

IPE Console - Intelligent Platform Engineering System

Team: IRIS

Project Overview

The Integrated Platform Environment (IPE) Console is a unified, intelligent platform for modern DevOps teams, designed to streamline incident management and platform operations. Our hackathon entry showcases a next-generation console that centralizes GitHub, OpenShift, Jira, telemetry, and dependencies in a single user-friendly interface empowered by Agentic AI.

Problem Statement

Devops teams spend most of their time on tool migrations, upgrading middleware, pipeline setup, middleware setup, post deployment validations, triggering builds and restarting the applications. Besides performing their day-to-day job, they also need to obtain information about the existing setup, such as middleware versions, builds versions, and application information, migration information, openshift cluster information, monitoring tools, AVI load balancing, Kafka, MQ and many other middle ware tools that are spread across multiple tools which is a time-consuming task.

Our Proposed Solution:

Agentic AI is designed to automate Devops day-to-day activities, it provides basic infrastructure details of any application and its environments, recommends, or point to necessary confluence pages for generic issues. Its also provides announcements banner which notifies about the current outages. It also provides different metrics related to the technologies being used or being migrated.

The IPE Console resolves these challenges with:

- **Seamless Integration:** GitHub commits, OpenShift, Jira issues, and platform alerts in one place
- **Unified Interface:** Tab-based navigation for Incidents, Jira, Telemetry, Dependencies, and AI-powered Recommendations
- **Natural Language Querying:** Chat-style AI Assistant for contextual questions across systems (e.g., "Show high CPU issues" or "What affects the API gateway?")
- **Real-time Incident Panel:** Status-tagged incidents with impact, priority, service and timestamp tagging

- Agentic Toolset: One-click health checks, RCA generation, MCP querying, and dependency map exploration

Core Features (UI Driven)

1. Incidents Tab

- Live incident feed with priority/status badges
- Filters based on NLP queries (e.g., "High priority open incidents")
- Team tagging and affected services list

2. Jira Tab

- JQL-powered Jira issue search
- Click-to-create incident from JIRA
- Priority and assignee details visible instantly

3. Telemetry Tab

- Environment-wise performance metrics
- CPU, memory, latency usage with visual progress bars
- Critical/warning indicators for quick triage

4. Dependencies Tab

- Real-time health of upstream/downstream services
- Latency and degradation highlights

5. Recommendations Tab

- AI-generated optimization, security, and performance suggestions
- Severity-tagged insights and actionable recommendations

6. AI Assistant Panel

- Multimodal prompt understanding (Jira, GitHub, OpenShift, MCP)
- Chat interface with live streaming responses
- Cross-platform query routing and summarization

7. Agentic Tools

- Health Check: Pod-level diagnostic with uptime, restarts, resource usage, and node status
- Generate RCA: Auto-filled root cause analysis reports from incident context

- MCP Query: Model Context Protocol diagnostics via system commands (e.g., STATUS service.health)
- Dependency Map: Visual impact analysis of service relationships

8. Alerting:

- Alert the devops teams by updating team channel if any issue occurs

9. Self-Healing:

- By using Agnetic AI self-healing devops methodology is better positioned to improve performance because it reacts instantly based on the rules that it has been defined or using llm to understand the situation and execute existing automations.

Technical Stack

- **Frontend:** React 18 + TypeScript, Tailwind CSS, Framer Motion
- **State & Logic:** Tabs, Context-based Search, Query Handlers (LLM / Jira / GitHub / OpenShift)
- **AI Integration:** GPT4.0, Natural language processing with context-aware classification and response generation
- **Service Integrations:**
 - Jira Service Management (real-time issue sync)
 - GitHub (commit + PR analysis)
 - OpenShift (real-time search and analysis)
 - MCP (model and system state querying)

Security & Access

- Role-based access controls
- Secure API endpoints with audit logging
- Token-based authentication and MFA readiness

Demo Highlights

- Incident Query: "What are the high priority issues affecting user service?"
- Health Check: Displays status from six major services including DB cluster and API gateway
- RCA Panel: Dynamic reports for Jenkins failures, SonarQube alerts, and ArgoCD sync issues
- AI Assistant: Multi-turn conversation with AI on platform diagnostics, issue creation, and telemetry analysis

Conclusion

The IPE Console offers a production-grade user experience tailored for real-time cloud-native operations. Our hackathon-ready platform demonstrates a modern approach to platform engineering, combining real-time monitoring, incident management, and intelligent automation in a unified interface. Its modular architecture and extensive integration capabilities make it a powerful tool for DevOps teams. The system's ability to provide real-time insights while maintaining high performance and security makes it an ideal solution for modern cloud-native applications.

Team: **IRIS** | Hackathon 2025

- Naresh krishna Vemuri
- Pavani Racham
- Kanaparthi Sujith
- Somanapalli, Vaikumar
- Chappa Vijaya Durga

GitHub: <https://github.com/ewfx/gaipl-i-r-i-s>