ABSTRACT

Information system security poses a significant challenge in the development and operation of websites, especially for platforms that provide public information. PT XYZ, as one of the most widely accessed news portals in the country, receives nearly 300,000 monthly visits, indicating a high volume of users accessing and interacting with the site. With such heavy traffic, the risk of security vulnerabilities being exploited increases, making the strengthening of system security crucial. In the previous year, PT XYZ experienced a security incident that resulted in the deletion of the entire site database due to a cyberattack. Although the data was restored from backups, the incident revealed existing vulnerabilities that could be exploited by malicious actors. The attack not only led to data loss but also potentially undermined user trust in the site's ability to safeguard information. Given the high number of visitors, the site's operational continuity heavily depends on the resilience of its systems against cyber threats. Therefore, proactive measures such as penetration testing are essential to identify and close potential security gaps, preventing similar incidents in the future. This study conducts vulnerability and penetration testing using the OWASP (Open Web Application Security Project) framework. The testing is based on the OWASP Top 10 2021 standards and utilizes OWASP ZAP as the primary tool. The results indicate that the security level of Situs XYZ, XYZ Jurnalis, and XYZ Editor remains vulnerable. Penetration testing revealed 20 vulnerabilities: 4 categorized as high, 10 as medium, and 6 as low. Improvement priorities include addressing potential SQL Injection, missing security headers, outdated components, and inadequate brute-force protection. Recommended countermeasures include implementing HTTPS, security headers such as CSP and HSTS, component updates, input validation, and anti-bot mechanisms. These steps aim to enhance the site's resilience against cyberattacks and maintain user trust.

Keywords: *Information System Security, OWASP, Vulnerability Test, Penetration Test*