HIGH-AVAILABILITY FAILOVER NETWORK DESIGN ON MIKROTIK ROUTERS USING THE ICMP PROTOCOL

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Abstract

Background - The implementation of a reliable network is very important to maintain smooth operations in educational environments, especially in schools that require stable internet connectivity. This thesis discusses the design of a high-availability (HA) failover network on a MikroTik router using the Internet Control Message Protocol (ICMP) method at SMK Amaliah 1&2 Ciawi. The ICMP method is used to monitor network availability and implement an automatic failover mechanism when the main path is disrupted. With the right failover configuration, the network can automatically switch to the backup path without disrupting user activities. This study includes network requirements analysis, topology design, and testing the effectiveness of the failover system. The test results show that the designed failover system is able to significantly increase network availability, reduce downtime, and ensure a stable internet connection in the school environment.

Purpose - The implementation of a reliable network is very important to maintain smooth operations in educational environments, especially in schools that require stable internet connectivity. This thesis discusses the design of a high-availability (HA) failover network on a MikroTik router using the Internet Control Message Protocol (ICMP) method at SMK Amaliah 1&2 Ciawi. The ICMP method is used to monitor network availability and implement an automatic failover mechanism when the main path is disrupted. With the right failover configuration, the network can automatically switch to the backup path without disrupting user activities. This study includes network requirements analysis, topology design, and testing the effectiveness of the failover system. The test results show that the designed failover system is able to significantly increase network availability, reduce downtime, and ensure a stable internet connection in the school environment.

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Findings - The implementation of a reliable network is very important to maintain smooth operations in educational environments, especially in schools that require stable internet connectivity. This thesis discusses the design of a high-availability (HA) failover network on a MikroTik router using the Internet Control Message Protocol (ICMP) method at SMK Amaliah 1&2 Ciawi. The ICMP method is used to monitor network availability and implement an automatic failover mechanism when the main path is disrupted. With the right failover configuration, the network can automatically switch to the backup path without disrupting user activities. This study includes network requirements analysis, topology design, and testing the effectiveness of the failover system. The test results show that the designed failover system is able to significantly increase network availability, reduce downtime, and ensure a stable internet connection in the school environment.

Originality - The implementation of a reliable network is very important to maintain smooth operations in educational environments, especially in schools that require stable internet connectivity. This thesis discusses the design of a high-availability (HA) failover network on a MikroTik router using the Internet Control Message Protocol (ICMP) method at SMK Amaliah 1&2 Ciawi. The ICMP method is used to monitor network availability and implement an automatic failover mechanism when the main path is disrupted. With the right failover configuration, the network can automatically switch to the backup path without disrupting user activities. This study includes network requirements analysis, topology design, and testing the effectiveness of the failover system. The test results show that the designed failover system is able to significantly increase network availability, reduce downtime, and ensure a stable internet connection in the school environment.

Keywords: Failover, ICMP, High-Availability Network, MikroTik, Network Redundancy