Cloud & Azure Architecture Design

Conceptual

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Project : Customer Engagement and Service

1.Introduction

Purpose of Cloud Integration

ConnectPlus Support Services aims to build a scalable, secure, and future-ready customer engagement system. While the current implementation uses on-premise SQL Server and ASP.NET Core API, the architecture is designed to support Azure cloud services for enhanced scalability, automation, and enterprise security.

The Azure architecture ensures:

- Centralized identity management
- Automated SLA monitoring
- Scalable database hosting
- Secure role-based access
- Integration readiness with CRM/ERP systems

2.High-Level Architecture Overview

High-Level Architecture

Now describe architecture in text:

The cloud-enabled architecture consists of the following layers:

1. Users (Customers, Agents, Supervisors, Admins)
2. Azure Active Directory (Authentication Layer)
3. Frontend SPA (HTML, Bootstrap, JavaScript)
4. ASP.NET Core Web API
5. Azure SQL Database
6. Azure Function (SLA Escalation Automation)
7. Power BI Service (Management Reporting)

3.Architecture Diagram

Users
↓
Azure AD
↓
Frontend SPA
↓
ASP.NET Core API
↓
Azure SQL Database
↓
Azure Function (SLA Monitoring)
↓
Power BI Service

4.Azure Active Directory Section

Azure Active Directory (Identity & Security)

Azure Active Directory (Microsoft Entra ID) is proposed to provide enterprise-grade authentication and role-based access control.

Authentication Flow:

1. User logs in using Azure AD credentials
2. Azure validates identity
3. JWT access token is issued
4. Frontend sends token to API
5. API validates token and role
6. Access granted based on role

Role Mapping:

Customer – Raise Ticket only
• Agent – Update ticket status
• Supervisor – View dashboards & reports
• Admin – Full system access

Justification:

• Secure login with MFA support
• No password storage in application
• Centralized enterprise identity management
• Future integration with Microsoft ecosystem

5.Azure SQL Database Section

Azure SQL Database

Azure SQL Database is recommended to host the ConnectPlus relational database.

Benefits:

• Automated backups
• High availability
• Geo-replication
• Built-in monitoring
• Automatic patching

This ensures minimal infrastructure maintenance and high reliability.

6.Azure Functions (SLA Automation)

Azure Function for SLA Escalation

To automate SLA monitoring, Azure Functions can be used with a timer trigger.

Use Case:

Automatically escalate tickets when SLA threshold is exceeded.

Workflow:

1. Timer runs every 30 minutes
2. System checks open tickets
3. If CreatedDate + SLAHours < Current Time
4. Ticket marked as Escalated
5. Email notification sent to supervisor

Pseudo Code

```
if (CurrentTime > ticket.CreatedDate + ticket.SLAHours)
{
   ticket.Priority = "High";
   ticket.Status = "Escalated";
   SendEmail(ticket);
}
```

Cost Justification:

Azure Functions operate on a pay-per-execution model, making it cost-efficient compared to maintaining a dedicated server.

7.Power BI Service Section

Power BI Cloud Integration

The Power BI dashboard can be published to Power BI Service.

Benefits:

- Role-based dashboard access
- Scheduled data refresh
- Shareable insights
- Real-time performance monitoring

This supports management-level decision making.

STEP 8 — Security Architecture Summary Table

Layer	Security Mechanism
Frontend	Azure AD Login
API	JWT Token Validation
Database	Role-Based SQL Access
Automation	Secure Azure Function
Reporting	Controller Dashboard Access

9.Cloud Readiness Justification

Cloud Justification Summary

The Azure-based architecture ensures:

- Scalability as ticket volume grows
- Automated SLA enforcement
- Enterprise-grade authentication
- Reduced infrastructure overhead
- Seamless integration with Microsoft ecosystem

The system is future-ready for CRM, ERP, and omnichannel expansion.

10.Conclusion

Conclusion

The proposed Azure architecture enhances ConnectPlus by introducing security, automation, scalability, and operational efficiency. The system design follows a modular and layered approach, ensuring maintainability and enterprise readiness.