AI Lead Qualification & HubSpot Integration Documentation

08/16/2025

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AI Lead Qualification & HubSpot Integration

Use Case

This solution enables Instant lead engagement for loan applications by combining any CRM such as HubSpot, Vapi AI Voice Agents, Twilio, and n8n automation.

When a new loan application is submitted via the bank's website, the system triggers an automated outbound AI voice call to qualify the lead and updates the CRM with a call summary and final status. If qualified, the system also transfers the call to a senior loan specialist for closing the sale.

The goal is to maximize conversion by calling hot leads within seconds of submission.

Prerequisites & Components

a. HubSpot CRM

- Stores lead records.

- Tracks record status (`New`, `In Progress`, `Unqualified`, `Open Deal`).

- Receives call logs and summaries.

b. HubSpot Developer Account

- Create a Developer App.

- Webhook subscriptions:

- Client ID/ Account ID/ Other secret Keys.

- API Key.

- Refer to: <u>HubSpot API Documentation</u> and <u>VAPI API Documentation</u> for API structure.

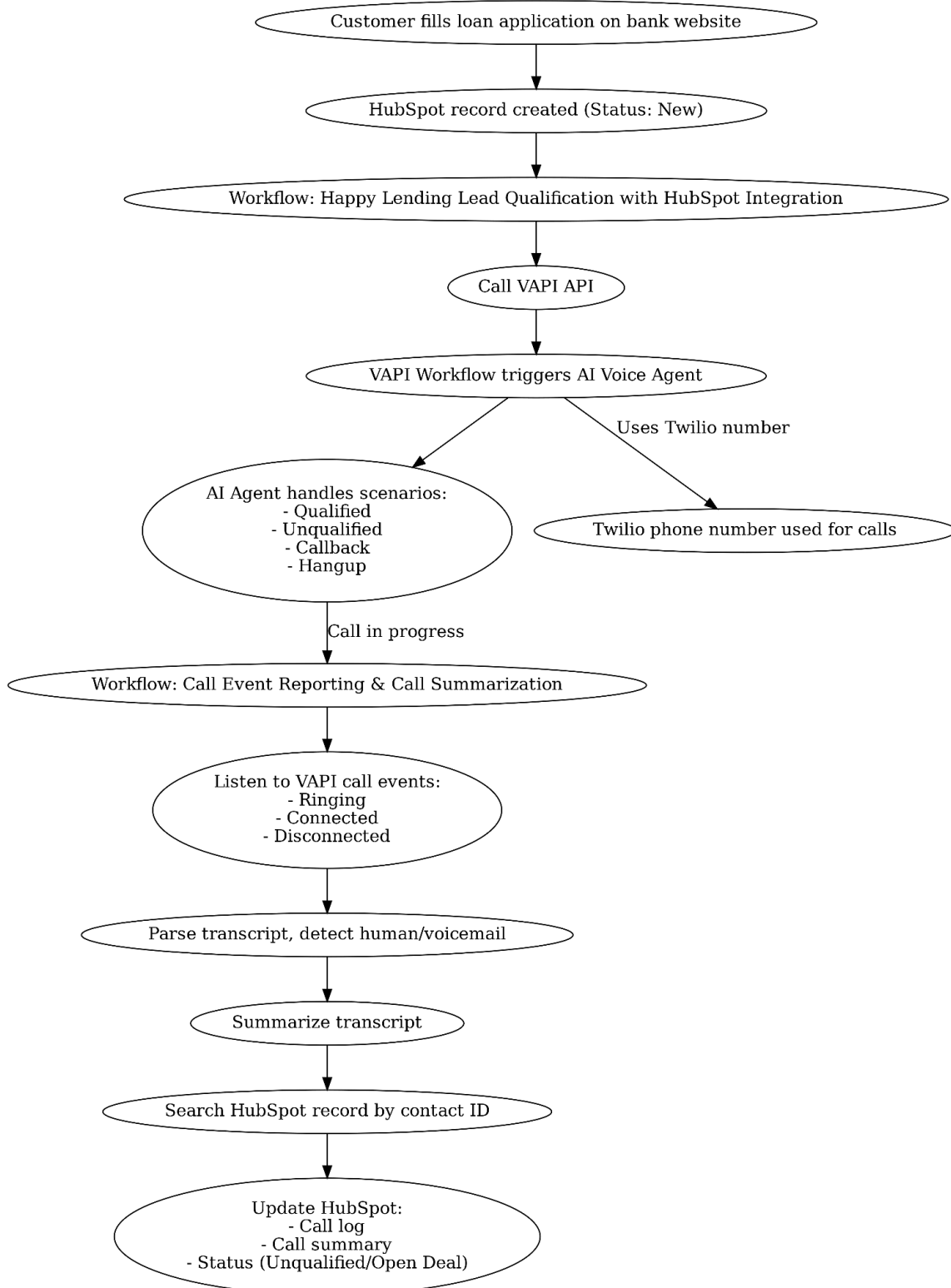**c. Vapi AI Voice Agent**

- Handles outbound calls to new leads.

- Uses scenario-specific prompts for:

 - Qualified lead.

 - Unqualified lead.

 - Callback request.

 - Hangup.

d. Twilio

- Provides the outbound phone number used by the AI voice agent.

- Handles call routing through Vapi to the end recipient.

e. n8n Workflows

- Hosts the automation workflow platform.

- Basic Javascript coding for outcome parsing.

- Requires platform keys.

Process flow:

Customer fills loan application on bank website

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HubSpot record created (Status: New)

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Workflow: Happy Lending Lead Qualification with HubSpot Integration

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Call VAPI API

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VAPI Workflow triggers AI Voice Agent

Uses Twilio number

AI Agent handles scenarios:
- Qualified
- Unqualified
- Callback
- Hangup

Twilio phone number used for calls

Call in progress

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Workflow: Call Event Reporting & Call Summarization

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Listen to VAPI call events:
- Ringing
- Connected
- Disconnected

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Parse transcript, detect human/voicemail

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Summarize transcript

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Search HubSpot record by contact ID

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Update HubSpot:
- Call log
- Call summary
- Status (Unqualified/Open Deal)

Integration Steps

1. Workflow with HubSpot Integration

  - Trigger: New contact creation in HubSpot.

  - **Actions**:

    - Calls Vapi API → Initiates AI voice agent call.

    - Passes authentication key for Vapi.

    - Updates HubSpot contact status after call.

2. Call Event Reporting & Call Summarization

  - **Trigger: Webhook from Vapi for call events (e.g., ringing, connected, disconnected).**

  - **Actions**:

    - Detects the last call event.

    - Parses call end reason.

    - Captures full transcript.

    - Detects whether callee was human or voicemail.

    - Summarizes transcript.

    - Searches HubSpot for matching contact using `hs_object_id` or email.

    - Logs call activity in HubSpot.

    - Updates record status (`Unqualified`, `Open Deal`).

3. End-to-End Flow

1. **Lead Capture**

  - A prospective customer fills out a loan application form on the bank's website.

  - HubSpot creates a **new contact** record with status = `New`.

2. **Lead Qualification Trigger**

  - The Lead Qualification n8n workflow listens for new contact creation.

  - Immediately calls Vapi API with contact details.

3. **AI Voice Call Execution**

   - Vapi AI Voice Agent uses Twilio to place an outbound call.

   - AI uses prompts to adapt to conversation scenarios (qualification, disqualification, callback request).

4. **Call Event Handling**

   - The **Call Event Reporting & Call Summarization** workflow receives real-time events from Vapi via webhook.

   - Tracks stages like ringing, connected, disconnected.

   - Waits for the final disconnect event before processing the summary.

5. **Call Summary Generation**

   - Full transcript is retrieved.

   - AI generates a concise summary of the conversation.

6. **CRM Update**

   - Finds the HubSpot contact by ID or email.

   - Creates a single logged call entry with the summary (avoiding duplicates).

   - Updates contact status based on call outcome.

4. Key Configuration Details with Screenshot References

a. Call Event Reporting & Call Summarization Workflow
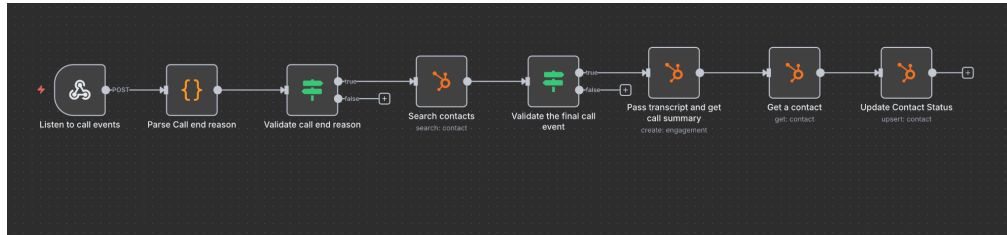
b. Parsing Call End Reason


```javascript
// Normalize Vapi fields so downstream nodes can read them reliably
return items.map(item => {
  const src = item.json || {};
  const msg = src.body?.message || src.message || {};

  const ended = (msg.endedReason ?? src.endedReason ?? '')
    .toString()
    .toLowerCase()
    .trim();

  const summary = (msg.summary ?? src.summary ?? '').toString().trim();

  item.json.endedReason = ended;        // e.g., "assistant-ended", "assistant-transferred"
  item.json.summary     = summary;      // native call summary, if provided
  return item;
});
```

c. Updating HubSpot Contact Status (Call Event Workflow)

d. **Main Happy Lending Lead Qualification Workflow Diagram**
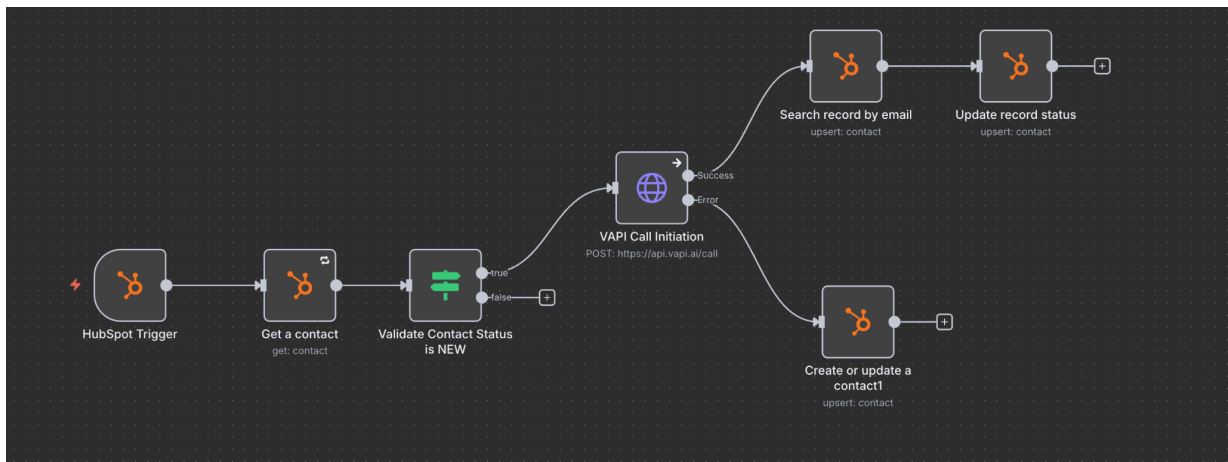
e. **HubSpot Contact Retrieval Node**

f. **HTTP Node for Vapi Call (with `Authorization: Bearer {{VAPI_KEY}}`)**

g. **HubSpot Status Update Node (Lead Qualification Workflow)**

h. **Vapi Workflow Diagram**
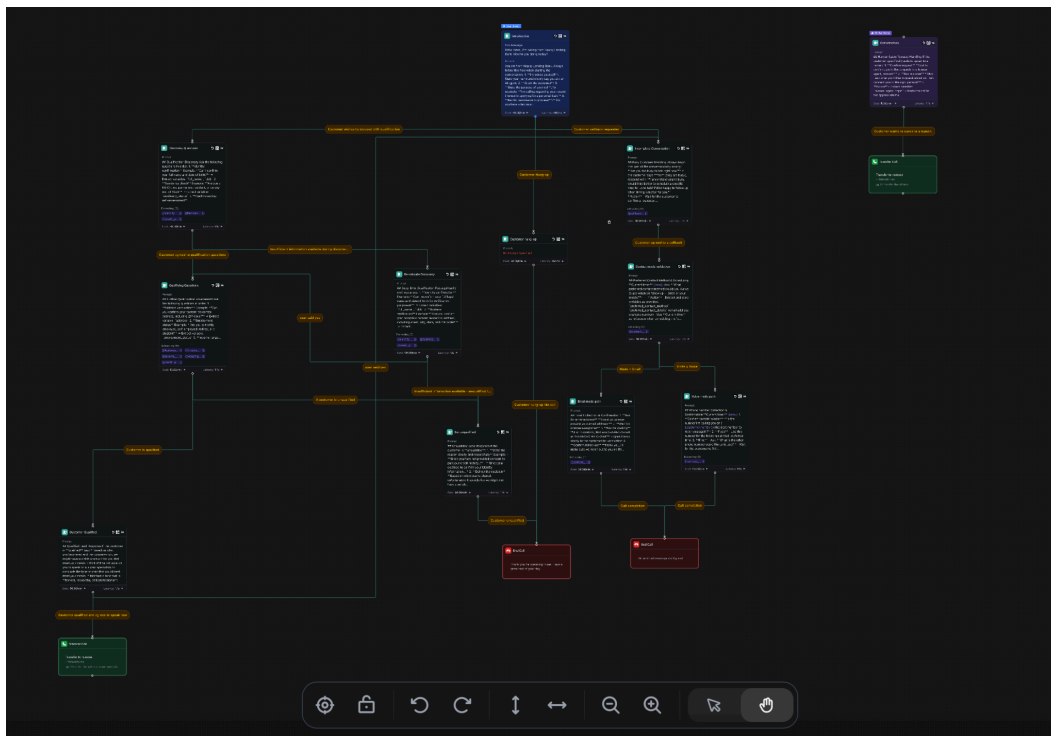
i. **Vapi Workflow JSON Dump**

Copy the JSON dump from *happy_lending_bank_lead_qualification_voice_agent.json* to create your Voice agent workflow.

Lessons Learned / Fixes Applied

- Prevented duplicate logged calls in HubSpot by ensuring workflow triggers only after the final disconnect event.

- Corrected HubSpot contact lookup by using `hs_object_id` rather than email.

- Parsed call end reason to ensure correct final status assignment.

Project the Data on a Dashboard for Operations teams