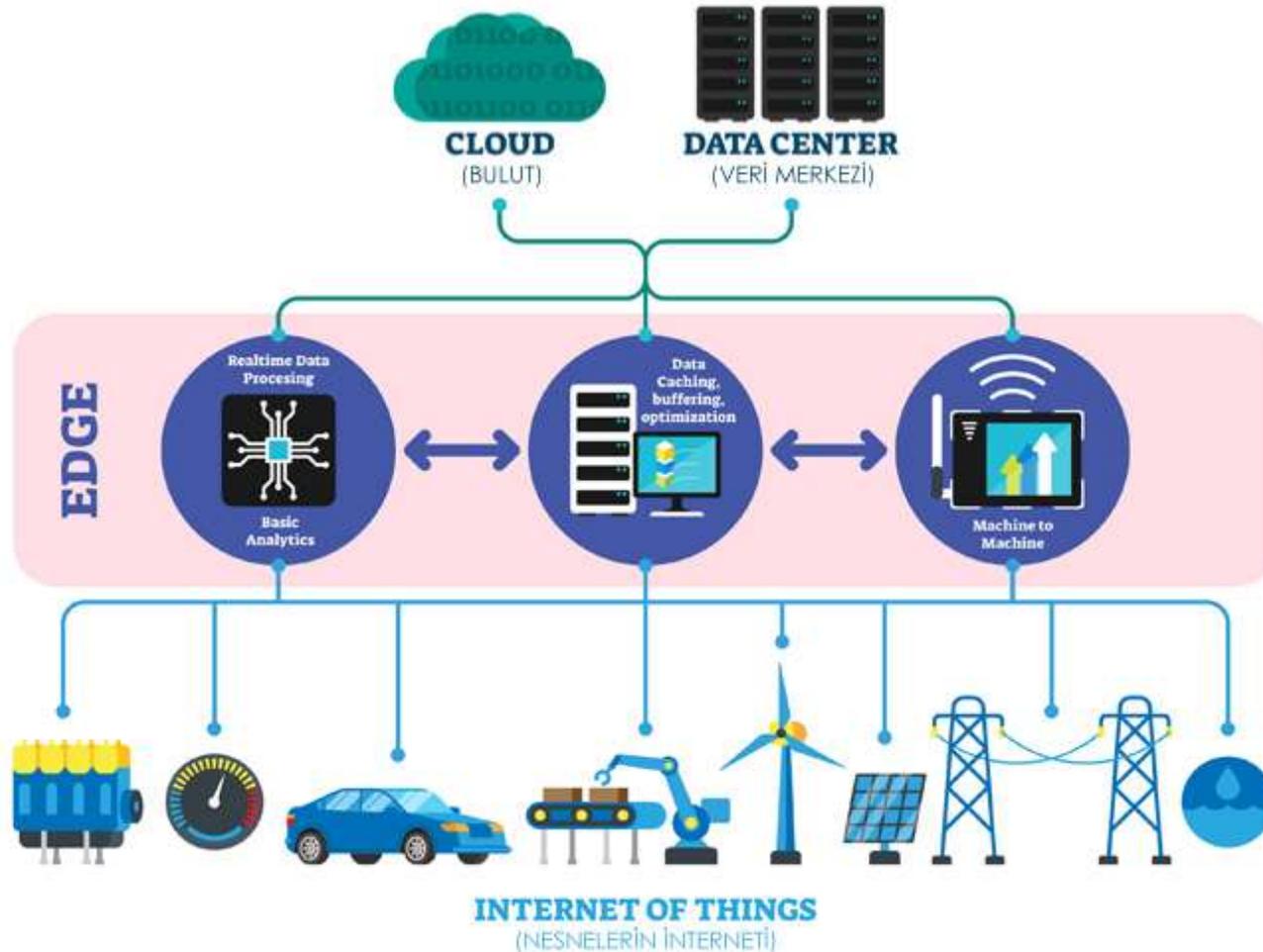# EDGE COMPUTING

EDGE COMPUTING REVOLUTION

Gartner Top 10 Strategic Technology Trends for 2020

Gartner defines edge computing as solutions that facilitate data processing at or near the source of data generation. For example, in the context of the Internet of Things (IoT), the sources of data generation are usually things with sensors or embedded devices. Edge computing serves as the decentralized extension of the campus networks, cellular networks, data center networks or the cloud. (Cloud to the edge)

«Around 10% of enterprise-generated data is created and processed outside a traditional centralized data center or cloud. By 2027, Gartner predicts this figure will reach 75% «   **Gartner Research**
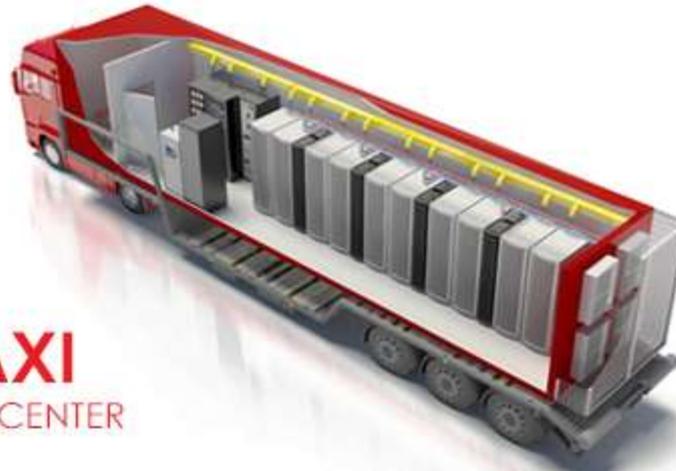
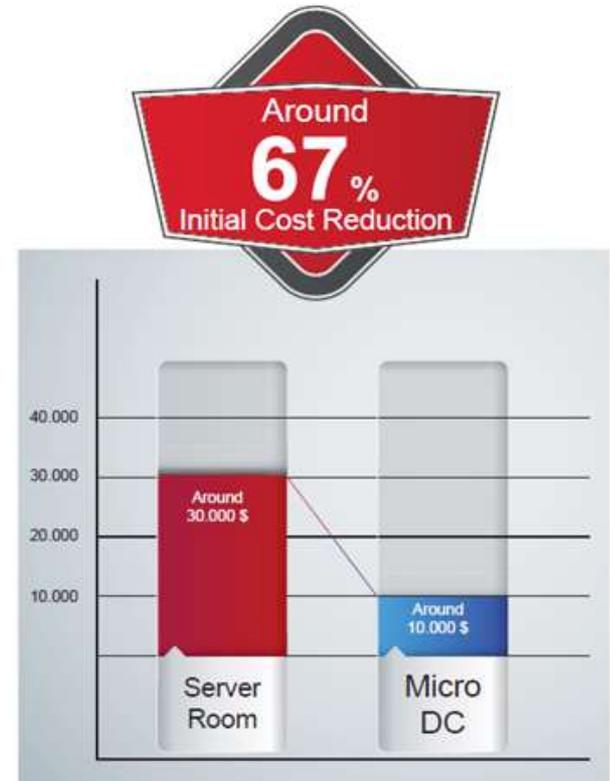# **4**M DATA CENTER

MICRO
DATA CENTER

MINI
DATA CENTER

MAXI
DATA CENTER

MOBILE
DATA CENTER

Components of Micro Data Center (Up to 4 kW)

2U Fire Extinguisher System with FM200 or Novec1230

Rack Mountable UPS

Environmental Monitoring System

AC Unit

IP PDU

Air Flow Sensor

Humidity Sensor

Door Contact

Liquid Sensor

Smoke Sensor

Temperature

UL CERTIFIED

CSA

Cooling up to 4 kW Capacity

Around **67%** Initial Cost Reduction

40.000

30.000

20.000

10.000

Around 30.000 $ — Server Room

Around 10.000 $ — Micro DC
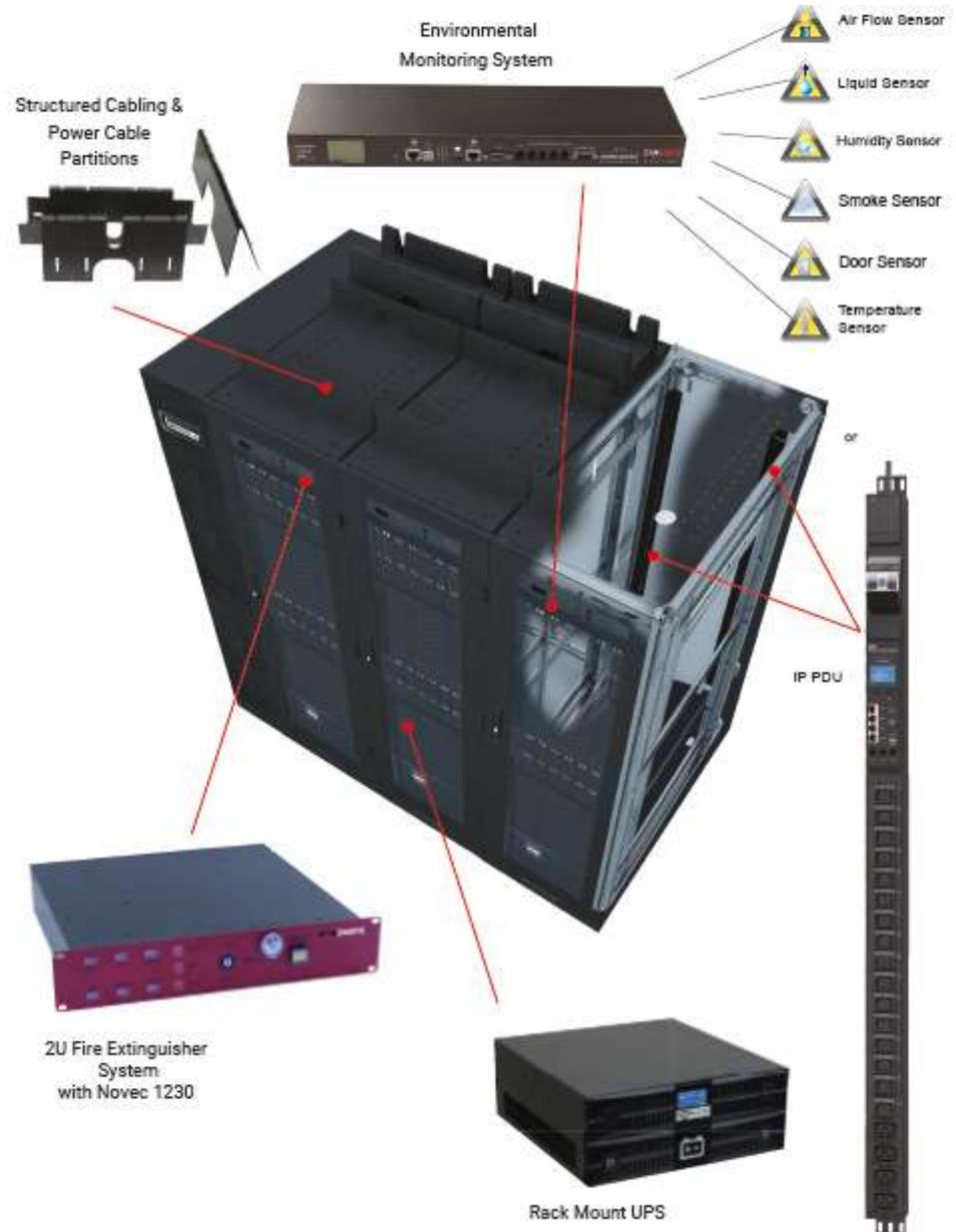
Micro Data Center Verticals

- **SME's** -Small and Medium Size Enterprises
- **BFSI**: Branch offices of financial institutions (Banks, Insurance companies)
- **Logistics:** Warehouses and branch offices of logistics companies
- **Utility &Government :** Branch offices of government institutions and utilities (Police, Army, Schools, Electricity, Water companies etc)
- **Retail Sector:** Supermarkets & IT retail shops (Radioshack)& Fast food and Fashion retail chains
- **Oil & Gas:** Gas stations
- **Hospitality:** Hotels & hostels
- **Education:** Schools
- **Telecom:** Edge Computing & 5G
- **Manufacturing Industry :** Manufacturing companies for automation control and IT service- Industry 4
- **Mining Industry :** Remote locations where there is no dedicated IT personnel available
- **Healthcare:** Hospitals and clinics
- **Server manufacturers:** OEM compact solution for HP, IBM, Dell etc
- **Disaster recovery**

![Canovate Group logo]

Mini Data Center
(DX or CW Cooling up to 30 kW)

Highlights

- Individual rack cooling up to 30 kW

- Standalone Data Center

- Install Data Center where you want and need it.

- Rapid deployment in 4-6 weeks from plan to start-up

- Low total cost of ownership

- No raised floor required

- Full turnkey Data Center including cooling, power, monitoring, fire protection and security systems.

- Scalable from 1 rack to hundreds of racks

- Internal and optional external redundancy

- Structured cabling solutions with overhead cable channels

Structured Cabling & Power Cable Partitions

Environmental Monitoring System

Air Flow Sensor

Liquid Sensor

Humidity Sensor

Smoke Sensor

Door Sensor

Temperature Sensor

IP PDU

2U Fire Extinguisher System with Novec 1230

Rack Mount UPS

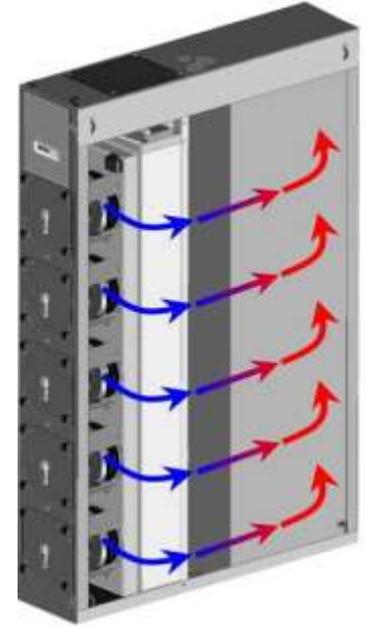# CANOVATE® GROUP

Mini Data Center
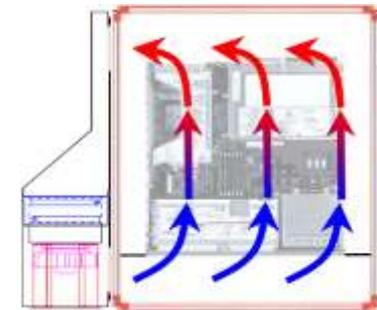## (Cooler DX or Water Based)

Applications

- High density servers exceeding 10 Kw
- Mobile Containers/Shelters
- Branch Offices
- Disaster recovery operations
- Small clinics/hospitals
- Warehouses
- Remote installations
- Temporary installation
- Mobile applications
- Rack Height 42U/47U
- Air cooled (DX) Side Cooler 28 kW
- Water Based Side Cooler 30 kW

UL CERTIFIED

Cooling up to 30kW Capacity

Chiller Units   Outdoor DX Unit

Mini Data Center

All in One DC solution for Sohar Container Terminal (OICT) Datacenter - Oman
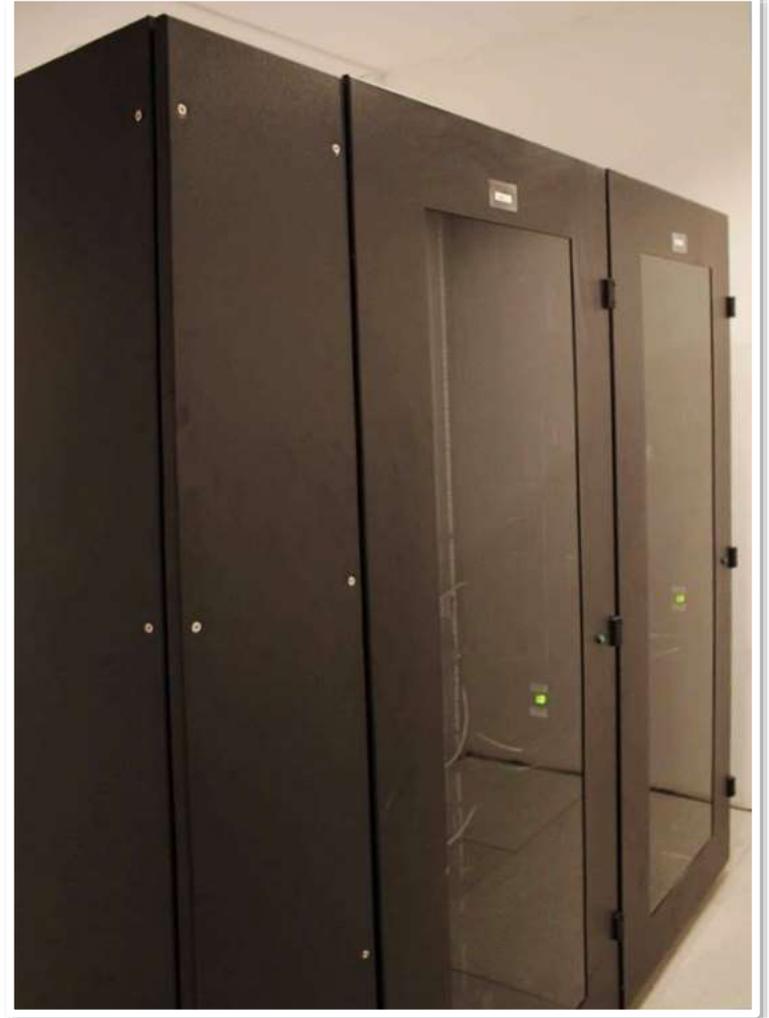
Mini Data Center (Water Based)

Ministry of Labour Data Center, Nürnberg Germany with Fujitsu

Mini Data Center

All in One DC solution for Şişecam factories in 24 locations

MAXI COLD & HOT AISLE CONTAINMENT SOLUTIONS

Cold & Hot Aisle Containment Accessories

Top Cover
Easily removable tempered glass panel to maximize the available light and reduce fire risk.

Skirt Type Blanking Panel
Closes the gap between 19" mounting rails and side panels. Enables zero U patch panel fitting and cable management.

Raised Floor

Brush
Dust protection

Swing or Sliding Doors
Swing Doors   Sliding Doors

Blanking Panels

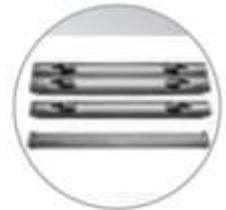Cold & Hot Aisle Containment System must be built on raised floor to maximize cold air intake efficiency.

Manual or electronic locking Sliding Door systems for access management.

Cold & Hot Aisle Containment Video

Cold & Hot Aisle Containment / Site Applications

Cold & Hot Aisle Containment / Site Applications

MOBILE (CONTAINER) DATA CENTER SOLUTIONS

Mobile (Container) Data Center Solutions

The mobile container provides a protected housing for the

> server cabinets,
> power distribution system,
> cooling system,
> monitoring system,
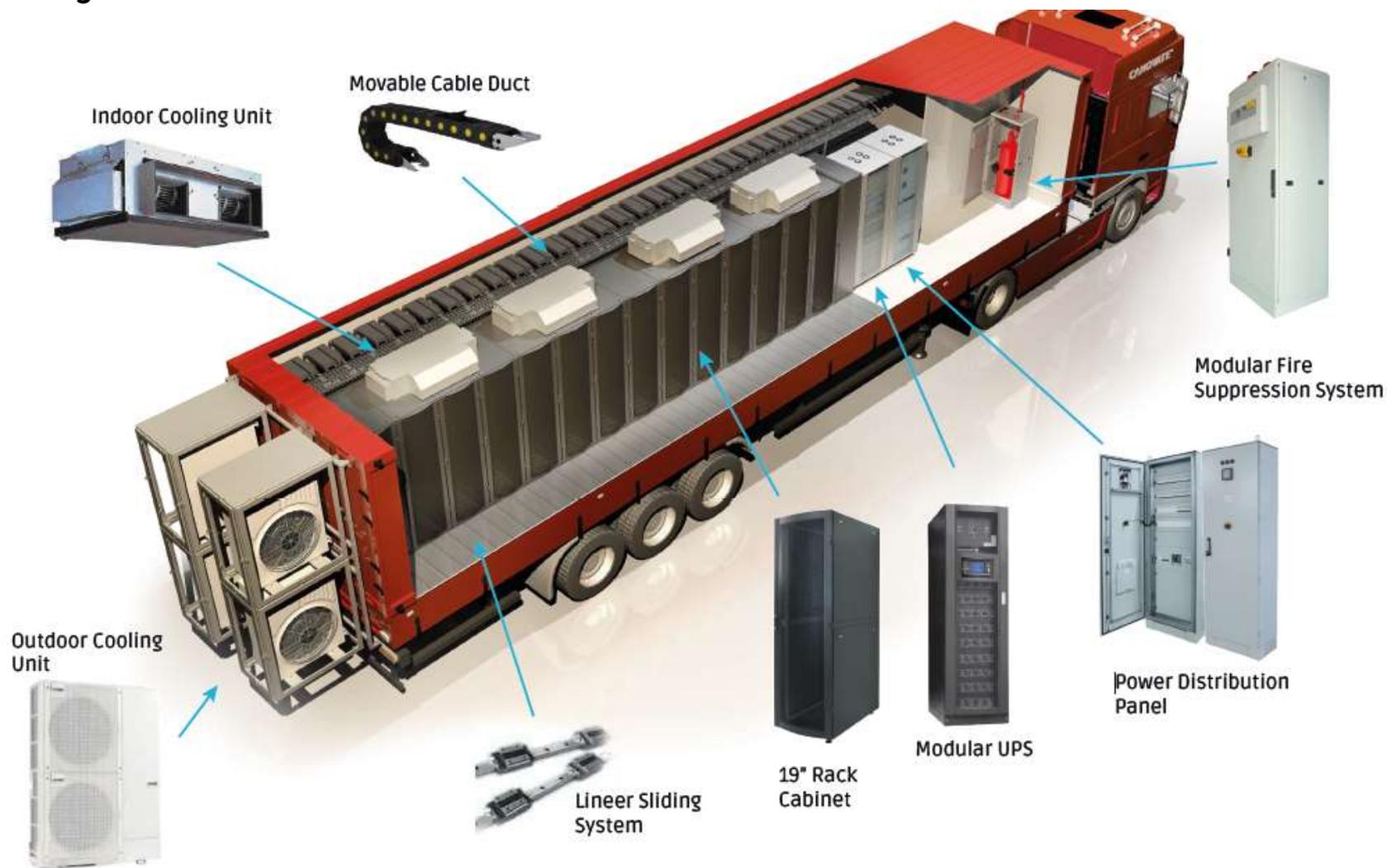> fire control system, and lighting system.

The container performs the following functions:

- Houses the container components which can be interconnected inside in a centralized and manner.

- Provides a protected environment to protect the container from external impact.

Container Data Center Solutions

Top Cooling Solution for Container Data Center

Indoor Cooling Unit

Movable Cable Duct

Modular Fire Suppression System

Outdoor Cooling Unit

Lineer Sliding System

19" Rack Cabinet

Modular UPS

Power Distribution Panel

Mobile (Container) Data Center Solution /Site Aplication
EXPO 2020-UAE (2 set 40 ft Containers within sliding system)

Mobile (Container) Data Center Solution / Site Applications
Saudi Arabia - Telecom Mobile Data Center - Jeddah Port (40 ft Containers)

- Container 1 x 40 ft

- Server racks: 9 pcs 42U 600x1000 and 1 pcs 42U 800X1000

- In Row Coolers: 4 pcs DX Front cooler

- Modular UPS:2 pcs 60 KVA

- IP PDU's: 20 pcs 18 X C13 + 6x19 switched PDU

- Environmental Monitoring 1 set

- Fire System 1 set

Container Data Center Solution / Site Applications (2x45 ft)
Ecobank Nigeria

- 2*45" HC Container   2 set
- In Row Coolers 8 set DX Front Cooler 42U 300X1000
- Cabinets 12 pcs 42U 600*1000 and 6 pcs 42U 800*1000
- IP PDUs 84 pcs 6, 11, 16 X C13 monitored PDU
- Environmental Monitoring   1 set
- Fire System   2 set
- Power Distribution Panel   1 Set
- Col aisle containment   1 set

Mobile (Container) Data Center Solution / Site Applications (1x45 ft)
European Union Project Ankara

- 1*45" HC Container   1 set
- In Row Coolers 4 set DX Front Cooler 42U 300X1000
- Cabinets 10 pcs 42U 600*1000 and 1 pcs 42U 800*1000
- IP PDUs 22 pcs 24xIEC 320 C13 socket
- Environmental Monitoring   1 set
- Fire System   1 set
- Power Distribution Panel   1 Set
- MPO Solutions   1 set
- Modular UPS 2 pcs 120 kVA   1 set

Mobile (Container) Data Center Solution / Site Applications (1x45 ft)
European Union Project Ankara

Mobile (Container) Data Center Solution / Site Applications (1x45 ft)
Europen Union Project Ankara

COOLING SOLUTIONS

CW & DX Inrow Cooling Solutions
up o 60 kW

Chiller & CRAC Solutions

Indirect Adiabatic Cooling System

![CANOVATE GROUP]

Cooling Solutions
DX (Refrigerant R 410A) Based Cooling

- 28 kW cooling capacity in 42U 300x1000 Cabinet
- Automatically controlled between 11 to 28 kW by Inverter technology for maximum energy efficiency
- COP ratio is above 4 for maximum energy efficieny
- External Compressor unit to have better noise level
- Cooling units work 100% sensible (without condensed water)
- Specially developed for cold & hot aisle containment applications
- Modular construction
- In-Row Technology
- Eliminates raised floor requirement
- Variable speed fans - EC-Technology
- Modular design, Allows capacity expansion
- Hot-swappable fans

Hot-swappable EC fan Drawer

Pressure Controlled EBM-Papst EC Fans

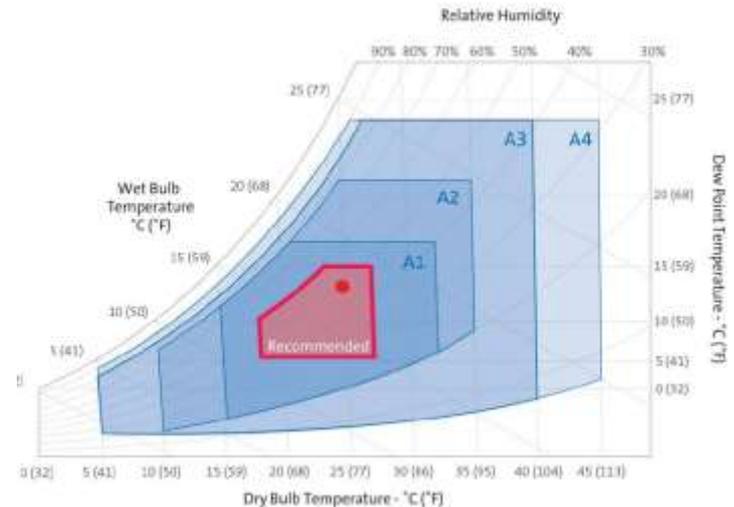**Multipoint Injection system distributing R410 agent more efficiently within the heat exchanger unit**

Outdoor DX Unit-R410A (Combined Compressor & Condenser)

![Canovate Group logo]

CRAC Cooling Solutions

- Cooling capacities up to 120 kW

- Energy efficient EC fans

- EC fans ensure a lower electrical absorption and sound level compared to the traditional centrifugal fans

- Low noise level.up to max 67 dbi

- Canovate CRAC Units have adiabatic humidity peds to adjust humidity level of incoming ambient air so that we can achieve a better and energy efficient cooling performance and spend %30 percent energy less than competitors

- Water circuit realized with pipes entirely coated with insulated material and complete with 3-way valve with modulating control and temperature probeElectric board in compliance with CE norms, protected by a panel is separated by the air flow

Relative Humidity chart — Dry Bulb Temperature vs Wet Bulb / Dew Point Temperature

© ASHRAE graphic reformatted by Condair

POWER & MONITORING SYSTEMS
IOT Solutions

CANDCIM

- Temperature
- Humidity
- Flood
- Voltage
- Vibration
- Smoke
- Access
- IP PDU

Access   Sensors   Camera   UPS   Generator   Air Conditioner
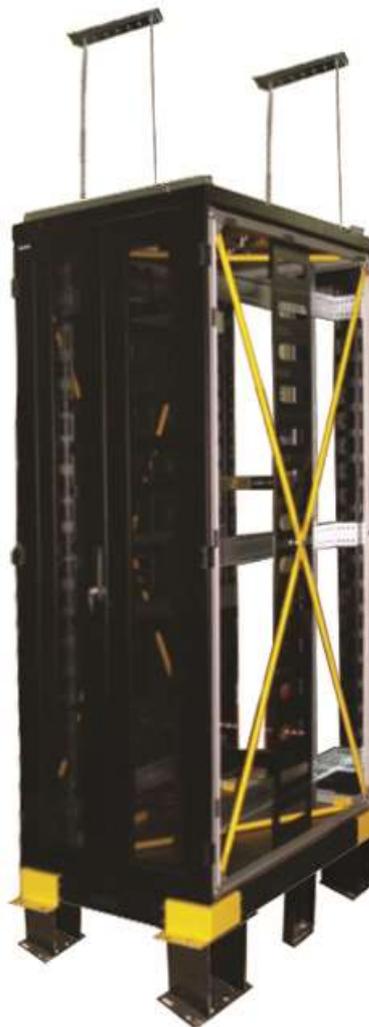
Modular UPS up to 900 kVA

EMS & DCIM Sytems

IP PDU's & IOT

RACK SYSTEMS

Network Rack

Server Rack

Zone 4 Seismic Rack

ETSI Rack

Inorax-AL Racks (ALU frame)

"Unique Technology patented by World Patent office"
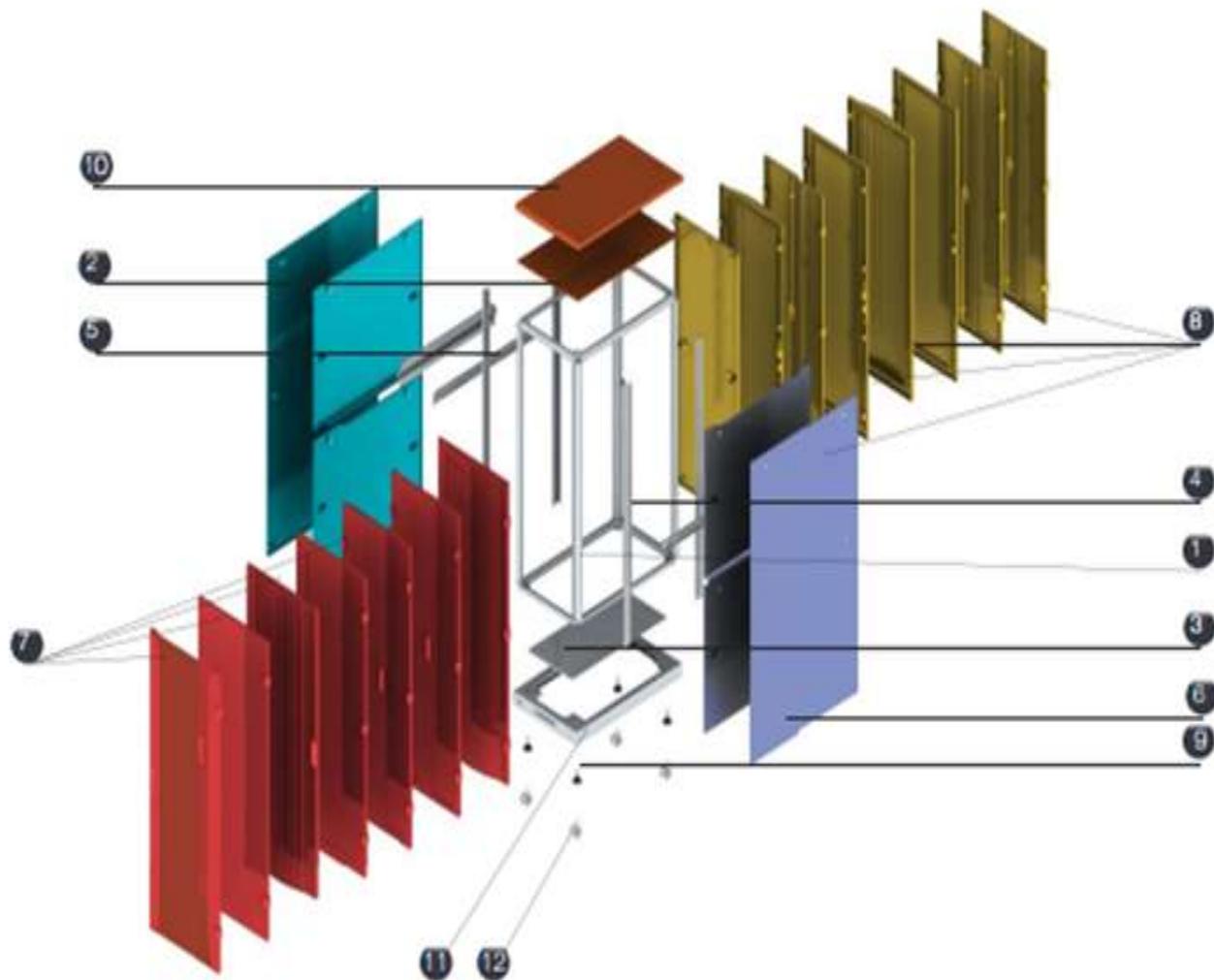
Advantages of Aluminum Frame

- Patented design from European Patent Office and WIP0 (WO 2006/022600 A1)
- Load capacity up to 2.000 kg- Industry record!
- %30 weight reduction compared to conventional welded steel cabinets
- Appropriate for critical applications like seismic cabinets- Zone4 certificated
- Ease of assembly/disassembly with only 3 screws
- Diecast type corner joints with self-locking mechanism
- High corrosion resistance compared to steel based structures
- Natural cooling characteristics of Aluminum

Aluminium Rack Cabinets

- Aluminium Frame
- Top Sheet
- Bottom Sheet
- 19" Mounting Rails
- Side Support Rails
- Side Panel Options
- Front Door Options
- Rear Door Options
- Adjustable Feet
- External Top Cover
- Plinth
- Castor

19" Network Cabinets

- Aluminum frame chassis
- Glass front door
  - **Tempered glass** for security purposes
  - **Unique serigraphie** cover (tinted) on the left and right sides of glass to hide the cables from the view
  - Single point swinghandle locks
- Side and rear panels with cylinderical locks
- 2 pairs of 19" mounting rails from galvanized steel protected against corrosion
- Top cover with 3 holes for cable entry and a fan unit fixing hole
- Support rails on the sides of the frame to increase stability and for efficient cable management
- 2 pairs of adjustable feet

CANOVATE® GROUP

19" Server Cabinets

- Aluminum frame chassis
- Compatible to all major server providers like **HP, Cisco, Dell, Sun, Compaq and IBM**
- Perforated front&rear doors
    - **Perforation up to 80%** (Free Air Ratio)
    - **Unique honeycomb** ventilation pattern to increase airflow capacity
    - **Multipoint** point swinghandle locks
- Side panels with cylinderical locks and extra handles to ease assembly
- 2 pairs of **heavy duty type 19" mounting rails** from galvanized steel protected against corrosion
- Top cover with 3 holes for cable entry and a fan unit fixing hole
- Support rails on the sides of the frame to increase stability and for efficient cable management
- 2 pairs of adjusable feets

Zone 4 Seismic Rack

- Special designed Seismic racks based on Zone4 requirements

- Certified by Seismic Source from USA

- Special reinforced cross bars to absorb vibration

- Fixing kits for ground and ceiling

- Must for every country with seismic activity

THANK YOU FOR YOUR ATTENTION
QUESTIONS?

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