

Seagulls  
- sky is the limit

# Wells Fargo Technology Hackathon 2025

Gen AI for Platform Support – Integrated platform Environment

---

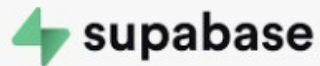
Se<sup>a</sup>g<sub>u</sub>llsV25



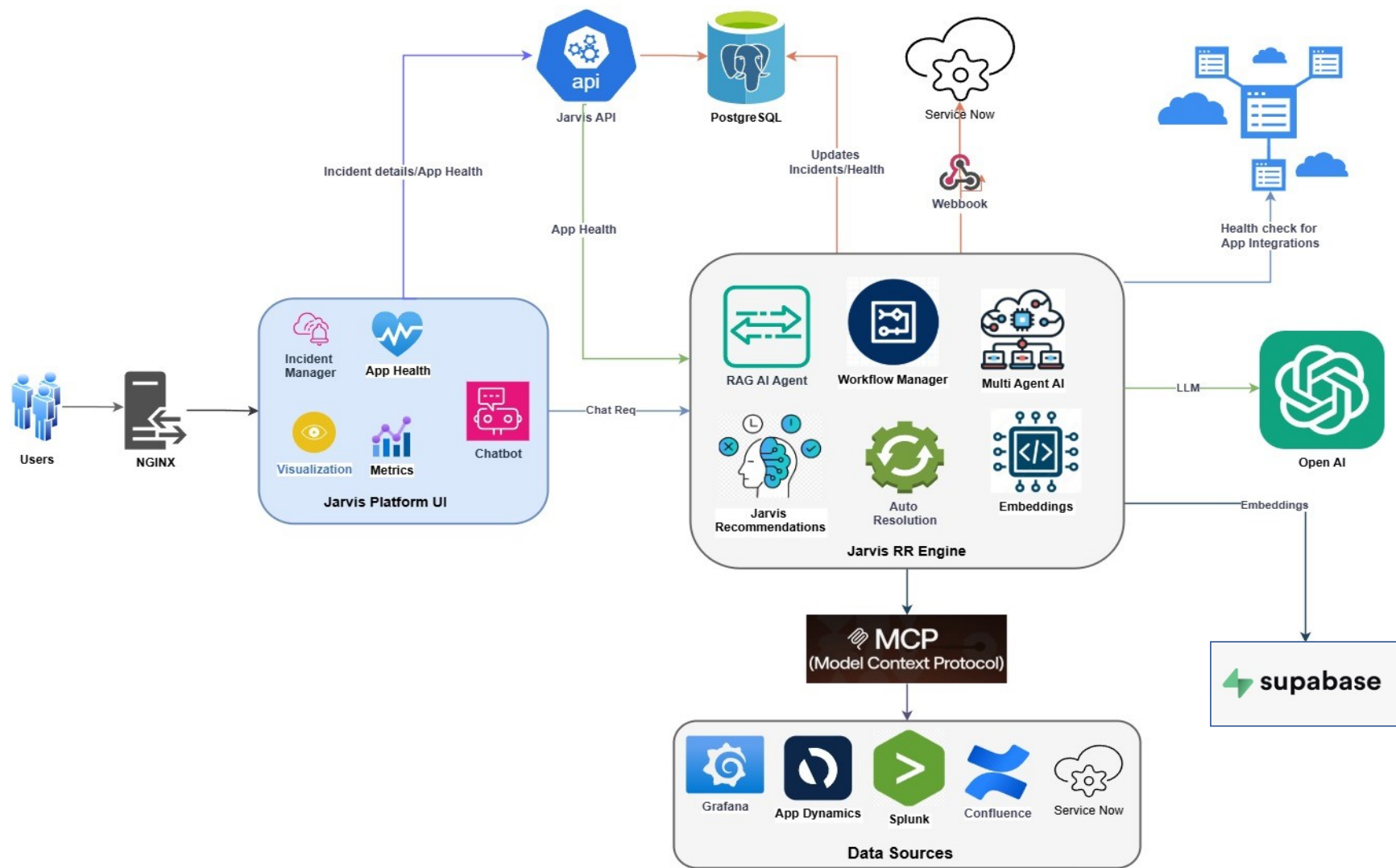
**Jarvis-** One stop AI solution for Platform Support

*Trivia – each letter used in SeagullsV25 is written using different font, font size, style and font color 😊*

# Jarvis- Diversified Technology Stack



# Jarvis- Architecture



# “Jarvis” summary



## **Problem Statement:**

*Develop a gen-AI enabled Integrated platform environment that provides an integrated console to platform support*

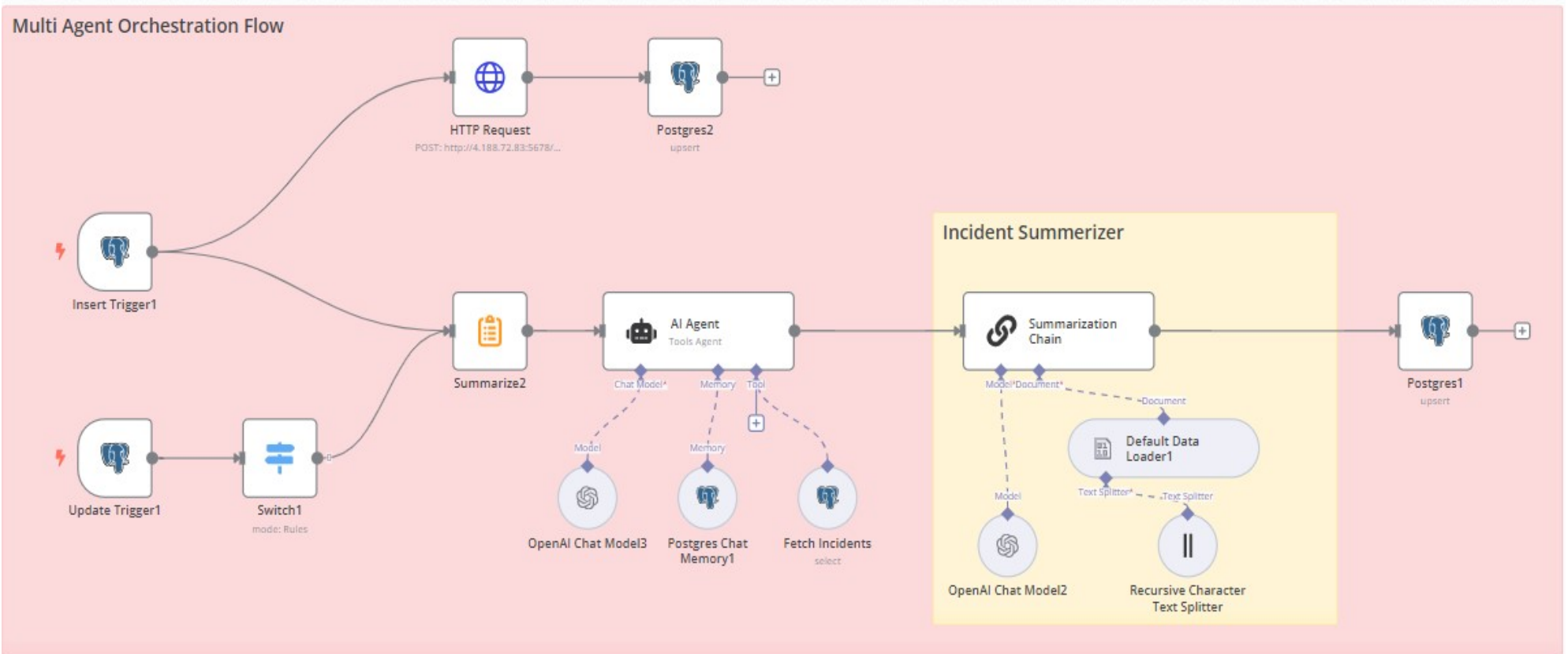
## **Solution:**

- ✓ **GenAI-powered** workflows to enhance key platform capabilities.
- ✓ **Webhook integration** with ServiceNow to trigger GenAI workflows for proactive recommendations, RCA summaries, and resolutions.
- ✓ **User-friendly UI with an AI-powered chatbot**, offering incident management, triaging, and resolution capabilities, along with additional features to streamline daily operations..
- ✓ **Seamless data integration** from enterprise tools like ServiceNow, Grafana, Splunk, and Confluence.
- ✓ **MCP-enabled architecture** for efficient context management and smooth integrations.
- ✓ **APIs for easy integration** between the UI and GenAI workflows.

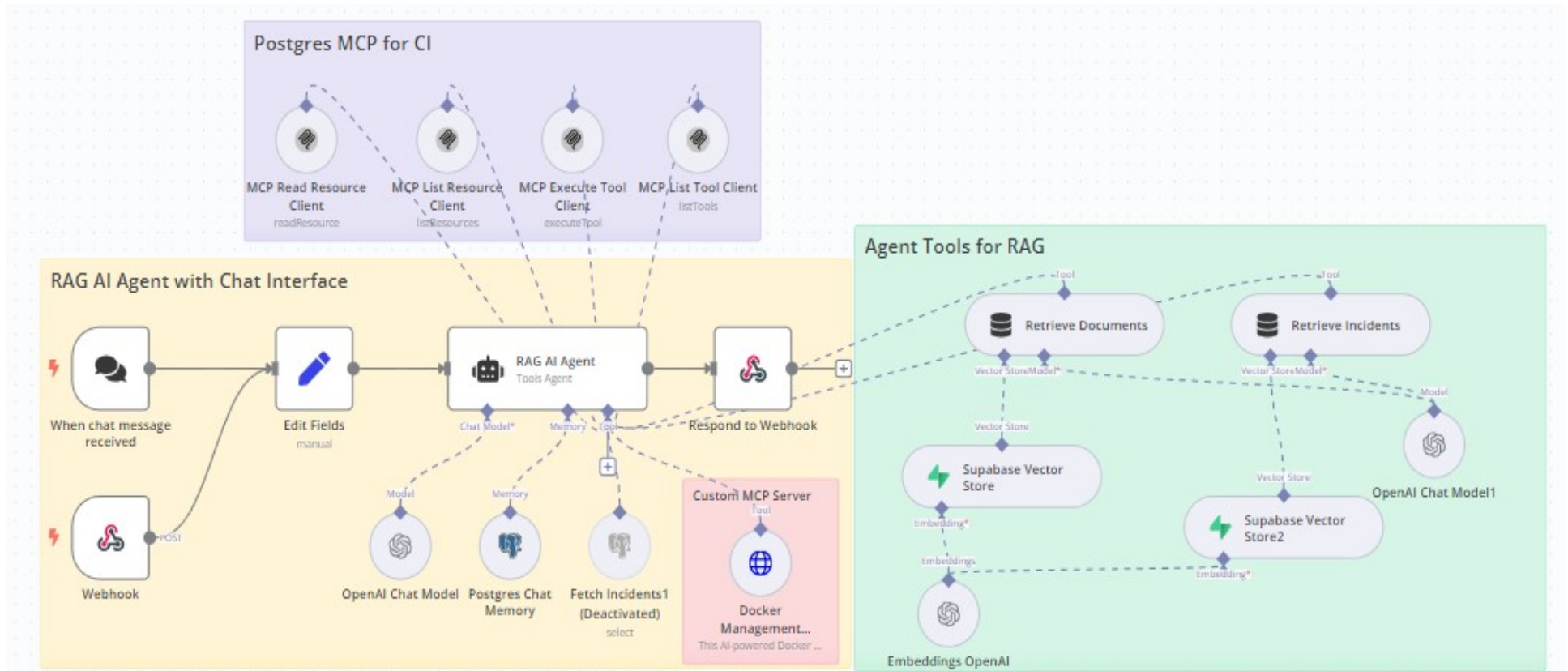
## **Novelty:**

- ✓ **Self-healing and automated incident resolution** in ServiceNow using GenAI-driven workflows.
- ✓ **Real-time data synchronization** for new incidents and data source updates into a vector database.
- ✓ **Configurable workflows** for RAG-based retrieval and data synchronization.
- ✓ **Multi-agent orchestration** to streamline task delegation and execution.
- ✓ **Application and dependency health dashboard** for enhanced monitoring.
- ✓ **Portfolio health view** tailored for managers and leadership teams.
- ✓ **Comprehensive platform metrics** to track key capabilities and performance.
- ✓ **Integrated, customizable toolkit** (e.g., Docker) with framework-supported workflows.

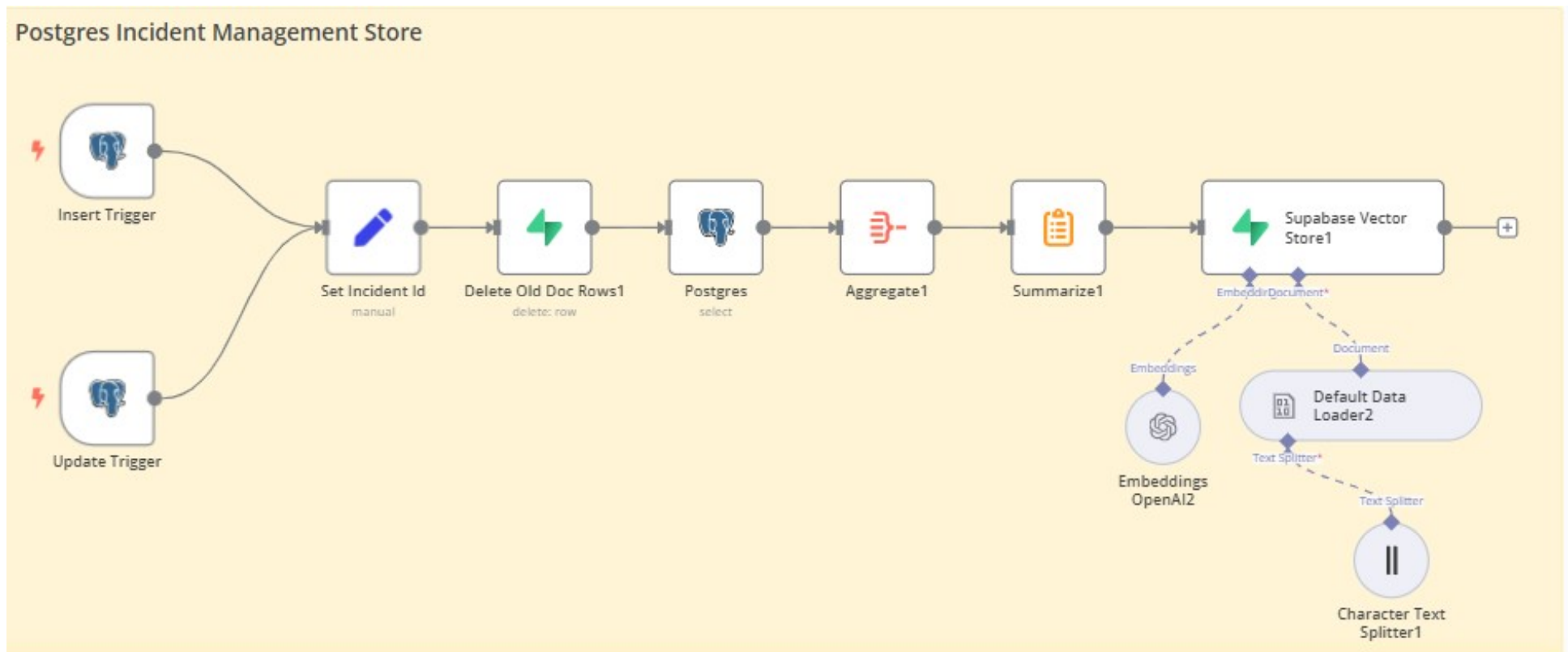
# Multi Agent Orchestration workflow



## Incident Recommendation & Resolution MCP workflow

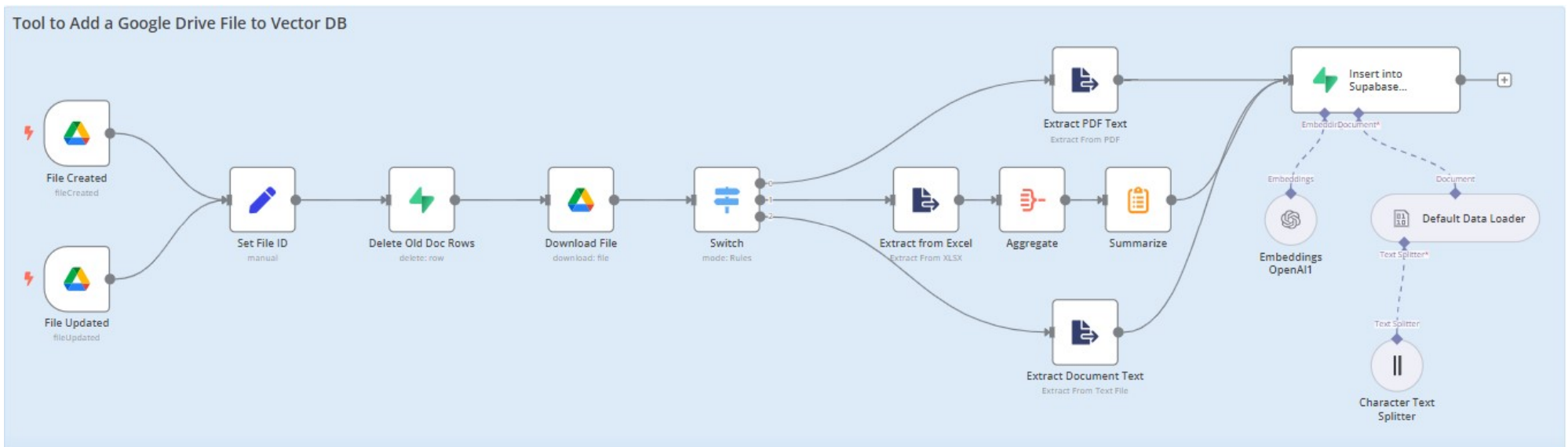


## Incident data sync workflow





# Knowledge source data sync workflow





# Challenges

- ✓ **Real time integrations** with Enterprise Tools like Service now, Splunk, Appdynamics
- ✓ **Creation of sample** Datasets for incidents and telemetry related data
- ✓ **Hosting** infrastructure for the complete solution
- ✓ **Cost** of Professional AI models
- ✓ **Accuracy** of Open source AI models

# Roadmap

- ✓ **Extend the solution with Real time integrations** for Enterprise Tools like Service now, Splunk, Appdynamics
- ✓ **Single click Paging** when any application dependency is down
- ✓ End to end Incident resolution **updates** in **Service now ticket**
- ✓ **Retry** of failed automated resolutions
- ✓ **Role** based authentication and authorisation

## NFRs Implemented

- ✓ **Performance:** The platform delivers fast response times, ensuring seamless integration with enterprise infrastructure.
- ✓ **Scalability:** Jarvis components (UI, APIs, RR engine) are designed for easy scalability.
- ✓ **Security:** Webhooks are secured using key-value authorization, with the flexibility to extend to OAuth.
- ✓ **Reliability:** The system efficiently handles high volumes while maintaining stability.
- ✓ **Usability:** Outputs are user-friendly, responsive, intuitive, and accessible to diverse audiences.
- ✓ **Accuracy:** Generated content is relevant, coherent, and free from factual errors.
- ✓ **Ethical Considerations:** Built on OpenAI's platform, ensuring no stereotypes or harmful content in generated outputs.
- ✓ **Maintainability:** Configurable workflows allow easy updates and adaptability to new requirements or technologies.
- ✓ **Auditability:** Chat interactions are logged in a PostgreSQL database, and workflow executions are fully audited.

## NFRs Planned

- ✓ **Security:** The UI supports integration with enterprise authentication and authorization mechanisms, including Single Sign-On (SSO).
- ✓ **Reliability:** The system ensures high availability, especially when transitioned to a multi-active architecture.
- ✓ **Usability:** Accessibility features have been enhanced for an improved user experience.

## Test Results and Screenshots

# Jarvis RR Engine: Knowledge Source Creation & Updates

## Current Knowledge Hub

Search in Drive

My Drive > hackathon > dataset

Type

People

Modified

Source

| Name          | Owner | Last modified | File size |
|---------------|-------|---------------|-----------|
| dataset-1.pdf | me    | 22 Mar 2025   | 103 KB    |
| dataset-2.pdf | me    | 22 Mar 2025   | 102 KB    |
| dataset-3.pdf | me    | 22 Mar 2025   | 247 KB    |

NaveenOrg

Free

snaveen1603@gmail.com's Project

Enable branching

Connect

Table Editor

schema public

+ New table

Search tables...

documents

incidents

Filter

Sort

Insert

RLS disabled

Role postgres

Refresh

|     | id   | content                                     | metadata  | embedding               |
|-----|------|---|---|-------------------------|
| 141 | int8 | cations from start to end 3. Confirmed int  | {\"loc\":{\"lines\":{\"to\":194,\"from\":174}},\"sour | [-0.017626897,0.0124816 |
| 142 |      | ap space\" errors. ● Root Cause: Memory     | {\"loc\":{\"lines\":{\"to\":214,\"from\":194}},\"sour | [-0.02202673,0.0137840  |
| 143 |      | alth checks 3. Establish resource consum    | {\"loc\":{\"lines\":{\"to\":235,\"from\":214}},\"sour | [-0.033060934,0.051055  |
| 144 |      | n servers 2. Processed backlog of pending   | {\"loc\":{\"lines\":{\"to\":258,\"from\":235}},\"sour | [-0.022535585,0.053905  |
| 145 |      | tch jobs accessing same tables caused da    | {\"loc\":{\"lines\":{\"to\":282,\"from\":258}},\"sour | [-0.04667811,0.0546732  |
| 146 |      | Subcategory: OCR Processing ● Priority:     | {\"loc\":{\"lines\":{\"to\":303,\"from\":282}},\"sour | [-0.023807153,0.079720  |
| 147 |      | yed processing of approximately 1,500 lo    | {\"loc\":{\"lines\":{\"to\":332,\"from\":303}},\"sour | [-0.008830733,0.02649   |
| 148 |      | ges O Check for notifications from paym     | {\"loc\":{\"lines\":{\"to\":357,\"from\":332}},\"sour | [-0.03859044,-0.010990  |
| 149 |      | firm successful payment reconciliation 4.   | {\"loc\":{\"lines\":{\"to\":380,\"from\":357}},\"sour | [-0.033175424,0.050156  |
| 150 |      | Updated rate tables with correct product    | {\"loc\":{\"lines\":{\"to\":402,\"from\":380}},\"sour | [-0.02816509,0.0390746  |
| 151 |      | g team (76 users) ● Description: Commer     | {\"loc\":{\"lines\":{\"to\":424,\"from\":402}},\"sour | [-0.003211944,0.0513137 |
| 152 |      | nt deadlock detection and automatic retr    | {\"loc\":{\"lines\":{\"to\":446,\"from\":424}},\"sour | [-0.009814446,0.059797  |
| 153 |      | for all regulatory requirements 2. Verifie  | {\"loc\":{\"lines\":{\"to\":472,\"from\":446}},\"sour | [-0.008133517,0.0526793 |
| 154 |      | ● Resource contention ● Network latenc      | {\"loc\":{\"lines\":{\"to\":500,\"from\":473}},\"sour | [-0.031851046,0.035319  |
| 155 |      | astructure O Check network latency betv     | {\"loc\":{\"lines\":{\"to\":524,\"from\":500}},\"sour | [-0.04133284,0.0360198  |
| 156 |      | ication failures between validation and ur  | {\"loc\":{\"lines\":{\"to\":548,\"from\":524}},\"sour | [-0.034921054,0.044296  |
| 157 |      | ID: INC-2025-04220 ● Title: Memory Les      | {\"loc\":{\"lines\":{\"to\":570,\"from\":548}},\"sour | [-0.040768135,0.0769171 |
| 158 |      | ality for various document types ● Time t   | {\"loc\":{\"lines\":{\"to\":600,\"from\":570}},\"sour | [-0.04093784,0.064383   |
| 159 |      | ation logs for error patterns O Verify rece | {\"loc\":{\"lines\":{\"to\":626,\"from\":600}},\"sour | [-0.011234007,0.0561205 |
| 160 |      | edures Validation Steps 1. Verify data con  | {\"loc\":{\"lines\":{\"to\":633,\"from\":626}},\"sour | [0.0058664996,-0.0023   |

Page 1 of 1

100 rows

40 records

Refresh

# Jarvis RR Engine: Knowledge Source Creation & Updates

Updated Knowledge Hub when a new dataset gets added

My Drive > hackathon > dataset

Type | People | Modified | Source

| Name          | Owner | Last modified | File size |
|---------------|-------|---------------|-----------|
| dataset-1.pdf | me    | 22 Mar 2025   | 103 KB    |
| dataset-2.pdf | me    | 22 Mar 2025   | 102 KB    |
| dataset-3.pdf | me    | 22 Mar 2025   | 247 KB    |
| dataset5.txt  | me    | 09:24         | 565 bytes |

NaveenOrg

Free

snaveen1603@gmail.com's Project

Enable branching

Connect

Table Editor

Delete 1 row

Export

schema public

+ New table

Search tables...

documents

incidents

|  | id  | intB | content                                     | text | metadata   | jsonb | embedding                | vector | + |
|--|-----|------|---|------|--|-------|--------------------------|--------|---|
|  | 142 |      | ap space" errors. ● Root Cause: Memory      |      | { "loc": { "lines": { "to": 214, "from": 194 } }, "sour    |       | [-0.02202673, 0.0137840  |        |   |
|  | 143 |      | alth checks 3. Establish resource consum    |      | { "loc": { "lines": { "to": 235, "from": 214 } }, "sour    |       | [-0.033060934, 0.051055  |        |   |
|  | 144 |      | n servers 2. Processed backlog of pending   |      | { "loc": { "lines": { "to": 258, "from": 235 } }, "sour    |       | [-0.022535585, 0.053905  |        |   |
|  | 145 |      | tch jobs accessing same tables caused da    |      | { "loc": { "lines": { "to": 282, "from": 258 } }, "sour    |       | [-0.04667811, 0.05467321 |        |   |
|  | 146 |      | Subcategory: OCR Processing ● Priority:     |      | { "loc": { "lines": { "to": 303, "from": 282 } }, "sour    |       | [-0.023807153, 0.0797201 |        |   |
|  | 147 |      | yed processing of approximately 1,500 lo    |      | { "loc": { "lines": { "to": 332, "from": 303 } }, "sour    |       | [-0.008830733, 0.026495  |        |   |
|  | 148 |      | ges O Check for notifications from paym     |      | { "loc": { "lines": { "to": 357, "from": 332 } }, "sour    |       | [-0.03859044, -0.010990  |        |   |
|  | 149 |      | firm successful payment reconciliation 4.   |      | { "loc": { "lines": { "to": 380, "from": 357 } }, "sour    |       | [-0.033175424, 0.0501561 |        |   |
|  | 150 |      | Updated rate tables with correct product    |      | { "loc": { "lines": { "to": 402, "from": 380 } }, "sour    |       | [-0.02816509, 0.0390746  |        |   |
|  | 151 |      | g team (76 users) ● Description: Commer     |      | { "loc": { "lines": { "to": 424, "from": 402 } }, "sour    |       | [-0.003211944, 0.0513137 |        |   |
|  | 152 |      | nt deadlock detection and automatic retr    |      | { "loc": { "lines": { "to": 446, "from": 424 } }, "sour    |       | [-0.009814446, 0.059797  |        |   |
|  | 153 |      | for all regulatory requirements 2. Verified |      | { "loc": { "lines": { "to": 472, "from": 446 } }, "sour    |       | [-0.008133517, 0.0526793 |        |   |
|  | 154 |      | Knowledge Article 99: CXXX                  |      | { "loc": { "lines": { "to": 500, "from": 473 } }, "sour    |       | [-0.031851046, 0.0353192 |        |   |
|  | 155 |      | database connection error                   |      | { "loc": { "lines": { "to": 524, "from": 500 } }, "sour    |       | [-0.04133284, 0.0360198  |        |   |
|  | 156 |      | Overview: The article                       |      | { "loc": { "lines": { "to": 548, "from": 524 } }, "sour    |       | [-0.034921054, 0.044296  |        |   |
|  | 157 |      | address the incidents                       |      | { "loc": { "lines": { "to": 570, "from": 548 } }, "sour    |       | [-0.040768135, 0.0769171 |        |   |
|  | 158 |      | related to CXXX Postgres DB                 |      | { "loc": { "lines": { "to": 600, "from": 570 } }, "sour    |       | [-0.040937884, 0.0643831 |        |   |
|  | 159 |      | connection error.                           |      | { "loc": { "lines": { "to": 626, "from": 600 } }, "sour    |       | [-0.011234007, 0.0561205 |        |   |
|  | 160 |      | Application was unable to                   |      | { "loc": { "lines": { "to": 633, "from": 626 } }, "sour    |       | [0.0058664995, -0.0023   |        |   |
|  | 202 |      | connect to DB, during                       |      | { "loc": { "lines": { "to": 17, "from": 1 } }, "source": " |       | [-0.024504941, 0.0221125 |        |   |

Save changes

Cancel changes

Set to NULL

Page 1

of 1

100 rows

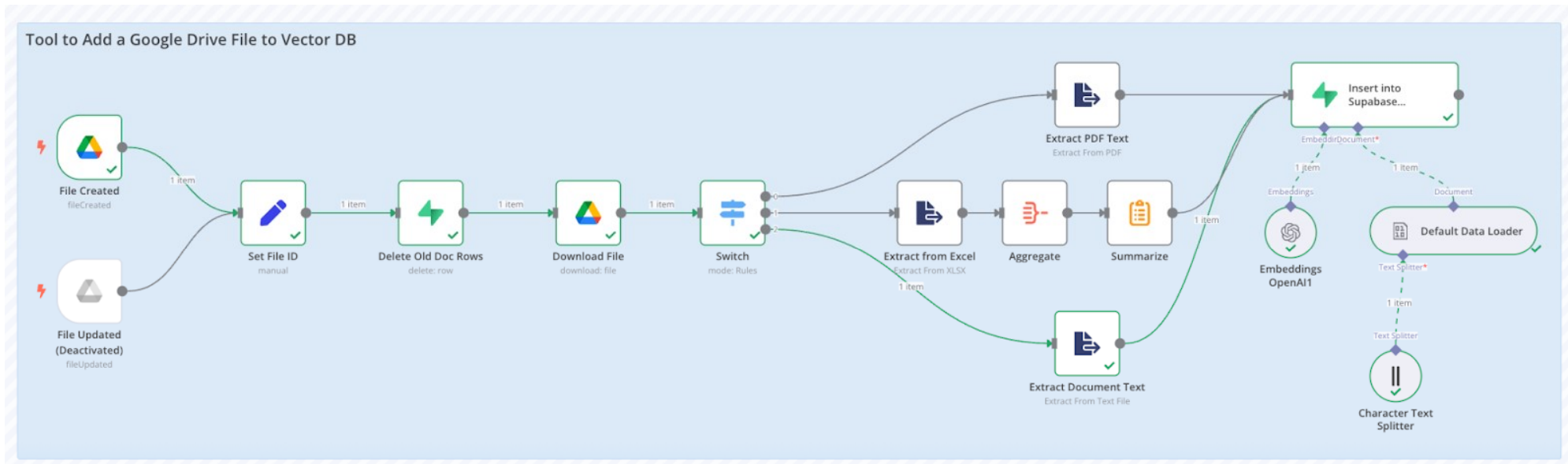
41 records

Refresh

A new row (202) was automatically added to the vector store along with the knowledge source.

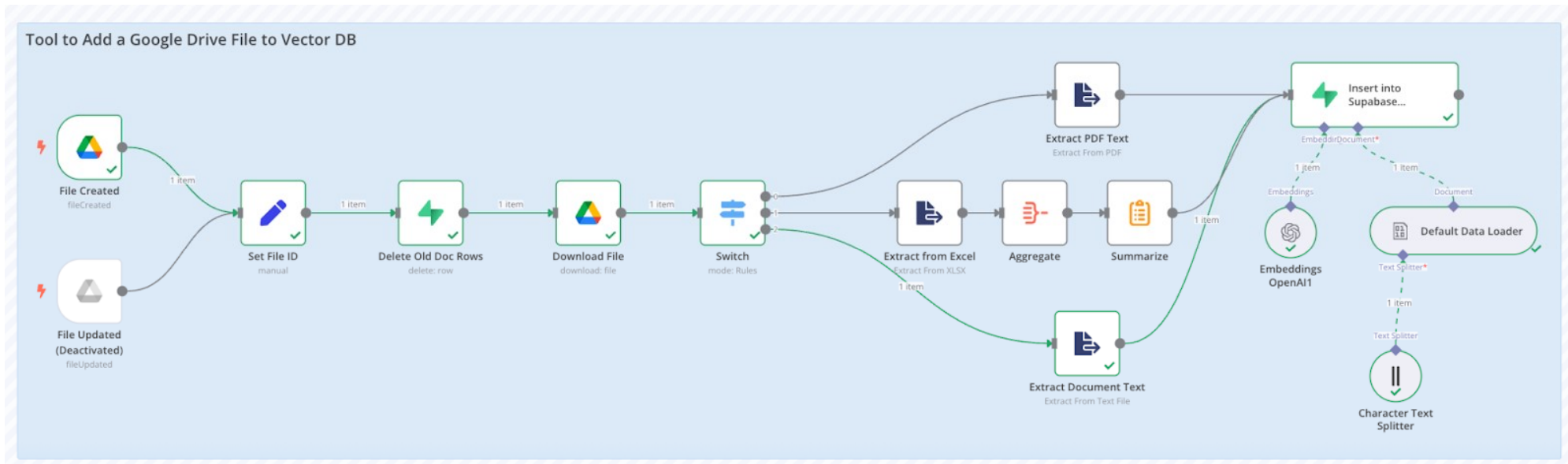
# Jarvis RR Engine: Knowledge Source Creation & Updates

## Invoked Flow



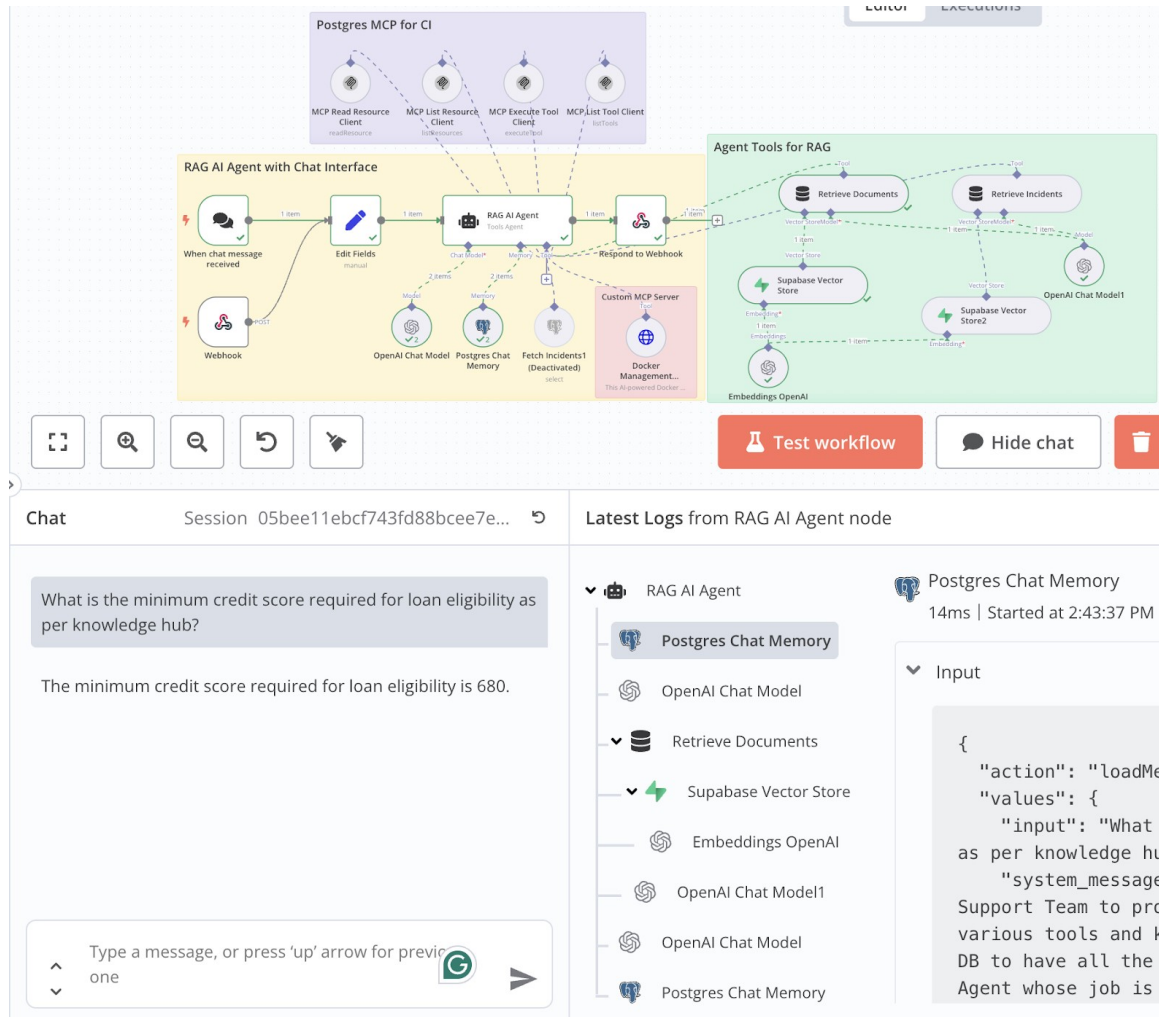
# Jarvis RR Engine: Knowledge Source Creation & Updates

## Invoked Flow

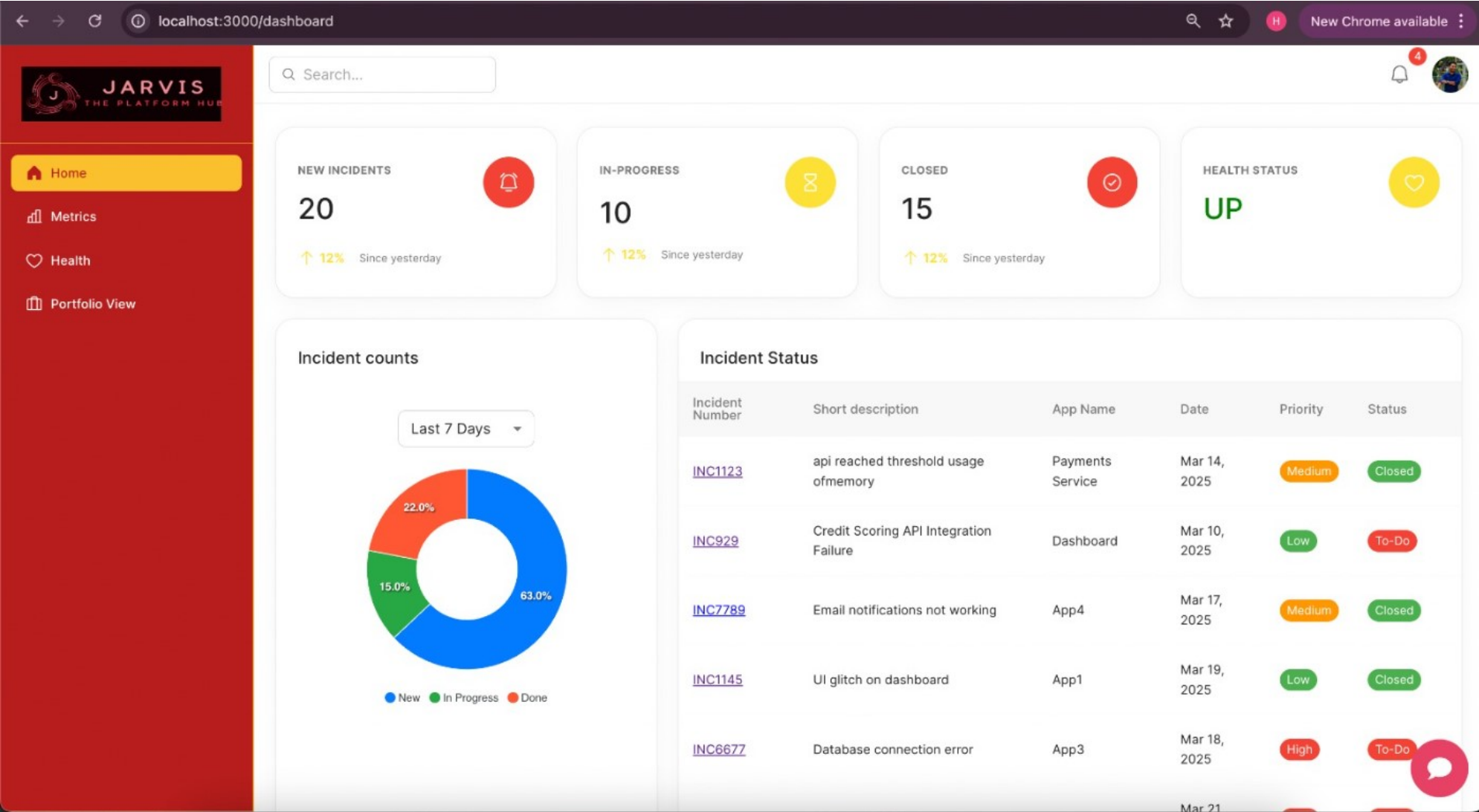




# Jarvis RR Engine: Real time Knowledge Source Updates



# Jarvis UI: Homepage



## Jarvis UI: App dependency health View

localhost:3000/dashboard/health

Search...

JARVIS THE PLATFORM HUB

- Home
- Metrics
- Health
- Portfolio View

### Application Architecture View

Payments

```
graph TD; PD[Populations Database] --> P[Payments]; CD[Cache Data] --> P; AU[AppUpstream] --> P; TT[Trigger topic] --> P; P --> OT[Output topic]; P --> EP[Experience page]; P --> OLB[OLB];
```

The diagram illustrates the application architecture for the 'Payments' application. It shows a central 'Payments' node (highlighted in blue) with a green checkmark, indicating it is healthy. The 'Payments' application depends on four upstream components: 'Populations Database' (green checkmark), 'Cache Data' (red X), 'AppUpstream' (red X), and 'Trigger topic' (yellow triangle). The 'Payments' application also has three downstream components: 'Output topic' (green checkmark), 'Experience page' (green checkmark), and 'OLB' (red X). A red notification bubble with the number '4' is visible in the top right corner.

## Jarvis UI: Portfolio health View

localhost:3000/dashboard/portfolioview

JARVIS THE PLATFORM HUB

Search...

Home

Metrics

Health

Portfolio View

### Portfolio View

Lending L3 L2

```
graph LR; Lending((Lending)) --- HomeLoan((HomeLoan)); Lending --- AutoLoan((AutoLoan)); HomeLoan --- Accounts((Accounts)); HomeLoan --- CustomerCare1((CustomerCare)); Accounts --- Balance((Balance)); Accounts --- UpdateInfo((UpdateInfo)); CustomerCare1 --- Feedback1((Feedback)); CustomerCare1 --- Help1((Help)); AutoLoan --- Payments((Payments)); AutoLoan --- CustomerCare2((CustomerCare)); Payments --- DigitalWallet((Digital Wallet)); Payments --- EMI((EMI)); CustomerCare2 --- Help2((Help)); CustomerCare2 --- Feedback2((Feedback));
```

Balance ✓

UpdateInfo ✓

Feedback ✓

Help ✗

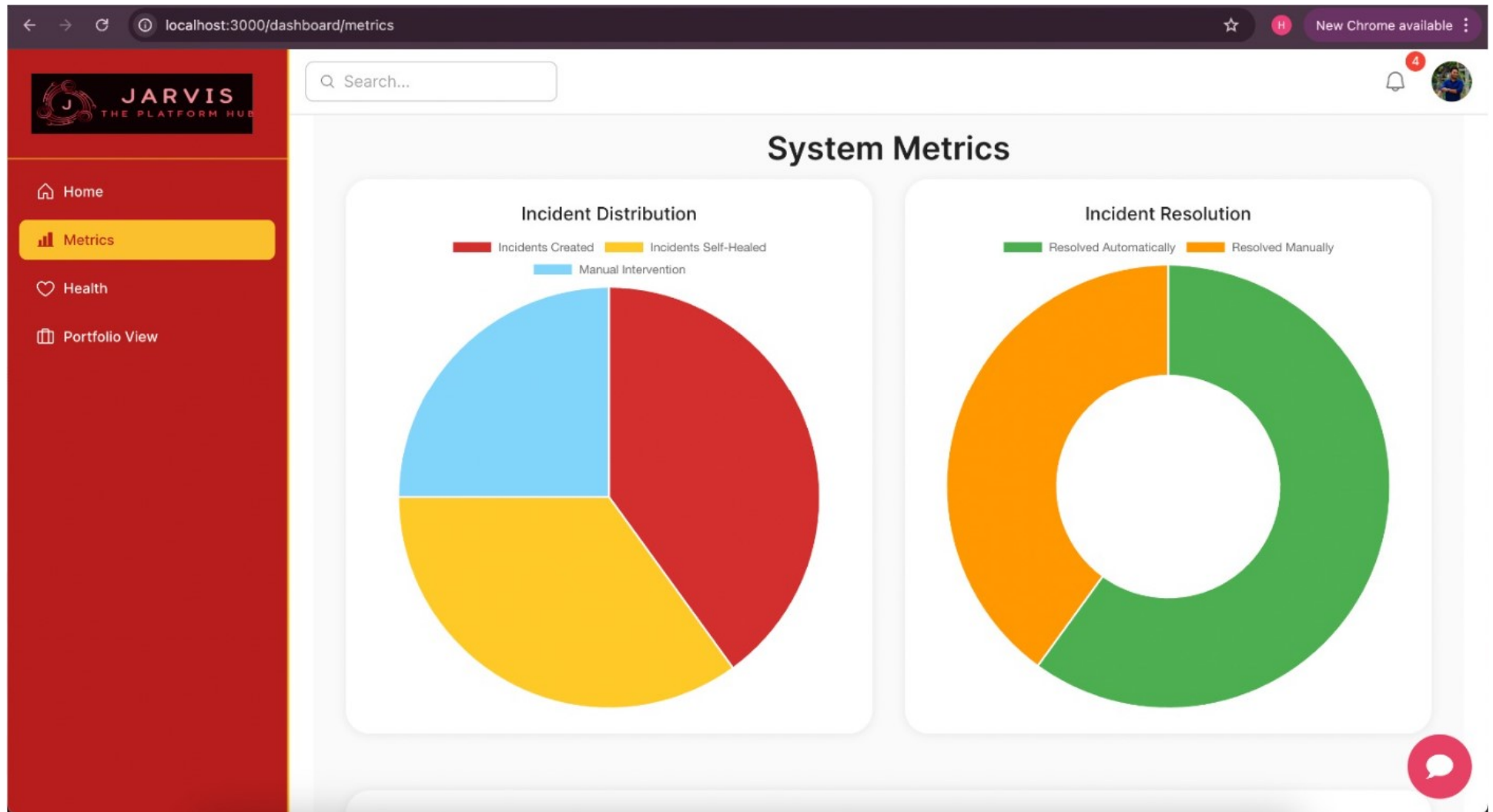
Digital Wallet ✓

EMI ✓

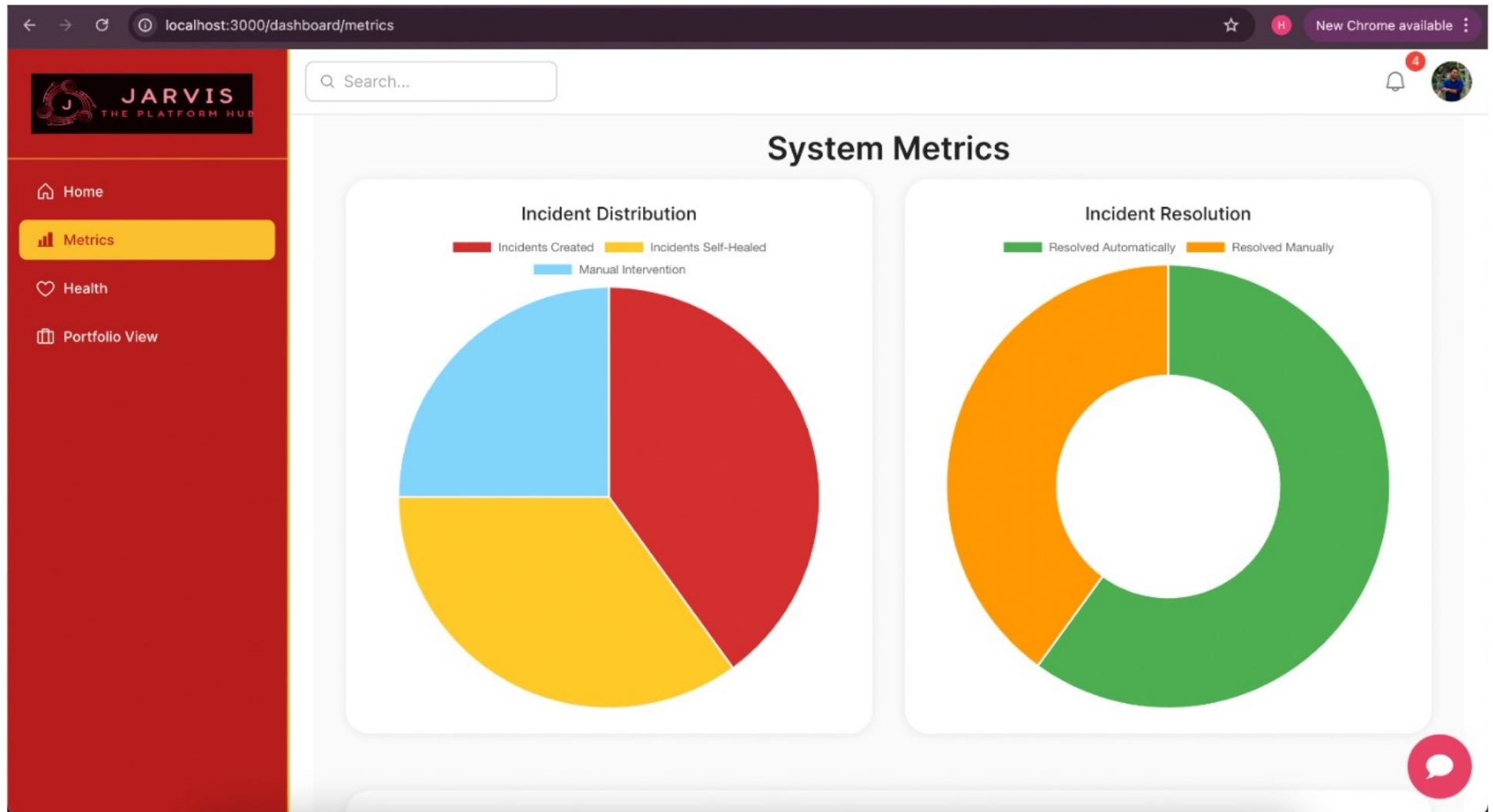
Help ✓

Feedback ⚠

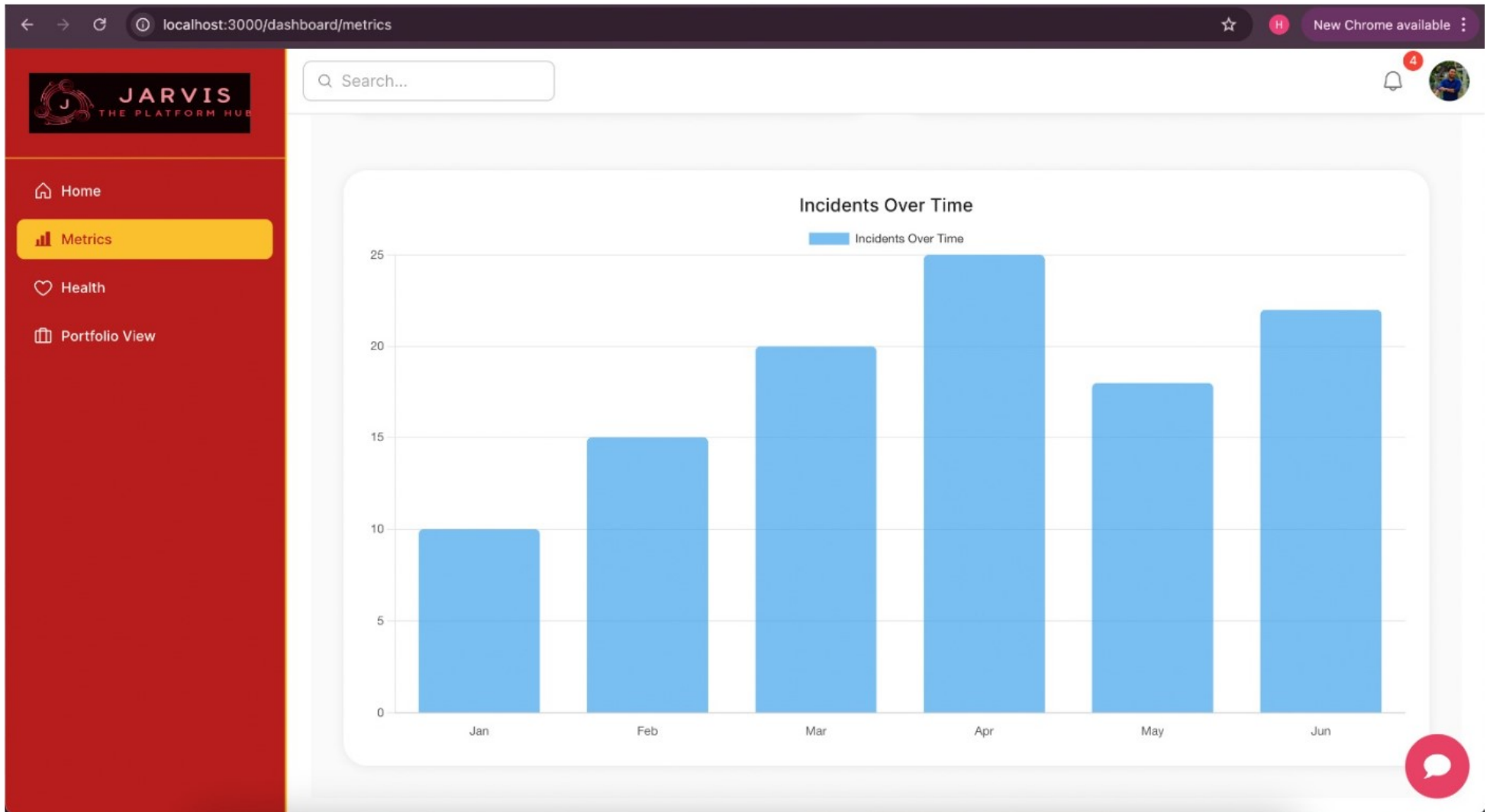
# Jarvis UI: Metrics



# Jarvis UI: Metrics



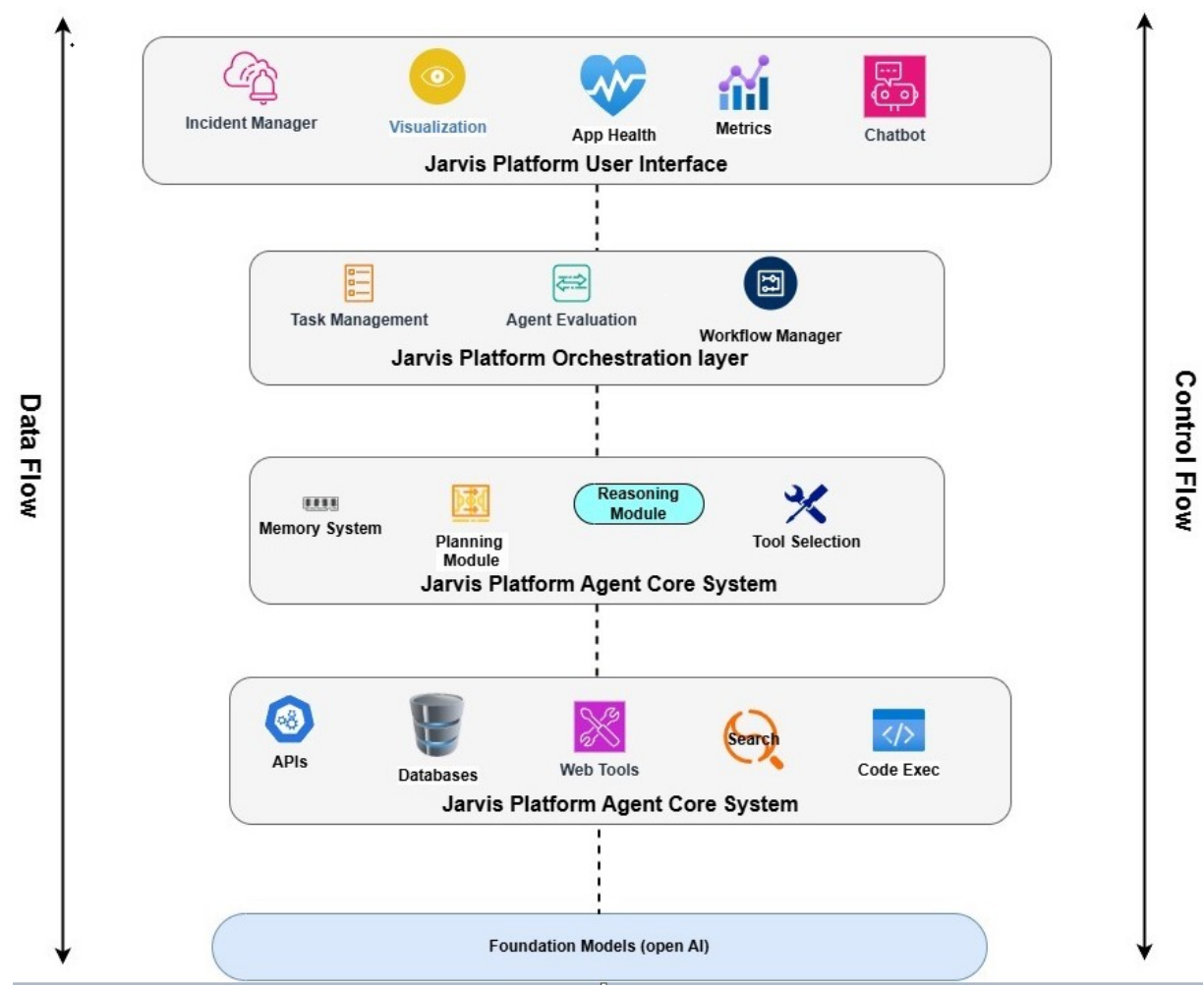
## Jarvis UI: Metrics





## Appendix

# Jarvis- Control and Data flow



Thank You