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(57) Abstract :
A system (100) introduces a sophisticated network access control mechanism designed to enhance security and adaptability in dynamic environments. The access control system (100) is deployed in a network (110), including a controller (104) equipped with a learning engine (106). This system (100) intelligently evaluates connection requests from network devices (102) by analyzing their historical behavior patterns. A reputation score is assigned to each device, influencing access permissions collaboratively among network devices. The learning engine employs diverse datasets for training, encompassing a wide range of behavior patterns. Utilizing machine learning techniques, the system (102) ensures real-time adaptability and scalability. Network administrators receive a visual interface for monitoring reputation scores and access decisions. Further, collaborative intelligence and efficient resource utilization of the system (102) align with sustainable development goals, contributing to resilient digital infrastructure and cybersecurity.

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