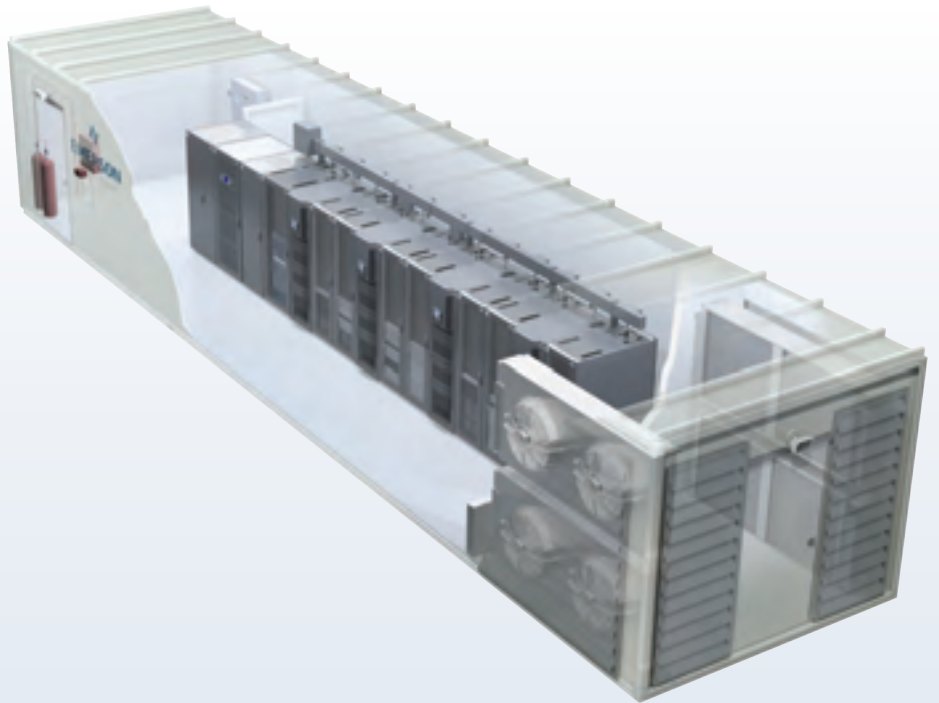


## SmartMod™

Intelligent, Integrated Infrastructure in a Rapid-Deployment Enclosure



## Deploy a High-Capacity, Efficient and Secure Infrastructure in Just Months

### Deploying a New Data Center is a Challenge, Requiring Tremendous Resources.

### Building One in a Short Timeframe is Nearly Impossible.

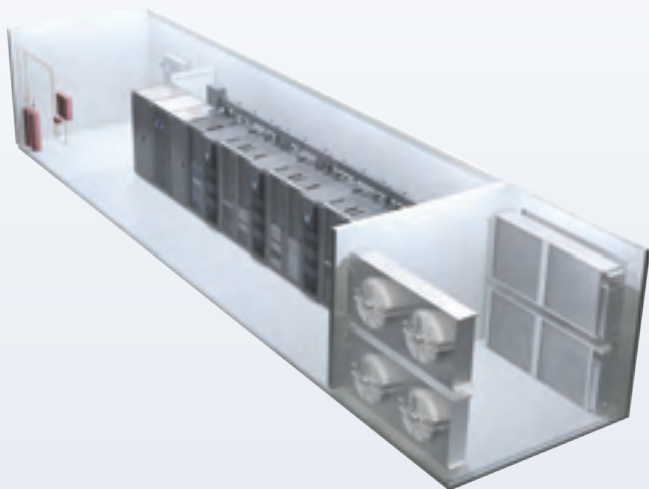
Balancing data center requirements, budgets and time constraints is causing IT and data center managers to seek infrastructure solutions that provide:

- Alternatives to building a conventional data center
- Simplicity and fast deployment
- Support for standalone capacity and availability
- Physical security

The SmartMod™ enclosure, part of the Smart Solutions family of offerings from Emerson Network Power, makes deploying a new data center easy.

This intelligent, rapidly deployable, stand-alone enclosure delivers industry-leading row-based products in simple, easily implemented configurations that reduce costs and eliminate complexity – and it can be implemented in just months.

This flexible solution can be used as a temporary data center, a remote data center or a disaster recovery site. And the SmartMod solution allows you to effectively manage a secure infrastructure that can optimize efficiency, capacity, availability, and space utilization.



### Each SmartMod Offering Integrates Industry Best Practices in Data Center Design and Operations Including:

- Modularity for flexibility and easier expansion
- Integrated monitoring and control to optimize efficiency in planning and management
- Space-savings, small-footprint
- Hot air and cold air separation
- High availability and high efficiency UPS
- High-efficiency precision cooling
- Unique local service for design audits, configuration support, installation support, maintenance and repair
- Integrated fire suppression



**Smart Solutions**  
Intelligent, integrated infrastructure for the data center

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**SmartRow™**



**SmartMod™**



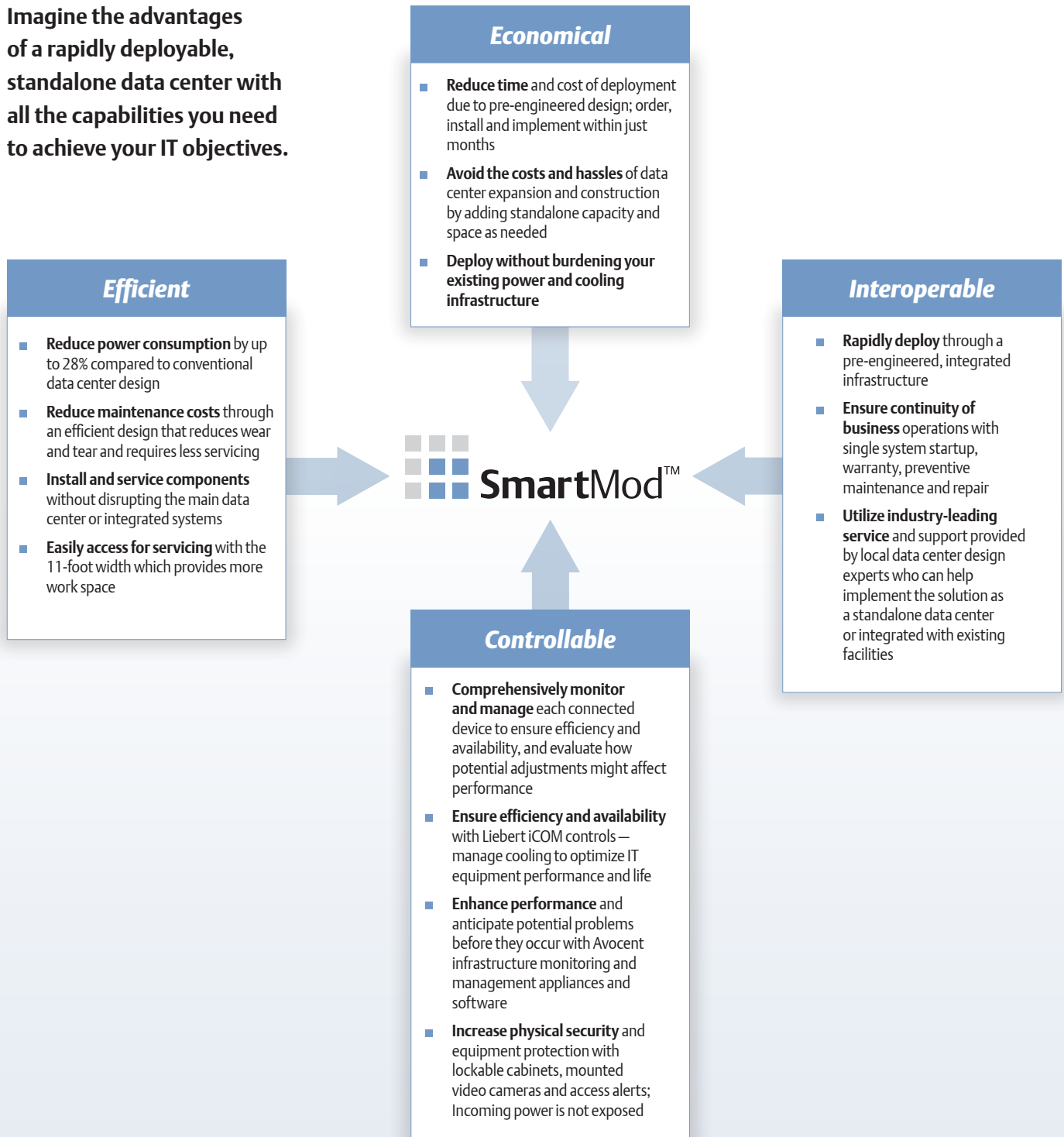
**SmartAisle™**

The Smart Solutions family helps you cost-effectively achieve and manage higher levels of density, availability and efficiency.



## What Makes the SmartMod Offering Unique?

Imagine the advantages of a rapidly deployable, standalone data center with all the capabilities you need to achieve your IT objectives.



## Where to Use the SmartMod Enclosure

### Get the Industry's Leading Physical Infrastructure in a Rapid-deployment Enclosure.

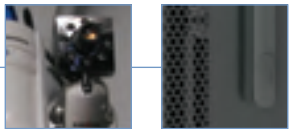
The SmartMod enclosure comes in configurations to support a range of capacity needs. Multiple power and precision cooling options within each configuration let you customize it for redundancy levels, types of heat rejection and other requirements.

To accommodate larger IT loads, power and IT equipment can be separated into matching enclosures configured to function together.

The SmartMod infrastructure can be used to supplement existing data center capacity, to act as a quickly deployable remote data center, or to serve as a disaster recovery site.



- 1 High-efficiency cooling technologies support higher density** – Liebert CRV precision cooling system with Liebert iCOM controls match cooling to rack load, and reduce cooling system energy consumption and cooling system costs
- 2 Modular, scalable high-efficiency and high-reliability UPS** – Liebert APM provides transformer-free, on-line, uninterrupted power, and Kirk Key Interlock maintenance bypass for safety
  - Safe and secure** –
    - remotely monitor physical security and access through video cameras and access-triggered alarms
    - integrated fire suppression enhances safety and physical security
    - incoming power is not exposed
    - sealed and lockable enclosure
    - all cabinets are lockable for added security
- 3 Comprehensive, remote data center infrastructure management** – Avocent appliances and software provide comprehensive, remote monitoring and control
- 4 Proactive battery monitoring and management** – Alber BDSi in external battery cabinet constantly monitors each battery to ensure availability and reliability
- 5 Easy access and service** – unique 11-foot internal width provides wider aisles for easy movement and equipment maintenance
- 6 Flexible power distribution** – Liebert MB Modular Busway is a flexible and economical way to deliver power to the rack without the cost or hassle of power cable whips. Connects directly to rack PDUs
- 7 Flexible platform for easy configuration** – Full-depth Knurr DCM racks maximize space utilization and allow you to add any type of IT or networking equipment and simplify cable management with tool-less accessories
- 8 Automatic transfer switches** – ASCO transfer switches provide higher availability by allowing use with a generator
- 9 Integrated heat rejection** – quiet, high-efficiency condensers are matched to cooling units for greater operating efficiency. Liebert MC condensers require less refrigerant, run more efficiently and run more quietly than other options
- 10 Flexible rack PDUs** – Liebert MPX adaptive rack PDU or Liebert MPH managed rack PDU provide flexibility and power control at the receptacle level, and faster implementation of IT equipment



### SmartMod™

Simple solutions integrated in a rapidly deployed enclosure – racks, power, precision cooling, monitoring, fire suppression and cable management are designed to work together, saving you time and money on installation and operation.

3

9

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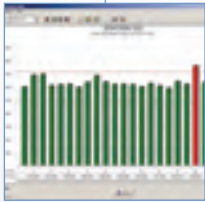
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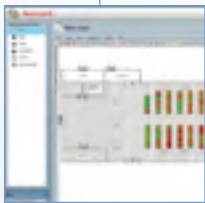
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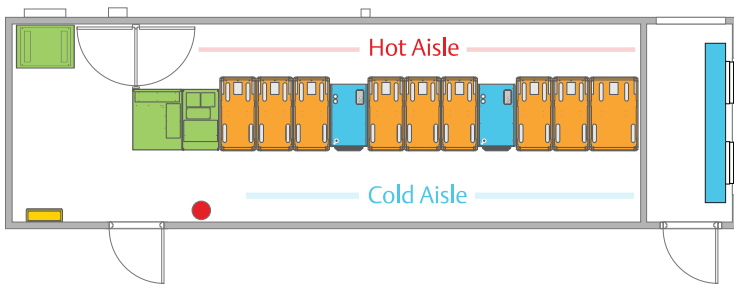
11ft

# Sampling of Configurations

The SmartMod enclosure rapidly deploys the industry's leading row-based products in an intelligent, integrated and self-contained solution. It operates efficiently and eliminates complexity and it can be implemented in only a few months.

The SmartMod solution saves on design and installation costs with fully integrated power, cooling and monitoring in a pre-configured enclosure. Because of its rapid deployment, favorable energy and space efficiencies, the SmartMod enclosure is the smart, simple answer to your infrastructure needs.

- Fire suppression canister
- Transfer switches
- Precision Cooling (DX configurations shown. Chilled Water configurations also available)
- AC Power
- Racks and Integrated Cabinets
- Condensing Units

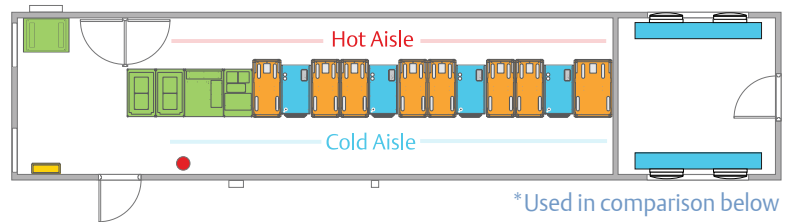


## 30kW, 9-Rack Configuration

Input voltage	480 or 208 VAC 3-Phase
Rack Space	378U with telco rack
Density	3.33kW / rack
Total IT Load	30 kW
Power Redundancy	N+1
Cooling Redundancy	N+1
Footprint	11.5'W x 40'L
Heat Rejection Equipment	Integrated Condensers

## 90kW or 75kW, 8-Rack Configuration\*

Input voltage	480 or 208 VAC 3-Phase
Rack Space	336 U
Density	90kW: 11.25 per rack 75kW: 9.37kW per rack
Total IT Load	90kW / 75kW
Power Redundancy	90kW: N / 75kW: N or N+1
Cooling Redundancy	90kW: N or N+1 / 75kW: N or N+1
Footprint	11.5'W x 53'L
Heat Rejection Equipment	Integrated Condensers

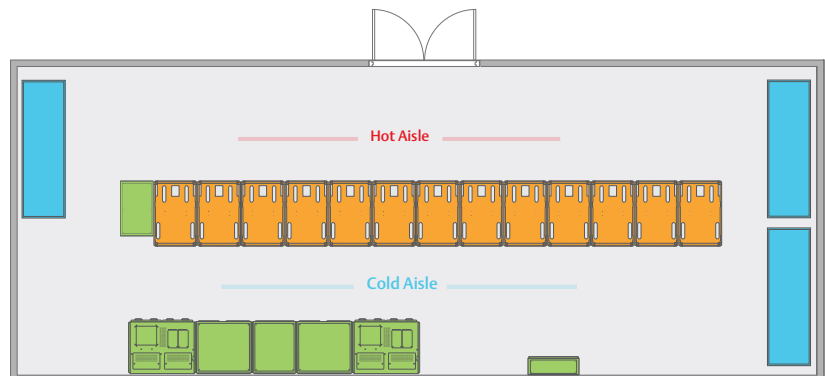


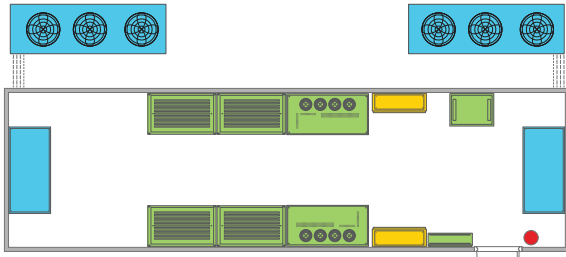
\*Used in comparison below

## Compare the Costs of a Conventional Data Center Design Versus the SmartAisle Infrastructure Solution

### Conventional

<b>Number of Racks:</b>	13
<b>Density:</b>	5.77
<b>Total IT Load:</b>	75 kW
<b>Cooling units:</b>	3 x 20 ton Precision Cooling systems Units
<b>Power:</b>	2 100kVA UPS systems with Battery Modules Distribution panel



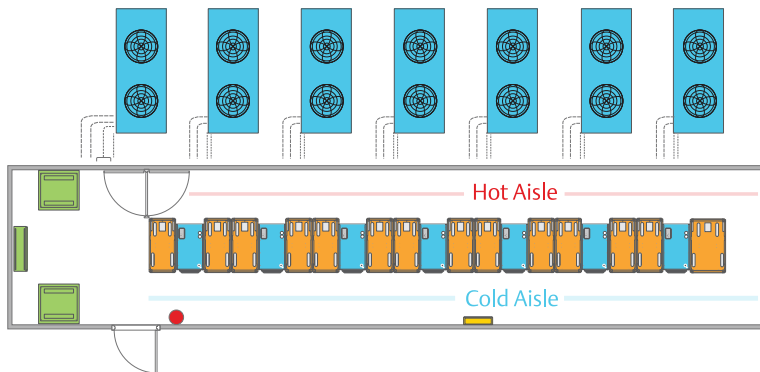
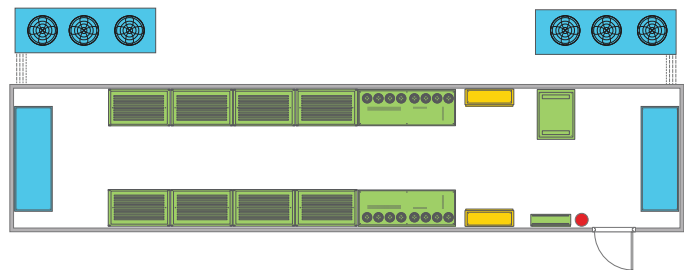


### Power and Cooling Container, 200kW Design 2N Power, 2N Cooling

Input voltage	480 VAC 3-Phase
Total IT Load	200 kW
Power Redundancy	N or 2N
Cooling Redundancy	2N
Footprint	11.5'W x 40'L
Heat Rejection Equipment	External Condensers

### Power and Cooling Container, 400kW Design 2N Power, 2N Cooling

Input voltage	480 VAC 3-Phase
Total IT Load	400 kW
Power Redundancy	N or 2N
Cooling Redundancy	2N
Footprint	11.5'W x 53'L
Heat Rejection Equipment	External Condensers



### 200kW, 14-Rack Configuration

Input voltage	480 or 208 VAC 3-Phase
Rack Space	588 U
Density	14.28kW per rack
Total IT Load	200kW
Power Redundancy	2N
Cooling Redundancy	N+1
Footprint	11.5'W x 53'L
Heat Rejection Equipment	Air cooled or chilled water

	Conventional Data Center Design	*SmartMod 8-Rack, 75kW, N+1	Cost Savings	"% Advantage SmartMod"
<b>Room Costs</b>	\$579,000	\$84,000	\$494,000	85%
<b>Infrastructure Costs</b>	\$315,000	\$772,000	-\$457,000	-145%
<b>Total Capital Expense</b>	\$894,000	\$856,000	\$37,000	4%
<b>Energy Consumption</b>	\$31,000	\$22,000	\$8,700	28%
<b>5 Year OpEx</b>	\$154,000	\$111,000	\$43,000	28%
<b>5 Year TCO</b>	\$1,049,000	\$968,000	\$81,000	8%

**Room Savings:** Pre-engineered, integrated enclosure eliminates need for new facility and reduces planning and on-site costs.

**Equipment Savings:** SmartMod enclosure cost includes data center space and infrastructure; cost more than offset by other savings.

**Energy Savings:** Airflow management, EC fans, digital scroll, intelligent cooling controls, no chilled water

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#### Emerson Network Power

Liebert Corporation  
World Headquarters  
1050 Dearborn Drive  
P.O. Box 29186  
Columbus, Ohio 43229  
United States Of America  
800 877 9222 Phone (U.S. & Canada Only)  
614 888 0246 Phone (Outside U.S.)  
614 841 6022 FAX

Emerson Network Power  
European Headquarters  
Via Leonardo Da Vinci 8  
Zona Industriale Tognana  
35028 Piove Di Sacco (PD)  
Italy  
39 049 9719 111 Phone  
39 049 5841 257 FAX

Emerson Network Power Asia Pacific  
29/F, The Orient Square Building  
F. Ortigas Jr. Road, Ortigas Center  
Pasig City 1605  
Philippines  
+63 2 687 6615  
+63 2 730 9572 FAX

[liebert.com](http://liebert.com)

#### 24 x 7 Tech Support

800 222 5877 Phone  
614 841 6755 (outside U.S.)

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SL-11480 (R01/11) rev.1 Printed in USA

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