



# Load Shift Detection: DCIM Copilot for Power Redundancy

## Key Highlights

- Sunbird's Load Shift Detection feature leverages data from outlet-metered intelligent rack PDUs to detect and alert when the load shifts from one power supply on an IT device to another, indicating a potential loss of redundancy.
- Load Shift Detection is a tunable AI copilot that lets you configure multiple parameters to define the conditions that result in an event and an email alert.
- This feature, always working in the background, helps mitigate the risk of downtime through the real-time power monitoring and data analysis that enables proactive data center management.

## Why Data Center Power Redundancy Matters

According to an Uptime Institute survey, 55% of data centers have encountered a power outage in the past three years. 78% of data center professionals responded that their most recent significant downtime incident was preventable.

Unplanned downtime is costly. Uptime Institute's data shows that 54% of major outages resulted in costs exceeding \$100,000, and 16% surpassed \$1 million. The costs are attributed to SLA penalties, labor expenses, and replacing equipment.

Data center professionals face challenges in maintaining uptime due to insufficient visibility into their complex end-to-end power paths and a lack of real-time remote access to power data for proactive issue detection and resolution.

However, Sunbird's modern Data Center Infrastructure Management (DCIM) software includes a Load Shift Detection feature specifically designed to detect and alert when the load shifts from one power supply on an IT device to another, indicating a potential loss of redundancy.

## How Sunbird's Load Shift Detection Feature Works

- **Data Collection** – Our enterprise-class polling engine collects real-time power load data from outlet-metered intelligent rack PDUs mapped to server power supplies for a comprehensive view of the power consumption for all connected IT devices and their individual power supplies.
- **Data Analysis** – A user-configurable algorithm analyzes short-term power usage data and compares it to historical usage patterns.
- **Anomaly Detection** – An anomaly is detected when the metered outlet load shifts from one power supply on an IT device to another, indicating a potential power supply issue and loss of redundancy.
- **Alert Generation** – When a load shift is detected, an event is created and an email alert is generated.

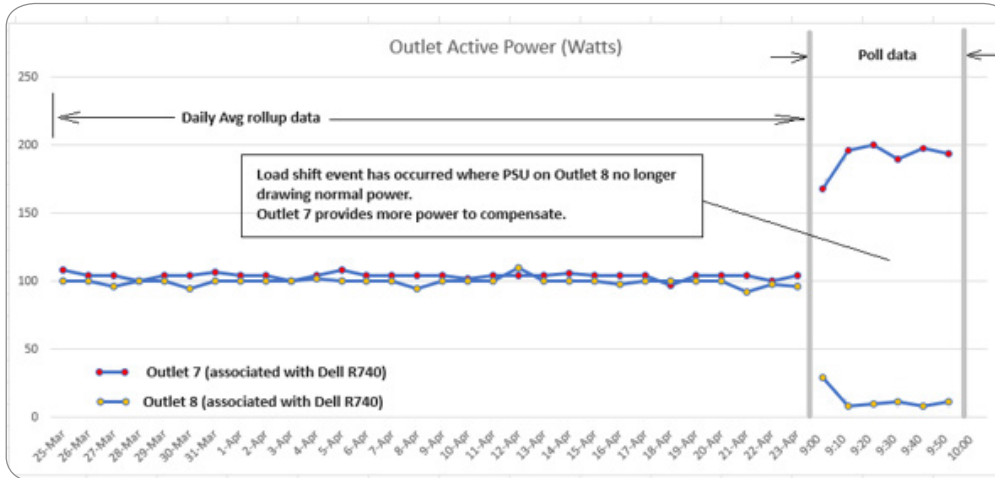
## Benefits of Load Shift Detection

- **Proactive Issue Resolution** – Versus visual inspections, proactive early detection of issues enables you to investigate and address potential issues before they become bigger problems.
- **Increased Uptime** – Additional layer of proactive detection and resolution of power issues helps mitigate the risk of downtime, especially if traditional IT tools failed to provide an alert.
- **Improved Operational Efficiency** – Constant monitoring and AI-driven analysis reduces the need for manual equipment checks.
- **Customizable Sensitivity** – The tunable AI algorithm allows you to adjust its sensitivity to load shift events to reduce noise and false positives.



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## Load Shift Detection Example



In this depiction of a load shift scenario, the left side is 30 days of daily rollup data and the right side is one hour of polled data taken every 10 minutes. Normally each power supply is using 100W to power the server. On the right, you can see that Outlet 8 has failed, and for the past hour the server has been running on just Outlet 7 which has had to increase its load to compensate.

## Tunable Settings

The user-configurable algorithm allows you to adjust the load shift duration, deviation percentage, running average duration, and more to reduce false positive alerts.

| Load Shift Detection Settings              |           |
|--|-----------|
| <input type="checkbox"/> Enable            |           |
| Load Shift Minimum Duration (minutes)      | 60        |
| Outlet Power Statistic                     | Average   |
| Device Power Statistic                     | Average   |
| Outlet Power Aggregate Function            | Average   |
| Device Power Aggregate Function            | Average   |
| Outlet Deviation Percentage                | 80        |
| Device Deviation Percentage                | 20        |
| Outlet Running Average Interval            | 30 Day(s) |
| Device Running Average Interval            | 30 Day(s) |
| Minimum Running Average per Outlet (watts) | 15        |
| Minimum Running Average per Device (watts) | 15        |

## Load Shift Event Details

When a load shift is detected, a warning event is generated with the full details including what device was impacted and its exact cabinet location.

| Details        |  |
|----------------|--|
| Event          | Outlet load shift detected on a device   |
| Status         | Active   |
| Severity       | <span style="background-color: #ffc107; padding: 2px;">WARNING</span>  |
| Location       | Unassigned Data Center / Room -- Load Shift / Rack -- Load Shift   |
| Occurred At    | 2024/04/20 12:02:22 -0400  |
| Target         | Dell R750  |
| Summary        | Load shift was detected on outlet 8 associated to device Dell R750. Check for possible power supply failure. |
| Cleared events | None   |

Call 732.993.4476 or visit [SunbirdDCIM.com](https://SunbirdDCIM.com)

Sunbird Software is changing the way data centers are being managed. With a focus on real user scenarios for real customer problems, we help data center operators manage tasks and processes faster and more efficiently than ever before, while saving costs and improving availability. We strive to eliminate the complexity they have been forced to accept from point tools and home grown applications, removing the dependency on emails and spreadsheets to transform the delivery of data center services. Sunbird delivers on this commitment with unexpected simplicity through products that are easy to find, buy, deploy, use, and maintain. Our solutions are rooted in our deep connections with our customers who share best practices and participate in our user groups and product development process.

Based in Piscataway, NJ, Sunbird serves over 2,000 DCIM customers worldwide. For more information, please visit [SunbirdDCIM.com](https://SunbirdDCIM.com).

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