UNIVERSITY OF PETROLEUM AND ENERGY STUDIES, DEHERADUN

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CLOUD APPLICATION DEVELOPMENT

TITLE: A Secure and Efficient Messaging and Document Sharing Collaborative Platform

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Problem Statement:

The problem faced by many companies is that they rely on 3rd party providers for communication/messaging platform for their examples, example like Gsuite, but this exposes the security and confidentiality of the Organization in case of any data breach.

Solution:

A solution for this would be developing an messaging/communication application for safe communication and sharing of Documents by the user(in this cases employees of that company). This solution will be hosted on private cloud of the organization and hence keeping the data safe.

Project Title:

A Secure and Efficient Messaging and Document Sharing Collaborative Platform

Introduction:

The purpose of this project is to develop a messaging and document sharing application that meets the communication and collaboration needs of [Company Name]. The application will be deployed on a private cloud, ensuring the security and confidentiality of the organization's data.

Methodology

The methodology for this project includes the following steps:

- Requirements gathering and analysis
- System design and architecture
- Implementation and testing
- Deployment and maintenance

Technologies and Tools:

- Private cloud infrastructure
- Web technologies (HTML, CSS, JavaScript)
- Real-time communication protocols (WebSockets)
- Database management system
- Encryption technologies
- Mobile application development tools

Why Cloud Deployment is necessary for the solution?

1. Cloud Deployment would provide us with the facility of Scaling the application as per our needs and resources.
2. Lower costs than a Traditional Deployment model.

3. For this solution, cloud can provide High availability while also maintain security within the private cloud.
4. Flexibility, as the application can be accessed from anywhere securely.
5. As over the cloud, the application would be available 24*7, the productivity of the team would increase because of remote access to the application.
6. Consistent high performance and reliability of services.
7. Increased control over data and resources

Literature Analysis

1. Messaging and document sharing applications are critical tools for internal communication and collaboration.
2. The implementation of these applications may have an impact on the company's overall productivity, efficiency, and security.
3. We propose the following solution:
   • Enhanced productivity by providing real-time access to information and resources.
   • Improved security and control over sensitive company data.
   • Better document organisation and management.
4. A private cloud computing environment is a dedicated and secure computing environment for a single organisation.
5. Because the application would be deployed on a private cloud, it would provide a secure and dedicated computing environment, enhancing the company's security and control over the data.
6. Using a private cloud to deploy a messaging and document sharing application provides a secure and dependable solution. The advantages and limitations of private cloud deployment must be carefully evaluated against alternative deployment options.

Application functioning

The messaging and document sharing app is a private cloud-based software solution that allows users to communicate and collaborate in real time.
It includes the following features:

1. **User registration**: Users create a profile with their name, email address, and password after signing up for an account. When a user logs into the application, their credentials are validated against the database to ensure that they have the necessary access rights to the platform.
2. **Chat rooms and Direct Messaging and File sharing:** To communicate with specific groups of people, users can create or join chat rooms. Users can also send private messages to other users via direct messages. When a user sends a message or a file, the data is sent to a server, which then routes it to the intended recipient. The message or file is received by the recipient, and the application updates their chat or file view accordingly. Within chat rooms or direct messages, users can upload, share, and access files.

3. **Notifications:** When users receive new messages, mentions, or updates, the application sends them notifications.
4. **Real-time updates:** The application uses real-time communication protocols such as WebSockets to ensure that messages and files are delivered instantly. This allows for a seamless and uninterrupted communication experience for the users.
5. **Integrations:** The application can be linked to other tools and services, such as calendars and project management software.
6. **Search functionality:** The application includes a search function that allows users to quickly locate previous messages, files, and chats.
7. **Voice and video calls:** The application has built-in voice and video calling capabilities.
8. **Screen sharing:** During voice and video calls, users can share their screens, making it easier to collaborate on projects.
9. **Scalability:** The application is built to scale dynamically to meet increasing user and data demands. This ensures that the application can efficiently handle a large number of users and messages.
10. **User management:** The application includes a user management system that administrators can use to manage users.

Flowchart