

Assured Access to Space (AATS)

SML Reverse Industry and Collaboration Day
“Opening Remarks”

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Program Executive Officer

13 September 2022



Assured Access to Space

The Future of Assured Access to Space

SPACE ACCESS

★ AATS Inherent Activities

LTRS - Range Sustainment; Materiel and Services	Operate Vandenberg SFB, Patrick SFB, Cape Canaveral SFS, Eastern and Western Ranges	Procurements; NSSL, RSLP; Multi-Mission Manifesting
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Orbital/Sub-Orbital Launches; Storage, Surveillance, and Refurbishment of Decommissioned ICBM Motors

★ National Federation of Spaceports



USG and State Spaceports Collaborations



★ Commercial Range Ops & Business Models	★ Multi-Use Range Facilities; Complex Allocation	★ Next-Gen Range Services & Mission Assurance
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Mission Lifecycle Management

★ SV Processing Management; Building Capacity	★ AATS-Level Ops Centers for Monitoring Hardware Movements and Assets
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OPERATIONS INTEGRATION

Spaceports/Launch/Satellite Ops

SSC/S3	★ SSC Spaceflight Worthiness & Certification
	★ Enterprise Mission Assurance Team
	★ COCOM Space Effect Integrator
AATS AA3/5/8	★ DoD Mission Manifesting
	★ AATS Program Incubator
	★ AATS Policy, Requirements & Funding



2 USSF RANGES 2 ARMED SERVICES
3 TRACKING SITES 9 LOCATIONS

100+ MISSION PARTNERS 10K PERSONNEL



★ New Effort ★ Currently Executing

RAPID DELIVERY

Sub-Orbital Rapid Strategic Mobility

★ Rocket Cargo
AFRL Vanguard Program;
Point-to-Point Rapid Global Mobility



ORBITAL RESILIENCY

Tactically Responsive Space

★ TacRS
Provide responsive warfighter space capabilities on demand to maintain space superiority through all phases of conflict



On-Orbit Servicing, Maneuver, & Debris Removal

★ Orbital Servicing
Remove/Replace Payloads On-Orbit;
Drive Common Standards;
Commercial Refueling Capability



★ Orbital Maneuver
Leverage commercial industry for on-orbit maneuvers;
Small-launch to LEO, use on-orbit stages to higher altitudes



★ Debris Removal
Engage and Energize Industry Solutions





Space Mobility, Logistics, and Servicing Commercial Services Strategy

- **USSF planning supports burgeoning Space Mobility, Logistics, and Servicing Industry**
 - National and Service-level guidance driving rapid capability exploration
 - White House (WH) National Orbital Debris Implementation Plan - Jul 22
 - WH In-space Servicing, Assembly, and Manufacturing (ISAM) Strategy - Apr 22
 - USSF validated / JCB approved SMS ICD developed from extensive capability gap analysis
 - Newly formed Commercial Services Office in place to maximize use of commercial capabilities
- **Multi-pronged, multi-agency efforts funded to accelerate ops capability availability**
 - \$16.9M in FY22 funding identified to support multiple SAML innovation efforts in partnership with Defense Innovation Unit, Air Force Research Lab, and Space Systems Command prototyping efforts
 - USSF working with NASA to mature In-Space Servicing, Assembly, & Manufacturing (ISAM) commercial industry
 - USSF SpaceWerx launched innovative \$100M 'Orbital Prime' program to spur market for on-orbit services
 - X-Prize Foundation initiating space debris removal competition to spur innovation and policy development
- **Evaluating industry readiness and developing business approaches to move quickly to ops employment**
 - “Reverse” Industry Engagements underway
 - State of the Space Industrial Base Summit (May 22)
 - Tactically Responsive Space Industry Forum (Aug 22)
 - Space Mobility & Logistics Industry Day Forum (Sep 22)
 - Conducting Unsolicited Proposal Reviews
 - Developing strategy to support requirements definition and flow into PPBE resourcing process
 - Establishing new SMS PEO
 - Standing up program of record for development and fielding of SMS technologies
 - Executing accelerated AoA to define exploit-buy-build tradeoffs, business cases, & acquisition strategies

***Leveraging Commercial Capability to Enhance Persistence, Maneuverability,
and Resiliency of NSS Missions in a Contested Space Environment***



- **ISAM = In-Space Servicing, Assembly, and Manufacturing**
 - Highlights assembly and manufacturing and broadly covers maneuver and servicing ~National Science and Technology Council ISAM National Strategy
- **OSAM = On-orbit Servicing, Assembly, and Manufacturing**
 - Highlights servicing, assembly, and maneuver ~NASA
- **SML = Space Mobility and Logistics**
 - USSF defined core competency addressing space access, replenishment of consumables, on-orbit servicing ~Space Capstone Publication, *Spacepower*
- **SAML = Space Access, Mobility, and Logistics**
 - Describes Space Access, Mobility, and Logistics ~SAF/SQ Mission Area Team / SSC AATS
- **SMS = Space Maneuver and Servicing**
 - Identifies validated capability gaps for on-orbit mobility and servicing ~SMS Initial Capabilities Document (ICD)

Evolving Terminology for Evolving Mission Area ... SSC Uses "SAML" as Most Accurate Description of Broader Space Mobility Applications



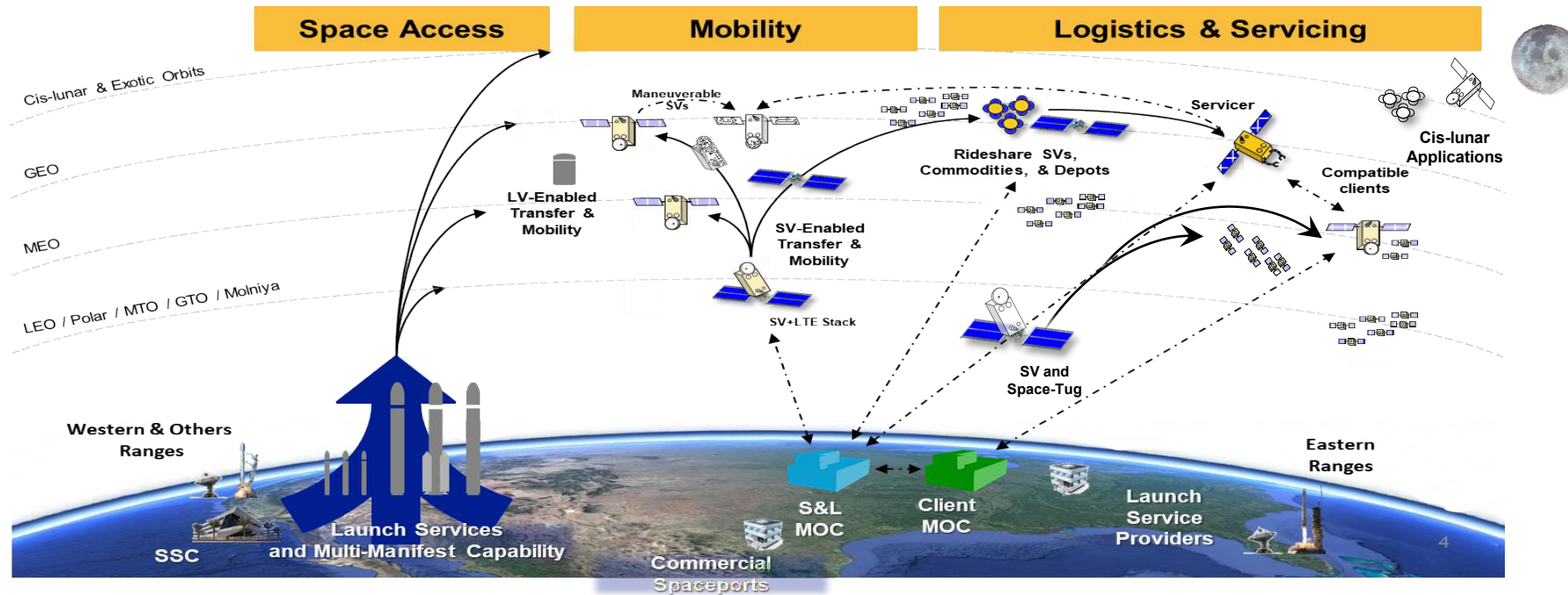
Backup



Space Access, Mobility, and Logistics

Enabling USSF SML Core Competency

Space Mobility and Logistics defined as the movement and support of military equipment and personnel into the space domain, from the space domain back to Earth, and through the space domain.



Space Access thru DOD and IC Launch Enterprise

- Focused on launch for National Security Space missions
- Contracts also provide access for DoD SAML prototyping
- Developing LV upperstage maneuver capability for greater agility
- Missions spread across multiple contract vehicles
 - Phase 2 contract - National Security Space Launch
 - Streamlined Launch IDIQ Contract (SLIC) - NRO
 - Orbital Services Program 4 (OSP-4) contract – RSLP

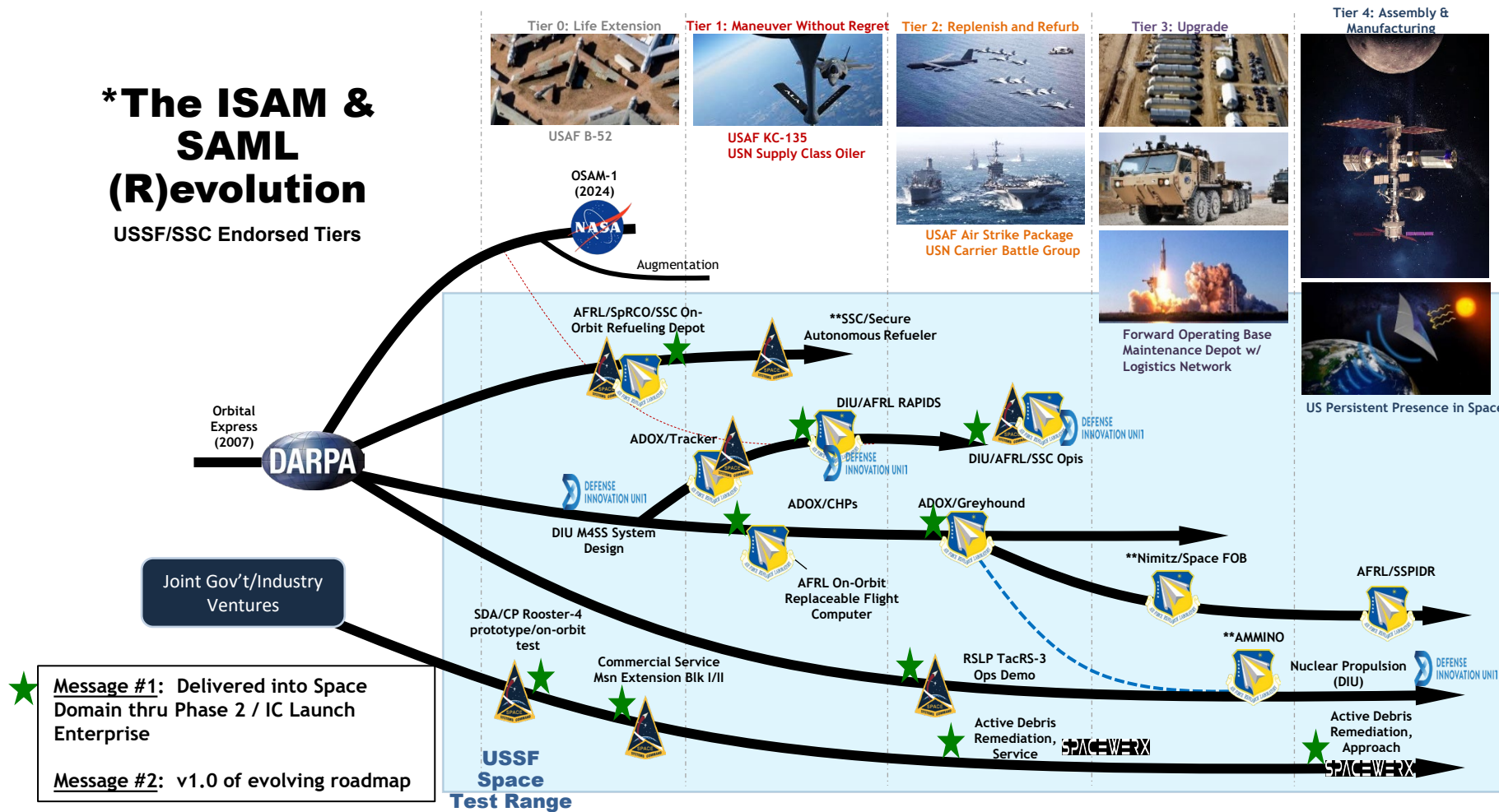
Cultivating emerging Space Mobility & Logistics technologies

- Anticipate capabilities supplied using commercial services approach
- Procured services incorporate space access into total service costs
- Multiple DoD/Commercial prototyping efforts underway to mature technologies and establish robust industry base for services
- Space Maneuver and Servicing (SMS) ICD in place and DOTmLPF-P Change Request underway to stand up Acquisition arm for future service procurements



Evolving SAML Roadmap Multi Agency Efforts

***The ISAM & SAML (R)evolution**
USSF/SSC Endorsed Tiers



SSC Leveraging Whole of Government to Enable Commercial SAML Services Through Industrial Base Development, Tech Maturation, and Interface Standards



Next Steps & Key Enablers

- POMing for SML capabilities--Working to buy commercial services for real capability ASAP
- Establish M&L Program of Record; complete SMS “AoA”; POM & execute
- Digital Ecosystem -- environment, models, tools, use cases/demos: \$5M now
- Continue to evolve & expand M&L activities -- “move the ball”:
 - DIU etc partnerships/demos: \$5-10M
 - In-space manufacturing applied research, includes ML dev: \$3M
 - Procure servicing/maneuver demo mission: \$100-200M ?
 - Procure debris collect/return demo mission: \$ TBD
 - Collaborate with allied nations & industry: priceless
 - Dev secure C2 to mesh commercial services w/USSF for prox ops: \$50M to start

All require partnership & investment by USSF, NRO, NASA, FAA & Industry



Assured Access to Space (AATS) (SSC/AA)

22 Aug 2022

Legend:
 — Assigned
 * Program Manager

USSF USAF

