

Google Cloud

PRESENTS

Agentic AI Day

Build the next generation of intelligent agents

Powered by 

Team Details

- a. Team name:
- b. Team leader name:
- c. Problem statement:

Problem that you are solving (add infographics)

Managing large-scale public events, such as music festivals, rallies, or sports events, is incredibly complex and challenging. The dynamic nature of large crowds increases the risk of dangerous situations, such as crowd bottlenecks, surges, or incidents like medical emergencies. Security teams are often reactive, responding to issues only after they occur, which can lead to delayed responses and risks.

Key challenges include:

- Crowd Management
- Incident Detection
- Response Coordination
- Data Overload

There is a pressing need for a proactive, intelligent solution that can not only monitor events in real-time but also predict and mitigate potential risks before they escalate, ensuring the safety of attendees and improving event management efficiency.

Brief about your solution

Drishti is an intelligent agent that supports real-time surveillance, anomaly detection, response planning, and post-event reporting — all powered by Google Cloud's AI services.

Core Features:

Live feed monitoring + anomaly detection

AI-based summarization (Gemini) & response planning

Auto-escalation if human does not respond

Zone-level monitoring with location-aware dispatch

Cloud dashboard and log storage

Google technologies used and their use cases

- **Vertex AI Vision** – Detects and confirms anomalies from uploaded video clips using deep video analysis.
- **Gemini (Vertex AI)** – Generates natural-language summaries and suggests response actions based on the situation.
- **Cloud Storage** – Securely stores anomaly video clips for analysis and review.
- **Firestore (Firebase)** – Maintains real-time logs of alerts, incidents, unit status, and responses.
- **Cloud Functions** – Automatically responds to system triggers like anomaly detection or commander timeout.
- **Google Maps API** – Locates the nearest available responder and calculates optimal route to the affected zone.
- **Cloud Run** – Hosts the backend service that handles agentic logic, summaries, and decision-making workflows.

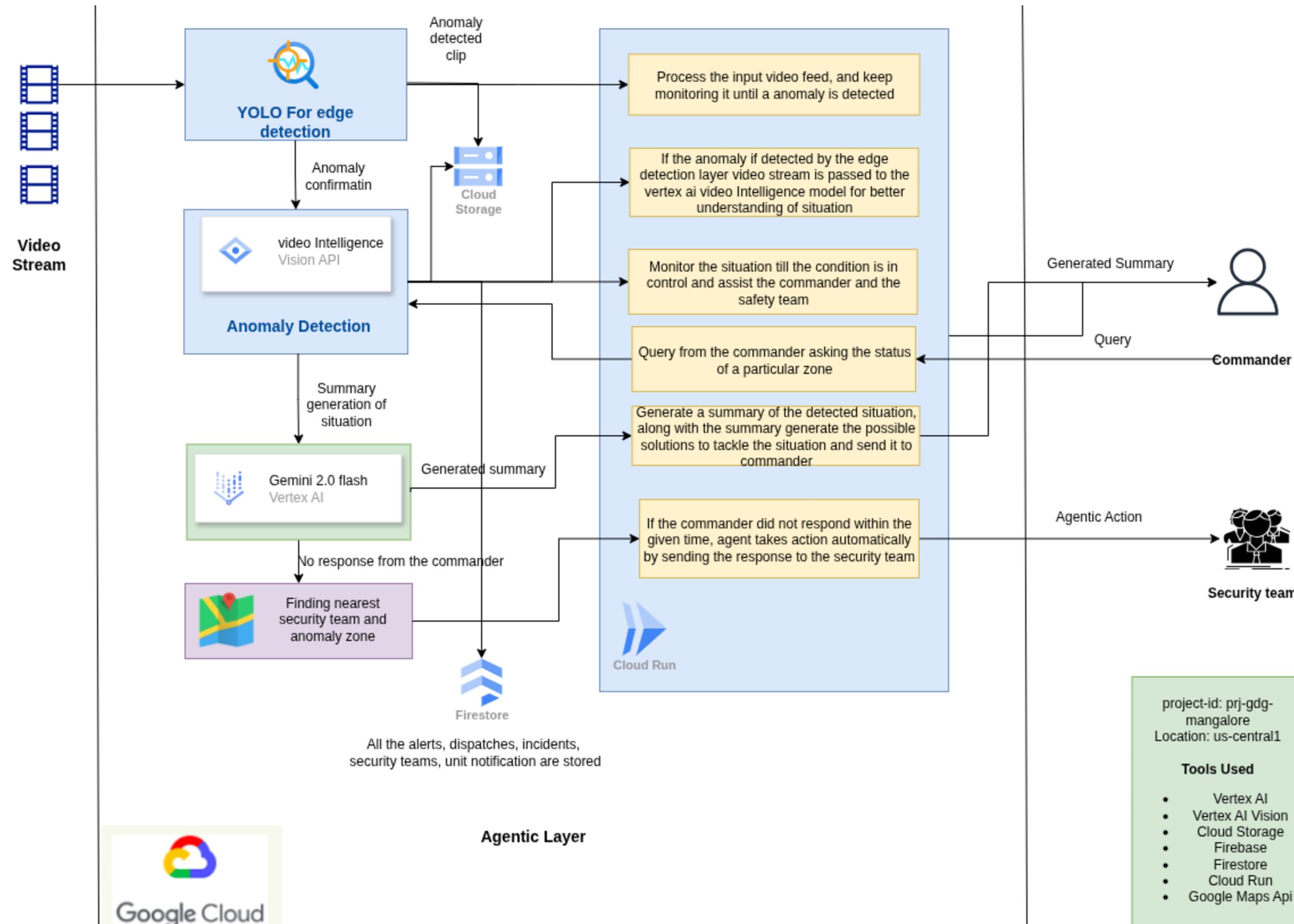
Features of the solution

- Smart anomaly detection using YOLO for anomaly inference to reduce cost and Vertex AI Vision for deeper video analysis.
- AI-generated natural language summaries via Gemini to describe incidents and suggest responses.
- Agentic decision-making kicks in automatically if the commander doesn't respond within the time limit.
- Supports live video from mobile, webcam, or file, simulating real-time surveillance.
- Monitors activity zone-wise, allowing targeted tracking and response.
- Automatically creates post-event summaries for audit and review.
- Runs on scalable cloud infrastructure, fully serverless and event-driven.
- Commander can query the agent in plain English, like “What's the status of Zone 3?”

Impact of the solution

- Proactively prevents crowd-related disasters by detecting threats early through AI.
- Delivers real-time situational awareness to empower better and faster decisions by commanders.
- Enables autonomous response workflows, reducing dependence on human intervention.
- Improves coordination during emergencies by streamlining communication and decision flow.
- Minimizes operational cost and stress by automating surveillance and response.

Architecture diagram of the proposed solution



How is this solution different from others

- **Intelligent Edge Layer:**
 - We don't send all video to the cloud — we use lightweight models (YOLOv8n) on the edge to pre-screen video feeds, significantly reducing cloud API calls and costs.
- **Cost-Optimized AI Usage:**
 - Cloud Vision and Gemini models are only triggered when real anomalies are detected, making it highly efficient.
- **Agentic Design with Auto-Escalation:**
 - Unlike other systems that stop at detection, Drishti can autonomously act if human decision-makers are delayed.
- **Natural Language Reasoning via Gemini:**
 - Most systems rely on dashboards. Drishti allows commanders to interact conversationally, improving accessibility in high-stress scenarios.
- **Modular, Scalable, and Cloud-Native:**
 - Built on Google Cloud's serverless architecture (Cloud Functions, Firestore, Cloud Run), which means low ops, high scale, and zero idle cost.

Future scope

- **Audio-based Threat Detection**
 - Integrate real-time microphone/audio feeds to detect screams, panic sounds, or glass breaking for faster threat escalation.
- **Multi-Zone & Multi-Venue Support**
 - Extend Drishti to simultaneously monitor multiple events or stadiums through a centralized command dashboard.
- **Advanced Threat Forecasting**
 - Use Vertex AI Forecasting or time-series modeling to predict crowd surges, heatmap flows, or emergency probability based on real-time data.
- **Citizen Reporting App**
 - Build a mobile interface for attendees to report issues anonymously with geolocation and media upload support.
- **AR Command Center for Responders**
 - Enable on-ground responders to wear smart glasses showing real-time maps, routes, and AI-recommended actions.

 **Firebase**

prj-gdg-mangalore ▾ Cloud Firestore

Project Overview | 

Project shortcuts

Firestore Database

Storage

What's new

AI Logic 

Product categories

Build

Run

Related development tools

 **Firebase Studio** 

Blaze Pay as you go Modify

(default)  **dispatches**  

+ Start collection  + Add document

alerts ZBFhU5zLe7eWIC4VRa08

dispatches  b6aunfx3iTDSIttDnaLg 

incidents bidmVkgfLEu9z1wVuQj5

security_units sqdYnSXxEJ8U3qFxf7eS

unit_notifications

b6aunfx3iTDSIttDnaLg 

+ Start collection

+ Add field

dispatch_id: "dispatch_crowd_density_45becf49-9fe3-4cbf-94e0-d0802c5fea29_1753585210"

estimated_arrival_times

jpS8BbCSAZdNR2jFcGNb: 1.4666666666666666

kPFSjh7w7s9wsghWwBWW: 0

incident_id: "crowd_density_45becf49-9fe3-4cbf-94e0-d0802c5fea29"

instructions: "AUTOMATIC DISPATCH: AI-initiated response due to timeout."

priority: "high"

status: "dispatched"

timestamp: July 27, 2025 at 8:30:16 AM UTC+5:30

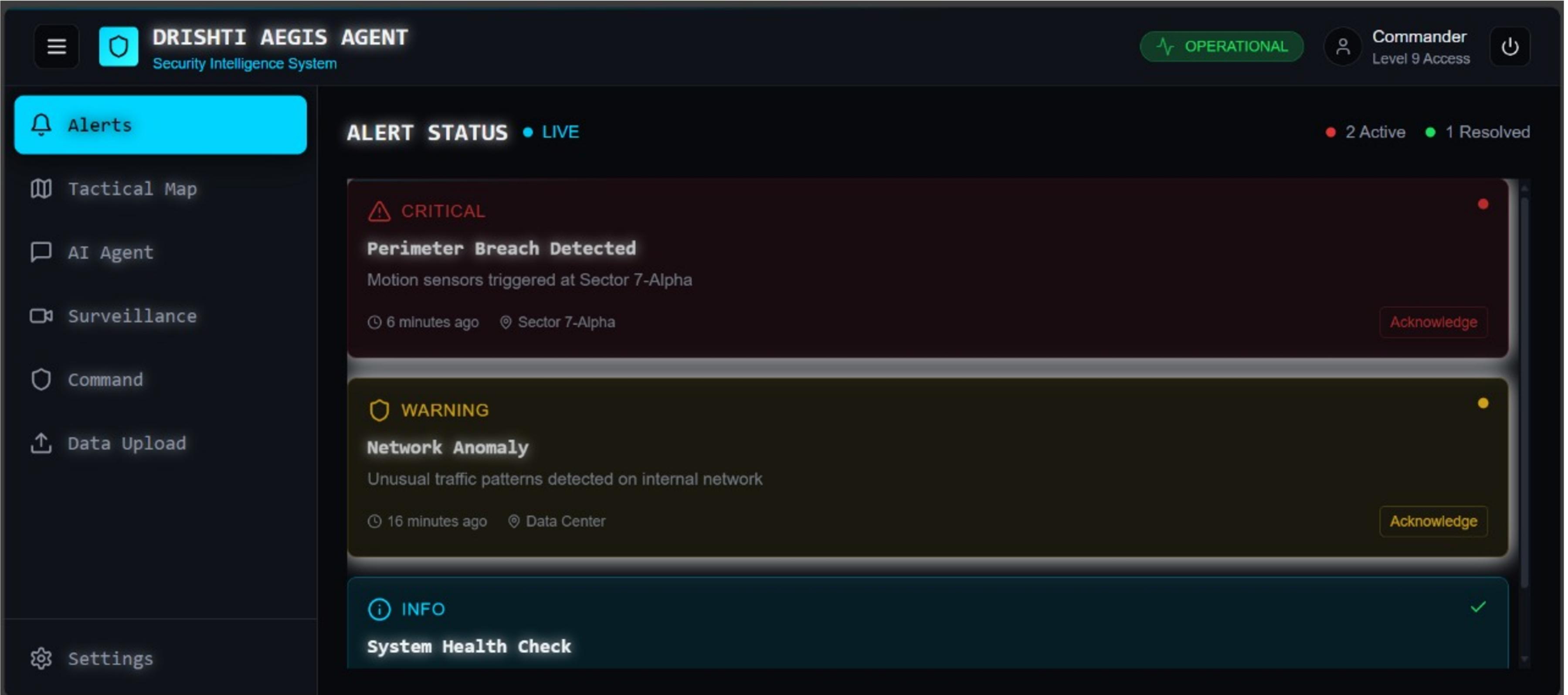
units_dispatched

Database location: us-central1

Cloud Storage 

Bucket details  Go to path Refresh Learn

 Overview	Location us-central1 (Iowa)	Storage class Standard	Public access Not public	Protection Soft Delete																																																											
 Buckets	Objects	Configuration	Permissions	Protection	Lifecycle	Observability	New	Inventory Reports	Operations																																																						
 Monitoring	<p>Folder browser </p> <p>Buckets > incident-videos-hackathon > anomaly_clips </p> <p>Create folder Upload Transfer data Other services</p> <p>Filter objects and folders Show Live objects only</p> <table border="1"><thead><tr><th><input type="checkbox"/></th><th>Name</th><th>Size</th><th>Type</th><th>Created</th><th>Actions</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753572659....</td><td>257.8 KB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753573448....</td><td>257.8 KB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753573509....</td><td>1.4 MB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753573607....</td><td>257.8 KB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753573668....</td><td>1.4 MB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753578041....</td><td>257.8 KB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753578103....</td><td>1.4 MB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr><tr><td><input type="checkbox"/></td><td>high_crowd_density_1753580956</td><td>257.8 KB</td><td>video/mp4</td><td>Jul 27, 2023</td><td> </td></tr></tbody></table>									<input type="checkbox"/>	Name	Size	Type	Created	Actions	<input type="checkbox"/>	high_crowd_density_1753572659....	257.8 KB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753573448....	257.8 KB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753573509....	1.4 MB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753573607....	257.8 KB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753573668....	1.4 MB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753578041....	257.8 KB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753578103....	1.4 MB	video/mp4	Jul 27, 2023	 	<input type="checkbox"/>	high_crowd_density_1753580956	257.8 KB	video/mp4	Jul 27, 2023	 
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DRISHTI AEGIS AGENT
Security Intelligence System

OPERATIONAL

Commander
Level 9 Access

Alerts

Tactical Map

AI Agent

Surveillance

Command

Data Upload

Settings

ALERT STATUS • LIVE

• 2 Active • 1 Resolved

CRITICAL
Perimeter Breach Detected
Motion sensors triggered at Sector 7-Alpha
🕒 6 minutes ago ⚙ Sector 7-Alpha Acknowledge

WARNING
Network Anomaly
Unusual traffic patterns detected on internal network
🕒 16 minutes ago ⚙ Data Center Acknowledge

INFO
System Health Check ✓

Google Cloud

PRESENTS

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Thank you!