



Secure LVC Advanced Training Environment (SLATE)



Advanced Technology Demonstration (ATD)

9 May 17



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Overview



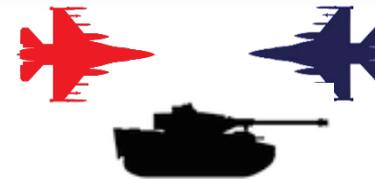
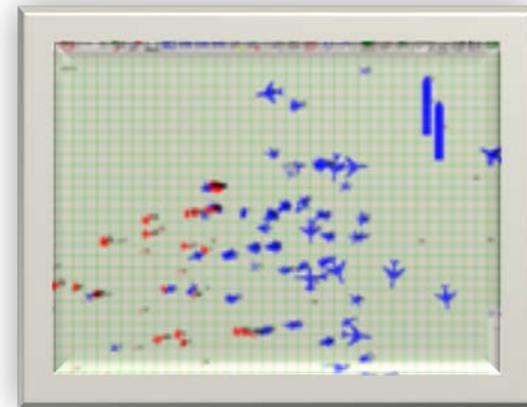
- **SLATE ATD Background**
- **SLATE program specifics**
 - **What & How**
- **Questions/Discussion**



Live, Virtual, and Constructive Training Enterprise Defined



Seamlessly blending Live, Virtual, and Constructive (LVC) assets



Live:
Real People in
Real Ops Systems

Virtual:
Real People in
Simulated Systems

Constructive:
Computer Generated

LVC Enterprise: An Open, Secure, Persistent Infrastructure for Training and Ops



Secure LVC Advanced Training Environment (SLATE) Background



- **Builds on ACC/AFRL LVC Pilot Project, 2012**
- **SAF/AQ, COMACC and AFMC/CC determined add'l tech maturation and risk reduction required prior to LVC Program of Record (ACC ASR), Apr 2014**
 - **AFRL (711 HPW/RHA) tasked to execute Advanced Technology Demonstration (ATD) for tech maturation/risk reduction**
 - **Fully funded FY14 – FY17 by AFRL (\$40M) and SAF/AQ (\$7M)**
- **Commissioned as Advanced Technology Demonstration (ATD) at ACC Applied Technology Council, Feb 2015**



Fifth Gen JORD Requirement



5.3.8.2.(U) Training Environments. The **fifth gen** Training System must provide for **individualized, group and team training**¹ environments. The Training system must be capable of incorporating live, virtual, and constructive environments, including **local and distributed training**², **throughout the training continuum**³. The training System must be interoperable with **USAF, USMC, USN, and UK**⁴ distributed mission training capability implementation. The Training System must provide a **continuous learning**⁵ environment for aircrew and maintainers including briefing, debriefing, mission planning, and mission/maintenance task rehearsal. Fifth gen training must integrate self-assessment tools that provide feedback to the user and **input to the training management system**⁶.

1 = Multi-MDS

4 = Multi Level Security

2 = Live/Sim connectivity (DMO/NCTE)

5 = Learning Management System

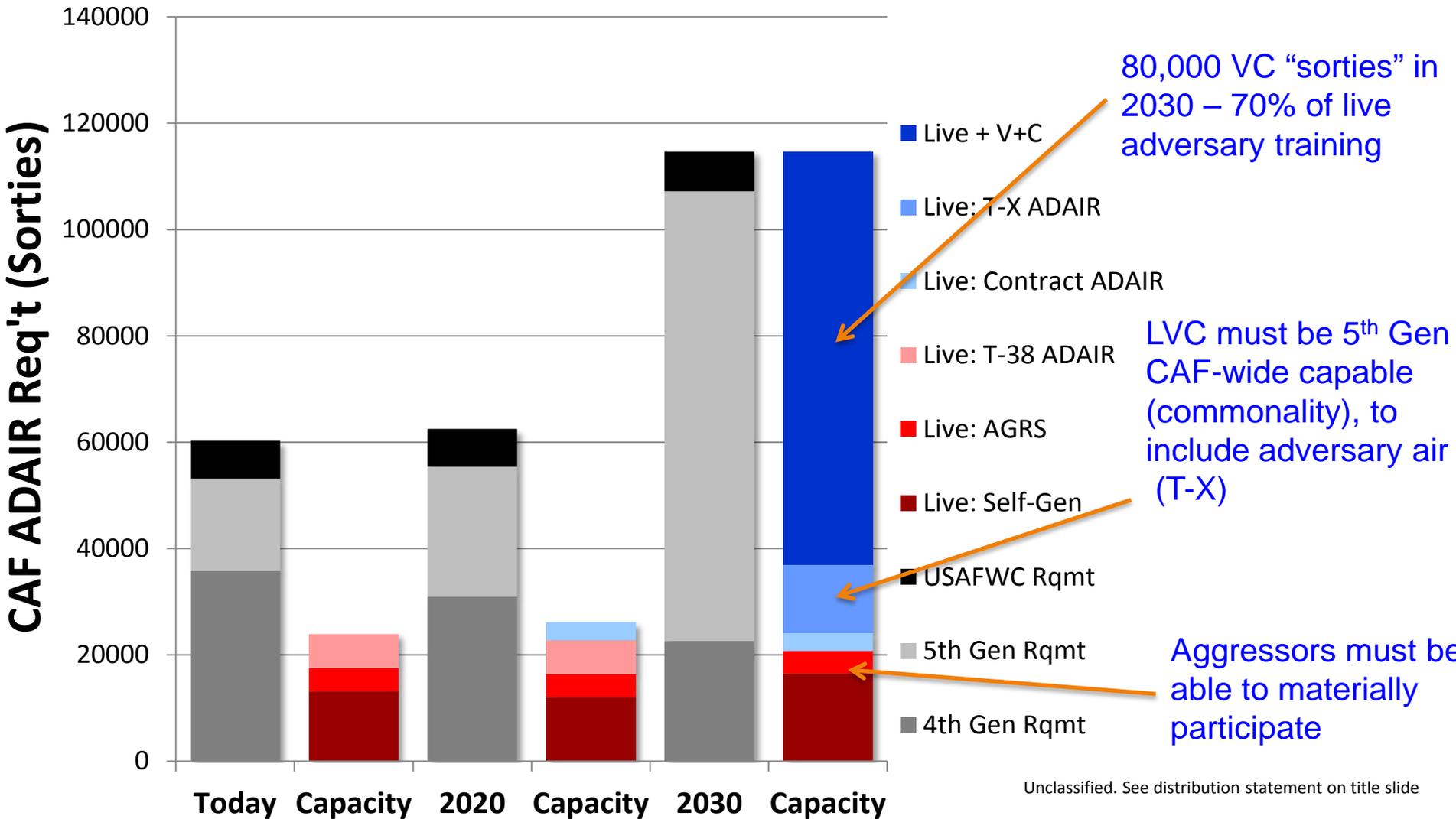
3 = Tethered/UnTethered Ops

6 = Proficiency Based Training

MILS, although the only “validated” requirement, is not the most important



USAF Adversary Air Training Needs



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There are zero solutions on the table that satisfy this requirement besides ATD



SLATE ATD Charter

1. **Validate LVC infrastructure, interface control and data standards with a *government owned, non-proprietary focus***
2. **Demonstrate Multiple Independent Levels of Security (MILS) encryption technology and rule sets**
3. **Evaluate throughput of MILS encryptor, radio and 5G-ATW waveform**
4. **Demonstrate both Pod and LRU form factors**
5. **Develop select weapon system OFP changes with vendors aligned with CAF training priorities (Direct risk reduction and leave behind for PoR)**
6. **Document training benefits and opportunities resulting from integration of LVC**

Every effort being made for exportability across infrastructure



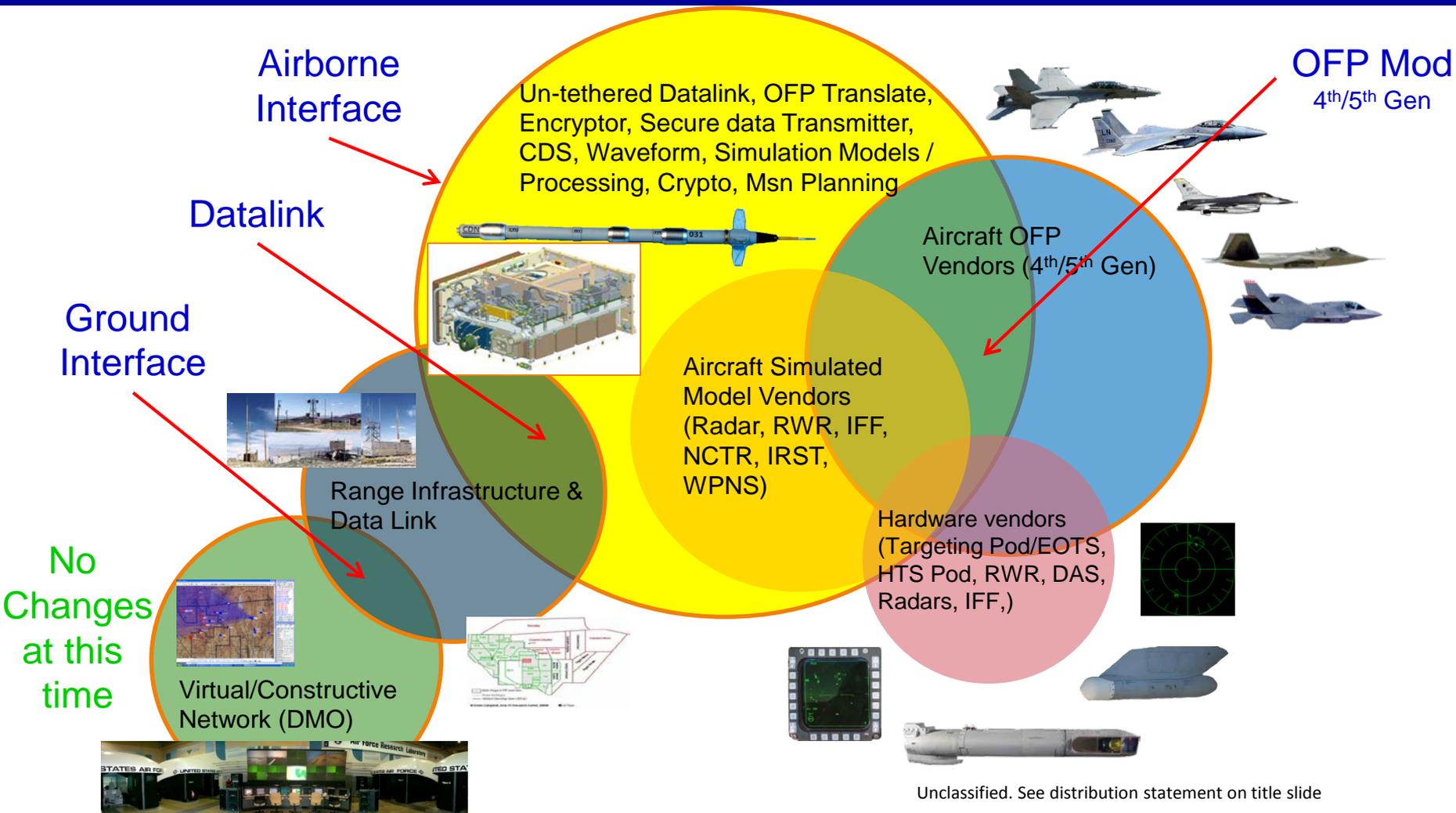
NOT SLATE ATD Charter



- 1. Fly 5th Gen (F-35) Aircraft (time and funding for LM)**
- 2. Fly NSA accredited MILS**
- 3. F-15E test beyond SLATE basic implementation (weapons)**
- 4. DMON certification of any range (not an appropriate SLATE effort)**
- 5. Cyber certification efforts**
- 6. Everything else (a long list)**



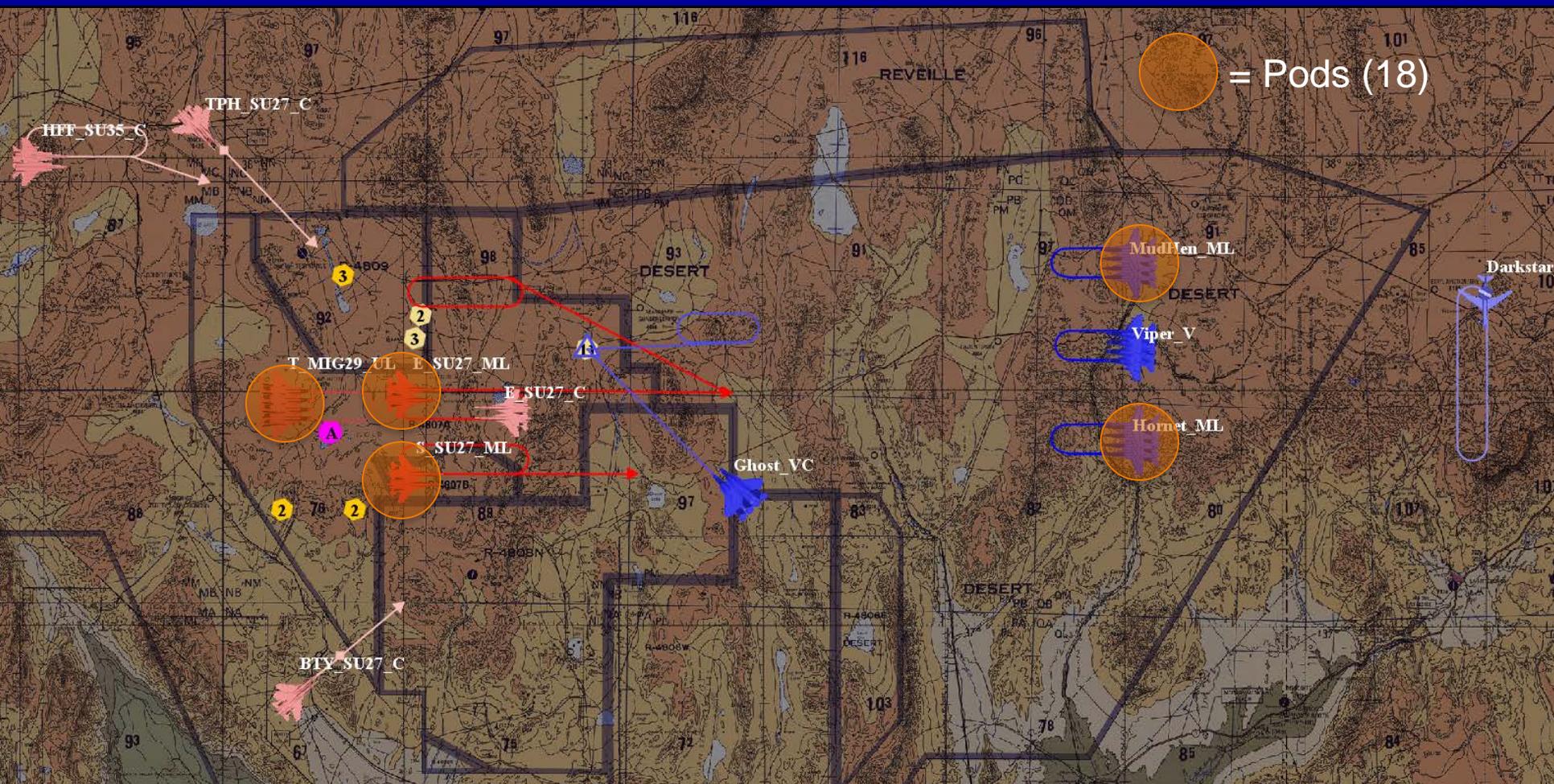
LVC Enterprise Systems Engineering



Multiple Enterprises = huge systems engineering challenge (reason for ATD)



Capstone Scenario



NTTR is the only range with combination of size, resident live threats, flight test organization, and infrastructure to facilitate the SLATE flight tests in the ATD timeframe



Questions / Discussion

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Thank You



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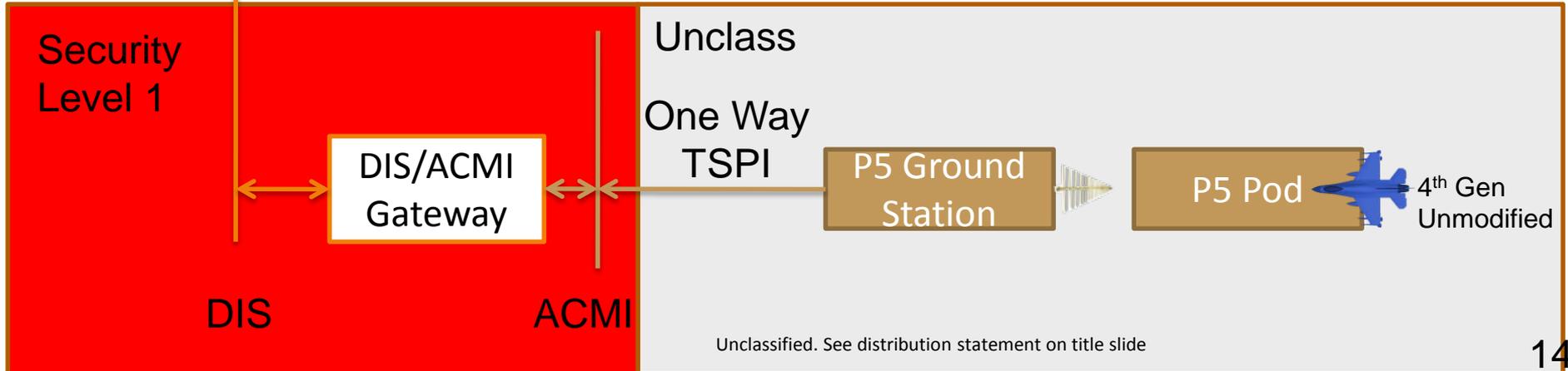




LVC Connections for 4th and 5th Gen A/C with LVC and P5 (tethered) – “One step to LVC”

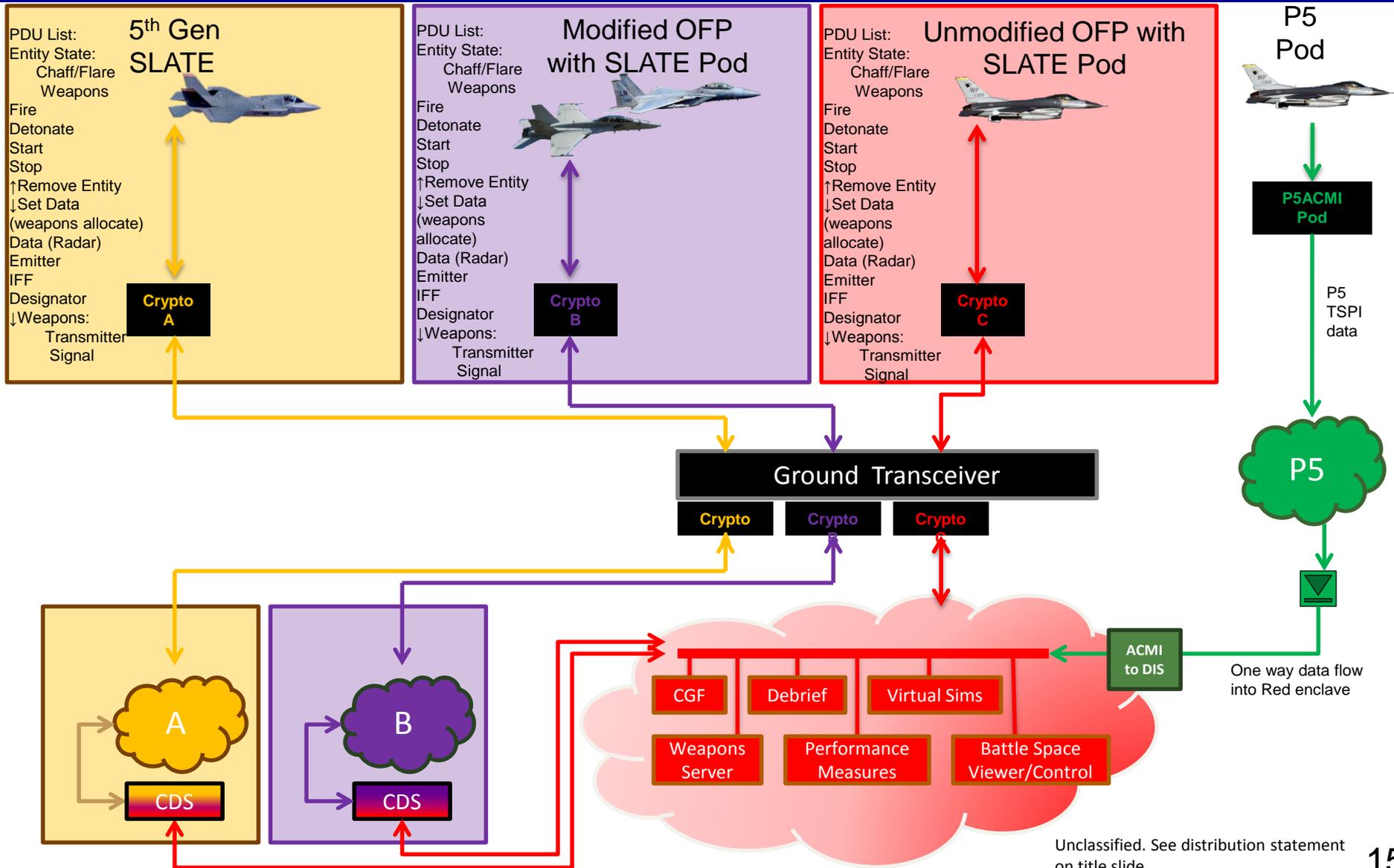


CAF DMO CDS



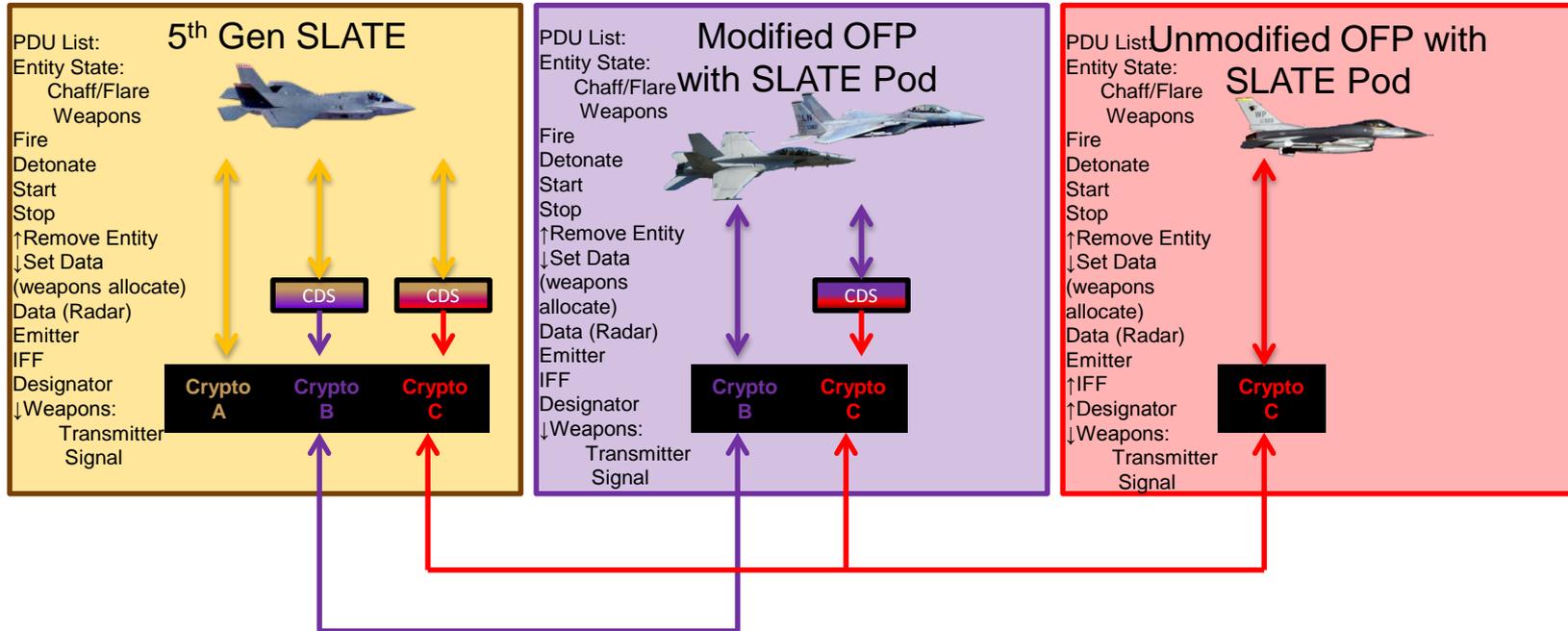


SLATE – 4 Security Enclaves - Tethered





SLATE - 3 Security Enclaves - Orange & Purple Sharing Data - Untethered



- Looks easy and boring (no V or C) but extremely important and complex – this event will happen as much as tethered!
- Airborne interface must perform the duties of CDS, Weapons Server, and RTKN
- All data collated for same level of detail in debrief as tethered

Infrastructure Diagram (SLE, Tethered Example)

