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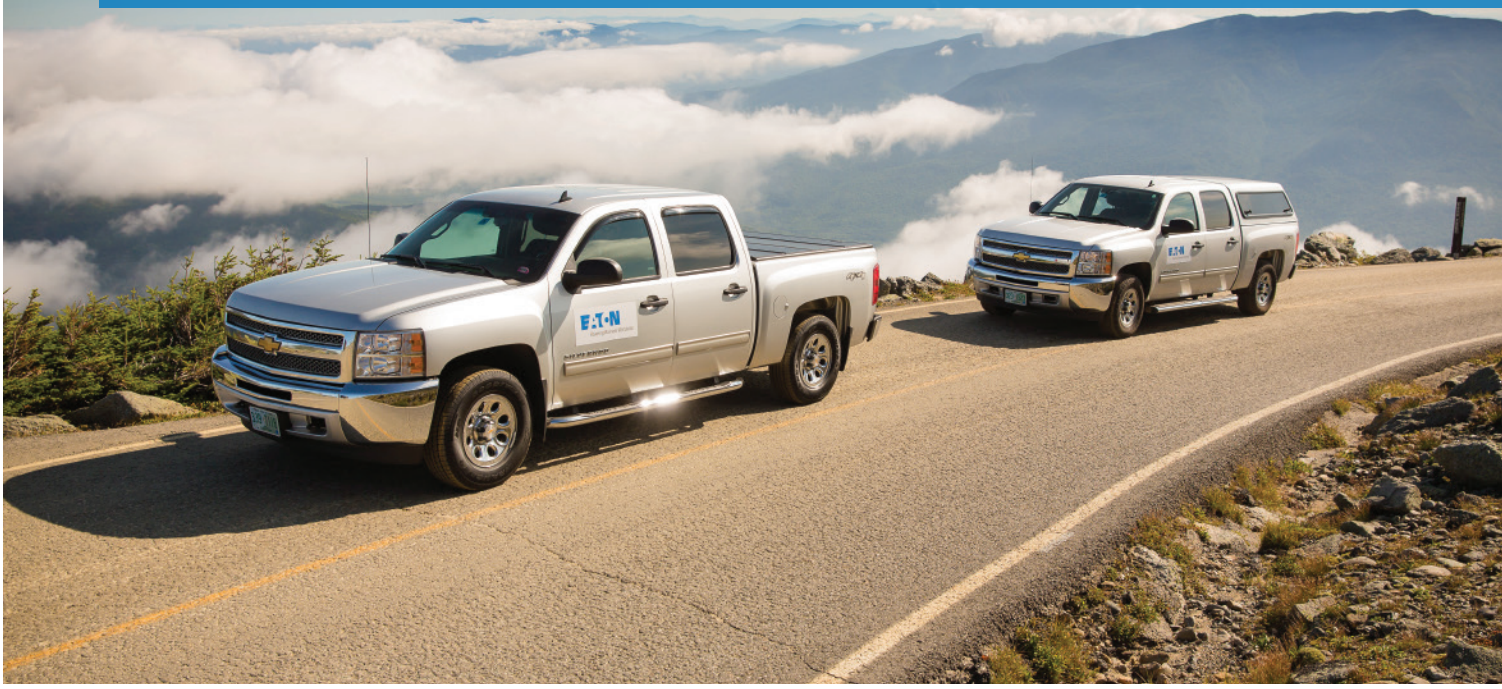

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How to choose the right UPS service approach

Introduction

The old adage of, "If it ain't broke, don't fix it" may be feasible in some circumstances, but applying it to the maintenance of a UPS can have devastating consequences. All manufacturers' UPSs are complex devices that are critical to business operations yet inherently dangerous and subject to failure. Risk can be avoided by implementing the right service approach.

In a study done by the Ponemon Institute, the average cost of downtime reported across 41 datacenters was a staggering $505K per event with an average duration of 1.7 hours. Not surprisingly of the reasons cited, power management issues were at the top of the list.

Research indicates that regular preventative maintenance significantly reduces failure rates by allowing potential threats to be identified early. Based on Eaton service records, over 25% of preventive maintenance visits result in follow-up service to perform corrective actions or upgrades, affording customers the opportunity to repair potential problems before they become significant issues.

When mapping out your uptime strategy, there are four primary options for maintaining UPSs. This paper explores each and outlines the differences and specific advantages among these alternatives.

Table of contents

Powering Business Worldwide

What type of service approach is best for you?

Selecting a service provider for your UPS can be a complex decision. Some customers simply purchase a service contract or extended warranty from the UPS manufacturer, while others prefer to contract with an independent service provider. A handful of companies employ internal engineers who are capable of maintaining all or certain parts of the power equipment. Still others choose to engage in UPS service only when something goes wrong. All of these options have advantages and disadvantages, with no one choice being the best solution for every organization.

Common questions for choosing a service provider and plan

1. **If my UPS fails to provide reliable backup power, what is the cost of downtime to my organization?**
2. **How critical is continuous power to my application? Is it simply an inconvenience or do I lose customer sales, destroy products or shut down a network of critical servers?**
3. **How long can I wait to obtain an emergency repair on my UPS? A week, a day or an hour?**
4. **How many trained field technicians for my specific UPS model are within 100 miles of my site, and do they carry the correct parts?**
5. **Do I have budget or cost constraints for UPS service?**
6. **How much scheduled preventive service do I need and what can I afford?**
7. **What level of service is recommended by the manufacturer?**
8. **Have I budgeted for battery, capacitor or other unplanned part replacement costs?**
9. **Do I have competent electrical staff resources to do some or all necessary maintenance?**
10. **What is my risk tolerance for a UPS failure, and what happens to me personally if this UPS fails?**

Regardless of the exact course of action you implement, an effective preventive maintenance plan saves time and money by minimizing business interruption and the costs of downtime, as well as enhancing your overall return on investment by extending the lifespan of your critical power equipment.

Option 1:

UPS manufacturer's internal service organization

Engaging in a service contract with the manufacturer of your UPS affords a number of benefits. To begin with, customers receive the extensive knowledge, capabilities and expertise of factory-trained field technicians who receive ongoing and in-depth training on the manufacturer's specific UPS products. As a result, technicians are armed with the most up-to-date and comprehensive information pertaining to the functionality of the UPS, as well as access to the latest firmware and upgrade kits to maintain the highest level of performance from the UPS. Furthermore, the advanced troubleshooting capabilities of technicians translate to a reduced mean time to repair. When performing service on a UPS, the day-to-day familiarity and knowledge that comes from being brand-specific cannot be underscored enough.

In addition to offering a deep support infrastructure of design engineers, technical support personnel and other experts to back up its field technicians, UPS manufacturers generally possess the greatest number of field personnel and back office resources. Furthermore, manufacturers most often have in place risk mitigation programs that are frequently overlooked by customers, such as appropriate safety programs and proper levels of insurance.

Another significant advantage to manufacturer-provided service is that technicians have spare parts readily available either from a stocked van or from a central location, ensuring that UPS problems are quickly resolved, most often on the initial service call. Furthermore, many service plans include discounts on part kits and product upgrades, which can significantly reduce the overall cost of maintenance.

To meet the varied needs of customers, UPS manufacturers offer a wide variety of service plans, including standard warranty, extended warranty, preventive maintenance, numerous service contract levels, and time and material (T&M) billing. Many also feature value-added support such as remote monitoring. Even more, most manufacturers offer service contracts that include options such as 7x24 coverage, with response times ranging from two to eight hours or next-day response—an especially appealing benefit for customers in mission-critical environments.

While the price of service may be slightly higher from a manufacturer compared to an independent service provider, the advantages that only a UPS manufacturer can offer may outweigh any additional costs.

Option 2:

Independent service provider

An independent service provider is a third-party organization that often offers a range of services for UPSs or power quality equipment, such as maintenance, consulting, start-up, installation and emergency service. Although independent service providers are frequently priced lower than a UPS manufacturer, they also generally have fewer resources available and may not be comprehensively trained on your particular UPS model.

While an independent service provider's field technicians have usually received training on either a specific UPS product or brand, and may or may not be certified by a UPS manufacturer, it is virtually impossible to fully train a technician on every UPS model from every manufacturer. Furthermore, because UPS products are continually being updated and changed, if a technician has not been recently trained by the manufacturer, he or she may not have the knowledge to adequately service the UPS.

When it comes to having access to repair parts, some technicians may carry the appropriate parts with them or have them available from a central location. However, it is difficult to carry a local supply of adequate parts for all brands. Generally, independent service providers will access a UPS manufacturer's deep support infrastructure of design engineers, technical support and experts to back up their own field team, as the depth of their own resources can be limited. Insurance and safety records may or may not be maintained at an acceptable level. In addition, in case of emergency, third-party organizations may not be in a position to troubleshoot and solve the issue in a timely manner.

While independent service providers generally do not deliver a factory warranty unless contracted by a manufacturer, they do offer preventive service, a variety of service contract levels, and T&M billing. Some may offer value-added support such as remote monitoring.

UPS service comparison chart: UPS Manufacturer vs. Independent Service Provider

	UPS manufacturer	Independent provider
Number of factory-trained techs within 100 miles for the specific UPS models		
New OEM (not refurbished or used) parts for the specific UPS model stocked on van with field tech		
Percentage of week spent working on specific UPS make or model		
Has latest firmware and upgrade kits to maintain performance		
Has 7x24 backup logistics center with specific new OEM parts		
Has 7x24 call center for emergency support		
Has 7x24 technical support available for specific UPS make and model		
Provides electronic field reporting and site history		
Has defined escalation process and senior techs on call 7x24		
Has access to OEM's technical field service bulletins (FSB)		
Maintains an OSHA incident rate of <1.0		
Has OSHA compliant safety program and documents for inspection		
Complies with NFPA 70.E for arc flash work practices		
Measures every site visit for customer satisfaction and improvement using quality of service surveys		
Employs direct field technical support (product experts) employees to back up the field technicians		
Offers 7x24 remote monitoring and diagnostics		
Has liability insurance and financial stability		
Has access to factory and product design engineers		
Can manage and extend the product life cycle for maximum cost effectiveness		
Can offer local, national or global support contracts		
Can provide professional engineering, turnkey and support services		
Supports a wide variety of infrastructure products under a single contract		
Has a history of proven expertise in delivering power quality services		

Option 3:

Self-maintenance

If an organization has an internal resource that possesses sufficient electrical and safety skills, it may make economic sense to perform self-maintenance on a UPS. The most important aspect of self-maintenance is to have an efficient plan in place, in which routine scheduled maintenance is performed and common wear items such as batteries and capacitors are proactively addressed.

First responder training enables a skilled person to understand the operation, safety, environmental concerns and basics of preventive maintenance on a specific UPS. Safety concerns include, but are not limited to, electrical arc flash hazards. This person must also understand the various alarm conditions and responses required for specific events, as well as the steps to start and stop a UPS correctly in various applications.

A spare parts kit obtained from the UPS manufacturer can supplement those who choose to self-maintain their UPS equipment. However, it is important that an organization also has access to a professional service provider for more critical repairs, upgrades or routine maintenance that may be required to supplement a self-maintenance resource.

Questions to ask when considering self-maintenance

Before opting to perform self-maintenance on a UPS, consider the following questions:

1. Is there an internal resource within your company that possesses basic UPS knowledge and electrical skills? If so, does this individual have time that can be designated to UPS maintenance?
2. Has your organization developed a specific plan for self-maintenance, including a schedule for replacing common wear and tear items?
3. Has a spare parts kit been purchased from the UPS manufacturer?
4. Has an external service resource been identified for more critical repairs?

Option 4:

Time and material

Paying as you go is a common UPS maintenance approach that can be appropriate in certain situations, primarily for very old UPS models where no service contract is available. However, this tactic does not make good economical sense for complex, multi-module or redundant UPS configurations.

Available at any time to all customers, T&M is typically charged per hour of labor, often with a minimum number of hours required. Charges are also generally more for after-hours and weekends, compared to normal business hours. Response time for T&M is typically "best effort" with no guarantee of arrival, as customers with existing service agreements are always given priority over T&M customers.

Another downside to T&M is that replacement parts are usually very expensive. For example, the average board for a common three-phase 80 kVA UPS costs more than $5,600, while power modules that integrate several components exceed $10,000 each, with larger models containing several pairs of modules.

The uncertainty of response time during an emergency and financial exposure to unplanned repairs may make T&M less attractive to more mission-critical organizations. On the other hand, T&M may be appropriate for a self-maintainer, in situations where a UPS is not fully utilized, or where preventive maintenance is being performed by a manufacturer or independent provider and the insurance portion of a service contract (parts and labor coverage and emergency response) is deemed unnecessary by either self-insuring or other reasons. It is recommended that you make certain there is an agreement or necessary paperwork in place with your OEM to limit delays and minimize downtime.

Questions to ask when considering T&M

If you are considering the pay-as-you-go approach, it is important to first consider the following questions:

1. Is there a service plan available for your particular UPS?
2. How complex is your organization's UPS?
3. Is your UPS utilized regularly or occasionally?
4. Is your UPS supporting mission-critical applications?
5. In the event of a UPS failure, can your organization afford an uncertain amount of downtime until a technician is able to schedule a service call?
6. Does your company have sufficient funds allocated for T&M service, parts and repairs?

Conclusion

Although UPS technology has improved significantly over the past 20 years, routine maintenance of these complex devices is critical for organizations wishing to avoid the potentially devastating and extremely costly consequences of downtime. Whether you choose to engage in a regular preventive maintenance contract with a UPS manufacturer, rely on an independent service provider, perform routine maintenance in-house, or call upon professional expertise only when needed, there are specific benefits to each option, as well as disadvantages of which you should be aware. Regardless of the process you choose, some form of UPS maintenance is necessary in order to minimize business interruption and the costs of downtime, as well as enhance your return on investment and maximize the life of your UPS.

About Eaton

Eaton's electrical business is a global leader with expertise in power distribution and circuit protection; backup power protection; control and automation; lighting and security; structural solutions and wiring devices; solutions for harsh and hazardous environments; and engineering services. Eaton® is positioned through its global solutions to answer today's most critical electrical power management challenges.

About the author

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