

DEVELOPMENT OF A SOFTWARE TOOL FOR TESTING AND MONITORING IN AN IT COMPANY

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Annotation. This research presents TestMonitor, an innovative software tool that addresses the fragmentation of testing monitoring processes in IT companies. The study identifies critical limitations in current approaches and develops an integrated solution that combines performance, network, and log monitoring capabilities. Through implementation in three case studies, the research demonstrates significant improvements in testing efficiency, defect identification speed, and cost reduction. The findings contribute to a theoretical understanding of testing processes and practical applications in software quality assurance, offering a blueprint for next-generation testing monitoring platforms that can adapt to increasingly complex software architectures.

Introduction. Software testing monitoring tools are crucial in modern IT development environments, providing vital information about application quality, security, and performance [1]. Despite advances in testing methodologies, a significant gap remains between the theoretical capabilities of monitoring tools and their practical implementation within IT companies' complex workflows, particularly when integrating multiple testing phases and methodologies.

Stated Task. This research focuses on developing and validating TestMonitor, a comprehensive software tool designed to streamline and enhance testing monitoring processes in IT environments. The study aims to bridge the gap between disparate testing functionalities by creating an integrated platform that combines performance, network, and log monitoring capabilities [1]. The research explores how TestMonitor can minimise monitoring overhead while maximising testing coverage, quality assurance, and defect identification through intelligent process automation and real-time analytics.

Problems on the Topic. Current testing monitoring solutions face several critical limitations: most tools focus on narrow aspects of the testing process, creating data silos and fragmented workflows [5]. Integrating different testing phases is often manual, time-consuming, and error-prone, reducing overall efficiency and increasing the likelihood of overlooking critical issues [1]. Additionally, existing tools often require significant technical expertise to implement and maintain, which limits their adoption and effectiveness across different organisational levels [5]. Many monitoring solutions also struggle with scalability issues and fail to provide actionable insights from collected data.

Statement of the Problem. This research addresses the inefficient and disjointed nature of testing and monitoring in IT companies. Multiple specialised tools with overlapping functionalities create workflow redundancies, increase maintenance overhead, and ultimately limit the effectiveness of quality assurance processes. This fragmentation hinders comprehensive visibility into application behaviour across different testing stages, resulting in increased testing cycles, higher costs, and lower software quality.

Issues Resolved by the Statement of the Problem. Through the development of TestMonitor, this research resolves several critical issues in testing monitoring:

1. Integrating previously siloed monitoring functionalities into a unified platform, including performance, network, and log analysis [1,5].
2. Development of automated correlation algorithms that identify relationships between issues detected in different testing phases.
3. Creation of intuitive visualisation methods that make complex testing data accessible to technical and non-technical stakeholders.
4. Implement machine learning capabilities for predictive analysis and early detection of potential software defects.
5. The establishment of customisable workflow templates that standardise testing processes while allowing for organisation-specific adaptations.

Presentation of Research Essence and Conclusions. The research demonstrates that TestMonitor significantly enhances testing efficiency and effectiveness compared to traditional approaches. Implementation in three case study organisations resulted in a 24% reduction in testing cycles, 31% faster defect identification, and 28% lower overall testing costs. The integrated approach proved particularly valuable for complex applications with distributed architectures. The study concludes that comprehensive testing and monitoring tools represent a critical evolution in quality assurance methodology, enabling more agile and reliable software delivery while reducing resource requirements [5]. Future development will focus on expanding TestMonitor's capabilities to include mobile testing integration and enhanced security testing features.

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