AAM Prepared

February 27, 2024

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AUVSI™

AUVSI Overview

The Association for Uncrewed Vehicle Systems International (AUVSI) is the world's leading non-profit organization dedicated to the advancement of uncrewed (unmanned) systems and autonomy. **Founded in 1972**, AUVSI is the trusted **advocate for policies and regulations** that expand the use of these technologies into defense, commercial, and public markets. AUVSI is regarded by all levels of government as a **vital, non-parochial voice of industry**, influential convener through events and education, and driver of public awareness, acceptance and deployment of uncrewed systems.

Our Advocacy Committees

AIR | MARITIME | GROUND | CYBER | DEFENSE | GRASSROOTS | COMMUNICATIONS

Our Advocacy Committees set the **legislative and regulatory priorities** for the association based on **input and feedback from their membership**. The committees develop advocacy goals and policy positions to enable all AUVSI members to speak with a **unified voice** to critical stakeholders on behalf of the industry.

Select Committee Members

- Airspace Link
- Archer
- Austal USA
- Amazon
- BETA
- Boeing
- Cherokee Nation Technologies
- General Atomics
- Huntington Ingalls/Hydroid
- iXblue
- Joby
- Kongsberg
- L3Harris
- Leidos
- Lockheed Martin
- Near Earth Autonomy
- Northrop Grumman
- Ocean Aero
- Ocean STL
- Raytheon/Collins
- Saildrone
- Sea Machines
- Shift5
- Skydio
- Textron / Bell
- ThayerMahan
- Wing
- Wisk
- Zipline

Why AUVSI Prepared?

- Education on existing powers and intersections of federal and state powers over the air and ground
- Overcoming the reactive nature of many legislative efforts in the space resulting from negative events
- Forging meaningful relationships with interested lawmakers, economic development groups, end users, and the public

AAM
PREPARED™

AAM Prepared Supporters

AAM Prepared Development

Three Pillars

- Education
  - Compendium of state reports/study committees
  - Database of all AAM state bills
  - Unified glossary of term
  - Definitions of roles
    - Federal, state, local
- Legislation
  - AAM model bill
- Research (Potential Future Item)
  - Companies and states
    - Economic / workforce data

Member Engagement in Development

- **Reviewed and Edited**
  - Compendium of state reports/study committees
  - Database of all AAM state bills
  - Unified glossary of terms
  - Vertiport model bill
- **Amplify**
  - Cosign
  - Communications support
    - Letters to lawmakers
    - Pointing to AAM Prepared as a resource

WE HAD HELP

AAM Prepared Materials

- Legislation Database
- Compendium of State Studies
- Glossary of Terms
- Model Legislation

AAM Prepared Recommendations

1 State Investment

- This recommendation focuses on different AMM investment strategies. States may use to both prepare for operationalization and attract companies.
- Strategies include establishing an innovation investment fund for emerging technology and companies, identification of relevant federal grant opportunities, and the development of public/private partnerships.

2 Workforce Development

- The development of the AAM industry manifests both workforce needs opportunities. This recommendation focuses on programming that can ensure there is a skilled workforce able to fill these gaps and take advantage of the emerging opportunities.
- Suggestions include establishing Centers for AAM at State Universities, job training opportunities, business development and job growth incentives, and collaboration between state agencies, industry, and educational institutions.

3 Establish State AAM Coordinator

- To ensure each State is embracing and prepared for the AAM industry, a dedicated position is necessary to coordinate all the moving parts. Each working group identified the creation of a dedicated AAM coordinator in either a State agency or the Governor's office as a critical component to sustained growth.
- This position would act as the State's coordinator for the AAM industry, communicating with government and industry stakeholders.

4 Community Outreach

- Community outreach recommendations included town halls in locations of interest, discussions with local leaders, and opportunities for constituents to raise concerns with interested companies.

5 Proactive Infrastructure Investment

- While AAM is not yet operational there are current infrastructure opportunities States should address now.
- The identified proactive infrastructure work includes the expansion of current EV charging infrastructure to include airports and heliports for future eVTOL operations and the transformation of identified unused heliports into vertiports.

Important Considerations

There are two factors emphasized in every working group that should receive consideration as vertiport infrastructure develops. The considerations are of equity and multimodal connectivity.

1. AAM fills a current need gap by serving rural and underserved communities. **Equity** is a focus for AAM, ensuring that all communities are serviced and feel the externalities equally.
2. Vertiports should be tied into the current transportation system to serve residents. Connecting AAM with existing modes of transportation ensures efficient travel for residents via **Multimodal Connectivity**

Immediate Policy Needs

Two main policy needs for the industry that can be taken up immediately by state agencies and the legislature.

1. Establish a **permitting and licensing** process for vertiports to allow infrastructure developers to begin the development process with confidence in its longevity and identify compatible areas for vertiport locations.
2. Revise current state and local laws to ensure compatibility with AAM via **definitions**. Include local zoning and land-use ordinances, airport and heliport rules and regulations, so they are applicable to vertiports and ensuring relevant funding opportunities are applicable to AAM.

AUVSI AAM Interactions in the States

Rep. James Lomax – HB176

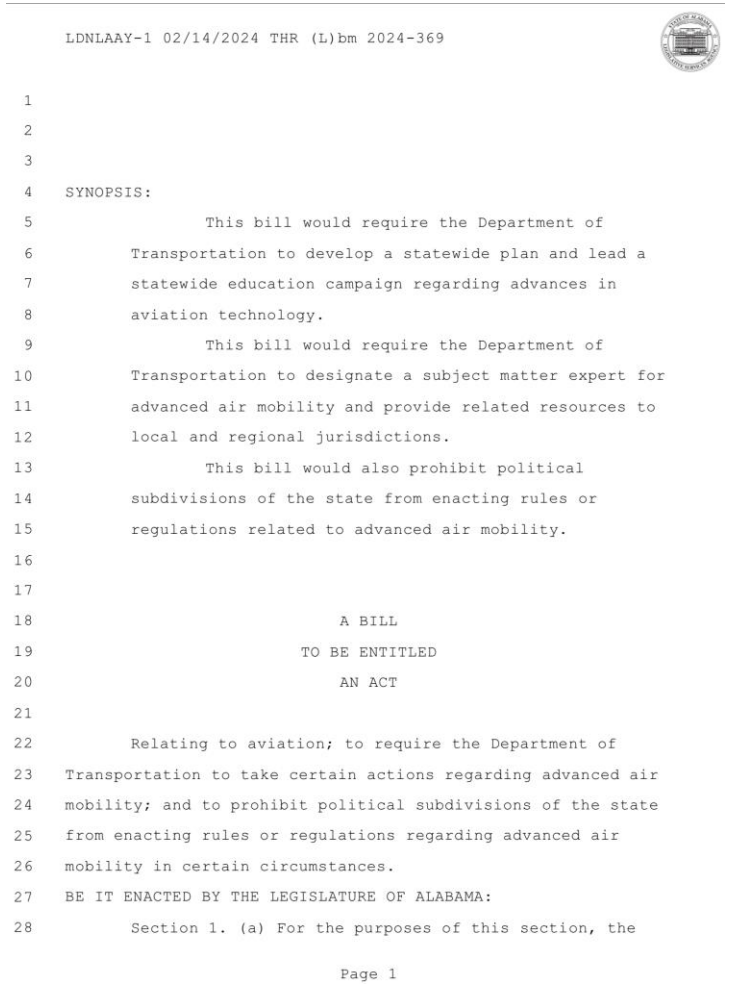
- **Title:** Aviation, requires Transportation dept. to take certain actions related to advanced air mobility
- Introduced February 14, 2024
- Referred to: Transportation, Utilities, and Infrastructure
- Working on Budget Appropriation

Texas AAM WG

Illinois Advisory Committee

Utah AAM Working Group (Upcoming)

- Participating with industry leaders on the Advisory Committee for Illinois' AAM Plan. First Meeting March 26th.



LDNLAAY-1 02/14/2024 THR (L)bm 2024-369

SYNOPSIS:

This bill would require the Department of Transportation to develop a statewide plan and lead a statewide education campaign regarding advances in aviation technology.

This bill would require the Department of Transportation to designate a subject matter expert for advanced air mobility and provide related resources to local and regional jurisdictions.

This bill would also prohibit political subdivisions of the state from enacting rules or regulations related to advanced air mobility.

A BILL

TO BE ENTITLED

AN ACT

Relating to aviation; to require the Department of Transportation to take certain actions regarding advanced air mobility; and to prohibit political subdivisions of the state from enacting rules or regulations regarding advanced air mobility in certain circumstances.

BE IT ENACTED BY THE LEGISLATURE OF ALABAMA:

Section 1. (a) For the purposes of this section, the

Page 1

Other AAM Legislative State Trends

Positive

- **Defining of Terms/Statewide Planning**
  - **FL SB 1032/HB 7049 – Requires long-range transportation plan to include AAM**
  - **FL HB 981 – Defines terms, provides duties of DOT for vertiports**
  - **OK HB 3672/SB 1912 – includes vertiports as municipally owned air facilities for development/funding purposes, allows for development of statewide plan**
- **Funding for AAM Development**
  - **FL HB 1301 – Grant Program that includes Vertiports**
  - **WA HB 2134 – Appropriation for development of AAM Plans**

Harmful

- **Restrictive Land-Use/Exclusive-Right Language**
  - **FL SB 1362**
  - **MI HB 5349**
  - **WI SB 867/AB 941**
  - **ALEC Model**

Response to Harmful Language

Monopolization/Exclusive Use wording has unintended consequences

"Ensure that a political subdivision of the state does not exercise its zoning and land use authority to grant or permit an exclusive right to one or more vertiport owners or operators and authorize a political subdivision to use its authority to promote reasonable access to advanced air mobility operators at public use vertiports within the jurisdiction of the subdivision."

Potential limiting factors:

- A medical center that wishes to zone for a vertiport to use eVTOL to reduce travel time for medical practitioners to reach rural health centers;
- A smaller community wants a vertiport to provide regional connectivity but does not have the tax dollars to build their own facility, nor the demand to support multiple vertiport operators;
- A manufacturer wishes to produce aircraft in a Florida industrial area, but will need a vertiport to test and distribute the aircraft;
- A distributor that wants to minimize impacts on the surrounding community wishes to integrate eVTOLs into their distribution network by integrating a vertiport into their secure warehouse facility would be inhibited.

Thank You

- For more detailed information, visit: https://www.auvsi.org/aam-prepared
- We are regularly meeting with lawmakers, OEMs, and other stakeholders

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AFWERX

AAM/UAS OPTIX

Project Overview

MONITOR SYSTEMS • DETECT FAULTS • MITIGATE FAILURES

RESILIENX

ais | Anzen Unmanned | HF Designworks | NUAIR MAKING FUTURE SKIES SAFER | OneSky | SUNHILLO Mission-Critical Data Interoperability | TRUWEATHER SOLUTIONS

OptiX Objectives

- Safe, Secure, and Scalable
  - Enable safe, secure, scalable integration of uncrewed systems into the US National Airspace System (NAS) and DoD operations
- Digital Infrastructure Focused
  - Focus on the digital infrastructure need to holistically address air risks associate with uncrewed aviation
  - Digital/tactical Operations Center
- Stakeholder Engagement Up Front
  - Through stakeholder engagement and human factors processes, build a system that end users actually need and want
  - Solve a problem vs create a solution looking for a problem
- Aviation Grade
  - Through FAA, NASA, and USAF engagement and review, develop OptiX to be aviation grade
    - MBSE design and rigorous V&V
- Enable AAM V&V for DoD and Industry
  - AAM capabilities are rapidly coming online and need to be tested and validated for operational use

What Makes OptiX-GS Different?

- Collaborative, ecosystem approach
- Mature (TRL7+) Best of Breed Products
- Model-Based Systems Engineering (MBSE) Design
- System of systems Verification and Validation (V&V)
- Standards Based, Open Architecture
- Real world experience designing, developing, deploying and maintaining complex, safety critical system of systems
- Operations & Maintenance (O&M) phase of the system life cycle accounted for
- In-time aviation safety management system (IASMS) as a cornerstone

Scope for OptiX-GS

Phase I

- Design, integrate, and deploy Team ResilienX's mature (TRL 7+) independent products as a unified commercial AAM Ops Center
- Deploy to Syracuse Hancock Airport
- Measure the system's performance, identify usability enhancements and derive additional requirements
- National stakeholder engagement and requirement solicitation

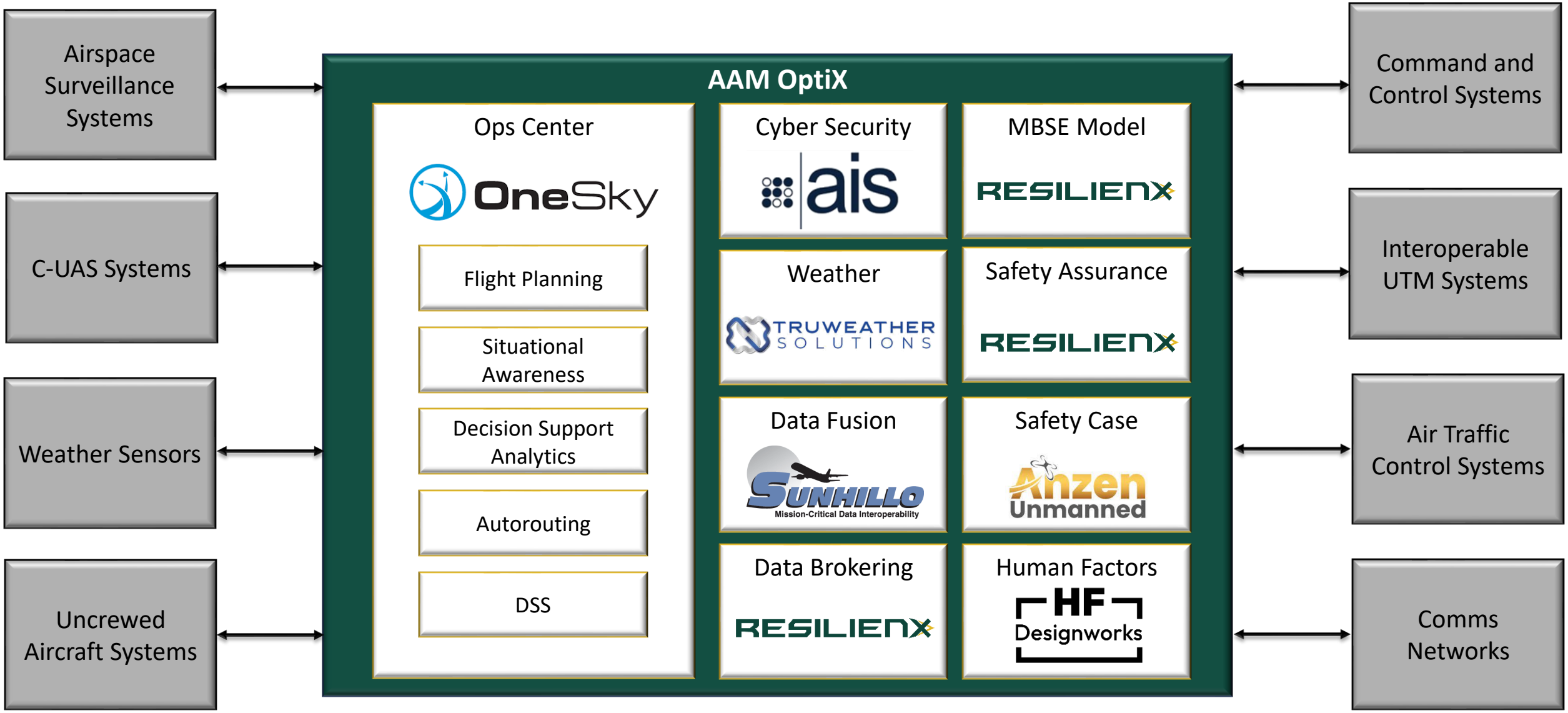
Phase II

- Iterate the design to incorporate prioritized enhancements identified in Phase I
- Continue test and demonstration for the AAM Ops Center, both for operations and V&V of various external systems

Future

- Dual-use deployments across federal, state, and commercial customers
- Bring in additional partners to fill out ecosystem capabilities for specific use cases

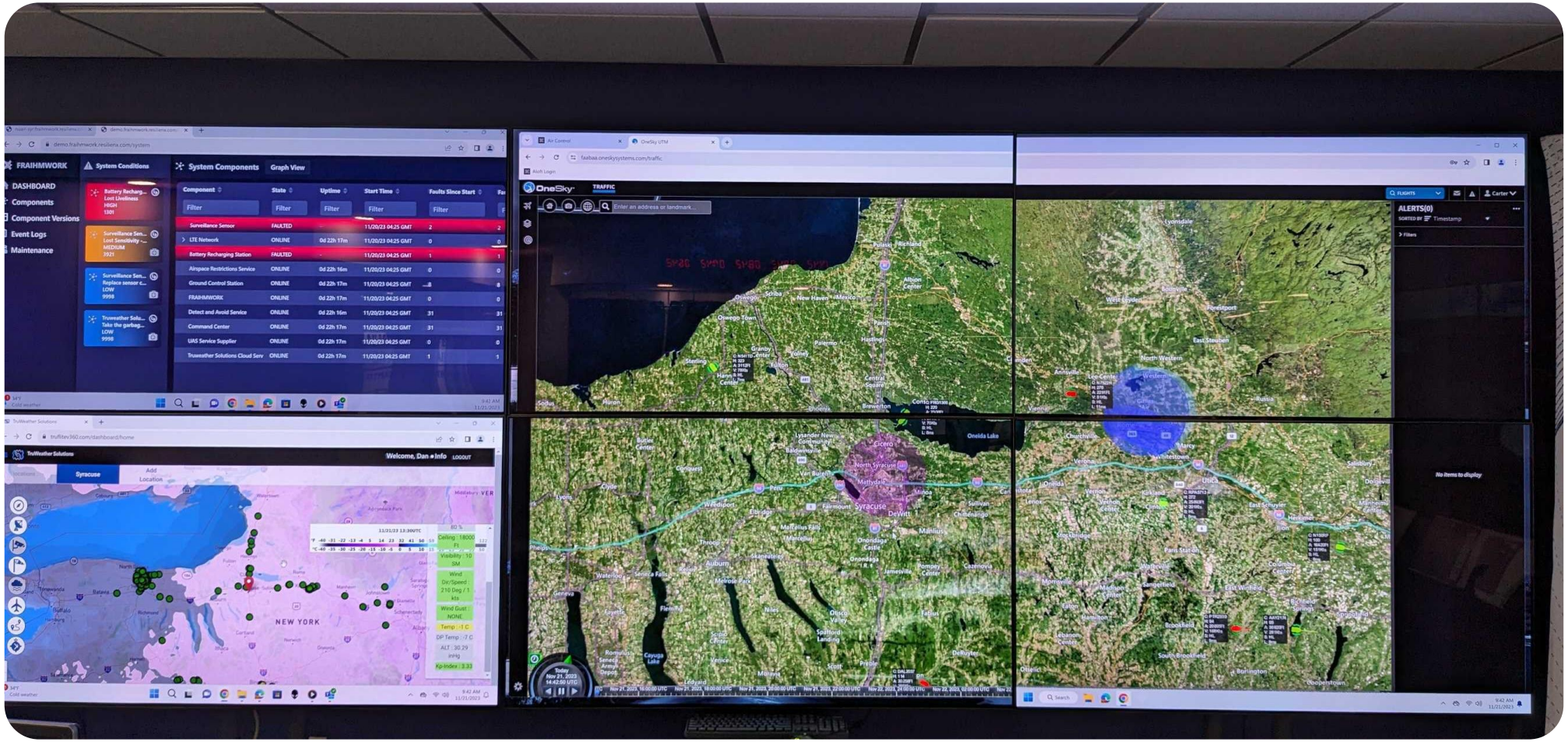
Anatomy of OptiX-GS
Turnkey Digital Infrastructure for Scaled Autonomy



OptiX Digital Infrastructure Functions

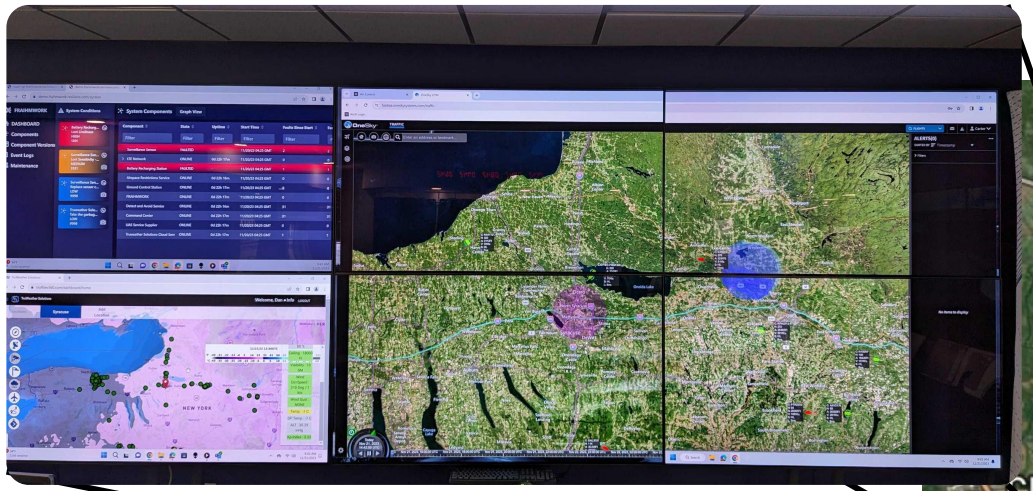
- Airspace situational awareness
- Common, fused air picture
- Real-time video feeds from operations
- Centralized data recording/repository
- Secure data ingest and distribution
- Ecosystem health and integrity monitoring
- System situational awareness of components and data feeds
- Dynamic airspace constraint injection and visualization
- Real-time and predictive micro-weather situational awareness
- Planned, future operation situational awareness
- Operation authorization capability
- Cyber Security
- Strategic Deconfliction

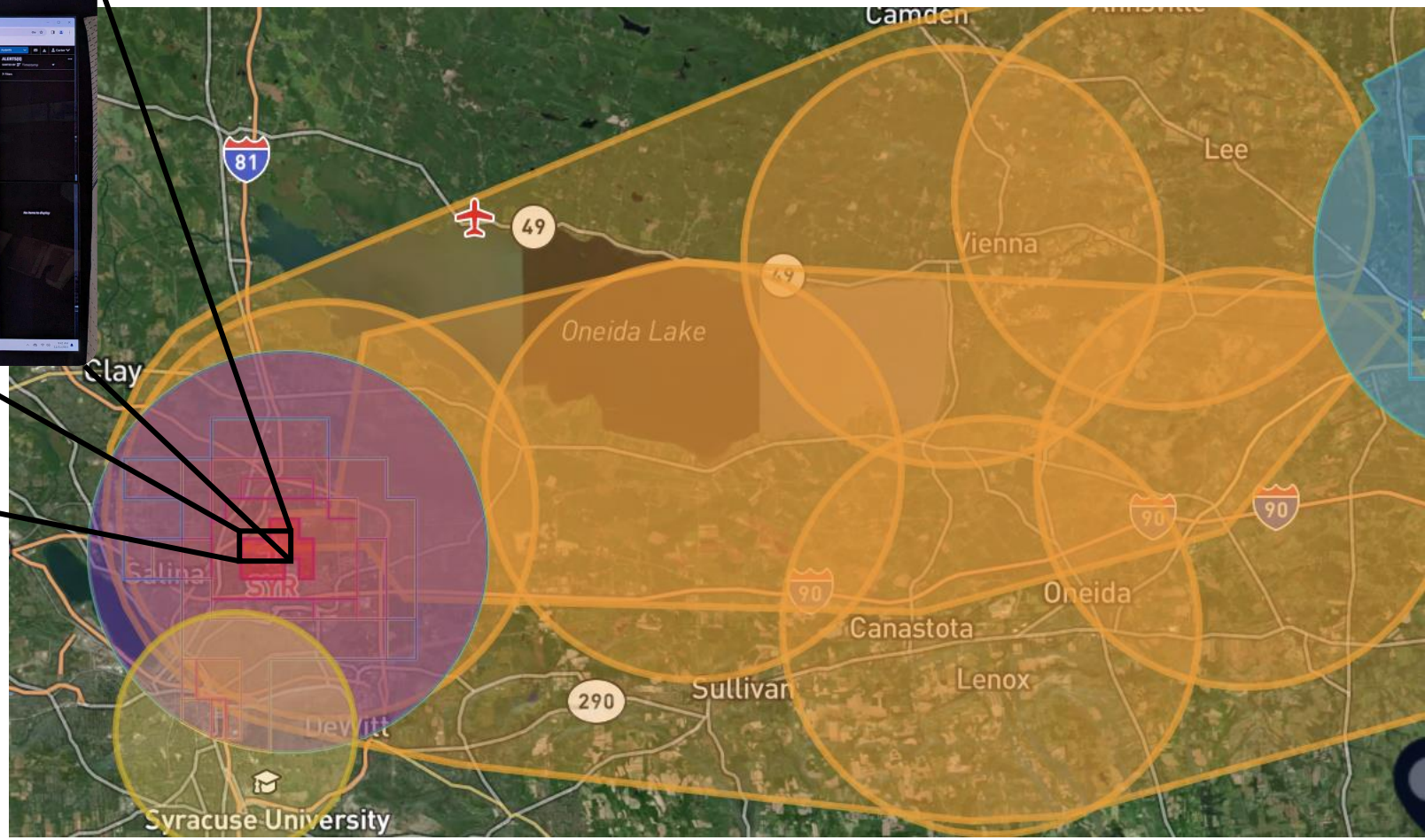
What does OptiX-GS look like?



OptiX-GS Deployed at the Syracuse Hancock Airport Operations Center

Initial Deployment with NUAIR

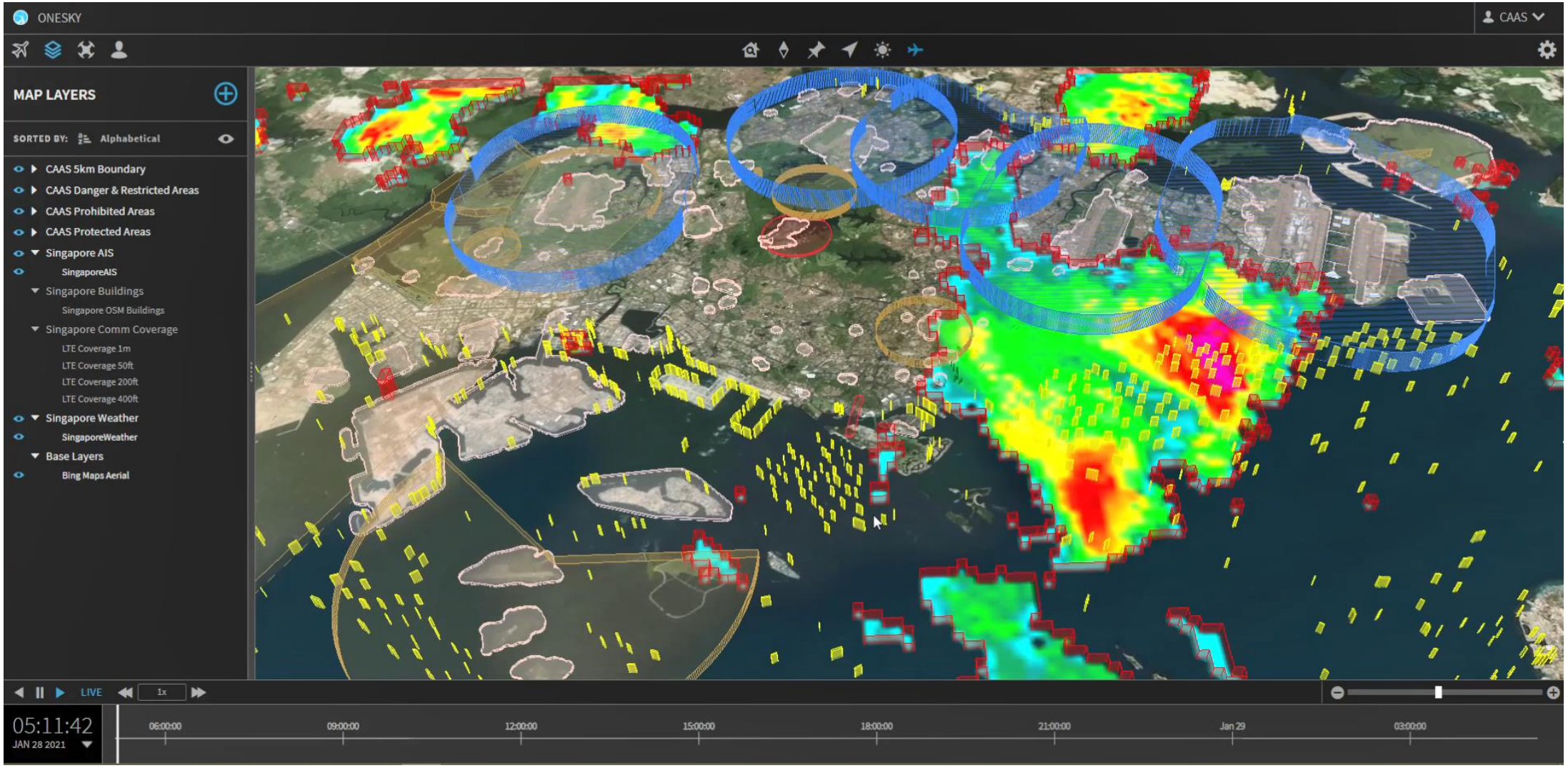




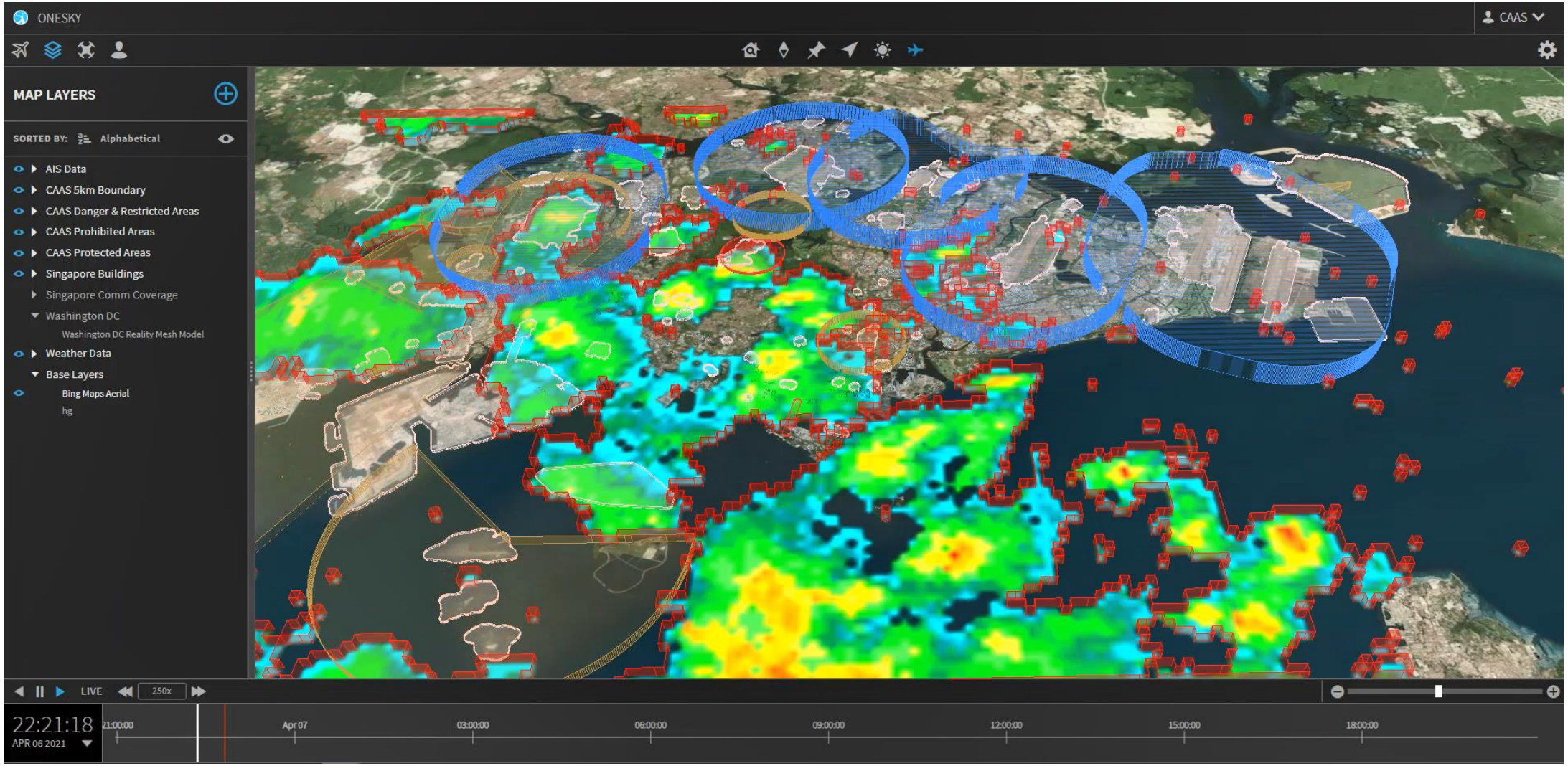
Hitting the ground running utilizing NUAIR's infrastructure and expertise

- Cooperative surveillance
- Non-cooperative surveillance
- Comms
- BVLOS COA's and waivers
- Surrogate craft and GCS

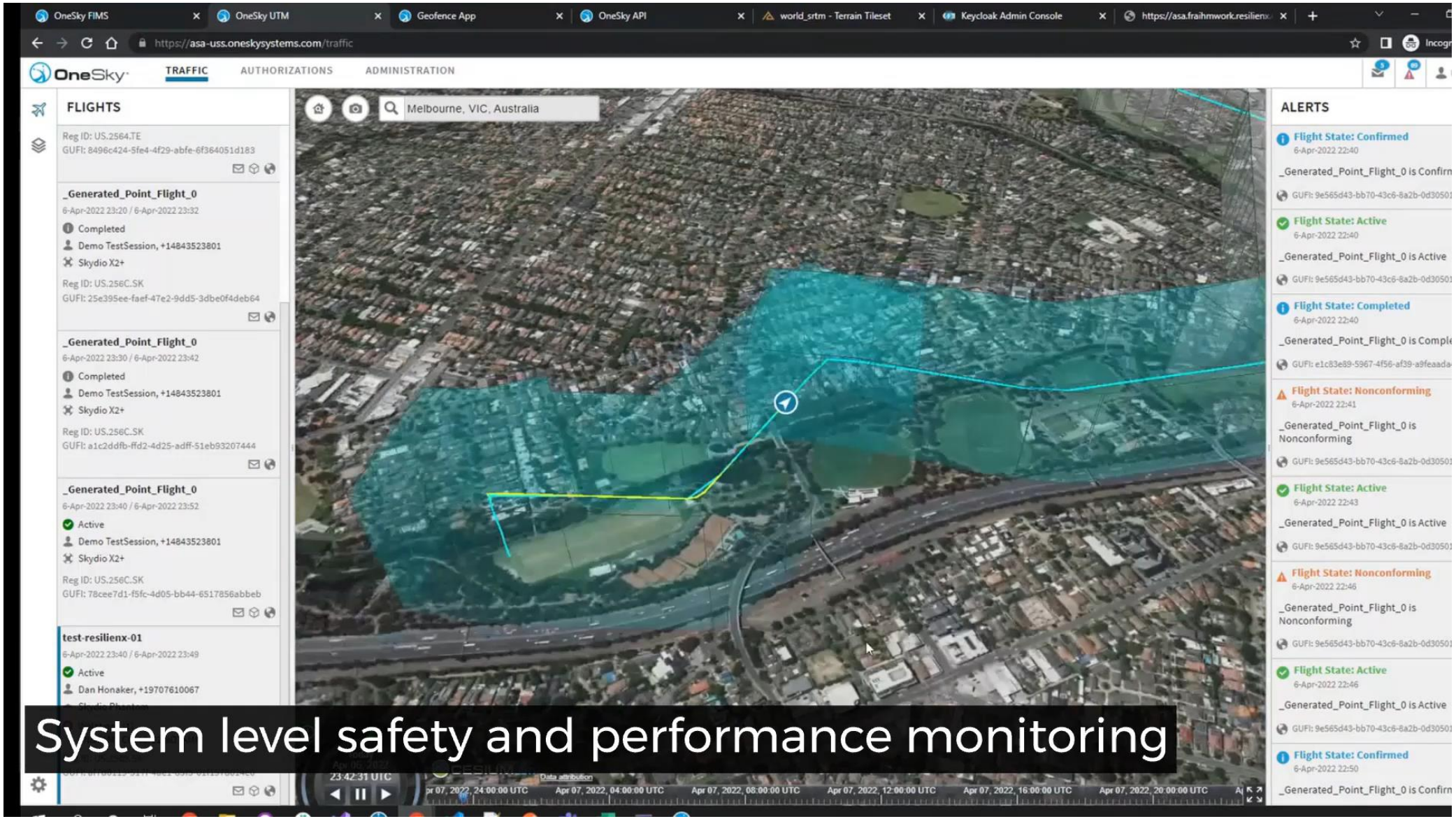
Dynamic Airspace



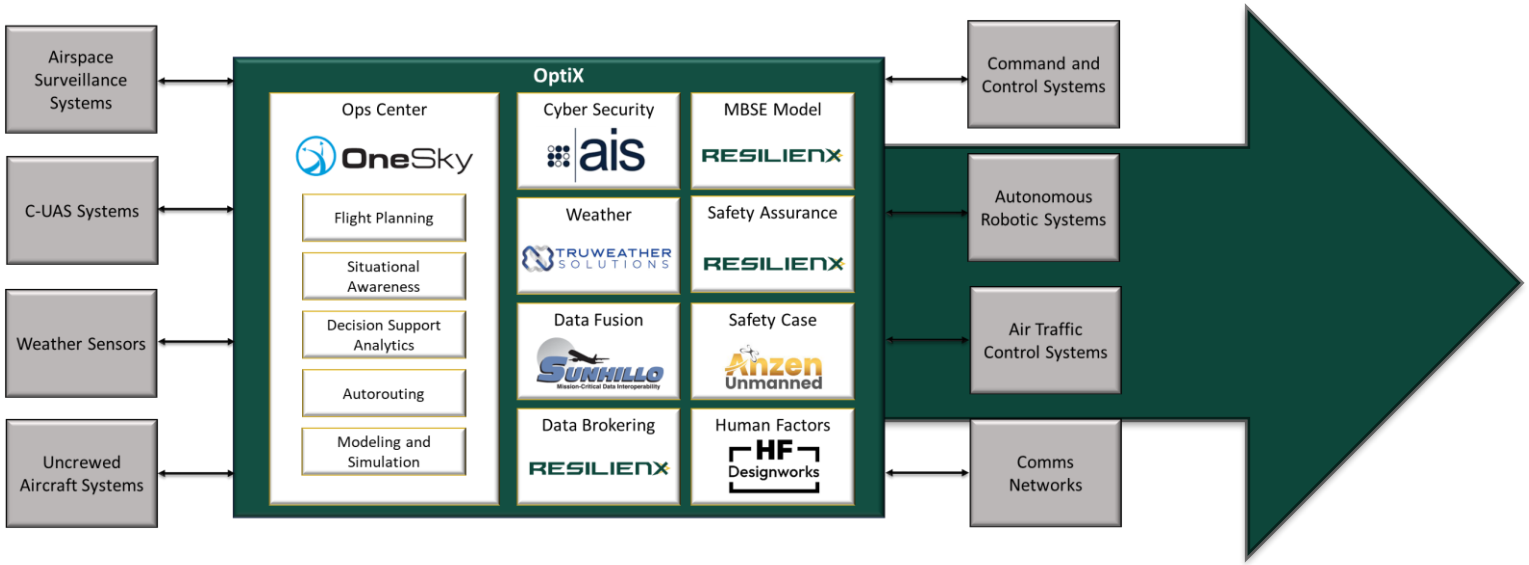
Dynamic Weather Constraints



Telemetry Monitoring Example



What does OptiX-GS Enable?



Robust and Verified Digital Infrastructure Design Enables:

- **External system verification and validation**
- **Extensibility to other operational systems**
- **Technical insertion to mature product**

Transition Opportunities include:

- Vertiport networks and vertiport automation systems
- Drone-in-a-box networks
- Autonomy testbeds
- Regional BVLOS systems
- Counter UAS and base protection systems
- Tactical, deployable uncrewed traffic management

Why ResilienX?

Integrating UAS into the US National Airspace System since 2008

Mission: To protect the world from autonomous error.
Vision: A safer, more autonomous world.

SRC

US Army Ground Based Sense and Avoid System (GBSAA) 2008-2017

GRYPHON SENSORS™ an SRC company

NUAIR and Ohio DOT BVLOS Corridors 2017-2018

RESILIENX

Leaders in In-time Aviation Safety Management Systems (IASMS)

It Takes ~~a Village~~ an Ecosystem

- Many products, of varying maturity, exist on the market
- Very few “solutions” for airspace integration have reached an aviation-grade level of maturity
- ResilienX sourced the top, proven products and services to create a best-of-breed solution for the digital infrastructure layer of AAM
- Partner selection criteria included:
  - Demonstrated product maturity
  - Past integration experience or well defined interfaces
  - Demonstrated thought leadership
  - Participation in FAA/NASA/DoD UTM/AAM projects and research
  - Financial stability

Q&A

For additional information or to schedule a deep dive:

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