Understanding Climate Risk: AWS Athena & QuickSight

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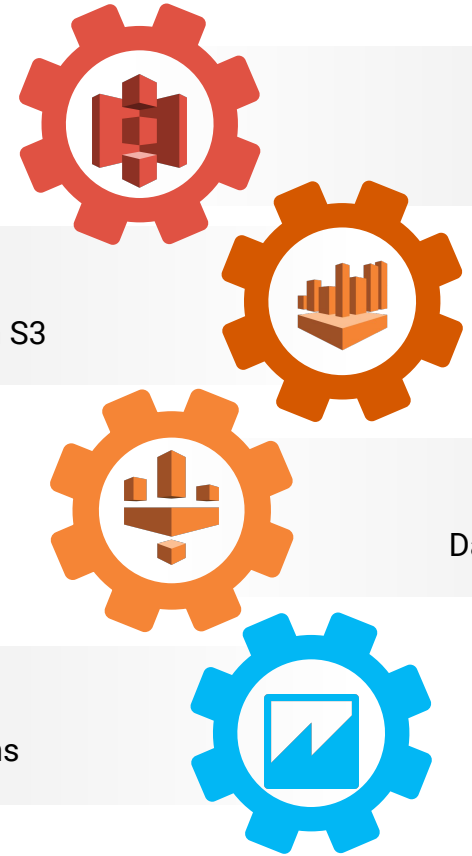
Project Scope & Features



Amazon S3

Durable storage for large datasets

AWS Athena

Processes and analyzes the raw data in S3

Amazon Glue

Data extraction, transformation, and loading

Amazon Quicksight

Create visualizations to inform decisions

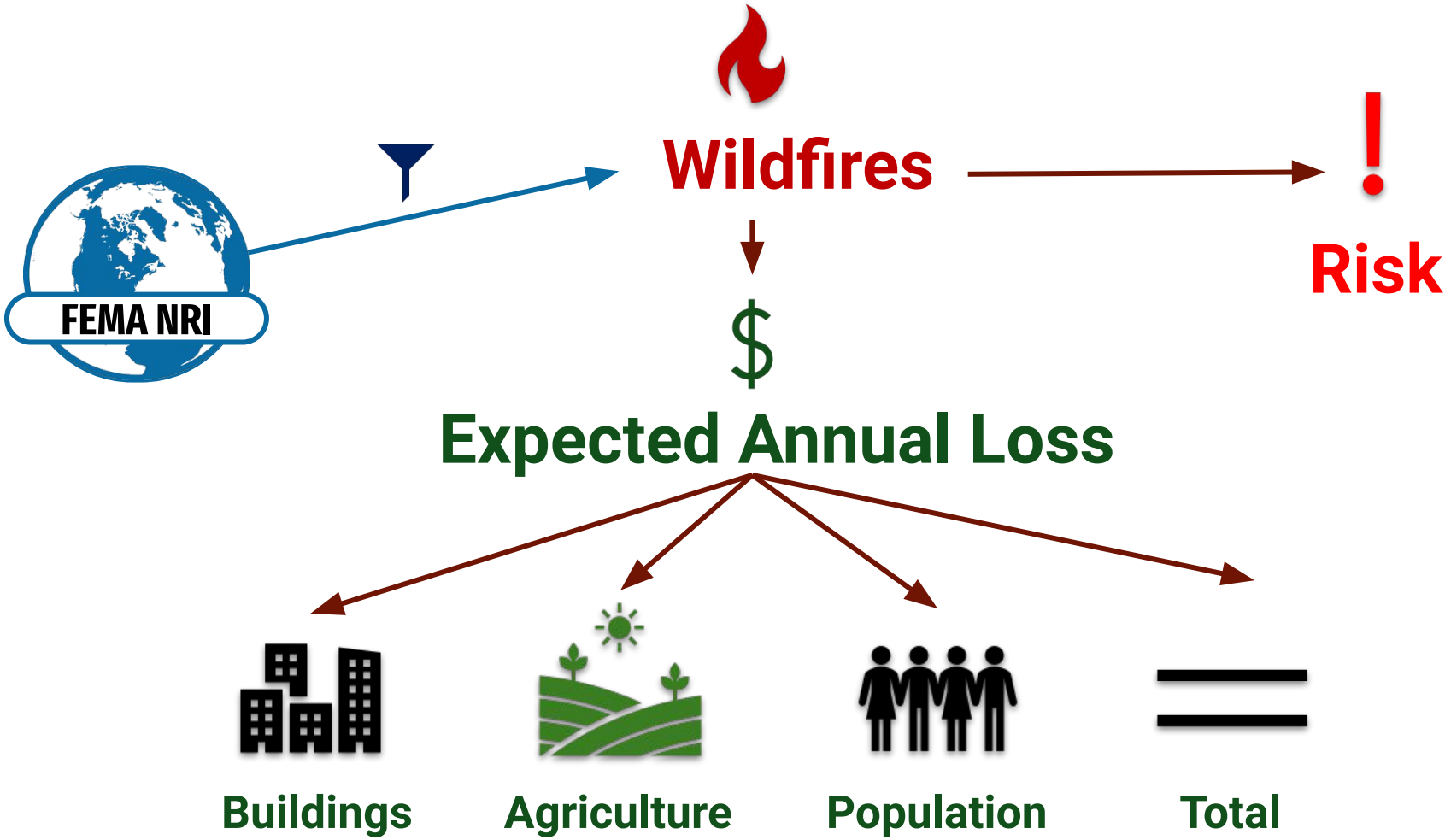
Data Source

National Risk Index compiled by FEMA

Understand risk of natural hazards in the US

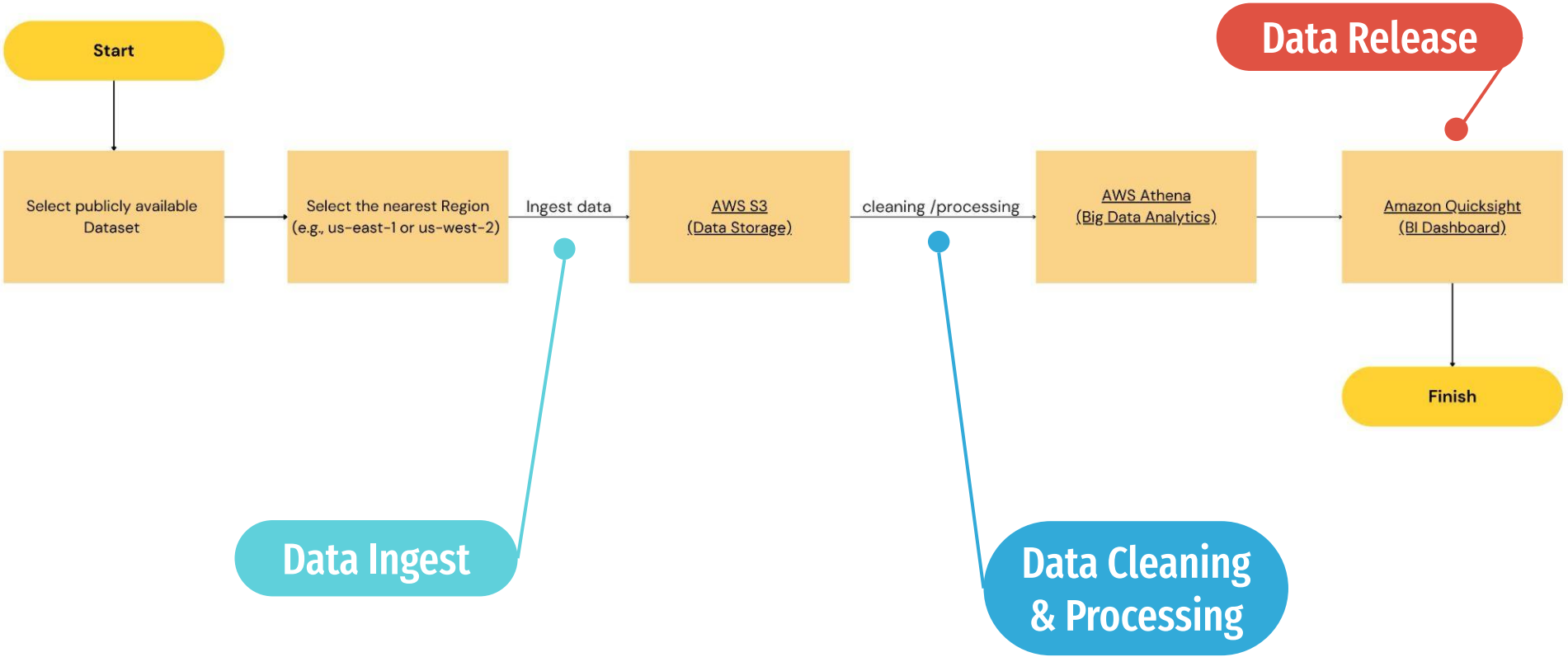
18 hazards, aggregates, and different measurements of loss

Aggregated across 3 scales: State, county, census tract


FEMA NRI
Wildfires
!
Risk
$
Expected Annual Loss
Buildings
Agriculture
Population
Total

Logical Architecture

Project structure design of Data Analysis with AWS Athena and S3



Logical Architecture

Project structure design of Data Analysis with AWS Athena and S3

Expected Outcomes

SQL Query

Store, retrieve, query data using AWS Cloud

Analysis

Answer 5 key questions about understanding risk

Visualization

Create maps or charts to visualize results

Achieved Outcomes

SQL Query

Store, retrieve, query data using AWS Cloud

Analysis

Answer 5 key questions about understanding risk

Visualization

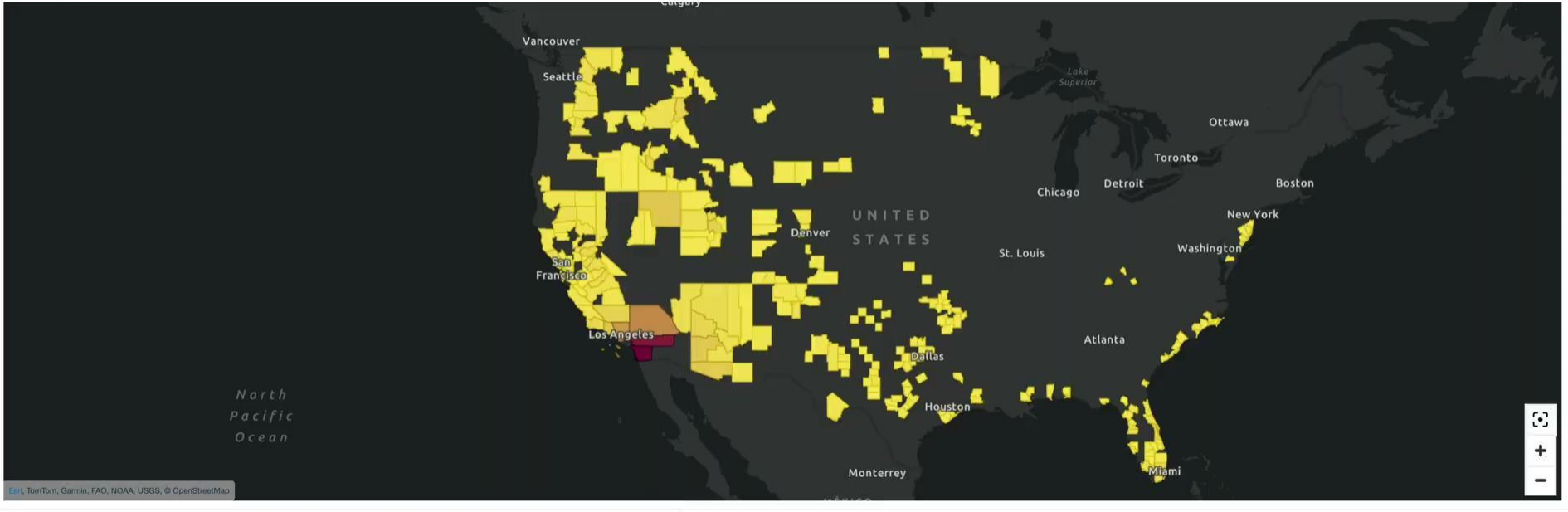
Create maps or charts to visualize results

Total loss | Building | Population | Agriculture

Data visualizations created using AWS S3, Athena, Glue, and Quicksight for demonstration purposes

Expected Total Loss due to Wildfires

(Counties spending over $1 million)

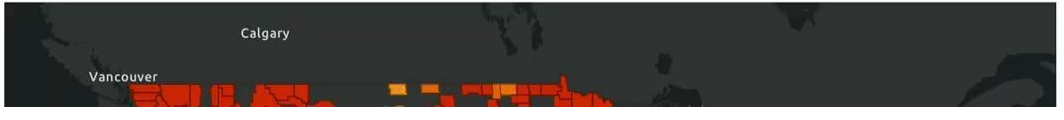


Counties with Highest Expected Total Loss due to Wildfires

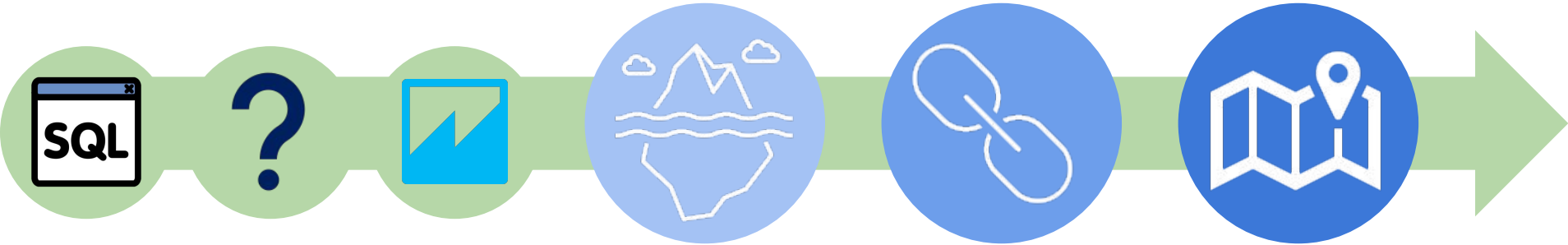
(In Millions)

Counties at High Risk of Wildfires

(Relatively High & High Risk)



Next Steps



Challenges & Limitations

Quicksight Limitations

- Limitations with querying columns
- Could not use Direct Query
- Limited visualization customization
- Can't link data between sheets
- GIS support not fully robust

Athena Limitations

- Saves queries without name
- Could not query through Athena

Other

- Data transformation issues
- Navigating paid vs free tools

Any Questions?