



# Technical White Paper

## **Protecting from Power Failure.**



# UPS and Battery Backup

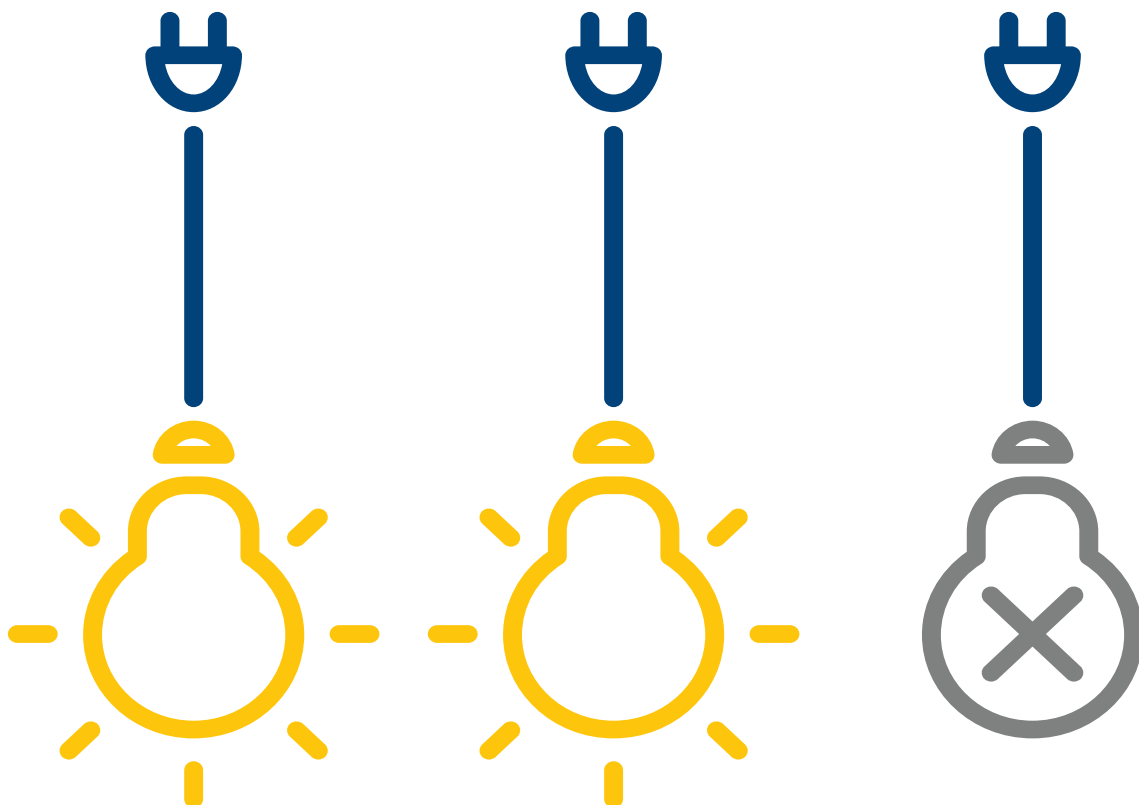
## Protecting your Prinect Workflow.

You're protecting your workflow from harmful viruses. But what do you do in case of a power outage? Protecting your print production is more important today than ever before. We have talked in the past about the importance of backup/disaster recovery and the importance of securing your system with our [Prinect Workflow Cyber Attack](#) white paper. This white paper focuses on safeguarding your workstations/servers from an electrical power standpoint. This paper is intended to provide guidance on how to best protect your Heidelberg Prinect® Workflow servers in regards to power.

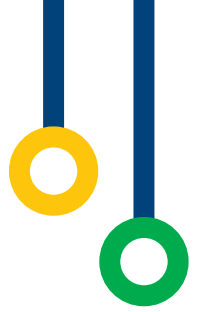
Most recently, damaging storms and flooding have shown how frequent and quickly weather-related disruption can occur, and the unplanned downtime can be very costly. While we find customers with rack-based solutions tend to better protect their equipment, often customers who use desktop tower servers do not have UPS (Uninterruptible Power Supply) protection. In many cases, customers use UPS for their servers and work stations but often overlooks their network appliances like switches and firewalls, which are vital to the production process. UPS and Battery Backup for your Prinect Workflow

It is critical for printers to take a proactive approach to safeguarding their investments. Protecting your Heidelberg Prinect Workflow Servers with a UPS/Battery Backup should be at the top of your IT preparation checklist. Your production uptime, your sales and, perhaps most importantly, your reputation depends on your ability to ride through a power outage and resume production as quickly as possible. In particular, you should focus on protecting any mission-critical servers including your Print MIS systems, any customer-facing servers (that run Web-based applications), any servers running databases with battery back-up/UPS, or any infrastructure appliances like Firewalls and Network Switches should be protected.

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# What to Consider:



## What is a UPS?

A UPS (Uninterruptible Power Supply) provides emergency power to a load when your input power source has failed. A UPS provides instantaneous protection from power interruptions by supplying power through a battery. The battery is typically designed to sustain continuous power during a “brown out” condition and sustains power for a graceful shutdown during a “black out” condition.

## How often should I replace my UPS?

Heidelberg USA, Inc. recommends the following guidelines for a UPS to protect your Heidelberg Prinect Workflow servers. However, please also check with the manufacturer of your UPS for their “Best Practices.”

- If your UPS is between 0 and 4 years old, you should consider extending the manufacturer’s warranty (if you don’t already have one).
- If your UPS is between 2 and 4 years old, you should consider a new battery for the UPS to ensure maximum runtime.
- If your UPS is more than 4 years old, you should consider replacing that UPS with a newer UPS.

Keep in mind that, just like any other product, a newer UPS incorporates updated technologies and features to improve battery management. Additionally, over time, these technologies become more environmentally friendly – saving you in energy costs as well. You should strongly consider replacing your UPS after a maximum of 8 years or after multiple battery failures.

## Do I need a Management Interface Card for my UPS?

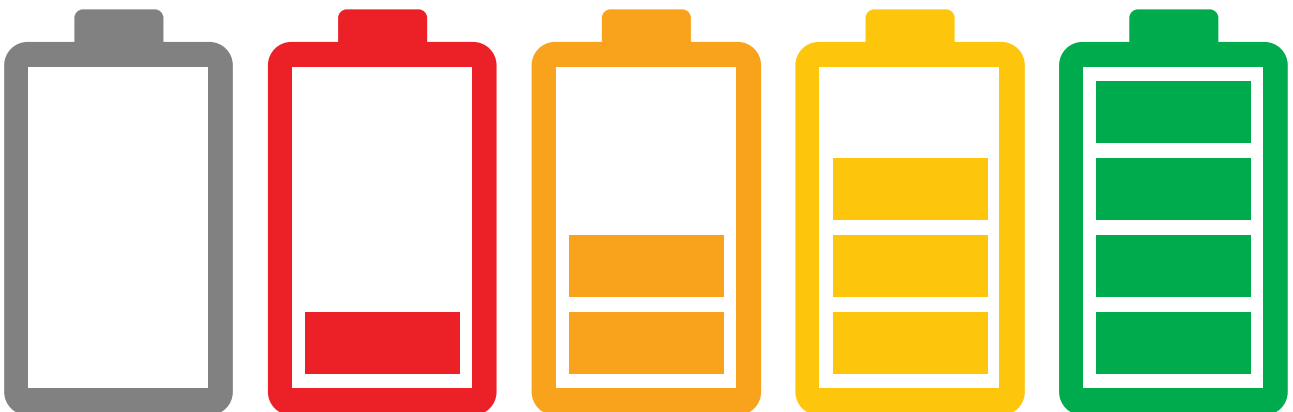
Heidelberg USA, Inc. strongly recommends using a UPS Network Management Card. The UPS initiates the graceful shutdown by sending a signal to special software running on the host computer system.

This is typically done via a serial cable: one UPS to one host computer system. However, in cases where you have multiple systems connected to a single UPS, you need to use a Network Management Card to allow the UPS to send the signal to initiate the graceful shutdown to several systems.

Network Management Cards allow for secure monitoring and control of an individual UPS usually via a web browser, command line interface, and/or SNMP. They also use software, like PowerChute, to provide unattended graceful shutdown in the event of an extended power outage – keeping your production servers safe. This is especially critical in shops that do not run 3 shifts, because power outages often occur during the night when no one is there to manually shut down the server. Your workflow servers use databases that need to have a secure shutdown, where users are logged out and the database is closed properly, e.g., all transactions committed. Without this capability, an extended outage would result in an unplanned shutdown when the battery drains.

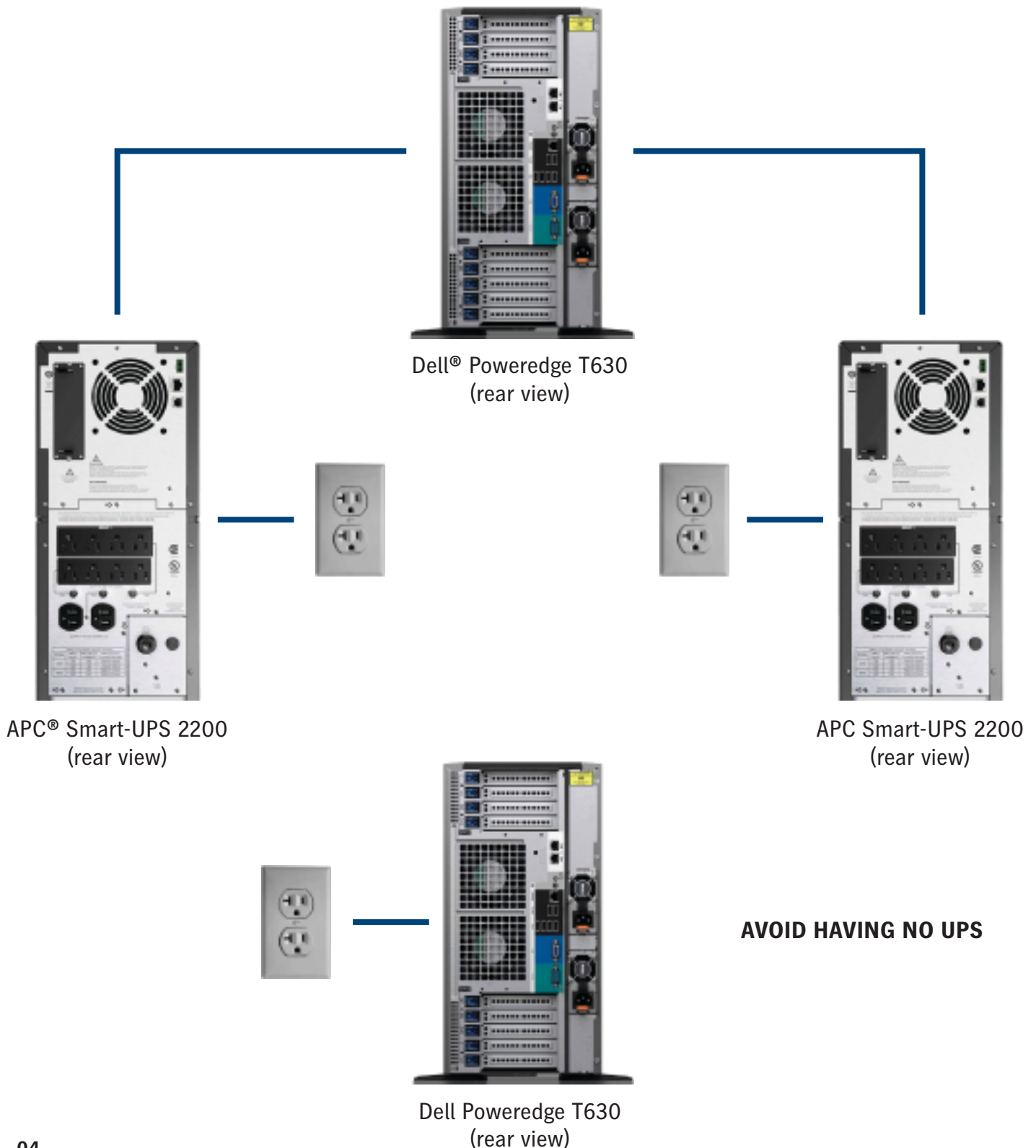
## How do I know how big a UPS I need?

There are several factors to consider – like how many drives, how many PCI cards, what type of display monitor, etc. Also, there is power drawn on boot and power drawn during idle time and certain power while running. You have to take into account the worst case situation, and allow for room to grow. For example, if you add more drives in a server, will the UPS and battery still support the server?

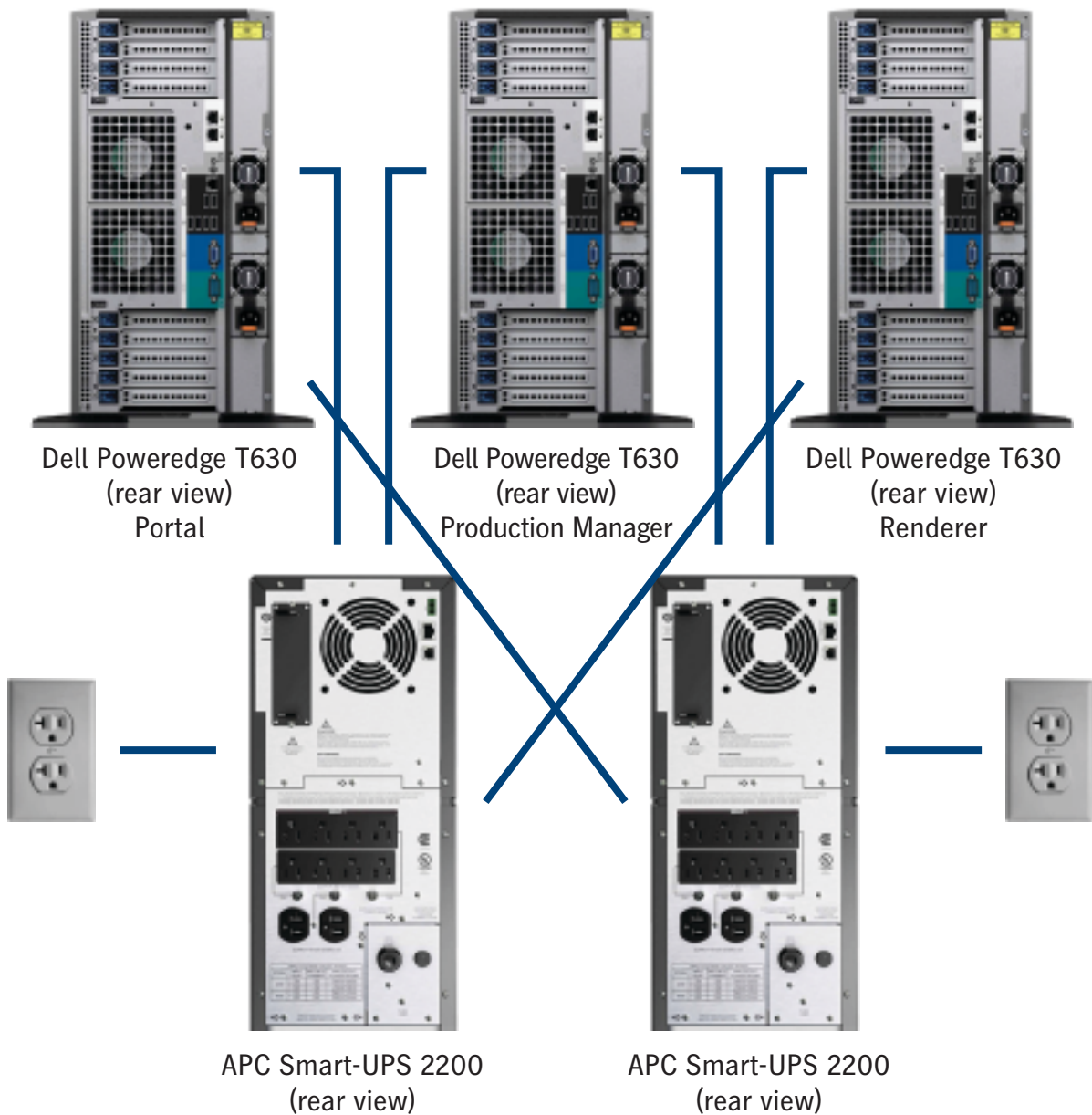


# UPS Configurations:

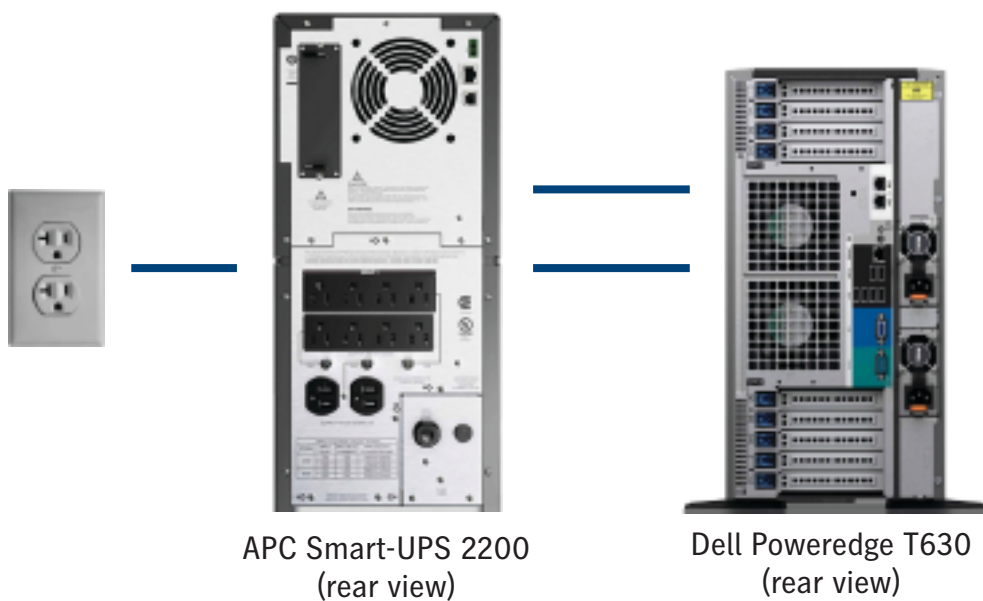
In devices with N+1 power, plug one power supply into one UPS and the second power supply into a second UPS. This would ensure that if electrical power was not available to one, the second path may provide necessary power. The following illustrates a system that has N+1 power without any single points of failure in the electrical path. In this example, it is assumed the wall outlets are on different circuit breakers at the electrical panel.



→ Keep in mind that a UPS such as the APC Smart-UPS 2200 depicted in the drawing, can support multiple servers such as a Prinect Production Manager, Prinect Renderer and Prinect Portal, so it does not have to be a one-to-one relationship. You can optimize your implementation doing something like this:



Of course, that does not mean you cannot use a single UPS for a single server, as seen in this example:



# What to Consider Cont'd:

## **Does a UPS protect the servers from surges and spikes when it is turned off?**

As long as everything is correctly connected to the UPS, you should be able to safely turn off your servers and UPS when they're not in use. Your servers will still be protected from physical hardware damage caused by surges and spikes. Please be sure to double-check with your UPS manufacturer.

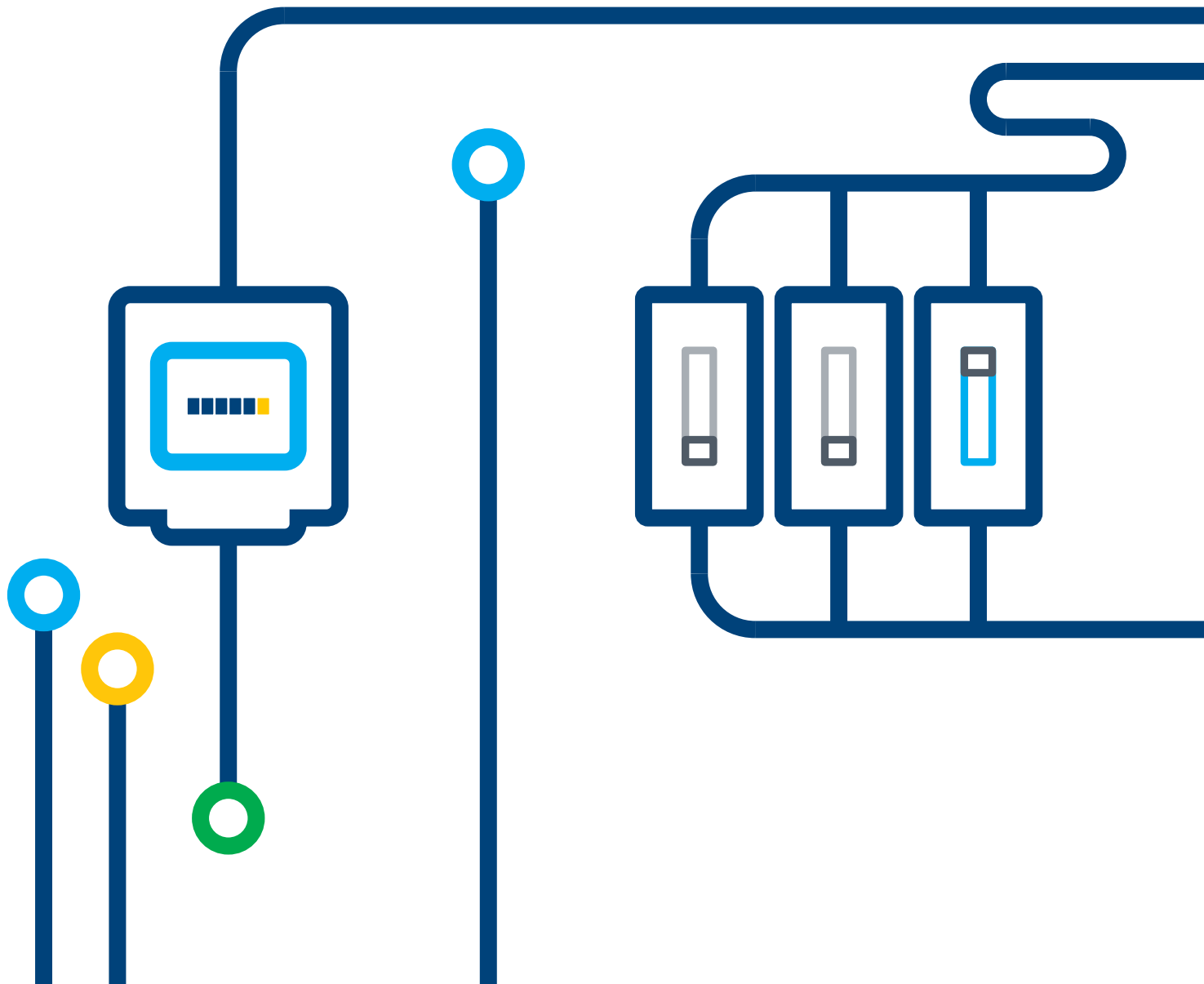
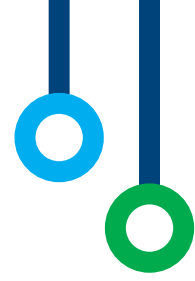
## **What is the best way to connect a UPS?**

Heidelberg Prinect Workflow servers include N+1 power, which means they have redundant, hot-swappable power supplies. If one power supply fails, the other would keep the server functional until it can be replaced. Replacing the failed power supply can happen while the system is operational. To maximize the benefits of a UPS, you need to eliminate any single point-of-failure throughout the entire power path.

## **How much does an hour of downtime cost your business?**

This is an important metric to understand, and you will, most likely, be surprised at the cost. You have to consider costs such as lost productivity of employees, potential overtime and increased utility costs, lost revenue due to missed deadlines, and the potential for lost customers. Often, this cost is significantly more than the upfront cost of the right UPS to protect your systems.

The average amount is \$4,789.60 per hour for an average printer. Recovery can take anywhere from 1 hour to more than 24 hours depending on how prepared you are, the size of your business, and the scope of the damage. The average time is about 4 hours to be fully recovered. Unfortunately, these things can happen unexpectedly on a Friday night or during a 3-day holiday weekend.



# Summary:



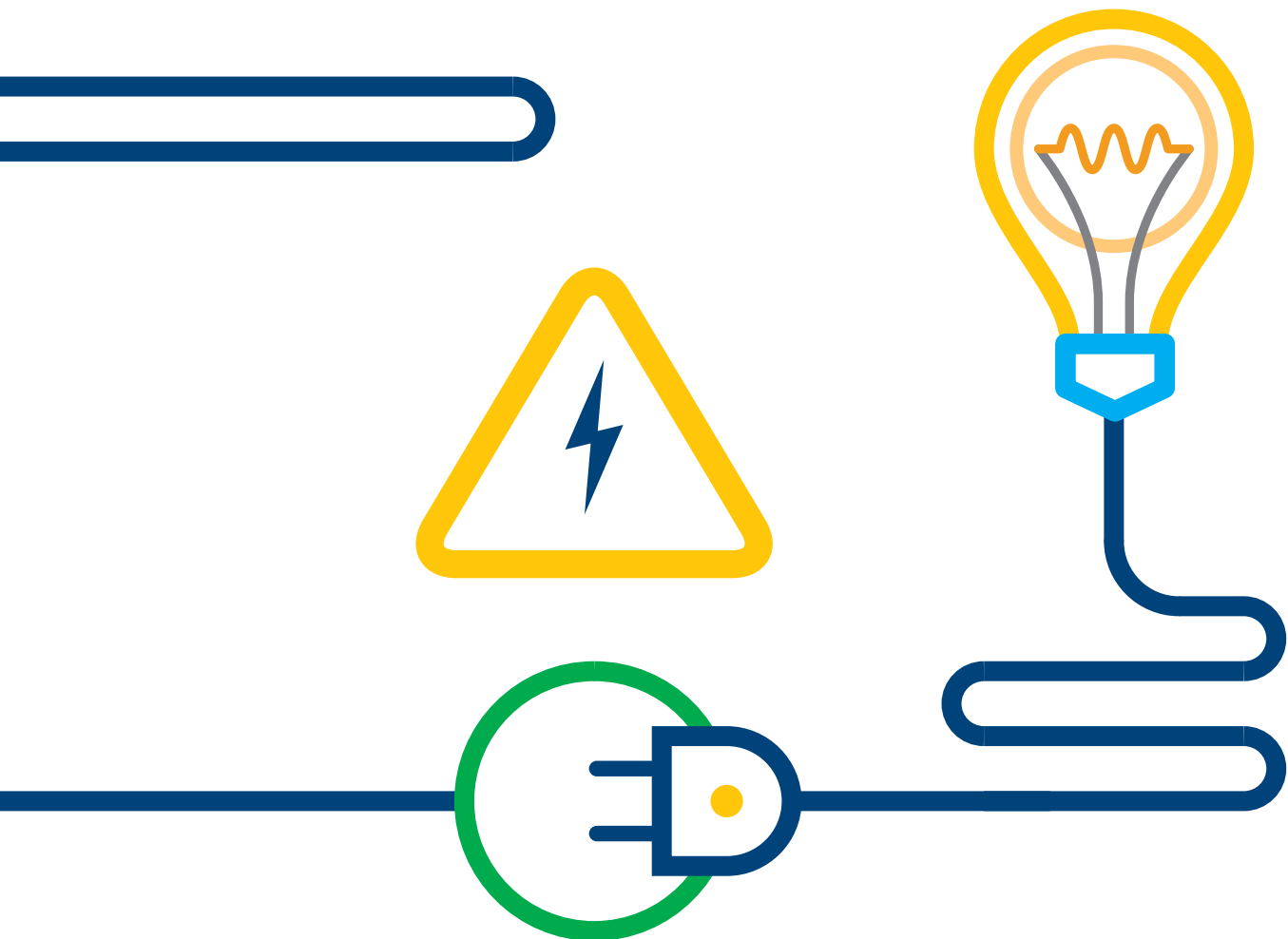
It is critical for printers to safeguard their investments. Protecting a business's print production is more important now than ever.

## So, what should be your takeaway on this document?

Disruptions to production that are caused by a hardware failure or a software corruption due to unexpected power outages are avoidable. You need to take into account the following:

- How vulnerable is your geographic area to things like ice storms, lightning, flooding, hurricanes or tornadoes that can cause unexpected power outages?
- How many unexpected power outages have you experienced in the past year? This is an important thing to log if you aren't already doing so in order to gauge the frequency and duration.

Being well informed helps set expectations correctly and ensures you get the best Return On Investment (ROI) and the lowest Total Cost of Ownership (TCO) on your Heidelberg Prinect Workflow systems. Heidelberg does offer consulting services, training services and technical services that can help Print Shops identify their problem areas and better protect their business. Please contact your Account Manager for more information.



Please direct any questions regarding this document to Eugene F. O'Brien, Senior Technical Support Analyst at: **(770) 794-6205** or [eugene.obrien@heidelberg.com](mailto:eugene.obrien@heidelberg.com)

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