Distributed Rapid Initial Attack

A Regional-Airport-Based Autonomous Wildfire Response Network — Ohio Proof of Concept

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The Problem

Wildfire has become a national-scale infrastructure failure, not a regional nuisance. By the end of June 2026, more than 3 million acres had burned in the United States — roughly 157% of the ten-year average — and smoke from Canadian fires repeatedly degraded air quality across the Midwest and East Coast, including Ohio. The economic damage from a single bad season now reaches into the hundreds of billions of dollars, and it lands on communities thousands of miles from the flame front.

The physics of the problem is well understood: nearly every catastrophic fire was once a small fire. There is a window — often measured in minutes to a few hours — during which a modest amount of suppressant, delivered accurately, contains an ignition before it reaches its inflection point. Today, that window is routinely missed, not because we fail to see the fire, but because response assets are too scarce, too centralized, and too slow to launch.

The Window Is Now

Detection has effectively been solved. The FireSat constellation, purpose-built for wildfire detection, became operational in July 2026 and will eventually revisit every point on Earth roughly every 20 minutes, detecting fires as small as five square meters. Ground camera networks and AI-based dispatch alerting fill in the gaps. A global, subscribable "ignition event feed" now exists.

What does not yet exist is the response layer sized to that feed: a distributed network of autonomous suppression aircraft, pre-positioned densely enough that any ignition in a covered region can be attacked within its containment window. Early leaders — Seneca's drone strike teams, Rain and Sikorsky's autonomous Black Hawk work — have proven the autonomy. None have solved deployment density or affordable, domestic mass manufacturing. That is the open lane.

The Concept

We propose a **regional-airport-based rapid initial attack network**: autonomous suppression aircraft staged at existing regional and county airports, launched automatically when a verified ignition event arrives from satellite or camera detection feeds, delivering suppressant to the fire within its containment window, and returning to base for rapid turnaround.

The architecture is deliberately platform-agnostic. Early analysis should evaluate the full trade space — heavy-lift electric and hybrid VTOL for short-radius response near communities, and larger fixed-wing or rotorcraft carriers operating from regional runways to cover a 100+ mile radius with meaningful payload. The governing equation is simple: gallons delivered per minute per dollar, within the containment window, per square mile of coverage. Platform choice falls out of that math, region by region.

The manufacturing model matters as much as the aircraft. The defense sector has demonstrated — most visibly through Anduril's vertically integrated, software-defined, mass-production approach — that autonomous aircraft can be built affordably at scale in the United States. Applying that same "attritable systems" philosophy to civil protection means aircraft cheap enough to station everywhere, standardized enough to manufacture in distributed regional facilities, and smart enough to fly themselves to a fire.

Why Ohio

Ohio is arguably the best state in the nation to prove this concept:

Anduril's Arsenal-1 hyperscale manufacturing facility is being built in Pickaway County, anchoring exactly the autonomous-systems production ecosystem this network requires. The Ohio UAS Center and the National Advanced Air Mobility Center of Excellence in Springfield, together with FlyOhio's beyond-visual-line-of-sight corridor infrastructure, provide the airspace, radar, and regulatory pathway for autonomous flight testing. NASA Glenn Research Center in Cleveland is a national leader in electrified aircraft propulsion — directly relevant to evaluating propulsion options. The Air Force Research Laboratory in Dayton brings deep autonomy expertise. And Ohio's dense grid of public-use regional airports, skilled manufacturing workforce, and active economic development apparatus (JobsOhio) make it the natural home for a build-here, deploy-everywhere model: develop and manufacture in Ohio, station the network across the fire-prone West, Southeast, and Canada.

Proof of Concept: Three Phases

Phase 1 — Suppression Demand Model (6 months). Partner with university researchers and fire scientists to build the containment model: for a representative ignition in given fuel, weather, and terrain conditions, how much suppressant must arrive within how many minutes? This model defines the aircraft and basing requirements for everything that follows.

Phase 2 — Dispatch Integration Demonstration (6–12 months). Subscribe to live detection feeds (FireSat, camera networks, county dispatch) and demonstrate an automated event-to-launch-decision pipeline from one Ohio regional airport, initially with simulated or surrogate aircraft, in cooperation with the Ohio UAS Center.

Phase 3 — Live Flight Demonstration (12–24 months). Conduct an end-to-end autonomous detection-to-suppression demonstration over controlled burns, in partnership with the Ohio Department of Natural Resources Division of Forestry, a county fire department, and an aircraft partner.

The Ask

We are seeking (1) a convening of Ohio stakeholders — DriveOhio/Ohio UAS Center, JobsOhio, NASA Glenn, AFRL, university partners, and the Ohio fire service — to validate the concept and assign roles, and (2) seed funding for Phase 1. The result would position Ohio as the manufacturing and integration home of a new national protective infrastructure: one that lets communities trust that when a fire starts, something is already on its way.

About the Author

Joshua A. Talbott has spent more than two decades building and operating technology infrastructure at Kent State University, where he serves as Director of Technology for the College of Sciences and Humanities, overseeing IT across 21+ departments, high-performance computing, and multicloud architecture. He holds a Master’s in Technology from what is now Kent State’s College of Aeronautics and Engineering — a degree spanning the full range of manufacturing and management disciplines — and has taught computer manufacturing for that college, giving him direct grounding in exactly the production questions this project must answer.

He is also an active drone pilot from a family of aviators: his grandfather flew fighters, and he grew up flying with an uncle who owns his own aircraft. A former broadcast engineer and founder of multiple technology ventures, Talbott sees this project as the convergence of the two threads that have defined his career — manufacturing technology and aviation — put to work in the service of the public.