PATENT APPLICATION

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Applicant: Summit Digital Solutions, Inc.

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CLOUD INTEGRATION PROTOCOL FOR ENTERPRISE IoT SYSTEMS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application No. 63/275,891, filed March 12, 2023.

FIELD OF THE INVENTION

[0002] The present invention relates to systems and methods for enterprise-scale cloud integration protocols, specifically concerning the automated orchestration of IoT device networks within distributed computing environments.

BACKGROUND

[0003] Modern enterprise environments increasingly rely on distributed IoT sensor networks for operational monitoring and process optimization. Current solutions face significant challenges in seamlessly integrating heterogeneous IoT devices with cloud-based analytics platforms, particularly in maintaining consistent data protocols across varied enterprise architectures.

[0004] Existing approaches typically require manual configuration of integration endpoints and lack dynamic scaling capabilities necessary for enterprise deployment. The present invention addresses these limitations through an innovative protocol architecture.

SUMMARY OF THE INVENTION

[0005] The invention provides a novel cloud integration protocol that enables automated discovery, authentication, and data synchronization between enterprise IoT devices and cloud-based analytics platforms. The protocol implements a proprietary handshake mechanism that ensures secure device registration while maintaining scalability across distributed networks.

DETAILED DESCRIPTION

[0006] The cloud integration protocol comprises:

Device Registration Layer

- Automated device discovery using proprietary beacon technology
- Secure device authentication via asymmetric encryption
- Dynamic endpoint configuration and validation

Data Synchronization Protocol

- Real-time bidirectional data streaming
- Adaptive compression based on network conditions
- Conflict resolution for concurrent updates

Analytics Integration Framework

- Standardized data transformation pipeline
- Configurable aggregation rules
- Machine learning model integration endpoints

CLAIMS

A method for cloud integration of enterprise IoT devices, comprising:

a) implementing an automated device discovery protocol;

b) establishing secure communication channels using asymmetric encryption;

c) facilitating real-time data synchronization between edge devices and cloud platforms;

d) providing configurable analytics integration endpoints.

The method of claim 1, wherein the device discovery protocol includes:

a) broadcasting device capabilities via proprietary beacon technology;

b) automatic endpoint configuration;

c) dynamic scaling based on network conditions.

The method of claim 1, wherein the secure communication channels implement:

a) PKI-based device authentication;

b) encrypted data transmission;

c) automatic key rotation.

ABSTRACT

A system and method for cloud integration of enterprise IoT devices, comprising an automated device discovery protocol, secure communication channels, and configurable analytics integration endpoints. The invention enables seamless integration of heterogeneous IoT devices with cloud-based analytics platforms while maintaining security and scalability requirements for enterprise deployment.

DRAWINGS

[0007] The patent application includes the following drawings:

- Figure 1: System Architecture Diagram
- Figure 2: Protocol Flow Diagram
- Figure 3: Security Implementation Schema
- Figure 4: Analytics Integration 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.

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