ABSTRAK

Dalam era digital yang semakin maju, konektivitas jaringan yang stabil menjadi kebutuhan utama bagi kelangsungan operasional perusahaan. PT XYZ, sebagai penyedia layanan telekomunikasi, menghadapi tantangan dalam menjaga keandalan koneksi antara kantor pusat dan cabang. Penelitian ini membahas penerapan teknologi Software Defined Wide Area Network (SD-WAN) dengan metode redundancy link dan failover sebagai solusi peningkatan keandalan jaringan. Pengujian dilakukan menggunakan skenario nyata di PT XYZ dengan dua koneksi internet publik, serta simulasi gangguan berupa latency, jitter, dan packet loss. Hasil penelitian menunjukkan bahwa SD-WAN mampu meminimalisir downtime dengan pengalihan otomatis berbasis kualitas jalur. Waktu failover tercatat 5–6,5 detik dengan packet loss awal 4–6%, sedangkan failback berlangsung 6–9 detik tanpa packet loss. Dibandingkan Link Monitor, SD-WAN lebih unggul dalam menjaga kestabilan koneksi meskipun memiliki waktu perpindahan yang lebih lambat. Penelitian ini membuktikan bahwa SD-WAN merupakan solusi efektif untuk failover berbasis kualitas jaringan.

Kata kunci: SD-WAN, failover, redundancy link, downtime, Link Monitor.

ABSTRACT

In the increasingly advanced digital era, stable network connectivity has become essential for ensuring smooth business operations. PT XYZ, as a telecommunications service provider, faces challenges in maintaining reliable connections between its headquarters and branch offices. This study discusses the implementation of Software Defined Wide Area Network (SD-WAN) technology with redundancy link and failover methods as a solution to improve network reliability. Testing was conducted using a real-case scenario at PT XYZ with two public internet connections and simulated network disruptions such as latency, jitter, and packet loss. The results show that SD-WAN can minimize downtime by automatically switching connections based on link quality. Failover time was recorded between 5 to 6.5 seconds with initial packet loss of 4–6%, while failback took 6 to 9 seconds with 0% packet loss. Compared to the Link Monitor method, SD-WAN demonstrated superior connection stability, despite slower switching time. This study proves that SD-WAN is an effective solution for quality-based failover.

Keywords: SD-WAN, failover, redundancy link, downtime, Link Monitor.