

Project Design Phase - II

Technology Stack (Architecture & Stack)

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Team ID: NM2025TMID04060

Project Name: Laptop Request Catalog Item

Technical Architecture:

The *Laptop Request Catalog Item* project is designed to automate and streamline the laptop request, approval, and fulfillment process using the ServiceNow platform. The architecture ensures smooth data flow between users, managers, and IT teams, while maintaining accurate asset tracking and efficient workflow automation.

The architecture consists of multiple integrated components: a user-facing catalog form, automated approval workflows, system notifications, and an asset management backend. When an employee submits a request, the data flows through ServiceNow's *Service Catalog* and *Request Tables*, where approvals and fulfillment tasks are managed dynamically. Once approved, the IT Asset Management (ITAM) module updates the inventory and sends completion notifications.

This setup leverages ServiceNow's native capabilities, ensuring data consistency, process reliability, and scalability across the enterprise.

Table 1: Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	Employees submit laptop requests through a self-service catalog form.	ServiceNow Service Catalog UI
2.	Application Logic – 1	Automates approval routing to managers and IT asset approvers.	ServiceNow Flow Designer
3.	Application Logic – 2	Validates laptop stock and links approved requests to inventory records.	GlideRecord Scripts in Server-side Logic
4.	Application Logic – 3	Sends status notifications during submission, approval, and fulfillment.	ServiceNow Notifications
5.	Database	Stores request, approval, and asset allocation data.	ServiceNow CMDB, Request Tables
6.	Cloud Database	Managed by ServiceNow's secure cloud infrastructure.	ServiceNow Cloud Database

7.	File Storage	Stores related attachments (e.g., justification documents).	ServiceNow File Attachment System
8.	External API – 1 (Optional)	Integrates with HRMS to verify employee details.	REST API in ServiceNow
9.	External API – 2	Sends procurement alerts when stock is low.	REST API / Email Integration
10.	Infrastructure (Server / Cloud)	Entire solution hosted on ServiceNow SaaS Cloud.	ServiceNow Cloud (SaaS)

Table 2: Application Characteristics

S.No	Characteristic	Description	Technology
1.	Security	Ensures role-based access for employees, managers, and IT admins.	ACLs, Scoped Applications
2.	Scalability	SaaS-based design allows handling thousands of requests seamlessly.	ServiceNow Cloud Architecture
3.	Availability	Highly available with built-in redundancy and cloud load balancing.	ServiceNow Load-balanced Instances
4.	Performance	Optimized workflow execution using asynchronous flows.	Flow Designer, GlideRecord
5.	Maintainability	Low-code design simplifies updates and future feature additions.	ServiceNow Studio Environment

Summary:

The *Laptop Request Catalog Item* technology stack leverages ServiceNow's cloud-based ecosystem to deliver a secure, scalable, and efficient workflow for hardware requests. It integrates automation, approvals, and asset tracking in one unified solution, improving operational efficiency and employee satisfaction.