

# Verification & Validation

## Through Storyboarding

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Federal Aviation  
Administration



# How Do You Explain?

NAS as it Exists Today

NextGen Concept of Operations

Portfolio Management (OI's & OS's)

- Collaborative Air Traffic Management
- Time Base Flow Metering

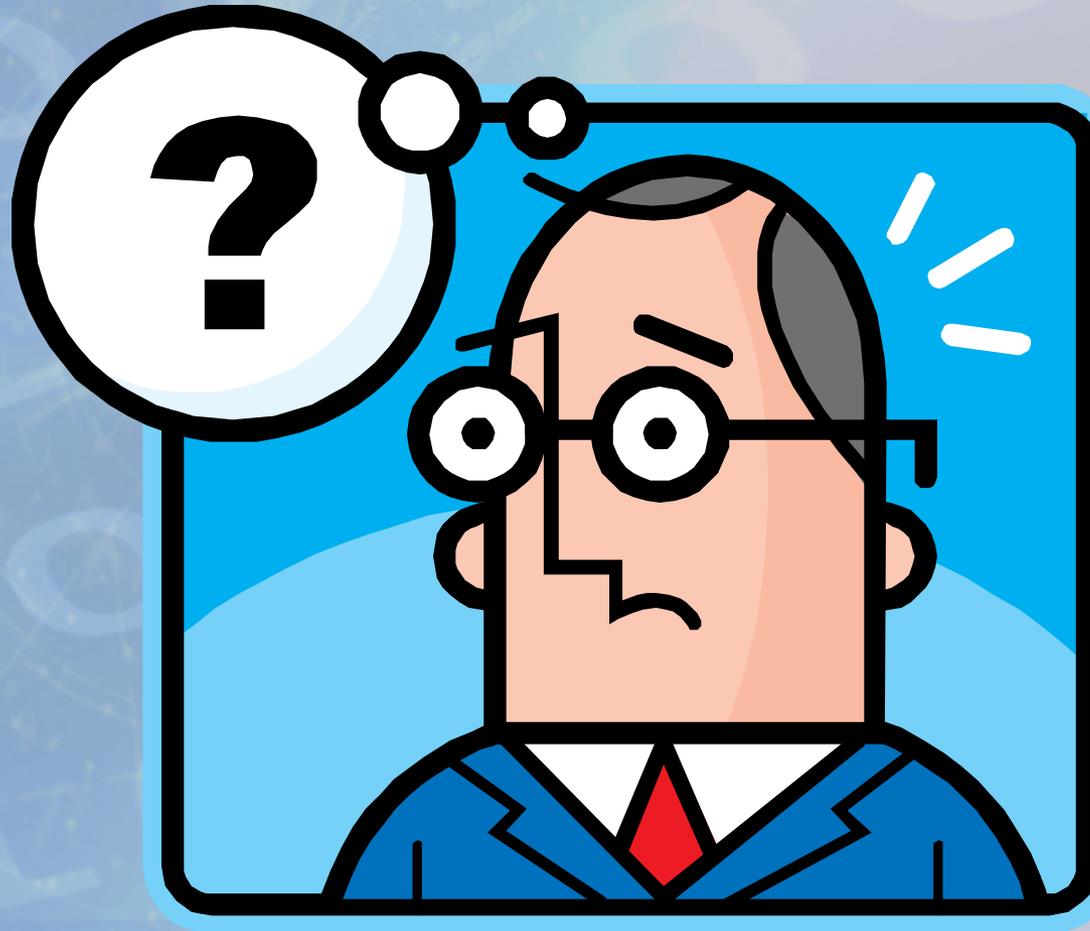
Integration of Complex System of Systems

- SWIM / DataComm / NVS / ADS-B / NNEW

Test Cases & Test Case Scenarios



# How Do You Explain?



# Existing Methodology



NAS Course – NextGen Course?



Enterprise Architecture Diagrams



ConOps & Requirement Documents



Websites

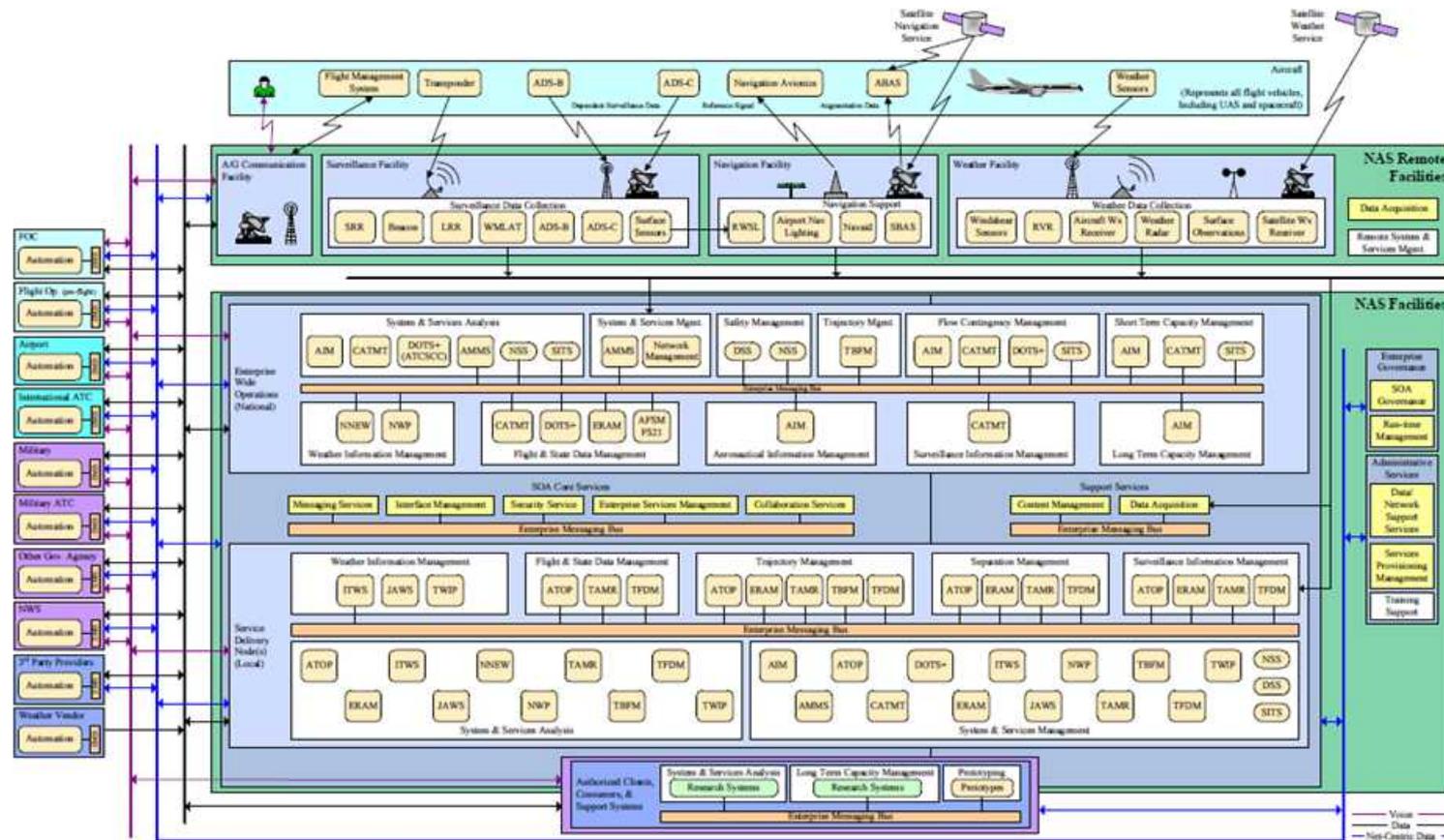


Videos

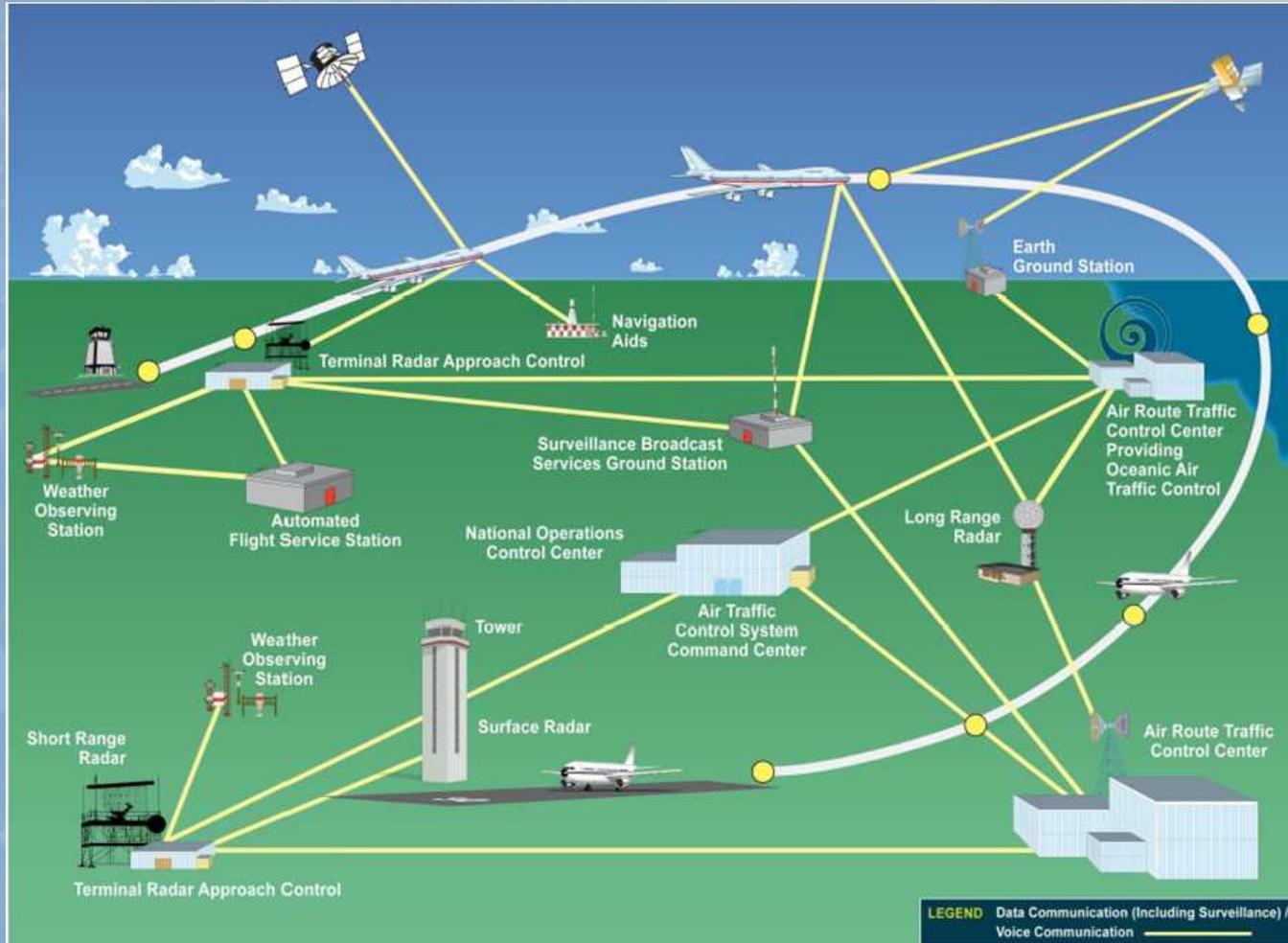




# Next Gen Architecture (Far-Term)



# NAS As-Is Overview



# How do you Visualize?



Sequence of Events (When?)



Interconnectivity



Input & Output Messages



Interaction among Components &  
Systems



Failure Modes



# Storyboarding

- ❑ A technique of visualizing for the purposes of telling a story
- ❑ Used extensively by the film industry
- ❑ Organize Thoughts
- ❑ Low-Fidelity Prototypes
- ❑ Animations & Voice-Overs



*"Enough storyboarding. Let's shoot something."*



# Storyboarding: Examples



NAS Functional  
Architecture

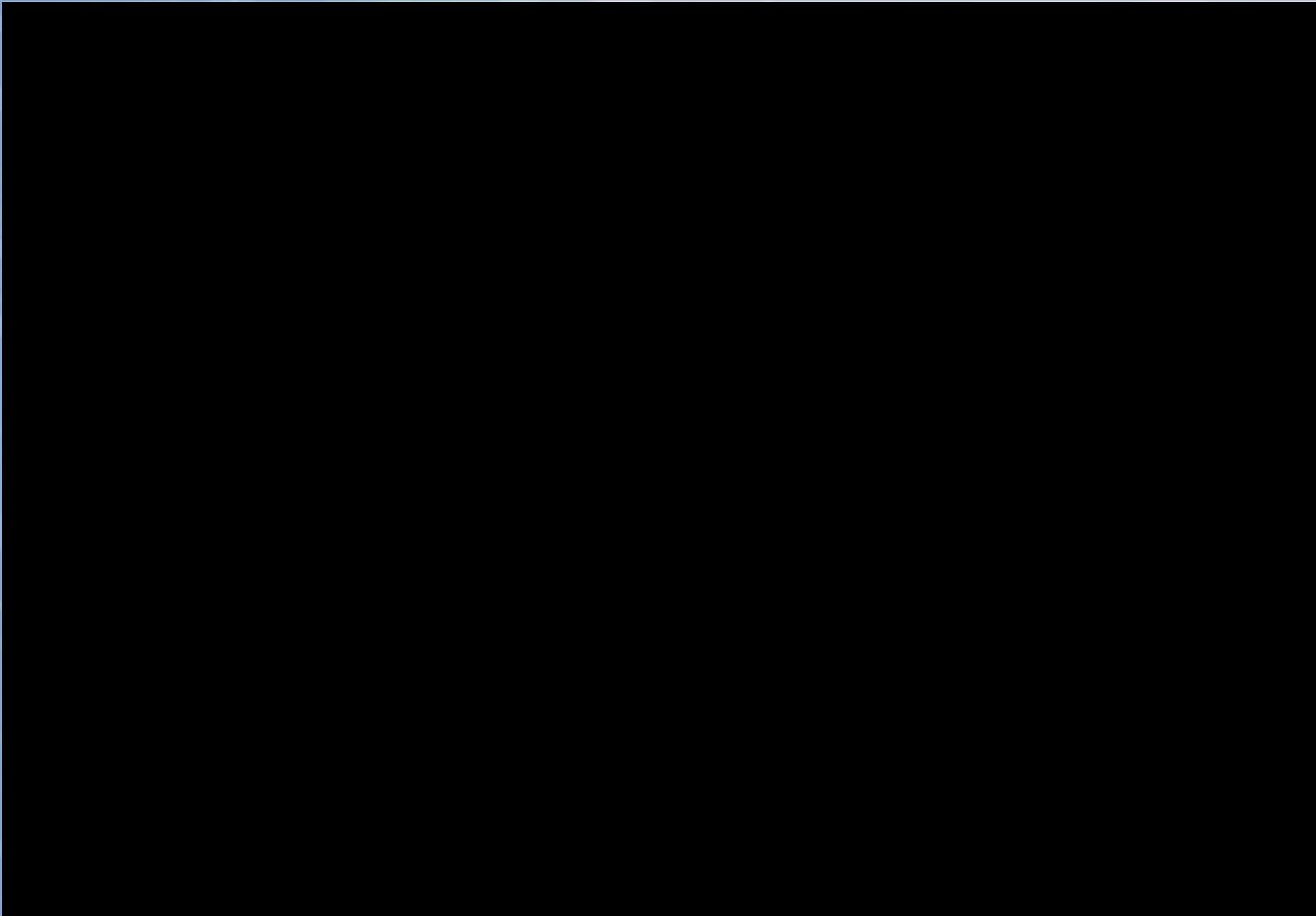


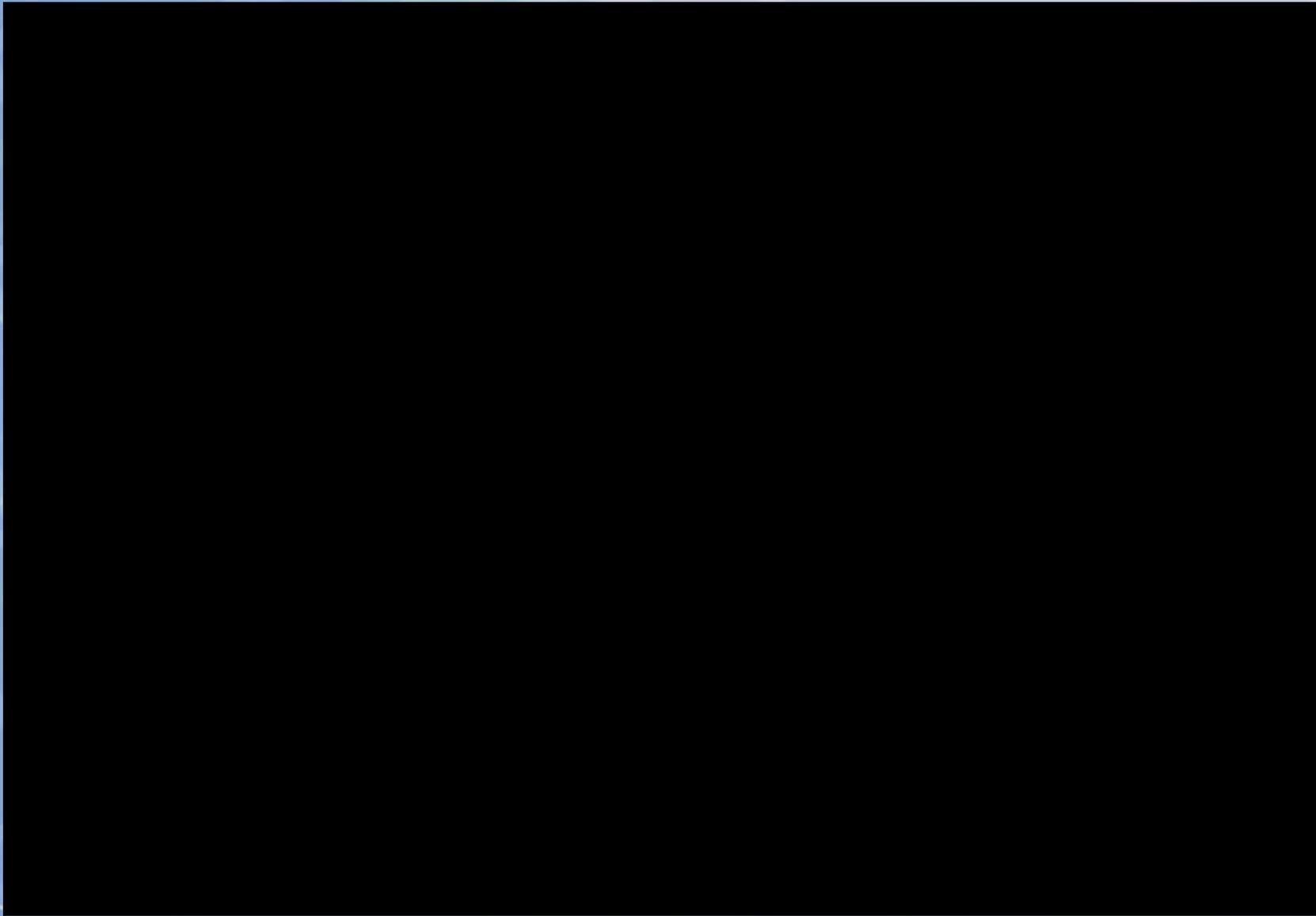
ACY Simulation



Data Comm  
Segment 1 Phase 1



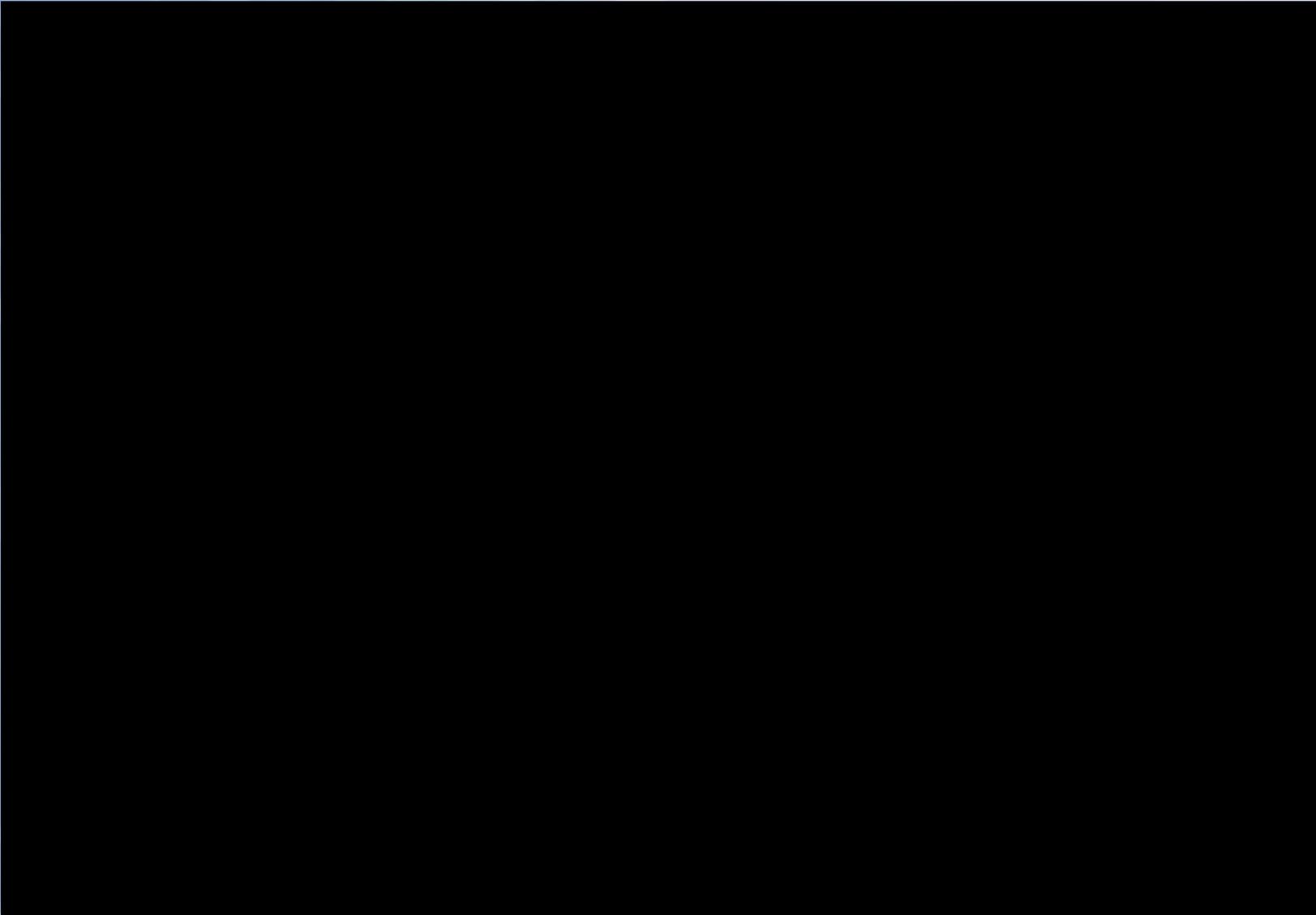


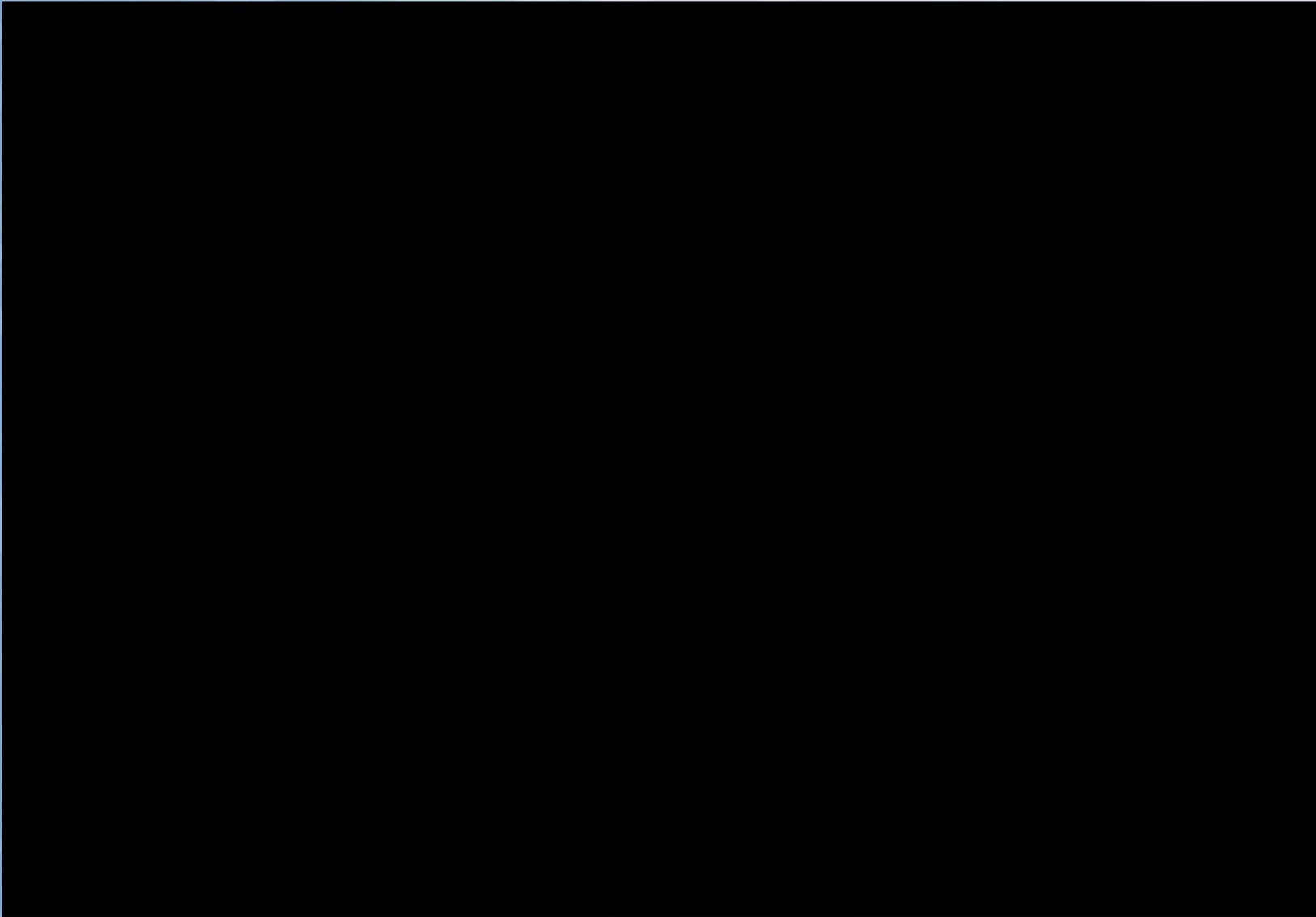


V&V – Focus on the Future



**Federal Aviation  
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# Storyboarding: The Product



***Easily affordable!***



***Takes much less time  
than you think!***



***Requires no previous  
Flash experience!***



# Storyboarding V&V Perspective

**The NAS operates today versus  
How it will operate in the future:**

- Demonstrate Concepts of Operations
- Interaction between Systems (SoS)

## **TEMP Development**

- Functionality & Interconnectivity
- Formation of ITT – Diversified Audience

## **DT & OT: Test Cases & Test Case Scenarios**

- Sequence of Events
- Failure Modes



# Storyboarding

*What is the message?*

- If “a picture is worth a thousand words” ...



- What is “an animated picture worth”?

## Focus on the Future!

