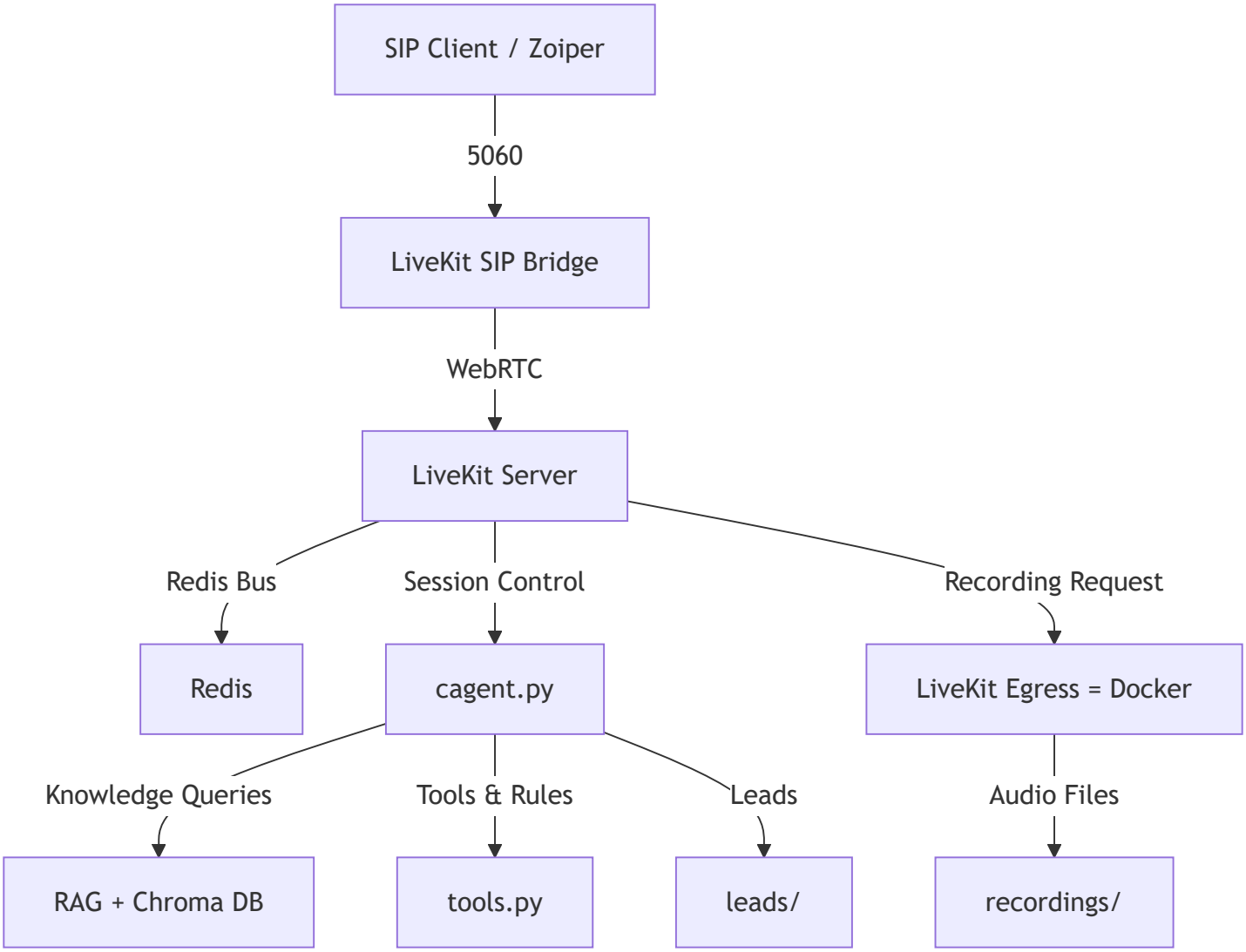
Friday AI — Voice Agent with SIP Telephony + RAG

Friday AI is an intelligent voice assistant built for **Triotech Bizserve Pvt. Ltd.**
It combines SIP telephony, RAG-based knowledge retrieval, and lead capture automation — all powered by LiveKit infrastructure.

🚀 Features

- **SIP Telephony Integration** (Zoiper ↔ LiveKit ↔ AI Agent)
- **Hybrid Knowledge System** (JSON + RAG/ChromaDB)
- **Real-Time Voice Communication** via WebRTC & Redis
- **Lead Detection & Logging** in Hinglish
- **Local Audio Recording** via Docker Egress
- **Conversation Analytics + CRM Integration**
- **Plugin-Ready** for STT, TTS, and LLM Providers

🧩 System Overview



⚙️ Deployment Guide

This guide documents the **tested and stable deployment flow** verified on a VPS using Docker and screen.

Step 1: System Prerequisites

```
sudo apt update
sudo apt install -y curl wget git redis-server python3 python3-venv python3-pip screen build-ess
```

Step 2: Setup Redis

```
sudo systemctl enable redis-server
sudo systemctl start redis-server
redis-cli ping  # Expected: PONG
```

Step 3: Clone & Prepare Friday AI

```
# Clone the repository
git clone <your-repo-url>
cd <your-repo-directory>

# Create Python virtual environment
python3 -m venv ainvenv
source ainvenv/bin/activate

# Install dependencies
pip install -r requirements.txt
```

Step 4: Install LiveKit Components

```
# Install LiveKit Server (v1.9.1)
wget https://github.com/livekit/livekit/releases/download/v1.9.1/livekit-server_1.9.1_linux_amd6
tar -xzf livekit-server_1.9.1_linux_amd64.tar.gz
sudo mv livekit-server /usr/local/bin/
sudo chmod +x /usr/local/bin/livekit-server

# Build SIP Bridge
git clone https://github.com/livekit/sip.git
cd sip
go build -o livekit-sip ./cmd/livekit-sip
sudo mv livekit-sip /usr/local/bin/
cd ..
```

Step 5: Run LiveKit Server

```
# Start LiveKit Server in a detached session
screen -dmS livekit-server livekit-server --config sip-setup/livekit.yaml
```

Step 6: Start LiveKit SIP Bridge

```
# Run SIP Bridge
screen -dmS livekit-sip livekit-sip --config sip-setup/config.yaml
```

Confirm both are active:

```
screen -ls
sudo netstat -tunlp | grep -E '7880|5060'
```

Step 7: Start LiveKit Egress (Docker)

Friday AI uses Dockerized LiveKit Egress for **audio-only local recording**.

egress.yaml

```
api_key: APIntavBoHTqApw
api_secret: pRkd16t4uYVUs9nSlNeMawSE1qmUzfV2ZkSrMT2aiFM
ws_url: ws://127.0.0.1:7880

redis:
  address: '127.0.0.1:6379'

# Default Storage (optional Azure config)
azure:
  account_name: xenystorage
  account_key: <REDACTED>
  container_name: livekit-recordings
```

Run Egress:

```
docker run -d \
  --name livekit-egress \
  --network="host" \
  -v $(pwd)/recordings:/recordings \
  -v $(pwd)/egress.yaml:/out/egress.yaml \
  livekit/egress
```

🟢 The system now records audio locally to:

`recordings/<room_name>-<timestamp>.ogg`

Step 8: Start the Python Agent

```
screen -dmS livekit-backend bash -c "source ainvenv/bin/activate && python cagent.py"
```

Step 9: Verification

```
# Check all running processes
screen -ls
sudo netstat -tunlp | grep -E '7880|5060|6379'
redis-cli ping
docker ps | grep livekit
```

🟢 Expected:

- LiveKit server on port `7880`
- SIP bridge on `5060`
- Redis on `6379`
- Egress container running and writing `.ogg` files

📞 SIP Client Setup (Zoiper)

Setting	Value
Host	`<YOUR_SERVER_IP>`
Port	5060
Username	1001
Password	1001
Protocol	SIP (UDP)

> Dial any number (e.g., `+91XXXXXXXXXX`) to connect with the AI agent.
> Egress will automatically record the audio session locally.

🧠 Knowledge & Persona Handling

- The agent loads **persona settings dynamically** from the CRM endpoint via `load_persona_from_dialed_number()` .
- Knowledge retrieval uses **ChromaDB-based RAG** with a fallback JSON rule base.

- Logs and leads are stored locally under:
  - `conversations/`
  - `leads/`

💻 Service Management

```
# View running services
screen -ls

# Attach to a service
screen -r livekit-server
screen -r livekit-sip
screen -r livekit-backend

# Detach (Ctrl + A then D)
# Stop a service
screen -S livekit-sip -X quit
```

📜 Configuration Summary

File	Purpose
`.env`	API keys & environment variables
`sip-setup/livekit.yaml`	Core LiveKit server config
`sip-setup/config.yaml`	SIP bridge config
`egress.yaml`	Egress recording configuration
`cagent.py`	Main AI voice agent
`tools.py`	Custom rules & helper functions

📝 Notes

- Audio files are **stored locally** in `recordings/`.
  Azure upload can be re-enabled later by uncommenting cloud paths in `egress.yaml`.
- Make sure Redis and LiveKit ports (`6379`, `7880`, `5060`) are open on your VPS.
- UFW should remain **disabled** or configured to allow UDP 10000–60000.
- For long-term stability, convert `screen` sessions to `systemd` services.