

Customer Insights: Solutions In Data Center Power Protection

The Challenge

As you grow your business by consolidating servers and storage devices, adding blade servers, or simply adding new IT equipment, data center power protection and distribution can offer many benefits.

You can remove constraints to IT growth by replacing multiple rack UPSs with a single, higher capacity Liebert NX UPS. Or if you already use one or more data center UPS units, but require more power, the Liebert NX UPS with Softscale™ technology supports scalable growth without increasing footprint. You can also utilize enhanced power distribution, as well as integrated service and maintenance packages, to support your business requirements.

Continuing to add small rack UPSs introduces multiple points of potential failure to your IT systems. Additionally, it increases UPS and battery maintenance burdens, adds to cable clutter within racks, and is expensive on a per kVA basis.

What To Look For

1. Are you consolidating servers and storage devices?

Many companies are finding their IT growth constrained by insufficient power, and IT professionals find themselves confronting concerns about power capacity, scalability and redundancy in their data centers. Liebert data center UPSs are designed with these capabilities in mind. Our Liebert NX is the most advanced data center UPS in the industry, offering advantages unavailable elsewhere:

- **Easier Growth and Redundancy** — The Liebert NX offers modules that can be paralleled to grow capacity and add redundancy. These unique capabilities let you parallel modules of like or unlike ratings should you need to change your growth increment midstream. The fixed capacity Liebert NX is available 10kVA, 15 kVA, 20kVA, and 30kVA capacities. By paralleling the UPSs, you can start with 20 or 30 kVA and grow to 60 or 90 kVA. If you have higher power requirements, start with the new Liebert NX Softscale UPS at 40 kVA and scale up to 80 kVA, or start at 80 kVA and scale up to 120 kVA without adding another UPS, simply by using the scalable software key in the UPS. Up to three of these UPS units may also be paralleled for capacity up to 360 kVA.
- **Software Scalable** — You purchase either an 80 kVA or 120 kVA capable unit, but only pay for the capacity you currently need. Then, when your power needs grow, you simply purchase a software key and an Emerson Customer Engineer will visit your site to increase the UPS capacity.
- **Optimal Efficiency** — We've optimized the efficiency curve in the new 40-120kVA Liebert NX models, so they operate with the same high efficiency at 40% utilization as they do at 100% utilization.

You can take advantage of data center power strategies with the following benefits:

Greater equipment flexibility by:

- Scaling for future growth
- Protecting initial UPS investment
- Minimizing power cabling

Higher availability by:

- Reducing multiple points of potential failure
- Using more reliable batteries
- Ensuring ongoing maintenance

Lower total cost of ownership by:

- Deploying equipment with longer life spans
- Ensuring consistent maintenance programs
- Utilizing more energy efficient technologies



Liebert NX with
Softscale technology

For more information on data center power solutions, contact your local
Liebert Network Solutions Partner.

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2. Do you have a room in which there are more than four or five small UPSs or more than 15 kW of power

The Liebert NX is designed to help IT professionals add greater reliability and power efficiency to their data centers. The Liebert NX eliminates potential points of failure by consolidating multiple smaller UPSs into a much more reliable larger system. This lets you meet the high-availability power needs of a wide variety of critical applications.

Rather than operating many UPSs below capacity at low efficiency, you can use a more reliable, higher efficiency solution by replacing multiple smaller rack UPSs with a highly reliable data center UPS, such as the Liebert NX.

You can start with the Liebert NX rated 10kVA, 15 kVA, 20 kVA or 30 kVA. The 20 kVA and 30 kVA UPSs can be paralleled to 60 kVA or 90 kVA respectively. If you already know you will need more capacity, you can start with the Liebert NX UPS with Softscale, which can provide support starting at 40 kVA and grow to 360 kVA with paralleling.



Multiple Rack
UPSs

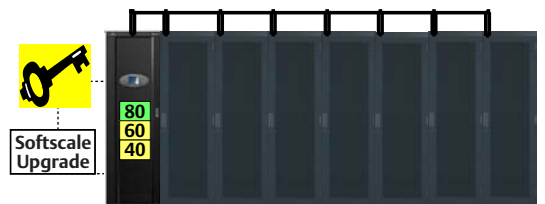


Liebert NX

3. Is your demand for power unpredictable or growing rapidly?

The Liebert NX UPS with Softscale technology allows you to scale more easily at a more predictable cost than is possible using rack-based UPSs or even competitive room-level UPSs.

You can buy the new Liebert NX Softscale solution in 80 kVA or 120 kVA capacities — but you pay only for the part of the total capacity you need. The 80kVA module can be purchased at ratings of 40kVA, 60kVA or 80kVA and the 120kVA module is available at ratings of 80kVA, 100kVA and 120kVA. When you need more capacity, you simply purchase a software key and an Emerson Customer Engineer will visit your site to increase the UPS capacity.



4. Do you need both higher capacity and redundancy in anticipation of future growth?

The new Liebert NX paralleling cabinets are the perfect solution. Paralleling cabinets are available for use with with the Liebert NX UPSs rated 20kVA and 30kVA. Should you need a higher growth increment, other paralleling cabinets are available to connect multiple 80kVA and 120kVA modules together for capacity or redundancy.

The 80kVA and 120kVA Liebert NX with Softscale technology UPSs also support unlike paralleling. This unique capability lets you parallel modules of like or unlike ratings. This means you can start with 80 kVA modules with Softscale, and should your growth rate exceed expectations, you can switch to 120 kVA modules for greater flexibility in managing power growth.

Consider how a software-scalable Liebert NX creates the foundation for a growing data center. Start with a 40 kVA module to meet current needs, then grow capacity to 80 kVA through Softscale™ technology. Then, an additional 40kVA module can be paralleled with the original 80 kVA module for a total capacity of 120kVA. With Softscale technology the 40kVA module's capacity can be increased to 80kVA for a total combined capacity of 160kVA. So your customer has quadrupled power capacity by adding a single UPS module!



Liebert NX Paralleled System

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5. Do the blade servers or other IT equipment you are adding require three-phase power?

The largest single-phase UPS systems generally top out around 20 kVA. To get the higher capacities required for room-level power a three-phase UPS needs to be used. Many data centers already have three-phase panel boards to accommodate this type of power. Three-phase power offers a very efficient form of electrical power distribution.

6. Have your system availability requirements been increasing?

Power availability needs are always growing, no matter what the industry. Data center UPSs are more reliable than multiple rack-mount UPSs, primarily because they have better batteries.

If the UPS is replacing four or more smaller units, the system has fewer components and that means a lesser chance of failure. Plus, no matter what the protection strategy, batteries are the weak link of the UPS – batteries are the most common reason for UPS failure.

Data center UPSs use more reliable batteries with longer lives. These batteries are easily maintainable, and regular service checks can detect problems before a battery fails. Data center UPS batteries also can be monitored with a dedicated battery monitoring system that can predict battery failures before they happen, allowing you to take action before your computer equipment is at risk.

7. Do you want to improve energy efficiency?

We've optimized the efficiency curve in the new Liebert NX Softscale solution, so it operates with the same high efficiency at 40 percent utilization as at 100% utilization. That means greater energy efficiency no matter how your power requirements change.

8. Are you fighting cable tangles in their racks?

As power needs grow, adding more rack level UPS means installing more input receptacles and output cables. Throw in network drops to monitor each UPS and your racks can quickly become a tangled mess of wires.

The Liebert NX combined with Liebert Power Distribution Units (PDU) bring order to your data center, allowing you to grow in a planned and controlled manner while providing individual loads with fault isolating circuit breaker protection. This lets you isolate electrical faults in each piece of rack equipment, so that failure of one piece of equipment will not bring down other equipment.

In the 10-30kVA UPS range, the Liebert NX Slimline distribution cabinet bolts directly to the Liebert NX and provides a 42 pole panelboard that may be populated with single or three phase breakers. This provides scalability as you add equipment by simply adding a breaker.

For Liebert NX UPSs rated 40kVA and above, the optional Liebert FDC provides 4 panelboards for 42 single-phase or 14 three-phase circuit breakers that can accommodate both 120 voltage or 208 voltage. Should voltage transformation be required, the Liebert FPC can meet this need while providing from 1 to 4 pole panelboards.

If power distribution and control within the rack is required, Liebert MP Advanced Power Strips can distribute power and offer power monitoring and receptacle on/off control.



Liebert FPC



Liebert NX



Liebert FDC



Liebert MP Advanced Power Strip

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9. Are your power needs growing rapidly? Would you like to be able to scale power distribution in your data center?

The combination of the Liebert NX UPS with a Liebert FPC or the Liebert FDC gives you the ability to quickly distribute more power to your racks as power needs grow. Room PDUs can be sized for growth, and then, when new racks are added, you can simply add breakers to the PDU. The capacity expansion within the PDU can take place within the confines of the data center and not require outside electrical work. This ultimately makes adding new IT equipment faster and less costly — and avoids interrupting power to their other equipment.

Questions To Help Determine If Room Level Power Is An Option

Here are three questions to ask to determine in a data center UPS is ideal for your environment.

Q: What is the total capacity of the UPSs in the room?

The rule of thumb is that once rack equipment power usage exceeds 15kW, it's time to consider a data center UPS.

Q: How quickly will you need to increase capacity?

Capacity can be quickly added by adding rack UPSs. However, it is more costly on a per kVA basis and less reliable than using data center protection. The scalability of the Liebert NX UPS with Softscale and its enhanced reliability make it a better solution in many cases.

Q: Is there a three-phase 120/208 or 480 voltage line in the room, or can one be made available?

Most data centers are served by three-phase power or occupy buildings with three-phase power. Working with an electrical contractor through your local Liebert Representative can make installation of the three-phase UPS easy. The Liebert NX for 10 to 30 kVA loads requires a 120 / 280 voltage line. The new Liebert NX Softscale UPS for 40-12 kVA loads requires a 480 voltage line.

Next Steps

The Liebert NX and Liebert power management products allow you to cost-effectively meet your current power needs and scale for tomorrow's growth. Data center power protection and distribution can improve your power availability and help manage capacity growth.

**For help with selecting Liebert data center UPS and power distribution solutions,
contact your local Liebert Network Solutions Partner.
For more information on these solutions, go to www.liebert.com.**

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