## **🔹 Acko: AI-enabled Tele/Video MER Assistant (with n8n)**

### **1. Input Layer (Voice Capture)**

* **Sources:** Zoom, MS Teams, Google Meet, or telehealth platform API.
* **Connector in n8n:** Webhook or custom integration to capture live audio streams.
* **Optional Edge Processing:** Noise suppression, speaker diarization.

### **2. Speech-to-Text (Real-Time Transcription)**

* **n8n Node:** Call **Whisper API** (OpenAI) or **AssemblyAI/Deepgram**.
* **Key Features:**
  + Domain-specific medical vocabulary.
  + Multi-speaker labeling (doctor vs. patient).
  + Output in JSON with timestamps.

### **3. Reflexive Question Generator**

* **n8n Node:** Send transcript chunks → **GPT-4o/medical-tuned LLM**.
* **Prompt Strategy:**
  + Input: Last transcript block (e.g., “Patient: chest pain for 3 days”).
  + System prompt: *“Suggest 2–3 clinically relevant follow-up questions based on current symptoms, in plain English for physician use. Keep questions professional and concise.”*
* **Output:** Structured list of suggested questions.

### **4. Workflow Orchestration**

* **n8n Flow:**
  1. Receive transcription update.
  2. Push to GPT node for question generation.
  3. Store transcript + questions in DB (Mongo/Postgres).
  4. Forward to UI (sidebar for physician).

### **5. Integration Layer**

* **n8n Connectors to EHR/EMR:**
  + FHIR/HL7 API → Epic, Cerner, athenahealth.
  + Export structured SOAP notes.
* **Alternative Outputs:**
  + Email summary (n8n SMTP node).
  + Push notification (Slack/Teams).

### **6. User Interface**

* **Physician Dashboard (Web App/Overlay):**
  + Live transcript panel.
  + Suggested questions panel.
  + Export to EMR/EHR button.
* **Patient View (Optional):**
  + Post-visit summary sent via email or patient portal.

### **7. Compliance & Security**

* All n8n workflows run **self-hosted** or in **private cloud**.
* Data encrypted at rest + in transit.
* Access logs for HIPAA/GDPR compliance.

⚡ **Example Workflow in n8n (simplified):**

[Webhook: Zoom Audio] → [Speech-to-Text API] → [LLM Node: Reflexive Qs] → [Store in DB] → [Physician Dashboard API]