

ABSTRACT

Explanatory note size – 156 pages, contains 33 illustrations, 33 tables, 3 applications, 32 references.

Topicality. In the modern era of digital technologies, the volume of generated data is rapidly increasing, and the need for its effective management is becoming increasingly critical. It is essential not only to ensure reliable data storage but also to enable its prompt processing and analysis in real-time. This highlights the necessity of designing and implementing integrated systems capable of guaranteeing data relevance and providing convenient access for various applications and users. One of the key approaches in this context is event-driven architecture, which allows systems to respond quickly to changes in data.

The aim of the study. The main target is to improve approaches for building event-driven integrated systems based on relational databases.

The object of research: The architecture and software for an integrated system to support event-driven architecture based on events from relational databases.

The subject of research: Methods, tools, and technologies for developing architectural and software solutions to create an integrated system based on events from relational databases.

To achieve this goal, the **following tasks** were formulated:

- analysis of existing solutions;
- development of requirements;
- architectural design;
- prototype implementation;
- implementation of state independence;
- implementation of the first bulk export prototype;
- evaluation of the effectiveness of the proposed solution.

The scientific novelty of the results of the master's dissertation lies in the further development of approaches for building event-driven integrated systems through the use of database queues, the addition of horizontal scalability support, and event enrichment

The practical value of the obtained results lies in the development of software and an architecture for an event-driven integrated system based on relational databases. This solution enables the integration of existing software systems and message buses to implement an event-driven architecture within a specific company and its utilized systems.

Relationship with working with scientific programs, plans, topics. Work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine «Kyiv Polytechnic Institute. Igor Sikorsky».

Approbation. The scientific provisions of the dissertation were tested at the The scientific propositions of the thesis were tested at the VII International Scientific and Practical Conference of Young Scientists and Students, "Software Engineering and Advanced Information Technologies (SoftTech-2024)."

Publications. The scientific provisions of the dissertation were published in:

- 1) Kasyudyk B.O., Integrated System and Architecture Based on Events from Relational Databases / B.O. Kasyudyk, V.P. Novinsky // Proceedings of the VII International Scientific and Practical Conference of Young Scientists and Students "Software Engineering and Advanced Information Technologies (SoftTech-2024)" – Kyiv: NTUU "Igor Sikorsky KPI", November 20-22, 2024.

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