**Section 3.1: Technology Stack**

**3.1.1 Introduction**

In designing and deploying a robust CRM solution for the Regional Transport Corporation (RTC), selecting the right technology stack was foundational. The choice of tools, frameworks, platforms, and APIs directly influenced the performance, scalability, maintainability, and integration capabilities of the system.

The stack was selected with the dual goals of leveraging Salesforce’s native capabilities and ensuring flexibility for customization, automation, and reporting, all while maintaining regulatory compliance and usability across various user roles (administrators, conductors, drivers, and regional managers).

**3.1.2 Core Platform: Salesforce Lightning Platform**

Salesforce was chosen as the primary CRM engine for its industry-leading features in:

* Low-code/no-code development
* Declarative automation tools (Process Builder, Flow)
* Scalable data model with custom and standard objects
* Role-based access and robust security controls
* Advanced reporting and dashboard capabilities
* Easy mobile responsiveness via Lightning and Mobile Publisher

**Components Used within Salesforce:**

| **Component** | **Description** |
| --- | --- |
| **Lightning App Builder** | Created a user-friendly, role-based navigation experience |
| **Custom Objects** | Modeled RTC-specific data: Trips, Buses, Employees, Fares, Routes |
| **Validation Rules** | Enforced data accuracy at entry |
| **Flows & Process Builder** | Automations for shift assignment, fare calculations, and trip status updates |
| **Apex Classes/Triggers** | Custom logic for advanced tasks like trip rescheduling, fare conflict detection |
| **Reports & Dashboards** | Visual KPIs for revenue, staff performance, trip analytics |
| **Salesforce Mobile App** | Field access for conductors and drivers |

**3.1.3 Supporting Technologies and Tools**

**A diagram of a computer

AI-generated content may be incorrect.**

To enhance development, testing, and deployment processes, the following auxiliary tools were utilized:

| **Tool/Platform** | **Purpose** |
| --- | --- |
| **Salesforce DX** | Source-driven development and version control |
| **Workbench** | Data extraction and REST/SOAP API testing |
| **Data Loader** | Bulk upload and update of trip logs, employee data |
| **Postman** | Used to test RESTful integrations |
| **Git** | Version control for Apex code and metadata |
| **Jira** | Task management, bug tracking, and sprint planning |
| **Draw.io / Lucidchart** | Architecture and flow diagrams |

**3.1.4 Integration & Extensibility Considerations**

Although this phase of the RTC CRM project did not involve external integrations, the system was architected with extensibility in mind. The use of REST APIs, external object mapping, and platform events allows for future integrations with:

* Government transport portals
* Public fare payment systems
* Real-time vehicle tracking (IoT)
* Emergency service notifications

These possibilities are enabled by Salesforce’s strong API capabilities and compatibility with middleware solutions like MuleSoft or Zapier.

**3.1.5 Diagram: RTC Salesforce CRM Tech Stack Overview**

**A diagram of a technology stack

AI-generated content may be incorrect.**

* **Presentation Layer**: Lightning App, Mobile App
* **Logic Layer**: Flows, Apex, Validation Rules
* **Data Layer**: Standard & Custom Objects, Field History, Reports
* **Integration Layer**: REST APIs, External Data (future-ready)
* **Deployment Tools**: Salesforce DX, Git, Data Loader

**3.1.6 Conclusion**

The selected technology stack provided a solid foundation for RTC’s digitization initiative. By using Salesforce’s cloud-based infrastructure and platform-as-a-service (PaaS) model, RTC not only achieved quick deployment with low operational overhead but also ensured adaptability to future requirements such as mobile usage, API integrations, and real-time analytics.

This stack continues to support RTC’s goal of building a reliable, user-friendly, and data-rich public transport management system—one that scales with its evolving operational needs.