SERVERLESS COMPUTING: ARCHITECTURE AND APPLICATIONS

Serverless computing is an architecture where code execution is fully managed by cloud providers, eliminating server management, enhancing scalability and cost-efficiency

RESEARCH PROPOSAL

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BACKGROUND OF THE STUDY

- The research paper is about serverless computing. This is where the job of looking after servers is given to cloud service providers instead of developers. The paper looks at different ways this can be done, like Function as a Service (FaaS) and Backend as a Service (BaaS), and what the benefits are. It also talks about the problems that can come up, like security issues, and suggests ways to solve them. The goal is to help people understand more about how serverless computing works.

PROBLEM STATEMENT

Problem Statement
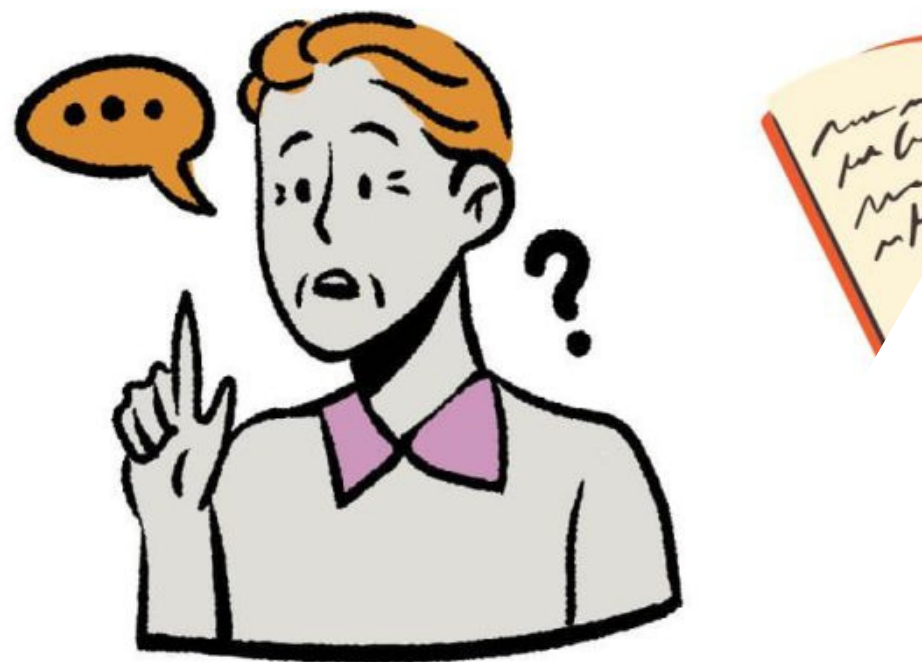
Scope of the study

The study aims to understand how serverless computing works, its benefits, challenges, and how it's used in real-world applications.

Relevance of the study

The study is relevant because it helps us understand serverless computing, which can make developing and managing applications easier and more cost-effective.

COMPONENTS OF SERVERLESS ARCHITECTURE

Function Execution

Event Tiggers

Security Components

Compute Services

API Gateway

Third-Party Services

Authentication and Authorization

Logging and Monitoring

Deployment and CI/CD

FRAMEWORK

- **AWS Lambda:** AWS Lambda is a serverless computing service provided by Amazon Web Services (AWS) that allows you to run code without provisioning or managing servers.

- **Azure Functions:** Azure Functions is a serverless compute service provided by Microsoft Azure, allowing developers to build and run event-driven functions without managing infrastructure.

- **Google Cloud Functions:** Google Cloud Functions is a serverless compute service offered by Google Cloud Platform (GCP) that enables developers to build and deploy event-driven functions.

APPLICATIONS & USE CASES

- Web and mobile applications.
- Data processing and analytics.
- IoT (Internet of Things) applications.
- Automation and Workflows.
- API Backends.
- Chatbots and Conversational Interfaces.

ADVANTAGES OF SERVERLESS COMPUTING

- Cost Efficiency
- Scalability
- Rapid Deployment
- Reduced Operational Overhead
- Stateless Execution
- Event-Driven Architecture
- Automatic Scaling
- Reduced Time to Market

CHALLENGES IN SERVERLESS COMPUTING

- Cold Start Latency
- Debugging and Monitoring
- Limited Execution Duration
- Security Concerns
- Limited Resource Control
- Function Invocation Overhead
- Lack of Customization Options
- Dependencies and Library Management

METHODOLOGY

- AWS Lambda, Google Cloud Functions (GCF), and Azure Functions are popular serverless services cloud providers provide.

- Container-based virtualization is highlighted as a transformative technology for deploying applications and services.

- Single services such as S3 for storage and Auth0 for identity management are mentioned, which can be integrated with elastic compute platforms like AWS Lambda or Microsoft Azure for executing code.

CONCLUSION

In conclusion, our team's research paper explores serverless computing. This is a way of running programs where the people who write the programs don't have to worry about the servers that run them. That's all taken care of by companies that provide cloud services. We're looking at two main types of serverless computing: Function as a Service (FaaS) and Backend as a Service (BaaS), and comparing them.

THANKYOU....