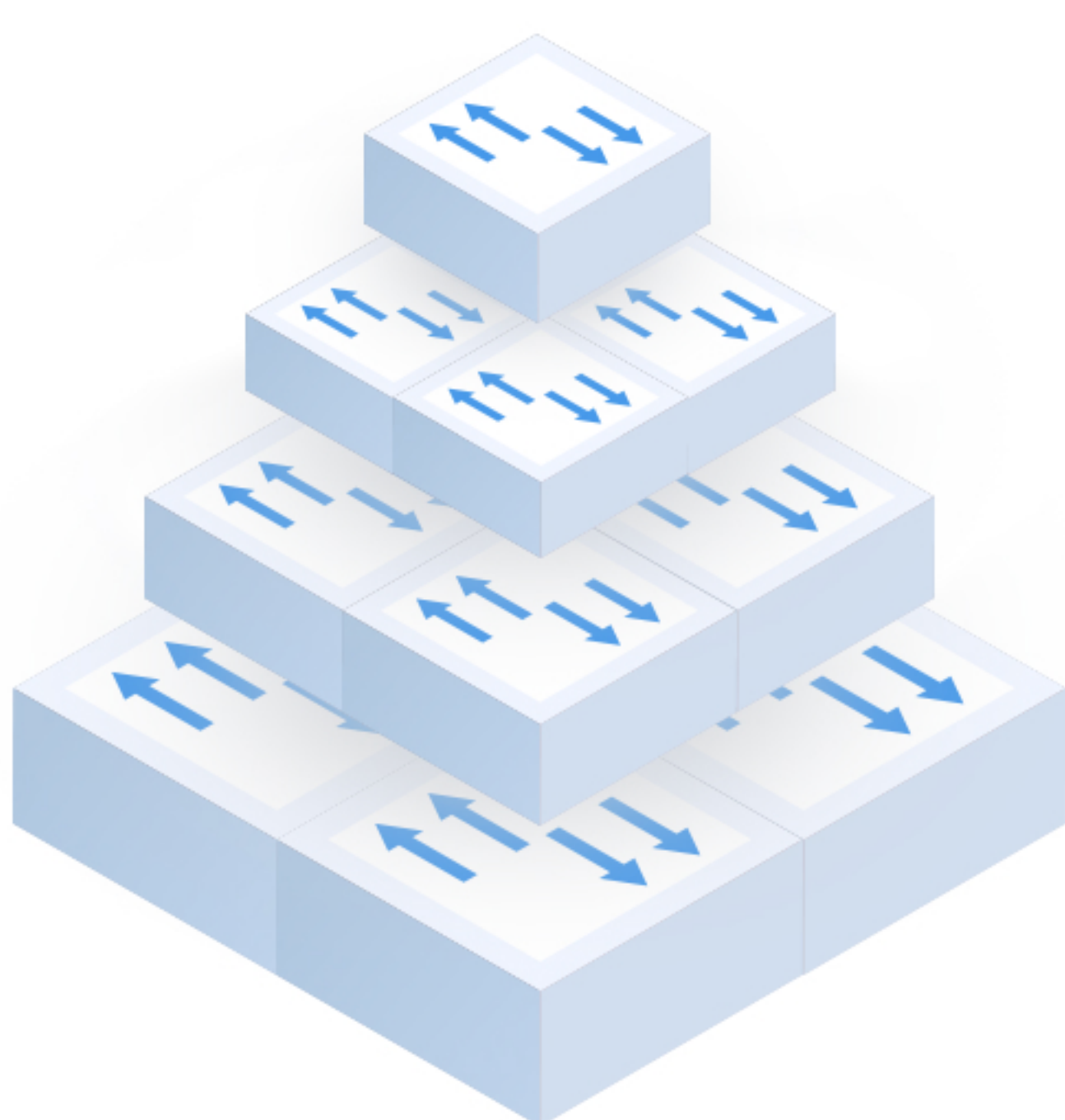# DATA CENTER ENVIRONMENTAL MONITORING

## A Basic Guide

The data center architecture is divided into four layers where the equipment placed inside also affects the design of data center environmental standards. Critical facilities require close monitoring to address issues before they lead to costly downtime.
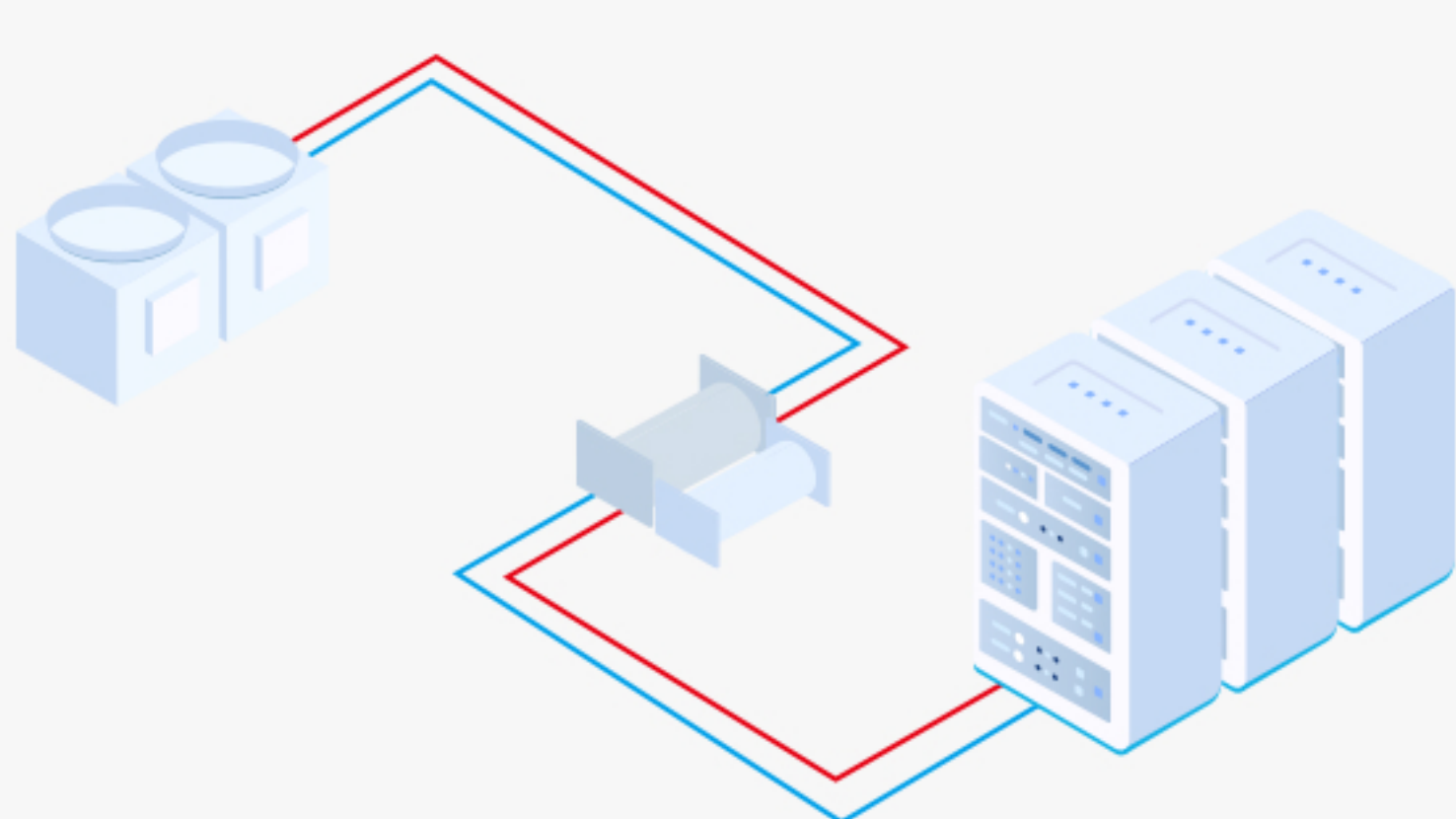
**Tier I** Basic capacity.

**Tier II** Redundant capacity.

**Tier III** Concurrently maintainable.

**Tier IV** Fault tolerant.

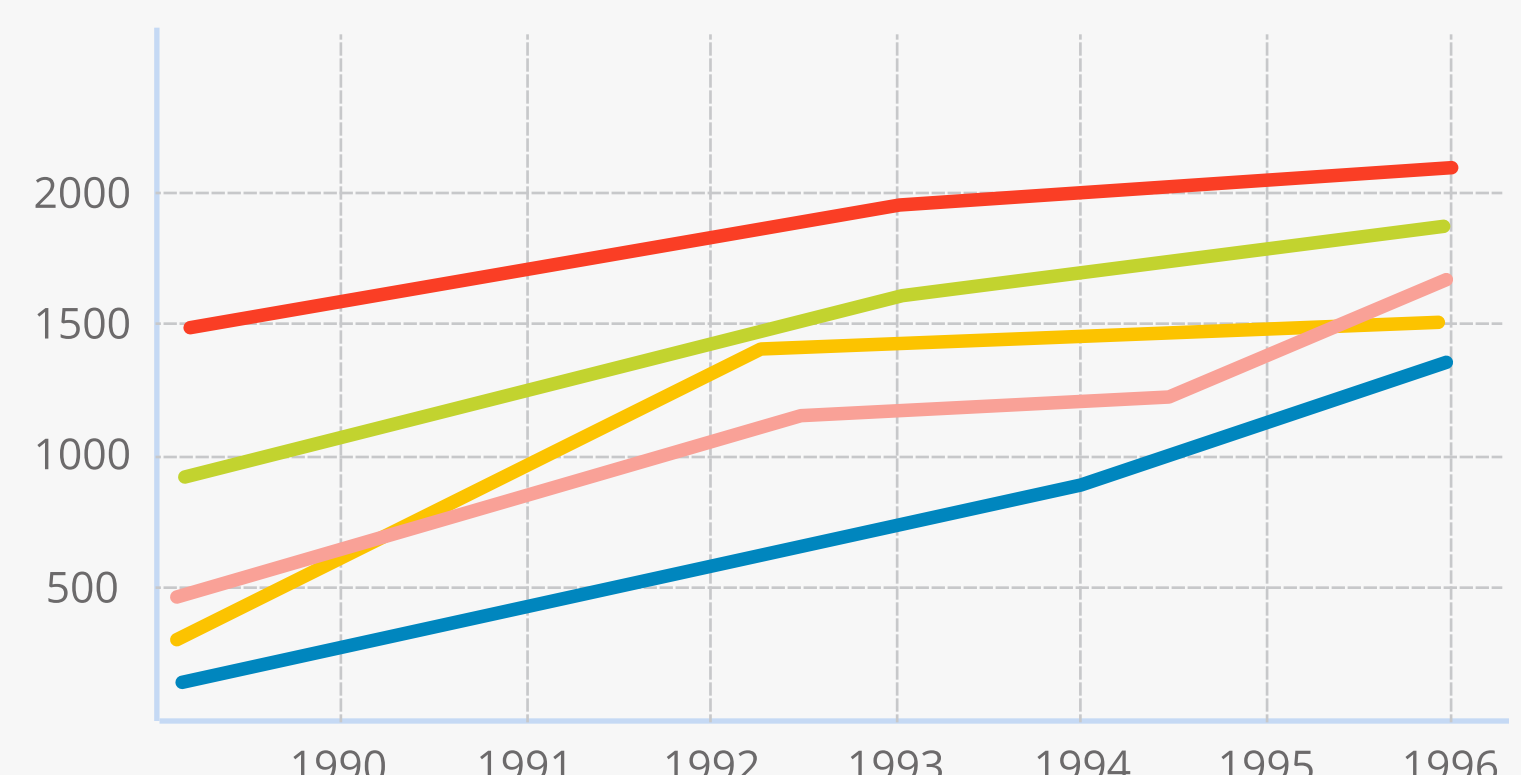## Evolution of Environmental Standards

### 1970s - 1980s

A liquid cooling system was a technology that used water as a cooling medium to keep computer processors cold, also known as water cooling systems.

### 1990s

Industry warnings from the server sharp rise heralded an increase in the power density of IT equipment racks.



### 20th Century

A thermal model was a 3D computer simulation that predicted how the temperature in a building will change in different rooms, day and night, and seasons.

## 5 Controls in Data Center

Several important factors of data center environmental monitoring are temperature, humidity, static electricity, fire suppression, and security system.

**Fire Suppression**
Place a fire extinguisher for emergencies.

**Security System**
Set up an IP surveillance system to prevent irrelevant personnel from entering the data center.

**Temperature Sensor**
Temperature sensor is used to monitor the temperature of data center facilities and provide timely notifications to respond appropriately to any changes.

**Energy Monitor**
Energy monitor can detect the buildup of static electricity.

**Cooling System**
The CRAC cooling system pumps cool air through perforated floor tiles between the racks, and the devices and racks draw in cool air and discharge warm air into the opposite hot aisle.

The CRAC unit on the floor draws the hot exhaust air into the hot aisle and releases it under the floor tiles, completing the cycle.