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Secure Remote Presence

In-Reach® Product Family

The In-Reach® product family from MRV Communications is designed for network administrators and system operators who are unable to afford the economic and business consequences of operational downtime. In-Reach is a complete remote presence solution that allows customers to proactively respond to all remote control, configuration and data acquisition needs as if they were physically there. By extending serial and console port access and facilitating alarm and power management capabilities over IP networks, In-Reach gives you visibility and control from virtually anywhere. Unlike any other general terminal server or console management solution, In-Reach is optimized to provide a secure and converged remote site presence solution, offering serial connectivity, console, power and alarm management capabilities, all in a single box.

The Need for Remote Presence

Today's market conditions dictate that any business, no matter how big or small, must develop and implement electronically driven processes to compete. Real-time electronic business processes are a necessity across all markets, including the financial, healthcare, telecommunications, retail, transportation, manufacturing and utilities industries.

This new business environment has led to geographically distributed networks, applications and systems. Enterprises have deployed extensive networks to carry distributed applications that facilitate businesses such as e-commerce, enterprise resource planning (ERP), supply chain automation, telemetry systems and industrial automation.

To meet the explosive growth in digital communications, carriers and service providers have built massive high-speed wireline and wireless networks. These networks enable enterprises to connect with supply and distribution chains, customers and themselves. When applications and networks stop, business stops. No enterprise can afford the economic or business consequences of operational downtime. This, coupled with the demand that businesses do more with less, puts network, operations and systems managers in a very precarious position.

How do the people responsible for these applications, networks and systems cost effectively manage them and their countless

Key Applications

○ Data center console and power management

○ Out-of-band IT infrastructure management

○ Telecom and utility remote site console and alarm management

○ Point-of-sale, telemetry and SCADA data acquisition

○ Unmanned equipment configuration, provisioning and management

○ Telecom, energy and utility remote site management

○ Legacy terminal server environments

○ Industrial automation

remote elements to ensure minimal operational downtime? The answer is remote presence. MRV's In-Reach remote presence solutions make logistically difficult, skilled manpower-intensive tasks easy and cost-effective to manage. In-Reach remote presence solutions allow centrally located personnel and applications to monitor, manage and respond to globally distributed networks and systems.

Connect & Network Serial Devices with Robust Protocol Support
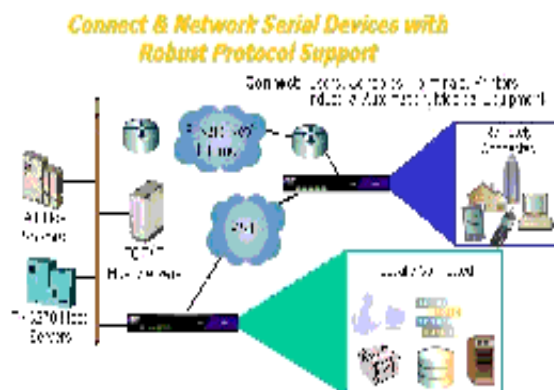
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Terminal Servers

The extensive In-Reach IR-8000 and MaxServer series products offer a wide range of form factors that fit any legacy terminal serving application. In-Reach has robust protocol support including Print Server, TN3270, Unix, LAT and DECnet multisession to enable a wide range of core legacy applications. In-Reach also allows users to share printing resources in a widely distributed heterogeneous environment that includes VAX hosts, UNIX hosts, and Novell and NT servers that support BOOTP.

In-Reach is the industry's most complete solution for enabling serial devices including PCs, printers, telemetry and RTU devices, terminals and bar code readers with IP connectivity. These capabilities combined with the In-Reach security and modem features make it an ideal choice for providing remote real-time access to point of sale and telemetry data provided by serial devices.

Additionally, extensive modem, scripting support and RADIUS accounting features make In-Reach ideal for remote access concentration.

Secure Console and Out-of-Band Management

The In-Reach IR-8000 and LX-4000S series products provide ironclad secure access to system, server and network device serial consoles, enabling real-time visibility of remote system, device and network health. In-Reach console solutions allow for easy, cost-effective management of globally distributed networks and systems by enabling administrators to take immediate action

Secure Console, Monitor & Control Remote Environment and Telemetry Systems
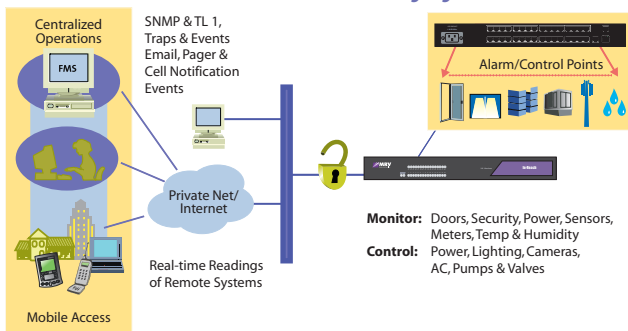
from anywhere. The IR-6000 and IR-15000 systems can also be configured with the appropriate modules to offer the same console and power control functionality in a fully redundant chassis-based solution.

Secure IP connectivity can be established in-band through

the In-Reach Ethernet port, or across a separate, dedicated management network. Alternatively, secure IP connectivity can be established via an optional internal V.90 modem, either as standard practice or as a method of reliable back-door access in the case of a primary connection failure. This ensures the ability to respond to problems and guarantee maximum operational uptime.

Alarm and Sensor Management

The In-Reach IR-9000 and LX-4000S series products combine console aggregation, high-density alarm, sensor and power management functions all in one platform. Through secure serial device and console port access combined with alarm and power management over IP networks, these advanced servers provide complete visibility and control from virtually anywhere. The IR-9000 and LX-4000S can also be utilized in a master-slave configuration with the IR-7000 series to provide extremely scalable alarm, control output and analog sensor capabilities. Additionally, the fully redundant chassis-based IR-6000 and IR-15000 can be configured to offer the same console and alarm functionality.

By providing remote connections to discrete alarms and control relays, In-Reach enables a few qualified individuals to monitor alarm and control devices from a central operations center. In-Reach also easily integrates with existing fault management systems (FMS) and operations support systems (OSS) software via TL1 or SNMP. This increases accuracy of operations and visibility of remote conditions and events. For example, whenever a measured parameter changes beyond pre-set thresholds, an alarm signal is transmitted to an existing FMS or key personnel via SNMP, email or pager. Technicians can receive instant event messages or periodically monitor the environmental readings and perform remedial operations in response to any alarm conditions.

Remotely Provision, Monitor & Control Network Equipment, Servers and Applications
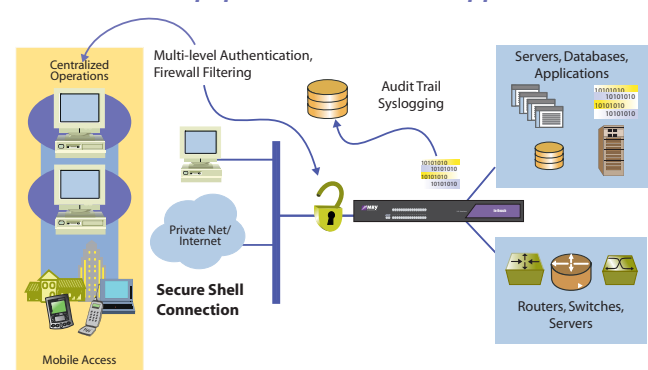
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The In-Reach alarm and sensor points accept discrete input signals generated when contact closure devices such as aerial lights or door alarms change state or ports can be connected to temperature/humidity sensors to monitor the temperature and humidity readings of remote sites. Control points can be software configured to activate devices such as generators or fire alarms in response to any alarm signal received. Additionally, up to 255 triggers and corresponding actions can be defined for unmanned automatic fault management of mission-critical applications.

The In-Reach product suite can be utilized in a master/slave architecture with the IR-7104 to scale to support literally thousands of alarms and over 250 sensor and control relay sensor points. This same configuration can also support analog circuits to obtain real-time readings of devices such as fuel and pressure gauges. With In-Reach you can feel secure in your ability to gain remote visibility and control.

Power Management

The In-Reach LX-4000S, IR-8000, IR-9000 and LX-4000S series also provide a modular power solution for managing remote power. Using the In-Reach software, power master ports can be configured to manage and control the In-Reach IR-5100 and

IR-5150 power management units. The solution provides for remote current monitoring and AC power control of equipment at distant facilities.

With the IR-5100/5150 series, administrators have the ability to remotely power cycle a locked up server, bring a redundant system online or turn on an auxiliary air conditioner from anywhere. Current utilization can also be monitored to gain a solid understanding of faulty or power-hogging equipment and overall usage to effectively plan and deliver efficient power.

Fault Management System

The In-Reach software-based FMS, Event Horizon for MegaVision, offers an innovative application approach that provides users with a unique and robust means of network monitoring and management. It collects, catalogs, prioritizes and displays network events in an easy-to-read format, allowing an operations manager to identify, understand and react to fault conditions quickly and effectively.

Feature/Benefits

- **Serial to IP conversion** Access and acquire data from virtually anywhere
- **Industry-leading security** Grant flexible access without compromising security
- **Remote console access** Minimize downtime and lower operations costs
- **Ease of use** Non-disruptive to install, simple to manage and maintain
- **Scripting and menus** Automated and guided processes save time and money
- **IROS** Reliable and easily extensible software foundation
- **Sun Break compatible** Prevents inadvertent shutdowns of Sun Servers
- **Virtual management ports** Simultaneous multiple user access with individual rights
- **Out-of-band access** Secure, guaranteed access
- **Console, alarm, sensor and power (CASP)** A single solution for all remote management needs
- **Instant event messaging** Instant event notification anywhere – quicker responses
- **Intelligent self-healing** Corrective responses without human intervention saves time and money
- **Robust security protocol support** Non-disruptive to existing operations procedures
- **Software upgradeable** Investment protection with cost-effective migration path

REMOTE PRESENCE
SOLUTIONS

Technical Specifications

Features	LX-4000S	IR-8000	IR-9000	IR-7000	IR-7104	IR-6000 IR-15000	IR-5100	IR-5150
High-Density/Multi-slot Chassis								
Standalone Unit								
IP-based Alarm Management								
Terminal Server Functionality								
Sensor Management								
Power Management								
Console Management								
SNMP Compatible								
Sun Break Protection								
Web-based Management								
Secure Shell Data Encryption								
Security: RADIUS, SecurID®, ACLs								
TL1								
V.90 Internal Modem								
AC and DC Power								
Redundant Power								
Legacy Terminal Server Protocols								
Physical Ports	8–32	8-40	8-40			20/24 per mod		
Console Ports	8–32	8-40	8-40	8 (7520)		20/24 per mod		
Discrete Alarm Scan Inputs			4-80	40-80 (32 per mod)	128	40 per mod		
Discrete Alarm Control Outputs			4-80	40-80 (8 per mod)	32	40 per mod		
Analog Input Capacity					32 (8 per mod)			
Control Distribution Output Current		1A(9220)	25mA	25mA	1A	25mA		
Control Distribution Output Voltage		30V(9220)	2.5V-6V	2.5V-6V	30V	2.5V-6V		
Rack Mount Form Factor	1U 19/23"	1U 19/23"	1U 19/23"	1U 19/23"	1U 19/23"	4/10U 19/23"	0/1/2U 19/23"	0/1/2U 19/23"
NEBS Level 3	*				*			
Power Control Input							1–5	1
Power Control Outlets							4–20	8–16
Power Control Output Current							15A-30A	15A–30A
Power Control Input Current							15A-30A	15A–30A

FutureSWupgrade

* NEBS Level 3 compliant design

MRV has more than 50 offices throughout the world. Addresses, phone numbers and fax numbers are listed at www.mrv.com. Please e-mail us at **sales@mrv.com** or call us for assistance.