

# Data Center Infrastructure Management System

## iManager NetEco6000

### Product Overview

The NetEco6000 is a next-generation data center infrastructure management system developed and continuously evolved by Huawei. It is dedicated to providing an innovative and leading intelligent O&M solution for data centers to maximize the efficiency and value of data centers.



### Application Scenarios

Micro/Small-sized data center, medium- and large-sized data center, outdoor prefabricated data center

### Value & Design Concept



#### Digital Visualization

Digital visualization for intelligent, for the ultimate experience and operation insight.



#### Autonomous Maintenance

Digital and intelligent O&M, improve O&M quality and efficiency, and save O&M costs by 35%.



#### Intelligent Operation

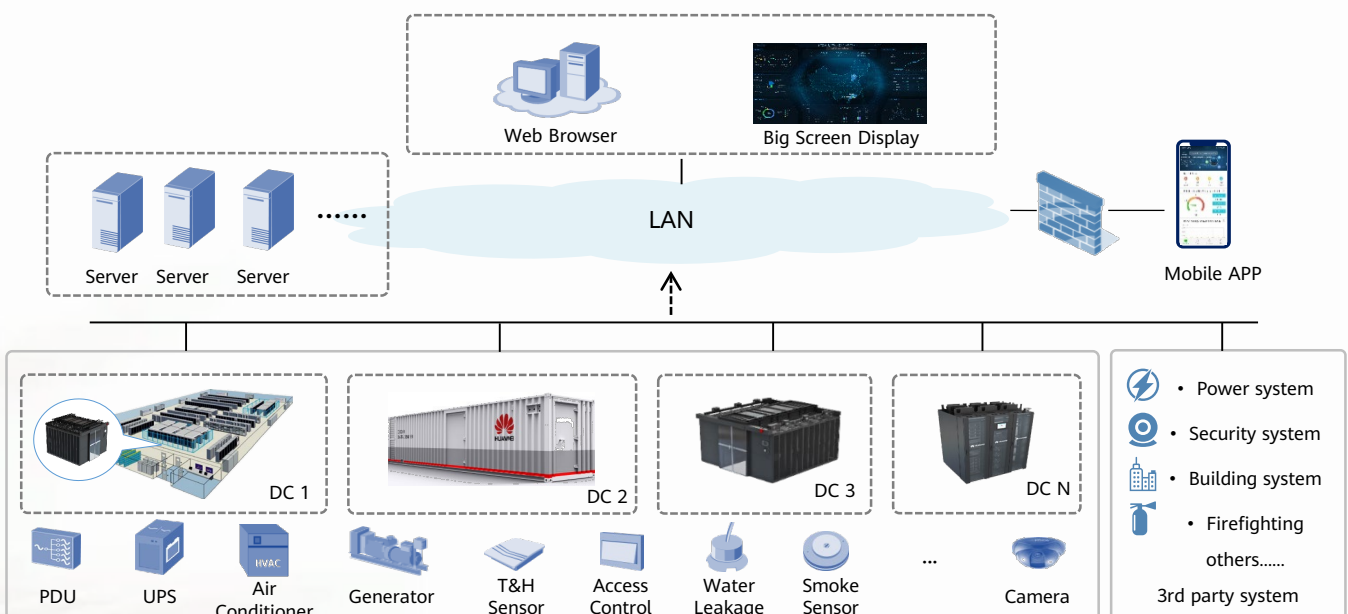
Asset life cycle management, intelligent capacity planning, and increase resource utilization by 20%.



#### AI PUE Optimization

iCooling@AI solution enable energy efficiency optimization, reducing PUE by 8%-15%

### System Architecture



## Product Features

### Basic Parameters:

Category	Description	Note
Deployment Mode	Single server, cluster server, or VM(FusionSphere or FusionCompute)	
Operating System / Database	EulerOS / GaussDB, Huawei-developed.	
Management Capability	≥3 million monitoring points (about 30,000 cabinets), supporting capacity expansion.	
Number of Online Users	≤100	
Data Storage	Default 1 year, maximum support 3 years.	

### Features Overview:

Category	License	Features	Note
Basic Features	NA	Device Monitoring, Big Screen Display, Alarm Management, Power Link Visualization, Cooling Link Visualization, Report Management, Energy Efficiency Analysis and Fault Analysis.	
Platform Interface	Northbound Interface	Device/ System Integration.	
	Southbound Interface		
Optional Features	Temperature Nephogram	Temperature Map	Choose one of three.
	3D View-Lite	3D View-Lite	
	3D View-Pro	3D View-Pro	
	3D View-BIM	3D View-BIM	
	Dashboard Report	Big Data Dashboard and Report Analysis.	Choose one of two.
	Basic Maintenance	Personnel and Shift Management, Electronic Inspection, App O&M, O&M Process Management, Knowledge Library and O&M Process Management	
	Digital Maintenance	Personnel and Shift Management, Electronic Inspection, App O&M, O&M Process Management, Knowledge Library, O&M Process Management, Conserve, Repair Management, Routine Drill, Entry and Exit Registration and Supplier Management.	
	AI Inspection of Power Facility	AI Automatic Inspection of Power Facility	
	AI Inspection of Cooling Facility	AI Automatic Inspection of AHU	
	AI Robot Inspection	AI Robot Inspection	
	AI Predictive Maintenance of Circuit Breaker	Breaker Health Prediction and Circuit Breaker Setting Analysis.	
	AI Predictive Maintenance of Power Facility	Temperature Prediction	
	AI Predictive Maintenance of Energy Storage	Lithium Battery Health Prediction	
	Intelligent Operation	Asset management, Capacity Management, Tenant management, Warehouse Management and Automatic detection of U space.	
	Cooling Optimization	AI PUE Optimization.	

# Product Features

## Digital Visualization Module:

License	Feature	Description	Advantages	Specifications
NA-Basic Features	Device Monitoring	Real-time monitoring of data center infrastructure.	Topology of the power and cooling system.	<ul style="list-style-type: none"> <li>Monitor data center infrastructure in real time, such as power equipment, cooling equipment, sensors, etc.</li> <li>Can centrally manage multiple data centers.</li> </ul>
	Big Screen Display	Display the KPI on the splicing LCD.	Professional customized big screen	<ul style="list-style-type: none"> <li>You can flexibly display the alarm, energy efficiency, capacity and O&amp;M dashboards on the big screen</li> <li>Support custom development of big screen.</li> </ul>
	Alarm Management	Viewing and Handling Alarms.	Alarm masking rules that support multiple conditions.	<ul style="list-style-type: none"> <li>Supports alarm browsing, query, masking, redefinition and threshold setting.</li> <li>Notification methods include SMS, phone, email and WeChat.</li> <li>Supports the expert experience library to record alarm handling experience and suggestions.</li> </ul>
	Power Link Visualization	Displays the operating status of the power system.	Accurately locate problems and reduce repair time.	<ul style="list-style-type: none"> <li>Automatically generate power links, which can be customized and show power flow.</li> <li>You can click the device or alarm icon on the link to quickly jump to view.</li> </ul>
	Cooling Link Visualization	Displays the operating status of the cooling system.	Shortens the emergency handling duration and improves reliability.	<ul style="list-style-type: none"> <li>The flow direction can be displayed on the link, which can be defined.</li> <li>You can click the device or alarm icon on the link to quickly jump to view.</li> </ul>
	Report Management	Statistics and analysis of platform data.	Supports report customization and create scheduled report tasks.	<ul style="list-style-type: none"> <li>Built-in report templates, such as asset reports, capacity reports, energy consumption reports, etc.</li> <li>The content, logo, etc. of the report can be customized.</li> <li>Reports can be sent to designated users regularly.</li> </ul>
	Energy Efficiency Analysis	Statistical analysis of data center energy efficiency indicators.	The calculation method of energy efficiency indicators can be customized, and different levels of PUE calculations are also provided.	<ul style="list-style-type: none"> <li>Support different levels of PUE and historical curve analysis such as data center, room and smart module.</li> <li>The threshold and reference value of PUE can be set, and an alarm is generated when PUE is too high.</li> <li>Electricity cost calculation supports multistep electricity price.</li> <li>Identify abnormal cPUE and energy consumption.</li> </ul>

## Product Features

License	Feature	Description	Advantages	Specifications
NA-Basic Features	Fault Analysis	Simulates and analyzes the service scope affected by a device fault.	Dynamic link analysis, supporting real-time analysis and pre-rehearsal.	<ul style="list-style-type: none"> <li>Analyzes the impact of device alarms and displays the impact range on power links.</li> <li>Supports fault simulation and displays the impact.</li> <li>Fault impact analysis reports can be generated.</li> </ul>
Temperature Nephogram	Temperature Map	Temperature distribution in the data center.	The data is accurate, which is collected by the sensor in real time.	<ul style="list-style-type: none"> <li>Three-layer temperature maps are supported, automatically identifying top 5 hot and cold spots.</li> <li>It can be displayed in 2D or 3D mode.</li> <li>The range of temperature rendering colors can be modified.</li> </ul>
3D View-Lite	3D View-Lite	Provides a 3D view of the data center.	Built-in 3D engine, 2D/3D view one-click switching.	<ul style="list-style-type: none"> <li>Provides 3D views of building, floor, room, module, and cabinet.</li> <li>Automatically generate 3D view based on 2D layout.</li> <li>Provide 3D capacity view and 3D temperature map.</li> </ul>
3D View-Pro	3D View-Pro	Improved 3D visualization experience of data center.	More professional 3D technology, supporting simulation rendering of various details.	<ul style="list-style-type: none"> <li>Provides 3D views of campus, building, floor, room, module, and cabinet.</li> <li>Provides rendering of decorations such as grass, stairs, tables and chairs, walls, etc.</li> <li>The IT device panel can be rendered and device connection relationships can be viewed.</li> <li>Provide 3D capacity view and 3D temperature map.</li> </ul>
3D View-BIM	3D View-BIM	Use the BIM model to visualize the real layout of the data center.	The BIM model captures reality and effectively integrates project design resources.	<ul style="list-style-type: none"> <li>BIM views of buildings, floors, rooms, modules, and cabinets are displayed.</li> <li>Supports simulation of facilities such as cables, cable trays, and pipes.</li> <li>Allows users to zoom in and out views, cut models, and measure distances.</li> <li>Provide 3D capacity view and 3D temperature map.</li> </ul>
Northbound /Southbound Interface	Device/ System Integration	Integration with 3 <sup>rd</sup> party systems.	Pre-integrated with many 3 <sup>rd</sup> party systems.	<ul style="list-style-type: none"> <li>Provides southbound and northbound interfaces.</li> <li>Monitors performance and alarm information reported by system.</li> <li>Pre-integrated with many systems for fast delivery.</li> </ul>

## Product Features

### Autonomous Maintenance Module:

License	Feature	Description	Advantages	Specifications
Basic Maintenance & Digital Maintenance	Personnel and Shift Management	Personnel management and shift management.	Distribute O&M tasks automatically based on duty.	<ul style="list-style-type: none"> <li>You can configure the basic information, shifts and groups of O&amp;M personnel.</li> <li>Provide the duty information on the shift calendar.</li> <li>Provide duty plan and handover plan etc.</li> <li>Provide statistics and analysis of abnormal shifts.</li> </ul>
	Electronic Inspection	Electronic and mobile routine inspection of equipment rooms.	Provide inspection templates, share expert experience, and reduce inspection skill requirements.	<ul style="list-style-type: none"> <li>You can plan inspection tasks and create inspection templates, such as inspection content, sequence, methods, reference values, and notes.</li> <li>Receive tasks on the APP and obtain details through QR codes or NFC.</li> <li>Inspection reports can be generated.</li> </ul>
	App O&M	Remote access through mobile phones.	APP permission control, support offline data cache.	<ul style="list-style-type: none"> <li>View alarms, PUE, device parameters, etc.</li> <li>Supports viewing and processing O&amp;M tasks.</li> <li>Supports asset entry, binding and inventory, etc.</li> </ul>
	Knowledge Library	Share O&M experience, technical cases, etc.	Expert review to ensure the quality of knowledge cases.	<ul style="list-style-type: none"> <li>You can share the O&amp;M experience, operation manuals and technical documents into it.</li> <li>You can comment, share and collect the cases.</li> </ul>
	O&M Process Management	Provide O&M process management according to ITIL	O&M process can be customized.	<ul style="list-style-type: none"> <li>Including problems, incidents, changes and other processes, which supports the creation, approval, processing and tracking of work orders.</li> <li>Support status statistics and trend analysis of processes such as problems, events, and changes.</li> <li>You can define process nodes and approvers, etc.</li> </ul>
Digital Maintenance	Conserve	Routine conservation of equipment.	Conservation statistics and conservation calendar.	<ul style="list-style-type: none"> <li>Conserve tasks can be created, processed, and Tracked.</li> <li>Guidance can be created to avoid human error.</li> <li>Provide maintenance statistics and calendar.</li> </ul>
	Repair Management	Track and handle the repair process.	Operation instructions for repair to avoid manual errors.	<ul style="list-style-type: none"> <li>Repair tasks can be created, approved and urged.</li> <li>Track the status of repair orders throughout the process, such as regularly pushing repair status.</li> </ul>
	Routine Drill	Drilling of various emergencies	The template for emergency drills can be customized.	<ul style="list-style-type: none"> <li>Supports emergency drill planning, start tasks regularly and remind users, and track task status throughout.</li> <li>Provide trend statistics of emergency drill tasks.</li> </ul>

## Product Features

### Autonomous Maintenance Module:

License	Feature	Description	Advantages	Specifications
Digital Maintenance	Entry and Exit Registration	Record the entry and exit of personnel and goods.	Strict control of personnel and goods.	<ul style="list-style-type: none"><li>• Supports entry and exit registration of basic personnel information, carrying goods, visiting areas and carriers.</li><li>• You can query historical records.</li></ul>
	Supplier Management	Supplier basic information and evaluation management.	You can customize the evaluation rules, content and tasks, etc.	<ul style="list-style-type: none"><li>• Manage basic supplier information and categories.</li><li>• Supplier evaluation content and rules can be customized.</li><li>• Support the creation and scoring statistics of supplier evaluation tasks.</li></ul>
AI Inspection of Power Facility	AI Inspection of Power Facility	Automatic inspection of power facilities through sound and image detection.	AI-based sound detection, image detection, and abnormal noise detection.	<ul style="list-style-type: none"><li>• Use AI technologies such as audio and image detection to remotely inspect power facilities, including transformers, UPSs, feeder cabinets, batteries, and diesel generators.</li><li>• View the inspection process and records in 3D mode.</li><li>• Automatically generate reports, prompt risks, provide expert diagnosis suggestions, and generate work orders for TOP problems.</li></ul>
AI Inspection of Cooling Facility	AI Inspection of Cooling Facility	Automatic inspection of AHU facilities through sound and image detection.	AI-based sound detection, image detection, and abnormal noise detection.	<ul style="list-style-type: none"><li>• Remote intelligent inspection of AHU facilities using AI technologies such as audio and image detection.</li><li>• View the inspection process and records in 3D mode.</li><li>• Automatically generate reports, prompt risks, provide expert diagnosis suggestions, and generate work orders for TOP problems.</li></ul>
AI Robot Inspection	AI Robot Inspection	Intelligent inspection of service equipment rooms using AI robots.	AI-powered robots, replacing traditional manual inspection.	<ul style="list-style-type: none"><li>• Allows users to set the automatic inspection period and route for AI robots.</li><li>• Supports Infrared detection, temperature &amp; humidity detection, recording, indicator status identification, switch identification, etc.</li><li>• Remotely control AI robots to specified areas or raise and lower its camera.</li><li>• Allows users to set voice broadcast and customer visit guidance tasks for AI robots.</li><li>• Automatically generates inspection reports and allows users to view inspection recordings.</li></ul>



## Product Features

License	Feature	Description	Advantages	Specifications
AI Predictive Maintenance of Circuit Breaker	Breaker Health Prediction and Circuit Breaker Setting Analysis.	Online analysis of circuit breaker setting values and health prediction using AI technologies.	AI technology is used to replace manual experience, improving the service life of circuit breakers and power supply reliability.	<ul style="list-style-type: none"> <li>Analyzes the setting values of circuit breakers' parameters, including the current, breaking capability, and breaking delay, and supports root cause analysis of the setting values.</li> <li>Predicting the health change trend and maintenance time of circuit breakers.</li> <li>Generates circuit breaker setting reports and health prediction reports.</li> </ul>
AI Predictive Maintenance of Power Facility	Temperature Prediction	Predict the contact temperature of power facilities using AI technologies.	AI-based dynamic load prediction to identify risks in advance and prevent accidents.	<ul style="list-style-type: none"> <li>Preset temperature curve model, which supports AI deep learning.</li> <li>The system provides fault early warning and alarm analysis by detecting real-time temperature, current and other parameters of the power distribution cabinet in the power module.</li> </ul>
AI Predictive Maintenance of Energy Storage	Lithium Battery Health Prediction	Predicting the health of lithium batteries using AI technologies.	Accurate prediction based on AI and deep battery charge and discharge.	<ul style="list-style-type: none"> <li>Accurate prediction of lithium battery capacity and backup time.</li> <li>Viewing battery charging and discharging records.</li> </ul>

## Intelligent Operation Module:

License	Feature	Description	Advantages	Specifications
Intelligent Operation	Asset Management	Manage on-rack and inventory assets.	Built-in IT equipment model library to manage the life cycle status of assets.	<ul style="list-style-type: none"> <li>Provide life cycle management of assets, from storage, allocation, migration, maintenance to retirement.</li> <li>Allow users to customize asset attributes, such as model, department, maintenance information, etc.</li> <li>Provide asset library, built-in IT device information of TOP N manufacturers in the past three years</li> </ul>
	Capacity Management	Statistical analysis of data center capacity resource usage.	Automatically identify U space, intelligent capacity planning.	<ul style="list-style-type: none"> <li>Provide historical curve analysis, dashboard and capacity report of SPCN capacity usage.</li> <li>You can connect IT device, such as power connection and network connection.</li> <li>You can quickly find the best installation location, customer affiliation and business area.</li> <li>Supports interconnection with the ITSM system to obtain service requirement order information.</li> </ul>

## Product Features

License	Feature	Description	Advantages	Specifications
Intelligent Operation	Tenant Management	Manage data center tenants and resource leasing.	Customer segment analysis, cabinet resources can be allocated to match co-lo scenario.	<ul style="list-style-type: none"><li>Support the allocation, pre-allocation and resource statistics of area, cabinet and U-bit resources.</li><li>Provide statistical analysis of rental rates and trends.</li><li>Analyze the rental preferences of VIP customers and customer groups.</li><li>Identifying tenants whose electricity consumption exceeds the limit and listing detailed records</li><li>Identifies tenants whose leases expire or whose resource usage is high, facilitating precision marketing.</li></ul>
	Warehouse Management	Manage the equipment, spare parts, consumables, and tools.	Manage assets in the warehouse and ensure the full lifecycle mgmt of assets.	<ul style="list-style-type: none"><li>Asset inbound, outbound, and use processes.</li><li>Support real-time statistics of inventory quantity, and give a prompt for spare parts and consumables with insufficient inventory.</li></ul>
	U Space Management	Automatically identify the location of IT device.	U space capacity management accuracy: 100%.	<ul style="list-style-type: none"><li>Automatically identifies the positions of devices.</li><li>Automatically collects the available capacity of each cabinet.</li><li>Real-time and accurate tracking of asset changes.</li></ul>

## AI PUE Optimization Module:

License	Feature	Description	Advantages	Specifications
Cooling Optimization	AI PUE Optimization	Adjust the cooling system through AI to reduce energy consumption.	iCooling technology based on AI algorithm.	<ul style="list-style-type: none"><li>Dynamically adjust the state of the cooling system to reduce data center energy consumption by 8% to 15%.</li><li>It is suitable for air-cooled chilled water system, water-cooled chilled water system, AHU, etc., and the system has been pre-integrated with multiple BMS.</li><li>SLA constraints can be set.</li></ul>