

OpenComms™ Nform And Interface Products

Adaptive Solutions For IT



Maximizing Your Investment Through Adaptive Monitoring

Obtaining the information needed to know about critical support equipment for computer systems has never been easier...or more cost-efficient.



What You Don't Know Can Hurt You

A small problem in a computer or communications facility can quickly escalate into a disaster. Knowing what is happening with power and cooling equipment can keep that protective "envelope" at peak operating efficiency, vital to system reliability.

Only Liebert can offer full-scale monitoring and control of these critical support systems by providing the ability to gather operating information from each piece of equipment and pull it together in one central location.

Finding A Better Way To Monitor The Evolving Critical Space

Monitoring the critical space is essential. The problem is, the critical space has evolved and can take on many shapes and sizes, from the traditional centralized data center, to the cutting-edge distributed topologies of telecom, wireless and retail operations. Liebert's mission is to protect the

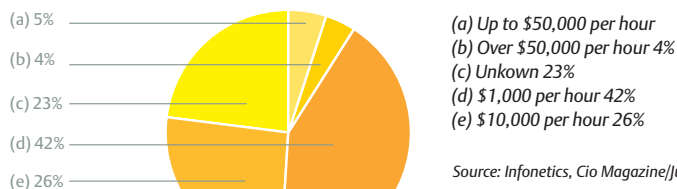
critical space, whether consolidated in the data center or distributed throughout the network — and monitoring is an essential component of any high-availability solution.

Just as one model of UPS or air conditioner cannot fulfill the requirements of every application, Liebert offers a suite of monitoring products to meet the varying requirements of the vast spectrum of critical space applications. From leak detection to discrete monitoring, unattended orderly computer shutdown to enterprise-wide monitoring, Liebert offers hardware and software solutions that fit.

This full-scale monitoring capability allows for consolidation of all components of critical space infrastructure into an organized, logical, high-availability system. And because different people need to know different information about your support equipment, Liebert will provide the tools to determine what specific data should go where.

Cost of Downtime

How much does an hour of downtime cost your business?



Source: Infonetics, Cio Magazine/June 15, 2000



Understanding The Needs Of Your Business

To protect your critical business systems, it is important that we first understand how you and your customers utilize these resources. Knowing how your network is used allows us to design system protection that addresses your real world needs. To maintain the high level of availability that users expect, your monitoring system must be able to keep you up-to-date on any changes in the condition of your network infrastructure.

Getting Critical Information Into The Right Hands

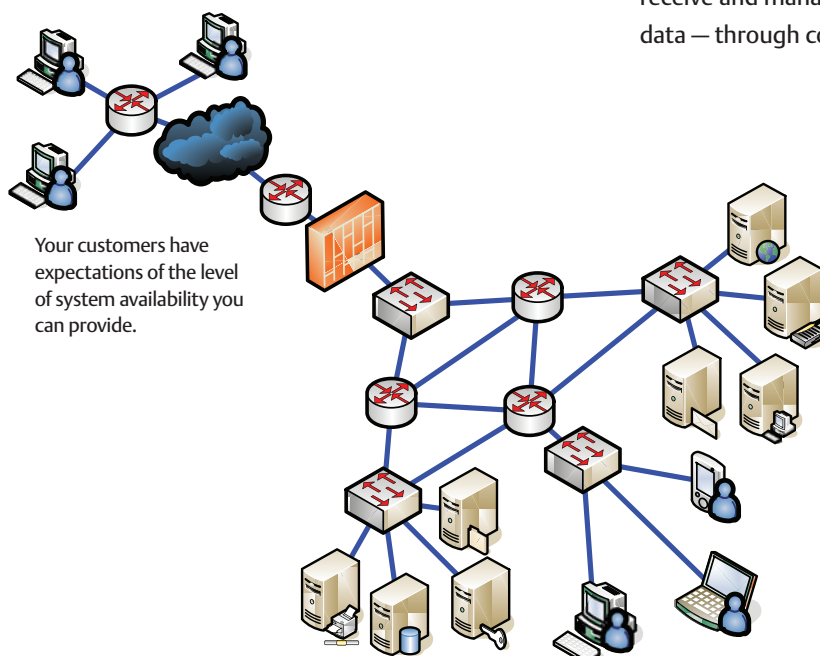
Business runs on information. That information, however, must be managed and protected. Liebert offers the tools to keep the people on the front line — such as IT, network, data center and facility managers — informed as to the status of their critical systems. By utilizing a network infrastructure approach to monitoring, Liebert has the solutions that align a customer's needs for real-time knowledge and system flexibility with critical system uptime and capital allocation constraints. This type of system can provide the information you need to manage your critical equipment, giving you a variety of ways to receive and manage this data — through computers at

your site or even on the web via standard browser software. From the traditional centralized data center to constantly evolving distributed network topologies, Liebert has the solutions that provide just the right amount of control, monitoring, and protection for your critical space requirements.

The Importance Of Support System Monitoring

The reliability of your computing and communications systems is a direct result of the reliability of the power and environmental systems that help maintain their proper operation. That's why Liebert is so firmly committed to providing monitoring capability in our products. No one knows more about what it takes to collect and deliver the vital information you need to manage your critical support systems.

Your Network Has Many Points That Must Be Protected



Your customers have expectations of the level of system availability you can provide.

Proper power protection and environmental control is essential for your network components:

- Printer servers
- Database servers
- File servers
- E-mail servers
- Web servers
- Routers
- Hubs

When Systems Are Critical... Monitoring Is Not An Option

Power Conditioning Units

A grounding problem in your power conditioning system causes small voltage disturbances. You may not even realize there is corrupt data or damage to other systems until bigger problems occur months later.

UPS Systems

Yesterday the UPS failed its automatic battery self test. Today the UPS failed to carry the load during a momentary power interruption, halting a critical process. The problem isn't the UPS or the weak battery. The real problem is that you didn't know that the UPS failed a self-diagnostic test.

UNNOTICED

UNDETECTED

Static Transfer Switches

A transfer switch fails to transfer when your primary power feed goes down in the middle of the night. You won't know about it, though, until tomorrow morning when there are no sales reports, no e-mails and certainly no one conducting normal business.

Power Distribution

Several circuits are on the verge of overload. If one of these breakers trips, servers will crash.

Water Leaks

Your data cabling is lying in a growing puddle of water under the raised floor because of a plumbing leak. It is just a matter of time before that affects your operation. Who knows how long it will take to track down the cause of the problem.

UNRECORDED

Surge Protection

Thank goodness you installed that surge protector. It has protected your site through many thunderstorms. Unfortunately it self-destructed protecting you from that last surge and you don't know that it needs to be replaced.

UNSEEN

Environmental HVAC Systems

High head pressure, compressor short cycling, dirty filters, pump or fan failure — these are just a few of the problems that can cause mission-critical air conditioning systems and other HVAC equipment to go down and temperatures to go up. One more problem? Not knowing that these troubles are developing in the first place.

DC Power Systems

An overvoltage condition in an essential DC power system causes an alarm to sound. Problem is, no one is there to hear it.

UNREPORTED

Intrusion Alarm

The entrance of unauthorized personnel into a remote shelter is a big problem. The real problem is that the person who needs to know this is happening is unaware and possibly isn't in the same building — or even the same state.

Generator Operation

The good news is your emergency generator came on-line during a power failure last night and kept things running for several hours. The bad news is that the fuel tank is now almost empty — and no one realizes it, leaving you unprotected for the next outage.

If you don't know what is happening inside your critical facilities, the result is unavailability

What Do You Need To Monitor?

No matter which Liebert products you have...we have a way for you to monitor performance. Liebert offers a full range of monitoring and control solutions to complement your Liebert UPS, power conditioning, power distribution or environmental control systems. Find your Liebert products on this chart to see which specific monitoring methods are available. Once you know your monitoring options, you can then select the system that best fits your specific needs based on the type and depth of information required by your organization.



Products	OpenComms Nform	Network Interface
Single-Phase UPS		
Liebert PowerSure PSI	■	OCWeb
Liebert UPStation GXT	■	OCWeb
Liebert UPStation GXT 6 & 10 kVA	■	OCWeb
Liebert UPStation GXT 2U	■	OCWeb
Liebert UPStation S	■	Voyager
Liebert Nfinity	■	OCWeb
Liebert NX	■	OCWeb-LB
Three-Phase UPS		
<i>Small 3-Phase</i>		
Liebert UPStation S3	■	Voyager
Liebert Series 300	■	OCWeb-LB
Hiross HiNet	■	OCWEB-300
<i>Large 3-Phase</i>		
Liebert NPower	■	OC-NIC
Liebert NPower 1+1	■	OC-NIC
Series 600 Single Module System (SMS)	■	OCWEB-300
Hiross Hipulse Multi Module (MM)	■	OC-NIC
Hiross Hipulse Single Module (SM)	■	OC-NIC
Hiross Hipulse System cabinet (SC)	■	OC-NIC
Hiross Series 7200 Multi Module (MM)	■	OC-NIC
Hiross Series 7200 Single Module (SM)	■	OC-NIC
Hiross Series 7200 System Cabinet (SC)	■	OC-NIC
Power Conditioning & Distribution		
Liebert FDC	■	OC-NIC
Precision Power Center (post-1990)	■	OC-NIC
Top Entry Precision Power Center (post-1990)	■	OC-NIC
DataWave (post-1999)	■	OC-NIC
Transfer Switches		
Static Transfer Switch	■	OC-NIC
Static Transfer Switch 2	■	OC-NIC
Precision Cooling		
Liebert DS	■	OCWeb-LBDS
Deluxe System/3	■	OC-NIC
Challenger 3000	■	OC-NIC
Industrial Cooling Series (ICS)	■	OC-NIC
Himod LNA	■	OC-NIC
Mini-Mate2	■	OC-NIC
Mini-Mate2 8-Ton	■	OC-NIC
DataMate	■	OC-NIC
Atlas C10	■	OC-NIC
Hiross Microface	■	OC-NIC
Monitoring Panels		
Remote Power Monitor Panel (PMP) (post-1990)	■	OC-NIC
OpenComms EM	■	Built-In
SiteNet Integrator	■	Built-In
DC Power - Emerson Energy Systems		
NterprisIP	■	OCWEB
Candeo Product Line		
Candeo IP	■	Built-In
Candeo SP 24	■	Built-In
Candeo SP 48	■	Built-In
Candeo Access	■	Built-In
EES DC Product Line		
Actura	■	Built-In

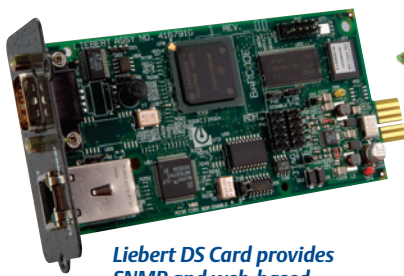
Monitoring And Control Through Your Existing Network

Extending The Communication Capabilities Of Your Liebert Equipment

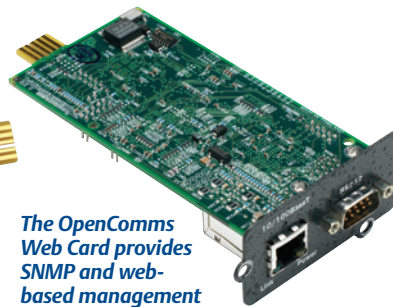
For enhanced remote communications and control of Liebert UPS and air conditioning units, the OpenComms Web and OpenComms NIC cards will deliver SNMP and web-management communications capabilities. Each Liebert system equipped with an OpenComms NIC or Web card takes full advantage

of your Ethernet network, allowing remote monitoring from your computer desktop, network operations center or wherever network access is permitted.

The OpenComms cards support 10 and 100 MBit Ethernet network transmission speeds, which will be auto-detected upon connection to the network. Plus, these cards support in-the-field firmware updates, which increases the value of your investment.



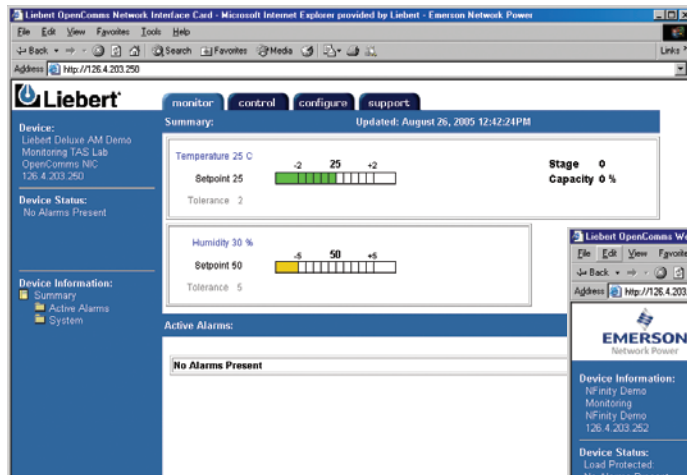
Liebert DS Card provides SNMP and web-based management for Liebert DS.



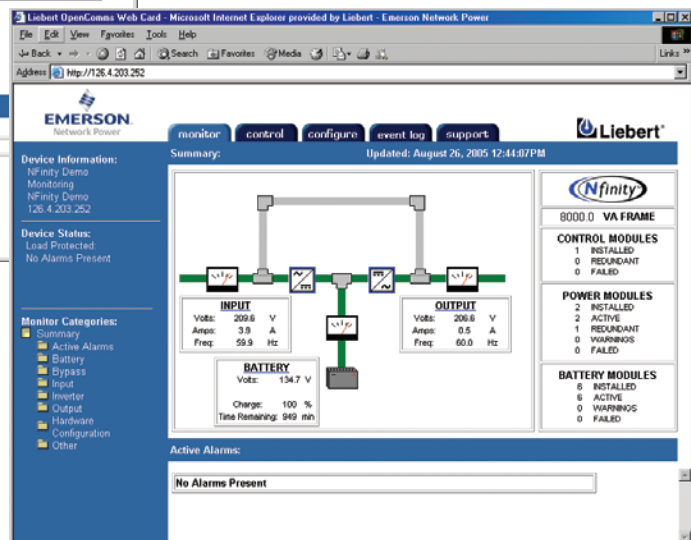
The OpenComms Web Card provides SNMP and web-based management to your UPS.



The OpenComms NIC Card transforms Liebert units into manageable nodes within your Network, NMS and BMS systems.



On-line Demo Sites:
<http://gxtwebdemo.liebert.com>
<http://npowerwebdemo.liebert.com>
<http://nfinitywebdemo.liebert.com>
<http://deluxeamwebdemo.liebert.com>
<http://nxwebdemo.liebert.com>



OpenComms Interface Advantages

- Network Based
- Scalable and Adaptable
- Graphical User Interface
- Information Whenever Needed
- Interface with Liebert Power and Cooling Systems
- Multiple Web Browser Support
- No Third-Party Application Required

Managed Power Strips Provide Distribution, Control, And Monitoring To Rack Applications

Liebert OpenComms™ EM

For event greater flexibility, the Liebert OpenComms EM is designed to monitor temperature, humidity and contact closures inside critical environments, including racks and small computer rooms.

For applications that require the management of power within the Network rack, the OpenComms EM PDU option manages up to (2) two Liebert MP Advanced Power Strips.

This compact device provides network connectivity through Web access and/or E-Mail Notifications of events for stand-alone applications.

The SNMP interface provides access to parameteric data and notifications of alarm events to Liebert OpenComms Nform Critical Management Software and/or a Network Management System.

Interface With Most Critical Support Equipment

Liebert OpenComms Nform will monitor any Liebert SNMP device that supports a network interface, such as the OpenComms Web card and the OpenComms NIC (network interface card). This will allow connection to a full range of Liebert power and mission-critical cooling systems and equipment from other manufacturers, including DC power systems and other third party SNMP-based products.

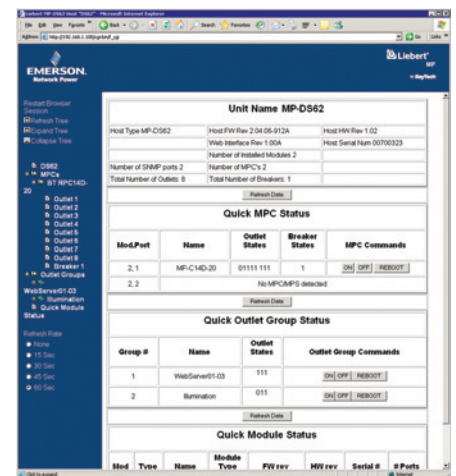
Connectivity to Liebert OpenComms Nform can also be achieved with the Liebert OpenComms EM network-enabled monitoring device. The unit provides SNMP traps for use with Liebert OpenComms Nform.

The software can also be connected to the Liebert MP-5 Access Server which is used to communicate with and monitor Liebert MP Advanced Power Strips.

On-line Demo Sites:
<http://mpwebdemo.liebert.com>
<http://emwebdemo.liebert.com>



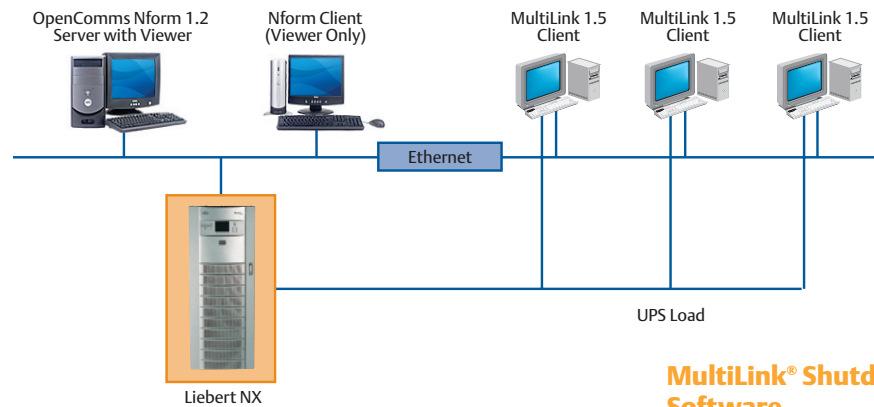
Liebert OpenComms™ EM



- OpenComms EM Advantages**
- Monitor Temperature and Humidity in the Rack
 - E-mail Notifications directly from OpenComms EM
 - Trending of Environmental and Power data points
 - Communicate and Monitor MP Advanced Power Strips Via MP-5 Access Server

Liebert Shutdown Control: Maximum Data Protection

MultiLink automated shutdown software allows you to actively protect data on servers supported by the Liebert UPS equipment you are monitoring with OpenComms Nform, using the same OpenComms Web and OpenComms NIC cards.

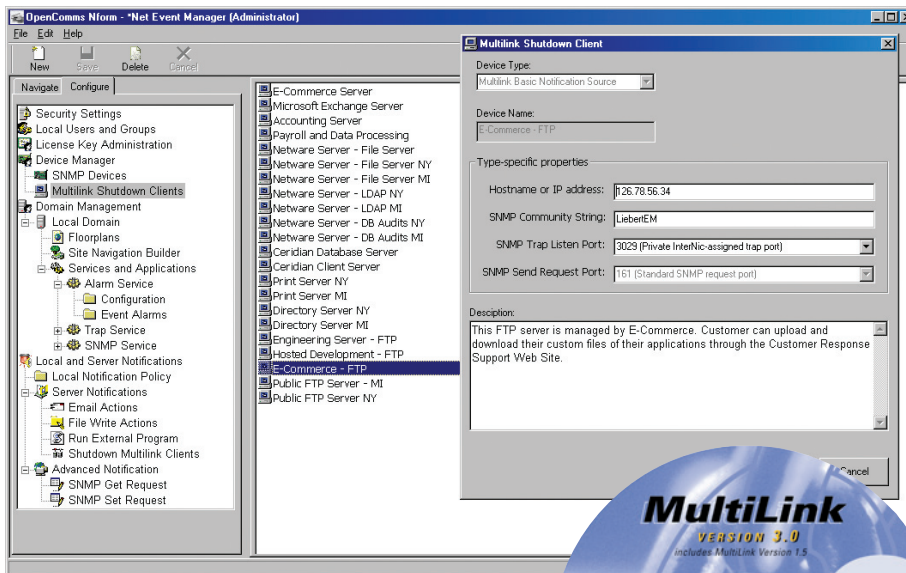


MultiLink® Shutdown Software

Because today's critical business applications are often distributed over several computers, there is a need for shutdown software capable of protecting information on multiple machines. The shutdown notifications from OpenComms Nform to MultiLink 1.5 clients perform the critical task of protecting your computers from costly damage and data loss as a result of power failure and environmental alarm conditions – on anything from a single workstation to a network of workstations and servers.

Stay In Control

During an extended utility failure, MultiLink warns computer users of impending power loss and automatically shuts down computer operating systems in a smooth and orderly manner if the UPS battery capacity runs low.



MultiLink Advantages

- Automated and Orderly Shutdown on Environmental, UPS and Power conditions
- Scalable
- Network Based
- Suitable for Single Workstation or Network of Servers
- Wide Operating System Capabilities

<http://Multilink.liebert.com>



OpenComms Nform centralizes the management of your distributed Liebert network equipment.

Liebert OpenComms Nform is a network communications system that will enable you to leverage the distributed monitoring capabilities of your network connected equipment.

One Company, Providing You a Complete High-Availability Solution

Connecting to equipment in the distributed critical space is only part of the monitoring challenge. Liebert OpenComms Nform leverages the network connectivity capabilities of your Liebert equipment to provide a centralized monitoring view of your distributed equipment. Utilizing the SNMP and Web technologies built into each of the OpenComms communication cards, OpenComms Nform will centrally manage alarm notifications to provide you with an easy interface to access critical status information.

OpenComms Nform effectively eliminates the need for expensive third-party monitoring applications. The Liebert "turn-key" approach to communications and monitoring minimizes your installation and maintenance costs, consolidates your view of the critical space status, and maximizes your uptime through automated notifications of alarm conditions.

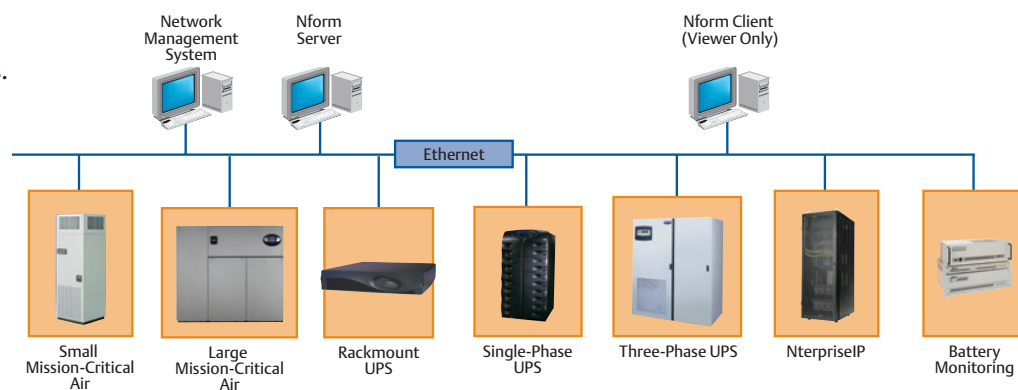
When Systems Are Critical... Monitoring Is Not An Option

OpenComms Nform software solution combines full-scale monitoring with cost-effective deployment through the use of the existing network infrastructure — so the cost of dedicated, out-of-band communications cabling is eliminated. It is both scalable and adaptable so it can grow as your systems expand and needs change.

The software can be configured to monitor your network for alarm notifications from Liebert power protection and precision cooling equipment. These alarms, or SNMP traps, can be received by the software and processed to trigger event actions such as e-mail alerts or local notifications.

For ease of use, the OpenComms Nform graphical user interface enables you to view device status conditions through either a native SNMP interface or an HTML web browser interface. The Alarm Log will manage all alarms that are received by OpenComms Nform.

OpenComms Nform will monitor any Liebert SNMP devices that support a network interface, such as the OpenComms Web card and the OpenComms NIC. The customizable navigation tree provides the flexibility to design an OpenComms Nform user interface around your network layout. Authenticated alarm management and event notification ensures that alarms are detected and acted upon, which allows problems to be quickly resolved.

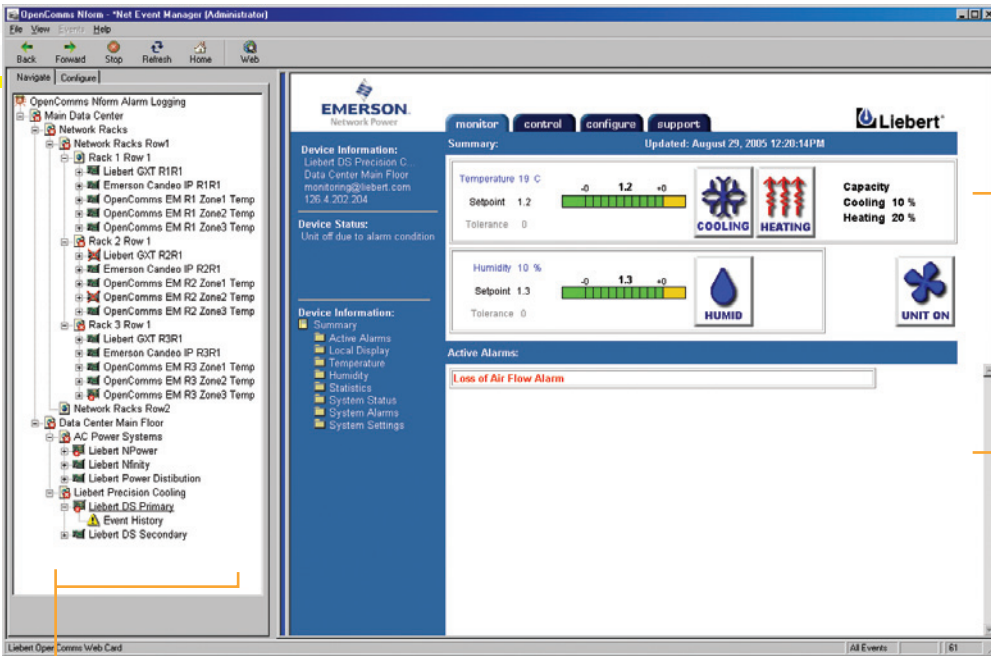


On-line Demo Sites:
<http://Nform.liebert.com>

OpenComms Nform Advantages

- Alarm Management Features
- Connection to Other Manufacturers Equipment
- Turn Key Approach to Communications and Monitoring
- MultiLink Integration for Shutdown of systems
- Management of UPS, Power, Environmental and Monitoring Products that support SNMP
- Centralized Management of critical systems
- Web Integration

Comprehensive Monitoring: The OpenComms Nform Advantage



Status at a Glance

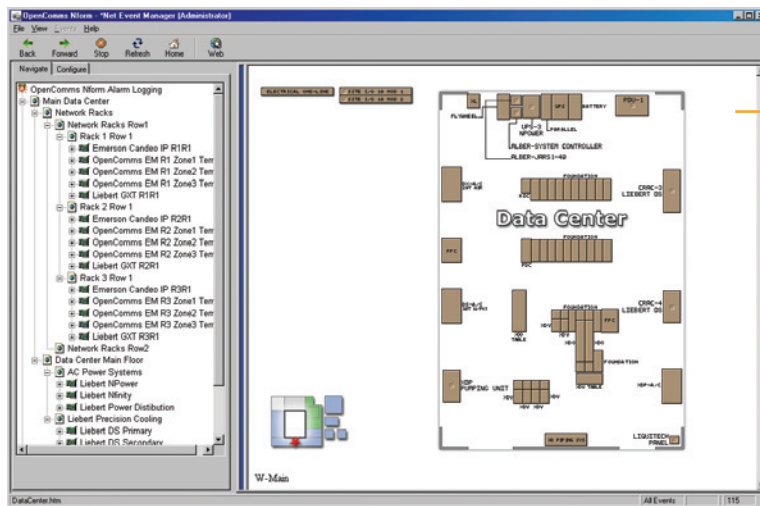
Real-time device view of operation and current alarms.

Web Integration

The web interface from managed devices is integrated directly within the software.

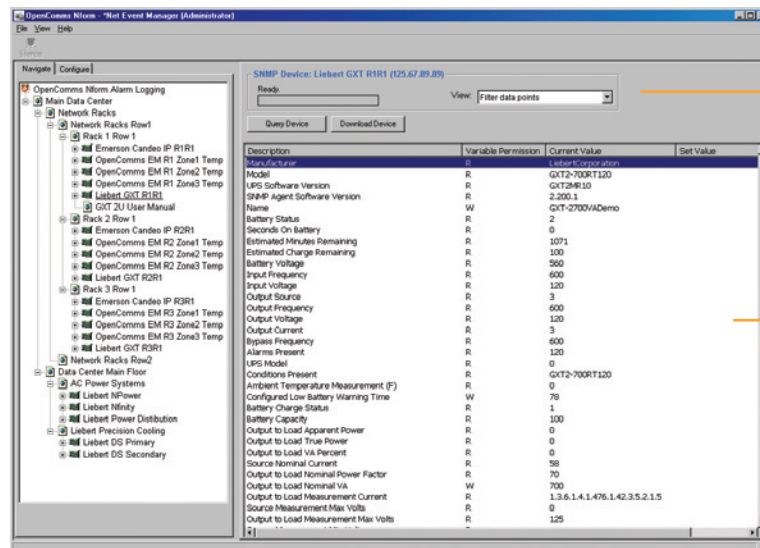
Device Surveillance

The status of managed equipment propagates up through the customized navigation view.



Navigational Graphics

Incorporate graphic floor-plans or maps that allow for quick equipment location and hyper-links to managed equipment that support a web interface.

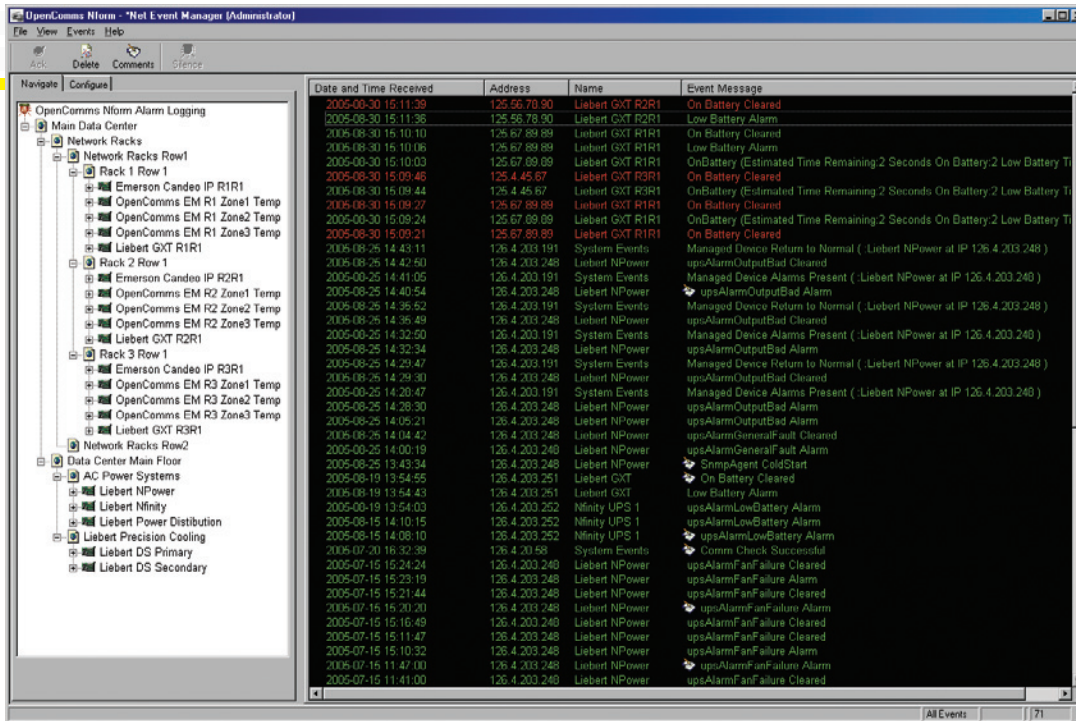


SNMP Direct

Devices that do not support an embedded web interface can be managed directly through their native SNMP interfaces.

SNMP Configuration

View only the configurable SNMP data. One button download allows for quick configuration changes.

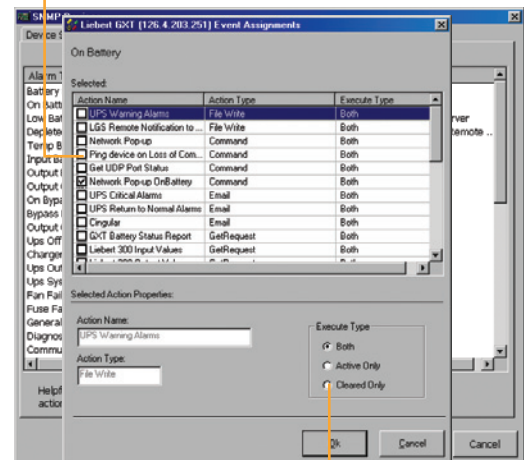


Event Management and Processing

The Event History log will manage all alarms that are received, notifying the user of new or active alarms, enabling the user to acknowledge new alarms, and delete acknowledged alarms.

Send Alerts and Notify Personnel

Notifications can be assigned to each specific managed device alarm or condition.



Stay in Control

The software has the flexibility to execute a set of actions when conditions are present and a completely different set of actions when alarms return to normal.

License Management

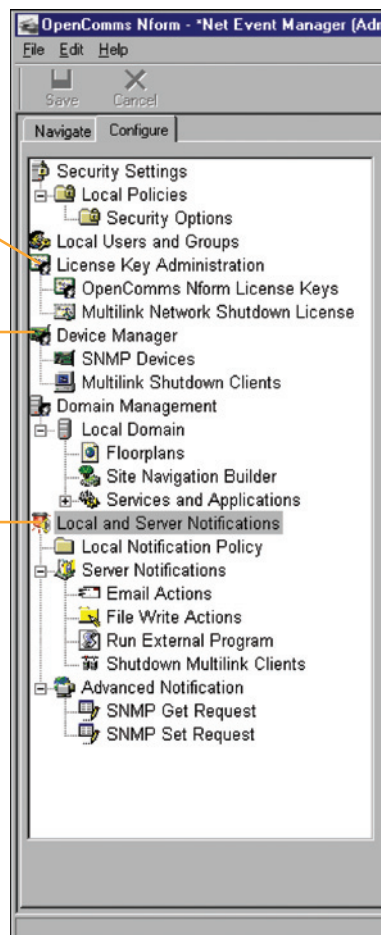
As your business expands, you can adapt your critical systems monitoring to these changes by adding license kits.

Device Management

Deploying new equipment has never been this easy. Up to 44 base templates are included for Liebert Products.

Local Visual and Audio Alerts

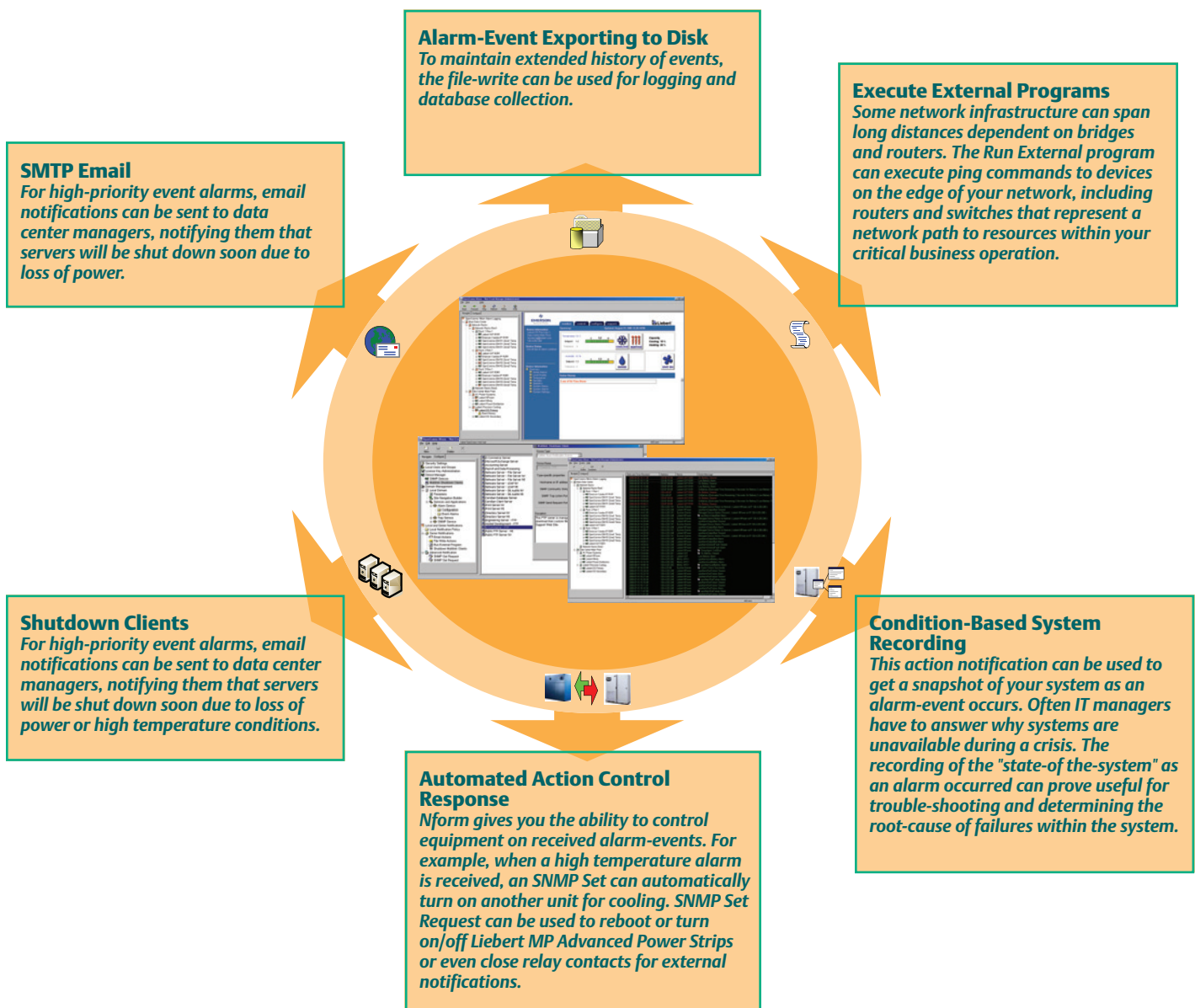
- Application to Foreground
- Play Sound Wave
- Load Local Viewer
- Flash Application in Taskbar



Alarm Management – Getting The Right Information To The Right People

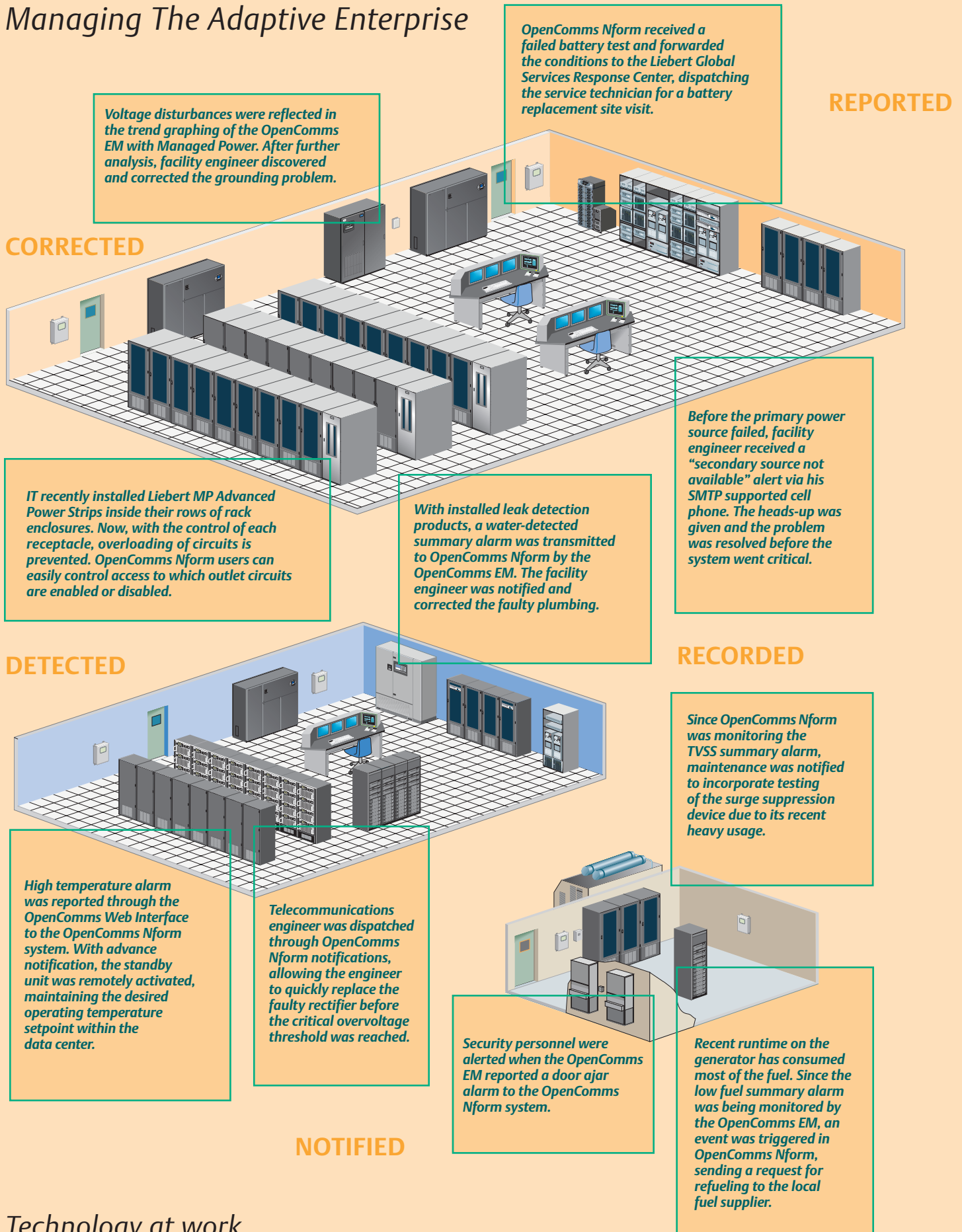


OpenComms Nform puts critical systems information at the fingertips of support personnel - wherever they are - increasing responsiveness to alarm-event conditions, thus allowing IT organizations to maximize their system availability.



Information you need, every time you need it.

Managing The Adaptive Enterprise



Technology at work

Liebert OpenComms Nform Software Options

SOFTWARE OPTIONS

System Features	OpenComms Nform Software **Download Edition	OpenComms Nform Software Professional Edition	OpenComms Nform Software Enterprise Edition
Local Client Viewer	1	1	1
Remote Concurrent Client Viewer	No	No	5
Supported Operating Systems	Windows NT 4.0 w/SP6 or higher, Windows 2000, Windows XP, Windows 2003 Server	Windows NT 4.0 w/SP6 or higher, Windows 2000, Windows XP, Windows 2003 Server	Windows NT 4.0 w/SP6 or higher, Windows 2000, Windows XP, Windows 2003 Server
Real-Time Monitoring and Control			
Device Status Polling	Yes	Yes	Yes
Default Devices Supported	1	30	500
Web Card Integration	Yes	Yes	Yes
Open Architecture (Monitoring of non-proprietary SNMP devices)	Standard RFC1628 UPS Device Template Included	Standard RFC1628 UPS Device Template Included	Standard RFC1628 UPS Device Template Included
Device Supported	All Liebert UPS, Environmental, Power Distribution, and Monitoring products that support a SNMP interface	All Liebert UPS, Environmental, Power Distribution, and Monitoring products that support a SNMP interface	All UPS Liebert, Environmental, Power Distribution, and Monitoring products that support a SNMP interface
Notifications and Alerts			
Propagate Application to foreground	Yes	Yes	Yes
Load Local Viewer	Yes	Yes	Yes
Play Sound Wave	Yes	Yes	Yes
Play Default Beep	Yes	Yes	Yes
Flash Application when Minimized	Yes	Yes	Yes
Standard Actions			
E-mail Notification	Yes	Yes	Yes
Run External Program Capability	Yes	Yes	Yes
File Write	Yes	Yes	Yes
Shutdown Network License*			
Shutdown ML Clients	No	No	Unlimited Included
Advance Notifications*			
SNMP Set Request(s)	No	No	Yes
SNMP Get Request(s) Report	No	No	Yes

* Note: These add-on packages can be added to the system with Licensing

**Software available at no charge at Nform.liebert.com

OpenComms Nform Additional Licenses

PART NUMBERS	OpenComms Nform Additional Managed Device Licenses
NFORM-30N NFORM-100N NFORM-500N	Managed Device License kits allows the user to incrementally add support for monitoring additional numbers of network devices. Node Licenses are additive and manageable through License Key Administrator
OpenComms Nform Managed Device Licenses	
NFORM-1CUSER NFORM-5CUSER NFORM-10CUSER	Concurrent Client License allows the user to incrementally add support for additional numbers of connected clients. Concurrent Client Licenses are additive and manageable through License Key Administrator
OpenComms Nform Advance Notification License	
NFORM-ANOTIFY	Advance Notification License allows the user to add support for SNMP SET/GET Requests Actions
MultiLink® Network Shutdown License, Unrestricted	
MLLKU	MultiLink Network Shutdown License allows you to efficiently shutdown workstations and servers running MultiLink throughout the network via Event-Alarm conditions from OpenComms Nform

Professional Services The Ultimate In Customer Service



Standard Services

Applications Engineering Services

This service provides, at no charge, to all Liebert customers ultimate product support with direct access to factory-trained Monitoring Engineers. Our engineers receive in-depth instruction and hands-on experience in providing support for monitoring software and hardware.

- Instant Phone Assistance - 24 X 7 X 365
1.800.222.5877
614.841.6755 (Outside U.S.)
- Email an Engineer - M-F 8:00a.m. - 5:00p.m.
monitoring@liebert.com

OpenComms Nform Support Web Portal

Registering at the Nform Support Web site gives you access to all the latest updates and notifications of special offerings and new releases. By registering your license keys, this support site puts you in control of your investment. As a registered user you can submit feedback on the OpenComms Nform Products and gain access to valuable resources within Liebert.

Optional Services

Software Integration Services (SIS)

The further your resources are stretched, the less time you have to quickly deploy your monitoring products. Software Integration Services is designed to help the customer implement and verify the Liebert software and hardware in a timely efficient manner. A Monitoring Engineer will assist with the deployment of your monitoring solution on-site.

- Installation and Start-up
- Configuration and Verification
- On-Site Training and Education
- On-Line Support Overview and Web Site Registration

Remote Monitoring Service: When You Need To Know — But Can't Do It Yourself

The key to providing proper service for critical support systems is being aware of that equipment's operating status at any given time. That's why Liebert is so firmly committed to providing monitoring capability in our products. Our Remote Monitoring Service, provided by Liebert Global Services, is designed to maximize the capabilities of your Liebert equipment by maximizing the effectiveness of your monitoring systems.



Ensuring The High Availability Of Mission-Critical Data And Applications.



Emerson Network Power, the global leader in enabling business-critical continuity, ensures network resiliency and adaptability through a family of technologies – including Liebert power and cooling technologies – that protect and support business-critical systems. Liebert solutions employ an adaptive architecture that responds to changes in criticality, density and capacity. Enterprises benefit from greater IT system availability, operational flexibility, and reduced capital equipment and operating costs.

Liebert Corporation

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Emerson Network Power.

The global leader in enabling business-critical continuity.

- AC Power Systems
- Embedded Power
- Outside Plant
- Connectivity
- Inbound Power
- Precision Cooling
- DC Power Systems
- Integrated Cabinet Solutions
- Site Monitoring and Services

EmersonNetworkPower.com