NEED OF UPS

Every day, interruptions to electrical service in homes, businesses, and public sector organizations occur. The losses from these power outages can be extensive and of great consequence. For a business, the recovery time is significant and the costs are high. According to PricewaterhouseCoopers research, after a power outage disrupts IT systems:

- More than 33% of companies take more than a day to recover.
- 10% of companies take more than a week.
- It can take up to 48 hours to reconfigure a network.
- It can take days or weeks to re-enter lost data.
- 90% of companies that experience a computer disaster and don't have a survival plan go out of business within 18 months.

Power outages can cause substantial losses for the companies affected. According to the U.S. Department of Energy, when a power failure disrupts IT systems:

- 33% of companies lose $20,000 – $500,000.
- 20% lose $500,000 to $2 million.

Why a UPS?

A UPS protects IT equipment and other electrical loads from problems that plague our electrical supply, performing the following three basic functions:

- Preventing hardware damage typically caused by surge and spikes. Many UPS models continually condition incoming power as well.
- Preventing data loss and corruption. Without a UPS, devices that are subjected to a hard system shutdown can lose data completely or have it corrupted. In conjunction with Intelligent Power Manager, an Eaton UPS can facilitate a graceful system shutdown.

- Providing availability for networks and other applications while preventing downtime. In some cases, they provide enough battery runtime to ride through brief outages; in other cases, they provide hours of runtime to ride through extended power outages. UPSs are also paired with generators to provide enough time for them to power up.

UPS Topologies

There are several different UPS topologies that provide varying degrees of protection. Selecting the best fit depends on several factors, including the level of reliability and availability desired, the type of equipment being protected, and the application/environment. While all four of the most common UPS topologies outlined below meet the input voltage requirements for IT equipment, there are key differences in how the result is achieved, as well as the frequency and duration of demands on the battery.

Standby UPSs allow equipment to run off utility power until the UPS detects a problem at which point it switches to battery power to protect against sags, surges or outages.

Online UPSs provide the highest level of protection by isolating equipment from raw utility power –converting power from AC to DC and back to AC. Unlike other topologies, double conversion provides zero transfer time to battery for sensitive equipment. This topology is best applied to mission-critical equipment and locations where power generally is poor.

Line-interactive UPSs actively regulate voltage either by boosting or decreasing utility power as necessary before allowing it to pass to the protected equipment or by resorting to battery power. Line-interactive models are ideal for applications were protection from power anomalies is required, but the utility power is relatively clean. MDF and IDF communication closets, non-centralized server and network rooms, and general IT enclosures are ideally suited for this topology.

Ferroresonant UPSs operate similarly to line-interactive models with the exception that a ferroresonant transformer is used to condition the output and hold energy long enough to cover the time between switching from line power to battery power, which effectively means a no-break transfer. Many ferroresonant UPSs are 82-88% efficient and offer excellent isolation. Although no longer the dominant type of UPS, these robust units are still used in industrial settings, such as the oil and gas, petrochemical, chemical, utility, and heavy industry markets.

Source : https://bboxblog.wordpress.com/2013/11/19/why-you-need-a-ups/