Understanding Cascading Failure to increase Resilience: Case study with the Critical Asset Management System at Local Level
The problem to solve

- Many companies, cities and states can identify at least a subset of their critical assets. However, experience suggests that they may have one or more major omissions:
  - They may not fully have identified all the critical items (aka critical assets) which could affect their disaster resilience;
  - They may not fully understand the risk that each asset faces and how well placed it is to deal with that risk;
  - They may not understand how those assets are interconnected & the compound consequences that may result.
- These omissions may lead to “failure chains” which can very weaken resilience, placing lives and livelihoods at risk.
The problem to solve

• The need is to identify potential “failure nodes” within the network that could trigger failure chains, and plan over time to mitigate the risk that these pose.

• In this simplified, fictitious example, the power plant and communications tower are nodes that, if damaged, might trigger failure chain(s) involving multiple other critical assets.

• One could expand the example to include, for example, wastewater treatment plants, major logistics hubs, bridges, population centers, storm shelters, schools, natural assets and many other items.
What we are creating - CAMS

• A simple **highly secure software tool** that enables cities and states to:
  • Inventory their critical assets and assemble key data about them;
  • Identify the hazards to which each asset is exposed;
  • Map the relationships between assets, both spatial and dependency-based;
  • Identify potential “failure chains” between assets in different systems, and the risks involved;
  • Use this output in other tools – emergency control room systems for example, or risk analysis tools;
  • Prioritize and plan mitigation/investment programs.
Demo
How CAMS is made available

● Fully open-source
  ○ CAMS is available on GitHub with a permissive Apache 2 license

● CAMS-as-a-Service with subscription from TerminusDB. Zero maintenance; guaranteed availability; & full support

● Open to Partnerships - we bring the tech and the know-how
Secure access

API is protected with OAuth2 for secure communication.

Approval Email

USER

Request access

Follow link in email

Set strict password

Login

CAMS

Admin adds user & decides level of access

Admin can alter access or remove user

Role based access control: a simple, manageable approach

CAMS

Trusted Cloud infrastructure secure-by-design, built-in protection, and encryption to protect your information, identities, and applications. Our stack builds security through progressive layers that deliver true defense in depth.

Invite a new member to your team - CAMS Demo

- Admin Role: Can add and remove users and teams and assign user permissions. They have full read/write access to all assets and links.
- Collaborator Role: Can add, edit, and delete assets and their associated data and create links between assets. Can set up teams and invite existing users.
- Data Updater: Can add, edit, and delete assets and their associated data and create links between assets.
- Data Reader: Data readers can view data on the map to see asset failure chains and asset contacts. They cannot add, edit or remove assets and their links.
- Info Reader: Has schema level access to CAMS, but has no access to data within the application.

Follow link in email

Login
What CAMS mean to Dominica

• Increased data to strengthen decision-making by stakeholders.
• Enhanced protection of critical assets, lives and livelihoods.
• Increased success in Public-Private partnership for enhanced resilience and governance.
• Fulfilling the priorities of the Sendai Framework to reduce lives affected, mortality and economic losses and damage to critical infrastructure.