



ADEO Micro Data Center



ADEO Edge Micro Data Center is a plug and play, self-contained, and fully integrated solution to protect your critical IT assets with built in cabinet, power, cooling, monitoring, fire and security systems. Ideal for edge computing applications to reduce latency, improve cyber-safety, and save network cost.

THE
ABOUT
A

Micro Data Center



Easy Deployment

Pre-manufactured and fully tested means that no on-site engineering needed to activate the product. Within one day, you can deploy the IT equipments and quickly power on your business.

Easy Management

Design once and deploy anywhere. By this standardized architecture and remote monitoring access platform, you can gain control of these critical assets, reduce risks and operational costs, and improving service levels.

Easy Expansion

A stand alone full function solution. You can plan and invest your IT assets step by step while your business grows. Buy small and scale to big. Invest only when necessary.

AgileRak Series



MDC with Top Package Cooling (No External Condenser)

3k – 6k MDC fully integrated with closed rack, package cooling, UPS, battery, power distribution, security, monitoring and fire systems.

No complex piping of remote condenser installation.



MDC with Row Package Cooling (No External Condenser)

5k – 10k MDC fully integrated with closed rack, package cooling, UPS, battery, power distribution, security, monitoring and fire systems.

No complex piping of remote condenser installation.



MDC with Rack Split Cooling

3k – 10k MDC fully integrated with closed rack, split cooling, UPS, battery, power distribution, security, monitoring and fire systems.

Modular rack cooling flexible for rack oriented MDC plan, expansion and deployment.



MDC with Row Split Cooling

6k – 20k MDC fully integrated with closed rack, split cooling, UPS, battery, power distribution, security, monitoring and fire systems.

Row cooling seamless integration with rack row and capacity expansion.





Monitoring System
All in one monitoring host collects, displays and reports system status, locally and remotely.

Cooling System
1.5kW – 21.2kW precision cooling in rack mount, top mount and row mount type.

Fire System
Gas extinguishing system triggered by smoke and temperature

Server Rack
Fully insulated standard 19 inch rack system.

Security System
3 in 1 access control system (Pin/Fingerprint/R FID) and video monitoring system.

Power Distribution
Rack mount power distribution, metering, and management for all the power lines.

UPS System
3– 20kVA rack mount UPS system protect power continuity.

Battery System
Optional lead-acid batteries and lithium-ion batteries (Rack-mount)

AgileRak Micro Data Center Platform



Expandable Monitoring

Monitoring system communicates through bus-level protocol to include the future added critical equipments.

Modular Cooling

3.9kW rack cooling and 5kW-41kW inrow cooling share capacity within the solution.

Modular Power

3kVA-30KVA modular UPS. Add the power modules to expand capacity.

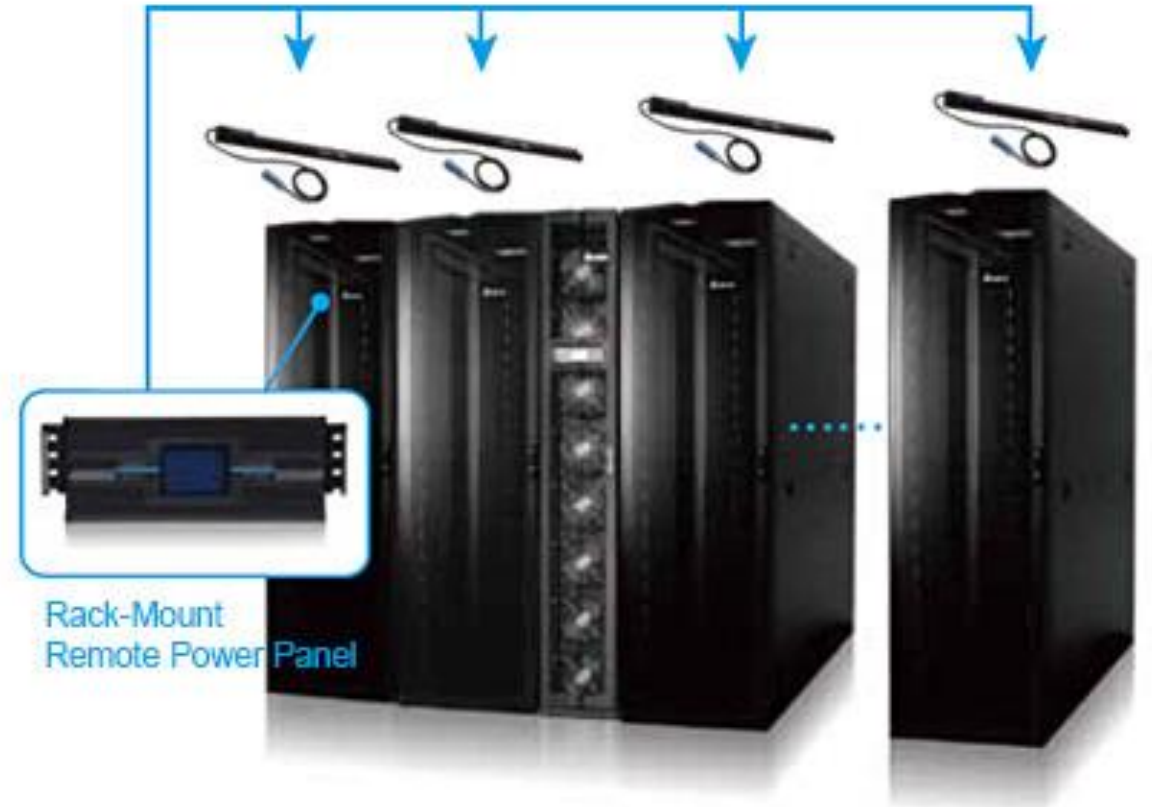
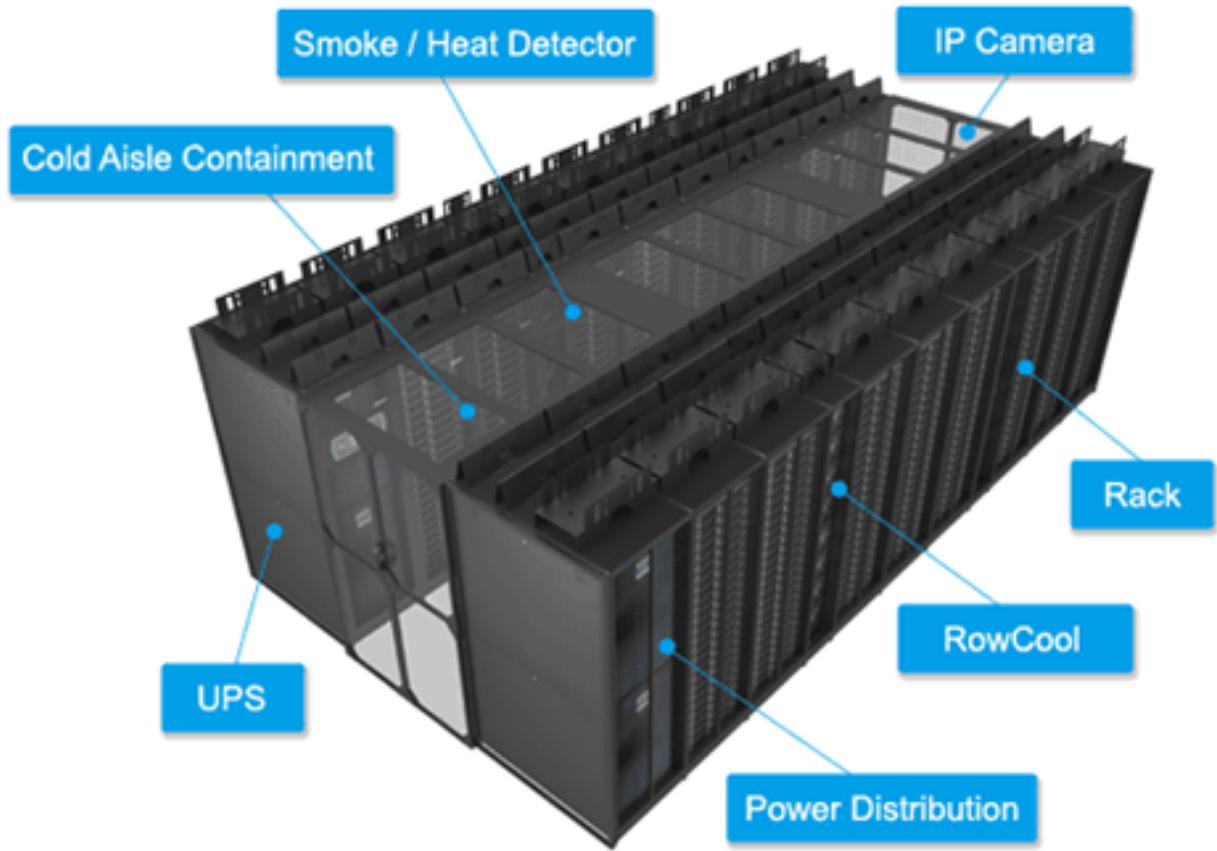
Modular Cabinet

Cabinets and cold & Hot Aisle are easily combined to form a fully integrated row solution.

Build Like LEGO



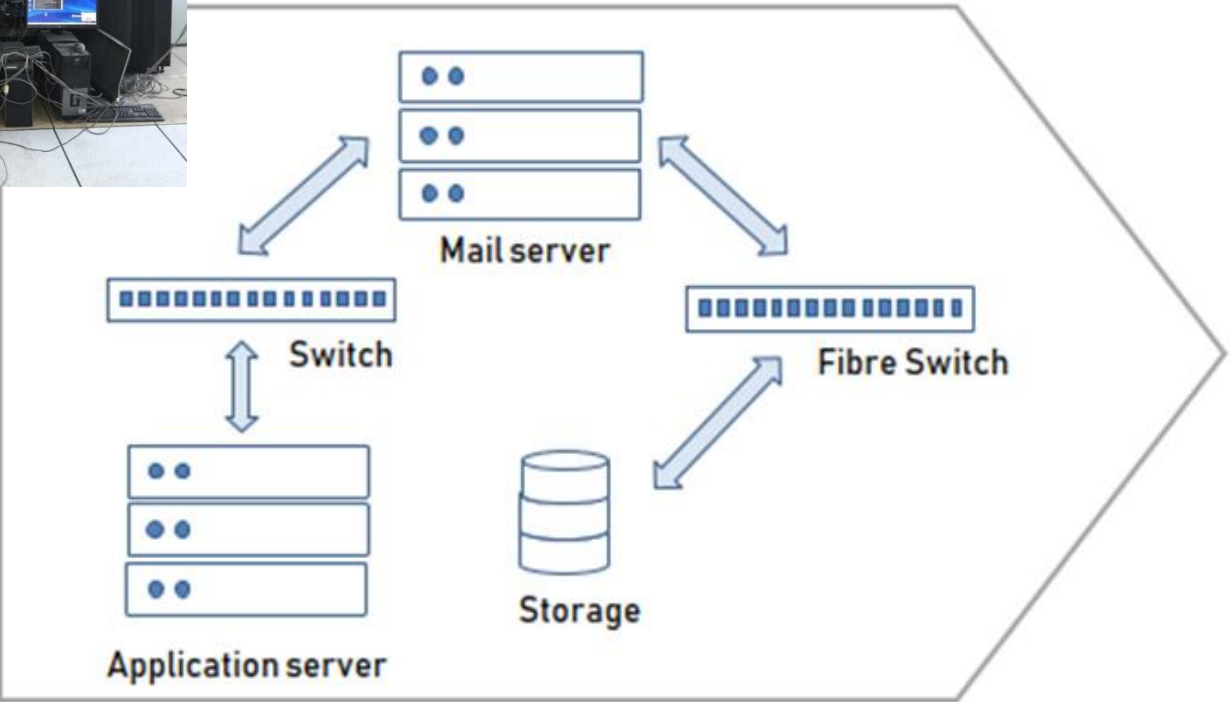
AgileRak Micro Data Center Platform



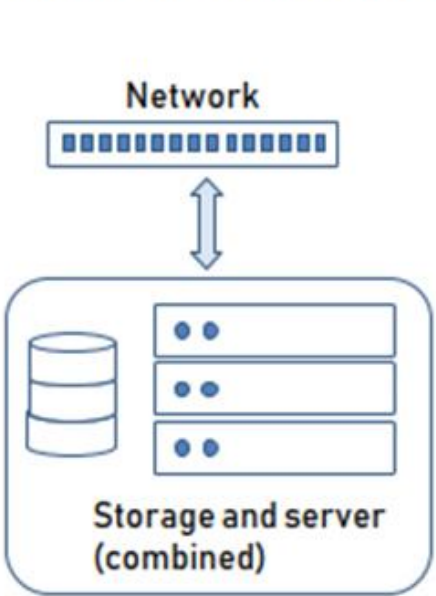
Comparison MDC vs Traditional



Traditional infrastructure



Hyper converged infrastructure

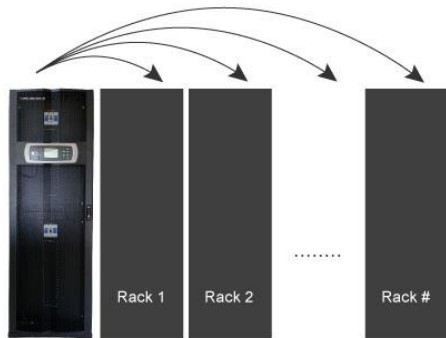


- Unified Looking
- Cost effective & energy efficient
- Full Monitoring
- Stop Service



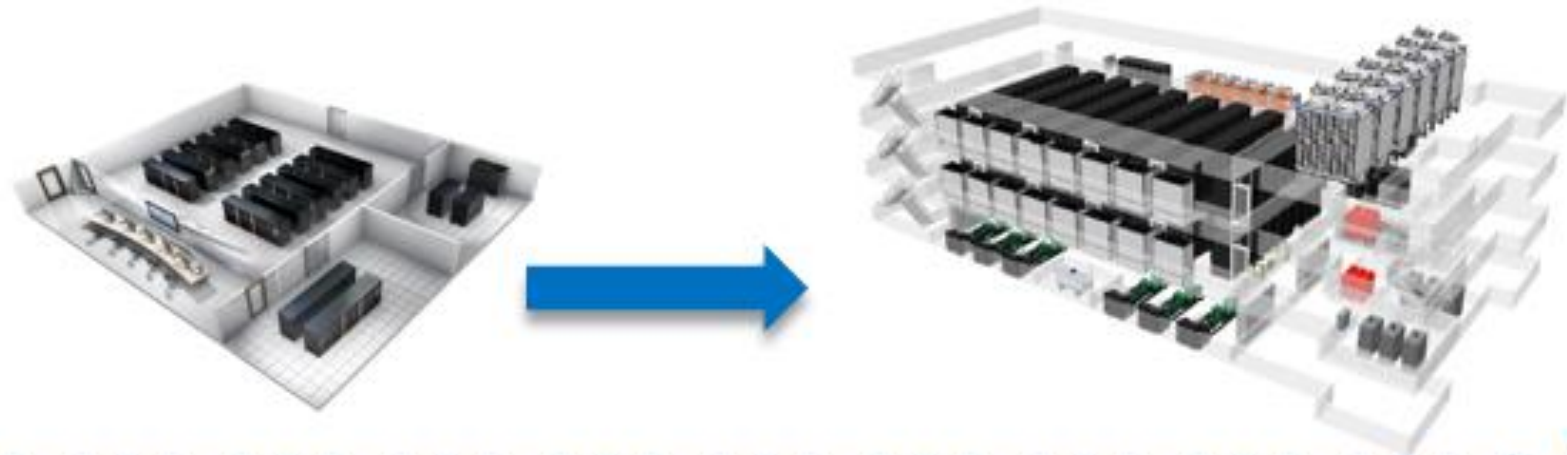
Scalability

Scale-Up



■ Scalable and configurable for present and future demands

Scale-Out



Capacity



Expansion Example

Example application



ATM-06F



ATM-06F
+
Expansion cabinet



ATM-06F
+
Expansion cabinet + ATM-06F
+
Expansion cabinet

1st Phase

1 year later

2 years later

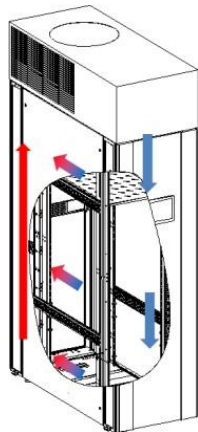


Cooling System (**Package Type**)

Package Type

Top Package Cooling

- 2.5kW/3.5kW/5.5kW Top Cooling



Row Package Cooling

- 5.6kW/7.6kW/10.8kW Package Cooling DX type
- 25.6kW/45.6kW/66.9kW Inrow Cooling CW type

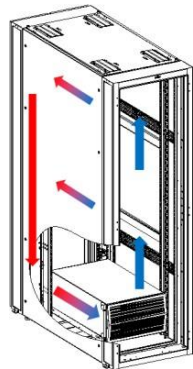


Cooling System (Split Type)

Split Type

Rack Split Cooling

- 3.9kW/5.0kW/7.2kW/12.0kW



Row Split Cooling

- 5.6kW/7.6kW/12.8kW/17.6kW/
21.2kW/25.1kW/40.9kW Split
Cooling DX type

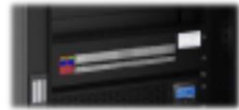


Row Cooling System





หน้าจอสำหรับดู
สถานะแบบรวมศูนย์



ระบบบริหารจัดการ
การจ่ายไฟ

Main Module – ระบบหลัก MDC

- ▲ ระบบ Monitor Status ของทั้งระบบรวมศูนย์ (ระบบปรับอากาศ, ระบบจ่ายไฟ ระบบความปลอดภัย)
- ▲ Rack Power Distribution ระบบบริหารจัดการระบบไฟ Smart Meter สำหรับจัดการไฟฟ้าทั้งหมด

Cooling Module – ระบบปรับ อากาศ

- ▲ สามารถเลือกรูปแบบ Cooling ได้ทั้งแบบ Split pack Cooling(3.9KW) และ Row pack Cooling(5-41W)
- ▲ สามารถแชร์การควบคุมความเย็นให้ทั่วถึง Rack ที่ทำการเชื่อมต่อกันได้

Power Module – ระบบสำรองไฟ

- ▲ สามารถติดตั้งระบบสำรองไฟฟ้าของทั้งระบบตั้งแต่ 3KVA – 30KVA

Space Module – Rack และพื้นที่

- ▲ สามารถขยายพื้นที่โดยใช้ทรัพยากรร่วมกับระบบหลักได้

AgileMod

Monitoring System

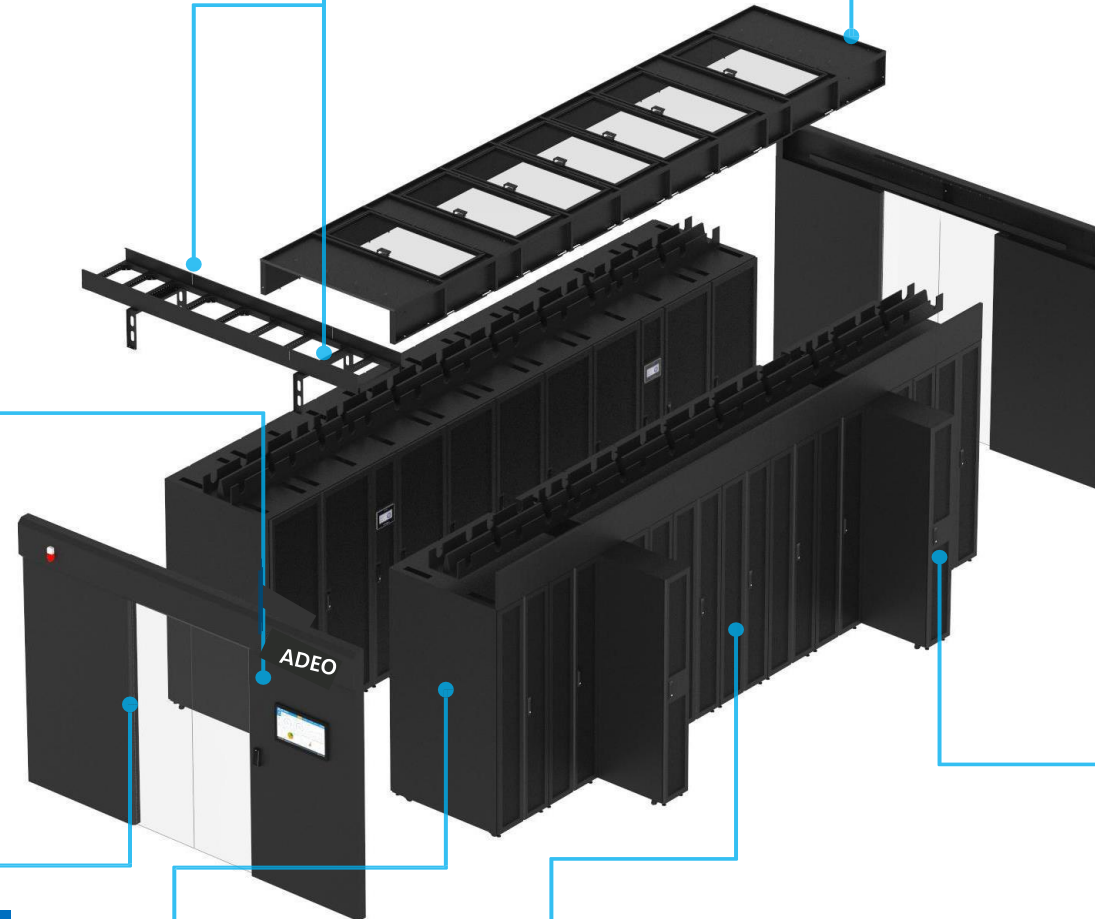
Module-level monitoring system + local touch screen, supporting 3D, temperature cloud map and asset management, etc

Cabling System

Row-level cable ladder supports wiring between two columns of racks, and M-type cabling on the top of the rack supports isolated wiring

Closed Aisle System

It consists of horizontally expanding modular skylights, supports and doors, which can be opened automatically.



Access Door

All-glass door design electric sliding door assembly, support fingerprint + password + RFID access control

Power System

Integrated design of modular UPS and power distribution cabinet, Independent configuration is optional

Server Rack

Standard 19-inch server cabinet, 75% front and rear mesh door through-hole ratio, static load up to 1800kg

Cooling System

Row-mount Cooling system with DX or CW, the same appearance style as the server rack



POD Data Center

Data Center POD Solution
Receives the TIER III-Ready
Award from Uptime Institute







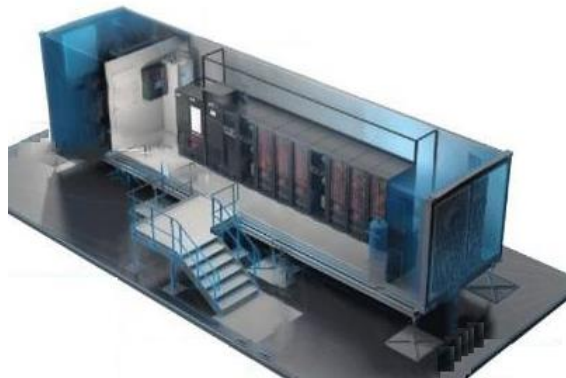
MDC Outdoor HUB

ระบบขนาดเล็กที่ทำการติดตั้งระบบ MDC สำหรับภายนอกและมีมาตรฐานการป้องกันความร้อนและความชื้นตามมาตรฐาน



MDC Outdoor Container

ระบบที่ออกแบบให้มีความสามารถในการป้องกันความร้อนและความชื้นที่มากขึ้น ออกแบบและติดตั้ง Compact Container



MDC Containerized

ระบบ MDC ที่ออกแบบโดยมีการ Custom การทำงานให้มีระบบเหมือน Data center โดยมีการแบ่งกันห้องสำหรับระบบเทียบเท่า Data center มาตรฐาน

ระบบออกแบบสำหรับ Micro Data Center ที่ทำงานในตัวเองโดยภายในมีการรวมทุกอย่างไว้ครบในที่เดียว

- ▲ Rack arrangement - ภายในมี Rack สำหรับรองรับการใส่อุปกรณ์ตามมาตรฐาน
- ▲ Wall mount Cooling – ระบบปรับอากาศภายในที่ออกแบบตามมาตรฐาน
- ▲ AC/DC Power – ระบบจัดการระบบไฟฟ้าภายใน ตลอดจนระบบสำรองไฟฟ้า
- ▲ Security System – ระบบความปลอดภัยและระบบดับเพลิง
- ▲ IP55 Protection – ระบบป้องกันฝุ่นและความชื้นตามมาตรฐาน พร้อมฉนวนกันความร้อนเพื่อป้องกันระบบให้สามารถทำงานได้มีประสิทธิภาพ



Outdoor Container



Monitoring system

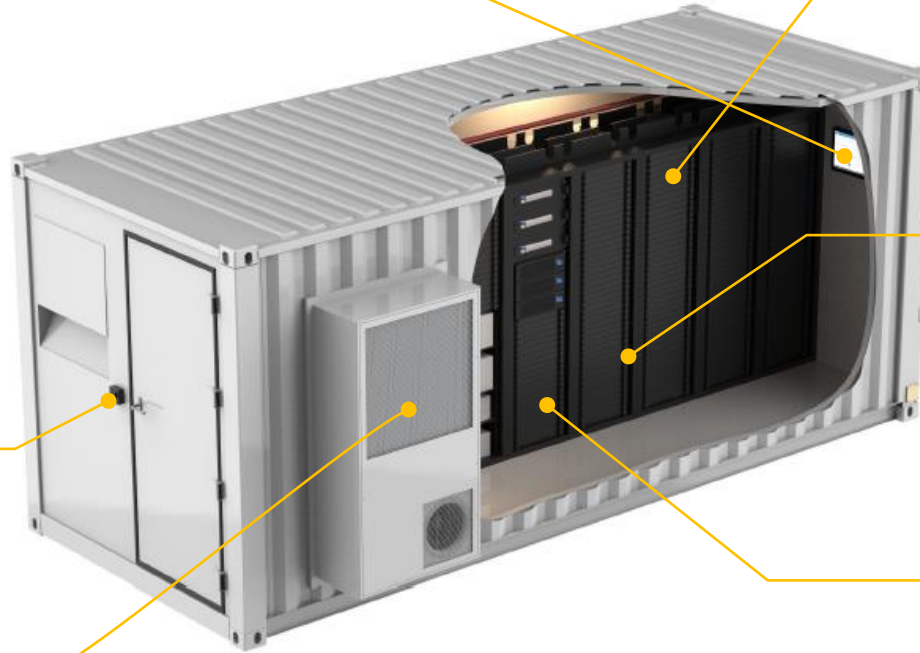
All in one monitoring host collector

Security System

Access control and CCTV monitoring system including fire extinguishing system

MDC Condenser

Provide professional Protective space for outdoor condensers



Area Distribution

Server area design for usage server management with Standard Rack 19inch

Cooling Distribution

3.9kW 31kW precision cooling power

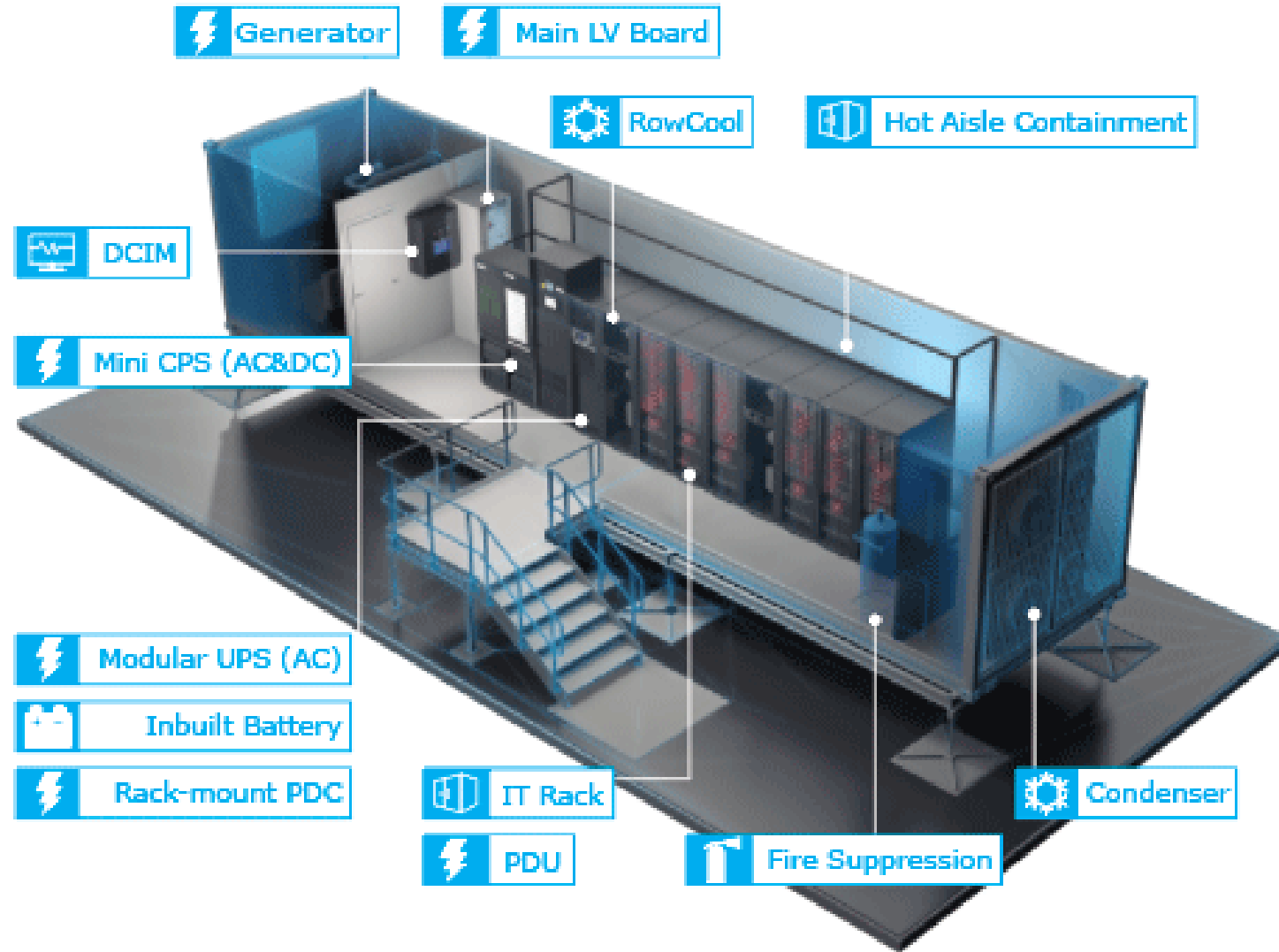
Power Distribution

Rack mount power distribution, metering and UPS power 3 -30KVA

**Micro Modular Data Center
Outdoor Type**



Outdoor Containerized



Power System

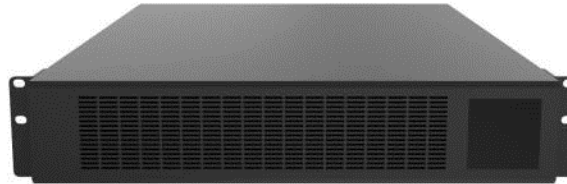


UPS System

- Rack Mount UPS, flexible to install and easy to expand.
- 3kVA/6kVA/10kVA(1Phase)
- 20kVA/30kVA (3Phase)
- High frequency and high efficiency.
- Standard rack mount battery and optional with long time battery system.



DC Power System



Power Management System

- 3U module with main power input, power output, ups output, class-c surge protection and power metering.
- Basic/Smart PDU. High quality circuit breaker.



AC Power System



Converged Power Solution

Converged power system within a compact cabinet saving space and reducing complexity.



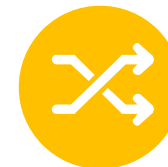
UPS AC Power System

High frequency UPS module rack mount in modular particle easy expansion and high MTBF.



DC Power System

Optional 48V DC power system feeding communication equipment.



Power Distribution

Power protection and power distribution built ready no extra onsite works necessary.



Power Monitoring

Continuously monitoring the power condition, power usage and integrated into higher level monitoring system.

Cooling System



PAGE > HOME

UNIT OFF EVENT SILENCE

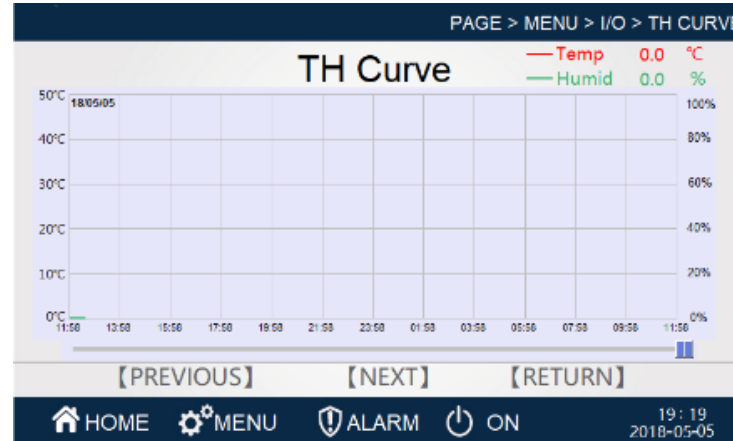
MODE

SUPPLY 0.0 °C

RETURN 0.0 °C

HUMID 0.0 %

HOME MENU ALARM ON 19:19 2018-05-05



PAGE > MENU > FACTORY > FAN SETTING

Fan Setting

ID Fan Min Speed	0.0 %	Fan Pres Setting	0.0 bar
ID Fan Max Speed	0.0 %	Fan Pres Band	0.0 bar
ID Fan Speed CR	0.0 %	OD Fan Min Speed	0.0 %
Dehum Fan Speed	0.0 %	OD Fan Max Speed	0.0 %
		OD Fan Speed CR	0.0 %

[PREVIOUS] [NEXT] [RETURN]

HOME MENU ALARM ON 19:20 2018-05-05

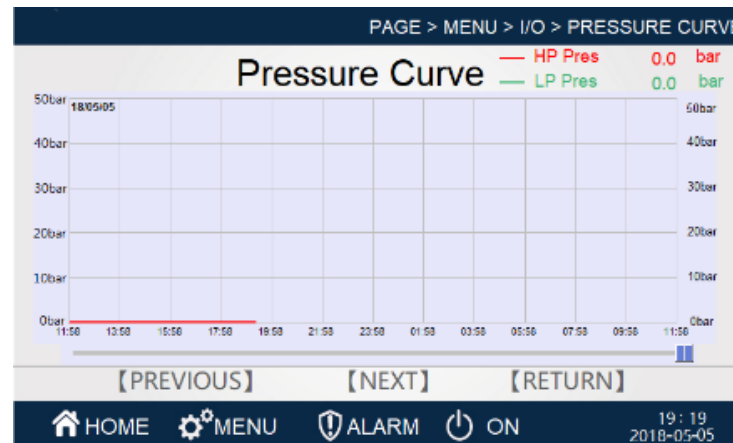
PAGE > MENU > I/O 2

SENSOR DATA

HP Pres	0.0 bar	Humidity	0.0 %
LP Pres	0.0 bar	Return Temp	0.0 °C
Suction Temp	0.0 °C	Supply Temp	0.0 °C
ID Fan Speed	0.0 %	OD Fan Speed	0.0 %
Comp Freq	0.0 %	Evap Temp	0.0 °C
Superheat	0.0 K	Liquid Pipe Temp	0.0 °C
Subcooling	0.0 K	Cond Temp	0.0 °C
EEV Step	0 step		

[PREVIOUS] [NEXT] [RETURN]

HOME MENU ALARM ON 19:19 2018-05-05



PAGE > MENU > FACTORY

Factory Setting

Time St

Fan St

EEV St

Comp St

Many St

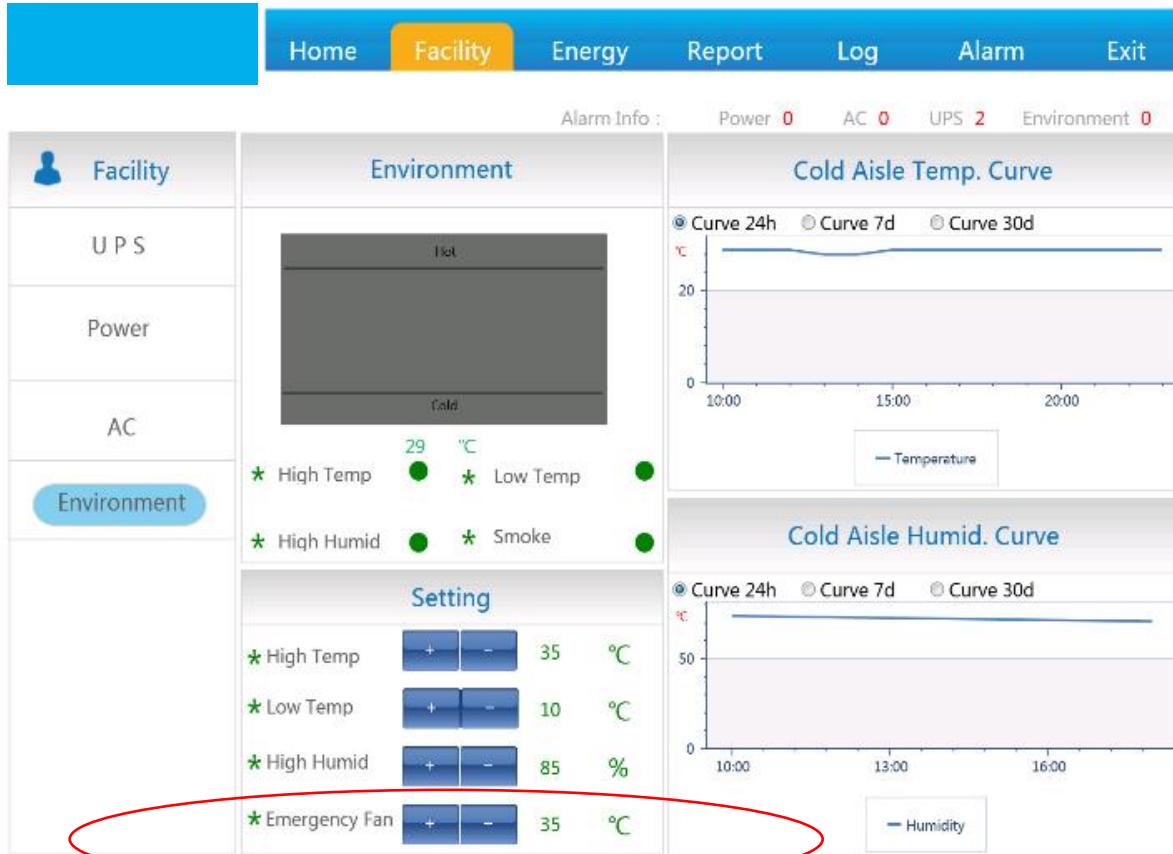
I/O St

Change Password

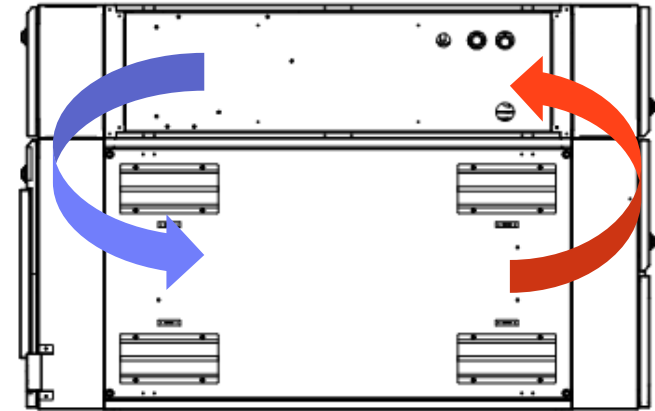
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HOME MENU ALARM ON 19:20 2018-05-05

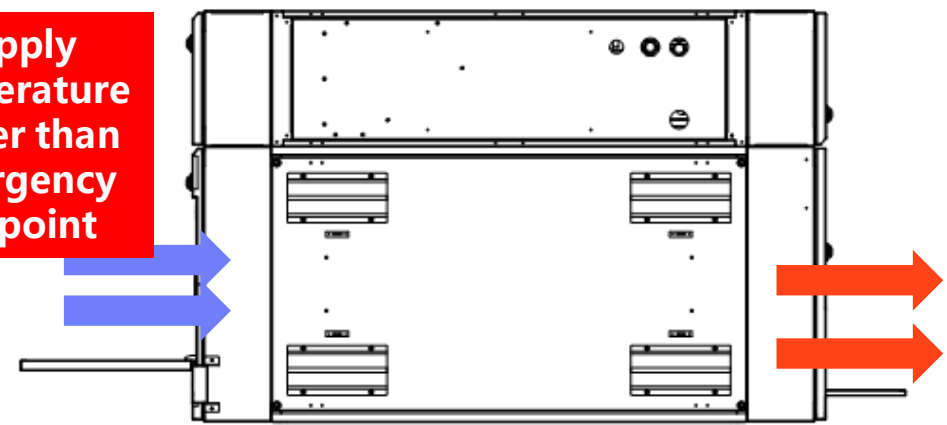
Cooling System



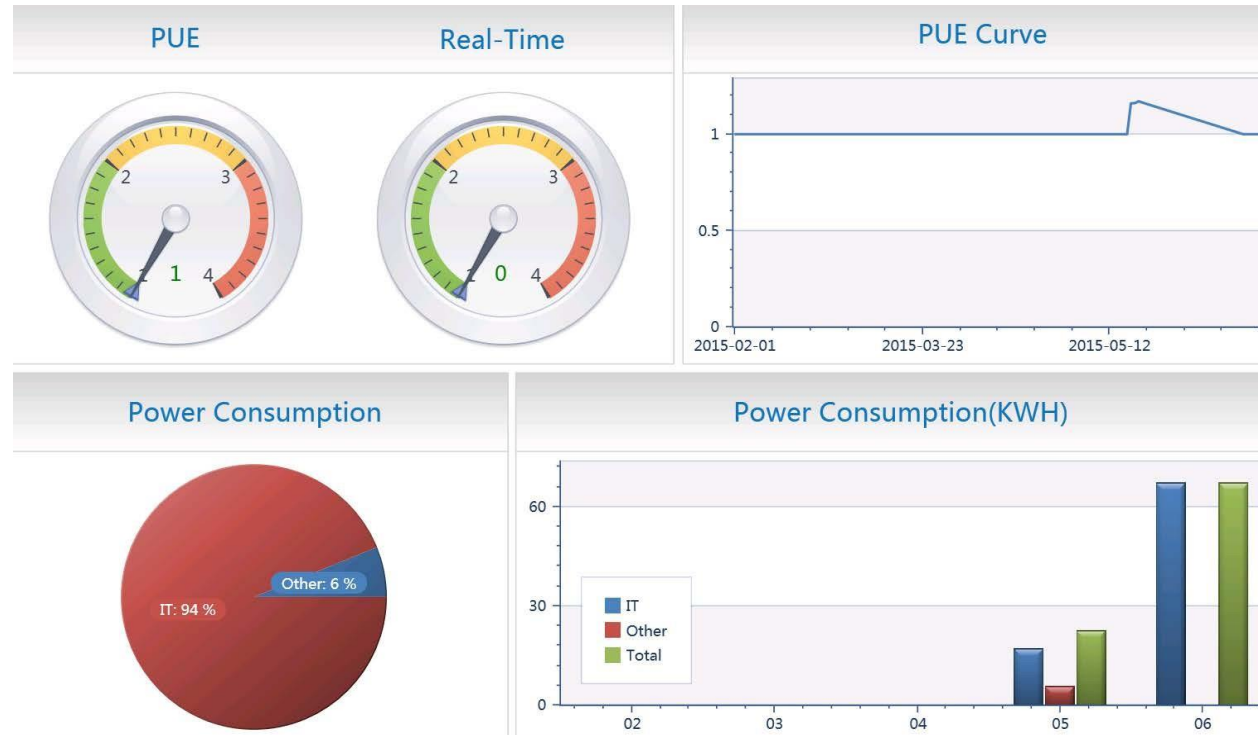
Supply temperature lower than emergency set-point



Supply temperature higher than emergency set-point



Energy Efficiency

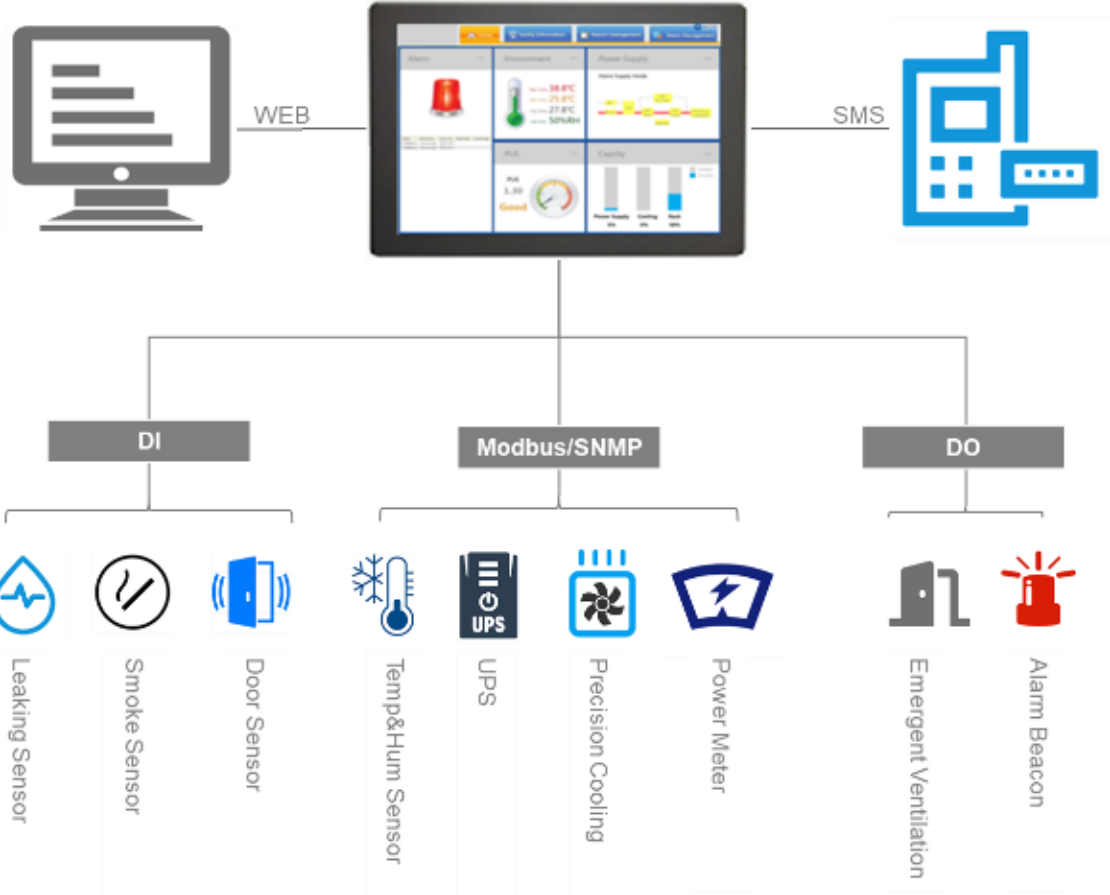


- ✓ Closed Cold/Hot Aisle and highly efficient.
- ✓ Highly efficient cooling solutions cools what necessary.
- ✓ Fully closed system is dust proof and noise canceling.
- ✓ Double door and supply temperature control to prevent condensate.

Monitoring and Management System



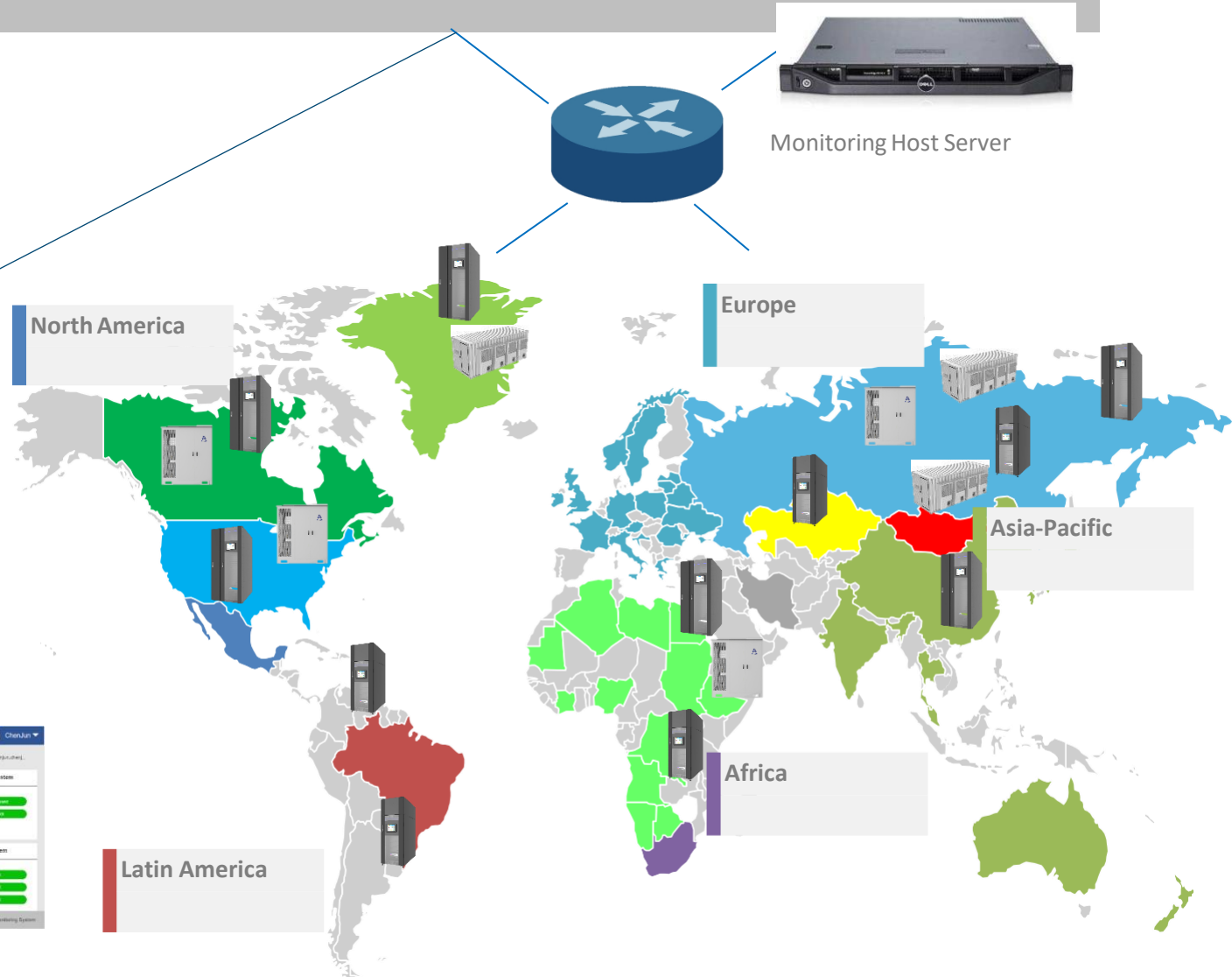
Edge Monitoring



Monitoring and Management System

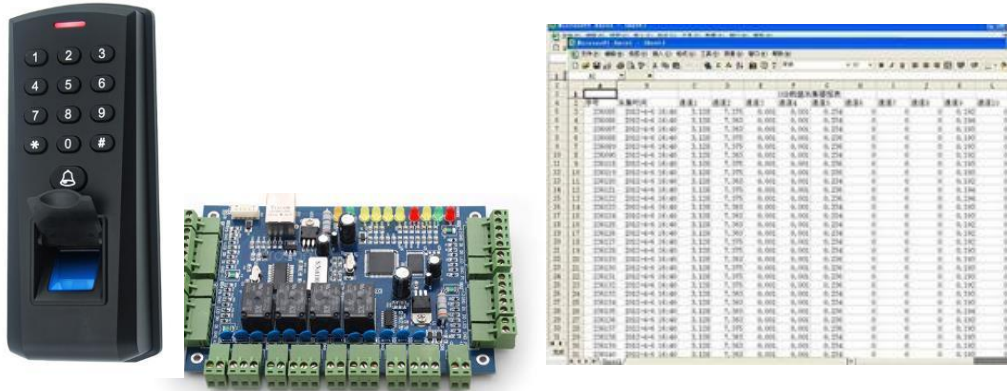


Central Monitoring



Security System

Access Control



Video Monitoring

DS-2CD3125G0-IS
2 MP IR Fixed Network Dome Camera



Fire Extinguisher

Early Detection

FMST® FXV(E) Aspirating Smoke Detection Alarm Detector



Early detection system



Rack mount fire extinguisher system

Comparison MDC vs Traditional



	Traditional Data Center	Micro Data Center
Room	15-30m ²	5-15m ² Room not necessary.
Decoration	Required	No need
Operational	PUE 2.0-3.0	PUE 1.3-1.5
Service	Manage multiple service party and responsibility.	One stop service
Purchase	Purchase and install separately	Integrated design and plug to play.
Construction	3-4 weeks	1 day
Looking	Diverse looking	Unified looking
Cleanness	Accumulated dust put equipment on risk.	Fully closed environment dust proof.
Noise	Noise level 65-70dB(A) .	Noise level 50-55dB(A)
UPS	Separate design UPS and battery system within room.	Designed in rack and protect with precision cooling
Power Distribution	Wall mount no monitoring no surge protection.	Rack mount with monitoring and surge protection .
Cooling	Comfort type cooling not suitable for IT application.	Precision cooling, running 7×24
Monitoring	No Monitoring	Full monitoring with T&H, Smoke, Leaking, Video, UPS, Cooling, Power, Energy and mail/sms notification.

ROI Calculation



Case Example		XX company plans 8kW equipment with 5 cabinets, 10kVA UPS/Cabinet, 40kW Cooling, and 10 minutes battery.	
Comparison		Traditional Data Center	Micro Data Center
Room	Details	30×30 m ² ต้องทำ Raise floor ผนัง และเจาะท่อแอร์	10×10 m ² ไม่จำเป็นต้องทำ Raise floor และเจาะท่อแอร์
	ค่าก่อสร้าง (BAHT)	1,500,000	-
	ค่าอุปกรณ์ (BAHT)	2,500,000	2,500,000
	Time(days)	30 วัน	3 วัน
Purchase	Details	ใช้เวลานานในการจัดหาและจัดซื้อแต่ละอุปกรณ์	สามารถจัดหาจัดซื้อได้ในระบบเดียว
	Time(days)	60-90 วัน	3-7 วัน
Integration	Details	ต้องติดตั้งอุปกรณ์และเขียน Software เพื่อ Integrate แยก สำหรับระบบ UPS, cooling, monitoring	เป็นระบบ All in one พร้อม Monitoring
	Expenditure (BAHT)	200,000-300,000	รวมอยู่ในระบบแล้ว
	Time(days)	15-30 วัน	1 วัน
Running	Energy Consumption	PUE 2.0-3.0	PUE 1.3-1.5
	5 year Expenditure(K USD)	1,360,000/5ปี (22,600บาท/เดือน)	700,000/5ปี (11,700บาท/เดือน) ประหยัดไฟกว่าประมาณ 50%
Installation	Time(days)	15-30 วัน	1-3 วัน
Maintenance	Details	ใช้เงินและเวลาเยอะกว่าในการ Maintenance แต่ละอุปกรณ์	สามารถ Maintenance ได้ในระบบเดียว

Reference Project



Micro Data Center for Education Industry

Project Brief

An education university need high density data center to support scientific analysis simulation.

Solution Supplied

Micro Data Center with 9 cabinets, split rack cooling system, UPS and battery, and monitoring.

Customer Values

Successfully deploy the system before school open and support the high density application.



Reference Project



Dual Module 20F Container Data Center

Project Brief

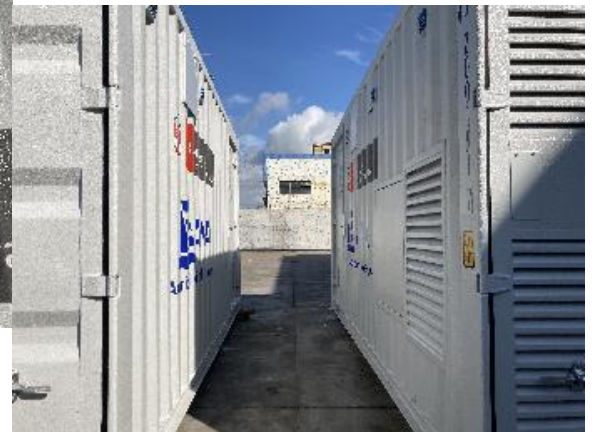
PERU National Agriculture Department Remote Monitoring and Process Data Center.

Solution Supplied

2 container data center with customized design of 240min cable entry fire rating, 120min frame fire rating, 30kW Inrow cooling with cold aisle containment.

Customer Values

Meeting requirements of high standard design specification, fire security, and quick deployment.



What's the Difference

Integration

Full integration of cabinet, DC/AC power, cooling, safety, and fire system.

Customization

Best Flexibility with standardized module to customize and built per your project inputs

Security

Best protection with 3 in 1 access, camera/NVR, remote access management, fire detection & extinguishing system.

Efficiency

High PUE performance with high efficient cooling system, managed airflow path, insulated close loop circulation.

A black and white photograph of a man in a dark jacket looking up at several tall, modern skyscrapers that converge towards the top of the frame. The perspective is from a low angle, making the buildings appear to rise steeply. A solid teal horizontal bar is positioned below the "Thank You" text.

Thank You

www.adeo-projects.com