Cisco Systems

InfraStruXure® Backs Up Cisco Systems' San Jose Spyglass Center

"Cisco Systems' Network Management Technology Group (NMTG) provides products and solutions for managing Cisco-based converged networks and services. The NMTG Solutions Marketing Center, also known as the Spyglass Center, was built to effectively demonstrate the capabilities of Cisco's network management products and solutions.

"We were facing several specific technology challenges. We needed the flexibility and scalability of a truly modular approach and wanted the ability to easily add capacity as the need arises. We didn't want to incur significant up-front capital expenditures and wanted to minimize the risk of downtime.

"The APC InfraStruXure architecture was completely unique in that it addressed our needs for scalability, redundancy, flexibility, and network manageability—as well as offering a high level of 'out of the box' compatibility. InfraStruXure allowed us to vastly reduce the time needed in the planning and deployment of our network operations center.

"APC's InfraStruXure allowed us to reduce the capital expenditure required to protect our Network Operations Center through its modular approach of scaling—not only our battery run-time, but the capacity of power modules supplied.

"We plan to continue to work with APC to make sure the Spyglass Center is at the forefront of technology in the NCPI space. APC has added value in helping the Spyglass Center ensure consistent uptime, which in turn provides high levels of customer satisfaction."

—Nawaz "Nick" Ali,
project manager, Spyglass Team
Cisco Systems' Network Management Technology Group

Get more information on APC® by Schneider Electric solutions at *www.apc.com*

998-1694

APC® by Schneider Electric Corporate Headquarters
132 Fairgrounds Road, West Kingston, RI 02892 USA
www.apc.com

APC®
by Schneider Electric

Solutions for Small to Medium Data Centers

Make the transition from low to high density without missing a beat. APC® by Schneider Electric offers a complete modular, scalable data center solution, small enough to be practical, flexible enough to expand.

Control the power

Monitor the environment

Manage the cooling

APC®
by Schneider Electric

Name: Chuck McCann

Position: Technical Director

Company Name: Microsoft Technology Center - Boston

Industry: Software Development and Testing

Data Center Size: 55 servers, 23 terabytes

Greatest challenge: Frequent data center changes

InfraStruXure® Adapts, Staying Right-Sized Amid a Changing Environment

What types of challenges do you face in managing your data center?

"At the Microsoft Technology Centers, we help customers envision, architect, test and fine-tune their software applications and provide customized secure solutions in an engaging atmosphere. With new customers coming into the MTC nearly every week, we're essentially building a new production system every week. This requires that we rebuild our servers—often combining them in new and different ways—for each customer session."

What requirements did you have in mind for a new data center?

"As a result of this continually evolving hardware environment, our data center was facing equipment density issues as well as power and cooling requirement changes. We needed scalability, manageability and reliability for the powering and cooling for our migration to a new 55 server and 23 Terabyte data center."

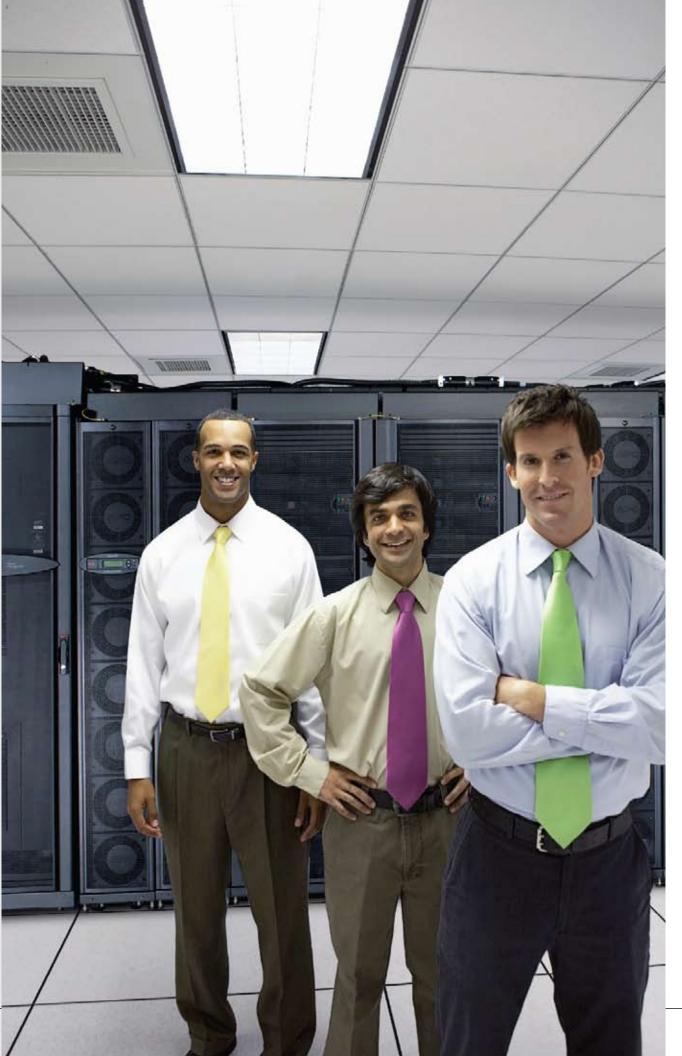**What made the APC® by Schneider Electric solution unique?**

"APC's InfraStruXure solution was unique in its comprehensive approach—rack, power and cooling were all managed and all modular.

Our new data center now has the power capacity to enable us to accept new hardware. The NetShelter® racking systems give us the ability to maintain an orderly environment for our customers, and the cooling solution maintains the data center at an appropriate temperature."

Has this changed how you manage the data center for the better?

"APC's products and solutions have turned our data center into an environment where we manage everything through software. This gains tremendous credibility for Microsoft and our partners, contributing to our ongoing success with enterprise customers."

Read how APC® by Schneider Electric helped solve other customers' data center issues at *www.apc.com*.

APC's flexible data center design allows your business to anticipate change and adapt accordingly.

APC® by Schneider Electric enables you to adapt your data center to the changing needs of a business. With the same InfraStruXure® HD-Ready architecture, you can start out with a low-density data center, and later scale up to high density as needed without picking up the phone to call for more capacity, engineering or quotes. It's a complete solution, incorporating racks, power, cooling and software as well as a built-in N+1 redundancy for optimum availability.

The benefit of a modular, scalable system is immediately apparent—standardized components make for a quick, easy deployment process that takes hours as opposed to weeks. And once installed, you'll have the freedom to virtualize servers without fear of overheating. With rack-level cooling and monitoring, you'll have complete control over your data center, no matter how often hardware changes occur:

> Eliminate hot spots through predictable cooling paths
> Enable quick, easy deployment of new equipment
> Gain optimal efficiency from a right-sized environment
> Allow room for growth without changes to the installation

Whether you're building a small data center with fewer than 40 enclosures or a medium data center with as many as 200, APC has a solution that will enable a proactive management style that is as adaptable as it is efficient.

Anticipate change. With modular architecture, there's no need to oversize your physical infrastructure—you can keep your data center right-sized, every step of the way.

And since our software suite guides your data center design from predictive simulation to implementation, you can maintain that high level of availability necessary for your critical applications.

Adapt accordingly. From our innovative modular PDUs to the variable speed fans of our InRow® cooling units, InfraStruXure HD-Ready Architecture puts you in the ideal position to adapt to growing IT demand and enable new technologies.

Flexible, modular architecture lowers your TCO, giving you the performance you need today and, at the same time, leaving you open to future improvements. For APC, that's just good business. For you, that's the solution you've been looking for.

APC Small Data Center Solution:

A Right-Sized Approach to Heightened Availability

For most data centers with fewer than 40 racks, physical space is in limited supply. Compact footprints are important, but so is the ability to add more power within that footprint. The question is: what's the best compromise between buying a solution for today, while still planning for future growth?

The answer is, you shouldn't have to compromise.

With a modular, on-demand data center from APC, you can grow your data center gradually, without oversizing at the outset. Why pay for capacity you might not be using for 6,12, or even 24 months down the line?

InfraStruXure® HD-Ready architecture lets you start out with a low-density solution and deploy high-density devices as needed, making the best—and most efficient—use of your available space..

7 Principles of InfraStruXure® HD-Ready Architecture...

1 Enclosures that are HD-Ready
Start with vendor-neutral NetShelter® SX enclosures, engineered to handle the airflow and power needs of power-hungry, high-density servers.

2 Metered PDUs at the rack level
Install metered rack PDUs to indicate which enclosures and outlets have capacity for new HD servers … and which ones don't.

3 Temperature monitoring in the racks
Add local or remote monitoring of temperature and humidity where it counts—in your enclosures.

4 Centralized monitoring software
Monitor all power, cooling, security, and environments from one management system using real-time data at the row, enclosure, and U level.
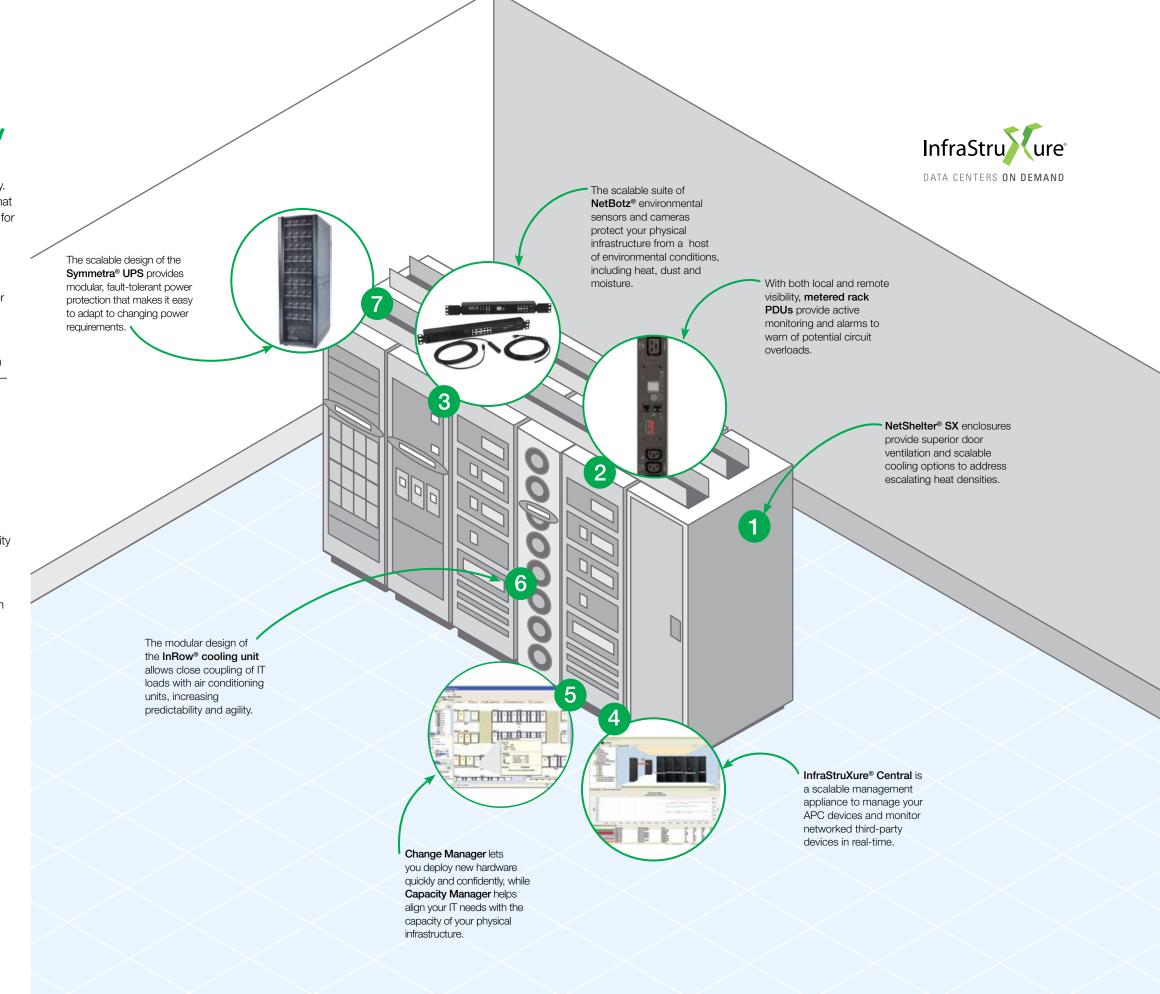
5 Software to manage capacity and change
Instead of guessing, know for sure where to place your next server within the enclosures based on available power and cooling capacity.
Effectively eliminate downtime due to overloaded circuits or exceeded cooling capacity.

6 Efficient InRow® cooling products
Innovative, responsive, variable-speed fans optimize efficiency by closely matching performance to your variable cooling needs.

7 Modular power that is flexible and scalable
Respond quickly and efficiently, without wasteful oversizing, as UPS power demands grow. Depending on your needs, choose a scalable row, in-room, or backroom UPS solution.

InfraStruXure®
DATA CENTERS ON DEMAND

The scalable suite of **NetBotz®** environmental sensors and cameras protect your physical infrastructure from a host of environmental conditions, including heat, dust and moisture.

With both local and remote visibility, **metered rack PDUs** provide active monitoring and alarms to warn of potential circuit overloads.

The scalable design of the **Symmetra® UPS** provides modular, fault-tolerant power protection that makes it easy to adapt to changing power requirements.

NetShelter® SX enclosures provide superior door ventilation and scalable cooling options to address escalating heat densities.

The modular design of the **InRow® cooling unit** allows close coupling of IT loads with air conditioning units, increasing predictability and agility.

InfraStruXure® Central is a scalable management appliance to manage your APC devices and monitor networked third-party devices in real-time.

Change Manager lets you deploy new hardware quickly and confidently, while **Capacity Manager** helps align your IT needs with the capacity of your physical infrastructure.

APC Medium Data Center Solution:

The Flexibility to Stay Right Sized, All the Time

Though some can grow as large as 200 racks, medium data centers need the same flexibility as their smaller counterparts—just on a larger scale.

The 7 Principles of HD-Ready InfraStruXure® architecture are an efficient, effective solution for any size data center. But within those 7 Principles, there are alternative power solutions better suited to the high-powered needs of these mid-range environments.

→ Modular UPS power

The Symmetra® PX 250/500 is a vendor-neutral UPS that works with all PDUs and gives data center managers more flexibility than ever to grow their power protection as needed. It can be deployed easily into your existing infrastructure, due in part to its small footprint, and has the highest efficiency and power density in its class.

Or, for a high-quality UPS option best suited to UPS rooms outside the data center, set your sights on Galaxy®. Its versatile design means it can be adapted and scaled to each change without a break in service, while a small footprint makes installation quick and easy.
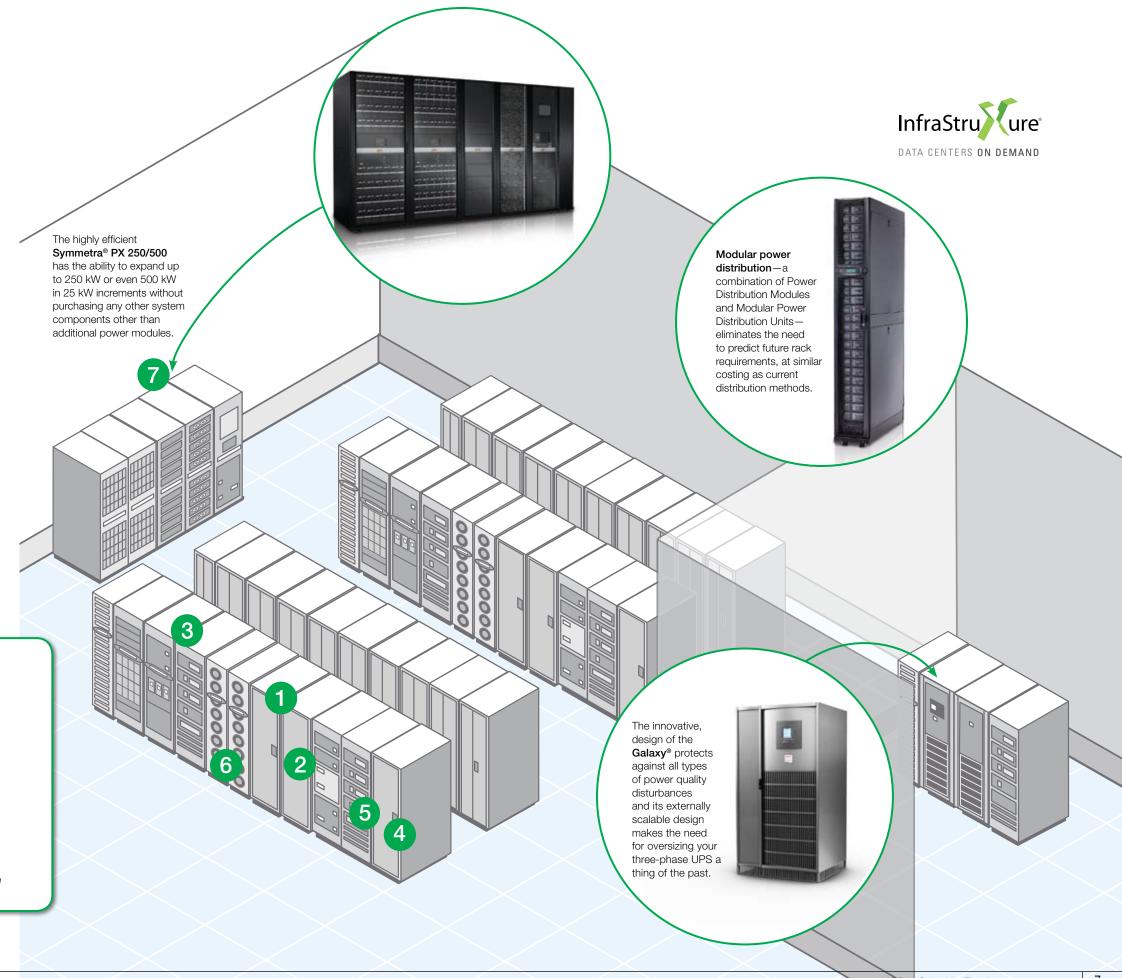
→ Modular power distribution

Modular power distribution is the flexible way to monitor the high-density power flowing through your racks. Available in both single-phase and three-phase options, modular power distribution lets you stay right-sized every step of the way, allowing you to add new power modules as you need them.

And because the modules are hot swappable, cable management is a snap, and no longer requires downtime, hot work, or the help of highly-skilled electricians.

7 Principles of InfraStruXure® HD-Ready Architecture...

1. Enclosures that are HD-Ready
2. Metered PDUs at the rack level
3. Temperature monitoring in the racks
4. Centralized monitoring software
5. Software to manage capacity and change
6. Efficient InRow® cooling products
7. Modular power that is flexible and scalable

The highly efficient **Symmetra® PX 250/500** has the ability to expand up to 250 kW or even 500 kW in 25 kW increments without purchasing any other system components other than additional power modules.

Modular power distribution—a combination of Power Distribution Modules and Modular Power Distribution Units—eliminates the need to predict future rack requirements, at similar costing as current distribution methods.

The innovative, design of the **Galaxy®** protects against all types of power quality disturbances and its externally scalable design makes the need for oversizing your three-phase UPS a thing of the past.

InfraStruXure®
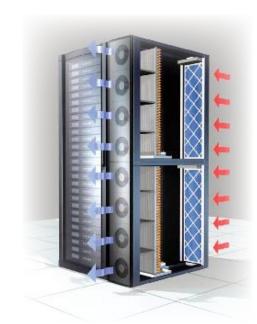DATA CENTERS ON DEMAND

InRow® Cooling:
The Building Block for Higher Density

InRow® cooling units put your data center on the path to higher density and optimal efficiency. By tackling hot exhaust air at its source, you'll restore predictability, improve availability, and eliminate the need for raised flooring.

It's a solution that achieves more by doing less. When you reduce the distance between the cooling source and the heat load, air mixing is minimized and availability is improved. Variable fan speed technology, coupled with management control at the rack- and row-level, also significantly improves data center efficiency by enabling the precise targeting of dynamic hot spots. Meanwhile, fan energy is typically 50% lower than legacy systems, and you're now able to target density where needed, unlike room-level designs.

Additionally, row-based cooling affords you several advantages not offered by perimeter-based cooling systems:

> Well-defined and predictable airflow paths, making the capacity and redundancy known at any enclosure
> Improved energy efficiency and right-sizing of the cooling system, which reduces total cost of ownership
> Restored cooling redundancy to a previously overloaded perimeter cooling system

+ Row-based cooling can lower the total cost of deploying high-density servers by maximizing floor space.

P = Power

C = Cooling

R = Racks

Data Center Management Software:
Predicting Change; Avoiding Downtime

There are no small decisions in today's data centers.

When your data center is running closer to full load, your physical infrastructure is operating at its most efficient. Of course, this also means you're running at reduced safety margins, increasing your chances of overloading, and making those routine moves, adds, and changes all the more critical.

The APC software suite of InfraStruXure® Central, Change Manager, and Capacity Manager enables confident decision making and optimal efficiency.
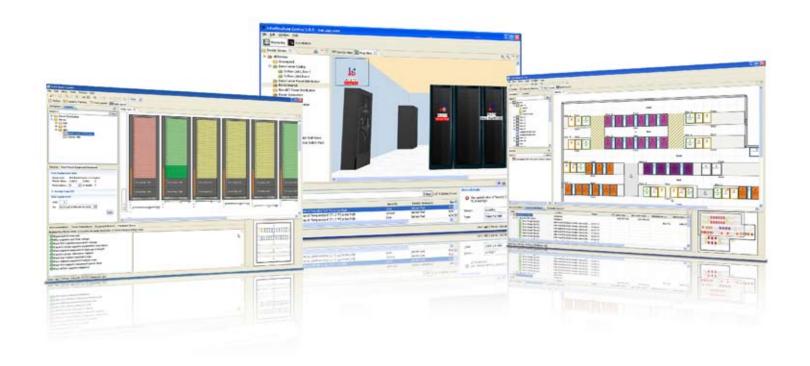
> **InfraStruXure Central** enables users to centrally manage all of their data center devices in real-time, from anywhere on the network. This provides data center managers with an efficient way to monitor their company-wide, multi-vendor physical infrastructure.
> **Change Manager** takes a hands-on approach to inventory management, significantly reducing the potential for downtime by ensuring proper hardware implementation. Using a scannable barcode system, the application keeps accurate track of device properties and physical equipment location.
> Using its sophisticated modeling engine based on real-time data, **Capacity Manager** proactively predicts the optimal location for your physical infrastructure and rack-based IT equipment, enabling more informed decision making and enhanced planning capabilities.

+

AWARDS

InfraStruXure Central won the 2007 Best of FOSE for Data Management Software by Government Computing News.

Capacity Manager was the recipient of a gold medal from SearchDataCenter.com, which honored the software with its Product of the Year Award for 2007.

Schneider Electric Critical Power and Cooling Services:
Ensuring Optimized Availability

Services enable your data center to hit the ground running, ensuring an optimized facility plan, streamlined project management, and a speedy deployment. Need help making the transition from your current setup to an HD-ready data center? Our service engineers handle that, too—from server migration and cable management to software integration.

With Schneider Electric Critical Power and Cooling Services, you can concentrate on your business demands while we handle the rest. Remote monitoring and preventive maintenance options help prevent problems before they occur—and when they do, on-site service engineers minimize downtime by correcting the situation as quickly as possible.

Visit www.apc.com and click on the Services tab to find a global service representative nearest you.

> Schneider Electric will dramatically simplify the process of designing, deploying, and operating the world's most predictable, agile, cost-effective and efficient data centers.

Partnering for a Greener Data Center

A quick look at our list of partner companies is enough to show any customer how devoted we are to providing a complete data center solution. But to help carve out a model for future data center efficiency, APC also partners with the Green Grid, a global network of companies dedicated to advancing energy efficiency in data centers and business computing ecosystems.

As a member of the Green Grid board of directors, APC is helping develop the standards, measurement methods, processes, and new technologies that will make tomorrow's data centers more efficient. So by choosing APC, you ensure that you, too, are on the cutting edge of tomorrow's most efficient data center technology.

For more information, visit *www.thegreengrid.org*

The following have been tested and work best with InfraStruXure® Solutions…

SQUARE D
Square D® is a market-leading global brand of Schneider Electric for NEMA-type electrical distribution and industrial control products, systems, and services.

t.a.c
TAC provides building environment services for indoor climate, security, and energy use, via advanced technology to end users and property.

DELL
Dell is a global systems and services company offering a broad range of product categories, including desktop computer systems, servers and networking products, mobility products, software and peripherals, and enhanced services.

CISCO PARTNER Technology Developer
Cisco, the leading supplier of networking equipment and network management for the Internet, recognizes APC as a Cisco Technology Developer Program partner for its InfraStruXure architecture.

Microsoft®
APC is proud to be recognized as a supporter of the Microsoft Technology Centers throughout the U.S. with our InfraStruXure solution.

PELCO
Pelco is a worldwide leader in the design, development, and manufacturing of video security systems.

EMC² SELECT
APC is a member of the EMC Select program, which offers the InfraStruXure product line to complete your EMC Storage Solution.

IBM ALLIANCE PARTNER
The largest computer company in the world, IBM manufactures and sells hardware and software and offers infrastructure services, hosting services, and consulting services in areas ranging from mainframe computers to nanotechnology.

vmware® technology alliance PARTNER
VMware is the global leader in virtualization solutions from the desktop to the data center.

Tested and Approved for InfraStruXure®

Your Next Steps

Need more information on controlling, monitoring, managing and maintaining your small or medium data center? Want to get more details, or explore APC solutions in greater depth? APC online tools, research guides, and online courses give you all the background you need to make informed decisions and smart investments.

CHECK OUT… APC online resources
APC has developed a wealth of online tools to help you clarify your requirements and explore your options:

- TradeOff Tools™
  These easy-to-use, Web-based applications enable data center professionals to experiment with various design scenarios, including virtualization, efficiency, and capital costs.
  tools.apc.com

- Online Selectors
  The APC Online Selector Tools cut right to the chase to recommend the products that best meet your needs, saving you time and hassle.
  All the Selector tools are accessed via the "Selectors" tab in the top menu bar at *www.apc.com*

- Test Drive
  See products like InfraStruXure® Central and NetBotz® 500 in action, with live images sent right to your desktop to show you the functions you can expect from our products.
  http://testdrive.apc.com/

READ … APC Data Center Science Center research
APC has spent $90 million researching solutions to the most pressing customer problems. Take advantage of more than 100 "must-read" white papers, practical how-to guides, and other thought-leadership publications from the world's leading R&D center on power, cooling, and physical infrastructure issues.

- Implementing Energy Efficient Data Centers (#114)
- Ten Cooling Solutions to Support High-Density Server Deployment (#42)
- Rack Powering Options for High Density (#29)

  Browse through the entire APC library of research by going to our Information Center at *www.apc.com*

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  www.apc-forums.com/index.jspa

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  For more information, go to *www.datacenteruniversity.com*