CPSY DataCage

All-in-One Data Centre

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Introduction

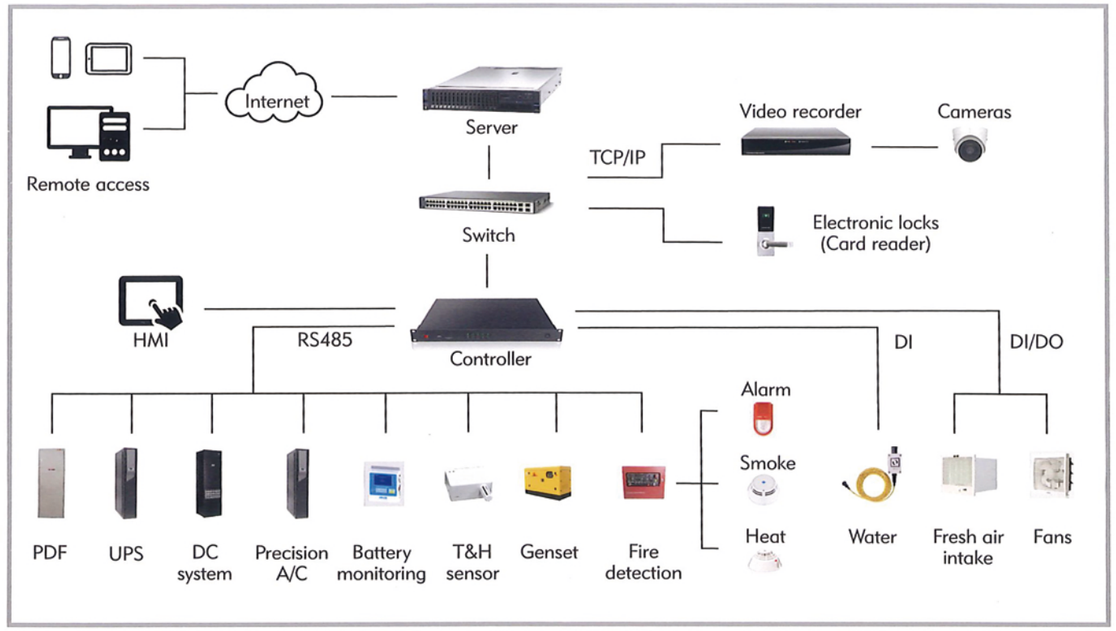
With the demand of data communication and edge computing, telecommunication need todeploy medium scale data centre with data communication capability much quicker and more tomeet the 5G network development.

DataCage is the product developed to address this need in the market, Other than typical mobiledata centre, DataCage offers mixed IT (information technology) and CT (communicationtechnology) power and energy infrastructure in a prefabricated ISO container allowingimmediate installation of server and telecom equipment to shorten the deployment andcommissioning time. DataCage is designed to operate in various terrains as well as harshestenvironments. The DataCage integrated power supply and distribution (UPS, rectifiers andbatteries), CRAC (computer room air conditioning), IT and CT equipment racks.

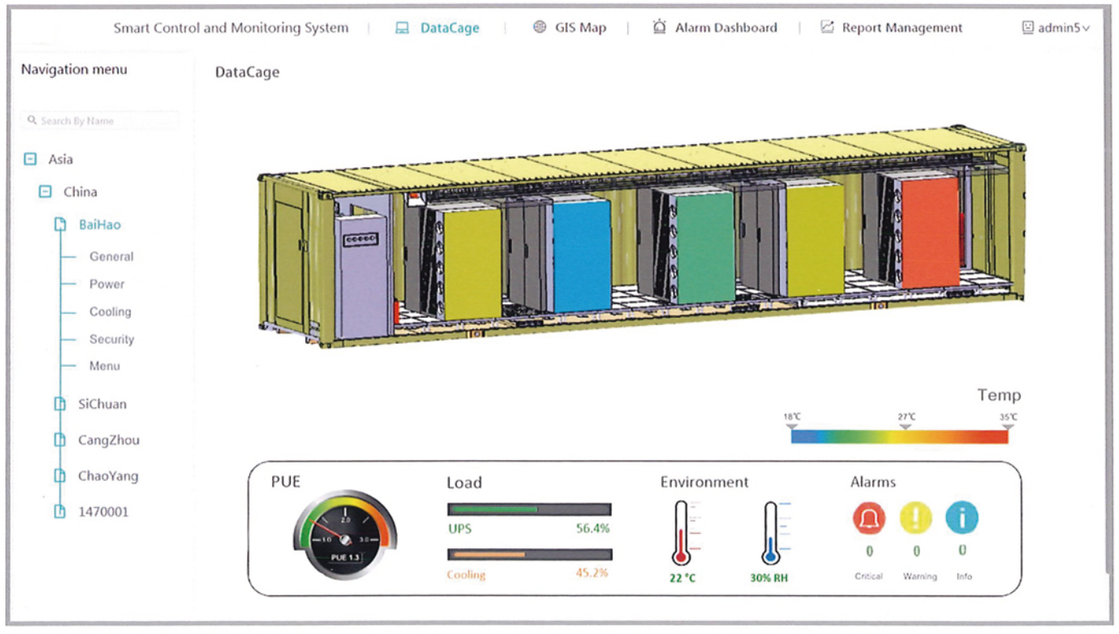
Features and Advantages

· High energy efficiency: designed to reduce power consumption and operating costs. State of the art coolingsystem with cold/hot aisle containment and in-row CRAC units.
· Reliability: redundant and fault tolerant capabilities according to Uptime Institute guidelines for Tier ll and Tierll facilities.
· Modularity: the standard ISO container enclosure ensure easy transportation all over the world. Easily scalablewith additional modules.
· ICT cabinet flexibility: supports various ICT cabinet dimensions. Different combinations of IT and ICT cabinetsaccording to specific design needs.
· ICT load flexibility: CRACs along with UPS and rectifiers can be configured to support diferent ICT loads.
· Optimized space use: up to 12 ICT cabinets in an ISO40HC container.
· Alternative power supplies: Mains power and standby power connection available.
· Security: CCTV surveillance system and control access.
· Fire protection: automatic fire detection and suppression system with clean agent.
· Central management: complete monitoring of the status of the different subsystems. Remote access by multipleusers.
· Optional features and customized layouts possible.

Management System

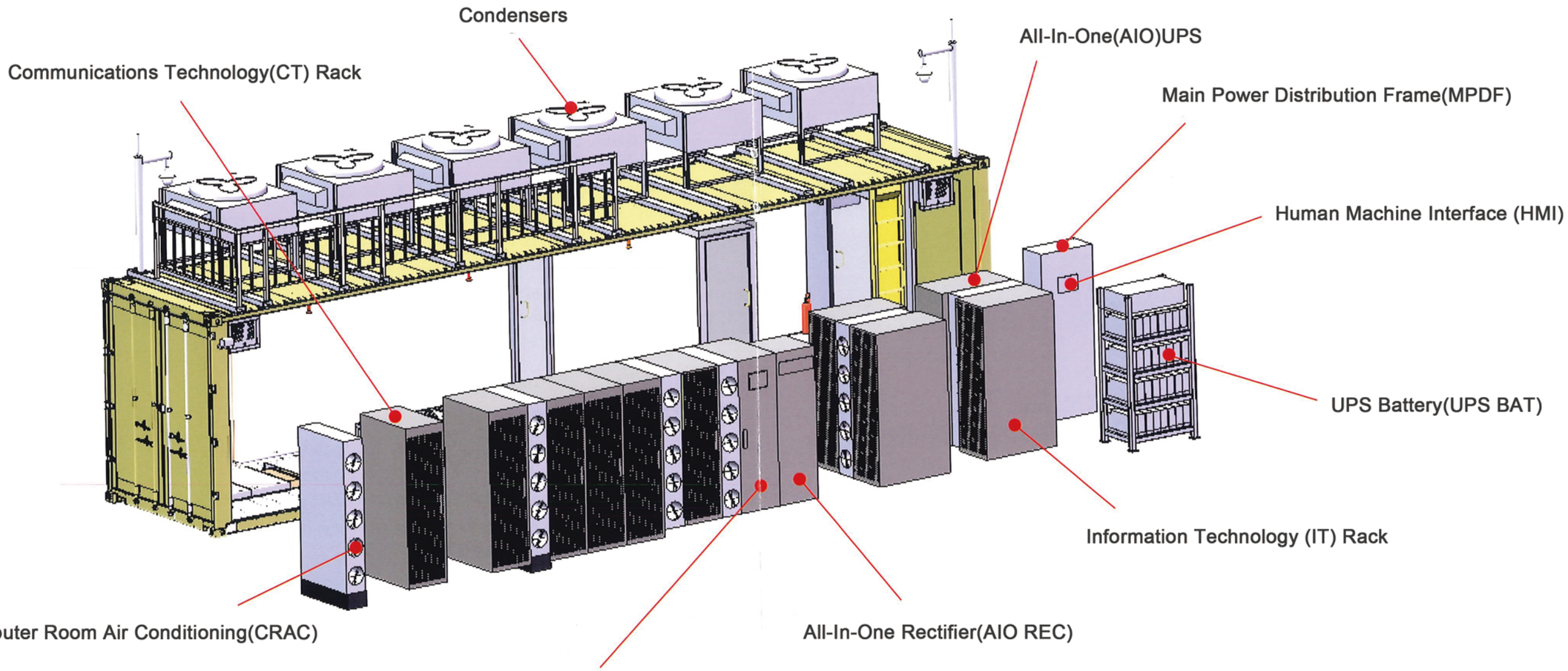


General Architecture



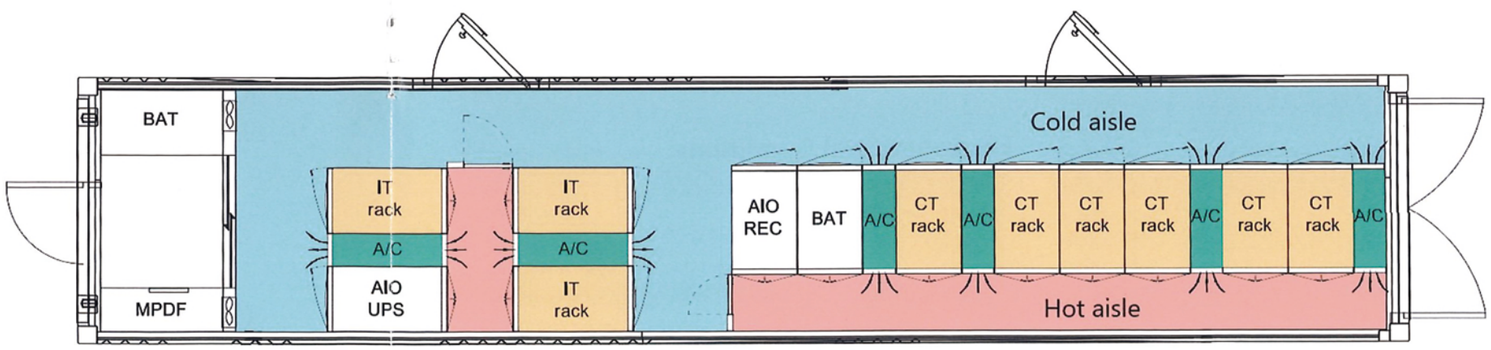
Remote Access Display

Layout



The internalsurface of the container is insulated tominimise the energy loss.

The cold and hot aisle containment are separated tocontrolthe return temperature to CRAC whichimprove the efficiency and reduce the PUE



General Specifications

Rack Power

Total ICT Design Load	56 to 93kW
Design Load per STD Cabinet	5.6 to 9kW
Design Load per Deep Cabinet	8 to 13kW

ICT Equipment Cabinets

Number of Cabinets	Up to 11 with outdoor condenser
Width (mm)	600/800
Depth (mm)	300 to 1200
Height (mm)	2000 to 2200
Front Clearance	710 to 1200
Rear Clearance	500 to 600
Sliding Cabinets	Optional
Rack PDU (STD)	IT Rack
Rack PDU (Optional)	CT Rack

Power Input

Input Voltage and Frequency	3P+N+PE, 380/400/415 VAC, 50Hz/60Hz
Design Input Capacity	110 to 175kVA
Number of Inputs	2, 4 (Tier 3)
Number of ATS	1, 2 (Tier 3)

Cooling

Cooling Type	Direct expansion, in-row
Cooling Capacity	75 to 125kW
Compressor	DC variable frequency
Fan Type	EC fan
Refrigerant	R410A
Group Control	Standard
Condenser Location	Indoor or Outdoor
Temperature Control Range	18 to 27°C
Humidity Control Range	20 to 80%
Continuous Cooling	Optional

Monitoring and Management

Access Control	Electronic lock with IC card reader
Video Monitoring	Infrared IP cameras
Data Monitoring	PDF, UPS, DC, A/C, T&H, water leakage, fire control, access control and ventilation
Local HMI	10'' touch screen
Remote Access	Web, App
Notification	SMS, email
DCIM	OwlEye

Fire Protection

System Type	Automatic fire detection with gas suppression system
Detection	Smoke and heat detectors
Alarms	Acoustic and visual alarms
Extinguisher Type	HFC-227ea

UPS for IT Scenario

UPS Capacity per Path	Up to 100kVA
Power Factor	1
Module Capacity	25kVA
UPS Redundancy	N+1, 2N (Tier 3)
UPS Efficiency	96%
Battery Backup Time	15 minutes (min)
Battery Type	VRLA
Battery (optional)	LiFe

Rectifier for CT Load

DC System Capacity (per path)	Up to 102kW
Rectifier Output Power	3kW
Number of Rectifiers + Redundancy	Up to 34+4
STD Rectifier Efficiency	96%
Optional High Efficiency Rectifier	97.8%
DC System Output Voltage	-42 to -58 VDC
Battery Backup Time	15 minutes (min)
Battery Type	VRLA
Battery (optional)	LiFe

Structure

Container Dimensions (WxDxH, mm)	2438 x 6096 x 2896 (ISO20HC) 2438 x 12192 x 2896 (ISO40HC)
Weight Fully Equipped	Up to 25 tons
Heat Transfer Coefficient	0.4W/m²k
Protection Level	IP55 / IP65 (Optional)
Raised Floor	Standard (cabinets height=2000mm) Optional (cabinets height=2200mm)

Environmental Conditions

Ambient Temperature	-20 to 55°C
Storage Temperature	-40 to 70°C
Humidity	5 to 95%
Altitude	≤ 4000m (derating start >1000m)
Corrosion	Class C (500m away from seashore)

Power Supply and Distribution

· Dual power inputs with automatic changeover for grid andstand-by generator system.
· Redundant configuration of power distribution paths asrequired.
· Support of IT and telecom equipment with different power an-denergy requirements.
· Configurable distribution of IT and CT cabinets.
· Modular UPS and DC rectifier system with redundant hot-swap-pable modules.
· High efficient UPS (>96%) with maintenance bypass.
· UPS with standard 15 minutes of battery backup time withop-tion for longer duration.
· Intelligent battery management system.

UPS

Battery

Precision Cooling

· Cooling design according to CFD (computational fluiddynamics) simulation to optimize airflow distribution.
· Redundant configuration of in-row precision CRAC units.
· Variable speed compressor to adapt to server temperature.
· Variable speed and redundant fans.
· Easy-maintenance design with front and rear access panels.
· Replacement of CRAC units by sliding adjacent equipmentcabinets.
· Outdoor condenser location to maximize indoor space.

CRAC

Application Scenarios

· Increase of processing and storage capacity in existing premises with space limitations.
· Data center deployment in distributed and remote locations for commercial and industrial use.
· Immediate transportation and installation of data center for temporary situations such as disaster recovery,military operations, or cultural/sporting events.
· Deployment of telecom equipment room for radio access and optical networks.
· Edge computing.