BELDEN
SENDING ALL THE RIGHT SIGNALS

Backbone Solutions

Backbone solutions facilitate IT and OT convergence by providing central management of remote networks and effective data transmission.

Broad portfolio of industrial hardware and software solutions designed to maximize productivity, safety and quality for mission-critical applications.

HIRSCHMANN
A **BELDEN** BRAND

GarrettCom®
A **BELDEN** BRAND

TOFINO SECURITY
A **BELDEN** BRAND

tripwire®

Be certain.
Belden.

Backbone Portfolio

MPLS-TP

DRAGON PTN Backbone Switches

- MPLS-TP technology delivers dedicated bandwidth for different services and 50ms protection switching

- HiProvision software for easy configuration and management of large transmission networks

- Industrial HiVision integration for backbone and access network

- Variety of interface modules and port types to ensure flexibility and seamless integration of legacy systems

- Central switching modules and power supplies help you build a completely redundant device

MACH Series

DRAGON MACH4x00 Layer 2 or Layer 3 Backbone Switches

- Enables easy, progressive transition from 1 GE to 2.5 GE to 10 GE speeds

- Helps you build a redundant backbone network for maximum availability

- Offers redundant and hot-swappable power supply for maximum device uptime

MACH100 Rack Mount Switches

- Static, dynamic and multicast routing allow subnetworks to be set up and linked together

- Technologies such as PoE+ and PTPv2 facilitate a wide range of possible applications

- Various redundancy methods – like MRP, HIPER-Ring and RSTP – combined with a robust design ensure high network availability

Magnum 10RX Router

- Multi-Protocol Support – enables protocol routing for legacy networks, as well as current IP routing technologies

- Cyber Security Capabilities – includes built-in firewall protection & virtual private network (VPN) security

- Reduce Network Downtime – replace failed power supplies in the field on a live network, while system continues operating on secondary power unit

Greyhound Series

Greyhound 1040 Rack Mount Switches

- Gigabit Ethernet switches and routers designed for use in harsh industrial environments

- High port count, with up to 28 GE ports total

- Deliver fast and reliable uplink speeds at a cost-effective price with 2.5 Gigabit Ethernet (GE) fiber port option

- Ports can be mounted on the front or rear of the device

- Two hot-swappable power supplies (low and high voltages) available

- Choose from copper and fiber media modules – easy to swap in the field

Layer 3 Software and Support

Industrial HiVision Network Management Software

- Obtain instant visibility of key performance indicators with the Network Dashboard

- Find faults quickly & achieve timely remediation

- Easily identify, map & configure all network infrastructure, including SNMP-enabled devices from any manufacturer – even during live operation

- Download free version of the software for unlimited use before you buy

Tripwire Industrial Visibility (TIV)

- Completely passive solution that dissects industrial network traffic to perform industrial asset discovery, profile all industrial protocol communication, and provide threat detection from the DMZ down to the field I/O devices

- Understands over 40+ industrial protocols including EtherNet/IP, ModBus, DNP3, S7, PROFINET, IEC 101/104, GOOSE, and Bacnet

- Provides visibility into controller mode changes, configuration changes, and firmware uploads

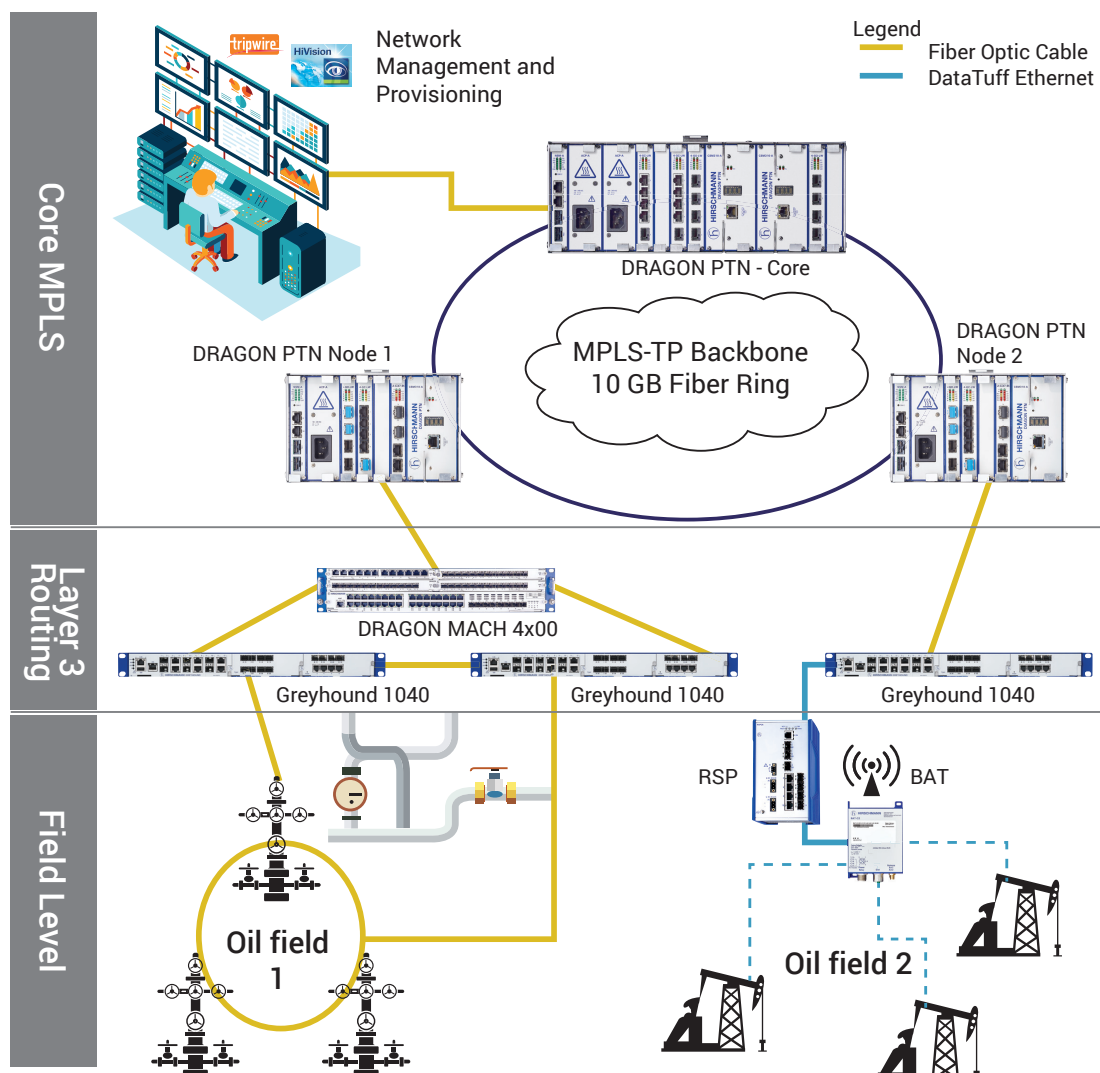- Diagrams network communication traffic patterns via Purdue model

Backbone Product Selection

Backbone	Bandwidth	Port Density	Max Fiber Ports	CE	C-Tick	EN 55022 FCC Part 15	cUL508	cUL60950-1 C-Tick	UL 61010-1 55022 FCC Part 15	UL 61010-2-201	EN 60950-1	EN 61131-2	EN 50155	NEMA TS2	EN 50121-4	GL/DNV (Ship)	ISA12.12.01 (Hazardous Locations)	ATEX Zone 2 (Hazardous Locations)	IEEE 1613 (Substation)	IEC 61850-3 (Substation)
	Hardware			Basic Approvals			Industrial Control Equipment Approvals						Transportation Approvals			Other Approvals				
DRAGON PTN	100G	60	60	•											•				•	•
DRAGON MACH4500	10G	88	56	•	•				•	•	•	•			•					
DRAGON MACH4000	10G	52	52	•	•				•	•	•	•			•					
GREYHOUND 1040	10G	28	22					•			•	•	•	•	•	•	•	•	•	•
Magnum 10RX	10G	42	10	•	•			•					•	•					•	•
MACH 100	10G	26	18				•							•	•	•	•	•	•	•	•

Backbone Network Diagram
Oil and Gas Production Sites

Legend
Fiber Optic Cable
DataTuff Ethernet

Core MPLS

Network Management and Provisioning

DRAGON PTN - Core

DRAGON PTN Node 1

MPLS-TP Backbone 10 GB Fiber Ring

DRAGON PTN Node 2

Layer 3 Routing

DRAGON MACH 4x00

Greyhound 1040   Greyhound 1040   Greyhound 1040

Field Level

Oil field 1

RSP   BAT

Oil field 2

Backbone Product Selection

Backbone	Operating Software	Syslog	IP/UDP Helper	Loopback Interface	Traffic Shaping	Disable Learning	CLI Logging	Multicast Routing (IGMP Proxy)	Link Backup/MRP over Link Aggregation	Address Resolution Protocol	Out of Band Management	ACL support in hardware	LDAP	Separate Audit Trail	User management/Role-Based Access	Password Policy Configuration	RADIUS Authentication	Denial of Service Prevention TCP/UDP	Text-based Configuration File (XML)	AutoConfiguration Adapter ACA31 (SD card)	DNS Client	IP-based Port Security	Email Notification	Device Security Indication	VLAN Mirroring	IP Source Guard	RSPAN	SFLOW	Snapshot Configuration Feature	Persistent Logging on ACA	SCP	SFTP
																Software Key Features																
DRAGON PTN	HiProvision											•		•																		
DRAGON MACH4x00	HiOS	•	•	•			•	•	•	•		•		•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	•
GREYHOUND 1040	HiOS	•	•	•			•	•	•	•	•	•			•	•	•	•						•		•			•	•	•	•
Magnum 10RX	INOS	•		•			•			•					•	•	•	•											•			•
MACH 100	Classic				•	•																•										

Value Added Benefits

The Belden Solution brings breadth you won't find with any other vendor. Consider the reliability of a total infrastructure built to work seamlessly in the harshest operating conditions. Based on true industry knowledge built over time in field-proven applications, Belden networks work. Plus, you'll find

Belden professionals actively engaged in the governance organizations and work groups exploring new technologies and setting standards for optimum performance.

Competence Center

As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center.

Learning Opportunities

www.belden.com/resources/training/industrial-training

Keep pace with the latest trends and newest technologies through Belden.

- Formal certification courses
- Local roadshows
- Bi-weekly blogs and newsletters

	Optimal Network Solution	Know-how for Reliable Operations	Protection Against Downtimes	Lasting Cost Control
	• Individual consultation, design, project management • Network design and migration concepts • Compatibility testing • On-site wireless site survey	• Training plans • Documentation • Maintenance concepts • Security concepts (network security)	• Integration of redundancy • Spare parts store concept • Emergency concepts	• Service planning • Complete costing
	• Technology and product training courses for network designers • Introduction courses for decision makers	• Individual user training courses • Security training • Workshops	• Qualification/certification of your employees and external service providers	• Update training for technologies and product
	• Pre-configuration and pre-assembly of systems • On-site commissioning • Application tests	• Network monitoring and support by in-house experts or partners • Network security audit • Network baselining	• 24 x 7 support hotline • On-site support • Remote service • Replacement hardware services	• Warranty extension • Individual, product-related service packages

Learn more at www.belden.com | Follow us on Twitter@BeldenIND | Call 1-800-BELDEN-1