Opportunities and Challenges of Intelligent Computer Network Configuration and Security with its Technologies

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Abstract*: This paper explores the dual aspects of opportunities and challenges posed by intelligent computer network configuration and security, highlighting the role of emerging technologies while emphasizing the need for robust strategies to address the accompanying risks. Intelligent network configuration utilizes technologies like artificial intelligence (AI), machine learning (ML) and software-defined networking (SDN) to automate and optimize network management. This automation enhances efficiency, scalability and adaptability, allowing networks to respond dynamically to traffic patterns and emerging threats. AI-powered security mechanisms further bolster defenses against sophisticated cyberattacks by enabling real-time monitoring, threat detection and proactive mitigation strategies. However, alongside these opportunities come challenges. Implementing intelligent technologies requires addressing issues like system complexity, interoperability and the need for continuous updates to handle evolving cyber threats. Additionally, privacy concerns, the integration of legacy systems and ensuring compliance with regulatory standards are key hurdles in adopting these technologies.*

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