Monitoring The Utilization of Hotspots at Universitas Bina Darma as Facilities for Lecturers and Staff

Andri Rio Saputra[1*]

Abstract

Information and communication technology plays a crucial role in the educational sector, with the internet functioning as the primary medium for accessing academic resources. Universitas Bina Darma provides hotspot facilities for lecturers and staff to support operational activities such as file sharing, internet access, and campus promotion. Monitoring and analysis of hotspot usage during academic breaks are necessary to understand utilization patterns and ensure the effectiveness of the facility. This study aims to evaluate hotspot utilization by lecturers and staff by identifying the most frequently accessed websites and services. A case study approach was employed, incorporating tools such as Wireshark, Network Miner, and Advanced IP Scanner to monitor network activity. The findings indicate that academic breaks are predominantly used for campus promotion and work-related communication via social media. The proportion of social media usage relative to total Wi-Fi activity was 49% on Day 1, 51% on Day 2, 50% on Day 3, 61% on Day 4, 40% on Day 5, 52% on Day 6, and 45% on Day 7.

Keywords

Hotspot, monitoring, network analysis, Wireshark.

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Introduction

In the current digital era, information and communication technology has become an essential foundation in academic environments. Technological advancements have significantly reshaped how information is accessed, processed, and disseminated, offering new possibilities for teaching, research, and administrative activities. Within higher education institutions, the availability of reliable internet connectivity has become a fundamental requirement, supporting both academic innovation and institutional management. As noted by Abd Muis et al. (2021), access to digital resources through internet-based platforms enhances the efficiency and quality of the learning process, making technology integration indispensable.

Wireless hotspots, commonly referred to as Wi-Fi networks, represent one of the key technological infrastructures that support modern academic ecosystems. These hotspots allow users—including students, lecturers, and administrative staff—to connect to the internet without relying on physical network cables. Wi-Fi networks are now crucial for facilitating numerous campus activities, including online learning, cloud-based collaboration, administrative communication, and digital content distribution. According to Irwansyah & Fatoni (2022), the adoption of wireless networks in educational institutions significantly improves mobility and accessibility, ensuring that academic processes can run smoothly across various campus areas.

At Universitas Bina Darma, the importance of providing stable and secure hotspot facilities has grown in line with increasing digitalization in campus operations. Lecturers and staff depend on Wi-Fi networks for daily tasks such as file transfer, data retrieval, online meetings, academic administration, and accessing internal information systems. These activities require high-quality network performance to ensure work efficiency and to support broader institutional functions, including research dissemination and digital-based promotion strategies. As the university expands its digital infrastructure, understanding how these facilities are utilized becomes an important aspect of institutional planning.

Despite the benefits of hotspot availability, systematic monitoring remains necessary to ensure optimal performance and effective utilization. One emerging challenge is understanding the pattern of hotspot use during academic breaks, when campus activities may fluctuate but network access remains active. This information is vital for analyzing resource usage, identifying unusual traffic patterns, and determining whether connectivity is being used for academic, administrative, or non-academic purposes. To address this need, tools such as Wireshark, a packet-capturing and network analysis software, can be utilized to examine real-time traffic, including HTTPS packets, thereby providing in-depth insights into network activity.

Monitoring hotspot usage also offers broader institutional benefits. With the growing influence of digital platforms, universities are increasingly utilizing social media as a primary tool for branding, communication, and public engagement. As stated by Eko (2020), social media has become a dominant strategy in modern university promotion, replacing many traditional marketing methods. Understanding how campus networks are used—including access to social media during academic breaks—helps institutions assess digital behavior

trends among lecturers and staff, enabling more strategic planning in areas such as digital literacy, promotional campaigns, and technology-based service development.

Through structured hotspot monitoring, administrators can ensure optimal internet performance, detect connectivity issues early, and maintain network reliability across all operational activities. Effective monitoring supports resource allocation decisions, enhances security, and ensures that digital services align with institutional objectives. Therefore, this study examines how lecturers and staff at Universitas Bina Darma utilize the available hotspot facilities, providing valuable insights into usage patterns and contributing to the improvement of the university's digital infrastructure.

Methodology

This study employed a case study research design, which involves systematic procedures for observation, data collection, analysis, and reporting (Susianto & Rachmawati, 2019). The method was applied to examine hotspot utilization by lecturers and staff at Universitas Bina Darma.

Observation

Observation activities were conducted to obtain accurate and relevant information regarding hotspot usage. This step enabled the identification of usage patterns and helped determine appropriate monitoring techniques. The data collected during observation formed the basis for devising network management strategies.

Data Collection

Data collection was conducted using Wireshark and Advanced IP Scanner.

- Wireshark was used to capture and analyze detailed network traffic, including packet identification and protocol types.

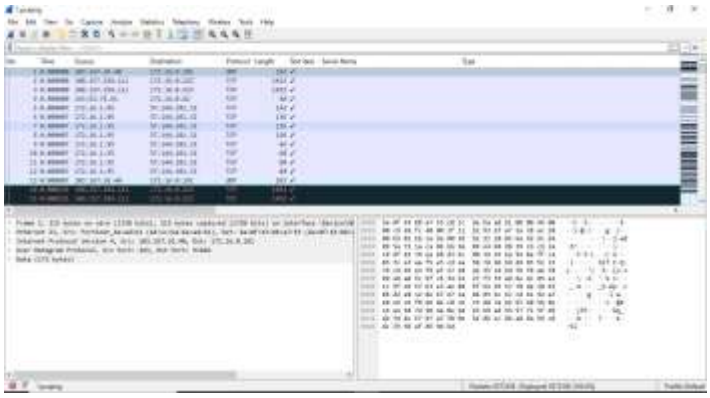
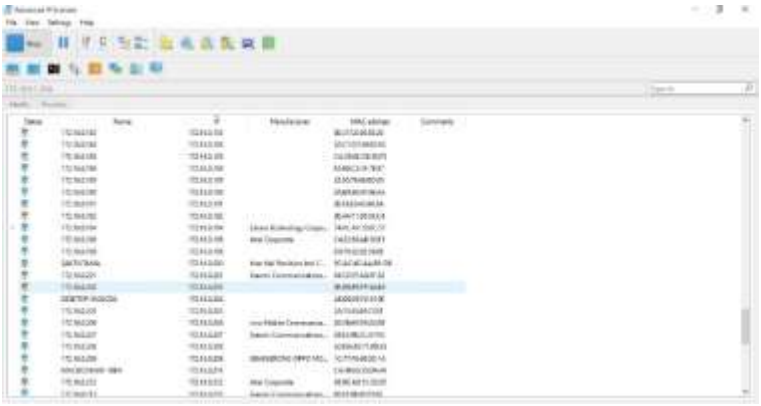


Figure 1. Wireshark Capture

- Advanced IP Scanner was used to scan and identify devices connected to the network, providing IP addresses, hostnames, and device status.



Information Analysis

Wireshark facilitated real-time analysis of network traffic by identifying active users, packet flows, and communication characteristics. Data capture was conducted through the Wi-Fi interface to ensure comprehensive packet collection.

Monitoring Results

Captured traffic data were further analyzed using NetworkMiner, which extracted detailed information on devices and connection metadata. This step supported interpretation of hotspot utilization patterns.

Results

Hotspot monitoring was carried out over seven days. The results are presented below.

Monitoring Results – 19 July 2024

Table 1. Day 1 Monitoring Results

Website Category	Users
Bina Darma	11
News	7
Educational	51
Social Media	178
E-Commerce	45
Games	14
Google	54
Total	**360**

Social media had the highest number of accesses, totaling 178 users. Educational platforms received 51 accesses, while Google services recorded 54 accesses.

Monitoring Results – 20 July 2024

Table 2. Day 2 Monitoring Results

Website Category	Users
Bina Darma	13
News	9
Educational	53
Social Media	193
E-Commerce	50
Games	20
Google	41
Total	**379**

Social media remained the most accessed category, with 193 users documented.

Monitoring Results – 22 July 2024

Website Category	Users
Bina Darma	20
News	12
Educational	36
Social Media	194
E-Commerce	82
Games	26
Google	19
Total	**389**

This day recorded increased e-commerce activity, with 82 users accessing related platforms.

Monitoring Results – 23 July 2024

Website Category	Users
Bina Darma	4
News	2
Educational	22
Social Media	110
E-Commerce	10
Games	5

Website Category	Users
Google	33
Total	**179**

Social media remained the most accessed category with 110 users.

Monitoring Results – 25 July 2024

Website Category	Users
Bina Darma	10
News	6
Educational	42
Social Media	148
E-Commerce	29
Games	7
Google	44
Total	**286**

Social media usage totaled 148 accesses.

Monitoring Results – 26 July 2024

Website Category	Users
Bina Darma	9
News	20
Educational	45
Social Media	202
E-Commerce	74
Games	26
Google	71
Total	**447**

This day recorded the highest number of social media accesses at 202 users.

Discussion

The results demonstrate that social media consistently dominated hotspot usage throughout the monitoring period. Interview findings indicated that lecturers and staff used social media platforms such as TikTok, Instagram, and Facebook for campus promotion, while WhatsApp served as the primary medium for internal communication and work-related coordination. The proportion of social media access relative to total hotspot usage was:

- 49% on Day 1
- 51% on Day 2

- 50% on Day 3
- 61% on Day 4
- 40% on Day 5
- 52% on Day 6
- 45% on Day 7

These findings highlight the role of social media as the primary digital tool supporting academic and administrative communication during academic breaks.

Conclusion and Recommendations

The study concludes that within the BR-1 campus environment of Universitas Bina Darma, social media represents the most frequently accessed category during academic breaks. The highest number of accesses occurred on 26 July 2024, with 202 social media users, followed by 23 July 2024 with 194 users. Interview findings further indicate that lecturers and staff utilize TikTok, Instagram, and Facebook for campus promotion, while WhatsApp remains the main platform for communication and coordination. Percentages of social media usage ranged between 40% and 61% across the seven-day period, confirming the dominant role of social media in hotspot utilization.

Disclosure Statement

The authors declare no conflicts of interest associated with this research.

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Biographical Notes

Andri Rio Saputra is student at the systems and digital communication at Universitas Bina Darma. His research interests include network monitoring, wireless infrastructure, and digital system optimization.