Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	02 NOVEMBER 2025
Team ID	NM2025TMID07861
Project Name	Laptop Request Catalog Item
Maximum Mark	4 Marks

Technical Architecture:

This deliverable outlines the **technical architecture** and workflow of the *Laptop Request Catalog Item* developed on the ServiceNow platform. The architecture integrates Service Catalog, Flow Designer, and approval mechanisms to automate laptop allocation in IT Service Management (ITSM).

Employees can request laptops through the **Service Catalog**, triggering an automated workflow that routes the request for **manager approval**, followed by **IT fulfillment**. Automated notifications ensure end-to-end visibility, reduce manual intervention, and maintain accurate asset tracking.

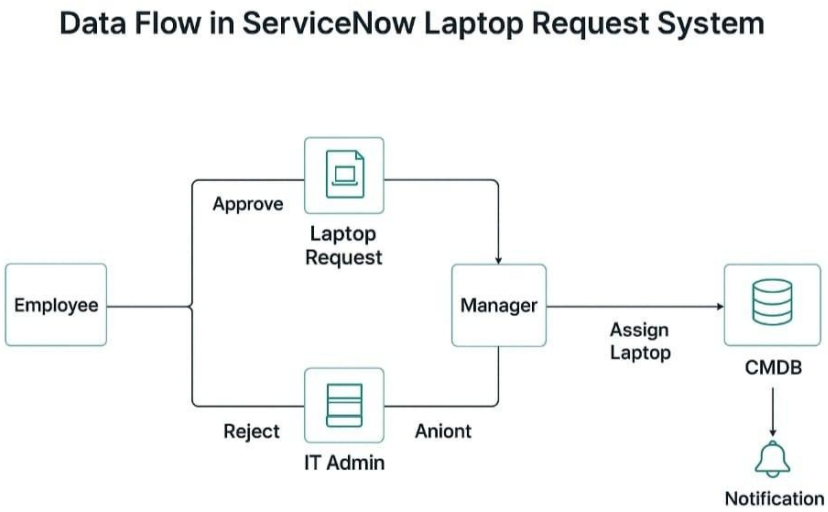
Reference: IBM – What is System Architecture in Software Engineering

Architecture Description:

The solution uses ServiceNow's **cloud-hosted infrastructure** to deliver a digital and scalable platform for IT asset requests.
Key elements include:

- **User Interface (UI):** Employees access the catalog via the Service Portal.
- **Application Logic:** Business logic and workflows manage request routing, approvals, and fulfillment.
- **Database Layer:** ServiceNow CMDB and Request Tables store all request, approval, and asset records.
- **External Interfaces:** Optional HRMS integration for user verification and email notifications for approval updates.
- **Hosting:** Entirely hosted on ServiceNow's SaaS Cloud, ensuring high availability, security, and scalability.

This architecture ensures a seamless flow from **request submission** to **IT fulfillment**, improving efficiency, transparency, and accuracy in hardware allocation.



Guidelines:

- Includes all application logic and technology modules
- Defines infrastructural boundaries (Cloud-hosted)
- Specifies external interfaces (HRMS, Email)
- Indicates data storage services (CMDB, Request Tables)
- Highlights extensibility for machine learning integration in future

Table 1: Components & Technologies

S.No	Components	Description	Technology
1	**User Interface**	Employees submit laptop requests via the Service Catalog	ServiceNow Service Portal
2	**Application Logic 1**	Captures the catalog request and routes it to the manager for approval	Flow Designer

3	**Application Logic 2**	Handles manager's approval or rejection decisions	ServiceNow Approval Engine
4	**Application Logic 3**	Allocates laptops and updates the asset inventory	GlideRecord Script
5	**Database**	Stores all request, approval, and asset details	ServiceNow CMDB & Request Tables
6	**Cloud Database**	Managed automatically through ServiceNow backend	ServiceNow Cloud Database
7	**File Storage**	Maintains attachment logs such as employee ID proof	ServiceNow Attachments
8	**External API 1**	Optional integration with HRMS for user validation	REST API in ServiceNow
9	**External API 2**	Not used in the current implementation	-
10	**Machine Learning Model**	Not applicable for current scope	-
11	**Infrastructure (Server/Cloud)**	Hosted on ServiceNow's SaaS Cloud environment	ServiceNow Cloud (SaaS)

Table 2: Application Characteristics

S.No	**Components**	**Description**	**Technology**

1	**Open-Source Frameworks**	Not applicable since ServiceNow is proprietary	-
2	**Security Implementations**	Uses role-based access, ACLs, and secure scripting	Scoped Applications, ACLs
3	**Scalable Architecture**	SaaS-based model supporting horizontal scalability	ServiceNow Cloud Architecture
4	**Availability**	High availability ensured via ServiceNow's load-balanced servers	Load-Balanced ServiceNow Instances
5	**Performance**	Optimized using Flow Designer, GlideRecord, and indexed data tables	GlideRecord, Background Scripts

Conclusion:

The **Laptop Request Catalog Item** provides a robust and automated framework for IT asset management. By leveraging ServiceNow's native tools and cloud infrastructure, the architecture ensures reliability, scalability, and transparency—ultimately improving IT service delivery and employee satisfaction.