

# VocalBridge Ops – Product & System Report

## Objective

VocalBridge Ops is a multi-tenant AI agent platform designed to enable hospitals and healthcare providers to deploy automated AI workflows for patient-facing and internal operations.

The system supports AI-driven interactions for:

- Customer support
- Sales and onboarding
- Billing and payments
- General medical queries related to diagnosis, treatment, and guidance (non-clinical decision support)

The platform abstracts AI vendor complexity, ensures reliability and cost tracking, and provides full observability into usage, sessions, and billing.

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## Actors

### Tenants (Hospitals)

Hospitals act as clients of VocalBridge Ops. Each tenant represents an isolated organization with its own configuration, agents, usage, and billing.

### Agents (AI Agents)

Agents are configurable AI entities created by tenants. Each agent is purpose-built for a specific workflow (e.g., support bot, billing assistant, onboarding guide) and encapsulates provider configuration, prompts, tools, and voice capabilities.

### Customers (Patients)

Patients or hospital staff acting on behalf of patients interact with agents through chat or voice sessions. Customers are identified by an external customer identifier provided by the tenant.

# Core Tenets

## Multi-Tenant Isolation

- Each tenant has a unique account and API key.
- All data access is strictly scoped to the tenant.
- No tenant can access another tenant's agents, sessions, or usage.

## Authentication & Roles

- API-key-based authentication.
- Two roles supported
  - **Admin**: Full access (configuration, sessions, messaging, analytics).
  - **Analyst**: Read-only access to usage, analytics, and session data.

## Agent Lifecycle

- Tenants can create multiple agents for different use cases.
- Each agent has:
  - Provider configuration (primary and fallback).
  - Prompt and generation parameters.
  - Optional tool integrations.
  - Optional voice configuration.
- Agents can be updated or soft-deleted (deactivated while retaining historical data).

## Sessions & Conversations

- Each interaction occurs within a **session**, tied to a specific agent and customer.
- Only one active session per agent–customer pair is allowed.
- Sessions support:
  - Chat mode
  - Voice mode
- Sessions must be explicitly ended before a new one is created for the same agent and customer.

## Billing & Usage Transparency

- Every AI provider call is tracked.
- Token usage and cost are calculated per message.
- Session-level billing is visible inline within the conversation.
- Aggregate usage and cost analytics are available via dashboards.

# Dashboards & Functional Modules

## Usage Dashboard

The Usage Dashboard provides a comprehensive view of AI consumption and cost across the tenant.

### Key Metrics

- Total agents created
- Total sessions initiated
- Total messages exchanged
- Tokens consumed (input, output, total)
- Total cost incurred

### Cost & Usage Analytics

- Cost distribution by:
  - AI provider
  - Agent
  - Day / time range
- Top agents by cost
- Token usage trends over time

### Reporting Controls

- Date range selection (custom range)
- Aggregation by provider, agent, or day
- Export-ready data model for reporting and billing reconciliation

## Sessions Dashboard

The Sessions Dashboard focuses on operational visibility into ongoing and historical conversations.

### Session Management

- View all sessions for the tenant.
- Create a new session for a selected agent and customer.
- Enforce session exclusivity:
  - If an active session exists for the same agent and customer, it must be ended before creating a new one.

## Search & Filtering

- Search by:
  - Customer ID
  - Agent name
- Filter by:
  - Active vs ended sessions
  - Agent type
  - Channel (chat or voice)

## Session Detail View

- Full message transcript
- Provider metadata (latency, tokens, fallback usage)
- Inline session-level cost summary

## Agents Dashboard

The Agents Dashboard is the configuration and management interface for AI agents.

### Agent Listing

- View all agents created by the tenant.
- Display status (active/inactive), provider configuration, and usage summary.

### Agent Creation

- Define:
  - Name and description
  - System prompt
  - Primary and fallback providers
  - Generation parameters (temperature, max tokens)
  - Enabled tools
  - Voice configuration (optional)

### Agent Updates

- Modify configuration at any time.
- Changes apply to new messages and sessions going forward.

### Agent Deletion

- Soft delete only:
  - The agent is marked inactive.

- Existing sessions, messages, and usage data are preserved for audit and reporting.

## Key Product Guarantees

### Reliability

- Built-in retries with exponential backoff.
- Provider timeouts.
- Automatic fallback to secondary provider when configured.

### Idempotency

- Message-level idempotency ensures duplicate requests do not cause duplicate charges or responses.
- Safe retries for network failures or client-side retries.

### Observability

- Correlation IDs propagated across:
  - API requests
  - Provider calls
  - Tool executions
- Structured logs and metrics for debugging and performance analysis.

### Compliance-Ready Design

- Strong tenant isolation.
- Immutable usage and billing records.
- Audit-friendly session and provider call history.

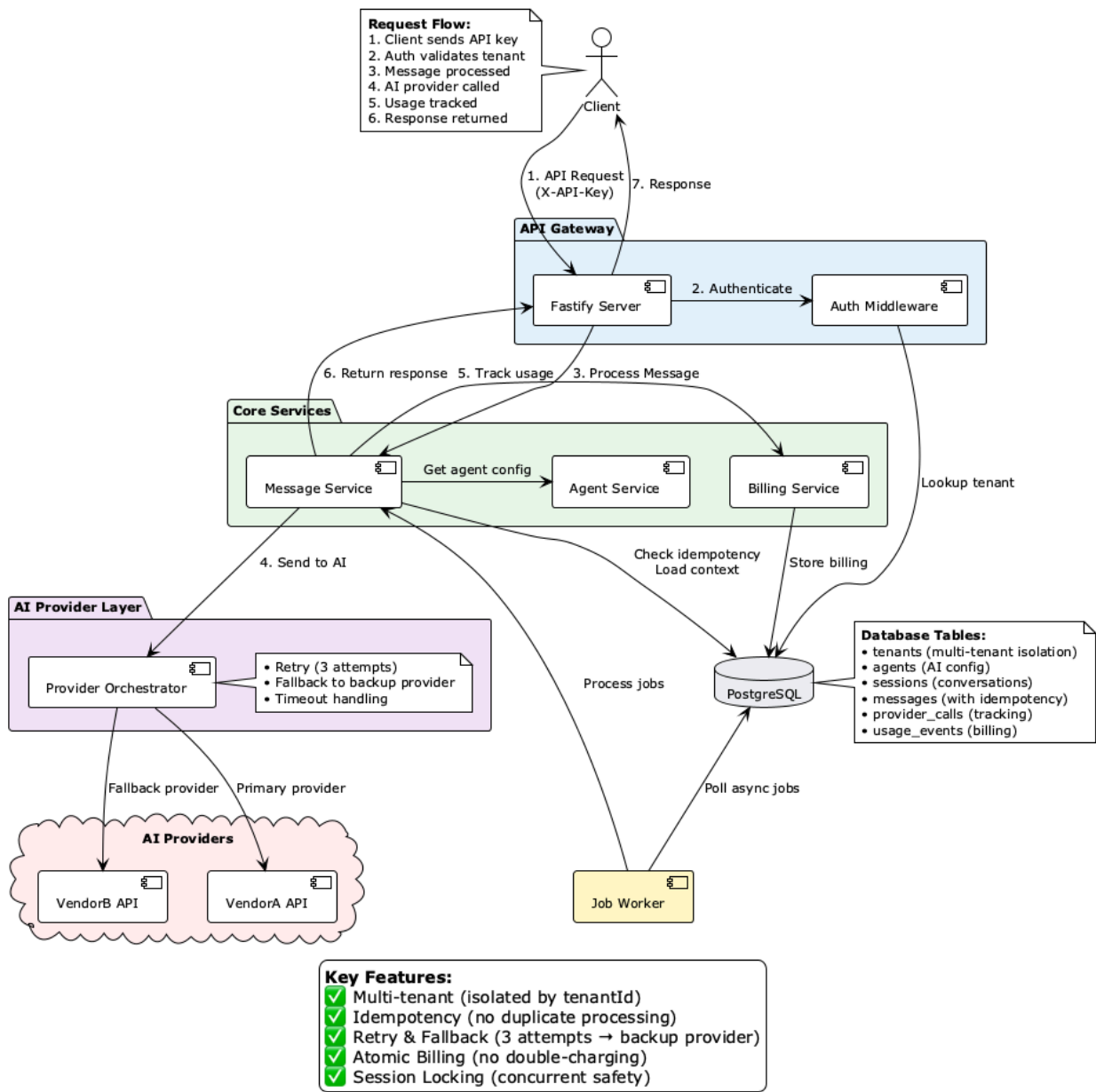
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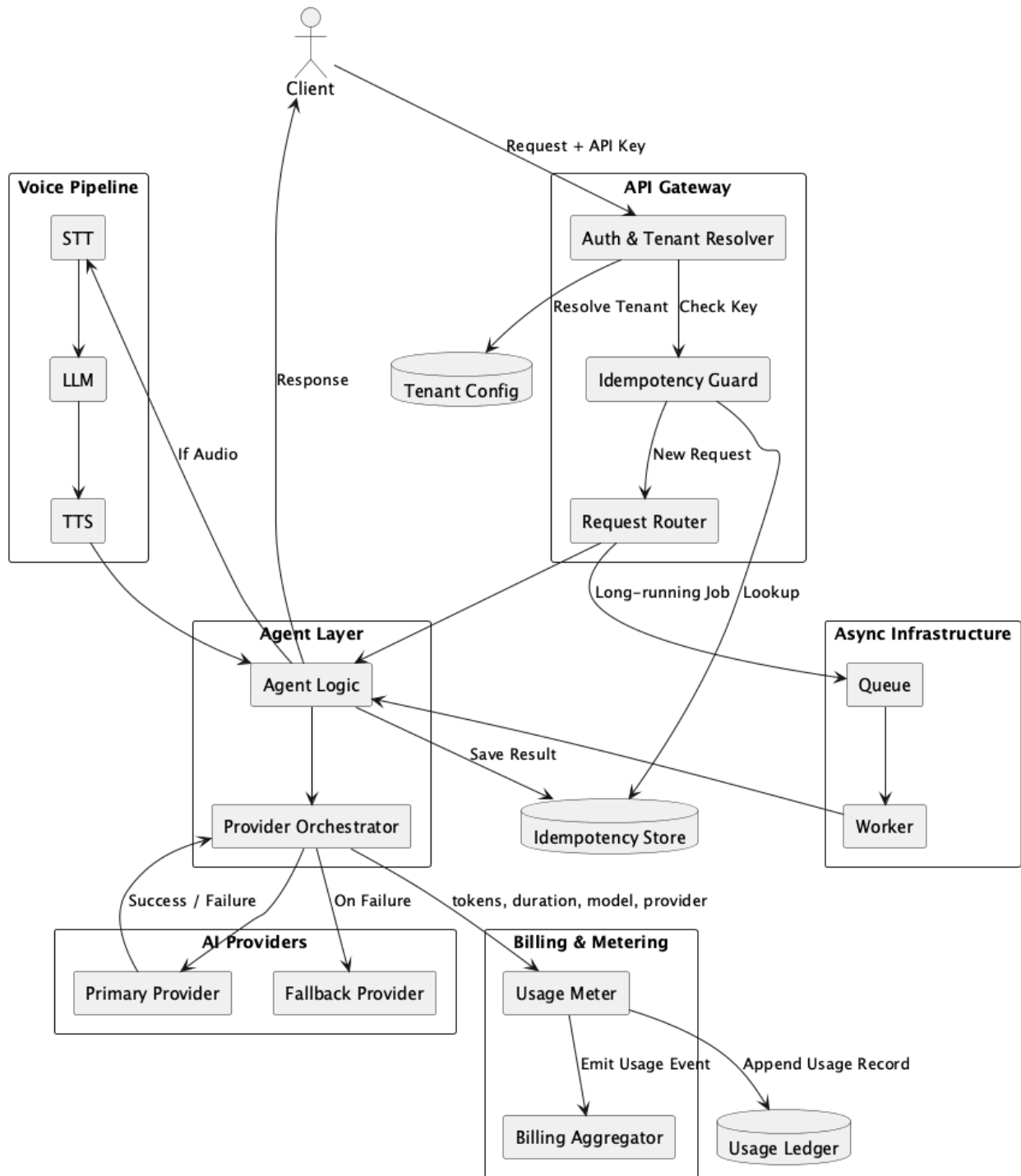
## Summary

VocalBridge Ops delivers a production-grade, multi-tenant AI agent platform tailored for healthcare organizations. It enables hospitals to rapidly deploy AI-powered workflows while maintaining strict isolation, reliability, and cost transparency.

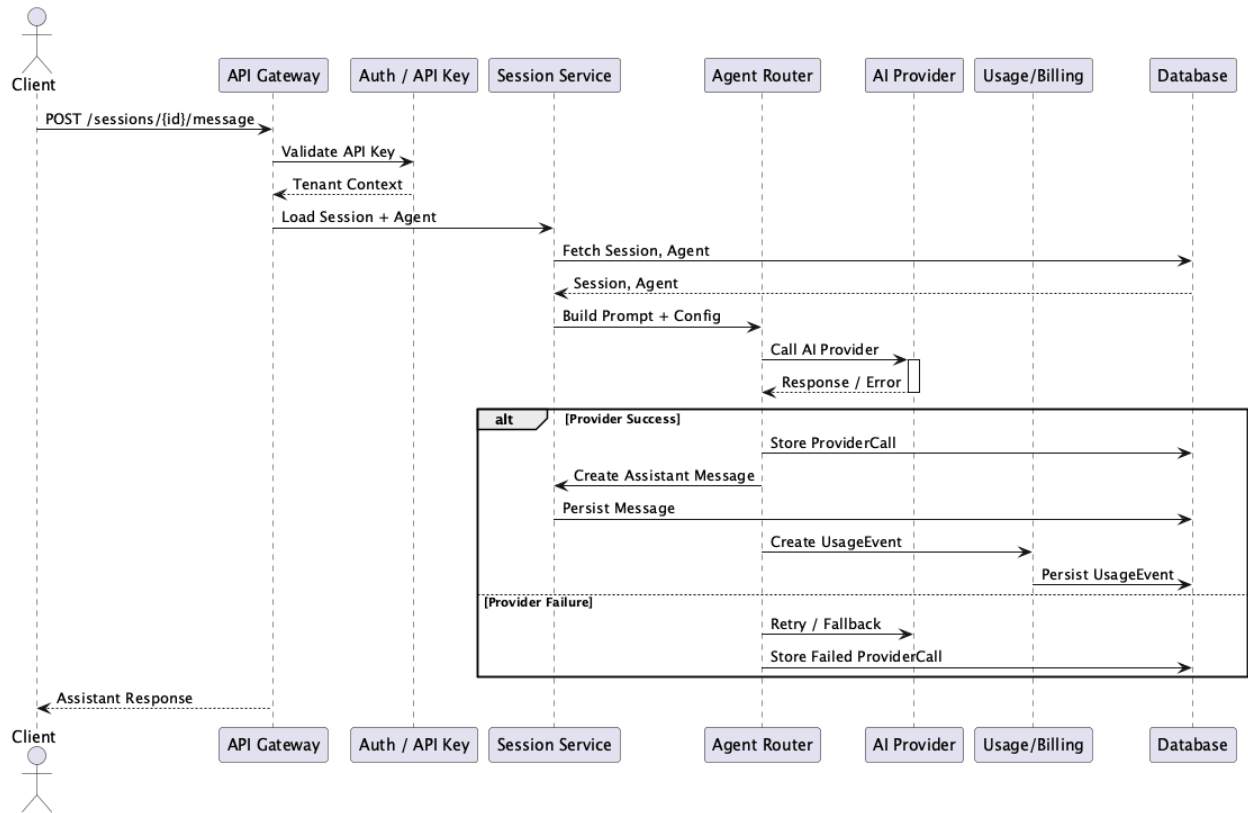
The system is designed to scale from MVP to enterprise deployment, with clear boundaries between tenants, agents, sessions, and billing—making it suitable for regulated, high-trust environments such as healthcare.

# VocalBridge Ops - Simplified System Architecture

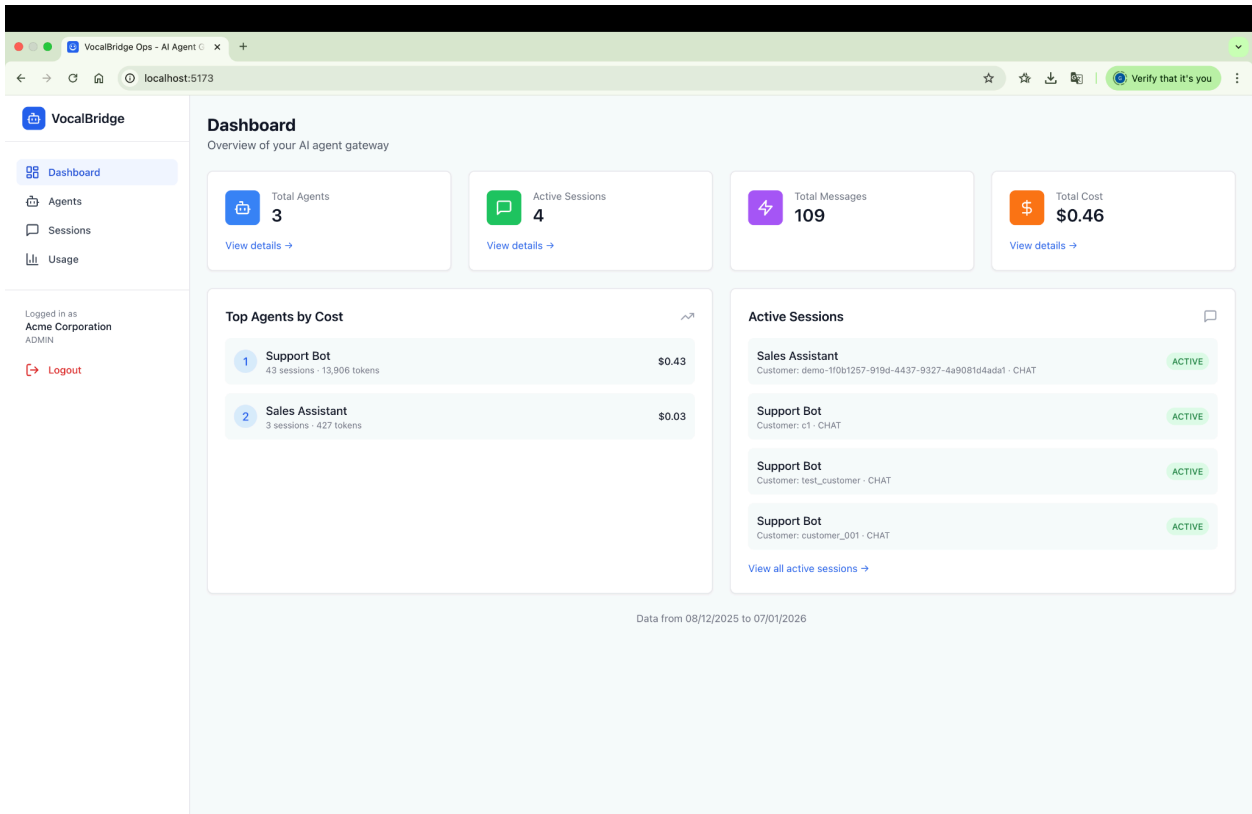




# VocalBridge Ops – Runtime Request → Provider → Billing Flow



# Dashboard



# Agents

VocalBridge

Dashboard

Agents

Sessions

Usage

Logged in as

Acme Corporation

ADMIN

Logout

Agents

Manage your AI agents

Create Agent

Test Agent

VENDOR\_B → VENDOR\_A

Inactive

Testing agent

InvoiceLookup

Voice

Temp: 0.5 · Max: 512 tokens

Try Chat

Sales Assistant

VENDOR\_A → VENDOR\_B

Active

Sales assistant for product recommendations and purchase guidance

Temp: 0.8 · Max: 1024 tokens

Try Chat

Support Bot

VENDOR\_A

Active

Customer support assistant for handling inquiries and order lookups

Temp: 0.7 · Max: 1024 tokens

Try Chat

localhost:5173/agents

# Sessions

## 1. Sessions List

VocalBridge

Dashboard

Agents

Sessions

Usage

Logged in as  
Acme Corporation  
ADMIN

Logout

Sessions

View and manage conversation sessions

+ New Session

Search by agent, customer ID, or session ID...

All Status

All Agents

Showing 11 of 11 sessions

Test Agent

Customer: demo-1f0b1257-919d-4437-9327-4a9081d4ada1 · CHAT

07/01/2026, 09:50:38 ENDED

Sales Assistant

Customer: demo-1f0b1257-919d-4437-9327-4a9081d4ada1 · CHAT

07/01/2026, 09:47:02 ACTIVE

Sales Assistant

Customer: demo-1767758616576 · CHAT

07/01/2026, 09:33:36 ENDED

Sales Assistant

Customer: demo-1767758579272 · CHAT

07/01/2026, 09:32:59 ENDED

Sales Assistant

Customer: demo-1767758515229 · CHAT

07/01/2026, 09:31:55 ENDED

Support Bot

Customer: c1 · CHAT

07/01/2026, 02:50:09 ACTIVE

Support Bot

Customer: test\_customer · CHAT

05/01/2026, 18:02:44 ENDED

## 2. Session Chat

VocalBridge Ops - AI Agent

localhost:5173/sessions/1e7ab480-5d16-4eca-90ee-4f8a7bec1946

Verify that it's you

VocalBridge

Dashboard

Agents

Sessions

Usage

Logged in as  
Acme Corporation  
ADMIN

Logout

Support Bot

Customer: customer\_001 - CHAT

ACTIVE

End Session

my order 456

18:49:46

Tool calls:

InvoiceLookup

18:49:46

({"id":"call\_1767791986432","result":null,"error":"Order not found: 456"})

18:49:46

I couldn't find that order in our system. Please double-check the order number and try again, or contact support if you need assistance.

18:49:46

my order 12345

18:49:53

Tool calls:

InvoiceLookup

18:49:53

({"id":"call\_1767791993480","result":{"orderId":"12345","invoiceNumber":"INV-2024-12345","status":"shipped","statusDescription":"Order has been shipped and is on its way","amount":99.99,"currency":"USD","customerName":"John Doe","createdAt":"2024-01-10T10:00:00Z","updatedAt":"2024-01-12T14:30:00Z","trackingNumber":"1Z999AA10123456784","estimatedDelivery":"2024-01-18","itemCount":2,"items":[{"name":"Wireless Headphones","quantity":1,"price":79.99}, {"name":"USB-C Cable","quantity":2,"price":10}]},"result":{"orderId":"12345","invoiceNumber":"INV-2024-12345","status":"shipped","statusDescription":"Order has been shipped and is on its way","amount":99.99,"currency":"USD","customerName":"John Doe","createdAt":"2024-01-10T10:00:00Z","updatedAt":"2024-01-12T14:30:00Z","trackingNumber":"1Z999AA10123456784","estimatedDelivery":"2024-01-18","itemCount":2,"items":[{"name":"Wireless Headphones","quantity":1,"price":79.99}, {"name":"USB-C Cable","quantity":2,"price":10}]},"error":null})

18:49:53

I found your order #12345!

18:49:53

\*\*Status\*\*: Order has been shipped and is on its way

\*\*Invoice\*\*: INV-2024-12345

\*\*Amount\*\*: USD 99.99

\*\*Tracking Number\*\*: 1Z999AA10123456784

\*\*Estimated Delivery\*\*: 2024-01-18

Text

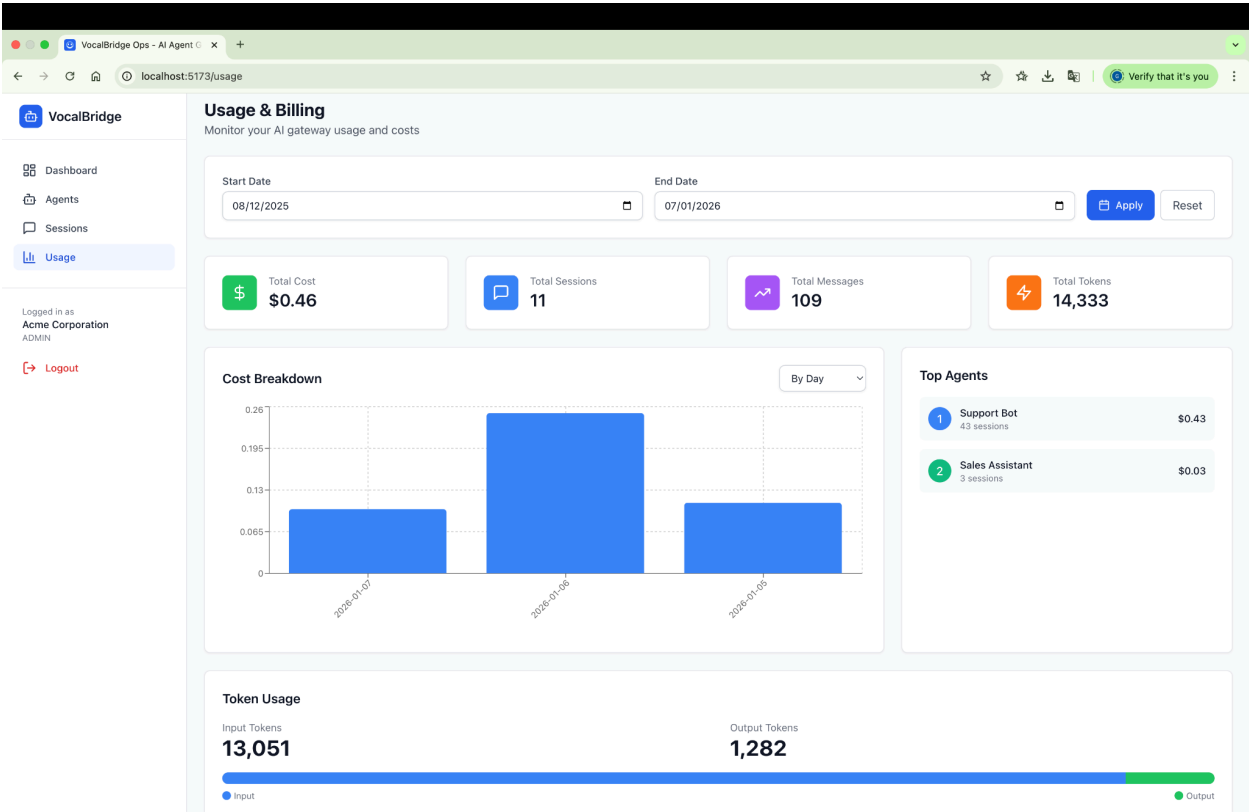
Voice

Type a message...

26 messages · 6,624 tokens · \$0.12 cost

# Usage

## 1. Day-Wise



2. Provider Wise

