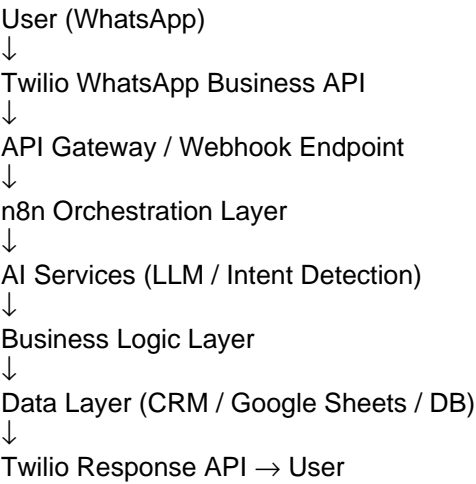# WhatsApp AI Agent – Production Architecture

This document describes a production-ready architecture for a WhatsApp AI Agent designed for business automation, scalable deployments, and enterprise use cases.

High-Level Architecture Flow

User (WhatsApp)
↓
Twilio WhatsApp Business API
↓
API Gateway / Webhook Endpoint
↓
n8n Orchestration Layer
↓
AI Services (LLM / Intent Detection)
↓
Business Logic Layer
↓
Data Layer (CRM / Google Sheets / DB)
↓
Twilio Response API → User

Core Components

Component	Description
WhatsApp Client	End user interacting via WhatsApp
Twilio API	Handles WhatsApp messaging and webhook delivery
Webhook/API Gateway	Receives incoming messages securely
n8n Automation Engine	Controls workflow, logic, and routing
LLM (OpenAI)	Understands intent and generates responses
Business Logic	Lead detection, booking flow, validations
Database / Sheets	Stores leads, conversations, analytics
Monitoring & Logs	Tracks errors, performance, and usage

Production Best Practices

• Secure webhooks using authentication tokens
• Environment-based secrets management
• Rate limiting and message throttling
• Error handling and fallback responses
• Centralized logging and monitoring

- Scalable n8n deployment (Docker/VPS)