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MAIN DIRECTIONS OF IMPLEMENTING THE "1C: ENTERPRISE" SYSTEM BASED ON CLOUD TECHNOLOGIES IN BANKING REGISTRY SERVICES

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Abstract

This article examines contemporary approaches to the implementation of cloud technologies in the "1C: Enterprise" system for organizing registry services in banking and enterprise environments. The architectural features of cloud-based solutions are analyzed, including Software as a Service (SaaS), web client, and thin client models. The study identifies the principal directions of cloud technology deployment: within an enterprise, within a holding structure, for client-facing services, and in the web services model. Practical aspects of implementation are demonstrated through examples of XML-based data exchange and web service integration. The results confirm that the adoption of cloud technologies significantly enhances management efficiency, reduces operational and infrastructure costs, and ensures scalability and flexibility of information systems.

Keywords: *cloud technologies, 1C: Enterprise, SaaS, web client, thin client, ERP, information systems*

Introduction

Increasing enterprise profitability, improving personnel efficiency, and establishing an optimal management structure are among the primary objectives of modern management systems. In conditions characterized by uncertainty, volatility, and risk, decision-makers are required to process large volumes of heterogeneous data while maintaining control over multiple financial and operational units.

To address these challenges, corporate information systems (CIS) are widely employed. One of the most prominent solutions is the "1C: Enterprise" system, which provides comprehensive automation of accounting processes, enterprise resource planning (ERP), and analytical support for managerial decision-making (Mell, P., Grance, T., 2011; Laudon, K., Laudon, J., 2020).

The "1C: Enterprise" system extends beyond traditional accounting automation by enabling the management of material flows, human resources, procurement, production processes, and product distribution. Additionally, it supports the generation of regulatory reports required by supervisory authorities (Laudon, K., Laudon, J., 2020).

The current stage of information technology development is characterized by the rapid expansion of cloud computing technologies, which provide remote access to computing resources, storage systems, and software applications via the Internet. These technologies play a critical role in the digital transformation of enterprises and public sector organizations (Silberschatz, A. 2018; Erl, T., 2013).

Essence of cloud technologies

Cloud computing represents a model for delivering computing resources as services over a network, typically the Internet or a private local network. In this paradigm, users access applications, data, and computational resources remotely through standardized interfaces without the need for local installation or maintenance (Silberschatz, A. 2018; Pressman, R. 2014).

According to the definition provided by the National Institute of Standards and Technology (NIST), cloud computing is characterized by the following essential features (Mell, P., Grance, T., 2011):

- on-demand self-service;
- broad network access;
- resource pooling;
- rapid elasticity and scalability;
- measured service (pay-as-you-go model).

Within this framework, the user device functions primarily as a terminal interface, while core processing and data storage operations are performed on remote servers or distributed data centers (Tanenbaum, A. 2007; Pressman, R., 2014).

Use of cloud technologies in the "1C: Enterprise" system

The integration of cloud technologies into the "1C: Enterprise" system ensures platform independence, allowing users to access the system regardless of operating system or device type. The computational workload is fully handled by the server infrastructure, while users interact with the system through web browsers or client applications (Erl, T. 2013; Armbrust, M. et al. 2010).

The system supports several advanced features, including:

- database access via HTTP/HTTPS protocols;
- data exchange using FTP and web services;
- web client operation without local installation;
- support for a large number of concurrent users;
- multitenancy (shared infrastructure for multiple users);
- SaaS-based deployment models (Armbrust, M. et al. 2010; Stair, R., Reynolds, G. 2018).

Cloud technologies within an enterprise

The internal cloud model allows employees to access enterprise systems from any location using standard web browsers. Authentication is performed via server address, login credentials, and secure access protocols.

In addition to internal personnel, access can be granted to external stakeholders such as suppliers and contractors, significantly expanding system functionality and collaboration capabilities (Erl, T. 2013).

The thin client model is also widely used, where users run a lightweight application that connects to a centralized server infrastructure.

Practical example: XML and Web services integration

XMLHTTP.Open("POST", Address, False);

XMLHTTP.Send(XMLText);

ResponseString = XMLHTTP.ResponseText;

This mechanism enables automated data exchange between distributed systems, allowing real-time retrieval and processing of information.

Advantages:

- ability to use low-performance hardware;
- enhanced mobility of employees;

- simplified integration of external users and partners (Armbrust, M. et al. 2010).

Case study: Azərsu (Azersu)

In the Azərsu enterprise, cloud technologies are actively used to automate water consumption accounting and operational processes in accordance with digital transformation strategies (Mell, P., Grance, T. 2011; Laudon, K., Laudon, J. 2020).

Scenario:

- employees collect meter readings via mobile devices;
- data is transmitted through a web client to the "1C" system;
- centralized processing is performed on cloud servers.

Results:

- •reduction of data entry errors (Pressman, R., 2014);
- •increased operational efficiency (Laudon, K., Laudon, J. 2020);
- •elimination of paper-based workflows.

Cloud technologies within a holding structure

In holding organizations, cloud technologies enable centralized data management and significant cost reduction. Instead of maintaining separate databases for each division, a unified information system is implemented and accessed via cloud infrastructure (Stair, R., Reynolds, G., 2018).

Advantages:

- reduced maintenance and support costs;
- centralized system updates;
- unified information space across all divisions.

For geographically distributed enterprises such as Azərsu, centralized cloud databases ensure consistency and transparency of data across regions.

Cloud technologies for clients

Cloud-based systems provide clients with direct access to enterprise services via the Internet, eliminating the need for software installation.

Advantages:

- ease of access;
- global availability;
- improved customer engagement and interaction (Turban, E., 2015).

Example: Customer self-service portal

SaaS-based client platforms enable users to:

- check account balances;
- perform online payments;
- submit meter readings.

Such systems are typically built on modern web technologies and RESTful APIs (Fielding, R., 2000).

Results:

- increased customer satisfaction (Turban, E., 2015);
- reduced workload on operational departments (Pressman, R., 2014).

Operation in Web services model (SaaS)

The SaaS model allows users to access software as a service without owning the infrastructure. All technical operations are managed by the service provider.

Provider Responsibilities:

- ensuring system availability and uptime;
- software updates and maintenance;
- data security and protection; backup and recovery mechanisms.

Advantages:

- elimination of infrastructure costs;
- high accessibility;
- continuous use of up-to-date software versions (Pressman, R., 2014; Fielding, R. 2000).

SaaS and integration with banks

Integration through web services is a fundamental component of modern IT ecosystems (Fielding, R. 2000; Papazoglou, M., 2012).

Example: Payment automation

In Azərsu, payment data is automatically transmitted from banking systems to the "1C" system via APIs, consistent with Service-Oriented Architecture (SOA) principles (Papazoglou, M., 2012).

Results:

- reduction of manual processing operations (Pressman, R., 2014);

- increased accuracy of financial data (Stair, R., Reynolds, G., 2018).

Emergency management

Cloud-based systems enable efficient monitoring and management of emergency situations, aligning with the concept of smart infrastructure (Batty, M. 2018).

Example: Water Supply Incidents

- incident registration in the system;
- task assignment to mobile response teams;
- real-time status updates.

Results:

- reduced response time (Batty, M. 2018).;
- improved resource allocation efficiency.

Analytics and forecasting

Cloud platforms support advanced data analytics and predictive modeling, consistent with Big Data and predictive analytics paradigms (Provost, F., Fawcett, T., 2013).

Example: Water consumption analysis

The "1C" system enables:

- forecasting consumption patterns;
- detecting anomalies;
- analyzing customer debts.

Results:

- optimization of resource usage (Provost, F., Fawcett, T., 2013).
- reduction of losses and inefficiencies (Batty, M. 2018).

Discussion

The conducted analysis demonstrates that the cloud-based implementation of the "1C: Enterprise" system has multidimensional value. At the technological level, it improves accessibility, scalability, update management, and integration capacity. At the organizational level, it supports centralized control, distributed interaction, and user mobility. At the economic level, it reduces infrastructure expenditure and maintenance costs (Erl, T., 2013; Armbrust, M. et al. 2010; Stair, R., Reynolds, G. 2018).

At the same time, the effectiveness of cloud implementation depends on the selected deployment model and the operational profile of the organization. The internal cloud model is most suitable for improving employee mobility and internal coordination. The holding cloud model is especially effective for geographically distributed structures. The customer cloud model is most relevant for digital service delivery, whereas the SaaS model offers the greatest reduction in technical overhead.

From an academic standpoint, the findings confirm that cloud transformation should not be viewed solely as infrastructure outsourcing. Rather, it represents a structural reconfiguration of enterprise information architecture, data flows, and user interaction logic. This interpretation is particularly important for registry services connected with banking operations, where accuracy, integration reliability, and process continuity are crucial.

Conclusion

The implementation of cloud technologies in the "1C: Enterprise" system represents a strategic direction in the evolution of corporate information systems. Cloud-based solutions improve management efficiency, reduce infrastructure and operational costs, and provide scalability and flexibility.

The study has shown that the main implementation directions may be grouped into four interrelated models: internal enterprise cloud, holding cloud, client-oriented cloud access, and SaaS-based operation. Each of these models contributes to the digital transformation of enterprise processes in different ways, while together they form a comprehensive architecture for scalable and service-oriented information management.

The primary models – internal cloud, holding cloud, client-oriented systems, and SaaS – offer comprehensive capabilities suitable for organizations of different sizes and structures.

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