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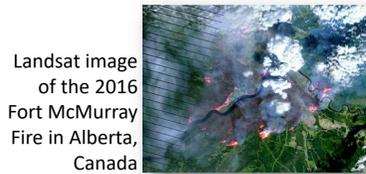
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Project Goal

To enhance and extend current operational data sharing capabilities for:

- Improved firefighter and public safety
- Better wildland fire predictions
- More informed fire operations



Problem Statement

Wildland firefighting operations are regularly obstructed by the construction and maintenance of ad hoc communication networks.



As a result, incident command decisions and wildfire containment are delayed.

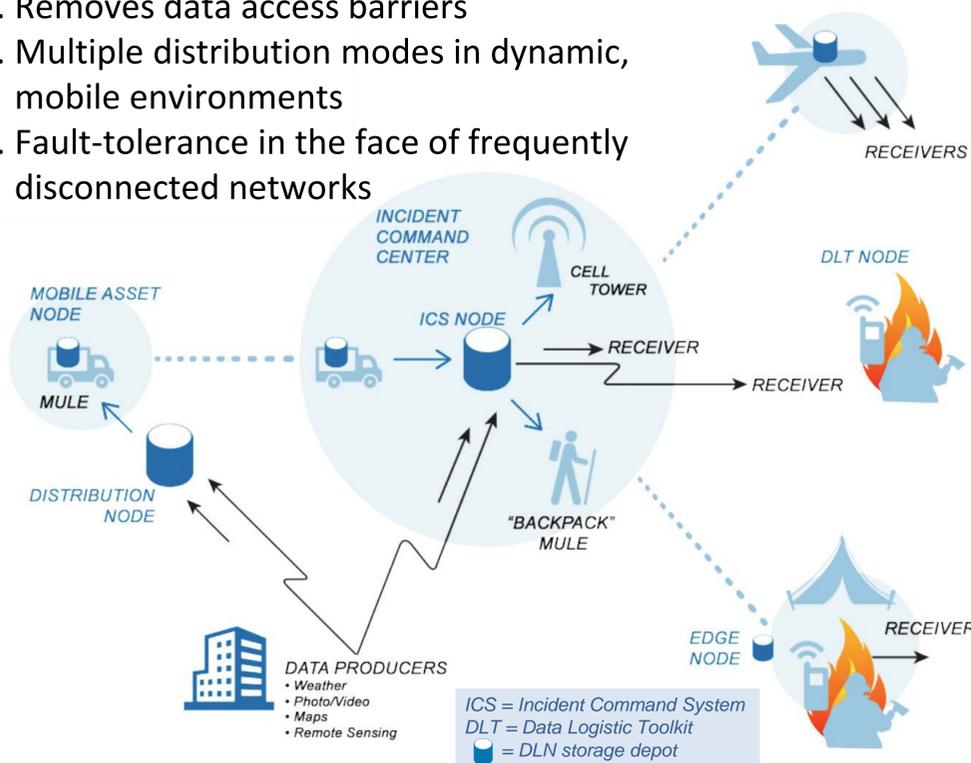


Excessive post-fire erosion from the Hayman Fire (Photo by Mary Ellen Miller)

System Overview

WildfireDLN key features:

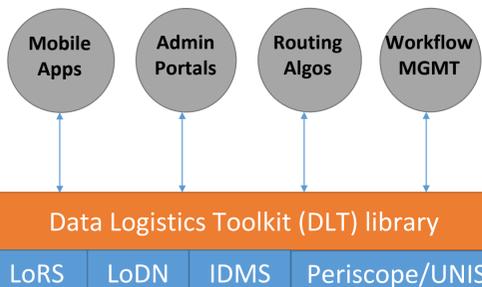
- Removes data access barriers
- Multiple distribution modes in dynamic, mobile environments
- Fault-tolerance in the face of frequently disconnected networks



Local operation – decentralized federation of available nodes and connected devices

Dynamic architecture that operates over intermittently connected and heterogeneous networks

Logistical data distribution – managed workflows for prioritizing and filtering data of importance over geographic and/or temporal criteria



LoRS – Logistical Runtime System
LoDN – Logistical Distribution Network
IDMS – Intelligent Data Movement Service
Periscope – Network topology and measurements via UNIS (database)

<http://data-logistics.org>

Wildland-fire Incident Command Center Support



National Interagency Fire Center

An aerial view of the Lolo Creek Fire Incident Command Post (ICP) in Lolo, Montana. This particular ICP is the temporary home of 794 fire personnel. (U.S. Forest Service photo)

Objectives



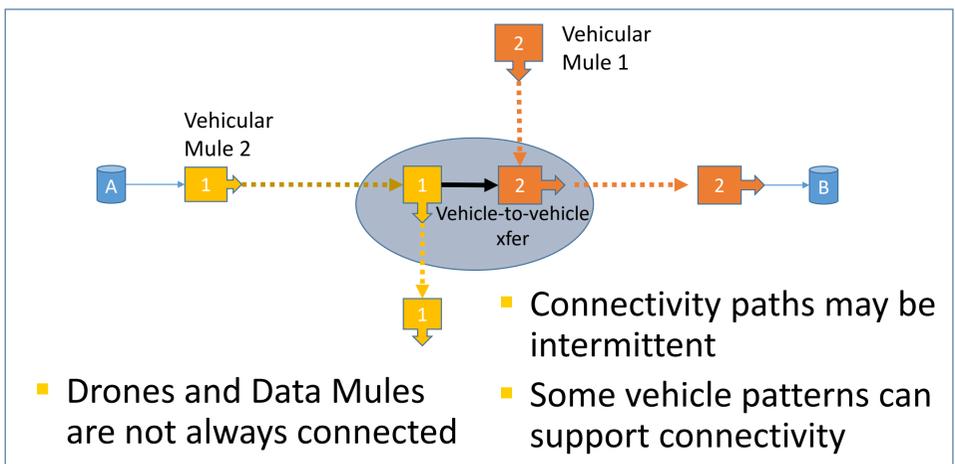
Deploy and test prototype hardware-software system with fire operations personnel that integrates the new data sharing system with existing capabilities and relevant data.



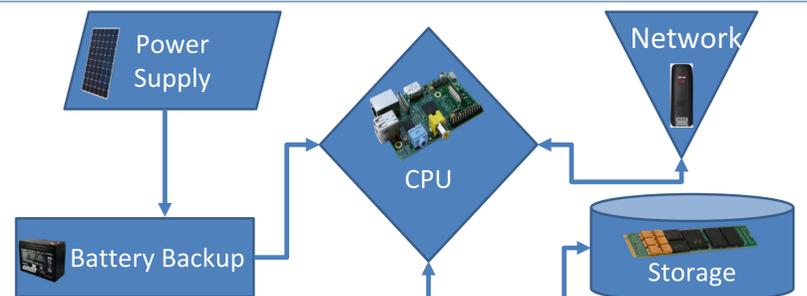
Co-develop software systems for data logistics based on existing tools, including future proofing and generation of ideas to advance capabilities with further R&D.



Work with the wildland fire management community to define specific requirements of an enhanced, resilient data sharing system.

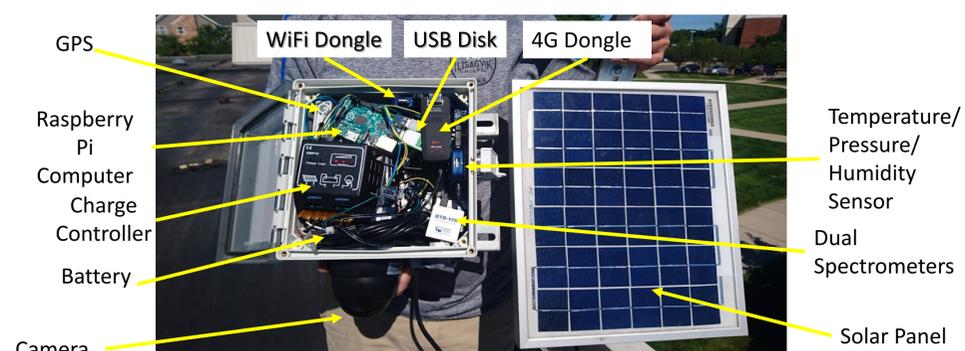


- Connectivity paths may be intermittent
- Some vehicle patterns can support connectivity
- Drones and Data Mules are not always connected



Hardware Options (mix and match)

Power	CPU	Network	Storage
Battery Always – various sizes	Anything Linux	•WiFi	•USB drive
•Utility	•Raspberry Pi	•4G	•Hard Drive
•Generator	•Beaglebone	•Bluetooth	•SD Card
•Solar	•BRCK	•Ethernet	•Server Rack
•Wind	•PC		
	•Rack Server		



Example of existing compact system – similar to a potential “backpack” (portable) version of a depot node