

FOREST Container Solution

THE FUTURE IN DATA CENTER CONSOLIDATION



EVOLVE WITH US™

Today's cloud and enterprise computing environments are a dynamic landscape that is changing at breakneck speeds, forcing IT managers to constantly rethink their infrastructure just to keep up. The Cirrascale™ FOREST™ Container solution allows organizations to maximize flexibility while cutting costs exponentially and boosting performance to new levels.

The Cirrascale FOREST Container can reduce total energy costs by improving data center efficiency up to 110%.

The FOREST Container epitomizes the evolution of data center modularity and all of the benefits. It is a portable data center that is deployable virtually anywhere. The FOREST Container was engineered to operate under varied conditions – extreme temperatures, indoors, outdoors on a concrete slab or even over rough terrain. This negates the need to purchase or lease expensive land or to build custom facilities with special requirements to support traditional data centers. Energy spending is dramatically reduced by the FOREST Container's ultra efficient power subsystems and patented Vertical Cooling Technology™ boosting reliability and performance.

Traditional brick and mortar data centers are becoming an increasingly less optimal solution for many enterprise customers because of the rising costs associated with building a data center.

What You Need, When and Where You Need It.

The Cirrascale FOREST Container is a turn-key solution that can add compute, network and storage capacity to any situation in a fraction of the time it would take to develop a traditional data center. The Cirrascale FOREST Container can equal the output of a brick and mortar installation in 70% less space; and is an alternative to building a permanent structure. It's delivered

ready to produce results, fully populated and configured. As always, Cirrascale's world class Support Team will ensure you stay ahead of the game.

Think Green. Built Green. Save Green.

The Cirrascale FOREST Container is designed with the economy and ecology in mind. Enabled by the industry leading, patented Vertical Cooling Technology, the Cirrascale FOREST Container is up to 110% more efficient than the traditional data center model. Because of its revolutionary design, our patented Vertical Cooling Technology allows up to 50% more power to be used for compute rather than cooling, saving precious resources and lowering emissions.

Cirrascale was built on eco-conscious principles and the Cirrascale FOREST Container is another example of our commitment to providing solutions with minimal environmental impact that save our customers money. As always, any packaging, including the Cirrascale FOREST Container itself, is completely reusable or recyclable and we encourage everyone to do their part to protect our environment. Additional savings can be achieved by placing the Cirrascale FOREST Container near less expensive or renewable power and cooling sources.

How Will You Use Yours?

The flexibility of the Cirrascale FOREST Container addresses your consolidation needs. Engineered as a customizable IT solution, the Cirrascale FOREST Container truly does deliver Blades Without Boundaries®.

The demand for the Cirrascale FOREST Container can be seen across the entire enterprise landscape. As an example, in the Energy industry it can put massive compute capability directly on an oil rig for on-site seismic processing. Government agencies can utilize the Cirrascale FOREST Container as a secure, deployable data center ready for rugged environments to be sent

FEATURES AT A GLANCE

- High Density Storage and Compute Blades in the Industry's Most Energy Efficient Package
- Up to 26 Petabytes of Storage Capacity or Up to 2,880 Servers
- Cirrascale Vertical Cooling Technology and Refrigerant Based Heat Rejection
- Exploit External Temperatures to Reduce Operating Costs
- Local and Remote Management and Warning Interface
- Ability to Host a Wide Range of Third Party Configurations
- Improve Data Center Efficiency Up to 110% Over Today's Data Centers
- Direct Current Power at Rack and Carriage Level, Minimizing Power Conversion

with other resources to where they are needed most, when they are needed. Financial Services customers that are typically based in large, crowded metropolitan areas can now relocate their data centers to rural areas where power and real-estate are dramatically less expensive. Service Providers might want to use the Cirrascale FOREST Container to safely migrate, consolidate, back up existing data centers or deliver immense, on-location storage for disaster recovery efforts. Entertainment and Media customers will define their next blockbuster hit on location as the Cirrascale FOREST Container can also become a cutting-edge render farm placed directly at the production site.

The true beauty of the Cirrascale FOREST Container is that no matter what the customer's immediate need is, it can always be ready to go for the next project; wherever, whenever and however that may be.

Consolidation Solutions.

The Cirrascale FOREST Container was engineered as an optimal solution for consolidation. This means that the Cirrascale FOREST Container is not proprietary, unlike our competition's solutions whose products may not support other vendor's equipment. Maximum efficiency and performance is attained when the Cirrascale FOREST Container is populated with Cirrascale's BladeRack 2 platform, but we understand that in some cases the optimal solution may very well need to house networking equipment or even

existing nodes from manufacturers using less efficient traditional front-to-back cooling.

The Cirrascale FOREST Container achieves new levels of data center efficiency and when combined with the power savings obtained, makes the Cirrascale FOREST Container the ultimate Green Data Center.

FOREST CONTAINER SPECIFICATIONS

Size: 40' x 8' x 9.5'

Weight: Up to 67,000 lbs. (typical)

Capacity: Servers: Up to 2,880
Cores: 23,000
Power: 350k Watts
Storage: 26 Petabytes

Efficiency:

- PUE less than 1.05 excluding chiller load
- PUE typically 1.3 including chiller load

Redundancy:

Several options including integrated UPS, dual power feeds and redundant cooling

Fire Detection and Suppression:

Certified incipient stage aspirating smoke detector and a FM-200 gas-based suppression

Management:

Container power management and metering

Equipment Flexibility:

Augment Cirrascale blades with third party systems

Cooling Technique:

Vertical Cooling Technology and refrigerant-based heat exchange using external chilled water

Power Choices: 400VAC / 480VAC

ABOUT CIRRASCALE

Cirrascale, Inc. is the premier developer of scale-out blade-based computing and storage platforms for Cloud, Web 2.0, and the global enterprise. Cirrascale provides scale-out solutions for the world's largest data centers that reduce power and cooling demands while achieving the best density, availability, and energy efficiency for the highest total value of ownership. Organizations such as Virgin America, Morgan Stanley, Wachovia, Microsoft, Qualcomm, Johns Hopkins, EMC, CCGVeritas, Petrobras, Harris, Lockheed Martin, Northrop Grumman, and Sony Imageworks, as well as top universities and research institutions worldwide, are among the customers who have chosen Cirrascale's award-winning containerized data centers and high density blade-based platforms.

THINK GREEN. BUILD GREEN. SAVE GREEN.

The Cirrascale FOREST Container Solution: The Answer to Consolidation

- **Container Flexibility** – The Cirrascale FOREST Container houses up to 2,880 servers in an industry standard form factor (40' x 8' x 9.5') for easy shipping and deployment virtually anywhere. The FOREST Container was engineered to thrive under varied conditions – extreme temperatures, indoors, outdoors on a concrete slab or even over rough terrain. In addition to Cirrascale blade servers, traditional systems can be accommodated.
- **Dramatic Cost Reduction** – Due to its portable nature, the Cirrascale FOREST Container negates the need to budget for real estate purchases or infrastructure construction costs, allowing for more IT dollars to be spent on IT solutions.
- **Disaster Recovery** – The Cirrascale FOREST Container functions superbly as a stand alone data center but it also provides extreme security and investment protection for data centers already functioning and in place. Due to its portable nature, the Cirrascale FOREST Container can essentially transform into a multi-petabyte flash drive in emergency situations.
- **Rapid Deployment** – The Cirrascale FOREST Container is shipped fully populated and ready to run, this translates into immense savings by cutting set up time from months with a traditional data center to a bare minimum.
- **Patented Vertical Cooling Technology** – Due to its portable and modular form factor, the Cirrascale FOREST Container is the perfect environment for the Cirrascale' patented Vertical Cooling Technology to operate in.
- **Extreme Customization** – The Cirrascale FOREST Container can be configured to meet the demands of any IT organization looking to expand or build an alternative energy efficient data center. Need to consolidate or expand your servers? No problem. Need storage? How about a 26 petabytes of storage delivered right to the bottleneck and ready to run. The Cirrascale FOREST Container was engineered to house Cirrascale blades and traditional systems and networking equipment. The Cirrascale FOREST Container is completely customizable and can be configured with a focus on compute, storage or as a hybrid utilizing our award-winning DataServer products.
- **Power Efficiency** – Cirrascale has long been an industry leader in power efficient solutions and the Cirrascale FOREST Container takes this philosophy to the next level. By combining ultra-efficient solutions at the blade level with the industry leading patented Vertical Cooling Technology, which enables more power to be spent on compute than cooling or electrical distribution, the Cirrascale FOREST Container saves precious resources and helps conserve the environment.
- **Upgrading and Portability** – The containerized approach combined with Cirrascale' unrivaled support staff creates an environment where migrating and upgrading is a routine, simple process.
- **Built Green** – The Cirrascale FOREST Container is a natural evolution of Cirrascale' long history of eco-friendly data center solutions. It is extremely efficient, completely recyclable and consumes no valuable real estate.

