

START

Spatio-Temporal Analysis for Rapid Tasking

Nikhil Kalghatgi

781-271-4786
nikhil@mitre.org

Erika Darling

781-271-5955
edarling@mitre.org

Air Force MOIE

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Problem

Warfighters lack the proper tools to replan ISR missions dynamically

– Current tools:

- **Focus solely on planning, but today's missions require rapid replanning**
- **Provide either fully automated scheduling – not flexible enough for real-world operations**

OR

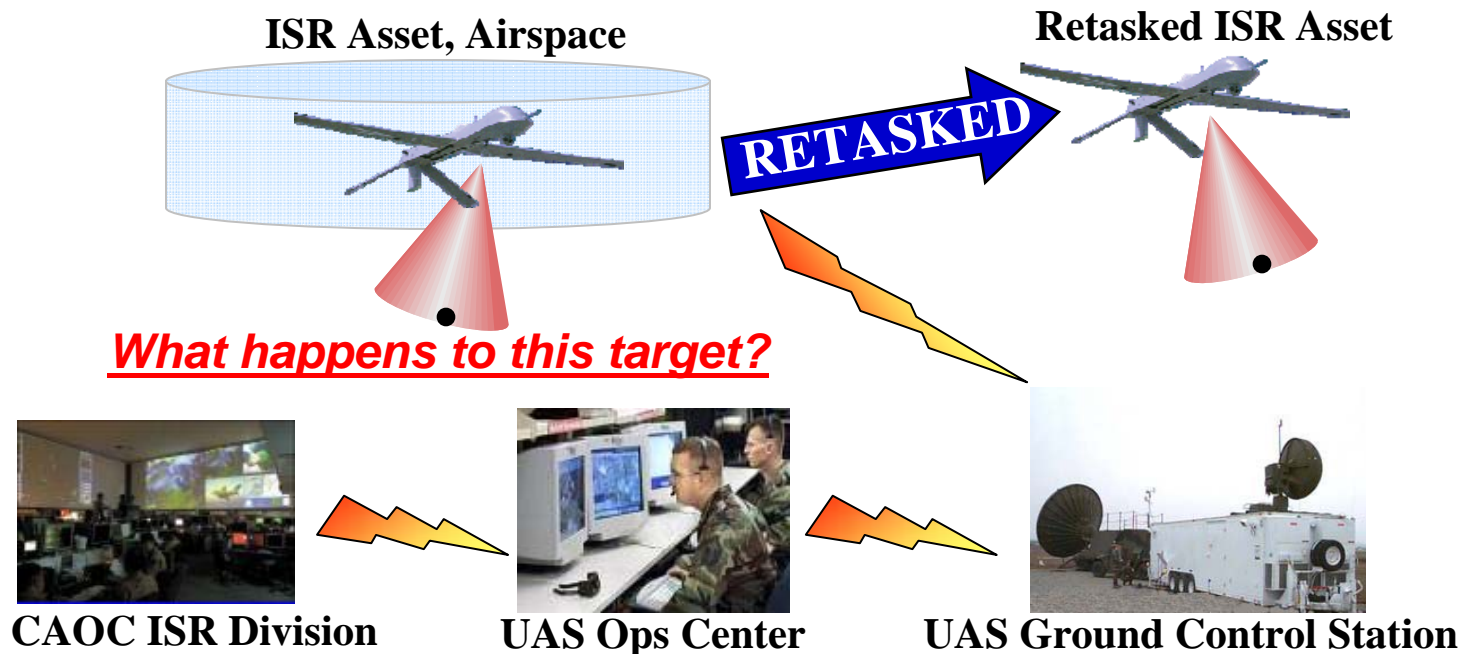
- **Provide no automation – too much burden on the warfighter**

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Background

- Decisions in the CAOC to retask assets are high value and time sensitive
- Risks and ripple effects cannot be fully considered with today's systems



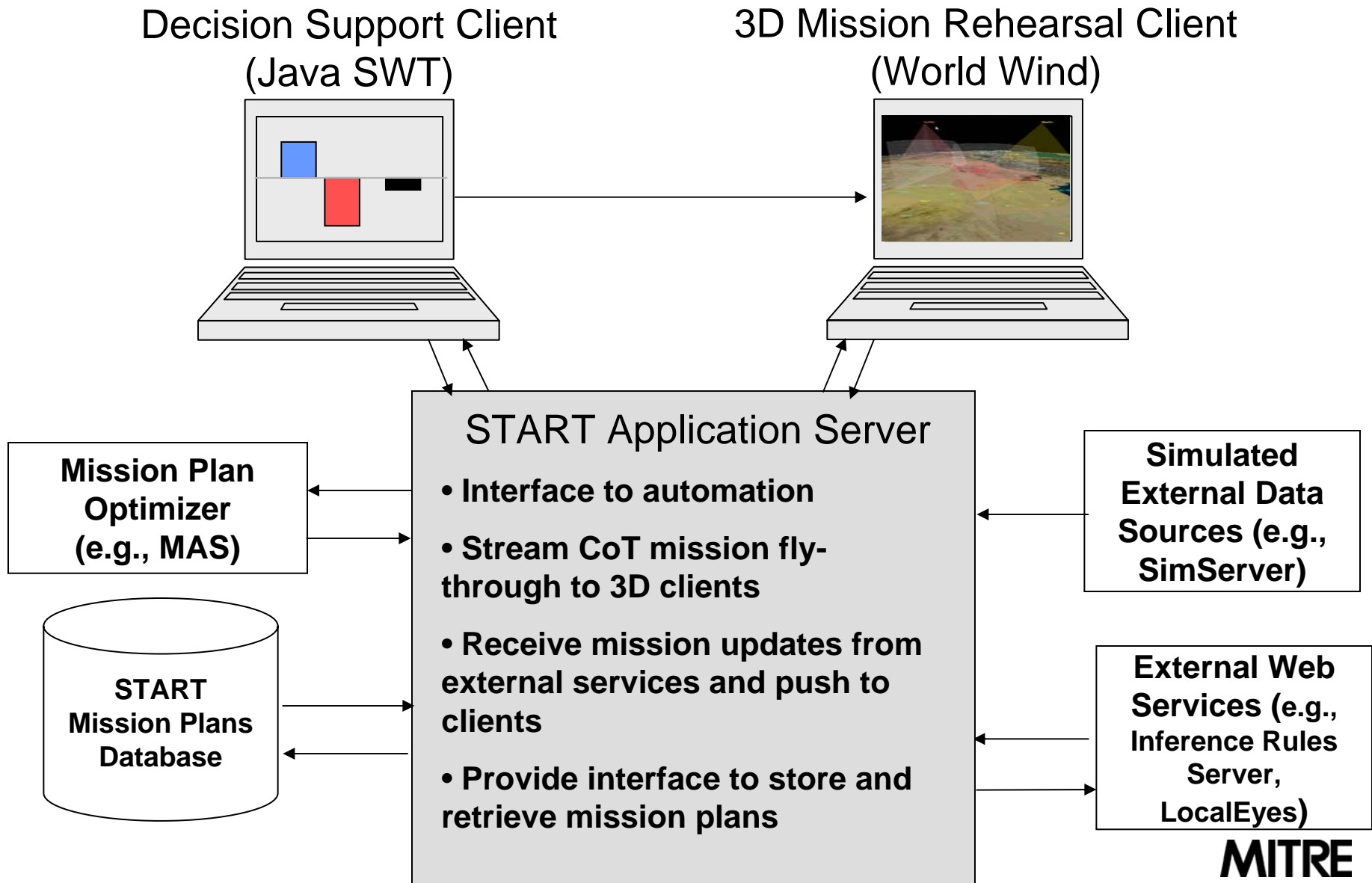
Objective

- Investigate to what extent a system providing insight into automation enables warfighters to **dynamically replan ISR assets** with improved situation awareness (SA), confidence, and target coverage
 - Enable warfighters to perform what-if analyses on ISR schedules and plans
 - Combine automated optimization for planning with real-world dynamics

Activities

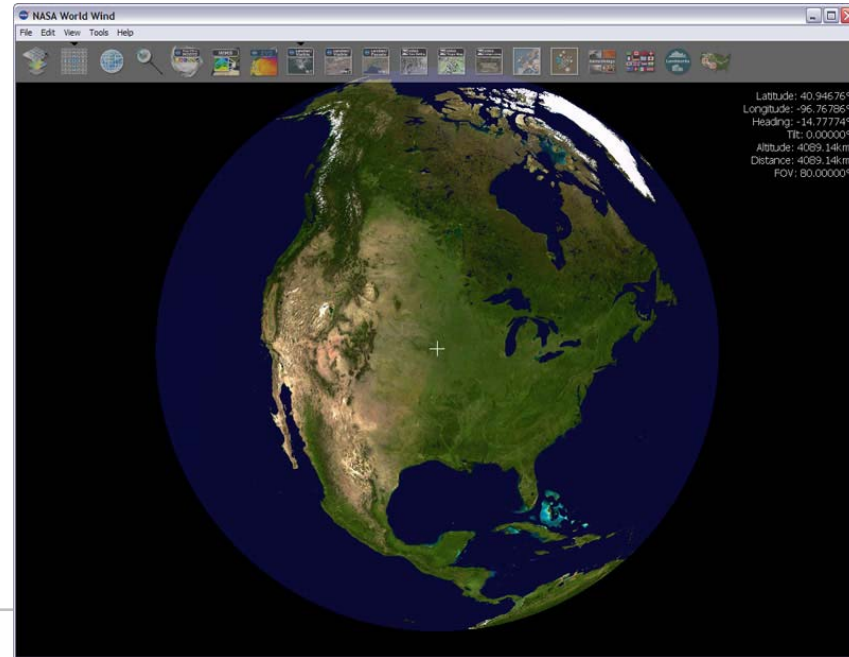
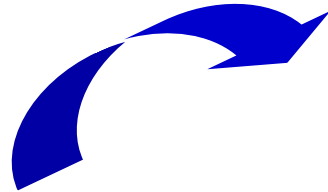
- **Interview decision makers who manage ISR assets**
 - **Products: Goal Directed Task Analyses (GDTAs) of Predator operators, Global Hawk operators, U-2 operators, and CAOC ISR collection managers**
- **Develop a research prototype that supports what-if analyses when replanning assets**
 - **Products: Designs that provide insight into automation**
- **Evaluate to what extent the insight into automation techniques supports replanning with improved SA, confidence, and target coverage**
 - **Products: Experimental test bed; conference paper; warfighter evaluations at Coalition Warrior Interop Demo (CWID)**

Highlight: START Architecture



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Highlight/Demonstration



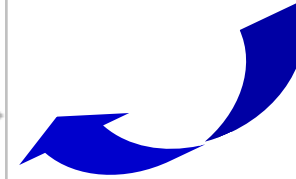
Gather Intel - Risk = Pairing Gain

recommended

Pairing	Gain	Risk	Intel
P1	High	Low	Low
P2	Low	High	High
P3	Medium	Medium	Medium

P1	T2	◆
P2	TST1 ◆ T3	◆
P3	T4	◆

P1	TST1 ◆ T2	◆
P2	T1 ◆ T3	◆
P3	T4	◆



Impacts

- **Tech transition opportunity with Collection Management Mission Applications (CMMA)**
- **Accepted as a trial to the Coalition Warrior Interoperability Demonstration (CWID) 2007**
 - **Warfighters will perform tasks using our decision support system and prepare a written evaluation**
- **Warfighter Demo at Beale AFB for U-2 and Global Hawk**

Future Plans



**Effects-Based Dynamic Replanning
of All Air and Space Assets**

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