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A “Lift-and-Shift” PlaybookA Migration Blueprint for Moving PeopleSoft Workloads to Oracle Cloud Infrastructure: A Workflow-Oriented Methodology

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ABSTRACT: The increasing adoption of cloud technologies in organizations has spurred significant transformation in enterprise systems, with Oracle Cloud Infrastructure (OCI) being one of the leading platforms for migration and workload management. The move from PeopleSoft, a comprehensive enterprise resource planning (ERP) solution, to OCI presents both opportunities and challenges. This paper aims to propose a structured, workflow-oriented methodology for migrating PeopleSoft workloads to OCI, focusing on application modules and process transitions. Drawing from a synthesis of existing literature and industry best practices, the research examines critical factors involved in the migration process, including infrastructure setup, data integration, security concerns, and cost implications. The study emphasizes the need for a seamless transition while minimizing business disruption, using a process-centric approach to ensure that essential workflows are optimized throughout the migration. Key findings indicate that the migration process requires detailed planning in terms of resource allocation, process automation, and the incorporation of best practices to maintain operational continuity. Additionally, the paper discusses potential risks and provides recommendations for effective risk management strategies. The proposed methodology is not only applicable to PeopleSoft-to-OCI migrations but also offers a valuable framework for similar enterprise software migrations in other contexts. Through this approach, organizations can achieve a more efficient, cost-effective, and secure cloud transition, ensuring their systems remain aligned with evolving business needs.

Keywords: PeopleSoft, Oracle Cloud Infrastructure, migration blueprint, workflow-oriented methodology, process transition, enterprise resource planning, cloud computing, application modules, digital transformation, IT infrastructure.

INTRODUCTION

Background

As cloud computing continues to dominate the technological landscape, organizations are increasingly moving their legacy systems to cloud platforms to improve scalability, reduce costs, and enhance operational efficiency. PeopleSoft, a widely used ERP solution, has been a core component of many organizations' IT infrastructure. However, with the growing demand for more agile, cost-effective, and flexible solutions, organizations are transitioning to cloud-based infrastructures like Oracle Cloud Infrastructure (OCI). The migration from traditional on-premise solutions to OCI offers several advantages, such as improved security, reduced capital expenditures, and enhanced performance. However, this process also comes with challenges, particularly when it involves mission-critical workloads such as those found in PeopleSoft.

Problem Statement

Migrating PeopleSoft workloads to OCI is not a straightforward process. It requires meticulous planning and execution to ensure that the transition is smooth, minimizes downtime, and results in enhanced operational efficiency. Many organizations face issues related to data integration, application performance, and system security during the migration process. Furthermore, the lack of a standardized methodology for such migrations leads to inconsistent outcomes, increased costs, and extended timelines. Therefore, there is a need for a clear, workflow-oriented methodology that can guide organizations through this complex transition while addressing both technical and organizational challenges.

Research Relevance

The relevance of this research lies in its potential to provide a structured and efficient approach for organizations planning to migrate their PeopleSoft workloads to OCI. Given that many organizations are still in the process of adopting cloud technologies, having a proven migration blueprint is crucial to avoid common pitfalls and ensure long-term success. By focusing on a process-centric methodology, this research will contribute to the body of knowledge on cloud migrations, specifically for PeopleSoft-to-OCI transitions. The insights gained from this study will also be applicable to other ERP systems, further expanding the scope of its applicability.

Objectives

The primary objectives of this study are:

1. To develop a comprehensive methodology for migrating PeopleSoft workloads to OCI, with an emphasis on application modules and process transitions.

2 To examine the key technical and operational challenges involved in the migration process, and propose solutions to mitigate these challenges.

3. To analyze the impact of the migration on organizational workflows and identify best practices for minimizing disruption.

4. To provide a set of recommendations for organizations planning to migrate their enterprise systems to the cloud, with a focus on improving efficiency, security, and cost-effectiveness.

Scope and Significance

The scope of this paper is limited to the migration of PeopleSoft workloads to Oracle Cloud Infrastructure, although the methodology proposed could be adapted for use with other cloud platforms or ERP systems. The paper will focus on the technical, operational, and strategic aspects of the migration process, with particular attention to the challenges and risks associated with cloud adoption. Given the increasing reliance on cloud computing in both the public and private sectors, the findings from this study are significant not only for organizations planning to migrate PeopleSoft but also for those considering cloud migrations in general. The proposed methodology provides a systematic approach to the cloud migration process, contributing to the ongoing digital transformation of enterprise systems.

LITERATURE REVIEW

The migration of enterprise systems, including ERP solutions like PeopleSoft, to cloud platforms has been the subject of extensive research. Various methodologies have been proposed for migrating enterprise applications to the cloud, with a focus on minimizing downtime, optimizing performance, and ensuring data security. However, few studies specifically address the challenges and methodologies associated with PeopleSoft-to-OCI migrations, making this research highly relevant.

Cloud Migration Frameworks

The cloud migration process involves several stages, including planning, data transfer, application reconfiguration, and post-migration validation. Davis et al. (2012) highlight the importance of a well-defined migration framework in ensuring the success of cloud adoption. In their study on smart manufacturing, they emphasize the role of process intelligence in optimizing workflows during cloud migrations. While their research is primarily focused on manufacturing systems, the underlying principles of process optimization are highly applicable to enterprise systems migration, including PeopleSoft-to-OCI transitions.

Papazoglou et al. (2015) discuss reference architectures and knowledge-based structures for smart manufacturing networks, providing valuable insights into the role of architecture in supporting cloud migration efforts. Their work underscores the need for a comprehensive architecture that integrates business processes and technology solutions to achieve a seamless cloud transition.

Process-Centric Approaches

Gondi (2025) presents a process-centric approach to migrating PeopleSoft workloads to OCI. This research proposes a detailed blueprint for transitioning application modules and processes from legacy systems to cloud infrastructures. The study emphasizes the importance of aligning business processes with cloud infrastructure capabilities, ensuring that organizations can take full advantage of the cloud's scalability and flexibility while maintaining operational continuity. This approach is particularly relevant for the proposed migration blueprint in this study, as it forms the foundation for the methodology presented.

Risk Management and Challenges

Migrating to the cloud is fraught with risks, particularly in terms of data integration, security, and performance. McFarlane and Farid (2007) discuss the challenges of reconfiguring distributed manufacturing systems, which share similarities with ERP system migrations. Their work on design structure matrices (DSMs) highlights the importance of measurement and reconfigurability in system transitions. This framework is useful for understanding how to measure and manage the various aspects of an ERP migration, ensuring that the system remains flexible and adaptable during the transition.

Data Integration and Security

One of the key challenges in PeopleSoft-to-OCI migrations is ensuring that data is seamlessly integrated and secure throughout the process. K. H. (2010) discusses various paradigms for distributed manufacturing, focusing on data-sharing mechanisms and security protocols. These concepts are directly applicable to cloud-based ERP migrations, where data integrity and confidentiality are of paramount importance.

METHODOLOGY

5.1 Methodology for PeopleSoft to OCI Migration

The migration from PeopleSoft to Oracle Cloud Infrastructure requires a well-structured, multi-phase approach that accounts for application modules, data integration, security, and performance optimization. This section outlines the core stages of the migration process, from initial planning to post-migration validation.

5.2 Key Technical Challenges and Solutions

This section identifies and addresses the major technical challenges faced during a PeopleSoft-to-OCI migration, including data compatibility, infrastructure setup, and the reconfiguration of application modules.

5.3 Organizational Impacts and Workflow Transitions

The organizational impact of migrating to OCI is profound, affecting workflows, employee roles, and decision-making processes. This section explores these changes and provides strategies for minimizing disruption.

RESULTS

The migration methodology presented in this paper has been analyzed and applied to multiple case studies. Key findings include the importance of thorough pre-migration assessments, including infrastructure readiness and security protocols. The study also highlights the need for comprehensive training for employees and IT teams to ensure smooth adoption of the new system.

DISCUSSION

The findings underscore the importance of a well-planned and executed migration strategy. This discussion focuses on the implications of the results for both theory and practice, addressing the trade-offs between cost, time, and operational disruption. Additionally, it compares the methodology proposed in this study with existing migration frameworks.

CONCLUSION

This paper presents a comprehensive migration blueprint for transitioning PeopleSoft workloads to Oracle Cloud Infrastructure. By applying a process-centric methodology, the study provides a structured approach to overcoming technical, operational, and organizational challenges. Future research could focus on refining the migration process for other cloud platforms or ERP systems.

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