

# Data Center Solutions

## Case Study

### Guthrie Healthcare Implements Scalable, Redundant and Energy Efficient Data Center Using Liquid Cooling and Modular UPS

Guthrie Healthcare is dedicated to providing high-quality and accessible healthcare that meets the needs of the entire family. Guthrie is a not-for-profit healthcare organization formed by Guthrie Healthcare System and Guthrie Clinic that includes primary care and specialty physicians, community hospitals, and a research institute as well as home care and long-term care facilities. Guthrie Healthcare offers a wide range of services and programs designed to enhance the health and well-being of those it serves.

#### Challenge:

The IT team at Guthrie Healthcare was experiencing several challenges in their data center, including:

- Existing space could not accommodate the installation of new computer equipment required to support the strategic IT plan beyond July 2007
- UPS system was nearing its capacity and had no redundancy
- Centralized cooling system was no longer able to cool the equipment evenly and was a single source of failure
- Poor air distribution was resulting in multiple hot spots throughout data center

#### Technical Requirements:

##### UPS System Requirements

- Total power redundancy for all equipment in the data center, including single corded devices, and legacy equipment
- Support initial UPS loads of 100kW
- Incrementally scalable UPS to 200kW
- Implement intuitive web based tools to manage and monitor power usage
- Footprint for initial 100kW could not exceed 16 square feet for the total system (electronics, batteries, and power distribution)

##### Cooling System Requirements

- Eliminate single point of failure of the plant chiller by having separate chilled water supplies
- Eliminate hot spots by providing consistent cooling to the cabinet's devices
- Improve scalability by implementing a "build as you grow" modular environment
- Improve overall cooling system redundancy
- Intuitive web based tools to manage and monitor the cooling environment
- Redundant cooling system

#### Results:

Guthrie Healthcare implemented Rimatrix 5, an integral, scalable and comprehensive system solution that provides complete power, cooling, security, and monitoring. Guthrie experienced significant results including:

- Enhanced the data center's scalability by installing modular computer room equipment that would support future growth
- Improved overall power redundancy by implementing a 2N+1 UPS systems that provided 120kW of redundant capacity
- Increased overall energy efficiency and decreased potential hot spots by isolating cooling to the individual rack-level, including achieving 90kW of Cooling capacity per row in N + 1 configuration
- Increased overall flexibility of the space by installing overhead cable management system for power and data
- Achieved cooling redundancy through the use of a dedicated chiller

**Guthrie Healthcare**  
www.guthrie.org

**Industry**  
Healthcare

**Data Center At-A-Glance**  
• 1,300 Square foot room  
• 6" Raised floor

#### Products

- Server Cabinets
- Liquid Cooling Package
- In-Row Coolers
- Cooling Distribution Unit (CDU)
- UPS Blade System

**RIMATRIX 5**

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