



IN-SPACE INFRASTRUCTURE SERVICES

MARCH 2025



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VEHICLES IN ORBIT



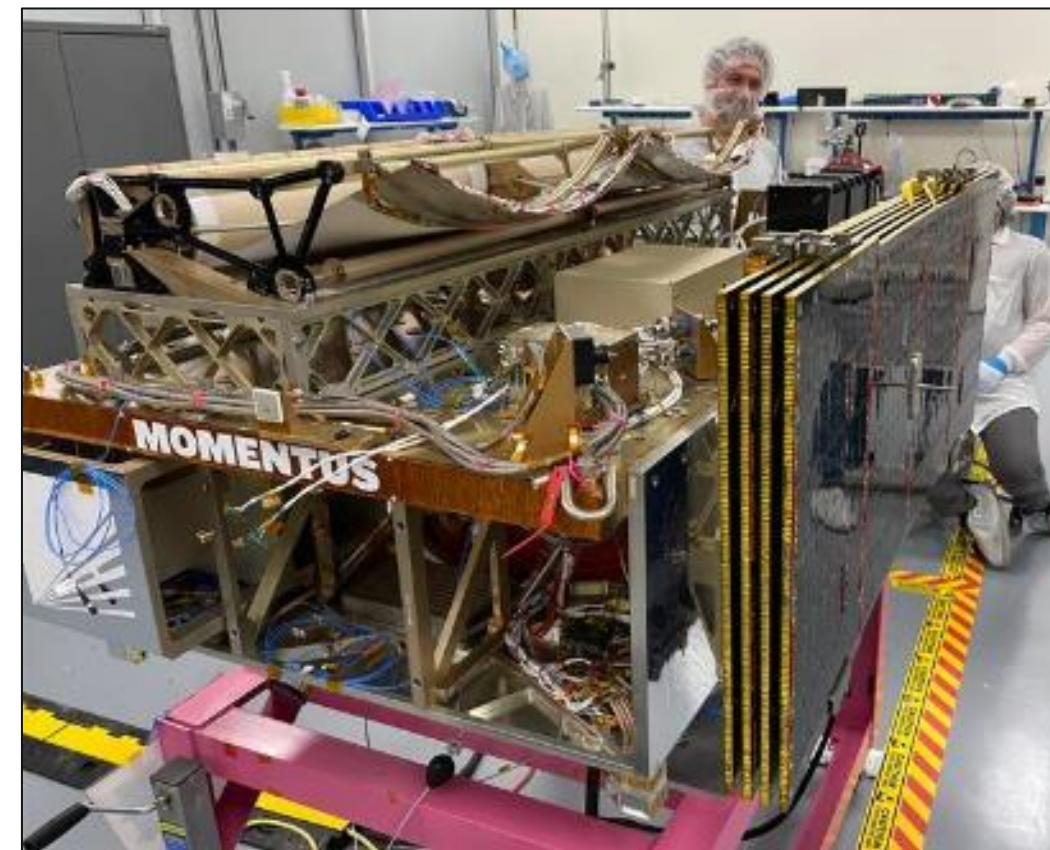
Vigoride 3

- Deployed 8 Customer Satellites



Vigoride 5

- Hosted Caltech Space-Based Solar Power payload for 6-month mission
- Deployed Cubesat
- Operated Microwave Electrothermal Thruster (MET)



Vigoride 6

- Delivered NASA & 4 Other Payloads
- Tape Spring Solar Array Demo

READY TO LAUNCH



Vigoride 7 with RPO Demo

- Completed environmental tests, ready to launch
 - RPO search and approach demo using low-cost sensors integrated
- DARPA NOM4D hosted payload
 - In-space manufacturing demo
- Booked for Q1 2026 T16 launch

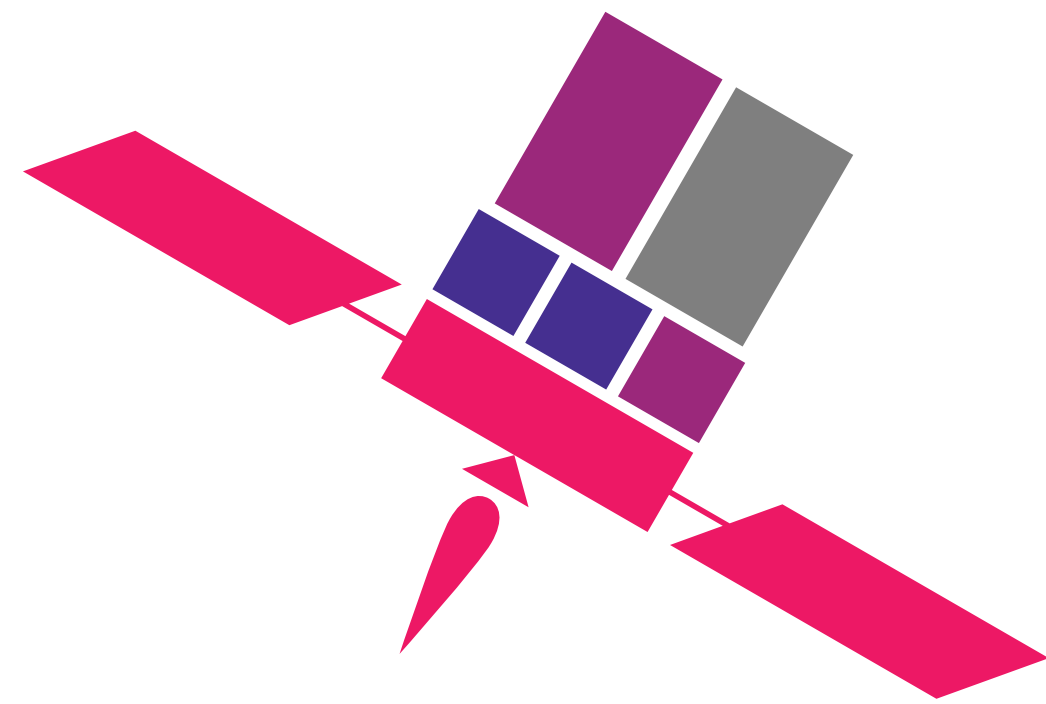
- **Hosted Payloads Fully Booked**
- **Only One 6U Slot Remaining**

Three Launches in One Year

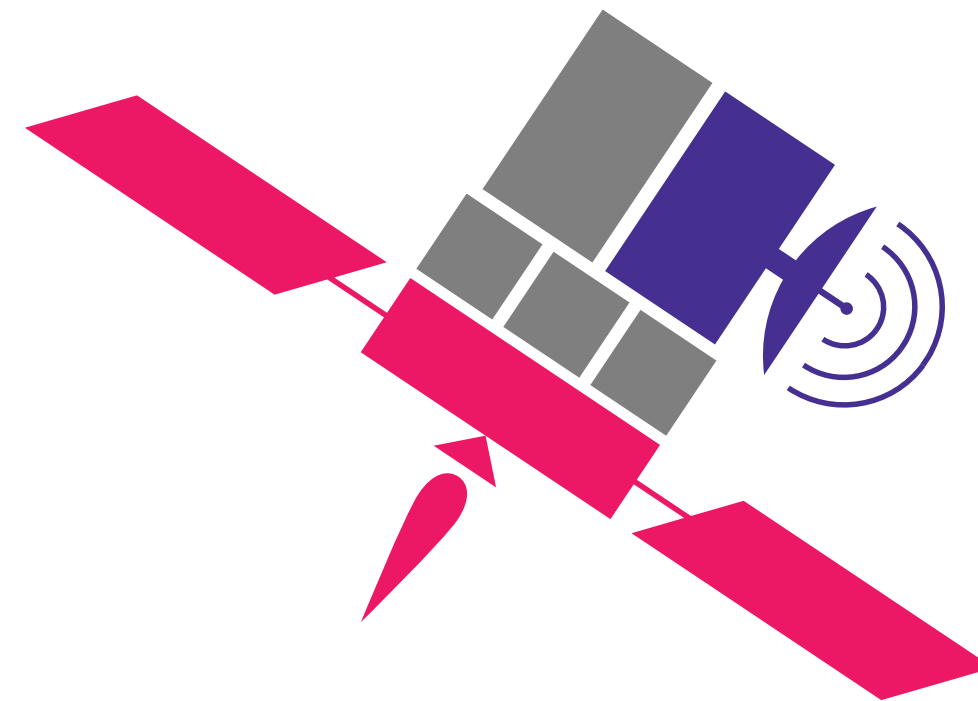


AVAILABLE SERVICES

INFRASTRUCTURE SERVICES ENABLED BY ORBITAL SERVICE VEHICLES



LAUNCH & DELIVERY



HOSTED PAYLOAD



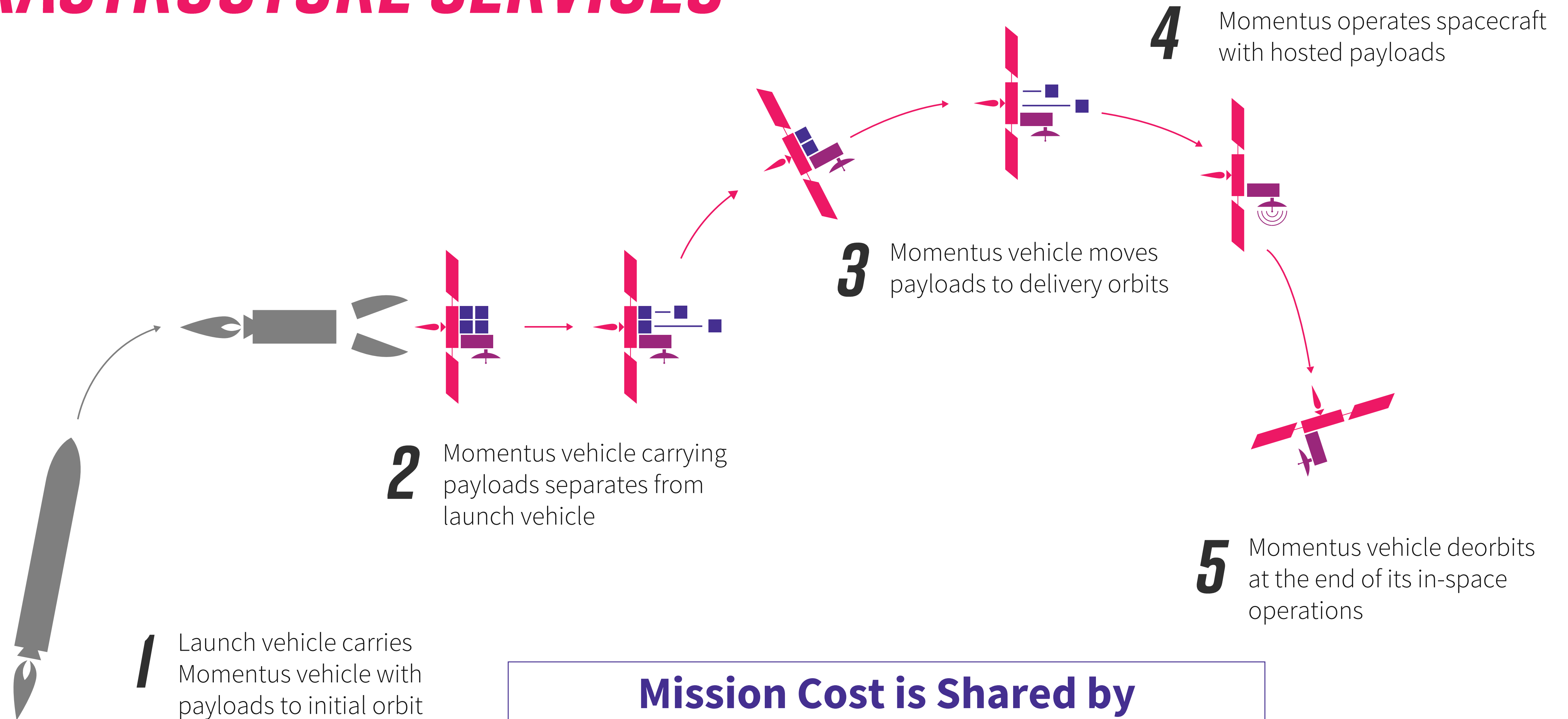
SMALL SATELLITE BUS

COMING SOON

REPAIR / UPGRADE / REFUELING / INSPECTION / REPOSITION / DEORBIT



INFRASTRUCTURE SERVICES

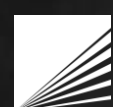
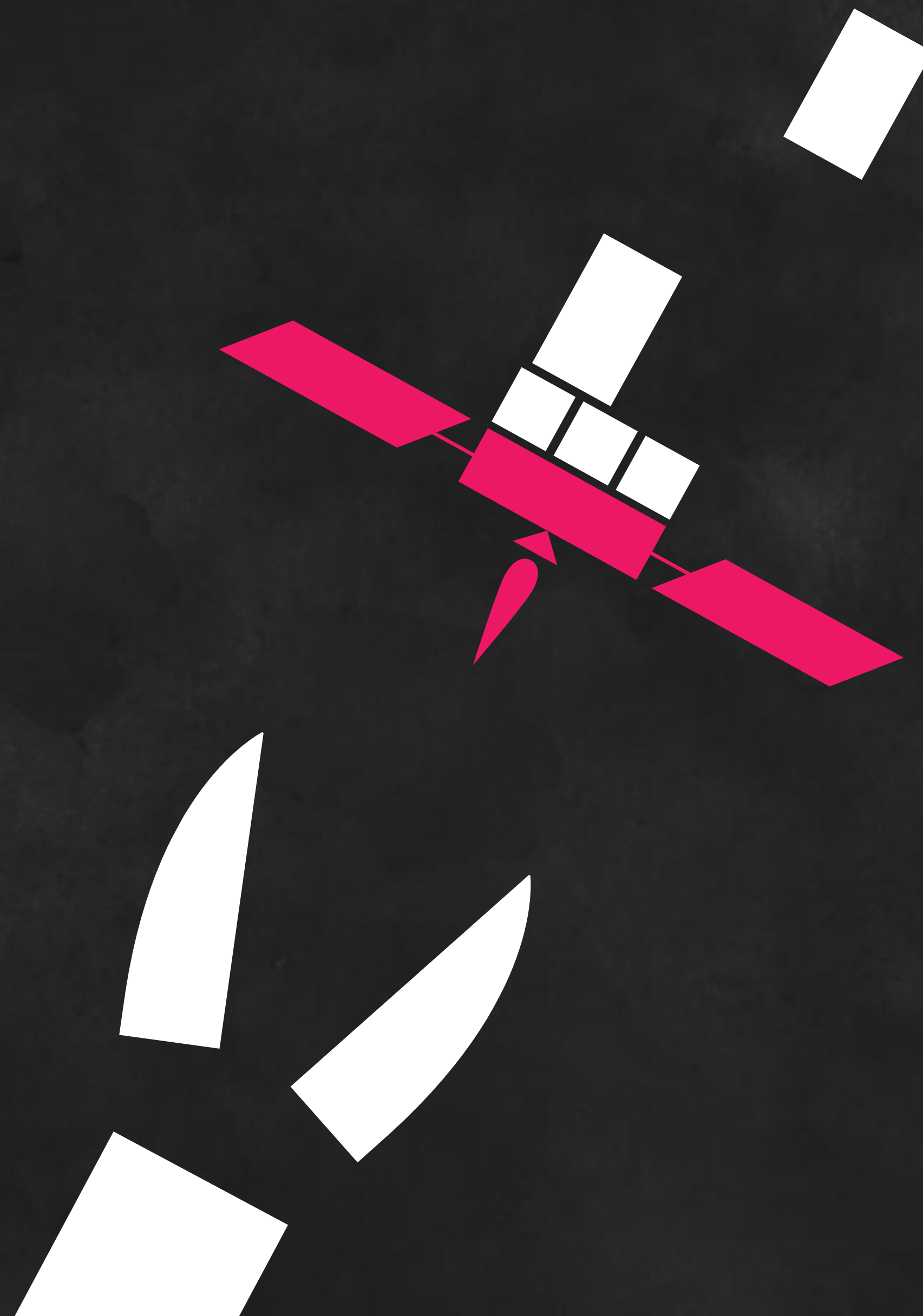


**Mission Cost is Shared by
Transportation Customers and
Hosted Payloads**



SERVICES

LAUNCH & DELIVERY



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PRECISE INJECTIONS

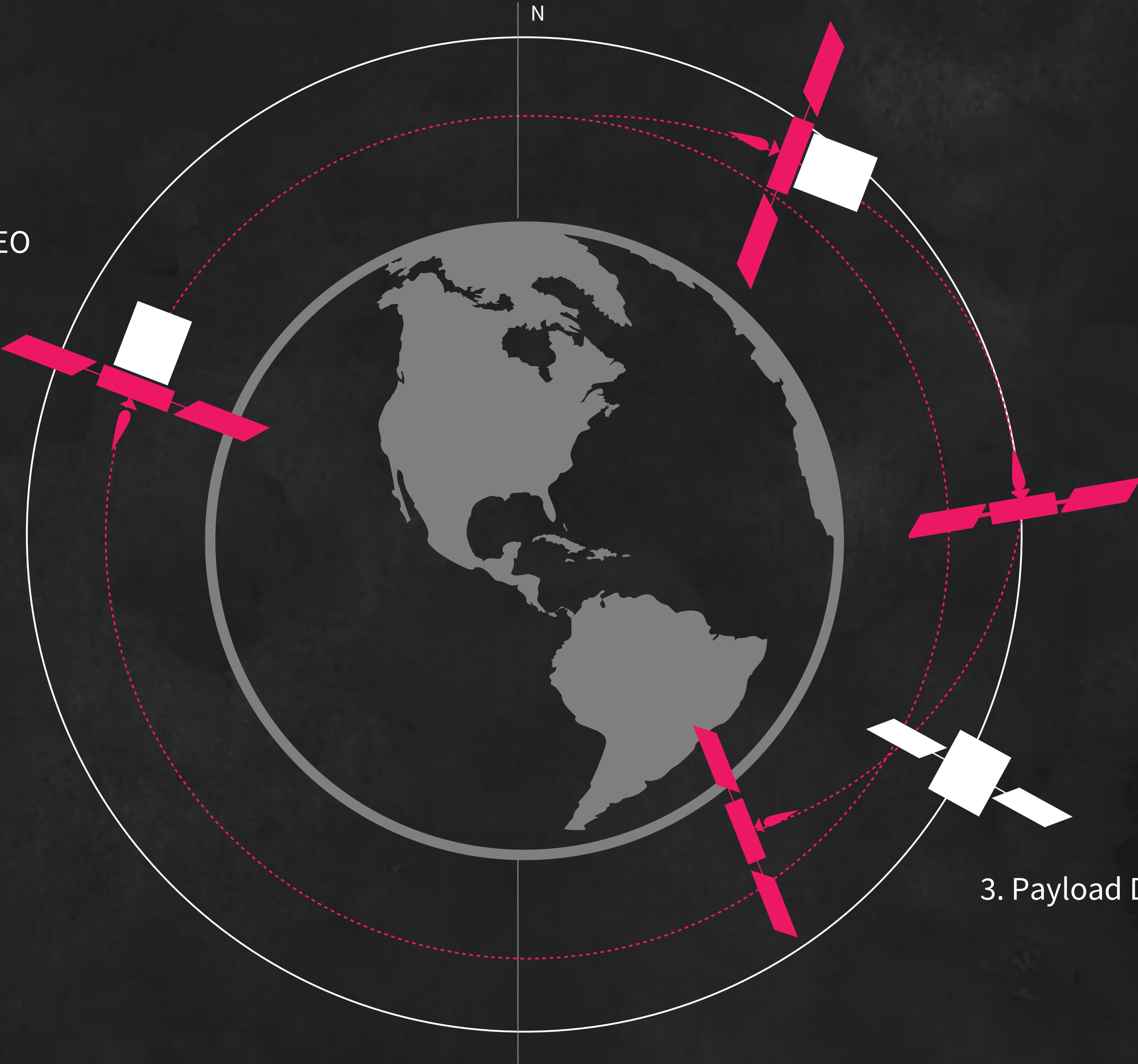
VIGORIDE OSV

ORBITAL PARAMETER	INJECTION ACCURACY
Semi-Major Axis	+/- 2 km
Inclination	+/- 0.1 degrees
RAAN	+/- 0.2 degrees

1. Launch To LEO
Circular Orbit

2. Small Altitude +/- 20 km or/and +/-
.1 degree Inclination Change

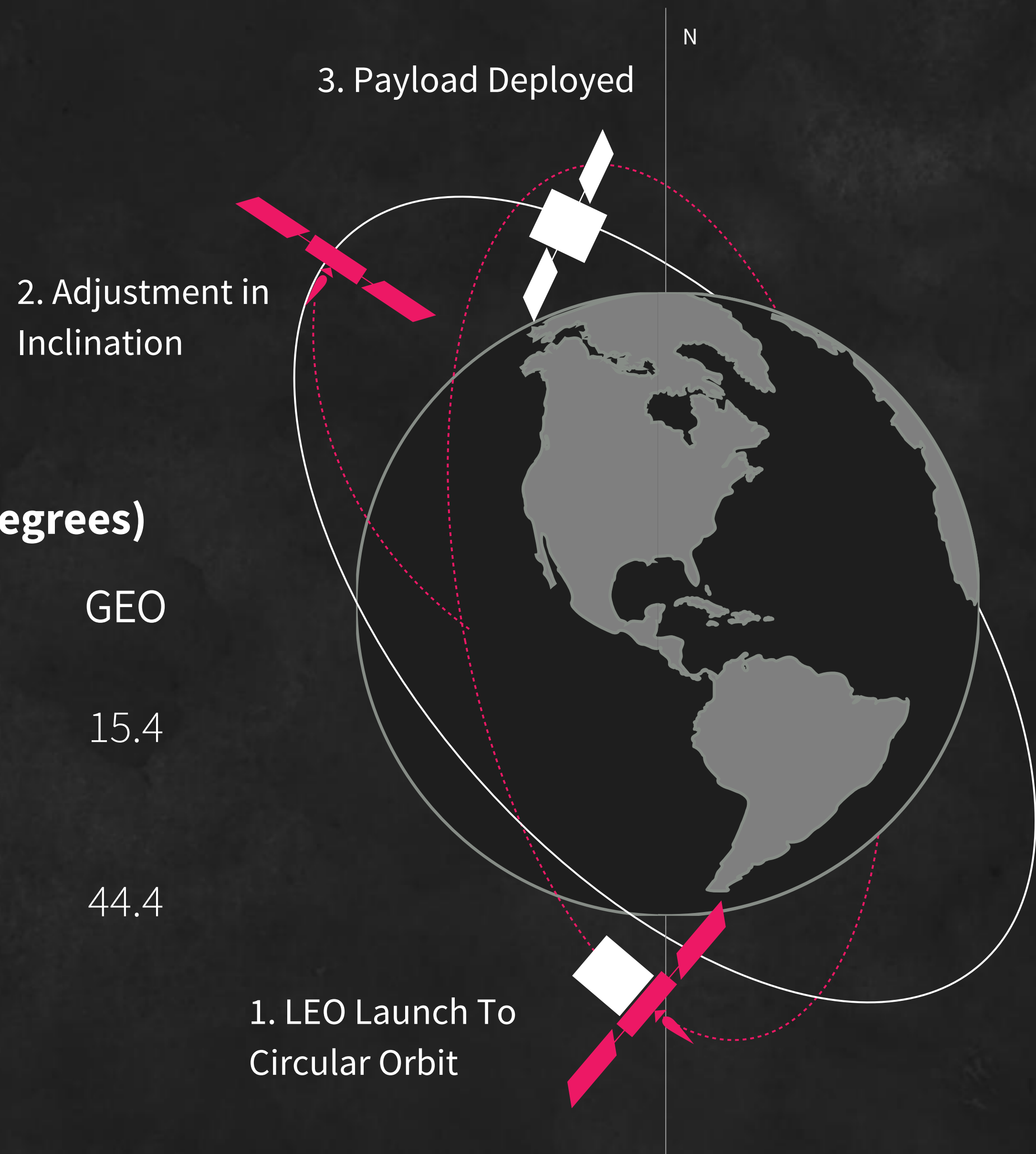
3. Payload Deployed



INCLINATION CHANGE

VIGORIDE OSV

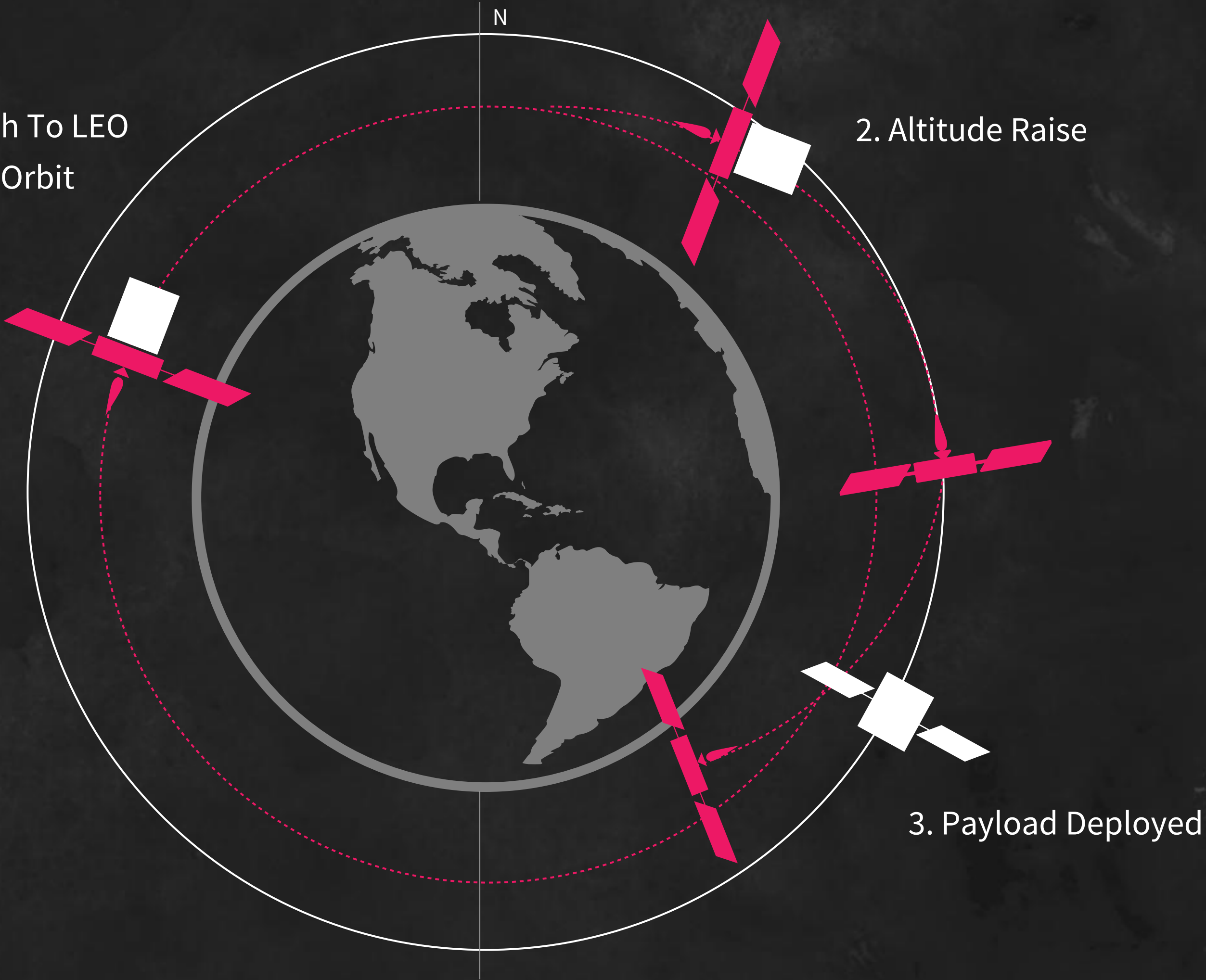
Vigoride Configuration	Max Inclination Change (Degrees)		
	LEO	MEO	GEO
MET (Water)	6.5	9.7	15.4
HET (Krypton)	17	26.9	44.4



ALTITUDE CHANGE

VIGORIDE OSV

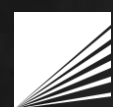
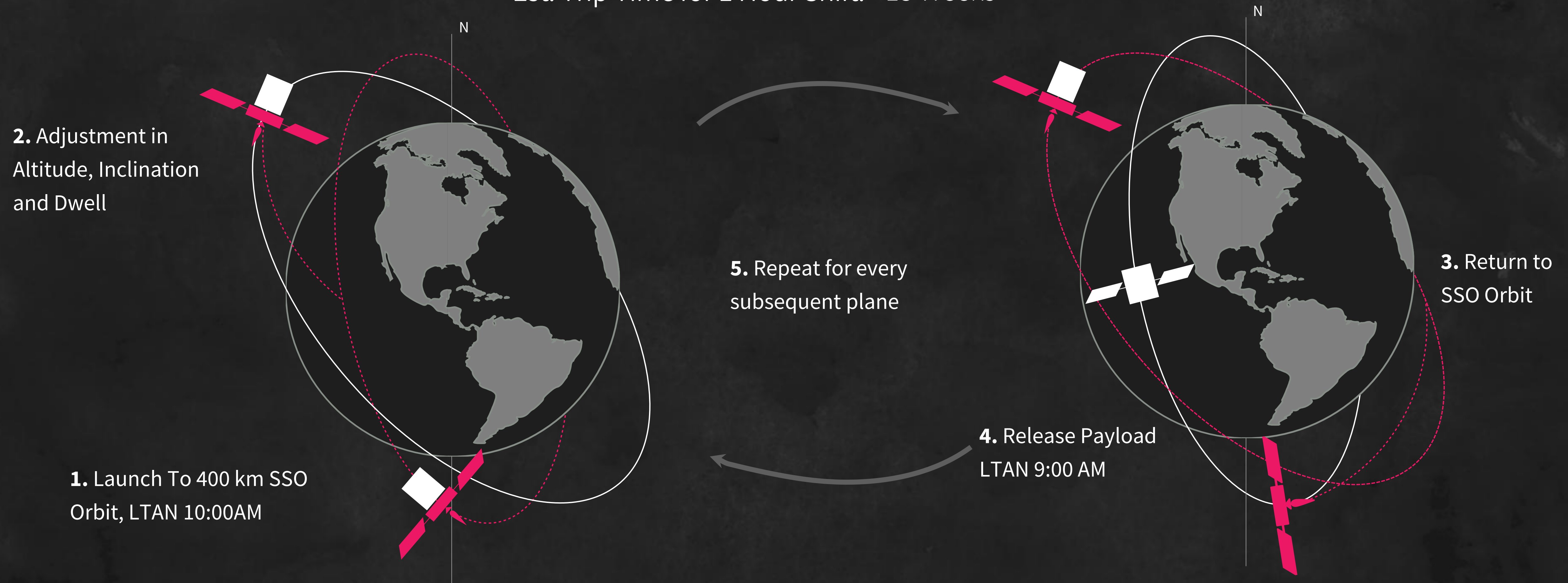
Vigoride Configuration	Circular Orbit Altitude Range From (km)		
	LEO	MEO	GEO
MET (Water)	Re-entry to 2,265	5,880 to 18,000	19,700 to 73,700
HET (Krypton)	Re-entry to 17,353	Re-entry to 209,293	2,800 to Earth Escape



LTAN SHIFT

VIGORIDE OSV

Est. Trip Time for 1 Hour Shift: <13 Weeks

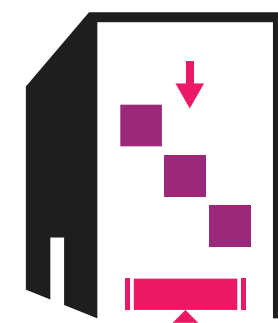


ILLUSTRATIVE ORDER OF OPERATIONS

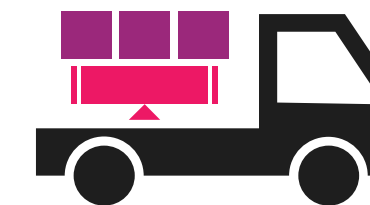
Momentum's capabilities make access to space significantly more affordable by combining rideshare launch with low-cost last mile delivery. Arriving in-space within the faring of nearly any rocket, our service vehicles carry a variety of customer satellites to very specific, custom orbits.



1 Customers ship payloads to Momentum as late as L-4 months



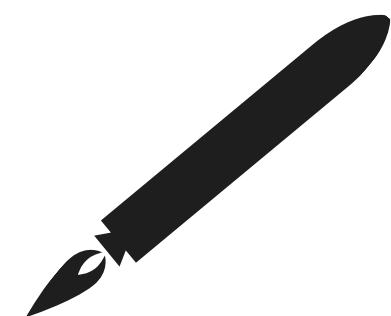
2 Momentum integrates payloads with vehicle



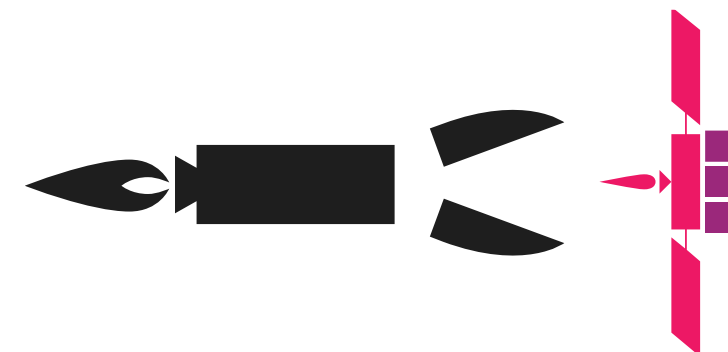
3 Momentum ships to launch service provider



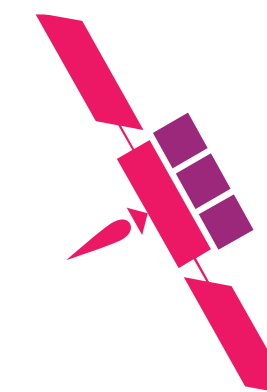
4 Momentum vehicle integrates with launch vehicle (LV)



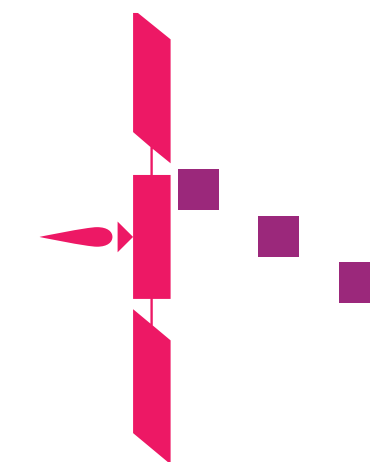
5 LV carries Momentum vehicle with payloads to initial orbit



6 Momentum vehicle carrying payloads separates from LV



7 Momentum vehicle moves payloads to delivery orbits



8 Momentum vehicle delivers payloads to custom, final orbits



SERVICES

HOSTED PAYLOAD



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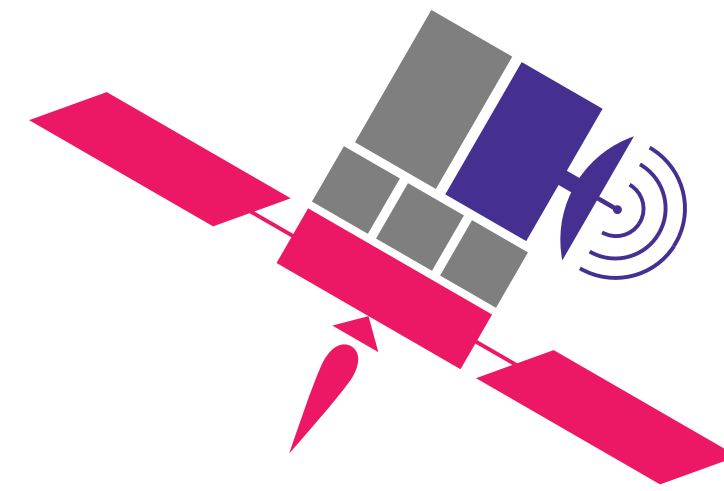
HOSTED PAYLOAD

Hosted payload services will include:

- Payload & Launch Vehicle Integration
- Licensing
- Launch & In-Space Transportation
- Operation of the Momentum Vehicle
- Power
- Data
- Pointing
- Communication

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Our hosted payload services offer turn-key satellite bus capabilities and allow customers to focus on what's important – the **payload** and the **mission**.



RIDESHARE SERVICE

Shared rides with fellow customer spacecraft for economical access to custom orbit destinations. Co-manifested customers could include both hosted and deployed payloads.



DEDICATED SERVICE

Exclusive use of a Momentum vehicle platform for your mission, accommodating larger hosted payload mass, volume, and power requirements. The entire in-space transportation capability of the Momentum vehicle is dedicated to your hosted payload mission.



HOSTED PAYLOAD: AVAILABLE VOLUME

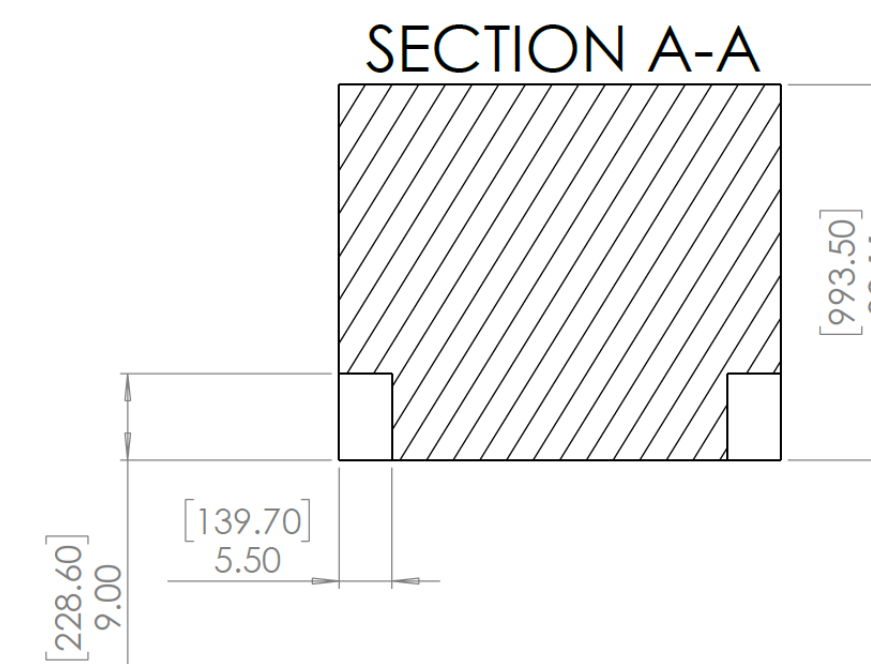
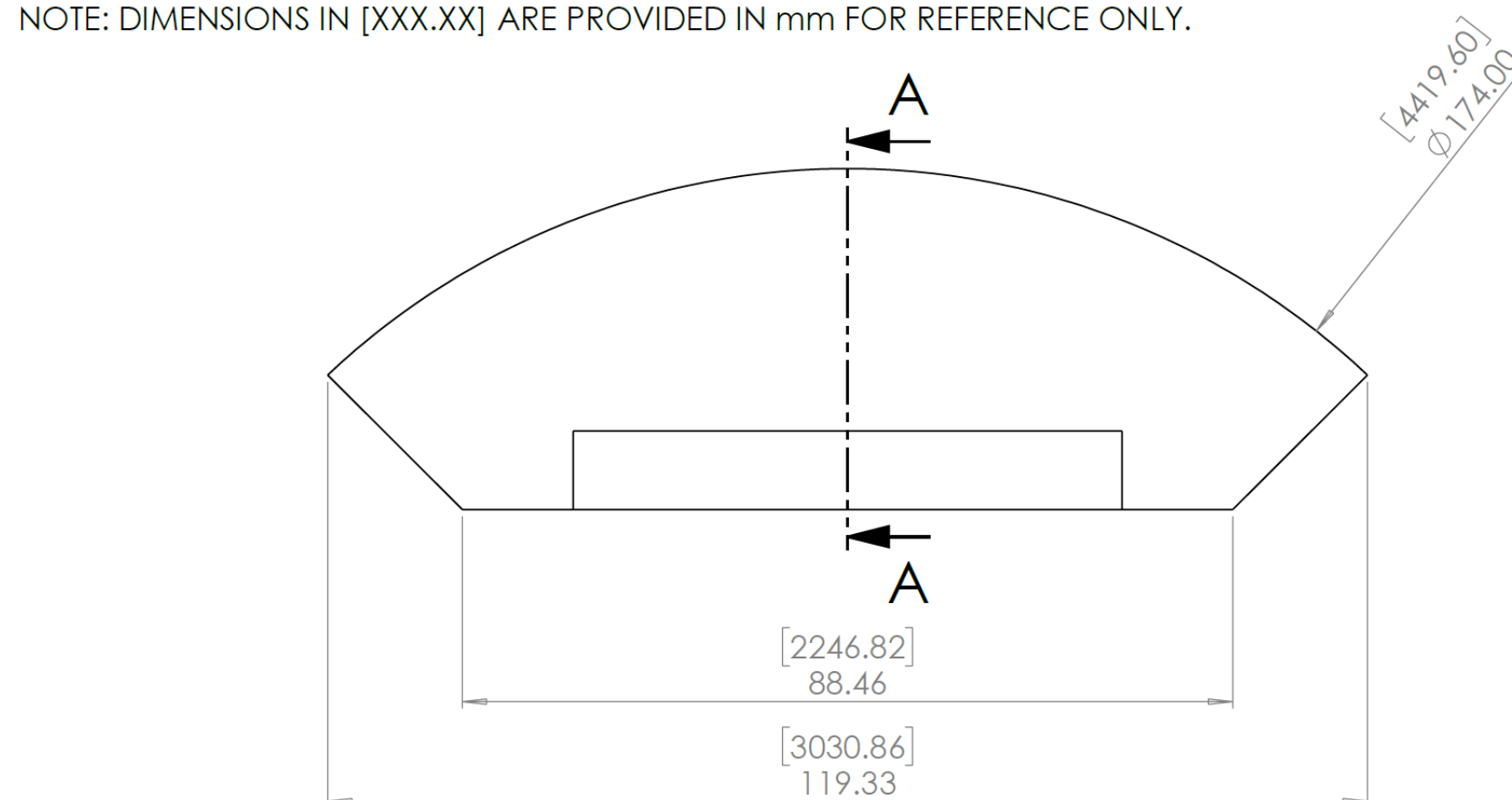
Momentum's hosted payload service includes a significant amount of available volume for hosted payloads. This volume can be dedicated to larger hosted payloads or customizable configurations of numerous rideshare deployable and hosted payloads.

For alternative volume configurations please consult a Momentum Sales Representative (sales@momentus.space)

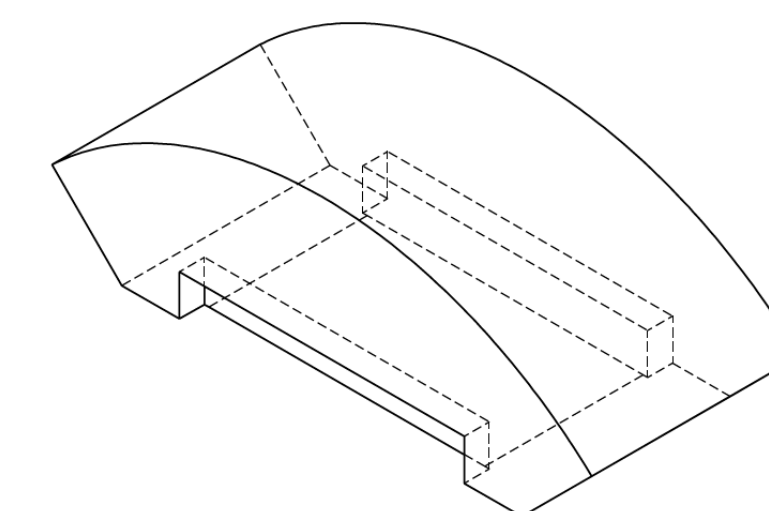
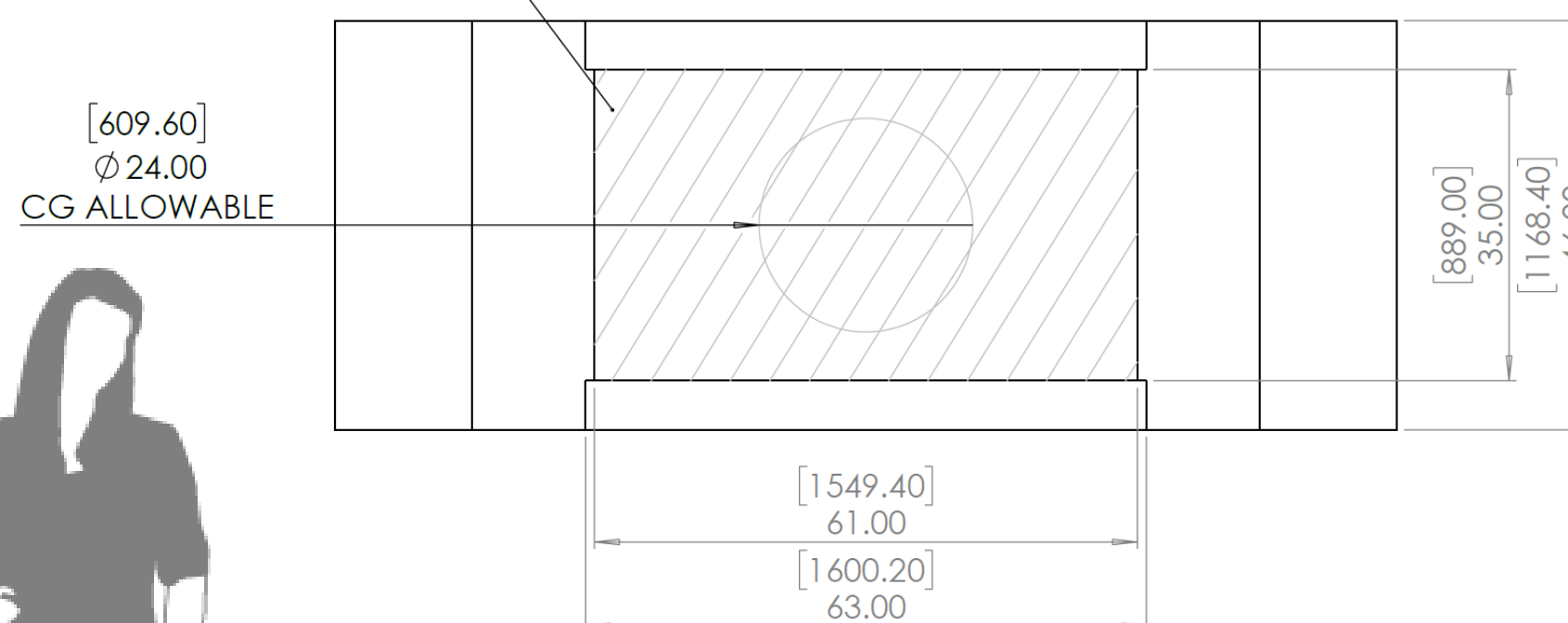
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VIGORIDE ENVELOPE FOR HOSTED PAYLOADS (FALCON 9 XL PLATE LAUNCH CONFIGURATION)

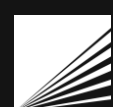
NOTE: DIMENSIONS IN [XXX.XX] ARE PROVIDED IN mm FOR REFERENCE ONLY.



PAYLOAD DECK AREA SHADED



ISO VIEW FOR REFERENCE ONLY
SCALE 1:30



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VIGORIDE HOSTED PAYLOAD CAPABILITY

Bus designed to be rapidly configured for a wide range of mission requirements

Payloads up to ~800 kg

Deploy up to 72U of Cubesats

Transport and operate at custom inclinations and/or altitudes as required (current LEO) up to $1\text{km/s } \Delta v$

Payload deck 1.5m x 0.9m



Pointing Stability tunable to 10 arc-seconds

Product roadmap includes radiation hardening for GEO/Lunar environment

~1 kw on-orbit average power; ~3 kw peak
Pumped fluid loop cooling

Dual redundant systems for assured reliability

Baseline S/X-Band TT&C
NSA Type 1 Certified
Encryption Option
(Innoflight KI-103)

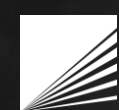
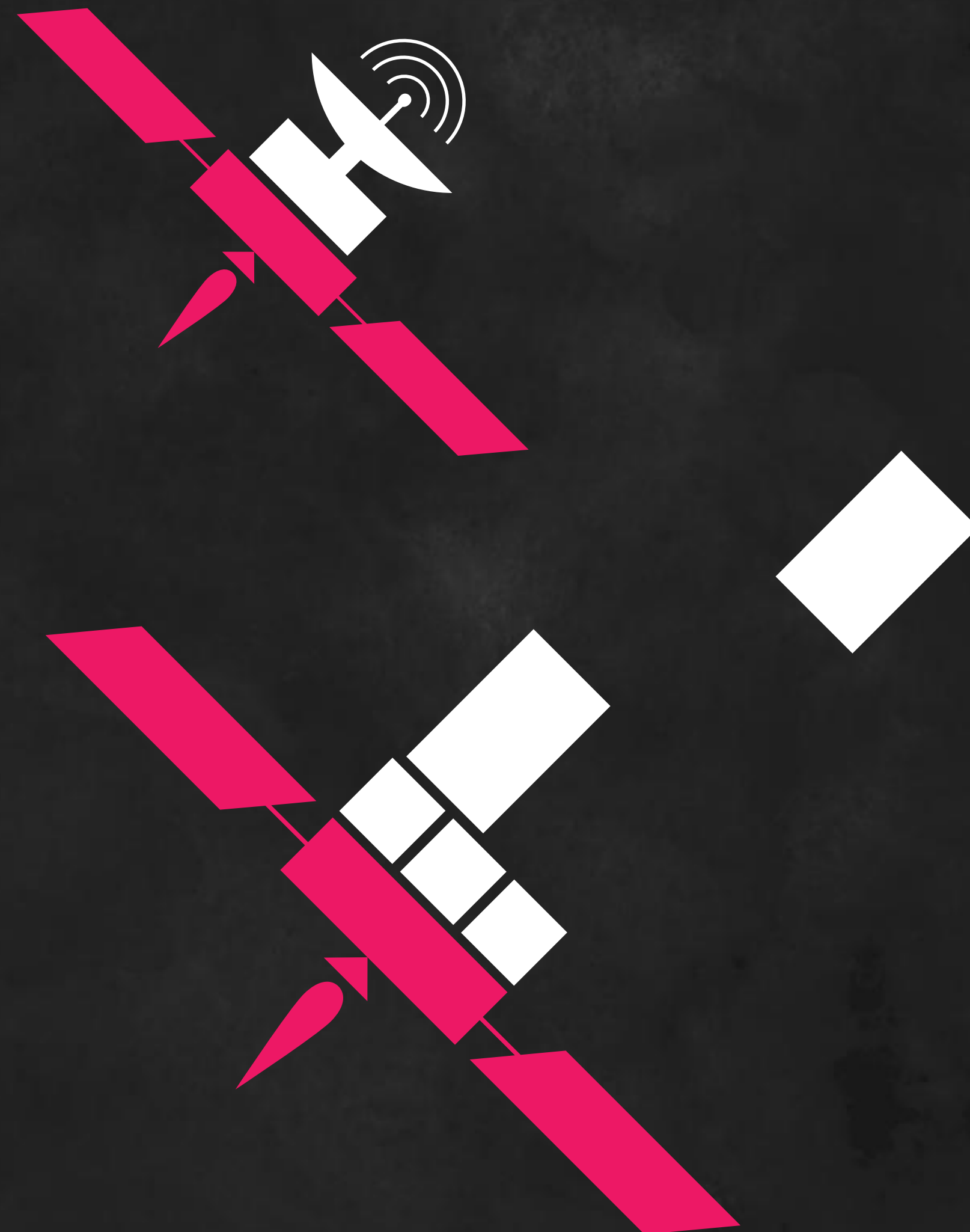
TRL 9 Water Propellant based Microwave
Electrothermal Thrusters
and reaction control

Modular propulsion:
electric, chemical, or MET



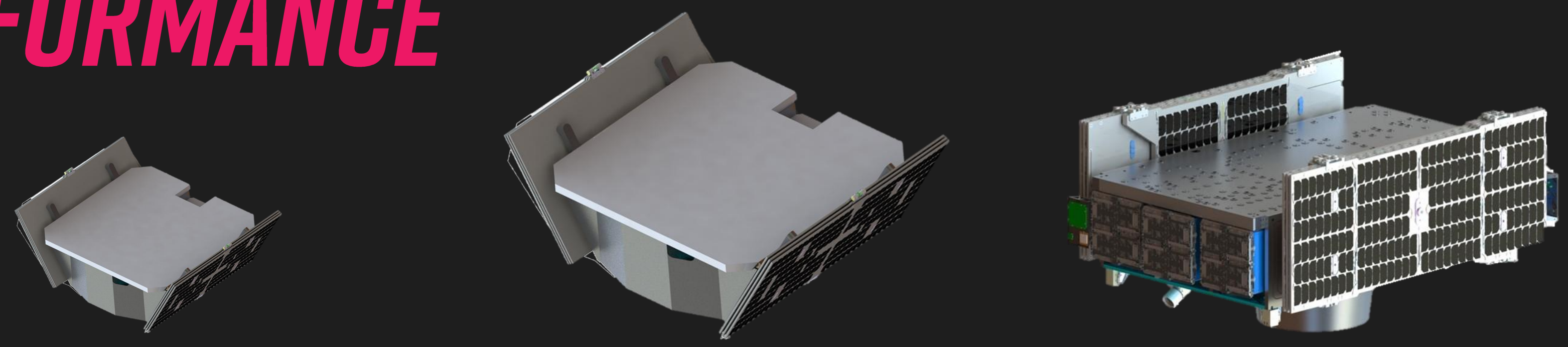


VIGORIDE ORBITAL SERVICE VEHICLES



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MOMENTUS BUS PERFORMANCE

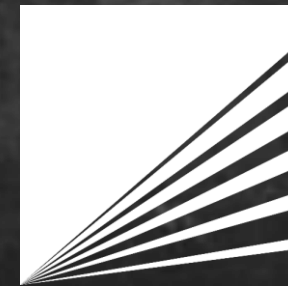


Parameter	M-500 Performance	M-1000 Performance	Vigoride Performance
Launch Interface	ESPA / SX Full Plate	ESPA Grande / SDA	ESPA Grande / SX XL Plate
Launch Mass	200 kg	550 kg (Side-mount), 1000 kg (Vertical-mount)	
Payload Mass	75 kg	280 kg (Side-mount) or 800 kg (Vertical-mount)	
Payload Mounting Area	4900 cm ²	27,832 cm ²	20,645 cm ²
Underdeck Cubesat Capacity	-	-	72U
Payload Peak Power	750 W	3 kW	
Payload Orbit Averaged Power	200 W	1 kW	
Payload Thermal Dissipation @ 50C	100 W	500 W	300 W
Voltage	40 V to 60 V Unregulated, 28 V Regulated (low- and high-power)		
Base Model Pointing Control	50 mdeg		1 degree

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MOMENTUS PRODUCT LINE PERFORMANCE

Parameter	Base Performance	Enhanced Performance	Premium Performance
Mission Data Downlink Rate	50 kbps (TC&R)	300 Mbps (High gain RF)	1 Gbps (Optical)
Data Interfaces	GigE, RS-485, RS-422, USB		
Data Storage	160MiB Vigoride / 256 GiB M-series	4 TB	12 TB
Positional Knowledge (Absolute)	500 m		
Positional Knowledge (Relative)	500 m	5% when < 100 m (RPO Package)	
Pointing Control	*See prior chart	50 mRad/100 arcsec	50 uRad/10 arcsec
Slew Rate	1.5 deg/sec		
Thrust	230 mN (MET)	4N (Chemical)	78 mN (HET)
Delta-V	1 km/s (MET)	500 m/s (Chemical)	2 km/s (HET)
Ground Antenna Access	Global: > 70 Locations		
Orbital Domain	LEO (20 kRad)	GEO – CisLunar (100 kRad)	
Orbital Lifetime	5 Years	TBD, > 5 years	



THANK YOU

