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Cloud Services Architecture

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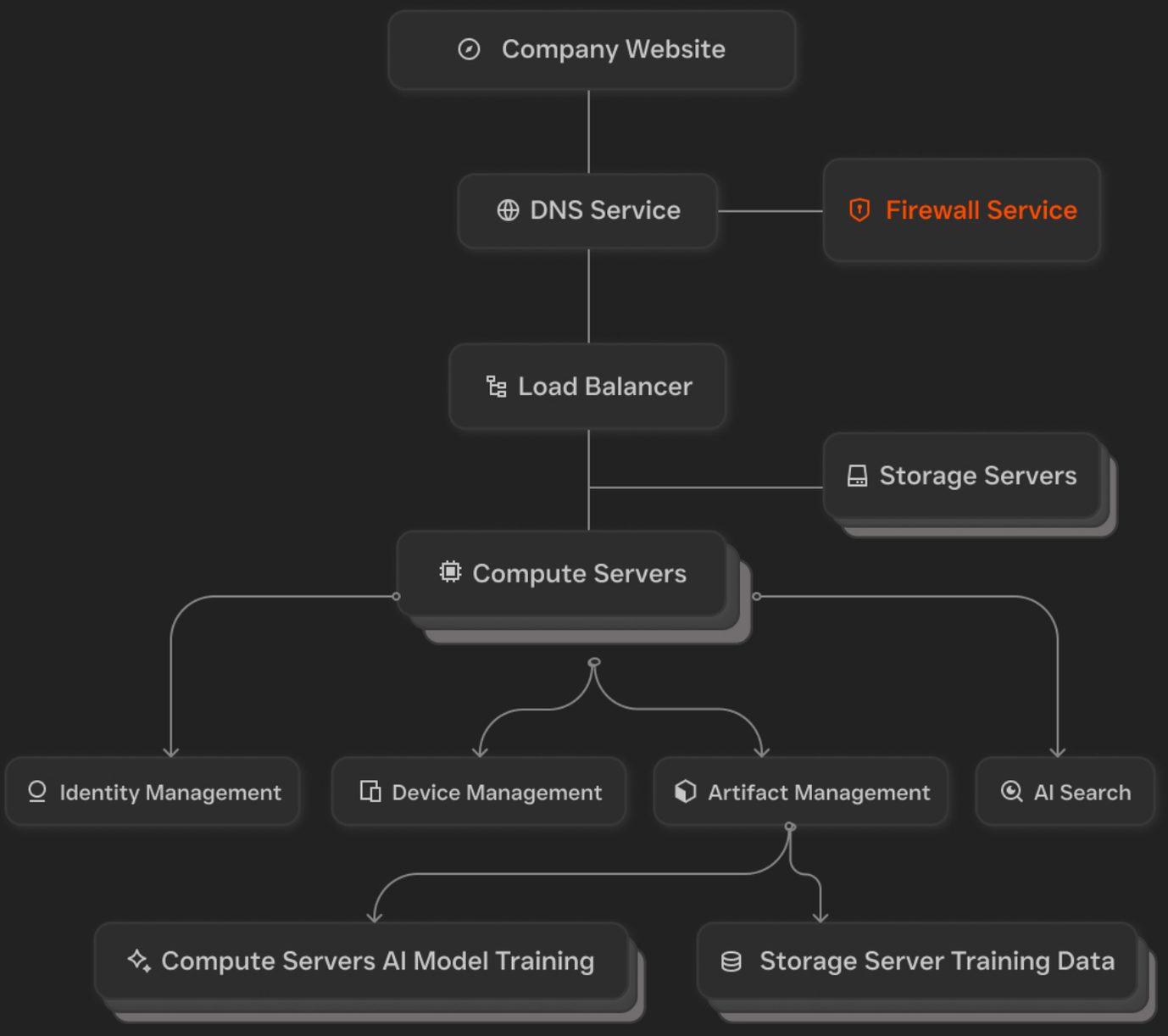

Please note that product designs and specifications are subject to change without notice.
Actual specifications may meet or exceed those listed.

DNS Service

- Translates domain names into internet IP addresses
- Creates and manages domain and sub-domain records
- Provides low latency through caching and optimisation for faster DNS resolution
- Supported by firewall service for protection against unauthorised and malicious access

Compute Servers

- Setup multiple instances of servers to host and run micro services
- Select different operating systems, as required. Mix and match operating systems if needed to support different applications
- Allocate compute resources - CPU, GPU, memory
- Easily scale up and scale down server resources in response to user traffic patterns

Load Balancer

- Automatically balances and directs traffic for distributed applications
- Distributes user traffic among multiple servers to enhance speed, resilience, and continuous operation
- Ensures load balancing and high availability
- Monitors targets, detecting failures and redirecting traffic to healthy targets for seamless operation

Storage Servers

- **Large Data Handling:** Store and access vast amounts of files, backups, archives, and media.
- **Scalability:** Elastic storage scaling based on user activity.
- **High Availability:** Multi-region and cross-region replication.
- **Security:** Encryption during storage and transmission; robust access controls.
- **Data Management:** Support for querying, editing, and organising data

Application Servers

- **Independent Deployment:** Loosely coupled components with well-defined APIs.
- **Scalability:** Easily scale high-demand services.
- **Technology Flexibility:** Mix and match frameworks for different tasks.
- **Easy Management:** Simplify deployment, updates, and fixes.
- **Service Registry:** Enable discovery and monitoring of services.
- **Containerisation:** Facilitate deployment and management with containers.

Identity Management

- **User Management:** Retrieve and reset user IDs and passwords.
- **Access Control:** Fine-grained permissions for specific roles and policies.
- **Role Creation:** Simplify access management with predefined roles.
- **Expiration Rules:** Set rules for password expiry and renewal.
- **Access Tracking:** Monitor and track access and usage

Device Management

- **Device Registration:** Register valid devices and link to specific users.
- **Multi-Device Management:** Handle multiple devices per user.
- **Policies & Access Control:** Set up and enforce access policies.
- **Software Tracking:** Monitor software modules and versions.
- **Version Control:** Automate updates with patches and upgrades.
- **License Management:** Manage licenses for modules and features .
- **Resource Usage Tracking:** Track storage, AI search, and analytics usage.
- **Device Security:** Lock devices if stolen or licenses expire.

Artifact Management

- **Storage:** Store video artifacts from field devices.
- **Indexing:** Index by geo-location, date, time, license type, user ID, etc.
- **Fast Retrieval:** Ensure efficient retrieval of video files.
- **Metadata Management:** Generate and manage metadata.
- **Dataset Creation:** Create datasets using filters and metadata.

AI Search

- **AI Analysis:** Analyze videos using AI models.
- **Store Inference Data:** Store feature vectors and metadata.
- **Associate Features:** Link feature vectors with video files.
- **Feature Search:** Search specific features within videos.
- **Combined Search:** Search by combining features and metadata.
- **Frame Search:** Rapidly access specific frames with objects, people, or activities.

AI Model Training Compute

- **Server Instance Setup:** Configure instances for AI model training.
- **OS Selection:** Choose OS (e.g., Linux distributions like Ubuntu) optimized for AI tasks.
- **CPU and GPU Allocation:** Allocate CPUs and GPUs suitable for specific training tasks.
- **Task-specific Setup:** Provision servers tailored to each training task.
- **Resource Tracking:** Monitor and track resources utilized per training

AI Training Data Storage Server

- **Rapid Dataset Creation:** Quickly generate datasets from video files based on specific criteria.
- **Automated Annotation**: Annotate frames using tools like CVAT for efficiency.
- **Synthetic Data Generation:** Create synthetic data by manipulating base data (rotate, crop, adjust gamma, resize, mask).
- **Dataset Organization:** Separate datasets into training, validation, and testing sets.
- **Audit and Tracking:** Track models and associated datasets for audit trails.

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