PROBLEM STATEMENT — MODEL 2

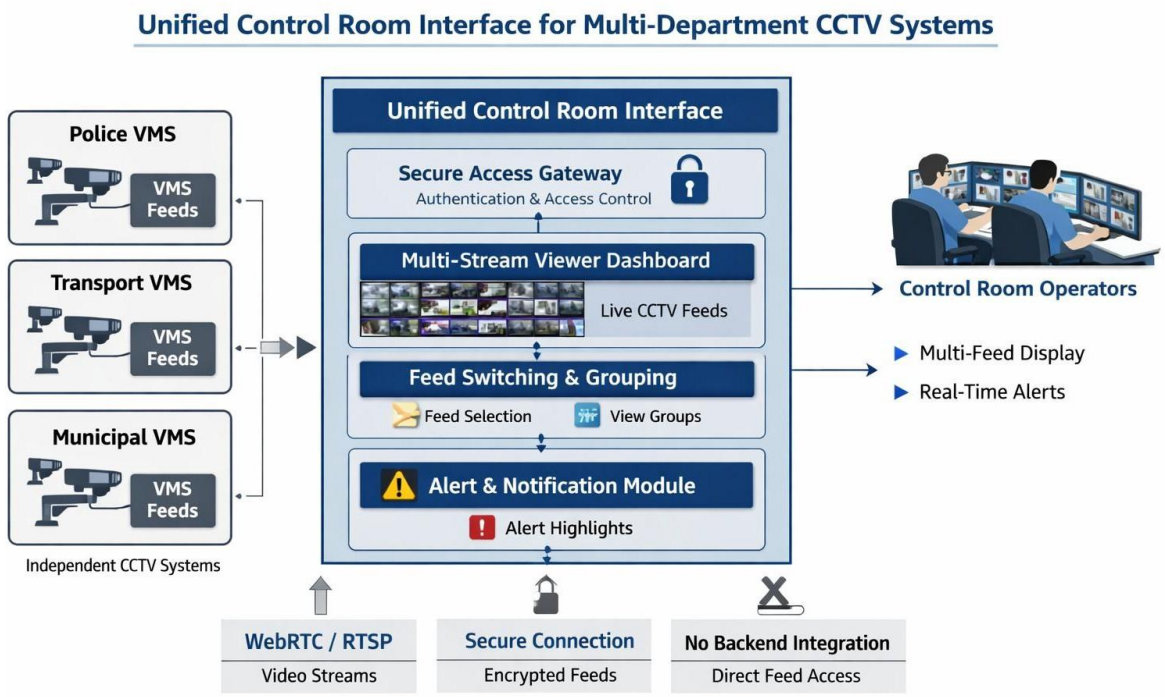

Fig 2

Tech Stack is illustrative, any open source may be used.

📌 Problem ID

- GOG-CCTV-02

📌 Problem Title

- Unified Control Room Interface for Multi-Department CCTV Systems

📌 Theme

- Smart Governance

📌 Category

- Software

📌 Organization / Ministry

- Government of Gujarat – Home Department

📌 Industry Type

- Government Department

📌 Domain Tags

- CCTV Integration, Video Streaming, Control Room, Monitoring, Multi-System Access

📌 Problem Statement (Description)

- Multiple departments currently operate independent CCTV systems, each managed through their own Video Management Systems (VMS). Central command centres are required to access these feeds through multiple parallel viewer systems, which increases operational complexity and reduces efficiency in monitoring.

  To address this challenge, there is a need for a unified interface that enables seamless access to CCTV feeds from different systems through a single platform. This solution should allow centralized monitoring while ensuring that existing departmental systems remain unaffected and continue to operate independently.

📌 Problem Statement (Short Abstract)

- Develop a unified dashboard that enables centralized monitoring of CCTV feeds from multiple departmental systems without backend integration.

📌 Objectives

- Provide single interface for multi-source CCTV monitoring
- Reduce operational complexity
- Enable secure access across systems

📌 Expected Solution / Deliverables

- Unified multi-feed dashboard
- Secure authentication across VMS systems
- Feed switching and grouping system
- Basic alert highlighting mechanism

📌 Dataset / Inputs

- Simulated video streams
- Mock VMS endpoints

📌 Constraints

- No backend system integration
- Must support multiple concurrent streams
- Ensure low latency
- Feed switching latency < 1 second

📌 Evaluation Parameters

- UI/UX efficiency
- Feed latency and performance
- Security
- Scalability

📌 Success Criteria

- Seamless feed switching
- Stable multi-stream performance

📌 Expected Outcome

- Simplified control room operations
- Improved monitoring efficiency

📌 Suggested Technology Stack (Open Source Only)

- WebRTC / RTSP
- React.js
- Node.js / Python
- Any other open-source technologies may also be used

📌 Use Case Scenarios

- Police control room monitoring
- Emergency coordination

📌 Adoption / Deployment Readiness

- Deployable in CCC environments
- Compatible with existing systems

📌 Difficulty Level

- Medium–High

📌 Impact

- Improves operational efficiency
- Enables better coordination

SCORING RUBRIC — MODEL 2

(Out of 100 Marks)

EVALUATION CRITERIA	MARKS	DESCRIPTION / JUSTIFICATION
UI/UX Efficiency & Usability	25	As the solution is interface-driven, ease of use, intuitive layout, multi-feed visibility, and operator efficiency are critical for control room efffectiveness.
Stream Performance & Latency	25	Real-time video access is the core requirement; low latency (<1 sec), smooth playback, and stable multi-stream handling are essential.
Security & Access Control	20	Secure authentication across multiple VMS systems is crucial to prevent unauthorized access and ensure controlled visibility of feeds.
Scalability (Concurrent Streams Handling)	20	The system must support multiple simultaneous feeds across departments without performance degradation.
Alerting & Feed Management Features	10	Basic alert highlighting and feed grouping improve usability but are secendary to core streaming
TOTAL	100	

Fig 2.1