

APC's POWER 101

The Problem with Power

We live in the Information Age where countless data is created, transmitted, and stored. We live in the Electronics Age where numerous electric-powered machines aid in business and household tasks, as well as entertain and inform us.

The reality of living in this time of technological innovation is that the power to run these machines can't keep up (at least not yet). In many locations around the world, electricity generation, transmission and distribution have not evolved at the same pace as computer and communications equipment. What was built years ago for powering factories producing manufactured goods is struggling to adapt to provide continuous, sufficient-grade power to sensitive electronics processing valuable information.



What is a Power Event?

Sags, surges, noise, spikes, blackouts...what really happens to connected devices when they experience a power anomaly? A lightning strike is a frequent example, although it is just one of countless problems that can strike your equipment.

Imagine lightning has just struck a nearby transformer. If the surge was powerful enough, it travelled instantaneously through wiring (AC, network, serial, phone lines and more) with the electrical equivalent force of a tidal wave. For PC users, the surge could have travelled into your computer via the AC outlet or phone lines. The first casualty is usually a modem or motherboard. Chips go next, and data is lost.



Lightning Facts from APC

The utility responds to overvoltages by disconnecting the grid. This creates brownouts and blackouts. If the voltage drops low enough, or blacks out, hard disks in computing machinery may crash, destroying the data stored on the disks. In all cases, work-in-progress stored in cache is instantly lost. In the worst case, password protection on the hard drives can be jumbled, or the file allocation tables may be upset, rendering the hard disks useless.



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The Costs of Downtime



In the Information Age, data is quite valuable. It is the livelihood of businesses across the globe, whether in the form of financial transactions or online purchases or customer demographics or correspondence or spreadsheets or any number of business applications.

The Internet has emphasized that availability equals viability. If companies do not have reliable solutions for the continuing operation of their equipment, they lose money. If one company's Web server goes down due to blackout, customers are apt to click over to a competitor's. If mission-critical computers involved in manufacturing are damaged by a surge, inventory runs behind and schedules are missed. If electronic noise penetrates sensitive testing and measurement machinery, delays are inevitable.

Here are a few statistics that quantify the true costs of systems downtime:

THE COST OF DOWNTIME

INDUSTRY SECTOR	REVENUE/HOUR	REVENUE/EMPLOYEE-HOUR
Energy	\$2,817,846	\$569.20
Telecommunications	2,066,245	186.98
Manufacturing	1,610,654	134.24
Financial institutions	1,495,134	1,079.89
Information technology	1,344,461	184.03
Insurance	1,202,444	370.92
Retail	1,107,274	244.37
Pharmaceuticals	1,082,252	167.53
Banking	996,802	130.52
Food/beverage processing	804,192	153.10
Consumer products	785,719	127.98
Chemicals	704,101	194.53
Transportation	668,586	107.78
Utilities	643,250	380.94
Health care	636,030	142.58
Metals/natural resources	580,588	153.11
Professional services	532,510	99.59
Electronics	477,366	74.48
Construction and engineering	389,601	216.18
Media	340,432	119.74
Hospitality and travel	330,654	38.62
Average	\$1,010,536	\$205.55

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