PATENT APPLICATION

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AUTOMATED SCALING ALGORITHM FOR ENTERPRISE RESOURCE OPTIMIZATION

BACKGROUND OF THE INVENTION

[0001] The present invention relates to systems and methods for automated resource scaling in enterprise computing environments, specifically concerning dynamic allocation and optimization of computational resources across distributed systems.

[0002] Traditional resource allocation methods in enterprise environments often rely on static thresholds and manual intervention, leading to inefficient resource utilization and increased operational costs. Current solutions fail to adequately address the complex interplay between multiple system variables and real-time operational demands.

SUMMARY OF THE INVENTION

[0003] The present invention provides an automated scaling algorithm that dynamically optimizes resource allocation across enterprise computing environments. The system employs machine learning models to predict resource requirements and automatically adjusts allocation parameters based on real-time performance metrics and historical usage patterns.

DETAILED DESCRIPTION

[0004] The automated scaling algorithm comprises:

a) A primary control module that:

- Monitors system performance metrics across distributed nodes
- Analyzes resource utilization patterns
- Implements predictive scaling decisions

- Maintains optimization parameters

b) A machine learning engine that:

- Processes historical performance data
- Generates resource requirement forecasts
- Adapts to changing usage patterns
- Optimizes scaling parameters

[0005] The system implements a multi-layered approach to resource optimization:

Data Collection Layer

- Real-time metric gathering
- Performance indicator monitoring
- Resource utilization tracking
- System state evaluation

Analysis Layer

- Pattern recognition
- Anomaly detection
- Trend analysis
- Predictive modeling

Decision Layer

- Scaling trigger evaluation
- Resource allocation optimization
- Performance impact assessment
- Cost optimization calculations

CLAIMS

A method for automated resource scaling in enterprise computing environments, comprising:

a) collecting real-time performance metrics from distributed computing nodes;

b) analyzing said metrics using machine learning models to predict future resource requirements;

c) automatically adjusting resource allocation based on said predictions;

d) optimizing resource distribution across system components.

The method of claim 1, wherein the machine learning models comprise:

a) neural networks trained on historical performance data;

b) adaptive algorithms for pattern recognition;

c) predictive models for resource requirement forecasting.

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

a) monitoring modules for data collection;

b) analysis engines for metric processing;

c) control interfaces for resource management;

d) optimization algorithms for resource allocation.

ABSTRACT

An automated scaling algorithm for enterprise resource optimization that employs machine learning models to dynamically adjust and optimize resource allocation across distributed computing environments. The system monitors real-time performance metrics, analyzes usage patterns, and automatically implements scaling decisions based on predictive models and historical data analysis.

DRAWINGS

[0006] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

Fig. 1: System Architecture Diagram

Fig. 2: Data Flow Schematic

Fig. 3: Decision Process Flowchart

Fig. 4: Implementation Framework

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all

statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Signed this 9th day of January, 2024

Michael Chang
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POWER OF ATTORNEY

The undersigned hereby appoints the registered patent attorneys and agents at PATENT LAW GROUP LLP (Registration No. 12345) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Dr. Alexandra Reeves
Chief Executive Officer
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