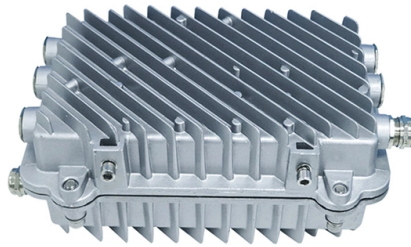


Selection of Core Switches for Surveillance and Security Systems



Article Overview

Core switches for surveillance systems should provide high backplane bandwidth, low latency, PoE support, and scalability to handle multiple high-definition IP cameras efficiently.

Key Considerations for Core Switch Selection

1. Network Hierarchy and Role of Core Switches In medium to large surveillance networks, a three-layer hierarchical model is recommended: access layer (connects cameras), distribution/convergence layer, and core layer (centralized high-speed switching) . The core switch aggregates traffic from multiple access and distribution switches, ensuring smooth video transmission to NVRs and monitoring stations . 2. Bandwidth and Port Speed Core switches must support high backplane bandwidth and high packet forwarding rates to prevent video lag or frame drops. For example, a network with 100-500 IP cameras may require a 10G core switch with backplane bandwidth ranging from 192 Gbps to 256 Gbps and packet forwarding rates of 42-132 Mpps depending on camera count and resolution . Gigabit uplinks from access and distribution switches to the core are essential to avoid bottlenecks . 3. PoE Support and Power Budget While core switches may not directly power cameras, PoE support in access switches is critical. Core switches should handle aggregated traffic from PoE-enabled access switches without performance degradation. PoE standards (802.3af, at, bt) determine the maximum power delivered to cameras, with high-power PTZ cameras requiring 30-90 W per port . 4. Managed vs. Unmanaged Switches Core switches should be managed to allow VLAN segmentation, QoS priori...

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