Headquarters U.S. Air Force

I n t e g r i t y - S e r v i c e - E x c e l l e n c e

Operational Training Infrastructure (OTI)

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AF/A3TI
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- **Training Systems / Simulators**

- **Ranges**

- **Airspace**

- **Threat Environment Generators**

- **Aggressors**

- **Embedded Training Capability**

- **Enterprise Support**

- **Secure Networks**

- **Pods / Weapon System Interface Devices**

- **Exercises***

Elements of a Relevant Training Environment

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- **Modernize NTTR and JPARC to replicate a level 4 threat**

- **Develop a level 4 synthetic capability for all operational units (Air)**

- **Develop a level 4 synthetic capability for all operational units (Space)**

- **Provide level 4 cyberspace ranges**

- **Modernize select Primary Training Ranges to ensure Pacing Units have routine access to a level 3 live training environment**
    - **NTTR & JPARC plus 8 PTRs = ~50% of pacing units**
    - **NTTR & JPARC plus 8 PTRs = ~80% of pacing units**

- **Develop Nellis Virtual Test and Training Center (VTTC) for level 4+ high-end advanced training and tactics development**

- **Provide adversary air tailored to unit requirements**

- **Optimize airspace to support level 3+ training**

- **Develop a blended capability to provide a level 4 training environment**

Current Limitations

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- **Live**
    - **Increased operational capabilities and weapon footprints**
    - **Geographically constrained ranges**
    - **Competition for spectrum and airspace**
    - **Operational security concerns**
    - **Cost of replicating high-fidelity threats and targets**
    - **Increased flying-hour cost for 5th Gen systems**

    Beyond Air Force Control

- **Synthetic**
    - **Cybersecurity**
    - **Lack of interoperability and authoritative data**
    - **Lack of fidelity**
    - **Lack of concurrence with the weapon system**
    - **Latency**
        - **Distributed simulators**
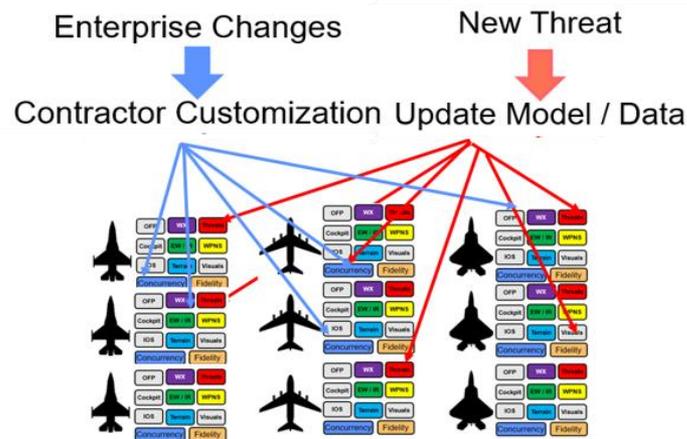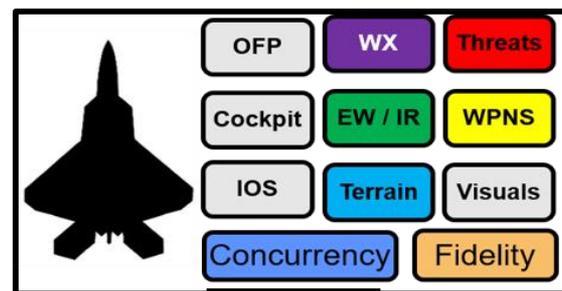   - **Delay in simulating adversary systems**

    Within Air Force Control

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- **Current construct has led to inefficiencies and lack of agility**
  - **Unable to 'surge' environment development to reach Full Spectrum Readiness**

- **Competing needs: Concurrency vs Fidelity & Synthetic Environment (SE)**
  - **MAJCOMs are not incentivized to prioritize SE investment**

- **Funding structure issues, difficult to answer CSAF's questions:**
  - *Who's in charge of our Sims?*
  - *How much do we spend on Sims?*
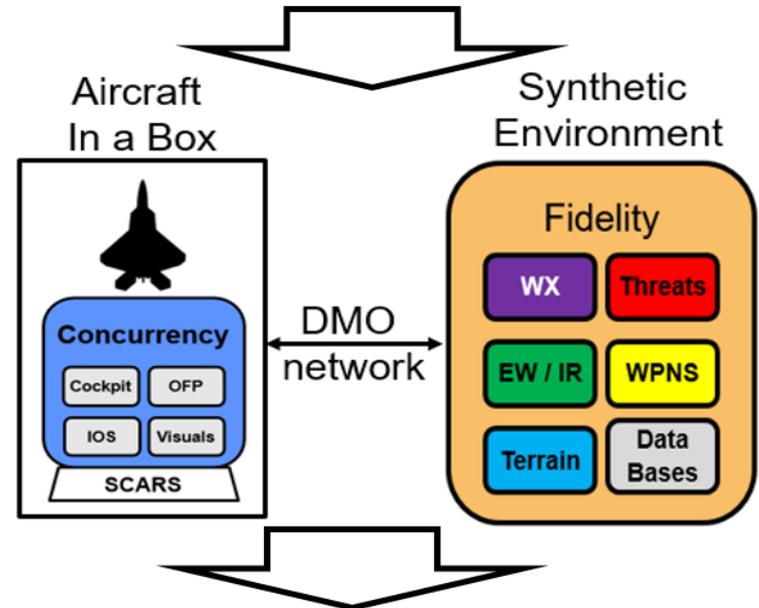

Current Framework

OFP | WX | Threats
Cockpit | EW / IR | WPNS
IOS | Terrain | Visuals
Concurrency | Fidelity

Enterprise Changes — New Threat

Contractor Customization — Update Model / Data

Disparate framework has led to disconnected funding & management

Strategic Alignment

- **BLUF: Technically and programmatically separate Aircraft-in-a-Box (AIB) from Synthetic Environment (SE)**

- **SCARS: multi-domain enabler and cyber hardening**

- **AIB-SE framework is an *end state* requiring senior leadership focus**

- **Looking for technical solutions from industry and FFRDCs**

Future Strategy: leverage JSE-AF capabilities and modular framework → maximize reuse and tailor for OTI

Aircraft In a Box

Synthetic Environment

Fidelity

WX	Threats
EW / IR	WPNS
Terrain	Data Bases

Concurrency

| Cockpit | OFP |
| IOS | Visuals |

SCARS

DMO network

Key to Success: alignment across DOTMLPF-P + Funding

Update 1990s capabilities & management to meet 2018 NDS

Improve Readiness

- **Squadrons will get capacity for home station synthetic high end weekly/monthly training instead of a few live events annually**

- **Commanders will have a viable option to meet Full Spectrum Readiness and Reporting**

- **SE 'upgrade' to A2/AD and then keep pace with changing Blue and Red capabilities and tactics**

- **Fund high end synthetic environment**
    - **"All in" decision like 1970's build-up of Red Flag**

Questions?

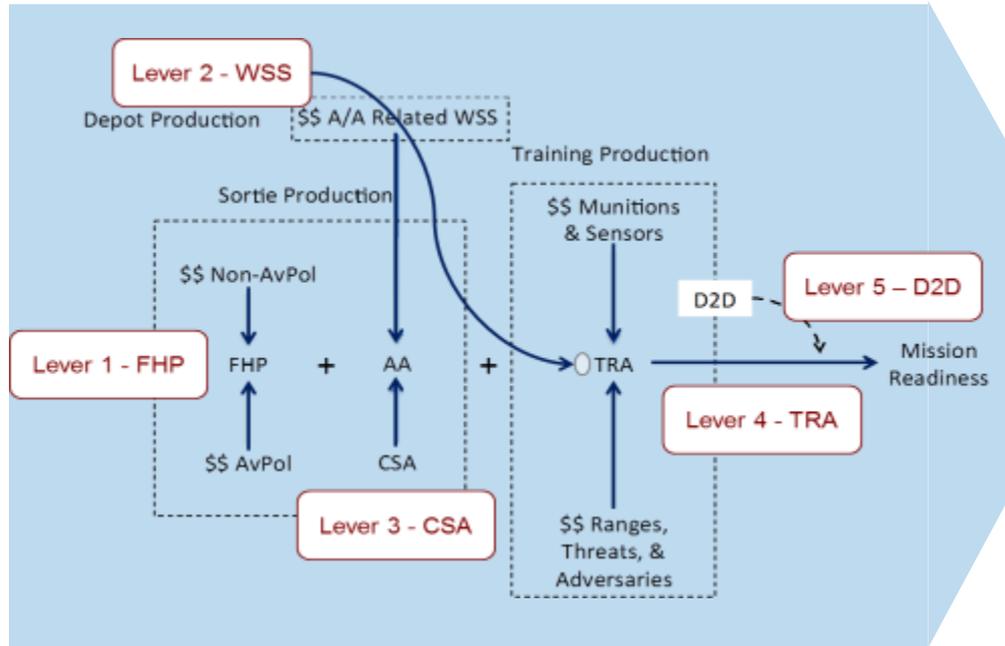## Levers are Resource Inputs - Interactions Produce Outputs

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The Simplified Readiness Machine

Lever 1: Flying Hour Program (FHP)

Lever 2: Weapon System Sustainment (WSS)

Lever 3: Critical Skills Availability (CSA)

Lever 4: Training Resource Availability (TRA)

Lever 5: Deploy to Dwell (D2D)

Ready for What

One Lever alone can't Fix Readiness, but
One Lever alone can Constrain or Break Readiness