PATENT APPLICATION

United States Patent and Trademark Office

Application No.: 17/482,391

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Applicant: Summit Digital Solutions, Inc.

CLOUD RESOURCE MANAGEMENT SYSTEM AND METHOD FOR ENTERPRISE ENVIRONMENTS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application No. 63/279,845 filed March 15, 2023.

BACKGROUND

[0002] Enterprise cloud computing environments face increasing complexity in resource allocation, scaling, and optimization across hybrid infrastructures. Current solutions lack sophisticated predictive capabilities for dynamic resource management.

[0003] Existing approaches typically rely on reactive scaling based on predetermined thresholds, resulting in inefficient resource utilization and increased operational costs.

SUMMARY

[0004] The present invention provides systems and methods for intelligent cloud resource management using machine learning algorithms to predict and optimize resource allocation across enterprise environments.

[0005] In one aspect, the invention includes a cloud resource management system comprising:

- A resource monitoring module collecting real-time utilization metrics
- A machine learning engine processing historical and real-time data
- A predictive scaling module implementing resource adjustments
- An optimization engine balancing performance and cost parameters

DETAILED DESCRIPTION

[0006] The system implements a novel approach to cloud resource management through:

Resource Monitoring

- Continuous collection of CPU, memory, network, and storage metrics
- Integration with existing cloud infrastructure monitoring tools
- Real-time performance analytics across distributed systems

Machine Learning Engine

- Training on historical resource utilization patterns
- Identification of usage trends and anomalies
- Dynamic model updating based on new data

Predictive Scaling

- Automated resource allocation based on ML predictions
- Custom scaling rules for different application types
- Integration with major cloud service providers' APIs

Optimization Engine

- Cost-performance optimization algorithms
- Resource allocation efficiency metrics
- Custom business rule implementation

CLAIMS

A method for managing cloud computing resources comprising:

a) collecting real-time resource utilization metrics;

b) processing said metrics using machine learning algorithms;

c) generating predictive scaling recommendations;

d) automatically implementing resource adjustments.

The method of claim 1, wherein said machine learning algorithms comprise:

a) supervised learning models for pattern recognition;

b) reinforcement learning for optimization;

c) anomaly detection capabilities.

A system for implementing the method of claim 1, comprising:

a) monitoring modules integrated with cloud infrastructure;

b) processing engines for real-time data analysis;

c) automated scaling mechanisms.

[Claims 4-20 omitted for brevity]

ABSTRACT

A system and method for intelligent cloud resource management in enterprise environments using machine learning algorithms to predict and optimize resource allocation. The invention includes monitoring modules, predictive engines, and automated scaling mechanisms to improve resource utilization efficiency and reduce operational costs.

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POWER OF ATTORNEY

The undersigned hereby appoints Patent Law Group LLP, Registration No. 12345, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

DECLARATION

I hereby declare that I am the original inventor of the subject matter which is claimed and for which a patent is sought; that I have reviewed and understand the contents of the above-identified specification; and that all statements made herein of my own knowledge are true.

Executed on: September 15, 2023

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Michael Chang

Chief Technology Officer

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