Use network security equipment correctly and effectively



Overview

Follow these network security best practices to strengthen your network against cybersecurity threats and protect your data. Get the free guide here.

Key Takeaways

Effective network security relies on proper deployment, configuration, and ongoing management of devices like firewalls, routers, switches, and access control systems, combined with strategic practices such as Zero Trust and multi-factor authentication. Key Principles for Effective Use1. Identify and Manage Network Assets Start by mapping all devices and systems on your network.

Unmanaged or unknown devices can become entry points for attackers, so implement asset management to track acquisition, configuration, and decommissioning of network equipment (NCSC guidance),. 2. Implement a Zero Trust Architecture (ZTA) Adopt a "never trust, always verify" mindset.

Every user, device, and application must be authenticated and authorized before accessing resources. Use micro-segmentation to isolate critical systems, ensuring that even if one device is compromised, attackers cannot move laterally across the network. 3.

Configure Firewalls and Routers Properly Firewalls should be deployed to segregate networks and enforce access policies. Routers can include access control lists (ACLs) to restrict traffic and prevent unauthorized access. Ensure firmware is up-to-date and rules are regularly reviewed.

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4. Use Network Access Control (NAC) and Authentication NAC systems verify that devices meet security standards before granting access. Combine strong passwords with multi-factor authentication (MFA) to protect privileged accounts and enforce the principle of least privilege.

5. Secure Switches and Network Segmentation Switches should be configured to direct traffic efficiently and prevent unauthorized access. Segment networks to separate sensitive data from general user traffic, reducing the risk of widespread compromise.

6. Deploy Web Filters and Proxy Servers Web filters block access to malicious or inappropriate websites, while proxy servers act as intermediaries to monitor and control internet traffic. These tools help prevent malware infections and enforce organizational policies.

7. Monitor, Audit, and Update Regularly Regularly audit network configurations, update anti-malware software, and apply patches to all devices. Use Security Information and Event Management (SIEM) systems to aggregate logs and detect anomalies early.

8. Educate Users and Prevent Social Engineering Train employees to recognize phishing and other social engineering attacks. Implement email filtering and enforce strong password policies to reduce human-related vulnerabilities.

9. Backup and Incident Response Planning Maintain regular backups and develop an incident response plan. This ensures rapid recovery in case of breaches or equipment failure.

Practical Tips

Use allow lists to enforce least privilege access, permitting only known devices and users. Regularly review deny lists to block known threats, but do not rely solely on them. Test configurations in a controlled environment before deploying network-wide.

Consider vendor-specific tools (e.g., Cisco Meraki) for simplified management of complex networks. By combining strategic frameworks, proper device configuration, continuous monitoring, and user education, organizations can maximize the effectiveness of their network security equipment and reduce the risk of cyber attacks.

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