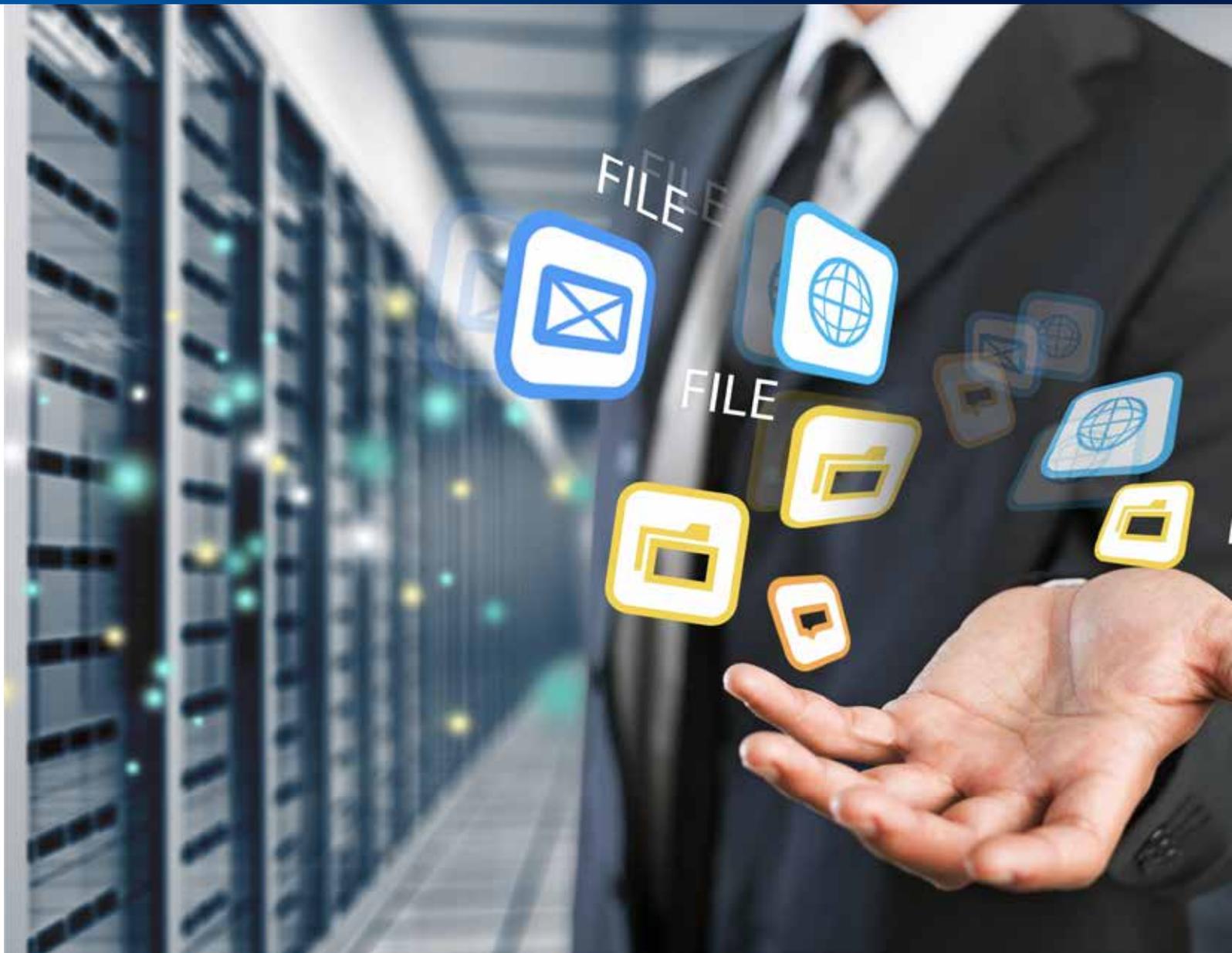


# Pyxis III Intelligent Infrastructure Management System

FIBER OPTICS AND DATA COMMUNICATION





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# Pyxis Intelligent Infrastructure Management System

Pyxis is a high efficiency intelligent infrastructure management system (iIMS). The system adopts the mode of combination of special software and hardware, and can effectively plan and manage the network connection, physical location of equipment and other IT infrastructure elements in real time. In addition, Pyxis iIMS can also serve as an intelligent infrastructure configuration and management tool to provide more efficient maintenance and management through the way of intelligent process management. If a company persists in implementing this advanced mode of IT infrastructure management, IT return on investment ROI would be improved significantly.

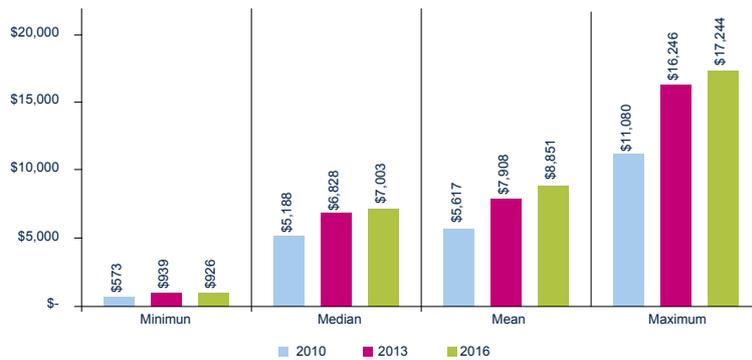
Pyxis iIMS takes “management” as its core connotation in design and development, which is reflected mainly in the following aspects:

- \* Real-time - Avoid the time delay of management
- \* Logicity - Avoid low efficiency of management
- \* Centrality - Avoid over-investment of HR
- \* Security - Detect invasion of illegal equipment

## Why do we need an intelligent infrastructure management system?

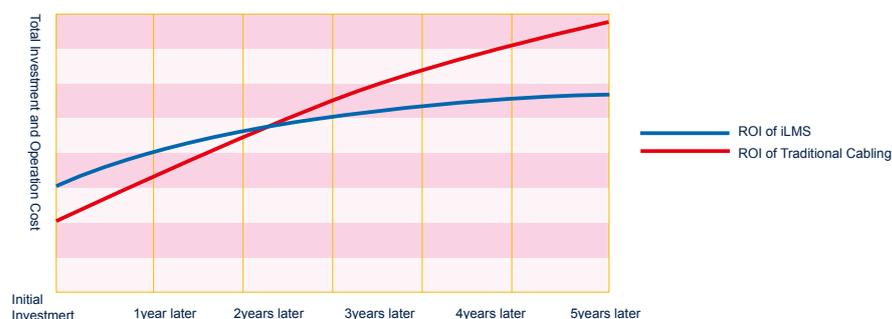
According to the third party statistical report, the interruption of the network is about 70% due to the poor management and maintenance of the physical layer. The importance of stable operation of the network is growing day by day, especially for the data center. The economic losses caused by unexpected network outages will be assessed per minute and rising year by year. In fact, the management of the iIMS system can reduce the risk of accidental network interruption due to the poor management of the physical layer of the network, reducing the risk of 99%, greatly improving the availability of the network.

The following chart shows the average cost per minute of unexpected network outages of the data centers on a global scale, compared to 2010, 2013 and 2016.



Source: Ponemon Institute© Research Report

Although the cost of the initial investment in iIMS compared to the traditional cabling system, the overall investment costs will be increased about 20%-50% per different network planning. However, by the applications of iIMS in the next 2-3 years, the cost of investment can be effectively recovered. With the management efficiency greatly improved, 2-3 years after the daily network operation and maintenance and management costs, especially the human cost will continue to decline, making the cost of long-term application of iIMS has more advantages than the traditional cabling system.



# Pyxis iIMS

Efficient Electronic Work Order

Graphical Operating Interface

LED Intelligent Navigation

Real-time Monitoring

Full Link Graphic Display

Real-time Infrastructure Reports

Rapid Network Recovery

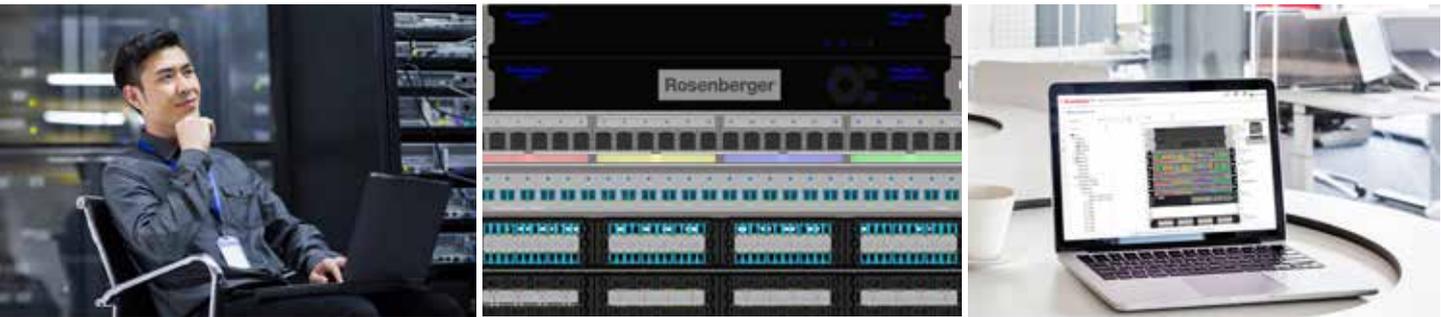
Real-time Asset Management

Automatic Positioning

Remote Network Management

# System application of Pyxis Intelligent Infrastructure Management System

Pyxis intelligent infrastructure management system is especially applicable to the data center with a relatively complicated network structure, as well as the telecommunication room and equipment room used to manage the network system in various commercial buildings. Compared with traditional cabling systems, the scope of intelligent infrastructure management system is more extensive, mainly reflecting in the following aspects:



## Efficient Electronic Work Order

iIMs can help IT management personnel establish the standard management processes for operating and maintaining the network infrastructure. Move or add ports connection and change monitoring host computer (MAC) of network equipment are operated by adopting the visualization operation interface and the method of electronic work sheets to integrate the management processes of the whole system into the electronic work orders, improving the management efficiency. Also, it adopts paperless office to meet the requirement of environment protection.

## Graphical Operating Interface

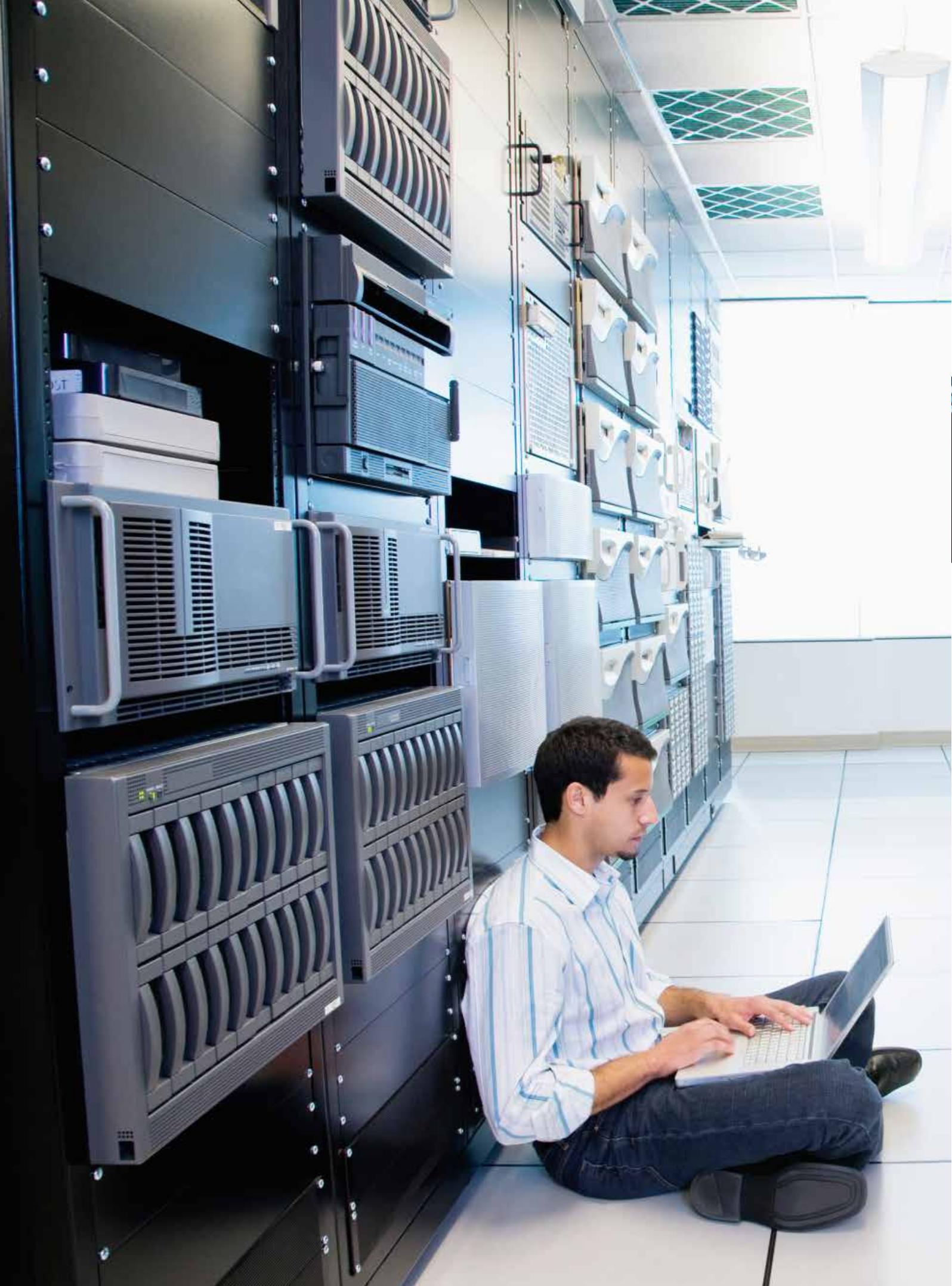
iIMS adopts the more intuitive graphical interface and simplifies the application and operation, also the friendly visual operation interface makes it easy and convenient to use the OMC management software.

## LED Intelligent Navigation

iIMS is equipped with LED on each port of patch panel. After an electronic work order generated, the IT manager only need to perform the site operations per different flashing status of LED on corresponding port of the patch panel. LED navigation can ensure zero error of operation and guarantee security of network management, thus avoiding the mistake caused by manual operation in traditional management.

## Real-Time Network Monitoring and Alarming

The management unit of iIMS shall perform the uninterrupted circular high-speed scanning for each ports of patch panel. OMC management software will update in real time the status of network connection based on the scanning result. When there is an unauthorized operation, the buzzer of the management unit and LED on the panel will be both in alarm status. Meanwhile, real time port information and physical location of all illegal operations will be sent to the administrator via Email or App, to further guarantee the security management of network infrastructure.



### Full Link Graphic Display

When IT managers need to query the status of whole connection link, through any elements in the link such as panel port or terminal identification number, real-time connection logic state overall link can quickly provide graphical end-to-end status via OMC software combined with SNMP protocol to access network devices. It makes system become more efficient, to provide the basis for further network planning and management.

### Real-Time Generation of Infrastructure Reports

Users can obtain rapidly specialized reports with the real-time information which is collected by intelligent infrastructure management system OMC software, such as usage of equipment ports, real-time power consumption and utilization ratio of cabinet. Also, effective reference data can be provided to IT manager for the overall network planning and decision.



### Rapid Network Disaster Recovery

Even in case that the network is powered off due to an accident or unpredictable reason, or operated maliciously by someone, the instantaneous data at the moment just before the power failure shall be saved in the databases of the server. The functional state at the moment just before the power failure can be restored immediately once the network is repowered on. Meanwhile, the OMC management software in the server features the fast backup of all data within the scope of intelligent infrastructure management.

### Real-Time Asset Management

OMC management software performs the management of all equipment connected within the system (including patch panel, switch, server, telephone and printer etc.), collects statistical data concerning usage and vacancy rates of equipment (such as distribution port, network port, and cabinet space and power etc.), and displays in a form of graphics or tables. Through analysis and identification, the overused and underused resources, the system can utilize effectively the resources, avoid unnecessary investment, and improve the operating quality.

### Automatic Positioning of Physical Locations

The intelligent infrastructure management system can import the weak current CAD drawing of the architectural plane including physical address and system diagram into OMC management software, and meanwhile, establish association between the IP address and the MAC address of equipment. Thus, if any user-port network becomes abnormal, the network management personnel can locate fast the physical location, which facilitates improvement of the management efficiency.

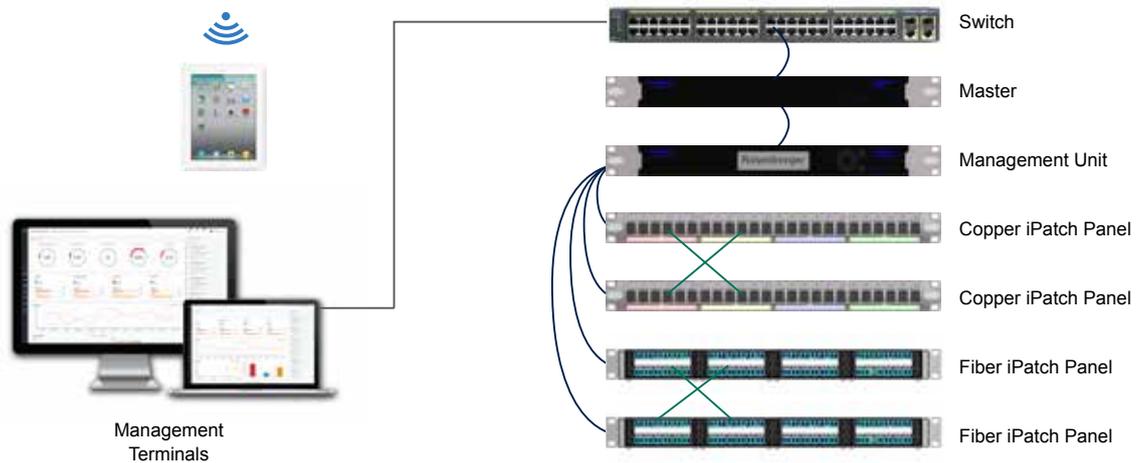
### Remote Network Management

No matter where the management personnel are, they can access the system through APP or OMC management and operation from the remote host. For a company with a great number of subsidiaries, centralized management can be realized in its headquarters, which can reduce expanse incurred due to the multi-location manpower deployment and the business travel to other locations, improve timeliness of management and make IT system environment at various locations fully comply with the management requirements.



# Architecture of Pyxis Intelligent Infrastructure Management System

## I. System Architecture Diagram



## II. Connection Distance Definition

The management link of Pyxis iIMS is composed of three parts, the monitoring master, the management unit and the intelligent patch panel. The connection distance between the three is limited as follows:



## III. iIMS Architecture Description

Pyxis iIMS is mainly composed of a monitoring master, management unit, intelligent optical panel, intelligent copper panel, copper patch cord and OMC system management software. Software development using B/S architecture. The system adopts ANSI/TIA-568C and IEC/ISO11801 standard in cross connection or interconnection of various schemes, support the use of single or double panel structure. The hardware structure of the system adopts the modular structure, which makes the whole configuration management have the most flexibility.

*The Pyxis system configuration method is as follows:*

- \* Each Master can monitor maximum 24 management units
- \* Each Management Unit can manage 24 intelligent copper or fiber panels
- \* Each intelligent copper panel has 24 ports
- \* Each intelligent fiber panel has at least 24 LC duplex ports or MPO ports, maximum support for 48 LC duplex or 32 MPO ports
- \* If the number of network ports exceed the number of managed ports on a single Master, the number of Masters can be increased as needed. OMC software can manage multiple Masters
- \* OMC software can be expanded per the network size. there is no limit on the number of network equipment ports

# Unique Technology of Pyxis Intelligent Infrastructure Management System



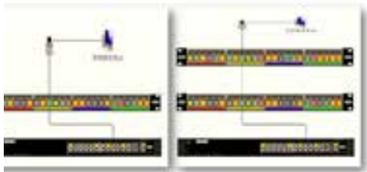
## Server Free for End User

The new generation of Pyxis iIMS Master has integrated a powerful industrial computer. It can realize server's functionality to save users at least \$5000 additional server investment. At the same time, the Pyxis Master can be built with OMC software and database before delivery, reducing the software installation and debugging time and improving the efficiency of system deployment.



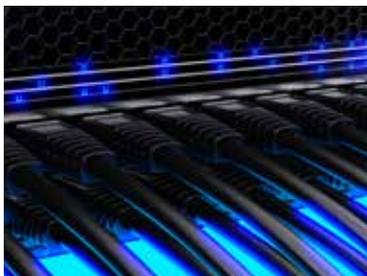
## Patented Algorithm Technology

Pyxis iIMS adopts patented parallel scanning algorithm. Different from the traditional scanning, Pyxis uses the solution of port initiative to report, regardless of the number and size of the overall network port, the overall network ports scanning cycle are controlled within 2 seconds.



## Compatible with Inter-connection and Cross-connection

Pyxis iIMS software and hardware can support the structure of both single layer and double layer intelligent panel. It's compatible with the application of cross-connection and inter-connection. Thus, it can be more flexible to support practical application requirements



## Modular Structure Supporting the Port Definition

The hardware structure of the intelligent cabling adopts a special modular structure which is different from the traditional intelligent cabling system. The Pyxis iIMS intelligent panel can be freely defined for each port. Each port can be defined as a switch port or a terminal. Thus, the utilization rate of the port of the intelligent panel is obviously improved and the overall system configuration cost is significantly reduced.



### Seamlessly Upgraded Intelligent Panel

Pyxis system can support the user's appeal of segmented investment. At the early stage, the user can adopt only the standard patch panel. When required to upgrade to the intelligent patch panel, only need to insert the intelligent scanning module directly into the back of standard patch panel. It takes only a few seconds to upgrade the standard patch panel into intelligent patch panel. There is no need to disconnect the network in the whole process of the operation, which provides the maximum convenience and maintainability.



### APP Real Time Management

Mobile APP has been developed for new generation of Pyxis iIMS, you can download and install directly from Apple Store. APP can help IT managers more convenient and timely access to management information, such as real-time link information query, real-time alarm, cabinet space, etc. In addition, APP increases new function of the barcode and two-dimensional code scanning to achieve the rapid positioning and query.



### Fast Engineering Mode Import Supported

Pyxis iIMS management software supports the fast batch import of original engineering files, such as CAD drawings, test reports, connection documents and so on. Pyxis iIMS software has embedded search engine. It can import batch information at one time. The physical location on the CAD drawing itself can be automatically searched and corresponded without manual association for one after another. It not only reduces the time for import port location information but also reduce IT management personnel's workload significantly.



### Custom Statistical Report Function

Pyxis iIMS OMC software interface is designed modular reporting function. Users can choose different statistical reports per their own needs, commonly used statements such as the distribution of the real-time port utilization, cabinet utilization, port traffic statistics, etc. The user can show the corresponding report per the need, in order to achieve a more effective management of the overall system.

# Quality Assurance and Service of Pyxis Intelligent Infrastructure Management System



25-year-long quality assurance is provided for the whole passive hardware system



3-year-long quality assurance is provided for the whole active hardware system



Free system software application training and technical service guidance are provided



# Ordering Information

Product Part No.	Description
Pyxis Software	
CPC2-002-01	Pyxis-III Software of Intelligent Infrastructure management system (0-2000 Ports)
CPC2-002-02	Pyxis-III Software of Intelligent Infrastructure management system (2001-5000 Ports)
CPC2-002-03	Pyxis-III Software of Intelligent Infrastructure management system (over 5001 Ports)
Active Equipment	
CPC1-200-11	Pyxis-III Master (with IPC)
CPC1-300-03	Pyxis-III Management unit
CPC1-610-01	Pyxis-III Scanning module (suitable for cross-connection copper panel)
CPC1-610-11	Pyxis-III Scanning module (suitable for interconnection copper panel)
Intelligent Copper Panel	
CPC3-111-13	Pyxis Intelligent 24port Cat6 UTP patch panel ,with Intelligent RJ45 module and cross-connection scanning module
CPC3-121-13	Pyxis Intelligent 24port Cat6 shielded patch panel ,with Intelligent RJ45 module and cross-connection scanning module
CPC3-112-13	Pyxis Intelligent 24port Cat6A UTP patch panel ,with Intelligent RJ45 module and cross-connection scanning module
CPC3-122-13	Pyxis Intelligent 24port Cat6A shielded patch panel ,with Intelligent RJ45 module and cross-connection scanning module
CPC3-111-14	Pyxis Intelligent 24port Cat6 UTP patch panel ,with Intelligent RJ45 module and inter-connection scanning module
CPC3-121-14	Pyxis Intelligent 24port Cat6 shielded patch panel ,with Intelligent RJ45 module and inter-connection scanning module
CPC3-112-14	Pyxis Intelligent 24port Cat6A UTP patch panel ,with Intelligent RJ45 module and inter-connection scanning module
CPC3-122-14	Pyxis Intelligent 24port Cat6A shielded patch panel ,with Intelligent RJ45 module and inter-connection scanning module
CPC3-111-11	Pyxis Intelligent 24port Cat6 UTP patch panel ,with Intelligent RJ45 module
CPC3-121-11	Pyxis Intelligent 24port Cat6 shielded patch panel ,with Intelligent RJ45 module
CPC3-112-11	Pyxis Intelligent 24port Cat6A UTP patch panel ,with Intelligent RJ45 module
CPC3-122-11	Pyxis Intelligent 24port Cat6A shielded patch panel ,with Intelligent RJ45 module

Product Part No.	Description
<b>Intelligent Fiber Panel and Module</b>	
CPC3-610-31	Pyxis 1HU Intelligent fiber patch panel , 4 slots, without Intelligent fiber module
CPC3-712-31	Pyxis MTP-LC 24 cores Intelligent OS2 SM fiber module , Type-A with scanning module
CPC3-732-31	Pyxis MTP-LC 24 cores Intelligent OM3 fiber module , Type-A with scanning module
CPC3-742-31	Pyxis MTP-LC 24 cores Intelligent OM4 fiber module , Type-A with scanning module
CPC3-712-32	Pyxis MTP-LC 24 cores Intelligent OS2 SM fiber module , Type-B with scanning module
CPC3-732-32	Pyxis MTP-LC 24 cores Intelligent OM3 fiber module , Type-B with scanning module
CPC3-742-32	Pyxis MTP-LC 24 cores Intelligent OM4 fiber module , Type-B with scanning module
CPC3-711-31	Pyxis 24 cores LCD Intelligent splicing OS2 SM fiber module with scanning module
CPC3-731-31	Pyxis 24 cores LCD Intelligent splicing MM fiber module with scanning module
CPC3-713-31	Pyxis MPO/F 8 ports Intelligent module, with scanning module
<b>Integrated Intelligent Fiber Panel</b>	
CPC3-212-11	Pyxis 1HU SM Intelligent fiber patch panel , LC 48 cores (for cross-connection)
CPC3-222-11	Pyxis 1HU MM Intelligent fiber patch panel , LC 48 cores (for cross-connection)
CPC3-222-22	Pyxis 1HU MM Intelligent fiber patch panel , MPO/F 24 ports (for cross-connection)
CPC3-211-11	Pyxis 1HU SM Intelligent fiber patch panel , LC 48 cores (for inter-connection)
CPC3-221-11	Pyxis 1HU MM Intelligent fiber patch panel , LC 48 cores (for inter-connection)
CPC3-221-22	Pyxis 1HU MM Intelligent fiber patch panel , MPO/F 24 ports (for inter-connection)
<b>Intelligent Copper Patch Cord for Cross-connection</b>	
CPC3-313-1X	Pyxis Intelligent Cat6 UTP RJ45 patch cord (for cross-connection)
CPC3-314-1X	Pyxis Intelligent Cat6 Shielded RJ45 patch cord (for cross-connection)
CPC3-323-1X	Pyxis Intelligent Cat6A UTP RJ45 patch cord (for cross-connection)
CPC3-324-1X	Pyxis Intelligent Cat6A Shielded RJ45 patch cord (for cross-connection)
<b>Intelligent Copper Patch Cord for Inter-connection</b>	
CPC3-315-1X	Pyxis Intelligent Cat6 UTP RJ45 patch cord (for inter-connection)
CPC3-316-1X	Pyxis Intelligent Cat6 Shielded RJ45 patch cord (for inter-connection)

Product Part No.	Description
Intelligent Copper Patch Cord for Inter-connection	
CPC3-325-1X	Pyxis Intelligent Cat6A UTP RJ45 patch cord (for inter-connection)
CPC3-326-1X	Pyxis Intelligent Cat6A Shielded RJ45 patch cord (for inter-connection)
Intelligent Fiber Patch Cord for Cross-connection	
CPC3-412-1X	Pyxis Intelligent LC-LC OS2 SM fiber patch cord (for cross-connection)
CPC3-442-1X	Pyxis Intelligent LC-LC OM3 fiber patch cord (for cross-connection)
CPC3-452-1X	Pyxis Intelligent LC-LC OM4 fiber patch cord (for cross-connection)
CPC3-412-3X	Pyxis Intelligent MPO/F-MPO/F SM fiber patch cord (for cross-connection)
CPC3-442-3X	Pyxis Intelligent MPO/F-MPO/F OM3 fiber patch cord (for cross-connection)
CPC3-452-3X	Pyxis Intelligent MPO/F-MPO/F OM4 fiber patch cord (for cross-connection)
Intelligent Fiber Patch Cord for Inter-connection	
CPC3-412-2X	Pyxis Intelligent LC-LC OS2 SM fiber patch cord (for inter-connection)
CPC3-442-2X	Pyxis Intelligent LC-LC OM3 fiber patch cord (for inter-connection)
CPC3-452-2X	Pyxis Intelligent LC-LC OM4 fiber patch cord (for inter-connection)
CPC3-412-4X	Pyxis Intelligent MPO/F OS2 fiber patch cord (for inter-connection)
CPC3-442-4X	Pyxis Intelligent MPO/F OM3 fiber patch cord (for inter-connection)
CPC3-452-4X	Pyxis Intelligent MPO/F OM4 fiber patch cord (for inter-connection)

X stand for the length of patch cord, such as 1 stand for 1meter



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