

ABSTRAK

Humaidy (12230150), Perancangan dan Implementasi Jaringan *Wide Area Network* Berbasis VSAT SCPC Pada *Well Site* MedcoEnergi

Kemajuan teknologi komunikasi memainkan peran penting dalam mendukung operasional perusahaan yang beroperasi di daerah terpencil, seperti sektor minyak dan gas. Salah satu teknologi yang relevan adalah *VSAT SCPC (Single Channel per Carrier)*, yang menawarkan koneksi komunikasi data yang andal, stabil, dan aman. Penelitian ini bertujuan untuk merancang dan mengimplementasikan jaringan *Wide Area Network (WAN)* berbasis teknologi tersebut guna mendukung kebutuhan komunikasi di *well site* PT MedcoEnergi. Metode penelitian mencakup analisis kebutuhan jaringan, desain arsitektur jaringan, simulasi implementasi, dan evaluasi kinerja. Hasil rancangan aplikasi yang diusulkan menunjukkan bahwa teknologi *VSAT SCPC* mampu memenuhi kebutuhan operasional perusahaan, termasuk transfer data, komunikasi suara, dan akses internet. Simulasi implementasi mengindikasikan performa optimal jaringan sesuai standar operasional, dengan fleksibilitas untuk ekspansi di masa depan. Kesimpulannya, rancangan ini menjadi solusi efektif untuk mengatasi tantangan konektivitas di *well site* PT MedcoEnergi, dengan rekomendasi pengembangan berupa optimisasi bandwidth dan integrasi sistem manajemen jaringan berbasis *cloud* untuk meningkatkan efisiensi operasional.

Kata Kunci: *Wide Area Network*, VSAT SCPC, jaringan komunikasi, *well site*, PT MedcoEnergi



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ABSTRACT

Humaidy (12230150), *Design and Implementation of Wide Area Network Based on VSAT SCPC at MedcoEnergi Well Site*

Advances in communication technology play an important role in supporting the operations of companies operating in remote areas, such as the oil and gas sector. One relevant technology is VSAT SCPC (Single Channel per Carrier), which offers reliable, stable, and secure data communication connections. This study aims to design and implement a Wide Area Network (WAN) based on this technology to support communication needs at PT MedcoEnergi's well site. The research methods include network requirements analysis, network architecture design, implementation simulation, and performance evaluation. The results of the proposed application design indicate that VSAT SCPC technology is able to meet the company's operational needs, including data transfer, voice communication, and internet access. Implementation simulation indicates optimal network performance according to operational standards, with flexibility for future expansion. In conclusion, this design is an effective solution to overcome connectivity challenges at PT MedcoEnergi's well site, with development recommendations in the form of bandwidth optimization and integration of a cloud-based network management system to improve operational efficiency.

Keywords: *Wide Area Network, VSAT SCPC, communication network, well site, PT MedcoEnergi*



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