



# TRACSS

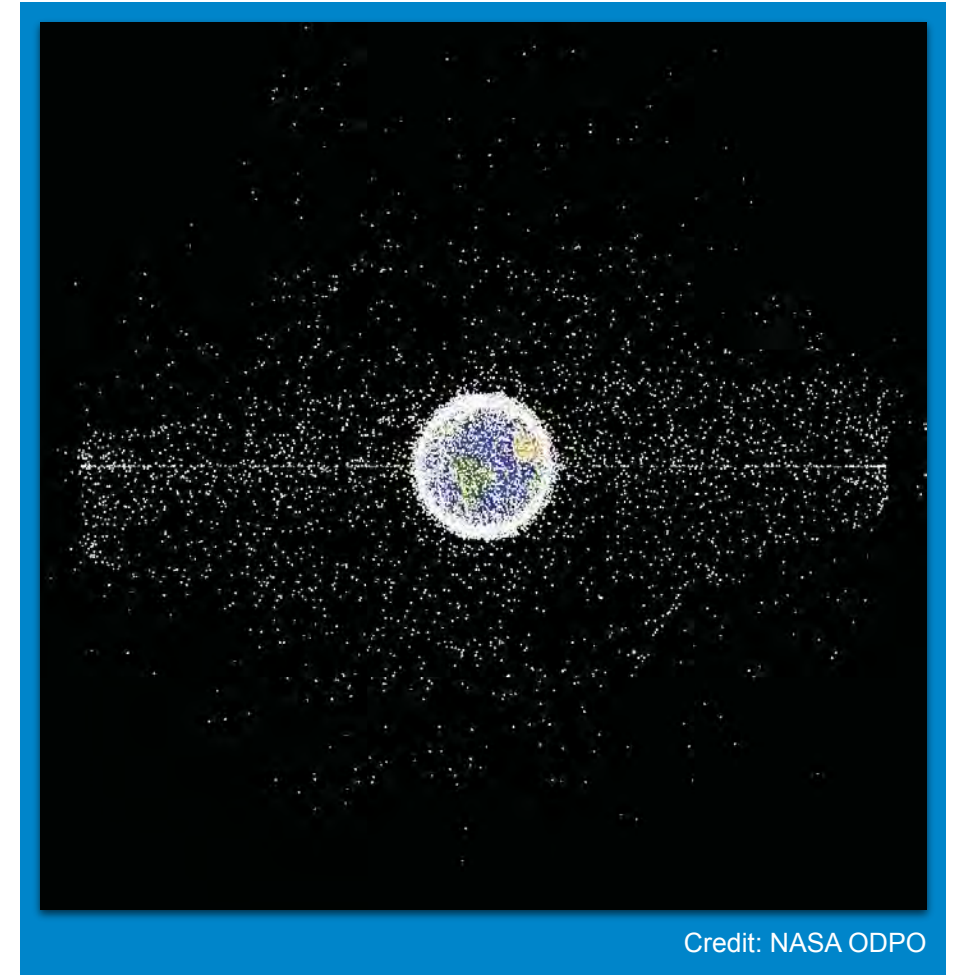
## Traffic Coordination System for Space (TraCSS) SmallSat 2024



Office of Space Commerce  
National Oceanic and  
Atmospheric Administration  
U.S. Department of Commerce  
August 2024

# Space Situational Awareness (SSA) and the Office of Space Commerce

- There is an urgent need for better SSA as Earth's orbits become increasingly congested, putting commercial, civil, and national security space missions at risk.
- Space Policy Directive-3 directs a transfer of responsibility from Department of Defense (DoD) to DOC for providing basic SSA services to space operators for spaceflight safety
  - Recognizes the pressing need for more accurate and timely SSA data
  - Enables DoD to concentrate resources on national security
- NOAA recently reorganized and expanded the Office of Space Commerce (OSC) to address these challenges
- OSC is developing an SSA capability - the **Traffic Coordination System for Space (TraCSS)** - that will blend government and commercial data to provide actionable SSA for spaceflight safety free of direct user fees.



Credit: NASA ODPO

# TraCSS Program Objectives

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Relieve DoD of responsibility for SSA coordination of burgeoning global commercial space industry

Provide “Basic SSA Services” in a manner that promotes safer space operations

Encourage US Commercial SSA leadership and rely on commercial SSA providers to the greatest extent possible

Establish and maintain a resident space object data repository from which all basic services will be derived and utilized for international coordination purposes

Conduct R&D activities that will advance the science and technology of SSA

Promote global SSA standards and best practices

**Driven by spaceflight safety, space sustainability, and international coordination**

# Global SSA Future Vision

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We envision that in the future there will be a global coordinated system of SSA providers, with a series of national or regional hubs providing SSA information and services to spacecraft operators. These centers will be supported by networks of international and commercial partnerships.



Government services will be augmented by a robust global commercial SSA sector that provides value-added services to support business intelligence and other advanced services.



To enable this vision, we are examining SSA data standards, transparency and best practices for SSA data and information sharing, and opportunities for international coordination that can best support global spaceflight safety and space sustainability.

# Global SSA Vision Implementation: Four Pillars

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## SSA Data Standards

- Standards support efficient and effective global coordination
- Consultative Committee on Space Data Systems(CCSDS) provides a global venue for these discussions

## SSA Information Sharing Principles

- Spaceflight safety requires data sharing
- High-risk conjunction data is the greatest priority
- Additional discussions about global information sharing are needed

## Satellite Operator Engagement

- To support spaceflight safety, spacecraft operators should share contact information, spacecraft attributes, and predicted ephemeris with maneuver plans
- Engagement among global SSA providers and global spacecraft operators is needed

## Intergovernmental Communication

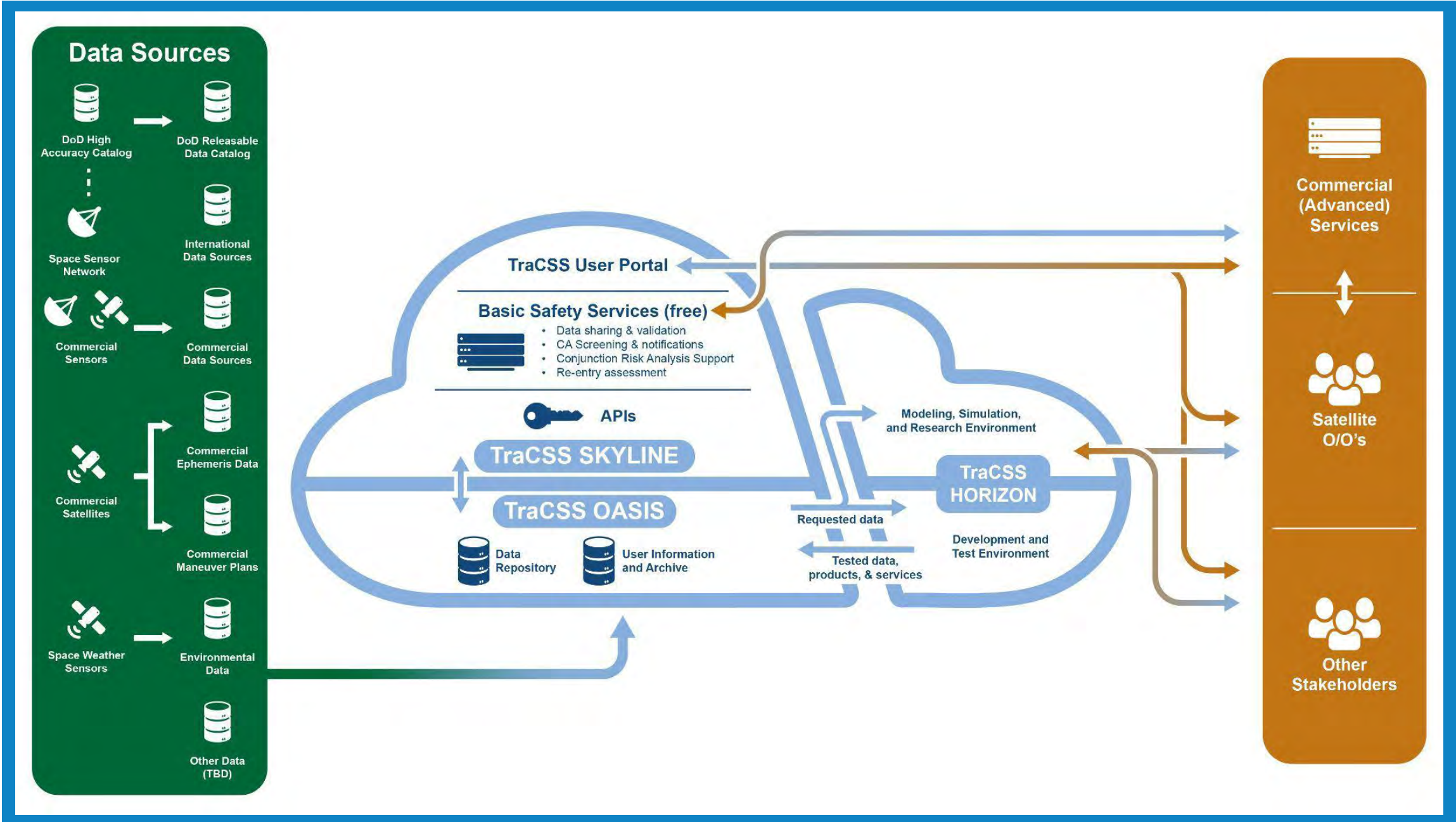
- Build a technically efficient way to share information among SSA providers
- Foster international dialogue on this mechanism



# Traffic Coordination System for Space (TraCSS)

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- **Formerly known as the Open Architecture Data Repository (OADR)**
- **3 distinct components:**
  - TraCSS-OASIS: Data repository
  - TraCSS-SKYLINE: SSA application services
  - TraCSS-HORIZON: modeling, simulation, & research environment and development & test environment



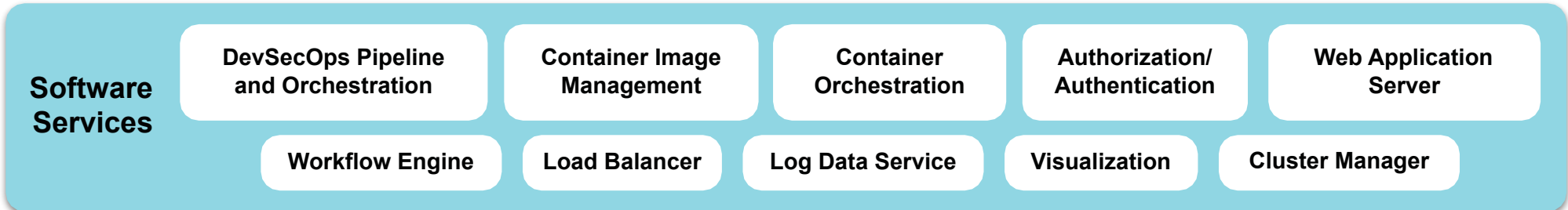
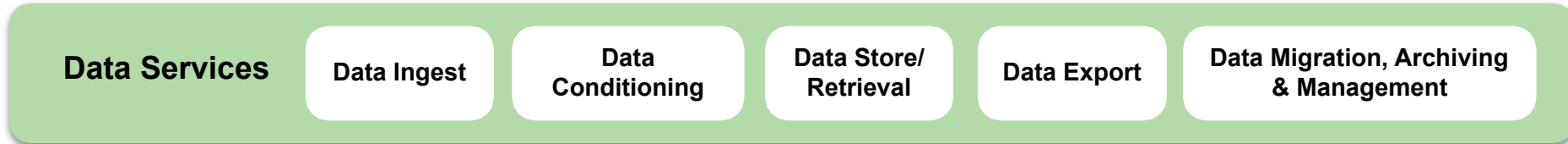
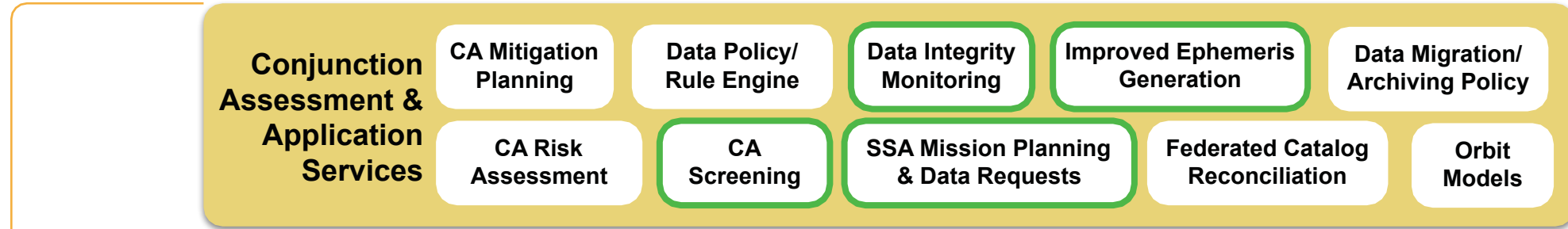
# Phase 1 End Configuration

Commercial SSA provider

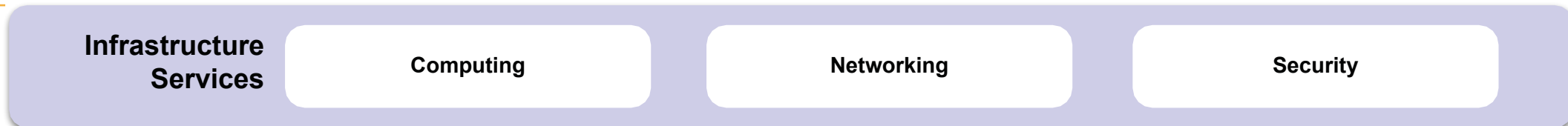
User Interface



System Integrator



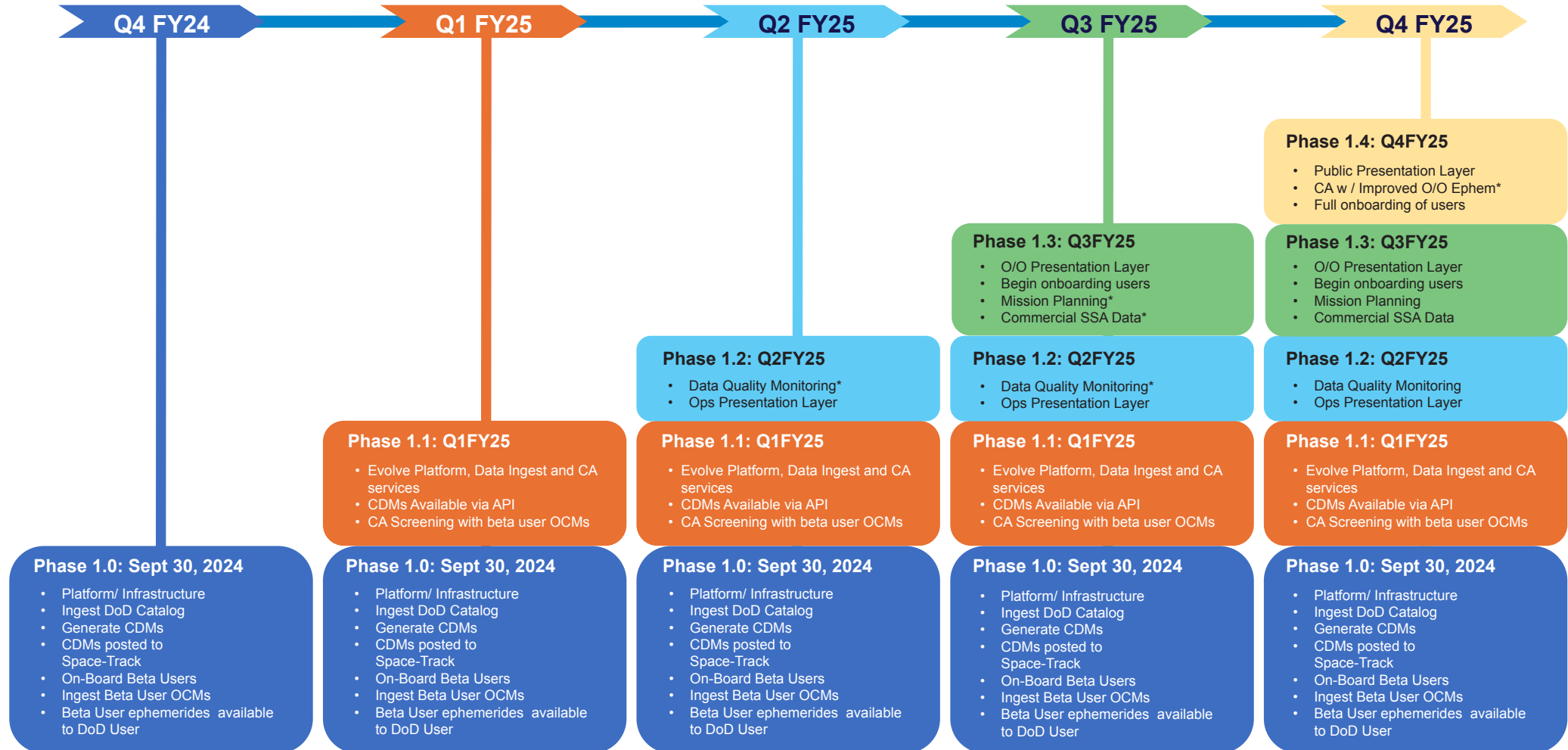
Cloud Utility





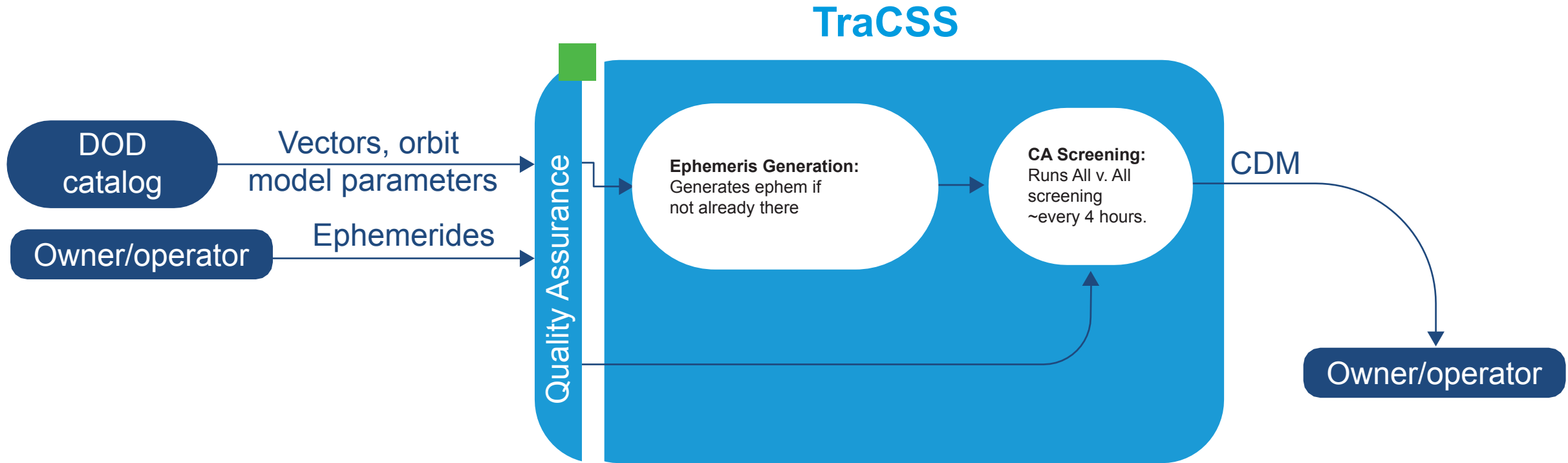
# Phase 1 Capability Roll-Out Plan - Overview

## Phased Delivery of Commercial Functionality



# TraCSS SSA Phase 1.0 Initial Capability

A day in the life of a conjunction event

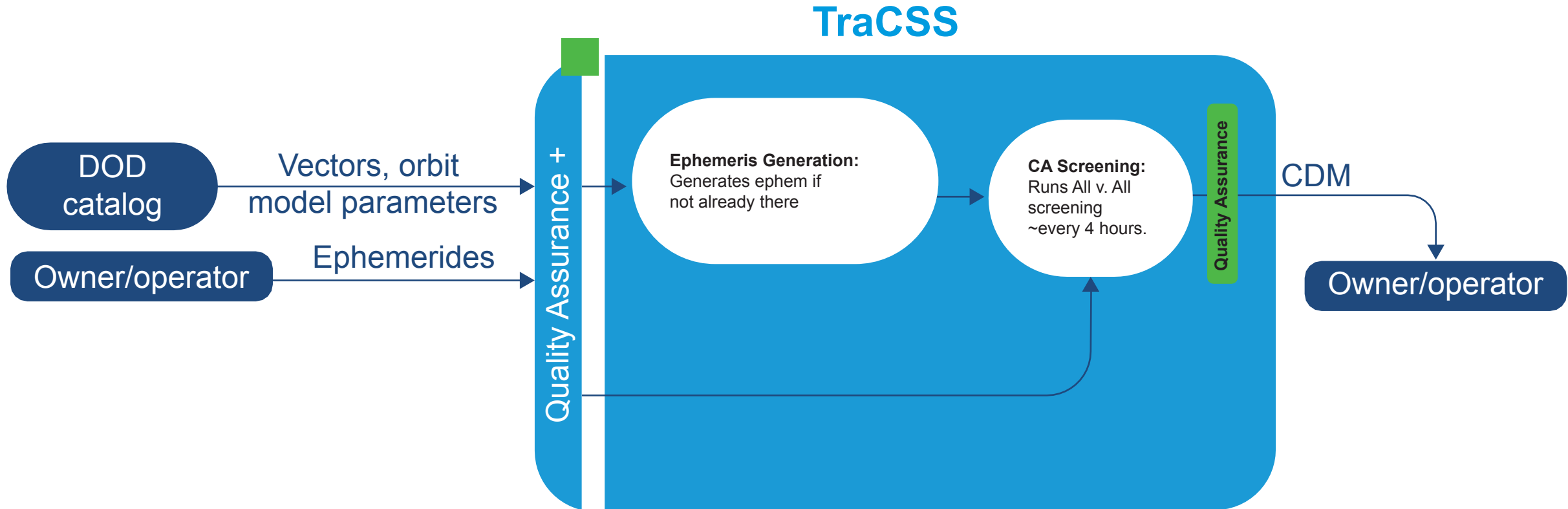


## Enhanced Commercial Facing SSA/STC Features

- Increased Conjunction Assessment (CA) Screening Cadence
- Maintain Space-Track.org interface to minimize disruption during start up

# TraCSS SSA Phase 1.2

A day in the life of a conjunction event

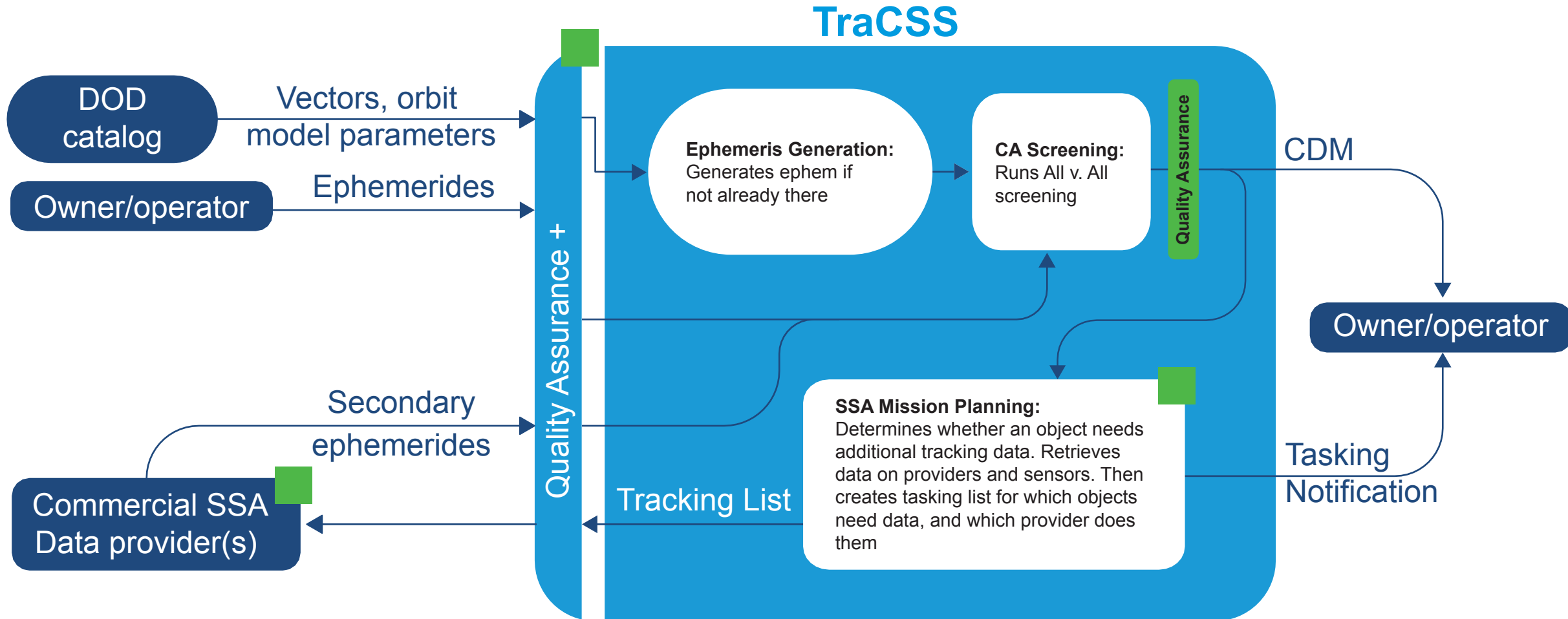


## Enhanced Commercial Facing SSA/STC Features

- Addition of data quality monitoring service within QA

# TraCSS SSA Phase 1.3

A day in the life of a conjunction event

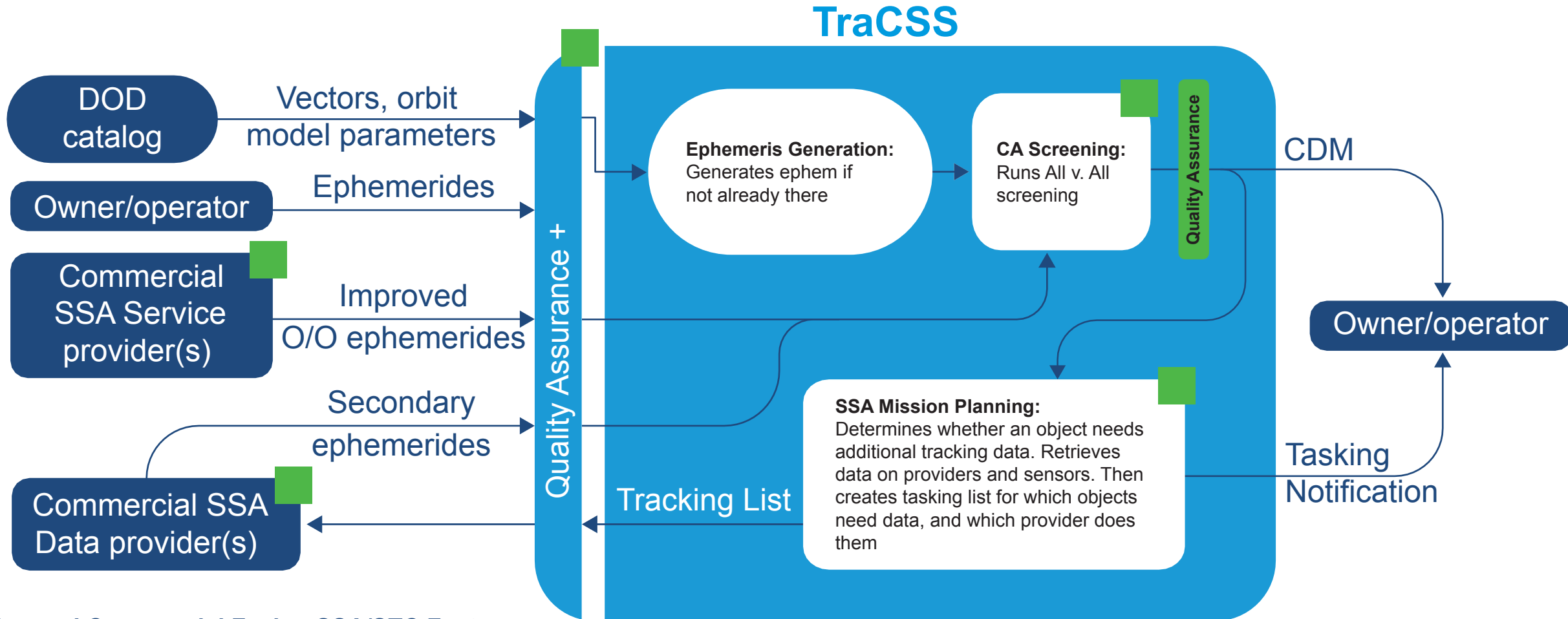


## Enhanced Commercial Facing SSA/STC Features

- Mission planning service identifies additional sensor tracking needs
- Procurement of additional SSA data where needed
- Owner/Operators notified of additional sensor tasking status via TraCSS user interface

# TraCSS SSA Phase 1.4

A day in the life of a conjunction event



## Enhanced Commercial Facing SSA/STC Features

- Commercial CA screening service
- Investment in improved owner/operator ephemerides
- Public user interface for TraCSS



# Interagency Coordination – Department of Defense

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- DoD and DOC signed a Memorandum of Agreement (MOA) in September 2022, framing the departments' relationship for basic space situational awareness, space traffic management, and coordination for civil and commercial entities.
- MOA began discussions on priorities and coordination
  - Multiple weekly virtual working groups:  
Machine-to-machine data transfer; Data repository state management; Operations transition and coordination; SSA data sharing; Roles and responsibilities; Strategic communications
  - Semi-annual in-person STC Operations Coordination Workshop
- In Phase 1, TraCSS will lean more on DoD data at first. With each phase, more commercial data and commercial SSA services will be integrated over time.
  - Phased transition will help ensure there is no disruption in basic SSA safety services.
- Beyond data, coordination topics also include sharing of expertise in SSA analysis and spaceflight safety operations

# In-depth video overview



<https://www.space.commerce.gov/july-28-update-on-tracss/>

# Engage with OSC on TraCSS

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## TraCSS webpage

<https://www.space.commerce.gov/tracss>

News, videos, and information on engagements, including past and upcoming public listening sessions



## Email

[tracss.commerce@noaa.gov](mailto:tracss.commerce@noaa.gov)

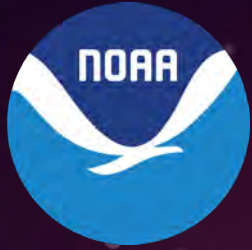
Submit TraCSS-related questions, comments, & feedback



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**Thank You**

