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Credunity - A Novel Peer-to-Peer OTT Subscription Sharing Platform

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Abstract: *The proliferation of Over-The-Top (OTT) streaming services has led to a significant increase in the cost of digital media subscriptions for consumers. To address this issue, we propose Credunity, an innovative peer-to-peer OTT subscription sharing platform that enables users to share the cost of premium OTT services while ensuring secure, transparent, and collaborative management. This paper provides an in-depth analysis of the Credunity platform, its objectives, scope, significance, and the full-stack development approach employed to build a scalable, user-friendly, and secure solution.*

Keywords: Over-The-Top

I. INTRODUCTION

The rise of OTT streaming services such as Netflix, Amazon Prime, Disney+, and others has revolutionized the way people consume digital media. However, the increasing number of available services has resulted in a significant rise in the cost of digital media subscriptions for consumers. Many users find themselves paying for multiple subscriptions, leading to a substantial financial burden. To address this issue, we propose Credunity, a peer-to-peer OTT subscription sharing platform that enables users to share the cost of premium OTT services.

1.1 Background and Motivation

The growing demand for OTT streaming services has led to a surge in the number of available platforms. While this provides users with a wide range of content options, it also results in a significant increase in the cost of digital media subscriptions. Many users are forced to choose between multiple subscriptions, often opting for a single service or abandoning their favourite platforms altogether. This has created a need for innovative solutions that enable users to access multiple OTT services at a reduced cost.

1.2 Related Work

Several studies have explored the concept of sharing economy and collaborative consumption models. The sharing economy has been applied to various domains, including transportation, accommodation, and consumer goods. In the context of OTT streaming services, a few platforms have emerged that enable users to share subscriptions. However, these platforms often lack transparency, security, and user control. Credunity aims to address these limitations by providing a secure, transparent, and collaborative platform for OTT subscription sharing.

1.3 Research Questions and Objectives

The primary research question of this study is: Can a peer-to-peer OTT subscription sharing platform be designed to provide users with affordable access to multiple premium OTT services while ensuring security, transparency, and user control? The objectives of this research are:

- To design and develop a peer-to-peer OTT subscription sharing platform that enables users to share the cost of premium OTT services.
- To ensure the security, transparency, and user control of the platform.
- To evaluate the effectiveness of the platform in reducing the cost of digital media subscriptions for users.

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II. LITERATURE REVIEW

The literature review provides an in-depth analysis of the existing research on OTT streaming services, sharing economy, and collaborative consumption models.

2.1 OTT Streaming Services

OTT streaming services have revolutionized the way people consume digital media. The rise of platforms such as Netflix, Amazon Prime, and Disney+ has led to a significant increase in the number of available services. However, this has also resulted in a substantial increase in the cost of digital media subscriptions for consumers.

2.2 Sharing Economy and Collaborative Consumption Models

The sharing economy has been applied to various domains, including transportation, accommodation, and consumer goods. Collaborative consumption models enable users to share resources, reducing the cost of access to goods and services. In the context of OTT streaming services, sharing economy and collaborative consumption models can be applied to enable users to share subscriptions.

2.3 Security and Transparency in Online Platforms

Security and transparency are critical components of online platforms. Users need to trust that their personal and financial information is secure, and that the platform operates transparently. In the context of OTT subscription sharing, security and transparency are essential to ensure that users' login credentials and financial information are protected.

2.4 User Behaviour and Adoption

Understanding user behaviour and adoption is crucial in designing an effective OTT subscription sharing platform. Research has shown that users are more likely to adopt new technologies and services if they are user-friendly, secure, and transparent.

III. CREDUNITY: A NOVEL PEER-TO-PEER OTT SUBSCRIPTION SHARING PLATFORM

Credunity is a peer-to-peer OTT subscription sharing platform that enables users to share the cost of premium OTT services while ensuring secure, transparent, and collaborative management.

3.1 Objectives of Credunity

The primary objectives of Credunity are:

- **Affordable Shared Access**: Enable users to access multiple premium OTT services at a reduced cost by sharing the subscription fee with other group members.
- **Group Formation and Contribution Management**: Allow users to create or join groups where each member contributes a certain amount of money towards a pooled wallet.
- **Voting System for Platform Selection**: Enable group members to democratically vote on which OTT platform they want to buy the subscription for.
- **Secure Credentials Management**: Ensure that the login credentials remain secure and cannot be changed by any group member.

3.2 Key Features of Credunity

Credunity offers several key features that distinguish it from existing OTT subscription sharing platforms.

- **User Management**: Credunity provides a robust user management system that enables users to sign up, contribute, track their contributions, and interact with group members.
- **Data Analytics**: Credunity provides insights into group contribution status, voting outcomes, and overall financial health, building trust and transparency among users.
- **Secure Backend**: Credunity ensures that the backend can securely handle payment processing, wallet balances, and user data, preventing fraud and account misuse.

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3.3 Full-Stack Development Approach

Credunity's development employs a full-stack approach, combining frontend and backend technologies to build a scalable, user-friendly, and secure solution.

- **Frontend Development**: The frontend is built using React JS, HTML5, and CSS, ensuring a dynamic, responsive, and interactive user experience.
- **Backend Development**: The backend is powered by Python and frameworks like Flask or Django, handling APIs, data storage, payment processing, and security.

IV. SYSTEM DESIGN AND ARCHITECTURE

The system design and architecture of Credunity are critical to its success.

4.1 System Components

Credunity consists of several key components, including:

- **User Interface**: The user interface is designed to be intuitive and user-friendly, guiding users through the group creation, contribution, and subscription purchase process.
- **Backend Services**: The backend services handle user registration, contribution tracking, payment processing, and data storage.
- **Database**: The database stores user data, contribution history, and group information.

4.2 System Architecture

The system architecture of Credunity is designed to be scalable, secure, and reliable.

Microservices Architecture: Credunity employs a microservices architecture, enabling different components to operate independently and scale as needed.

API-Based Integration: Credunity uses API-based integration to interact with external services, such as payment gateways and OTT platforms.

V. SECURITY AND TRANSPARENCY

Security and transparency are critical components of Credunity.

5.1 Security Measures

Credunity employs several security measures to protect users' personal and financial information.

- **Data Encryption**: Credunity uses industry-standard encryption techniques, such as AES encryption, to protect sensitive data.
- **Role-Based Access Control (RBAC)**: Credunity implements RBAC to ensure that only authorized personnel have access to sensitive information.
- **Two-Factor Authentication (2FA)**: Credunity offers 2FA to add an additional layer of security to user accounts.

5.2 Transparency

Credunity is designed to be transparent, providing users with clear information about their contributions, group activities, and subscription status.

- **Real-Time Notifications**: Credunity provides real-time notifications to users about their contribution status, group activities, and subscription renewal dates.
- **Contribution Tracking**: Credunity enables users to track their contributions and view their contribution history.

VI. EVALUATION AND RESULTS

The evaluation of Credunity is critical to understanding its effectiveness in reducing the cost of digital media subscriptions for users.

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6.1 Evaluation Metrics

The evaluation of Credunity is based on several key metrics, including:

- **Cost Savings**: The amount of money saved by users through the shared subscription model.
- **User Satisfaction**: The level of satisfaction among users, measured through surveys and feedback.
- **Security and Transparency**: The effectiveness of Credunity's security and transparency measures.

6.2 Results

The results of the evaluation show that Credunity is effective in reducing the cost of digital media subscriptions for users.

- **Cost Savings**: Users report significant cost savings through the shared subscription model.
- **User Satisfaction**: Users are satisfied with the platform, citing ease of use and transparency.
- **Security and Transparency**: Credunity's security and transparency measures are effective in protecting users' personal and financial information.

VII. CONCLUSION

Credunity is a novel peer-to-peer OTT subscription sharing platform that enables users to share the cost of premium OTT services while ensuring secure, transparent, and collaborative management. The platform is designed to be scalable, user-friendly, and secure, providing users with a cost-effective solution to access multiple OTT services. The evaluation results show that Credunity is effective in reducing the cost of digital media subscriptions for users, while maintaining a high level of security and transparency.

VIII. FUTURE WORK

Future work on Credunity will focus on several key areas, including:

- **Expanding OTT Platform Integration**: Integrating Credunity with additional OTT platforms to provide users with a wider range of options.
- **Enhancing Security Measures**: Continuously monitoring and enhancing Credunity's security measures to ensure the protection of users' personal and financial information.
- **Improving User Experience**: Gathering user feedback and iterating on the user interface and experience to improve overall satisfaction.

By addressing the limitations and challenges of existing OTT subscription models, Credunity has the potential to revolutionize the way people consume digital media, making it more affordable, accessible, and enjoyable for users around the world.

IX. IMPLICATIONS AND CONTRIBUTIONS

The development of Credunity has several implications and contributions to the field of OTT streaming services and collaborative consumption models.

- **Cost Savings**: Credunity provides a cost-effective solution for users to access multiple OTT services, reducing the financial burden of digital media subscriptions.
- **Increased Accessibility**: Credunity increases accessibility to premium OTT services, enabling users to access a wider range of content options.
- **Security and Transparency**: Credunity's security and transparency measures provide a secure and trustworthy environment for users to share subscriptions.

X. Limitations and Challenges

While Credunity has the potential to revolutionize the way people consume digital media, there are several limitations and challenges that need to be addressed.

- **Regulatory Compliance**: Credunity needs to comply with regulatory requirements and laws related to data protection and consumer rights.

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- **User Adoption**: Credunity needs to attract a critical mass of users to achieve economies of scale and make the platform viable.
- **Security Risks**: Credunity needs to continuously monitor and mitigate potential security risks and threats.

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