



POWERING NETWORK RESILIENCY WITH UPS LIFECYCLE MANAGEMENT

Network downtime is a business disrupter, cutting off communication between employees and customers, bringing service delivery to a halt. Yet all too often, it's caused by a power disruption that's entirely avoidable. Read this White Paper to explore the value of uninterruptible power supply (UPS) lifecycle management to ensure network (and business) continuity—and how a managed service for predictive maintenance delivers ROI—and savings.



UPS AS AN ASSET—AND A LIABILITY

Out of sight is out of mind, and that's true for UPS devices. This backup power equipment is installed behind closed doors and rarely thought of until there is a problem, namely, downtime. When downtime strikes, users are the first to react as they are shut off from their networks, applications, and data. In the case of network equipment, UPS devices are critical to ensuring connectivity and communications between employees and customers. Network equipment that goes down within a hospital, for example, can put patient lives at risk if clinicians can't communicate or share information. Financial companies are mandated by compliance to protect against service delivery disruptions—whether from disaster, malicious attack—or power disruption. And, in the case of manufacturing, operations could come to a stand-still should networks that support IoT sensors and robotics lose power.

Power is generally reliable, but problems can and do occur. As much as 35 percent of downtime is caused by power outages.¹ If power is disrupted, the business impact is immediate. It's estimated that most organizations can only handle 72 minutes of high-priority application data loss per year.² It costs a company about \$5,600 per minute of unplanned data center downtime.³ It's projected that businesses lose between \$104 billion and \$164 billion per day to power interruptions and another \$15 billion to \$24 billion from other power problems.⁴

The result of these disruptions expands beyond monetary loss. Stakeholder confidence in a business can be negatively impacted when network reliability isn't assured. Compliance requirements mandate continuity for many sectors, including healthcare and financial services—making UPS reliability mission-critical to compliant, legal operations.

COMPLIANCE AS AN UPTIME DRIVER⁵



Healthcare

Health Insurance Portability and Accountability Act (HIPAA) has compliance mandates to prevent downtime events that limit access to electronic health records and the FDA Code of Federal Regulations requires backup measures to ensure information availability.



Finance

Sarbanes-Oxley Act makes corporate officers liable for business continuity.



Government

National Institute of Standards and Technology (NIST) and FEMA guidelines necessitate electronic data availability during a crisis and continuity plans.



Utilities

Electric Power Research Institute (EPRI) is outlining best practices for Smart Grid power continuity and standards while the North American Electric Reliability Council (NERC) Interim provisions necessitate backup power if it is expected to take more than one hour to implement primary facilities disaster recovery plans.



Manufacturing

ISO 9000 Requires incident preparedness, backup and disaster recovery plans, testing, and assurances via operational continuity management.



THE DATA CENTER UPS
MARKET IS EXPECTED TO
EXCEED USD 4.5 BILLION
BY 2024.⁶

CURRENT STATE OF UPS MAINTENANCE.⁷

Research indicates that most companies employ a reactive approach to managing their UPS systems.

- >55% Reactive
- 31% Preventive
- 12% Predictive
- 2% Other

LIFECYCLE UPS MANAGEMENT CHALLENGES

A UPS is designed to maintain power supply to the network in the event of a worst-case scenario. Once installed, it's easy to forget that these devices are hidden away in the network closet. But, like any other capital equipment, it must be maintained for reliable function and ROI. There's a useful operating life and once it's passed, reliability is reduced and operating costs rise.

Downtime happens when UPS units are improperly managed. The need for UPS lifecycle management is clear; however, the path to achieving it is less so. Not only are these devices frequently overlooked for maintenance or upgrades, but several unique challenges also pose management barriers, including:

- **Task Ownership:** There is some disagreement as to whose job it is to manage UPS devices. Since they are a utility backup, it can fall into the responsibility of facilities managers, but since they support networks, they can also be the concern of IT managers. When neither party steps up to take responsibility, the UPS is not managed or maintained, leading to potential problems as the equipment ages.
- **Technology Expertise:** UPS devices are sophisticated, with different configurations to support a wide range of data center and network needs. Skill is needed to right-size a UPS to workload demand—and continuity goals. Additionally, maintenance schedules must be established from deployment to end of life. This expertise lies outside the skill of many IT and facility managers.
- **Bandwidth and budget:** IT and facilities managers are tight with their budgets—and neither one wants to part with dollars to maintain UPS. Furthermore, it makes little financial sense to put a dedicated IT or facilities resource on the task of UPS management when their time could be better allocated to core initiatives like infrastructure and security.

UPS MAINTENANCE TYPES—REACTIVE, PROACTIVE, AND PREDICTIVE

There is a wide range of UPS management approaches that fall into three distinct categories: Reactive, proactive, and predictive. Reactive management involves a strategy of "running" the device until it breaks. Here there is little (or no) maintenance performed on a regular basis. Proactive management assumes some standard maintenance performed at predetermined intervals. Lastly, a predictive maintenance approach issues repairs based on an ongoing evaluation of device performance health based on testing. Benefits to each of these approaches vary, as do costs associated with their deployment.

It's estimated that a predictive maintenance program can deliver a financial savings of eight to 12 percent over a program that leverages preventive maintenance alone—and delivers a 10 times improvement of maintenance ROI.⁷ Other notable benefits of predictive maintenance include:

- Up to 30% reduction in maintenance costs⁷
- Up to 75% eliminating of breakdowns⁷
- Up to 45% reduction in downtime⁷



OUTSOURCING UPS MANAGEMENT

UPS lifecycle management takes time and resources—from either IT or facilities departments. Outsourcing to a service provider can ensure device health, which translates into network resiliency and uptime. UPS technology experts can also mitigate common UPS lifecycle challenges.

Take for example the issue of load optimization. UPS equipment may be designed to operate at full design load for 5,000 hours and may be designed to go through 15,000 start-and-stop cycles.⁷ Traditional UPS load must be projected as far out as 10 to 15 years (the average data center lifespan).⁸ Understanding how to balance load requirements requires expertise. If not, TCO can be increased by as much as 30 percent due to the practice/risk of oversizing UPS capacity.⁹

Advantages of outsourced UPS lifecycle management expertise include:

- **Augmented resources:** Outsourced UPS solutions can alleviate burdensome maintenance tasks, leaving IT and facilities staff to allocate time to mission-critical core functions.
- **Cost control:** UPS devices can be maintained for peak operational efficiency, reducing the ongoing costs associated with reactive maintenance, which could include replacement of the equipment.
- **Operational resiliency:** A service provider trained in predictive UPS lifecycle management can ensure rightsized deployments, upgrades, maintenance, and disposal to minimize operational downtime.

BUSINESS-CASE SCENARIOS

- **New technology adoption:** A UPS service provider can make upgrades as new innovations are introduced into market. APC™ by Schneider Electric, for example, has introduced Smart-UPS solutions using Lithium-Ion batteries as an alternative to traditional lead-acid batteries that can double UPS battery lifecycle, lower TCO costs by up to 35 percent, and reduce battery weight by 30 percent.¹⁰
- **Economy and scale:** A business looking to right-size a UPS for a network closet is different than one supporting a data center. A knowledgeable UPS service provider can right-size the deployment to save cost. In this case, the service provider might recommend a single-phase UPS like the APC Smart UPS-SRT that offers both reliability and economy. These devices provide extended run models to power communications systems through outages that could last for hours, offering many different models based on budget and runtime requirements.

ADVANTAGES OF OUTSOURCED
UPS LIFECYCLE MANAGEMENT
EXPERTISE INCLUDE AUGMENTED
RESOURCES, COST CONTROL
AND OPERATIONAL RESILIENCY



CONCLUSION

UPS lifecycle management can deliver affordable, reliable network availability that supports users and the business—reducing risk while satisfying stakeholder demand for continuity. Partnering with a UPS service provider can provide expertise to configure, deploy, manage, and dispose of UPS devices for optimum ROI and reduced TCO. It can also reduce management burdens on IT and facilities management staff. UPS service providers like Power Techniques can streamline the UPS management approach by offering equipment, management, and engineering services from a single source to align UPS investments with continuity goals—including the use of single-phase UPS investments like the APC Smart-UPS solutions configured for affordable, reliable power continuity for network closets.

TO LEARN MORE:

Contact Power Techniques, Inc. at (800) 536-8150
or email TeamPTI@PowerTechniquesInc.com

ABOUT POWER TECHNIQUES, INC.

Power Techniques is an APC Elite Partner and UPS solution provider with more than 30 years of electrical engineering experience. We work with data center managers and network operations to develop and deploy power continuity for data centers and networks, offering expertise at the design, build, section, commissioning, management, maintenance, and operations phases.

POWER TECHNIQUES, INC

3210 Coolidge Hwy. | Berkley, MI 48072
(800) 536-8150
www.powertechniquesinc.com

REFERENCES

- ¹ [InvenioIT](#), 2017 Disaster Recovery Statistics That Businesses Must Take Seriously, Jan. 2018
- ² [Backup and Recovery Solutions Review, Report: Unexpected Downtime Costs Organizations \\$21.8M per Year](#), April 2017.
- ³ [ZDNet](#), blog, *The astonishing hidden and personal costs of IT downtime*, accessed June 2018.
- ⁴ [APC Blog](#), *Six Types of Power Disturbances*, accessed June 2018.
- ⁵ [Geminare](#), *An Overview of U.S. Regulations Pertaining to Business Continuity*, accessed July 2018.
- ⁶ [Exclusive Reportage](#), *Data Center UPS Market up to 2024: Growing Trend Of Cloud Computing And Virtualization*, June 2018.
- ⁷ [U.S. Department of Energy](#), *O&M Best Practices Guide, release 3.0*, Aug. 2010.
- ⁸ [APC White Paper](#), *Comparing UPS System Design Configuration*, Accessed July 2018.
- ⁹ [APC White Paper](#), *Avoiding Costs from Oversizing Data Center and Network Room Infrastructure*, accessed July 2018.
- ¹⁰ [APC web page](#), *Smart-UPS Lithium-Ion Battery*, accessed July 2018.