

**ANALISIS PERBANDINGAN EFEKTIFITAS APLIKASI NETSPOT DAN
EKAHAU DALAM OPTIMALISASI PENEMPATAN ACCESS POINT
JARINGAN WIFI: STUDI KASUS DI DISDIKPORA KABUPATEN
BULELENG**

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ABSTRAK

Penempatan access point (AP) yang optimal sangat penting untuk memastikan cakupan sinyal *WiFi* yang merata dan berkualitas, terutama di lingkungan instansi pemerintah seperti Dinas Pendidikan Pemuda dan Olahraga (DISDIKPORA) Kabupaten Buleleng. Penelitian ini bertujuan untuk menganalisis dan membandingkan efektivitas aplikasi Ekahau AI Pro dan NetSpot dalam optimalisasi penempatan AP jaringan *WiFi*. Metode penelitian yang digunakan adalah Comparative Analysis, Action Research, dan Benchmarking, dengan alur penelitian meliputi diagnosa, perencanaan aksi, implementasi, evaluasi, dan pembelajaran. Pengukuran dilakukan menggunakan survei aktif dan pasif, serta validasi silang dengan *WiFi Analyzer* sebagai acuan. Data dikumpulkan berdasarkan parameter seperti Received Signal Strength Indicator (RSSI), deteksi blank spot, konsistensi hasil, dan efisiensi waktu. Hasil penelitian menunjukkan bahwa kedua tools mampu mendeteksi seluruh blank spot dengan akurat, namun memiliki perbedaan dalam akurasi dan konsistensi. Ekahau AI Pro menunjukkan konsistensi lebih tinggi dengan deviasi 1,5 dBm dan cocok untuk perencanaan jangka panjang pada gedung kompleks, meskipun membutuhkan waktu lebih lama dan biaya tinggi. Sementara itu, NetSpot memberikan hasil yang cukup akurat dengan selisih rata-rata 6,75 dBm dan waktu eksekusi lebih cepat, sehingga lebih sesuai untuk audit cepat dengan anggaran terbatas. Berdasarkan analisis, Ekahau lebih direkomendasikan untuk lingkungan kompleks dengan kebutuhan akurasi tinggi, sedangkan NetSpot cocok untuk analisis cepat dan dinamis. Penelitian ini memberikan rekomendasi teknis untuk optimalisasi jaringan *WiFi* di DISDIKPORA serta panduan strategis dalam pemilihan tools pemetaan jaringan bagi instansi serupa.

Kata kunci: Ekahau AI Pro, NetSpot, Optimalisasi AP, *blank spot*.

**COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF NETSPOT
AND EKAHAU APPLICATIONS IN OPTIMIZING ACCESS POINT
PLACEMENT FOR WIFI NETWORKS: A CASE STUDY AT THE
DEPARTMENT OF EDUCATION, YOUTH, AND SPORTS (DISDIKPORA)
OF BULELENG REGENCY**

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ABSTRACT

Optimal placement of access points (APs) is crucial to ensure uniform and high-quality WiFi signal coverage, especially within government institutions such as the Department of Education, Youth, and Sports (DISDIKPORA) of Buleleng Regency. This study aims to analyze and compare the effectiveness of Ekahau AI Pro and NetSpot applications in optimizing WiFi network AP placement. The research methods employed are Comparative Analysis, Action Research, and Benchmarking, following a research workflow that includes diagnosis, action planning, implementation, evaluation, and learning. Measurements were conducted using active and passive surveys, with cross-validation performed using WiFi Analyzer as a reference. Data were collected based on parameters such as Received Signal Strength Indicator (RSSI), blank spot detection, result consistency, and time efficiency. The results show that both tools accurately detected all blank spots (100% detection rate), yet exhibited differences in accuracy and consistency. Ekahau AI Pro demonstrated higher consistency, with a deviation of only 1.5 dBm, making it suitable for long-term planning in complex building environments, despite requiring longer execution time and higher costs. In contrast, NetSpot provided reasonably accurate results with an average difference of 6.75 dBm and faster execution time, making it more appropriate for rapid audits under limited budgets. Based on the analysis, Ekahau is recommended for complex environments requiring high accuracy, while NetSpot is better suited for fast and dynamic network assessments. This study provides technical recommendations for WiFi network optimization at DISDIKPORA, as well as strategic guidance for selecting appropriate network mapping tools for similar institutions.

Key words: Ekahau AI Pro, NetSpot, AP Optimization, blank spot.