 - Front or mid-mount
- Unified software across platforms
- Powered from battery bus or AC
- Remote accessibility

Reliability Features

- Substation-hardened network platform
- Frame Relay network protection
 - “End-to-End Keep-alive” (EEK) and LMI
 - DLCI and/or port level redundancy
 - Automatic alternate routing
- Ethernet LAN resiliency
 - Sub-50ms Rapid Spanning Tree recovery
- Dynamic IP routing
 - OSPF-based automatic rerouting

Security Features

- Multi-level management logins/passwords
- Explicit port assignments to PVCs/sockets
- Ethernet port groups and VLANs
- IP address filtering
- IPsec encryption

Management Features

- Menu-based supervisory application
- Secure console and remote telnet access
- Remote provisioning, status, statistics, and diagnostics, incl. remote port-traffic monitor
- SNMP traps / alarms
- SNMP MIB

The NIS Solution

- Increases network reliability
 - Hardened for harsh environments
 - Supports resilient network designs
- Consolidates networking devices
 - Reduces capital, installation, training, maintenance
 - Simplifies software compatibility
- Extends network and application useful life
 - Supports legacy device interfaces
 - Provides transition across multiple network technologies

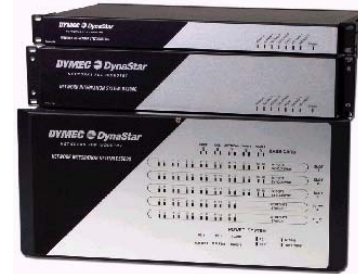
DYMEC Product Lines

Wide-Area Network Access and Integration



DynaStar Industrial Frame Router

DynaStar Network Integration System



Ethernet Switch Systems

Ethernet Terminal Server



Ethernet Media Converters

Industrial Ethernet

Optical Star



Link / Repeaters

Serial-over-Fiber