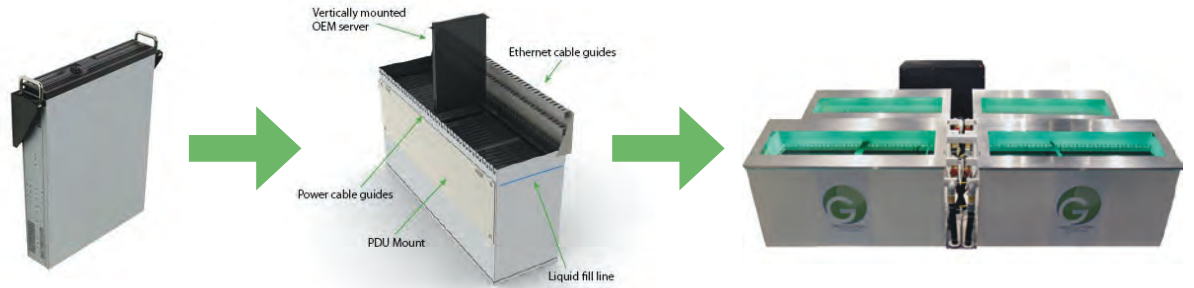




The Clear Solution for Data Center Cooling™  
Extreme cooling performance with low-cost dielectric fluid submersion cooling

# THE CARNOTJET™ SYSTEM

featuring GreenDEF™ coolant



Any OEM Server

42U CarnotJet™ Rack

4 x 42U Racks with Pump Module

The **CarnotJet™** system is an end-to-end fluid submersion cooling system for rack-based OEM servers that uses GreenDEF™ coolant, a clear, odorless, non-conductive white mineral oil that has 1,200x more heat capacity by volume than air.



Server Warranty Provider



2010 Grant Awardee



A Disruptive Technology of the Year

1

### ENERGY SAVINGS

- 40-50% less overall data center power consumption
- 95% less cooling power
- 10-20% less server power (removal of internal server fans)

2

### COST SAVINGS

- Immediate savings for Greenfield installations
- No CRACs or Chillers and smaller generators/UPS
- 1-3 year payback for most retrofits on energy savings alone

3

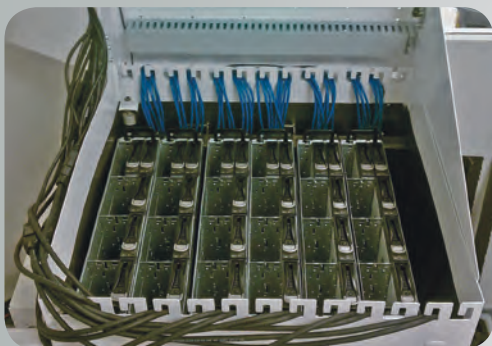
### PERFORMANCE

- Supports up to 100 kW per 42U Rack

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### HEAT RECAPTURE

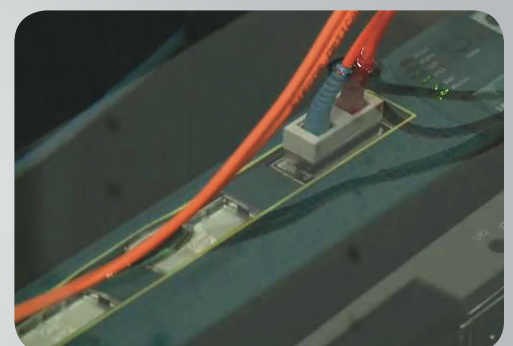
- Recover and reuse server heat in the form of hot water



13U Evaluation Unit loaded with trays



Servers submerged in GreenDEF™ coolant



Fiber optic switch installed in CarnotJet™ system

+1 (512) 692 - 8003

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# The Clear Solution for Data Center Cooling™

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## SYSTEM REQUIREMENTS

### Servers

Any rack-mounted server from any OEM with only three simple modifications:

- Remove server fans
- Encapsulate hard drives
- Replace thermal grease with foil alternative

Supports high density: blades, trays, GPUs, etc.

### Heat Rejection

Use evaporative cooling tower, return side of existing chill loop, geothermal loop, or cooling pond

SERVER  
WARRANTIES BY



SIGNATURE  
TECHNOLOGY  
GROUP

### SINGLE RACK INSTALLATION



INSTALL LOCATION	Loading dock
CLIMATE CONTROL	Unconditioned
RACK SIZE	42U
TOTAL RACK AREA	~1.2 m <sup>2</sup>
HEAT LOAD CAPACITY	40 kW
SERVERS INSTALLED	Dell M1000e
SECONDARY CONTAINMENT	Modular
HEAT EXCHANGE METHOD	Evaporative cooling tower

## SYSTEM SPECIFICATIONS

### Standard System Contents

- 42U Rack/Tank
- Pumps, filters, heat exchangers, and instrumentation
- Control Software with real-time monitoring and diagnostics, with email and SNMP Alerts

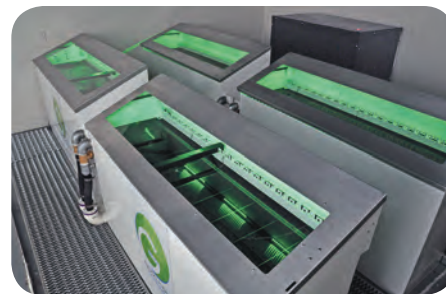
### Cooling Power per Rack

- Any power density available up to 100 kW per rack
- Sized to meet customer specifications

### Evaluation Unit

- 13U Evaluation units available to lease for trials
  - Completely self contained
  - Plug and play

### FOUR RACK CARNOTJET™ SYSTEM INSTALLATION



INSTALL LOCATION	Production space
ROOM/CLIMATE CONTROL	Comfort cooling
RACK SIZE	4 x 42U
TOTAL RACK AREA	~11.2 m <sup>2</sup>
HEAT LOAD CAPACITY	100 kW (25 kW per rack)
SERVERS INSTALLED	Various
SECONDARY CONTAINMENT	Berm/catwalk system
HEAT EXCHANGE METHOD	Evaporative cooling tower

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See more online at  
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[info@grcooling.com](mailto:info@grcooling.com)