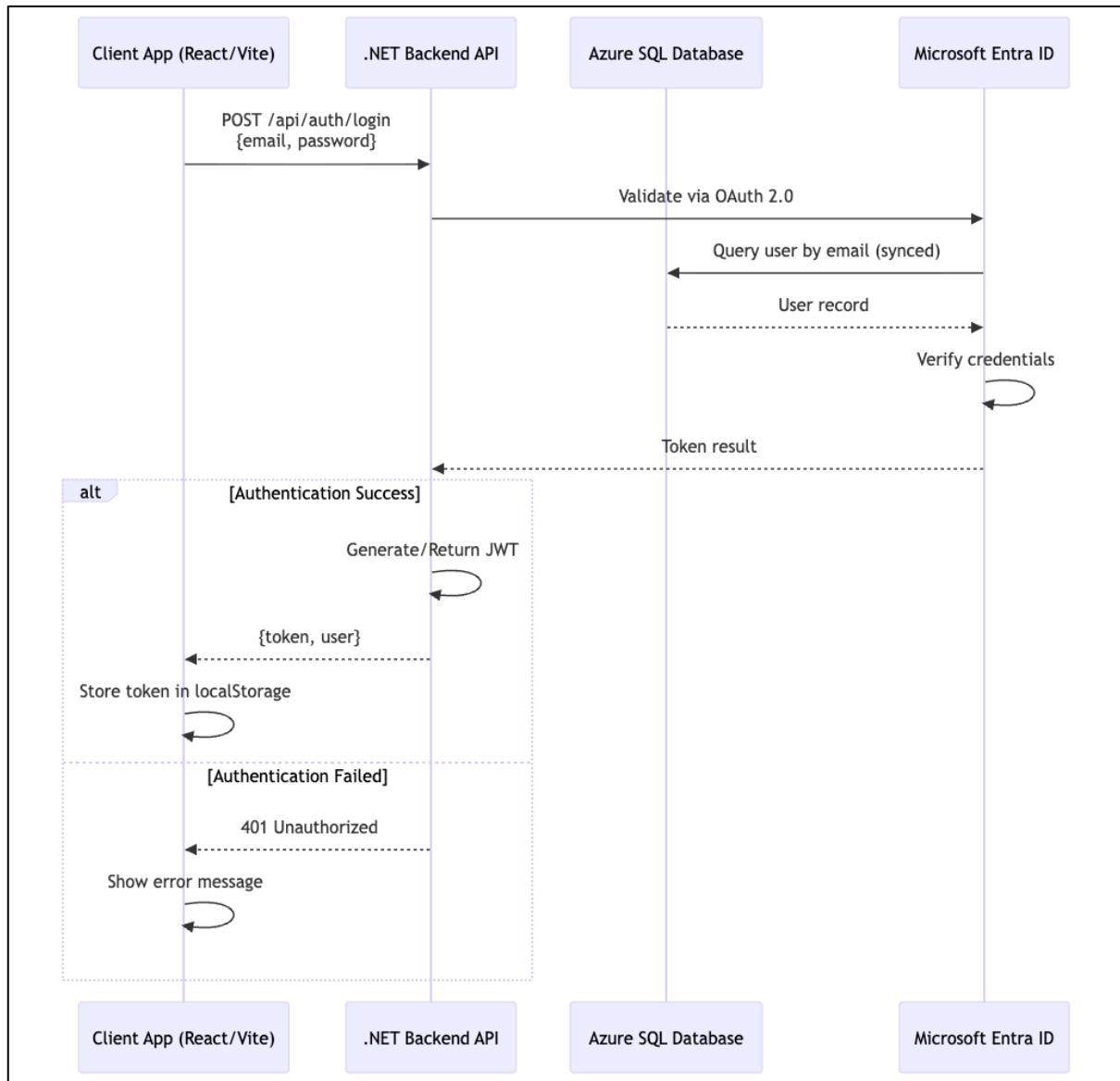
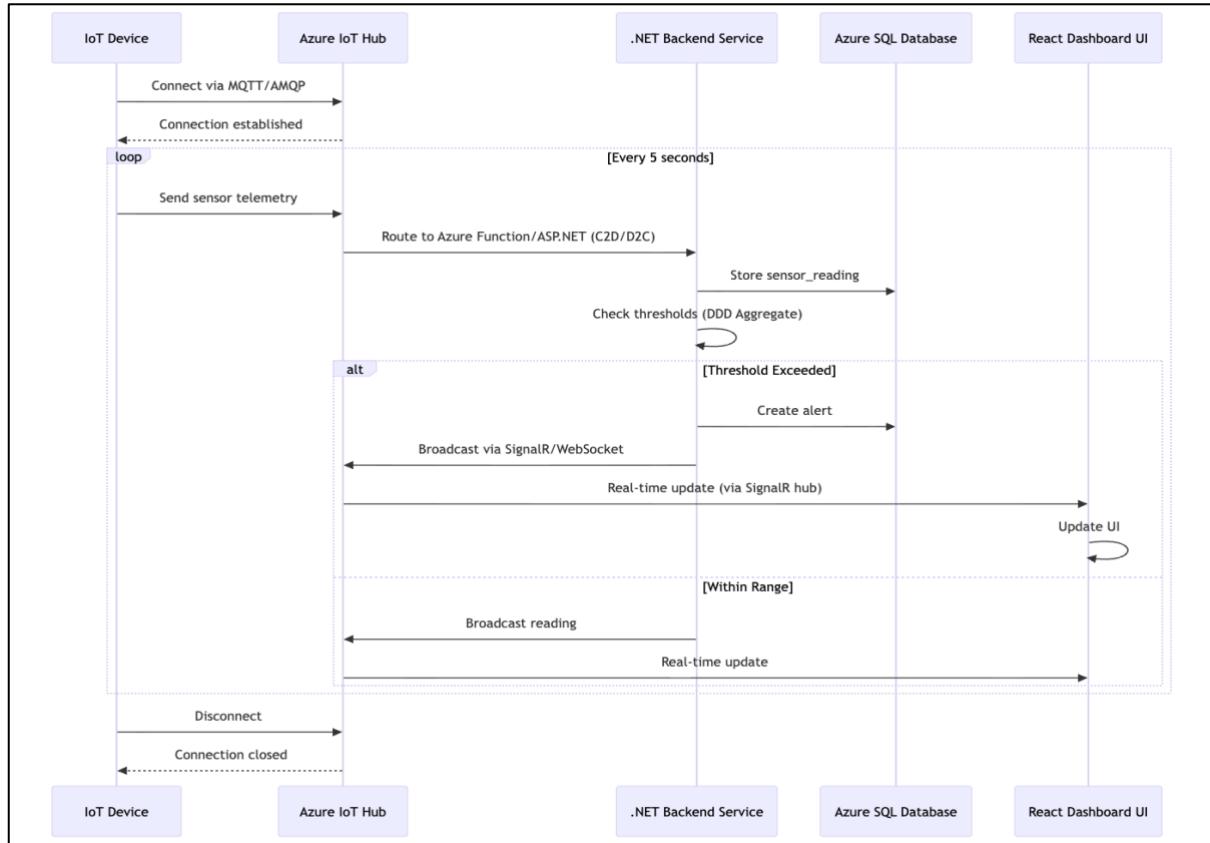


# Smart Factory IoT - API Flows & Sequences

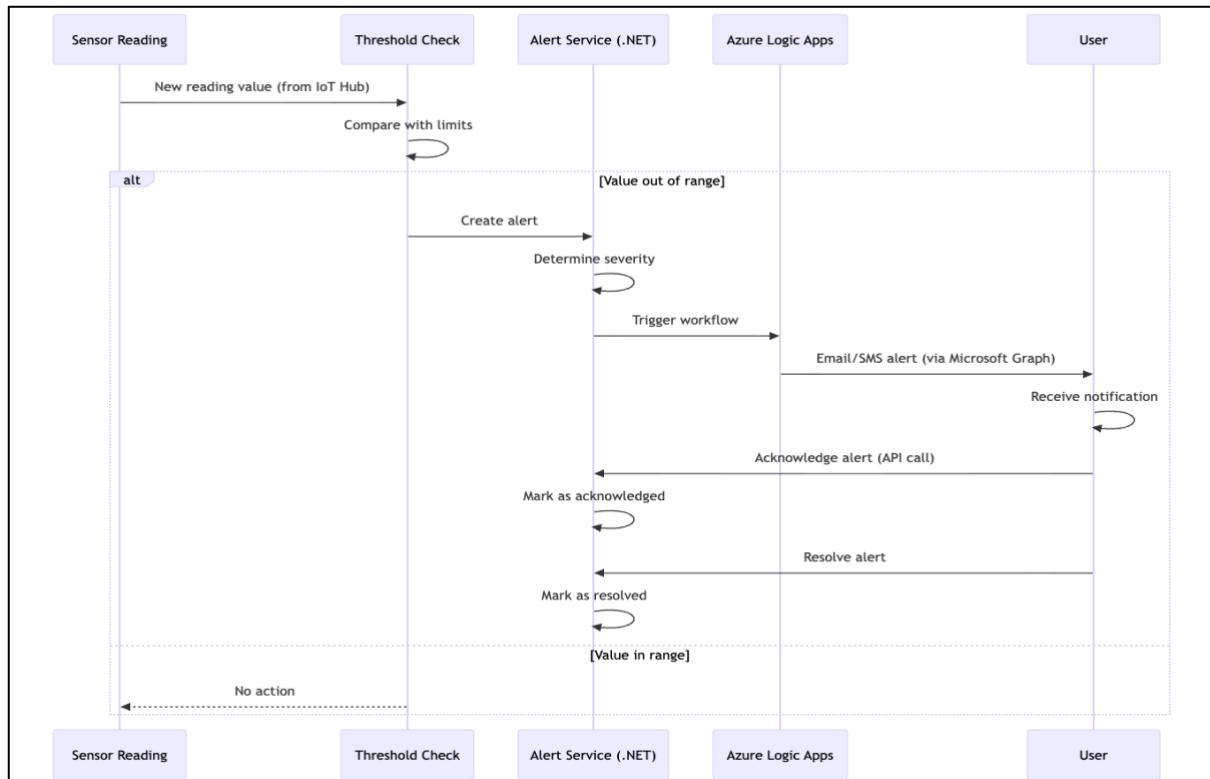
## Authentication Flow



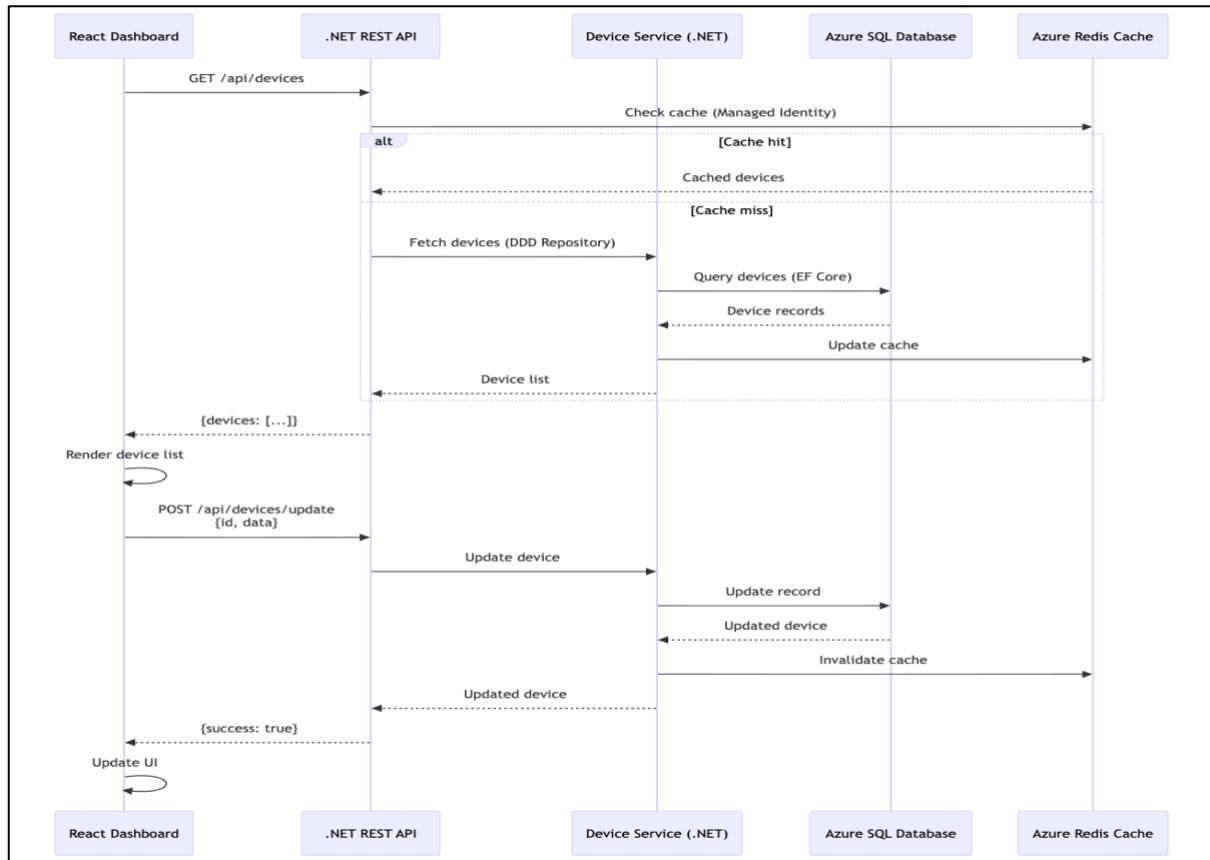
# Real-time Device Monitoring Flow



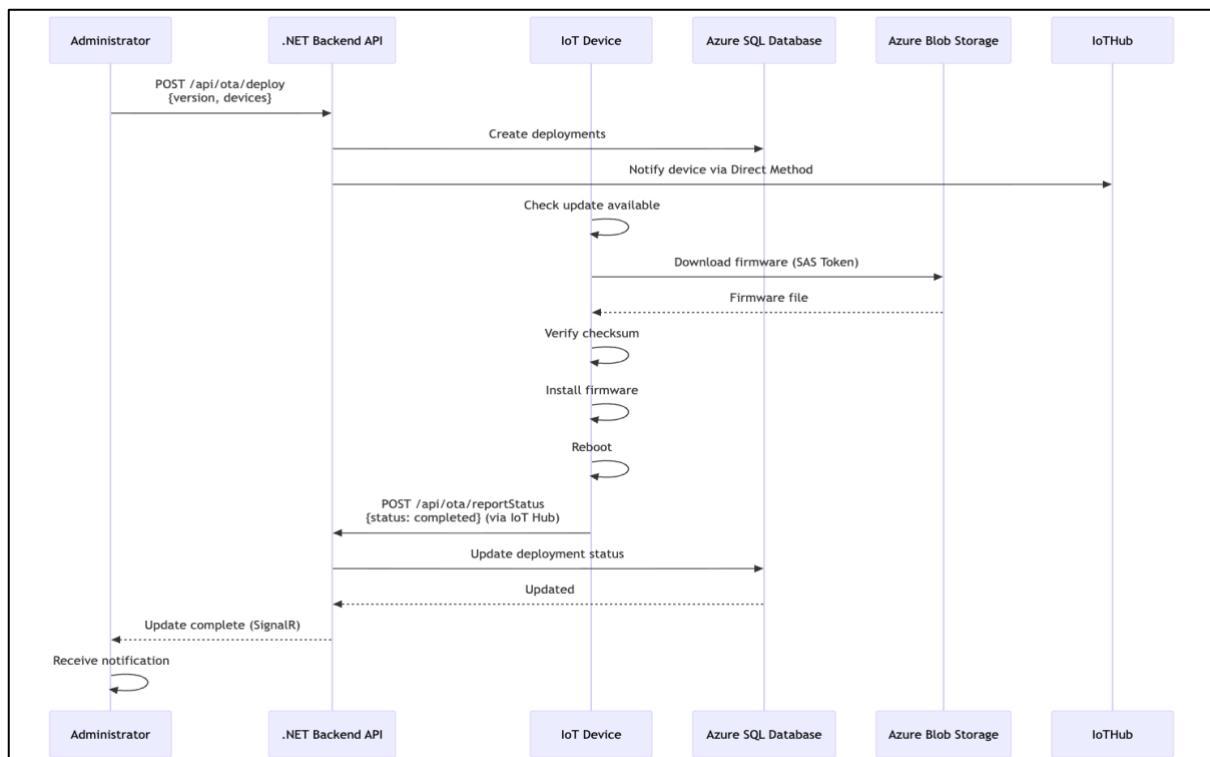
# Alert Management Flow



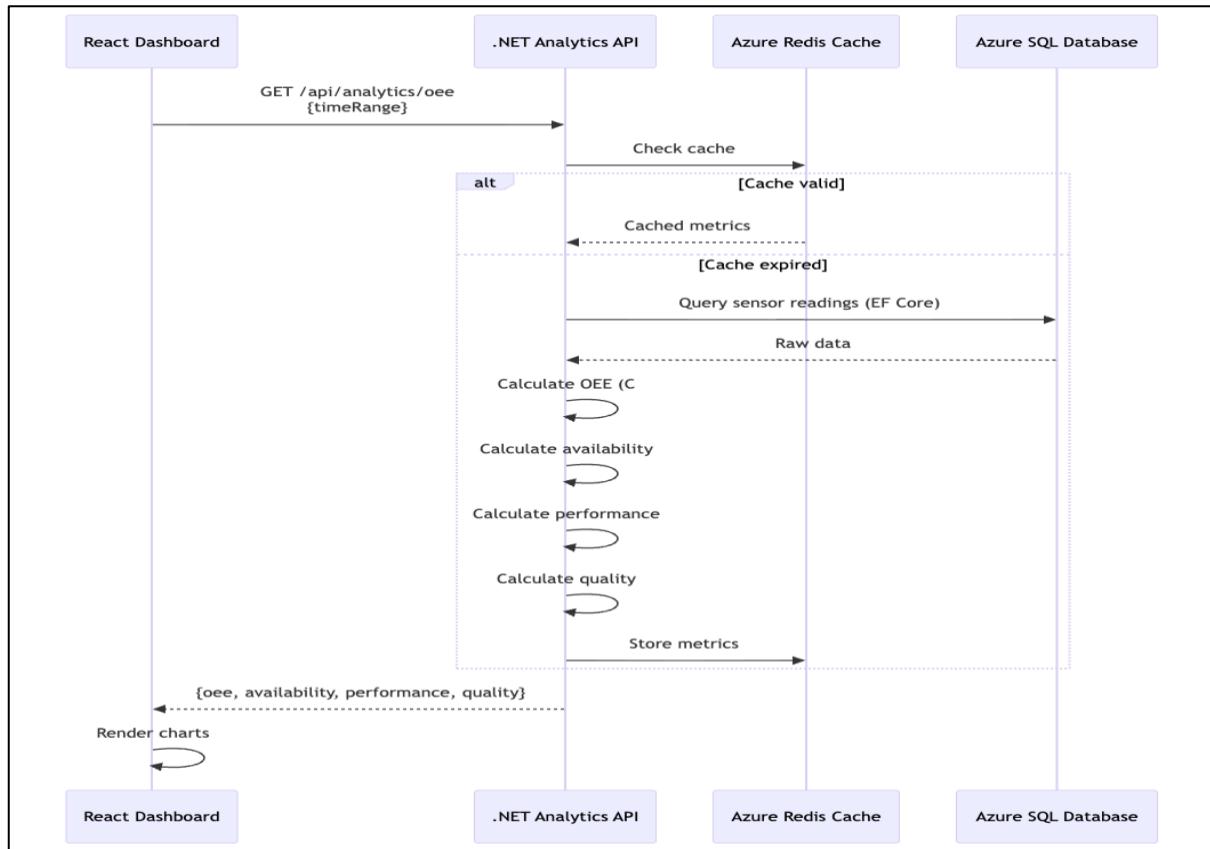
# Device Management Flow



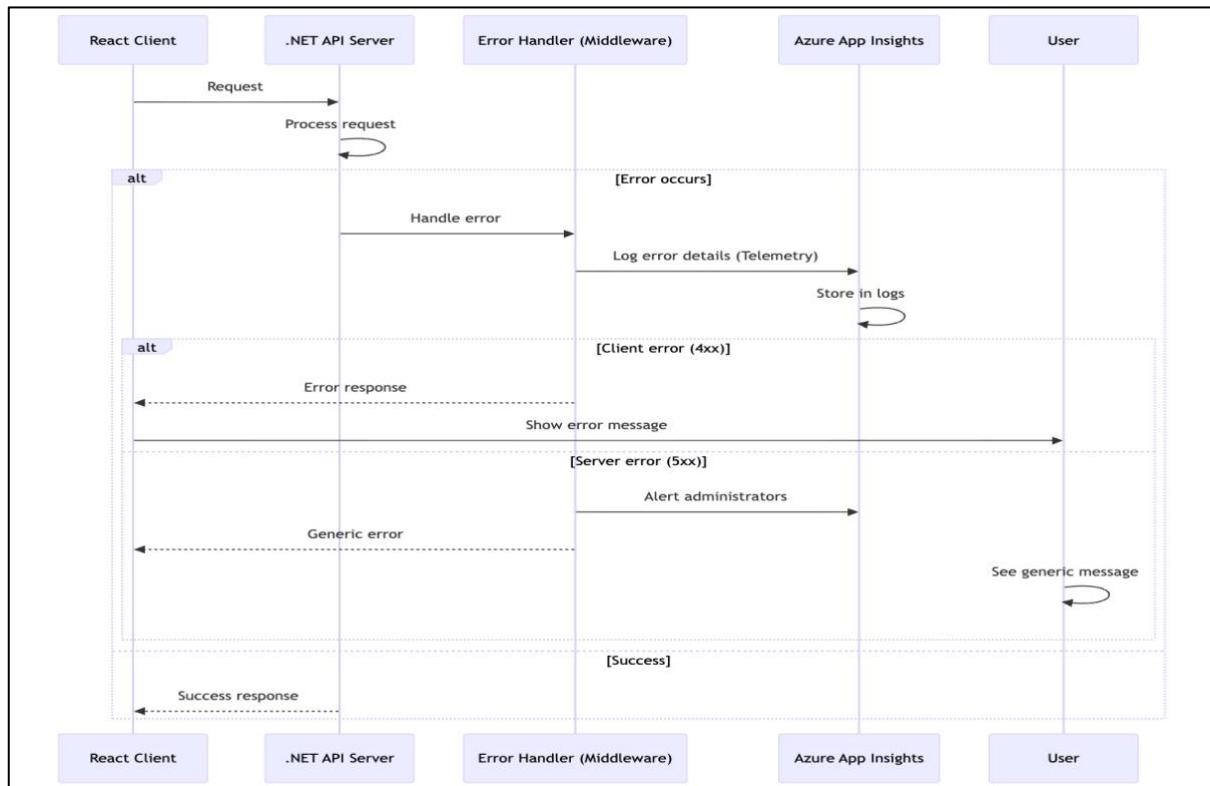
# OTA Update Flow



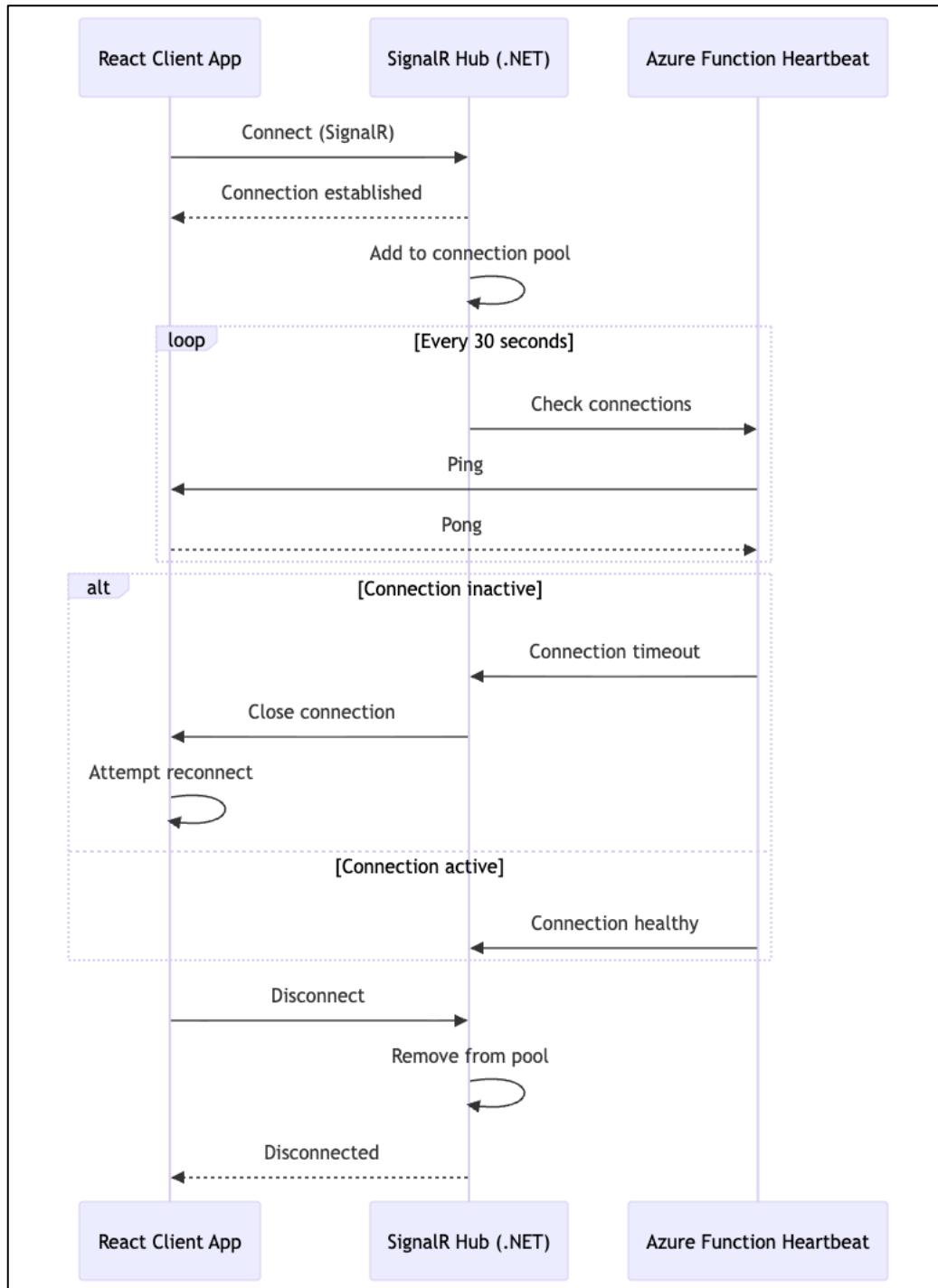
# Analytics & Reporting Flow



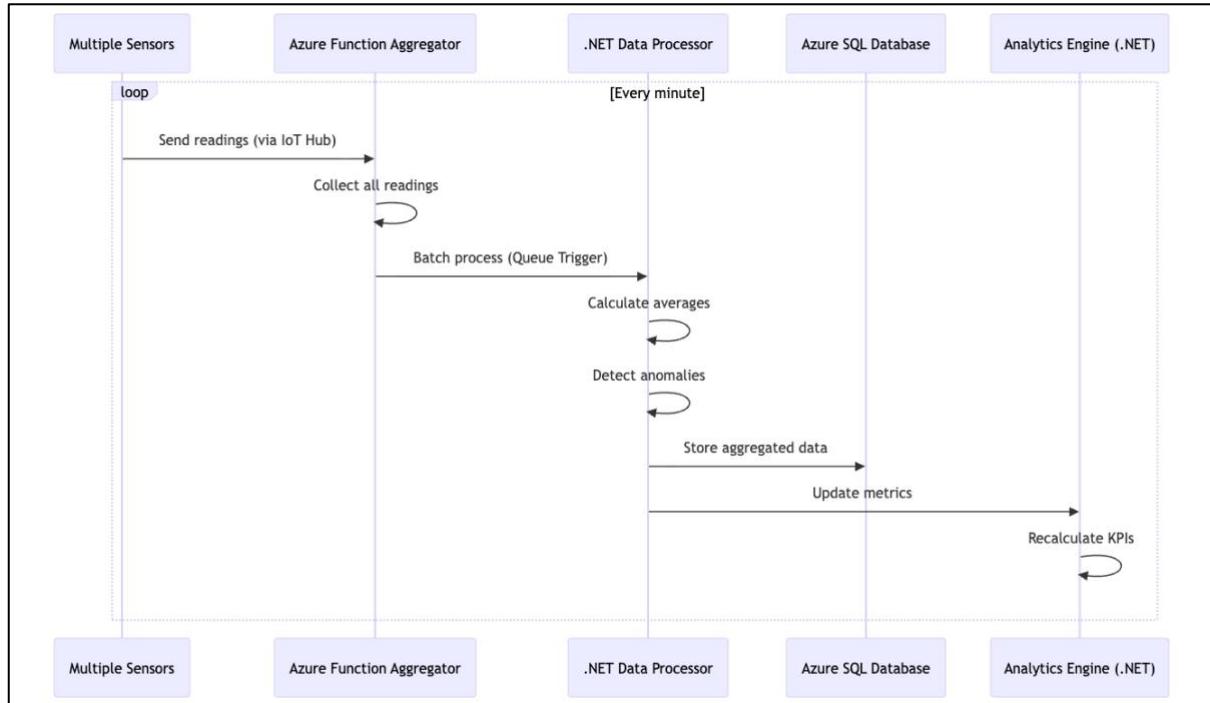
# Error Handling Flow



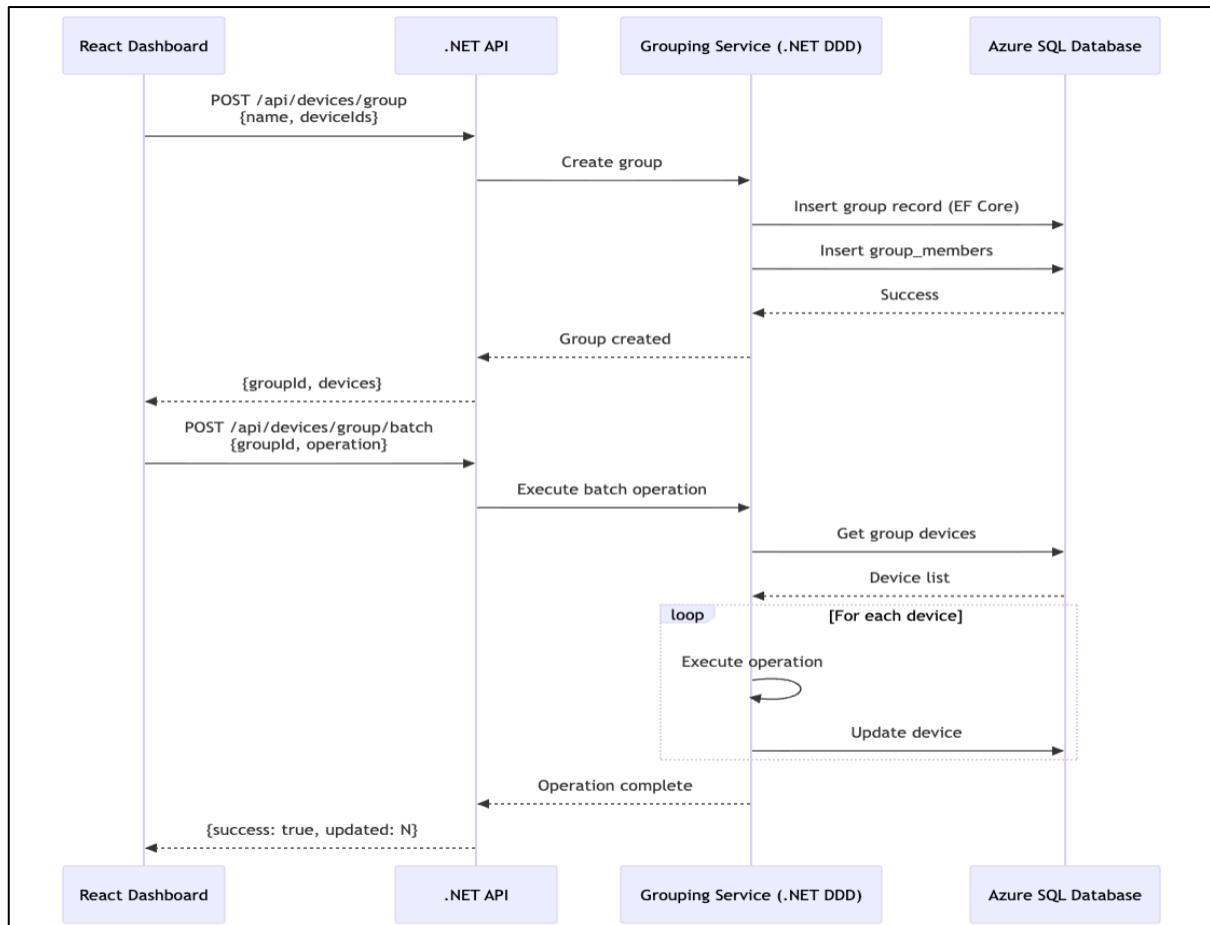
# WebSocket Connection Management



# Data Aggregation Flow



# Multi-Device Grouping Flow



# API Response Format

## Success Response

JSON

```
{  
  "data": {  
    "id": 1,  
    "name": "Device 1",  
    "status": "online"  
  }  
}
```

## Error Response

JSON

```
{  
  "error": {  
    "code": "UNAUTHORIZED",  
    "message": "Invalid credentials"  
  }  
}
```

## Rate Limiting

- **API Endpoints:** 100 requests per minute per user (via Azure API Management)
- **SignalR/WebSocket:** 1000 messages per minute per connection
- **File Upload:** 10 MB per file, 100 MB per day

## Timeout Configuration

Operation	Timeout
REST API Call	30 seconds
SignalR Connection	60 seconds
Database Query	10 seconds
File Upload	5 minutes
Device Firmware Download	30 minutes

## API Versioning

- Current Version: v1
- Endpoint Pattern: /api/v1/[controller]
- Backward Compatibility: Maintained for 2 major versions
- Deprecation Notice: 6 months before removal