CINDY

Central Intelligence Navigation tool Designed for You

An AI-Enabled Multi-Department Record Retrieval & Fraud Analysis System designed to securely bridge critical data gaps across state entities and streamline complex fraud investigations.

Missouri Leadership Academy Capstone Project

AI was used in the generation of this presentation.

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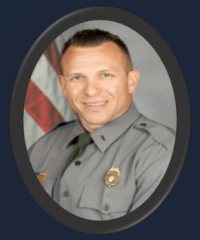

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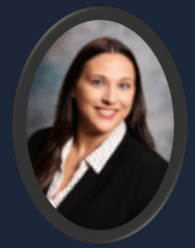

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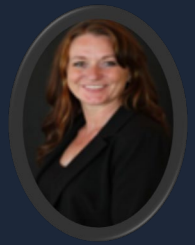

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IN LOVING MEMORY

Lucinda "Cindy" Dudgeon

Assistant Director, MSHP-MIAC — Dedicated leader whose vision and inspiration drive this initiative.

BRIDGING THE DATA GAP IN STATE FRAUD INVESTIGATIONS

State entities cannot securely retrieve records or information from other state departments. This gap reduces operational effectiveness, increases administrative burden, and can compromise mission critical outcomes.

Operational Friction

- **No real-time record access.**
- **Manual outreach (mail, phone, fax)**
- **Administrative burden slowing investigations**

Mission-Critical Risk

- **Fragmented data slows case resolution**
- **Weakens operational effectiveness.**
- **Increases risk of undetected cross-agency fraud.**

Investigator Survey Data

Survey distributed to state investigators revealed profound operational bottlenecks and strong demand for modern tools:

79%

Over 5 Hours / Case

Most investigators spend over 5 to 40 hours completing an investigation.

75%

Data Retrieval Delay

64% of respondents spend 75% of time solely on retrieving cross-department records.

82%

Demand for Hub

Investigators confirm access to a single centralized database would significantly improve efficiency.

20 Hours

(est. per case)

Average Time Saved

An average of 20 hours saved for DOLIR investigative staff per case with automated record retrieval.

How CINDY Solves the Problem

Centralized Secure Hub

Acts as a unified search database across State-stored information, connecting disparate department databases through secure automated adapters.

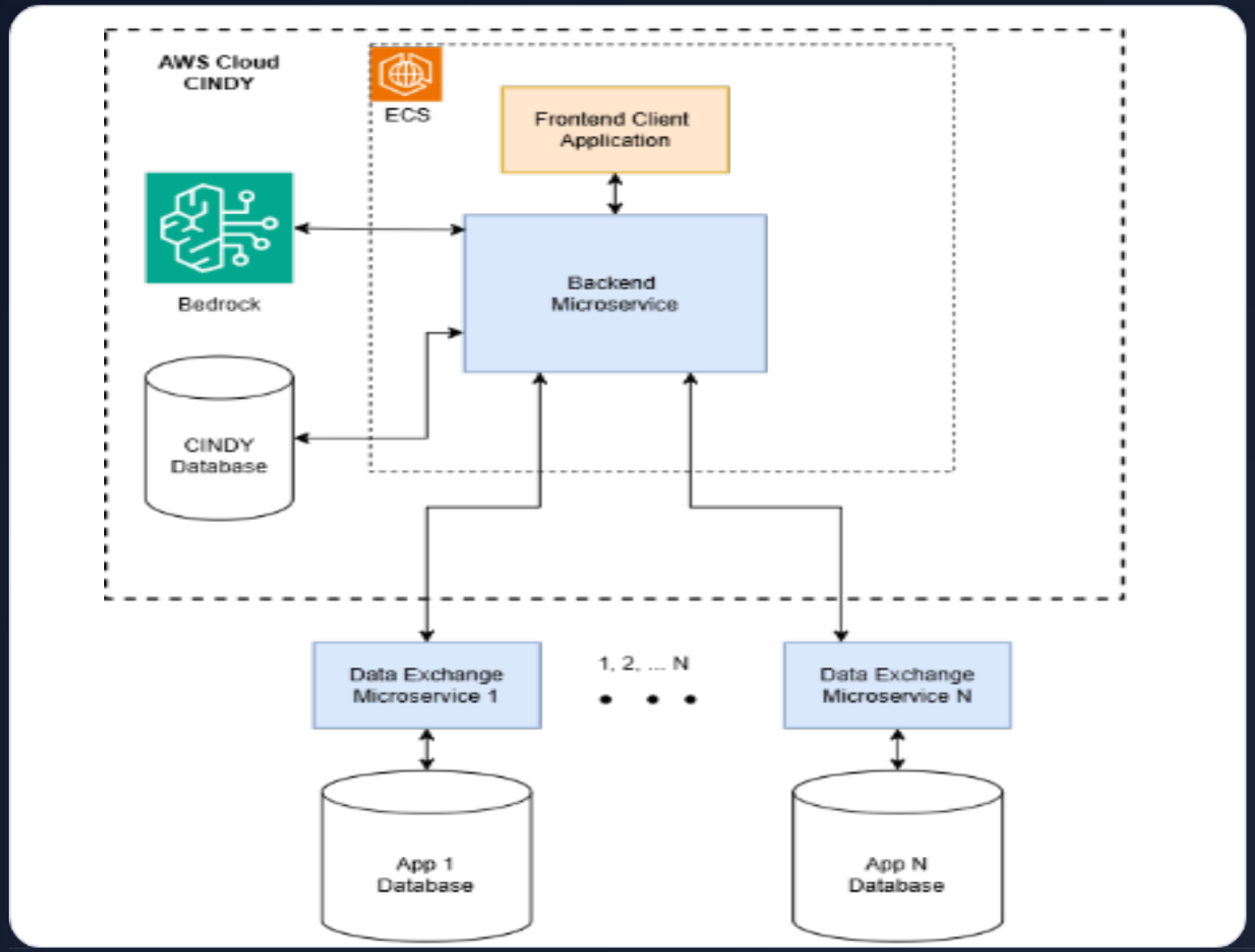
Automated & Efficient

Generates consolidated reports instantly, eliminating weeks of manual phone, email, and fax outreach between state departments.

AI Fraud Analysis

Integrates Amazon Web Services (AWS) Bedrock AI to summarize complex multi-department records, normalize data formats, and highlight hidden fraud patterns.

Proposed System Architecture- AWS ECS



AWS Elastic Container Service (ECS) Frontend & Backend

Containerized web application providing secure access for state investigators via cloud infrastructure.

AWS Bedrock AI Engine

Executes automated record summarization, entity resolution, and fraud pattern detection across datasets.

Microservice Adapters (1..N)

Standardized, secure data exchange microservices connecting CINDY safely to partner agency databases.

Pilot Implementation Roadmap

PHASE 1

Pre-Production

Form advisory groups, define department data exchange protocols, set up AWS cloud environment.

PHASE 2

Vendor & Testing

Build microservice adapters, configure AWS Bedrock AI models, conduct user sandbox tests.

PILOT

Active Pilot Run

Initiated by DOLIR Division of Workers' Compensation Fraud and Non-Compliance Unit.

REPORT

Report to Department Leadership

Comprehensive statistical report due covering usage, accuracy, and estimated time saved.

Evaluation & Success Metrics: LLM Query

Key Performance Indicators

Average Retrieval Time: Measuring pre-vs-post system record retrieval duration to quantify efficiency gains.

AI Normalization %: Rate of successful automated record structuring across disparate formats.

Summarization Accuracy: High accuracy verified via continuous investigator satisfaction feedback.

Operational Outcomes

Reduction in Triage Hours: Substantial reduction in manual case sorting and administrative hours.

Fraud Acceleration: Increased number of complex fraud cases accelerated by AI insights.

Continuous Check-Ins: Regular participant surveys and check-ins throughout the pilot duration.

Cost vs. Savings Outlook

Capital Allocation

While upfront development and AI compute costs require capital allocation, CINDY directly targets the **75% of investigative time currently wasted** on manual record gathering.

Long-Term ROI

Significant reduction in triage hours recovers substantial public funds by accelerating fraud prosecution and boosting overall department productivity.

Risk Assessment & Mitigation Matrix- Risk Based Access Control (RBAC)

Risk Category	Identified Challenge	Severity	Mitigation Strategy
Security & Privacy	Unauthorized access to sensitive state records. Inter-department compliance & privacy governance	High	Multi-factor authentication, end-to-end encryption, Risk-Based Access Control (RBAC), closed-loop system. Inter-department Memorandum of Understanding (MOUs), strict administrative and technical safeguards.
Data Quality & AI Accuracy	Inconsistent record formats across departments Potential AI hallucination in case summaries	Medium	Automated AI normalization & validation pipelines. Strict "Human-in-the-Loop" policy.

Strategic Conclusion & Impact

Modernizing Workflows

Transforms outdated, manual cross-department record retrieval into a modern, instantaneous digital intelligence workflow.

Protecting Resources

Dramatically increases fraud detection efficiency and accuracy, safeguarding public tax dollars and state resources.

Augmenting Experts

AI acts as a powerful navigational assistant to empower investigators—never replacing human judgment and expertise.

Questions & Discussion

CINDY making Missouri GREAT through Leadership. Values. Common Sense.