

Project Design Phase

Solution Architecture

Date	28 June 2025
Team ID	LTVIP2025TMID30049
Project Name	Cafeteria Menu Display
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

1. Frontend (User Interfaces)

- Employee Portal (Web/App) – for viewing menus, dietary options, and announcements.
- Admin Dashboard – for menu creation, approval workflows, scheduling, and history tracking.

2. API Gateway

- Routes requests from the frontend to backend microservices securely and efficiently.

3. Authentication & Authorization

- Handles user identity and roles (Admin, Manager, Employee) via services like AWS Cognito, Auth0, or Azure AD.

4. Backend Services (Microservices or Monolith)

- Menu Management Service – for CRUD operations on menu items and templates.
- Scheduling & Notifications Service – handles menu publishing and alerts.
- Approval Workflow Service – manages approval stages for new menus.

5. Database

- Relational DB (e.g., PostgreSQL, MySQL) – stores menus, user data, approval status, and history.
- Caching Layer (e.g., Redis) – speeds up menu retrieval.

6. Storage

- Cloud Object Storage (e.g., AWS S3) – stores attachments like PDFs or menu images.

7. Monitoring & Logging

- Tools like CloudWatch, Azure Monitor, or ELK Stack to ensure system health and traceability.

8. Deployment Platform

- Cloud Infrastructure (e.g., AWS, Azure, GCP) – hosting backend, DB, and services.
- Can be containerized using Docker & managed via Kubernetes or serverless (Lambda/Azure Functions).

Example - Solution Architecture Diagram:

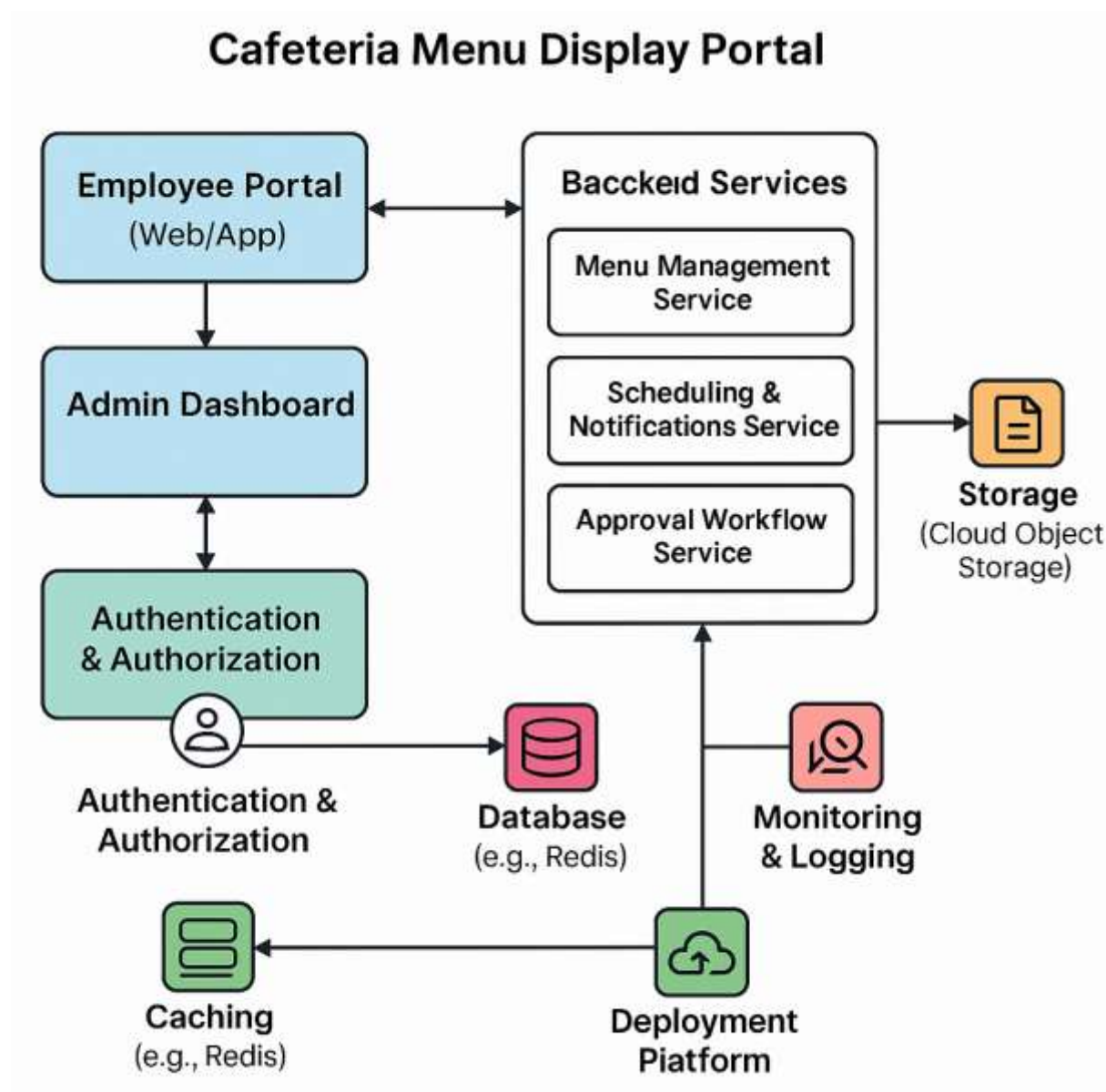


Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: <https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/>