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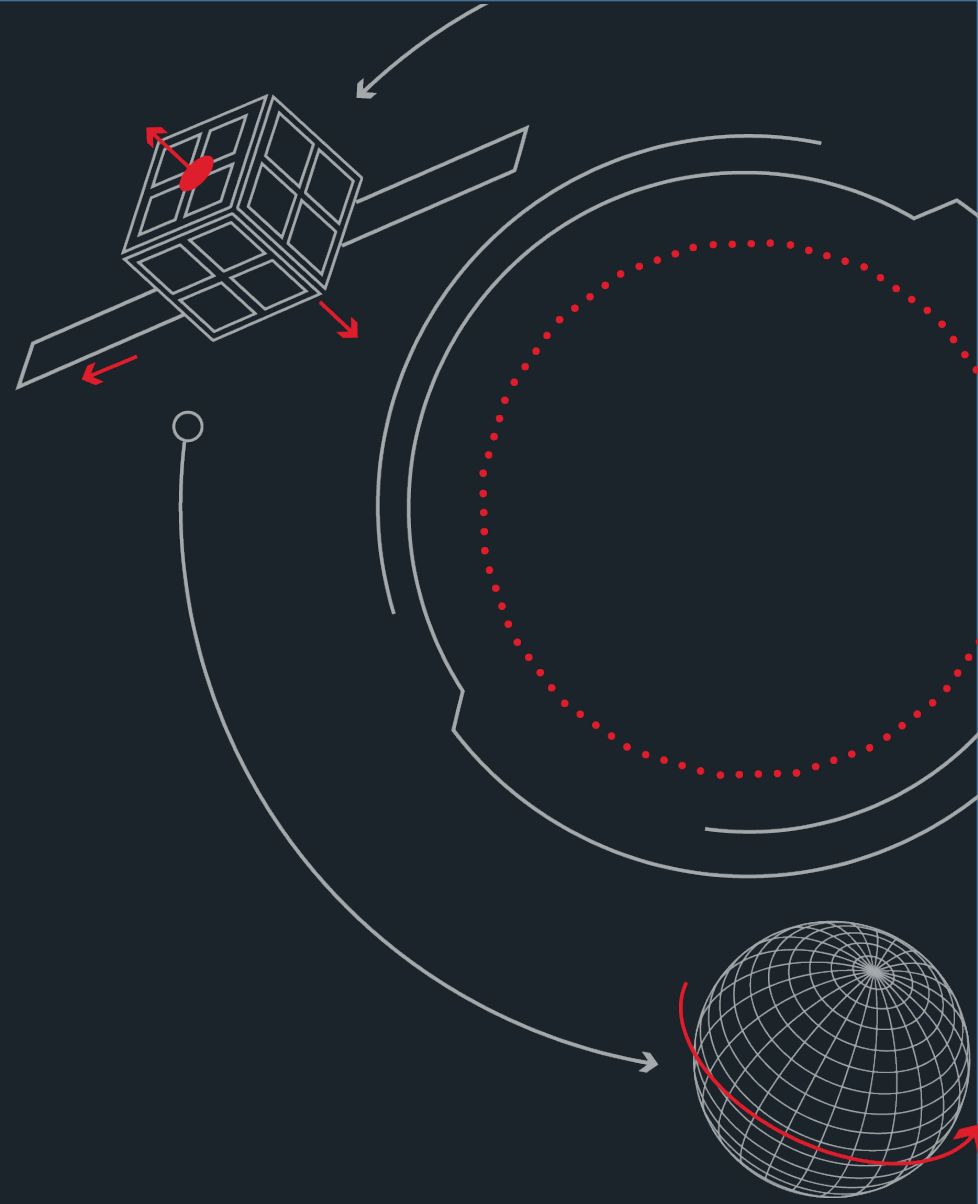
Digital Ground Segment for EO Constellations

Srinath Logasubramanian

Commercial Space



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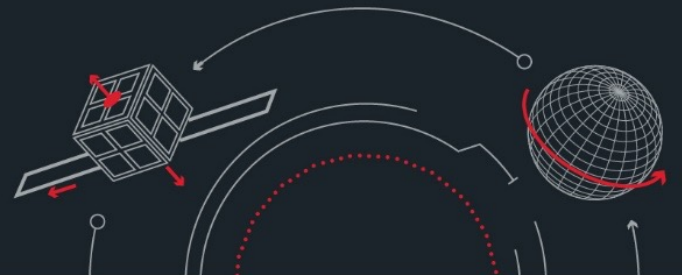

New Space Economy…

Space has changed. Operations have not.

Launcher and space segments have already been disrupted.
Innovation in ground segment and operations lags behind.
This is the single biggest challenge in our breakthrough
towards a future new space economy.

- Handling of big data from space at an higher rate
- *Everything-as-a-Service* and Cloud architecture
- Wide adoption of AI to enhance the value chain from in-orbit control to downstream services
- Stronger security requirements
- Scalable multi-mission, multi-platform and multi-sensor infrastructure
- Ground automation, streamlined end to end approach

…Technology Innovation

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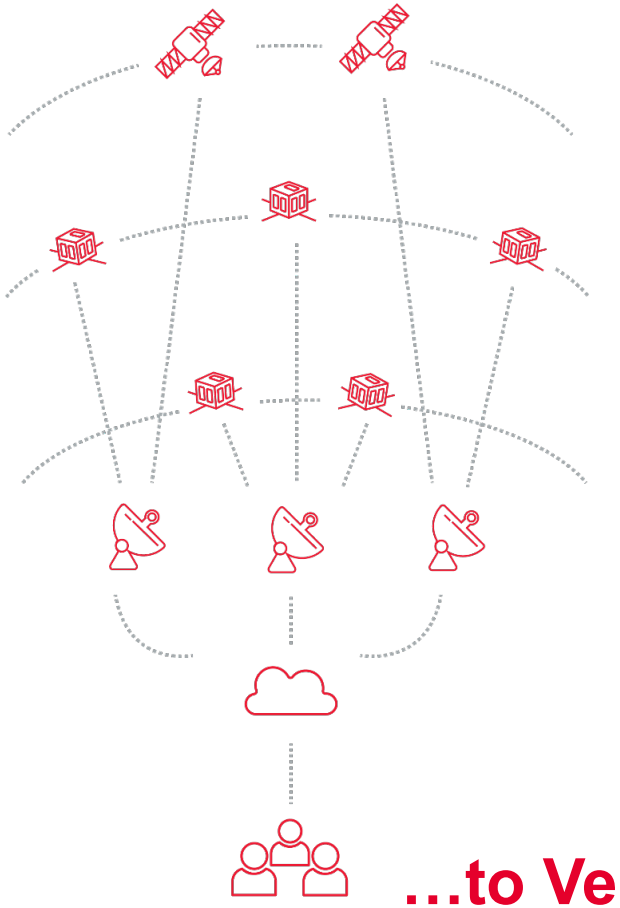
From Space Mission Management…



ease-mission

Multimission & Constellation Control

- Heterogeneous in orbit control
- Flight Dynamics
- GSN Network Operation Centre and Scheduling
- Collision Avoidance
- In-orbit services
- Mission Planning

ease-rise

ease-ground

Multimission & Constellation

- Intelligent Tasking
- Mission Products Processing
- Archive & Catalogue
- Mission optimization
- Advanced hosting service

…to Vertical Market

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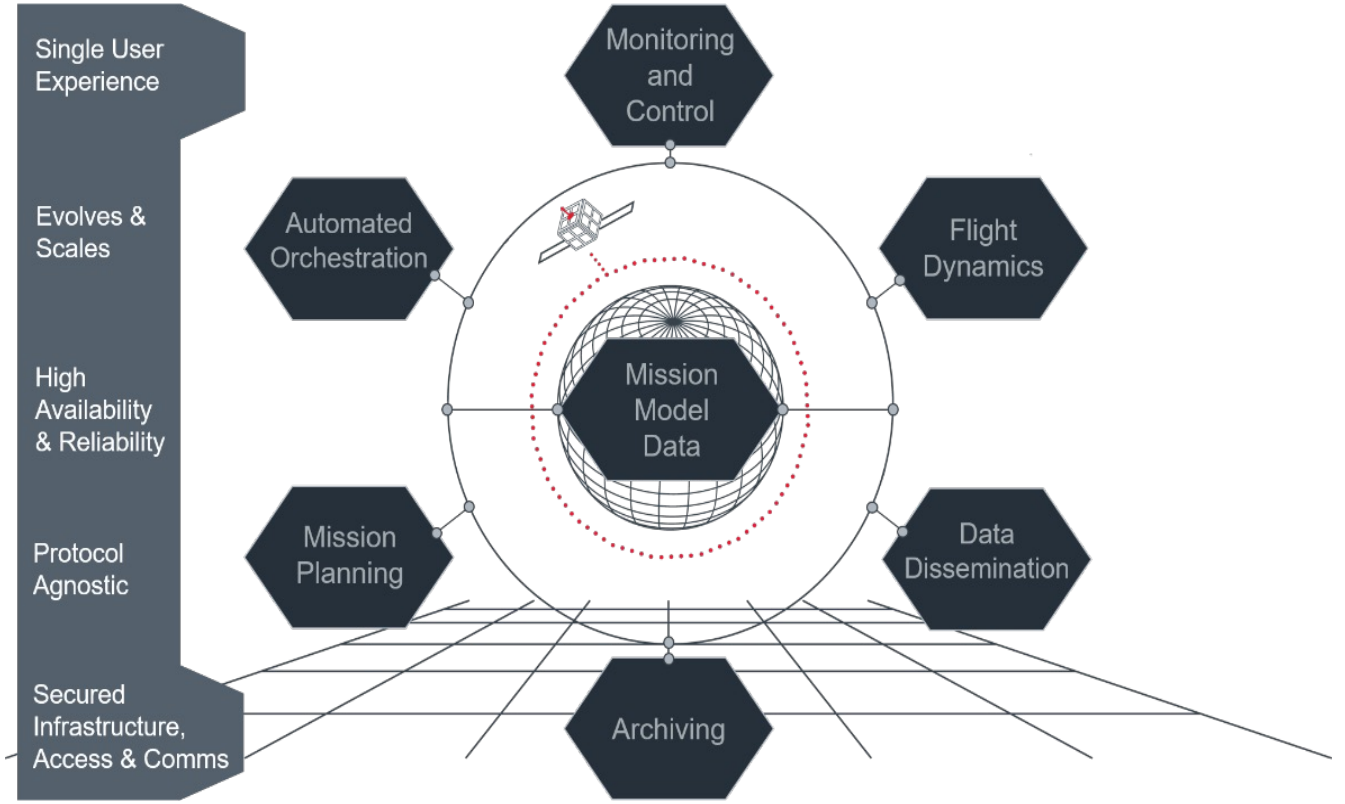
From Mission Concept to End of Life

Technical Benefits

- ✓ A single source-of-truth across all systems
- ✓ Connect any device and any external system
- ✓ Highly configurable
- ✓ One UI, one UX
- ✓ Flexible cloud-native (AWS)
- ✓ Micro-service architecture
- ✓ DevOps support

Business Benefits

- ✓ Derisk your ground operations
- ✓ A system that scales with your business
- ✓ A flexible commercial model allowing CAPEX/OPEX optimization based on your needs
- ✓ A total reduction in cost



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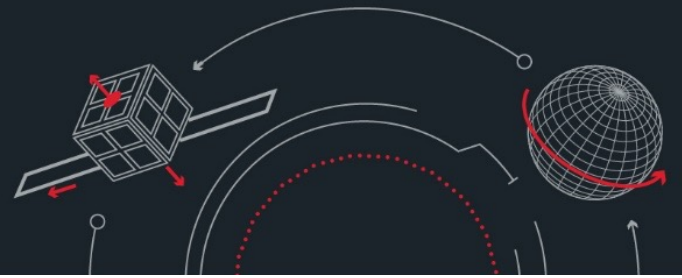
ease-ground



Third-Party Mission

X-Band (downlink)

User Access — Feasibility & Tasking Catalogue

AI Engine — Automation Optimization

Business Logic — Data Access Data Processing

Mission Users

Geo Platforms

Archive — Object Storage LTA

Cloud Infrastructure

IaaS/PaaS

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ease-ground

Segment AI Capabilities

Natural Language

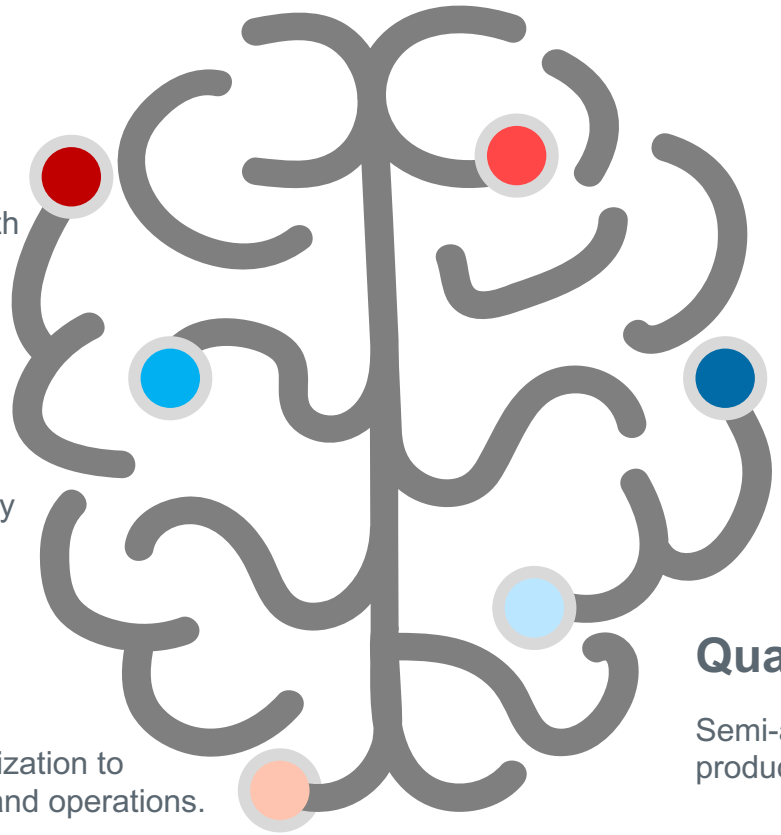
Offer a user friendly approach for products searches and feasibility analysis request with natural language search, adopting NLP.

Automation

Increase automation implementing intelligent programming capabilities to saturate the capacity with acquisitions that really interest to its users.

Optimization

System & Operations Resources Optimization to improve performance, resource usage and operations.



Recommendation

Change the data access pattern, implementing a Recommendation System able to profile users according to their interest and elaborate suggestions.

Marker Service

Provide data classification, implementing a Marker Service, able to to add metadata and tags according to topics

Quality Control

Semi-automated quality control on data produced from processing chains.

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Ground Station as a Service

EASE platform is the single point of access to a global network of ground stations, simplifying the procurement process and contractual arrangements.

- No single-point of failure
- Reduced congestion during deployment from launch vehicle
- Low RF interferences
- Scalability
- Cost advantages

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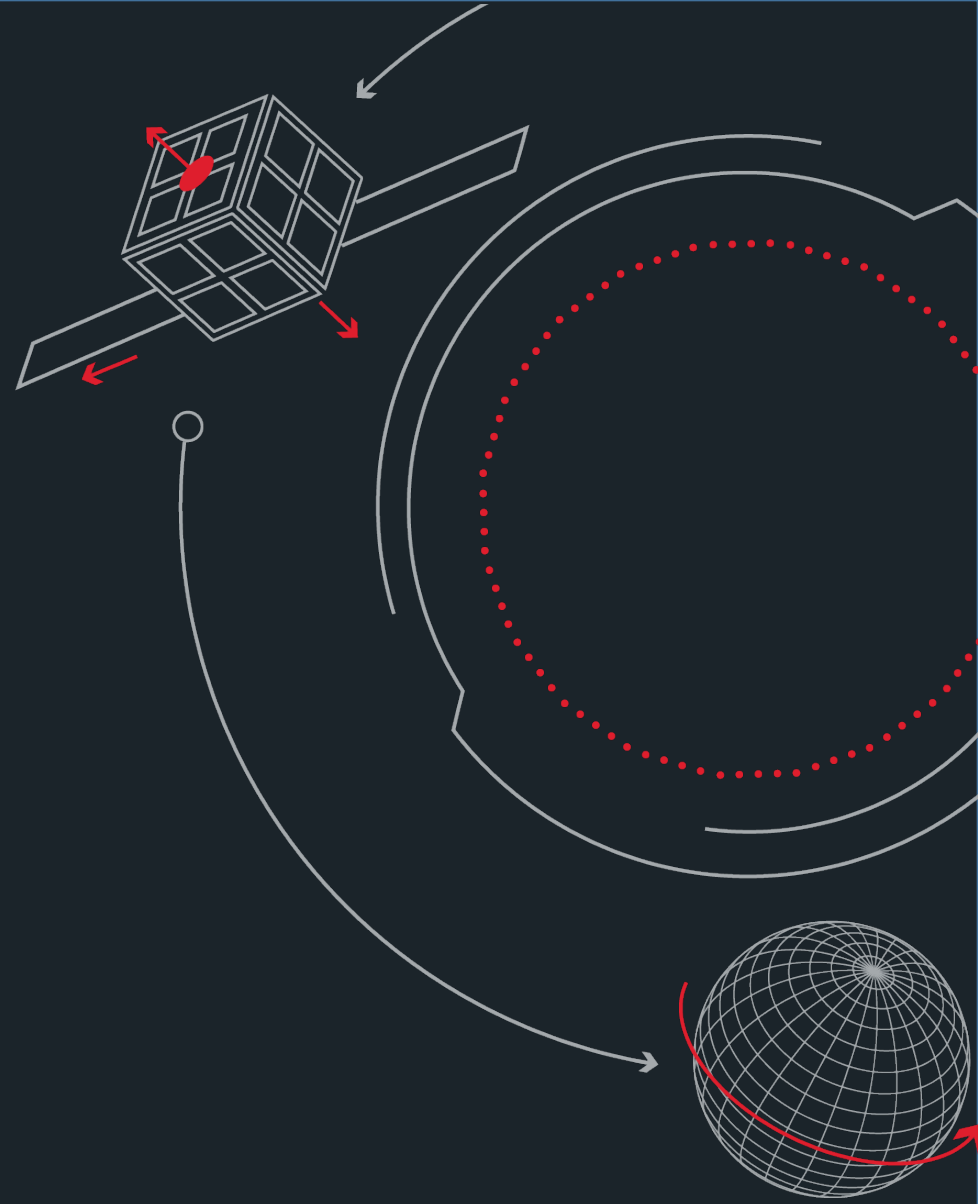
Questions & Answers