Server Room & Rack Setup Guide: The PureIoT Standard

Introduction

The server room is the heart of your IT infrastructure. A poorly planned or maintained server room can lead to equipment failure, costly downtime, and security risks. This guide outlines the best practices for setting up a secure, efficient, and reliable server room and rack environment.

1. Environmental Control and Location

The physical environment is critical for the longevity and performance of your hardware.

- **Location:** Choose a location away from external walls, windows, and areas prone to water damage (e.g., plumbing).
- **Temperature and Humidity:** Maintain a stable temperature (typically 18°C to 24°C) and humidity (40% to 55%). Use dedicated **precision cooling** units, not standard office air conditioners.
- **Fire Suppression:** Install a **clean agent fire suppression system** (e.g., FM-200 or Novec 1230) that will not damage electronic equipment, unlike water sprinklers.

2. Power Management and Redundancy

Power is the most common point of failure in a server room.

- **Uninterruptible Power Supply (UPS):** Install a UPS to provide temporary power during outages, allowing for graceful shutdown of equipment. The UPS should be sized to support the full load for at least 15-30 minutes.
- **Power Distribution Units (PDUs):** Use rack-mounted PDUs to distribute power efficiently and provide surge protection.
- **Redundancy:** Implement **dual power supplies** in all critical hardware (servers, switches) and connect them to separate UPS/PDU circuits (A-side and B-side).

3. Rack Organization and Airflow

Proper rack setup is essential for cooling and maintenance.

- **Rack Selection:** Use standard 19-inch racks with adequate depth and ventilation.
- **Hot/Cold Aisle Containment:** Implement a hot aisle/cold aisle layout. Cold air is supplied to the front (cold aisle), and hot air is exhausted from the back (hot aisle). **Do not mix hot and cold air.**
- **Cable Management:** Use horizontal and vertical cable managers. **Do not block airflow** with bundles of cables. Use color-coded cables to easily identify connections.
- **Blanking Panels:** Install blanking panels in all unused rack spaces to prevent hot air recirculation and maintain cooling efficiency.

4. Physical Security and Access Control

Physical security is the foundation of network security.

- **Access Control:** Use biometric scanners or key card access. **Never use standard keys.** Maintain a strict log of all personnel entering and exiting the room.
- **Video Surveillance:** Install CCTV cameras to monitor the entrance and interior of the server room.
- **Hardened Door:** Use a solid, fire-rated door with no windows.

Server Room Setup Checklist

Item	Status	Notes
Dedicated Cooling System	[ ]	
Clean Agent Fire Suppression	[ ]	
Sized UPS System Installed	[ ]	
Hot/Cold Aisle Layout	[ ]	
Cable Management Implemented	[ ]	
Blanking Panels Installed	[ ]	

Item	Status	Notes
Access Control System	[ ]	
Offsite Backup Verification	[ ]	

Conclusion

A well-designed server room is an investment in business continuity. By following these standards, you ensure your critical hardware operates reliably and securely. Contact PureIoT for professional server room design and implementation services.