Open MDC

Roberto Söderhäll, CBDO, Swedish Modules
Scott Neal, Product Director, Schneider Electric

Data Center Facility
Background

The OCP Project Process
Starting the process

The idea, a Modular Data Center!

Optimized for,
- OCP HW
to meet the OCP´s criteria
- Maintainability
- Cost and energy efficiency
- Openness
- Scalability
Establishing the Project

The OCP Community Announced the project!

as a Sub project within the Data Center Facility Group at the OCP Summit in San José
Community Innovation starts

The OCP Community Invited the hackers!

Specialists from the Industry & the end users
- Cooling
- Power & automation
- Telco
- Cloud & Colo
Merging the best ideas and experiences

The OCP Community
Open Innovation model!

Design Thinking
- Iterative progress
- MVP
- Vanity free hardware
- Project steering towards tenets
Time to disclose
Standardizing the MDC Specification

The guidelines and specifications for Modular Data Centers optimized for
- OCP HW

To meet the OCP’s criteria
- Maintainability
- Cost and energy efficiency
- Openness
- Scalability
Product Info

Scalable 300KW Modular Data Center

Standalone 90KW Modular Data Center
Scalable 300KW Modular Data Center
Specifications

IT Load:
• 300-500 kW with N+1 internal UPS redundancy

Floor Space:
• Racks: 30/ 28 without UPS/with UPS (average density 10kW/Rack)
• Racks: 28/26 without UPS/with UPS (average density up to 18kW/Rack)
• Internal Space (L x W x H): 13.35m x 4.45m x 3.55m

Cooling System:
• CW system with InRow Coolers @ N+1 Redundancy

Module Weight [kg]:
• 20 350/57 350 Empty no racks or IT equipment/Fully equipped racks
Design
Scalability
**Efficiency**

Module Specification Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT-load [kW] (total capacity)</td>
<td>300-500</td>
<td>CW InRow Coolers and N+1 redundancy</td>
</tr>
<tr>
<td>Number of Racks (total capacity)</td>
<td>28 / 30</td>
<td>@300 kW With UPS / Without UPS</td>
</tr>
<tr>
<td></td>
<td>28 / 20</td>
<td>@500 kW With UPS / Without UPS</td>
</tr>
<tr>
<td>Average Density (kW/Rack)</td>
<td>10-18</td>
<td>CW InRow Coolers specified to meet airflow capacity requirements</td>
</tr>
<tr>
<td>Maximum Density (kW/Rack)</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Module Size [mm] (LxWxH)</td>
<td>13650 x 4750 x 4100</td>
<td>Outside dimensions</td>
</tr>
<tr>
<td>Module Size [mm] (LxWxH)</td>
<td>13350 x 4450 x 3550</td>
<td>Internal dimensions</td>
</tr>
<tr>
<td>Module Weight [kg] (<em>Empty/Full</em>)</td>
<td>20 350 / 57350</td>
<td>Empty = no IT racks or equipment Full = 30 racks @ 1500 kg</td>
</tr>
<tr>
<td>Input Power Type</td>
<td>400V, 5 wire, 500 amp</td>
<td>AC Low Voltage</td>
</tr>
<tr>
<td>Cooling System</td>
<td>InRow CW, N+1</td>
<td>DX options available</td>
</tr>
<tr>
<td>pPUE example 1 City Stockholm SE</td>
<td>1.070 / 1.178</td>
<td>With CW free cooling chiller / With DX</td>
</tr>
<tr>
<td>pPUE example 2 City Dubai</td>
<td>1.227 / 1.224</td>
<td>With CW free cooling chiller / With DX</td>
</tr>
<tr>
<td>Scalable Yes/No</td>
<td>Yes</td>
<td>Easy deployment and scalability on site side by side or stackable three stories high</td>
</tr>
</tbody>
</table>

Planning to deploy OCP HW?

By this design you are reaching good efficiency on these areas:

- **Energy use**
- **Floor Space**
- **IT-load flexibility**
- **Foot print of the DC**
Standalone 90KW Modular Data Center
Specifications

IT Load:
• Up to 90kW with N+1 internal UPS redundancy. 100kW with no UPS.

Floor Space:
• Racks: 12-14 with UPS or without UPS (density 6.4-7.5kW/Rack)
• Internal Space (L x W x H): 13.5m x 3.1m x 3.4m

Cooling System:
• DX system with InRow Coolers @ N+1 Redundancy

Module Weight [kg]:
• 25 000/44 636 Empty no racks or IT equipment/Fully equipped racks
Design

Entrance Lobby and Electrical room
Includes:
• 400A Main Panel
• Fire Suppression and control panel
• Auxiliary electrical panel
• ATS and controller
• Optional EPO

12-14 42U racks

Optional UPS & Batteries

Hot/Cold Aisle Containment

Modular PDU or Overhead Busway

In-Row DX Close Coupled Cooling

Site Works – Condensers, Gensets, Transformer
Repeatability, Flexibility, and Speed

Smaller solutions (less than 100kW) are not typically intended to scale.

An All-In-One Modular Data Center dramatically simplifies design and construction.

Often these units support single deployments, or multiple deployments in a repeatable design.

**Common applications include:**

- Retail warehousing
- Universities
- Telco and IoT
- Industrial
Call to Action
How to get involved in the project
Mailing list: https://ocp-all.groups.io/g/OCP-MDC

Link to Contribution on OCP website
Where to see: https://www.opencompute.org/contributions

Where to find additional information (URL links)
Project Wiki: https://www.opencompute.org/wiki/Data_Center_Facility/MDC