

Research of User Preferences In Cloud Services For The Aviation Industry

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Abstract

Cloud computing has become a fundamental paradigm in modern computing, enabling users to access computing resources and services over the internet. Cloud services offer many benefits to users, including increased flexibility, scalability, and cost savings. As cloud computing continues to evolve, it is essential to understand the preferences of users and how they influence the design and delivery of cloud services. In recent years, user preference models have emerged as a key area of research in cloud computing. These models can help cloud service providers to design and deliver services that better meet the needs and expectations of their users.

Key words: Aviation Industry, flexibility, scalability, cost savings

Cloud services are a form of computing in which users can access computing resources and services over the Internet. Cloud services can include storage, computing power, and applications such as email, productivity tools, and collaboration software. Cloud computing has become increasingly popular in recent years due to its many benefits, including cost savings, increased scalability, and flexibility [1]. User preferences in cloud services refer to the specific features and characteristics that users prefer in cloud services. These preferences can vary based on factors such as cost, performance, reliability, security, and privacy. Understanding user preferences is critical for cloud service providers, as it can help them design and deliver services that had better meet the needs and expectations of their users.

User preference models refer to the methods used to capture and model the preferences of users about cloud services. These models can used to identify the specific features and characteristics of cloud services that are most important to users and to develop services that had better meet their needs and expectations. User preference models can based on a range of techniques, including surveys, focus groups, and machine learning algorithms [2].

Several key factors can influence the preferences of users about cloud services. These factors can include cost, performance, reliability, security, and privacy. Cost is often a key consideration for users when selecting cloud services, as it can affect the overall affordability and profitability of their business. Performance is also important, as users need to ensure that their applications and services can run efficiently and effectively on the cloud. Reliability is critical to ensure that services are available when needed and that data is not lost or corrupted. Security and privacy are also critical concerns, as users need to ensure that their data protected from unauthorized access or theft [3].

For capturing and modeling user preferences cloud services can be used several methods. Surveys and focus groups are commonly used techniques for collecting data on user preferences. These methods can provide valuable insights into the specific features and characteristics of cloud services that are most important to users. Machine learning algorithms can also use to model user preferences based on past behavior or usage patterns. These models can used to personalize the delivery of cloud services and to provide recommendations to users based on their preferences.

User preferences can used to improve the design and delivery of cloud services in several ways. For example, user preference models can used to identify the specific features and characteristics of cloud services that are most important to users and to prioritize development efforts accordingly. User preferences can used to personalize the delivery of cloud services, providing users with a more customized and tailored experience. Additionally, user preferences can used to inform pricing strategies, ensuring that services priced in a way that is attractive and affordable to users [4].

User behavior in cloud services refers to how users interact with cloud services, including how they access, use, and manage cloud resources. Understanding user behavior is important for developing more effective cloud service offerings that meet the needs and preferences of users. Some of the common types of user

behavior in cloud services include resource provisioning, workload scheduling, and data management [5]. This approach aims to capture user preferences and behavior and use this information to develop more effective and personalized cloud service offerings. These models can be developed using a variety of methods, including machine learning algorithms, statistical modeling, and data mining techniques. Some of the common types of user preference models in cloud services include collaborative filtering, content-based filtering, and hybrid filtering. User preference models in cloud services have a wide range of applications, including personalized service recommendations, resource allocation, workload scheduling, and optimization of cloud service delivery. These models can be used to improve the user experience by providing more relevant and efficient cloud service offerings that meet the user's needs and preferences [6]. While there have been numerous studies on user preference models in cloud services, there are still limitations to the accuracy and effectiveness of these models. Some of the common limitations of existing user preference models in cloud services include:

1. Cold start problem: This refers to the challenge of making recommendations for new users who have little or no historical data on their preferences and behavior. Collaborative filtering models, for example, may struggle to make recommendations for new users.

2. Sparsity: In cloud services, users may have sparse data on their preferences and behavior. This can limit the accuracy of user preference models, especially when using collaborative filtering methods.

Data quality: The quality of data used in developing user preference models can affect their accuracy. Noise and incomplete data can lead to inaccurate recommendations.

3. Limited scope: User preference models may be limited in scope, only capturing certain aspects of user preferences and behavior. This can limit the effectiveness of these models in developing personalized cloud service offerings.

4. Lack of diversity: User preference models may be biased towards certain types of cloud services, leading to a lack of diversity in recommended services.

Despite these limitations, existing user preference models in cloud services have shown promising results in improving the efficiency and effectiveness of cloud service offerings. Ongoing research aims to address these limitations and develop more accurate and reliable models that can better capture user preferences and behavior [7].

The aviation industry is constantly evolving, with new technologies introduced to improve operations and customer satisfaction. One such technology is cloud services, which have become increasingly popular in recent years due to their ability to provide flexible, scalable, and cost-effective solutions. Azerbaijan Airlines, a major airline in the region, has recently switched from SITA cloud services to Amadeus cloud services. This study evaluates the effectiveness of this switch by surveying employees on their opinions of the new cloud service [8]. Amadeus is one of the leading providers of cloud services in the aviation industry, which provide flight and customer management, scheduling, administration and its services are used by several major airlines worldwide.

This study hypothesizes that the switch from SITA to Amadeus cloud services will be beneficial for Azerbaijan Airlines and that most employees will have a positive opinion of the new service.

The study surveyed 100 employees of Azerbaijan Airlines, asking them to fill out questionnaires that included their personal information, such as full name, age, years of experience in aviation, and the university they graduated from, as well as their opinions on the Amadeus cloud service. The data was collected in an Excel file and then processed using Python code to obtain the percentages of responses to each question. The results of the study showed that most employees were satisfied with the Amadeus cloud service. Specifically, 97% of employees gave the service a positive rating, while only 3% gave it a negative rating. Additionally, the majority of employees had more than 5 years of experience in aviation, suggesting that their opinions carry weight and can be trusted. When asked about their favorite features of the Amadeus

cloud service, the most common responses were its flexibility, scalability, and ease of use.

Conclusion

The results of the study suggest that the switch from SITA to Amadeus cloud services was a positive move for Azerbaijan Airlines. Most employees were satisfied with the new service, and their positive opinions influenced by the service's flexibility, scalability, and ease of use. The fact that a majority of employees had more than 5 years of experience in aviation suggests that their opinions carry weight and can be trusted. The results of this study are consistent with previous research that has shown that cloud services can improve operations and customer satisfaction in the aviation industry.

References

- [1] Steve Ranger, 2022. "What is cloud computing? Everything you need to know about the cloud explained". <https://www.zdnet.com/article/what-is-cloud-computing-everything-you-need-to-know-about-the-cloud/>.
- [2] James Chambua, Zhendong Niu, Yifan Zihu (2019). "User preferences prediction approach based on embedded deep summaries" <https://doi.org/10.1016/j.eswa.2019.04.047>
- [3] Muhammad Munir Ud Din, Nasser Alshammari, Saad Awadh Alanazi, Fahad Ahmad, Shahid Naseem, Muhammad Saleem Khan, Hafiz Syed Imran Haider (2022). Intelirank: A Four-Pronged Agent for the Intelligent Ranking of Cloud Services Based on End-Users' Feedback
- [4] Shailja Tripathi (2013). Review of factors that influence cloud computing adoption. <https://www.researchgate.net/publication/323029376> Review of factors that influence cloud computing adoption
- [5] Maryam Alruwaythi, Krishna Kambampaty and Kendall E. Nygard (2019). User Behavior and Trust Evaluation in Cloud Computing. <https://easychair.org/publications/open/vd8j>
- [6] Sirisha Potluri, Katta Subba Rao (2020). Optimization model for qos based task scheduling in cloud computing environment.
- [7] Aliev A. & Maharramov Z. (2023). Features Of Building Models Of User Preferences For Cloud Services And Their Classification. Sciences of Europe, 113, 82–85. <https://doi.org/10.5281/zenodo.777385>