**Project Design Phase**
**Solution Architecture**

| Date | 01 November 2025 |
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| Team ID | NM2025TMID06932 |
| Project Title | Optimizing Users, Group and Role Management with Access control and Workflows. |
| Maximum Marks | 4 Marks |

**Solution Architecture:**
**Goals of the Architecture:**

- Automate approval workflows using ServiceNow Flow Designer.
- Implement access-based restrictions through ACLs and Role Management.
- Maintain data consistency across user, project, and task tables.
- Enhance security and transparency in user-role interactions.
- Reduce manual effort and human dependency in approval processes.

**Key Components:**

- **sys_user table:** Stores user details such as Alice (Project Manager) and Bob (Team Member).
- **u_project_table:** Tracks project-level data including project name, start and end dates.
- **u_task_table:** Stores individual task details such as status, comments, and assigned users.
- **Access Control Lists (ACLs):** Manage permissions (create, read, write, delete) for each table.
- **Flow Designer:** Automates task approval when specific conditions (e.g., status = "In Progress") are met.
- **Notifications:** Sends automated alerts when tasks are approved or updated.

**Development Phases:**

1. Create users (Alice P, Bob P).
2. Assign users to roles (Project Member, Team Member).
3. Create custom tables (u_project_table, u_task_table) with required fields.
4. Configure ACLs to define role-based access levels.
5. Design Flow in Flow Designer for approval and status update automation.
6. Test automation through impersonation (Bob creates task → Alice approves).
7. Verify notifications and final task updates after approval.

**Solution Architecture Description:**

The solution architecture focuses on building a secure, automated approval and access system in **ServiceNow** using **Access Control Lists (ACLs)** and **Flow Designer**. Each user is assigned specific roles (Project Member, Team Member), and permissions are managed through ACL configurations on both **u_task_table** and **u_project_table**.

The Flow Designer enables real-time automation by triggering approvals based on conditions like task status or assigned user. When a team member (Bob) updates a task, the system automatically routes an approval request to the project manager (Alice). Upon approval, the record's status updates to "Completed," and notifications are sent to all relevant users.

This architecture reduces manual supervision, enhances accountability, and provides a scalable framework for future workflow automation in enterprise environments.
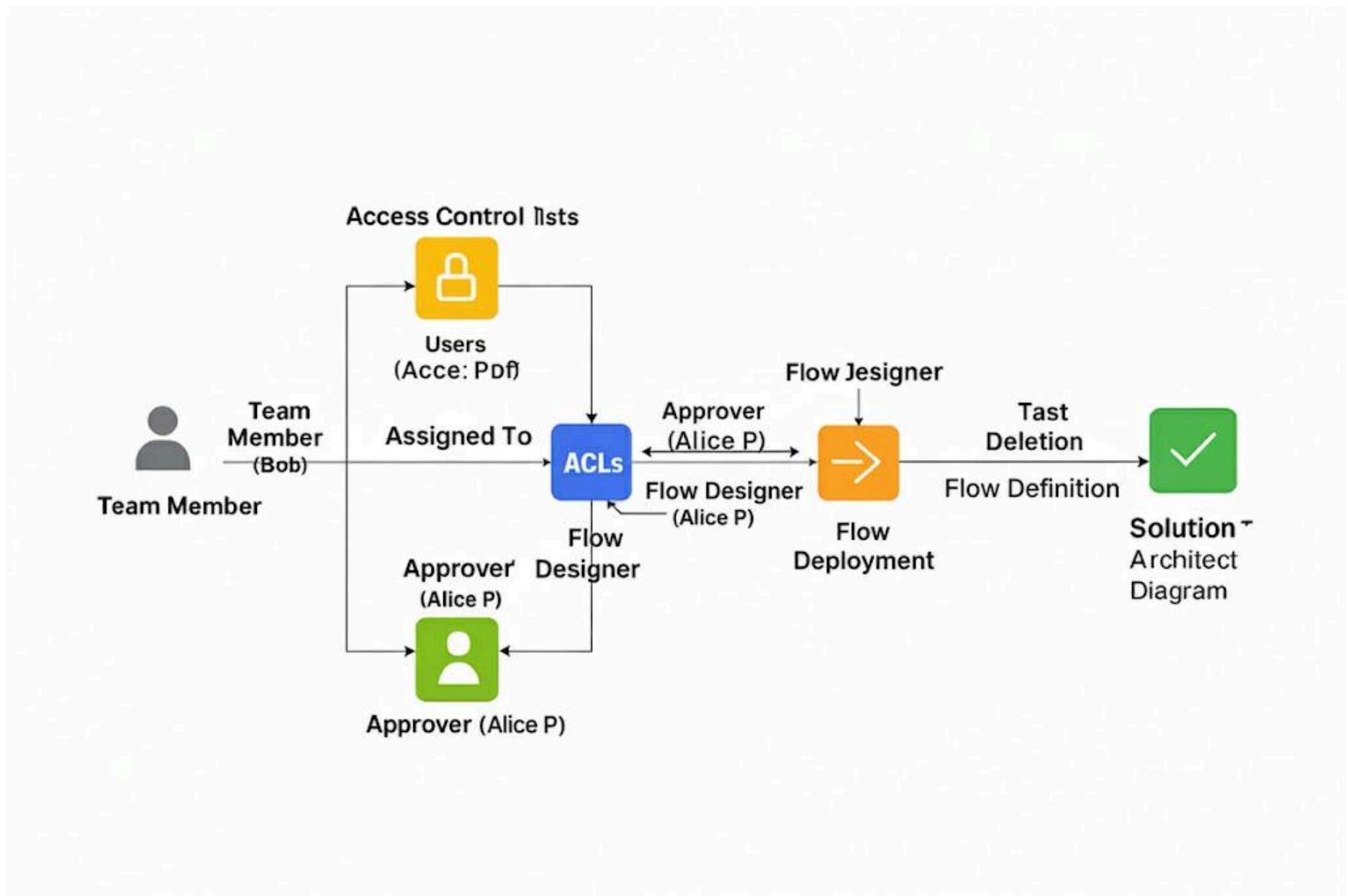
**Example – Solution Architecture Diagram :**



**Figure 1: Workflow and Data Flow of the ServiceNow Role and Access Management System**

**ServiceNow Documentation:** **https://docs.servicenow.com**