GetHelpIndia under Palatine Labs

Below is a revised high-level architecture and flow description that closely adheres to the updated logic, reflects the given flow chart, and takes into account all the constraints and clarifications. The focus is on ensuring that the system is aligned with the provided flow diagram, while also being performant, responsive, empathetic, and easy to integrate with partner organizations.

High-Level Flow Overview

Initial Contact:

- **Chat Channel**: The user initiates a conversation through a web or mobile chat interface.
- **Voice Channel**: The user calls a dedicated helpline number and interacts with a Voice Response System (IVR).

Triage & Classification:

- **Chat (AI Chatbot Triage)**: The chatbot (with NLP and sentiment analysis) classifies the user's need as **Emergency**, **Urgent (During Hours)**, or **Regular (During Hours)**.
- **Voice (User Self-Selection + IVR Logic)**: The IVR menu guides the user to self-identify as **Emergency**, **Urgent Need (During Hours)**, or **Regular Need (During Hours)**. After-hours voice calls are automatically classified as **Emergency** per the requirement.

Routing Based on Classification:

1. **Emergency Cases**:
    - **Crisis Protocol** is triggered.
    - A decision-making subsystem (algorithmic rules or a human dispatcher) determines whether the user needs **First Responders** or **Partner On-Call Crisis Counselors**.
    - These are always partner-based services, as per the flow.
2. **Urgent Cases (During Hours)**:
    - Routed to a **Priority Queue**.
    - Attempt in-house counselors first; if none available, connect to partner firm counselors on a priority basis.
3. **Regular Need (During Hours)**:
    - Routed to a **Standard Queue**.
    - User is scheduled for a future session (could be in-house or partner-based depending on availability).
    - No immediate intervention is required, but ensure empathetic handoff and clear instructions.

Post-Crisis and Follow-Up:

- After Emergency or Urgent support, users can be routed to follow-up sessions, either in-house or via partner services.
- The system ensures a closed-loop where post-crisis users return to either the Priority Queue for scheduled follow-ups or the Standard Appointment Calendar for ongoing support.

Revised Proposed Architecture

1. Front-End Layer (Distinct User Interaction Channels)

- **Chat Interface (Web & Mobile Apps)**:
    - Users access a secured web or mobile app.
    - The frontend includes a chat widget integrated with the AI Chatbot Triage system.
    - The chatbot handles the initial interaction with empathy, uses NLP for classification, and can display immediate options.
- **Voice Gateway / IVR System (Telephony Channel)**:
    - A standalone cloud telephony solution (e.g., Twilio, Plivo) that provides inbound voice lines.
    - The IVR menu prompts the caller to select their need type: Emergency, Urgent, or Regular.
        - If after-hours, any selection leads to Emergency classification (IVR logic).
    - The system records the user's choice and passes this classification to the orchestration layer.

Key Constraint: The chat and voice channels remain separate at the initial contact. Users calling by phone remain in the voice flow; users reaching out by chat remain in the chat flow.

2. AI & Classification Layer

- **NLP & Sentiment Analysis (For Chat Only)**:
    - A microservice that processes user messages, detecting crisis indicators, emotional intensity, and keywords related to self-harm or severe distress.
    - Assigns a severity score (Emergency, Urgent, or Regular). Note: Regular is only valid during hours, so system checks current time to finalize classification.
- **IVR Classification (For Voice Only)**:
    - The user's self-selection (or after-hours policy) directly sets classification.
    - No AI-based classification needed here, as the caller explicitly chooses or is defaulted to Emergency if after-hours.

Time-Aware Logic:

- The classification layer is aware of operating hours. After-hours phone calls default to Emergency.

- The chatbot consults a schedule to determine if the user's need can be considered Urgent or Regular (only if within operating hours; otherwise, it escalates to Emergency if severity is high).

3. Routing & Orchestration Layer

- **Crisis Router Microservice**:
    - Receives classification and time context from the AI/IVR systems.
    - Routes users to:
        - **Crisis Protocol** for Emergency cases.
        - **Priority Queue** for Urgent cases (during hours).
        - **Standard Queue** for Regular need (during hours).
- **Crisis Protocol Dispatcher**:
    - For Emergency cases, this component applies either:
        - **First Responder API Call**: Connect to a partner's first-responder hotline if the situation indicates immediate physical intervention.
        - **Partner On-Call Crisis Counselors API Call**: If immediate but not requiring an on-site responder, connect user to a licensed on-call counselor via teleconference or secure chat/voice line.
    - The decision here can be rule-based (e.g., keywords indicating suicidal ideation with means identified might trigger first responders) or moderated by a human crisis dispatcher for accuracy and liability.
- **Priority Queue Management**:
    - Holds Urgent cases (during hours) and attempts to connect them first to any available in-house counselor.
    - If no in-house resource is available within a short SLA, escalates to partner firm counselors who are on standby.
- **Standard Queue & Scheduler**:
    - Receives Regular cases (only valid during operating hours).
    - Interfaces with a scheduling microservice to book a follow-up session with available counselors (in-house preferred, partner if needed).
    - The user receives confirmation and instructions for the scheduled session.

4. Partner & Internal Services Integration Layer

- **Partner Crisis Services Integration**:
    - A secured API layer that connects to partner firms for:
        - On-call emergency counselors.
        - First responder teams if physical intervention is needed.
    - Real-time availability checks and skill-based routing ensure a quick connection to the right external resource.
- **In-House Counselors Dashboard**:

    - A web interface for in-house mental health professionals.
    - Displays Priority Queue cases, scheduled sessions from the Standard Queue, and handles post-crisis follow-ups.
- **Scheduling & Availability Database**:
    - Central repository for counselor availability (both in-house and partner).
    - Automated logic that updates queues and availability in real-time.

5. Data Storage & Compliance Layer

- **User Records & Session Logs**:
    - Securely store user interactions, classification outcomes, and counselor notes.
    - Comply with data protection regulations (HIPAA, GDPR, local laws).
- **Time & Events Database**:
    - Maintains service hours, holiday schedules, and triggers emergency routing logic for after-hours calls.

6. Infrastructure & Deployment

- **Cloud-Based Microservices Architecture**:
    - Deploy all services (chatbot, IVR integration, routing logic, partner APIs) as independent, containerized microservices.
    - Use Kubernetes or another orchestrator for scaling based on demand spikes (e.g., peak hours of crisis calls).
- **Load Balancing & Autoscaling**:
    - Automatic scaling of the AI chatbot NLP services during high traffic periods.
    - Redundant telephony and IVR endpoints to handle surge calls.
- **Monitoring & Alerting**:
    - Real-time dashboards for response times, queue lengths, and partner service availability.
    - Automated alerts to administrators if queue times exceed SLAs or if partners become unavailable.

7. Empathy & UX Considerations

- **Front-End Empathy Features**:
    - Chat interface trained on crisis counseling best practices to ensure empathetic language.
    - IVR prompts designed to be calm, clear, and reassuring, minimizing the complexity in user choices during stressful moments.
- **Rapid Human Backup**:

- If the AI chatbot is uncertain or any error occurs, the system escalates to a human counselor or at least puts the user into a priority queue.

Adherence to the Flow Chart

- **Initial Contact → Triage**: Chat or Voice, distinct paths. Chat uses AI, Voice uses IVR/ user input.
- **Classification**: Emergency if after-hours voice or severe distress. Urgent or Regular otherwise.
- **Routing**: Emergency → Crisis Protocol; Urgent → Priority Queue (try in-house, fallback to partner); Regular → Standard Queue & Scheduling (only during hours).
- **Follow-Up**: Post-crisis support routed back into internal scheduling or priority follow-up as per the flow chart.

All these steps closely follow the given flow chart and incorporate the additional rules and logic provided in the latest specifications.

Flow Chart