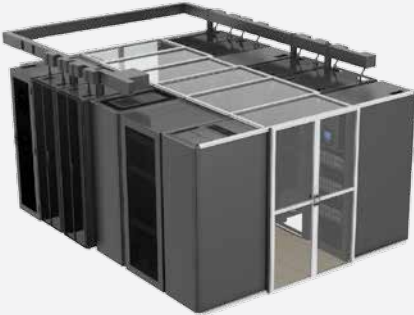# SMART SOLUTIONS REFERENCE SUMMARY

75kW , N+1, Tier 2, 6 Racks with Containment

VERTIV™
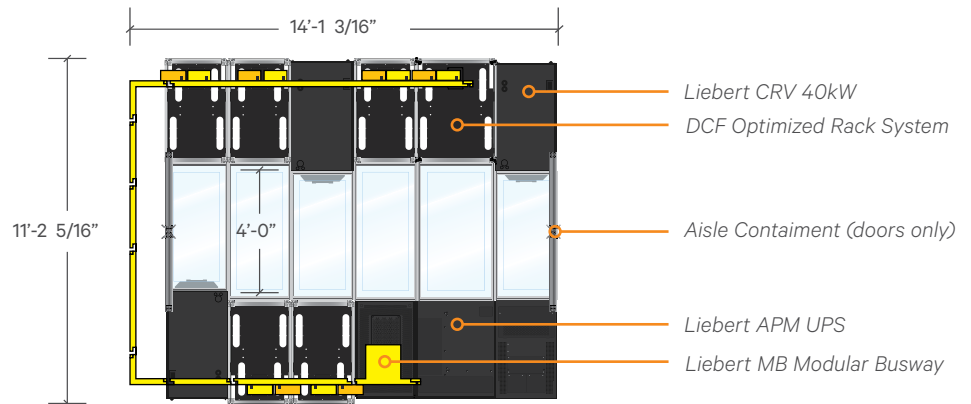
BENEFITS

SmartAisle™

This reference design utilizes the SmartAisle approach to infrastructure design, an intelligent, row-based solution that simplifies infrastructure design, installation and management and optimizes the efficiency and reliability of your data center. By integrating UPS, power distribution, precision cooling and control technologies, it delivers industry best practices in data center design to deliver an infrastructure that is:

- Efficient

- Economical

- Simplified

- Controllable

This Reference Summary provides you with one example of how Smart Solutions can help achieve efficiency and availability for small to medium data centers. This design optimizes capacity – to ensure you do not oversize a solution, yet are able to scale as IT requirements change. Please refer to our website **www.VertivCo.com** for more Smart Solutions Reference Summaries.

Smart Solutions Approach for Data Centers

Capacity:	75kW
Racks:	(6) 42U 2000mm X 600mm X 1100mm for IT equipment
Density:	12.5kW/rack
Power:	(1) 90kW Liebert® APM™ UPS system
Redundancy:	N + 1
Power Distribution:	Liebert MB Modular Busway, 400 Amp; Liebert MPH™ or Liebert MPX™ rack PDUs
Cooling:	(3) 40kW Liebert CRV™ chilled water, precision cooling systems
Containment:	Cold aisle
Monitoring and Control:	Liebert® Nform™ monitoring; Liebert® iCOM™ Controls for power and cooling
Warranty:	1 year parts and labor

Liebert CRV 40kW
DCF Optimized Rack System
Aisle Containment (doors only)
Liebert APM UPS
Liebert MB Modular Busway

14'-1 3/16"
11'-2 5/16"
4'-0"

Options available:

Racks:	6–13
Redundancy:	N / N+1
Voltages:	208v / 230v 3-phase or 460v 3-phase
Containment:	Full with standard roof; Full with fusible links roof; Doors only; No containment
Monitoring and Control:	Avocent DCP, DSView, Rack Power Manager
Warranty:	Extended warranties available
Density Range:	5kW–13.5kW / Rack
Cooling Type:	Air, Chilled Water

Solutions Design 75kW 6 Racks with Containment

KEY TECHNOLOGIES

Liebert® CRV™ Precision Cooling

- 40kW capacity
- Variable capacity Digital Scroll Compressor continuously adjusts airflow to rack temperatures, using up to 35% less cooling energy
- EC Fans use 10-30% less energy than average standard AC motor
- Easy to direct airflow with movable baffles
- Can be serviced in-row

Aisle Containment

- Easily separates hot and cold air, increasing return air temperature to cooling units for higher efficiency
- 30+% efficiency improvement
- Less fan power per kW cooling
- Increases space efficiency and improves airflow
- Easy to install with modular roof and door systems

Liebert® iCOM™ Enviromental Controls

- Enable Liebert CRV precision cooling units to work as a team
- Simplify unit, zone and room control
- Dynamically optimize the control of airflow and cooling within the row
- Optimize holistic cooling operation

Liebert APM UPS System

- Easy to scale with 15, 30, 45, 60, 75, 90 kW modules and redundant in 15 kW power cores
- 94% operating efficiency
- Enterprise grade, longer lasting batteries reduce TCO while improving availability

Liebert MB Modular Busway

- 100, 225 and 400A capacities
- Installs in 15-30% less time and cost compared to using distribution cabinets, cables and conduit
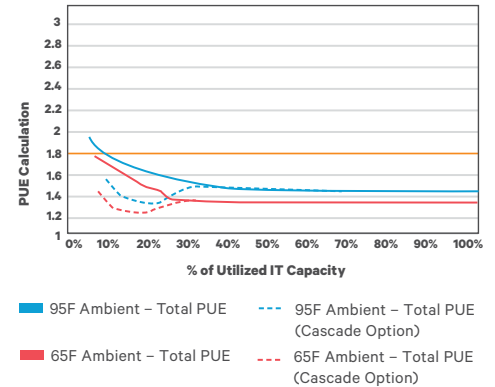
DCF Optimized Rack System

- 42U height
- 600 mm, 800 mm widths
- 1100 mm, 1200 mm depths
- Improved airflow for cooling efficiency
- Faster moves/adds/changes with tool-less accessories
- Building block for an efficient power and cooling architecture

Performance Highlights

SmartAisle™ technologies result in a superior PUE performance and substantial savings in installation, energy usage and space utilization.

The PUE of a SmartAisle solution is more than 15-25% lower on average than that of a conventionally designed data center with the same capacity.

Legend:
- 95F Ambient – Total PUE
- 65F Ambient – Total PUE
- 95F Ambient – Total PUE (Cascade Option)
- 65F Ambient – Total PUE (Cascade Option)

Axis labels: PUE Calculation (y-axis), % of Utilized IT Capacity (x-axis)

CRV inlet air temperature 75˚F. PUE is a measure of how efficiently a computer data center uses its power; specifically, how much of the power is actually used by the computing equipment (in contrast to cooling and other overhead).

For more details on this and other Smart Solutions offerings, please contact your local Vertiv™ data center infrastructure specialist. Find them on the web or call 800-222-5877, option 4. See more scenario references at: **www.VertivCo.com**