
We build *accessible*, *sustainable*,
and *cooperative* space worlds.
Company Introduction
H2-2024.
The
Exploration
Company

Solution.

The *Nyx* Family.

Nyx Earth

Earth to Low Earth Orbit and back.

Nyx Moon

Earth to Lunar Gateway and back.

Executive Summary.

€65 million *raised*.

From EQT Ventures, Partech, Cherry, Dassault family, *and more*.

Traction.

...and *growing*.

100+
Team Members

28+
Nationalities

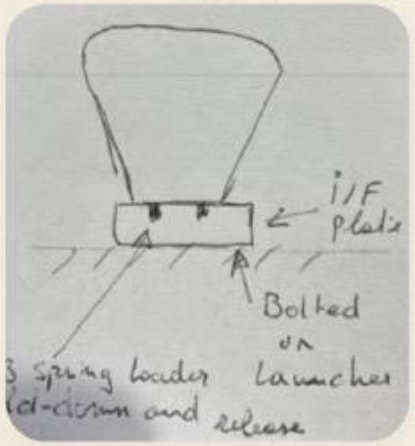
10,000+
Applications

Execution.

Mission Bikini

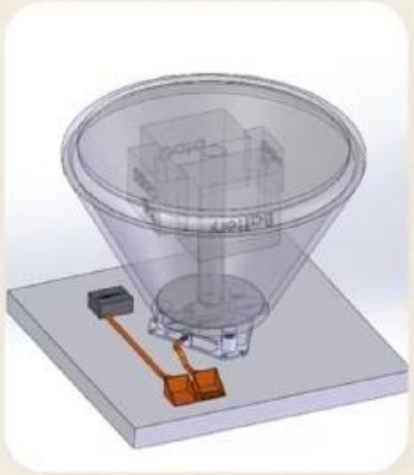
Sketch to flight-ready in *9 months*.

Sketch



January
2022

Concept Design

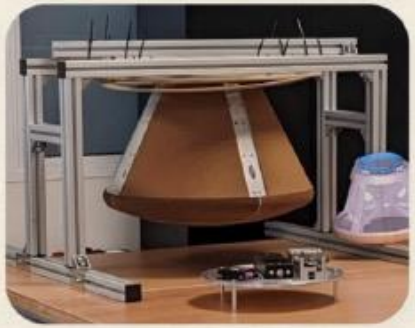


February
2022

Structure Arrival

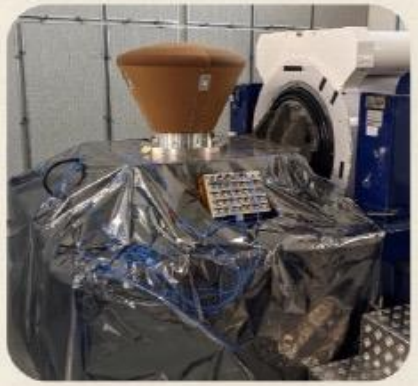
June
2022

AIT



August
2022

Qualification



September
2022


CLEANROOM ONLY

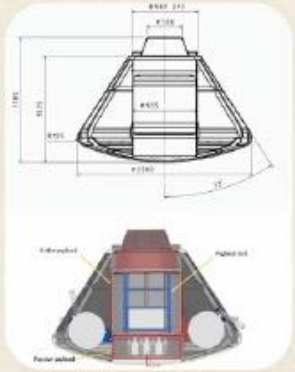
Execution.

Mission Possible

Built for controlled re-entry in *2 years*.

July 2022

Draft design & accommodation



December 2022

Detailed design & heat shield forging

May 2023

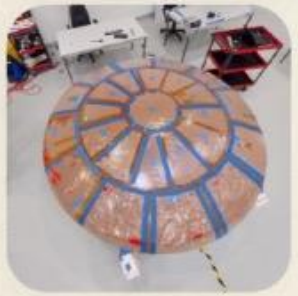
Heat shield & OBC EM manufacturing

July 2023

Moved to Planegg; proof pressure & leak tests done

September 2023

Thermal protection bonding for the heat shield



February 2024

Capsule is 50% integrated; closed loop tests on HiL

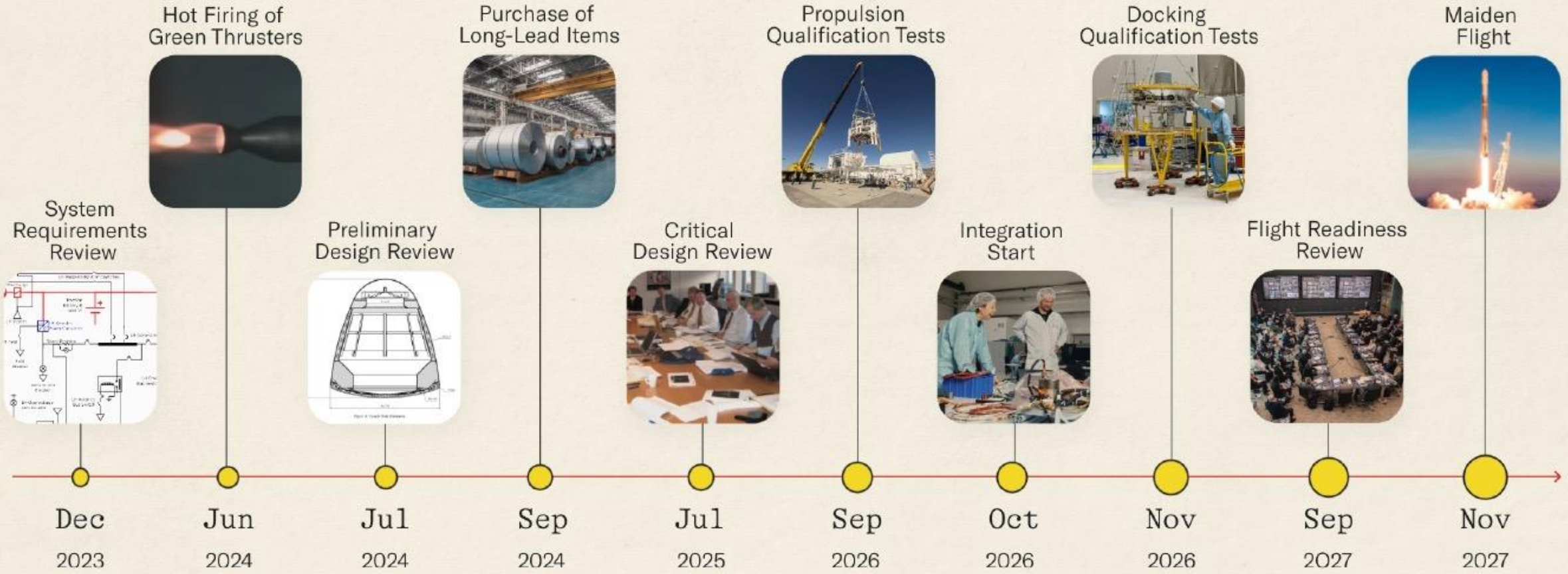
Summer 2024

Environmental tests; capsule is ready for flight ✓

Execution.

Nyx Earth

On-track for its first flight in *Q4-2027*.




Nyx

Traction.

Anchor clients *signed*.

Axiom Space

September 2023

ESA

May 2024

Starlab

May 2024

VAST

June 2024

Traction.

...and we are a *driving force* in the *European* exploration ecosystem.

ESA LEO Cargo Return competition co-shaped and won.

€50 million in contracts won from ESA, CNES, DLR, etc.

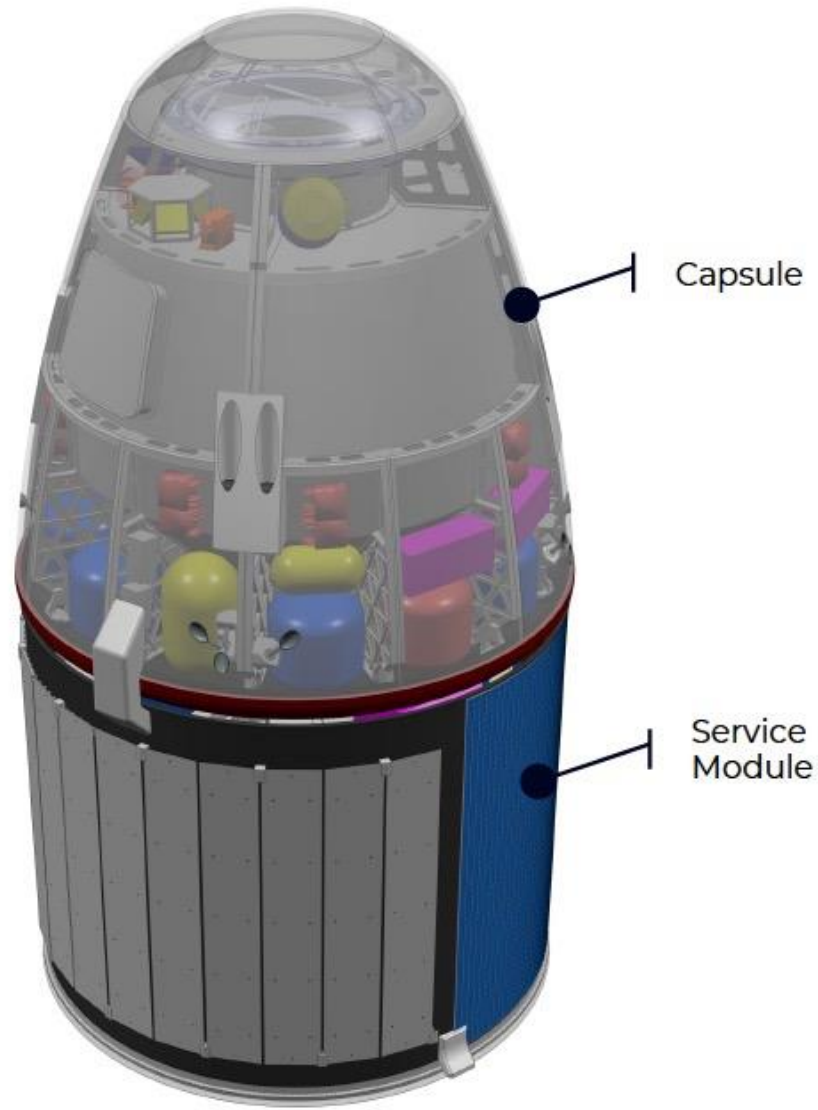
Mission Requirements & Vehicle Characteristics

Mission requirements

- **10 times** reusable.
- Quick turn around: refurbishment not more than **6 months** from splashdown.
- Payload:
  - Pressurized from and back to Earth: **2,600 kg** with **potential to 3,000 kg**
  - Unpressurized to the ISS: **1,400 kg**
  - Unpressurized disposal cargo from the ISS: **1,000 kg**
- Growth potential for **human spaceflight**
- 5 missions per year.

Nyx Earth Spacecraft

- Mass: 13.4 tons including 4 tons of payload
- Two main assemblies:
  - Capsule
  - Service Module
- Dimensions: D 4m x H 7.3 m
- Thrust: 20 x 200 N bipropellant thrusters (8 for orbit control + 12 for attitude control)
- Delta-V: ~350-400 m/s for a mission to the ISS



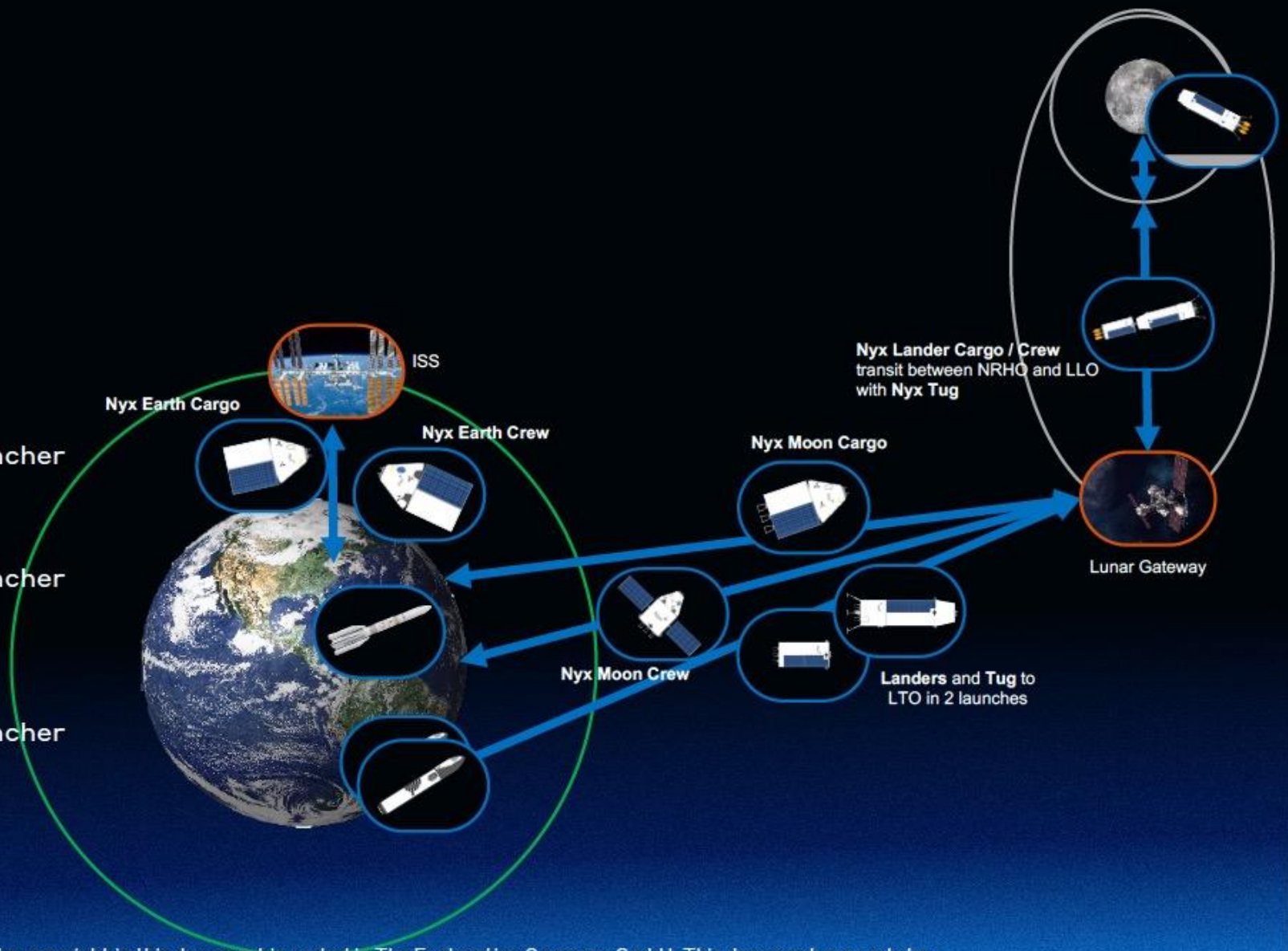
Human Inspirator Preparatory Activities Step 1: End-To-End Architecture Study

Cargo and Crew transport to Earth Orbit, Lunar Orbit and Lunar Surface

The Exploration Company

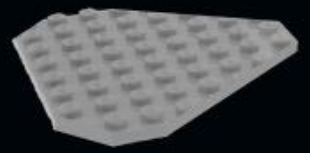
Nyx Architecture

- LEO Cargo:
  - Nyx Earth Cargo
  - Injected to LEO by Ariane 6
- LEO Crew:
  - Nyx Earth Crew
  - Injected to LEO by Ariane 6
- Gateway Cargo:
  - Nyx Moon Cargo
  - Injected to LTO by an improved Ariane 6
- Gateway Crew:
  - Nyx Moon Crew
  - Injected to LTO by a heavy European launcher
- Lunar surface Cargo:
  - Nyx Lander Cargo
  - Injected to LTO by a heavy European launcher
  - 1 additional launch with Nyx Tug
- Lunar surface Crew:
  - Nyx Lander Crew
  - Injected to LTO by a heavy European launcher
  - 1 additional launch with Nyx Tug

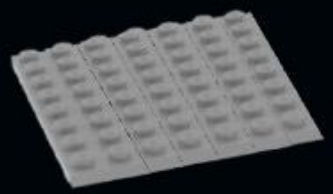


Building the Nyx Family

In order to optimize synergies within the development and maximize the use of common building blocks, the architecture is built around 3 base plates, on which we add functional bricks.

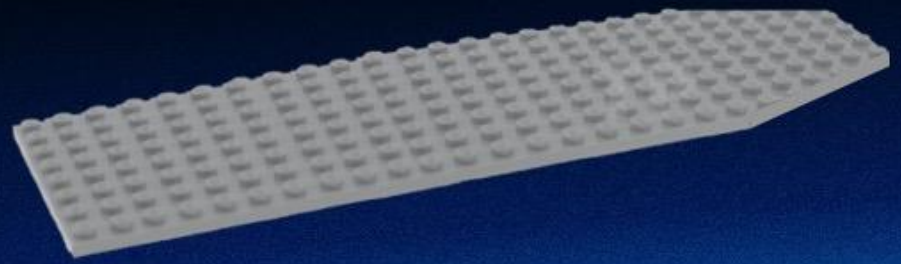


Capsule Base plate
Capsule-like structure and aeroshape
(3.7 height x 4 m diameter)



Service Module Base plate
Cylindrical structure
(4 m height x 4 m diameter)

Lander Base plate
Cylindrical structure with a truncated cone extremity
(14.5 m height x 4 m diameter)



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Baseline Bricks

Propulsion Bricks

Thermal protection Bricks

Power Generation Bricks

On-orbit services Bricks

Recovery services Bricks

Crew support Bricks

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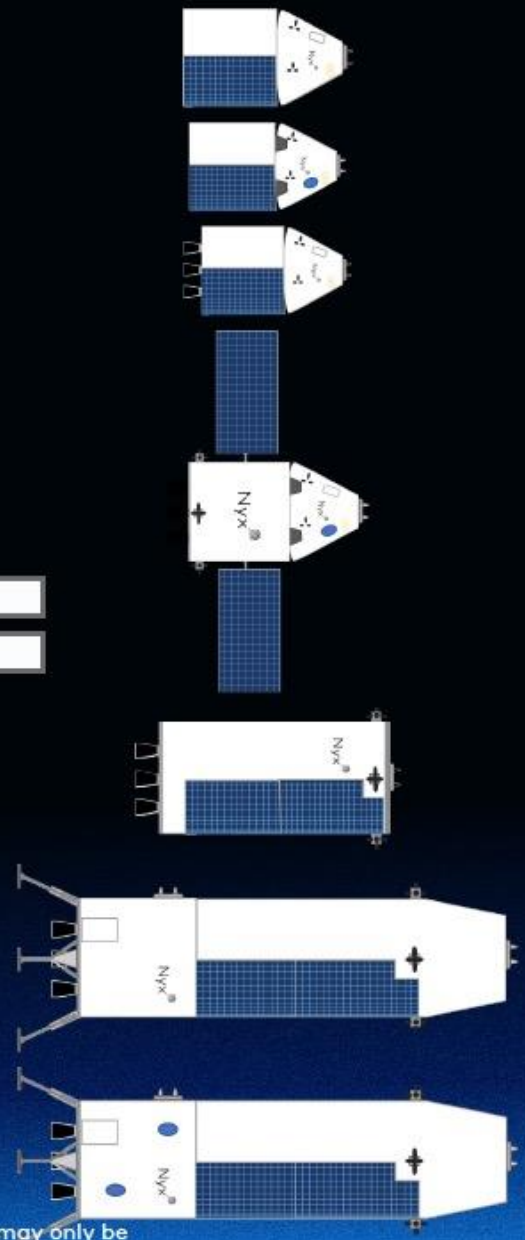
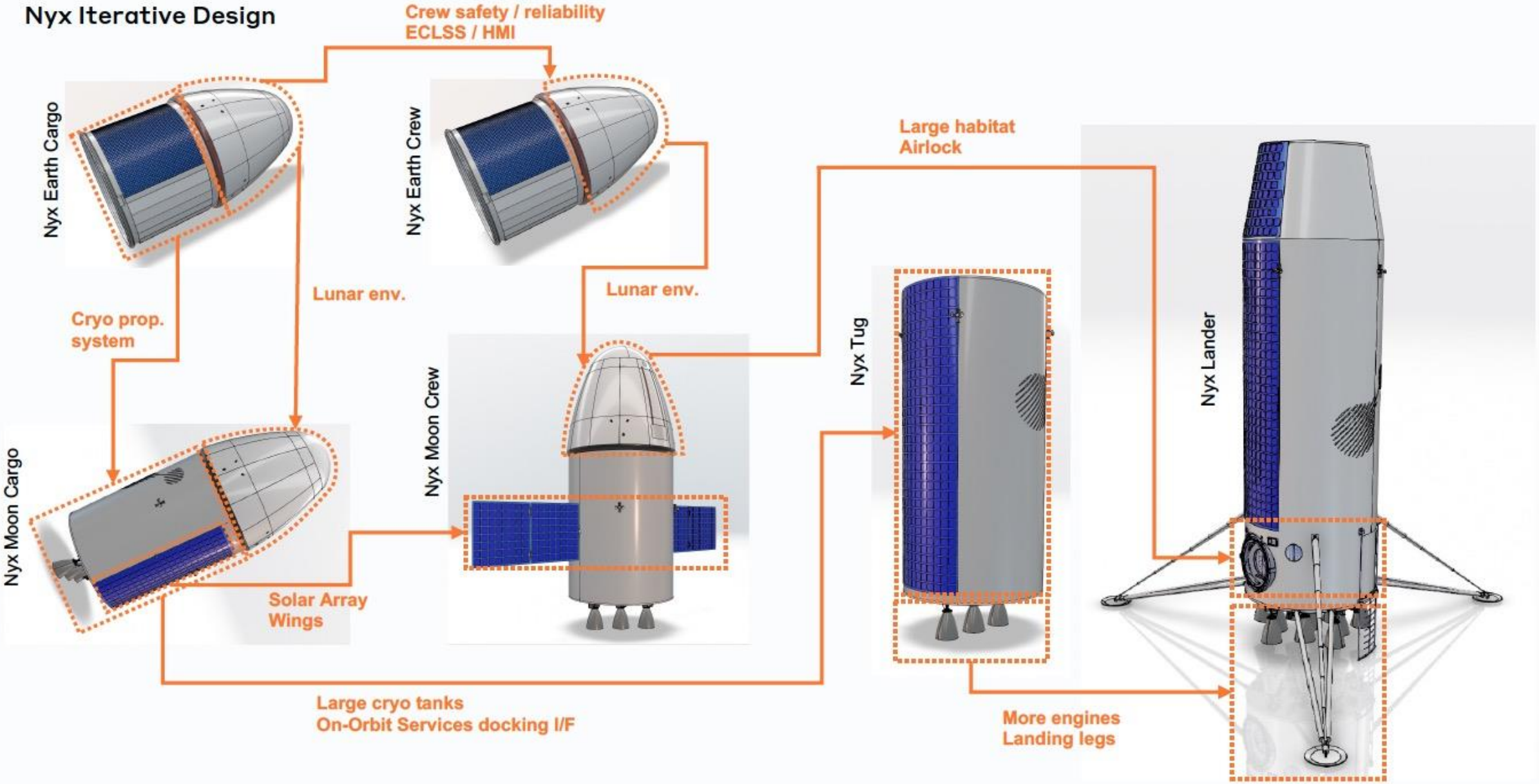


Nyx Iterative Design

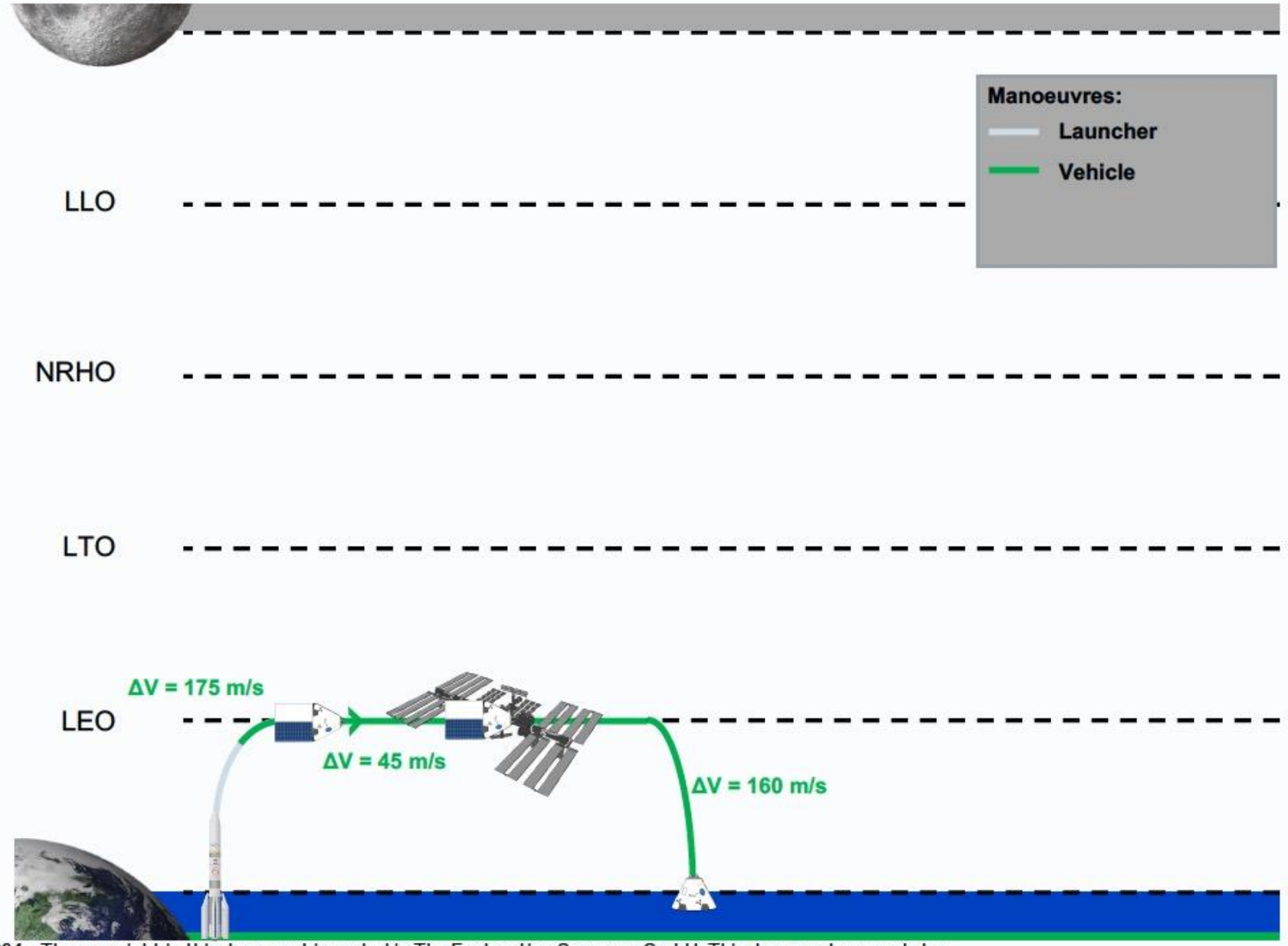


TEC - INTERNAL

ConOps and Staging strategies

Crew transport Earth <-> LEO

1. Vehicle start of mission: Injection to LEO
2. Vehicle phasing with LEO Station
3. Vehicle RDV & docking to LEO Station
4. Unloading of payload to LEO Station
5. Loading of payload from LEO Station
6. Vehicle end of mission: undocking and de-orbit burn

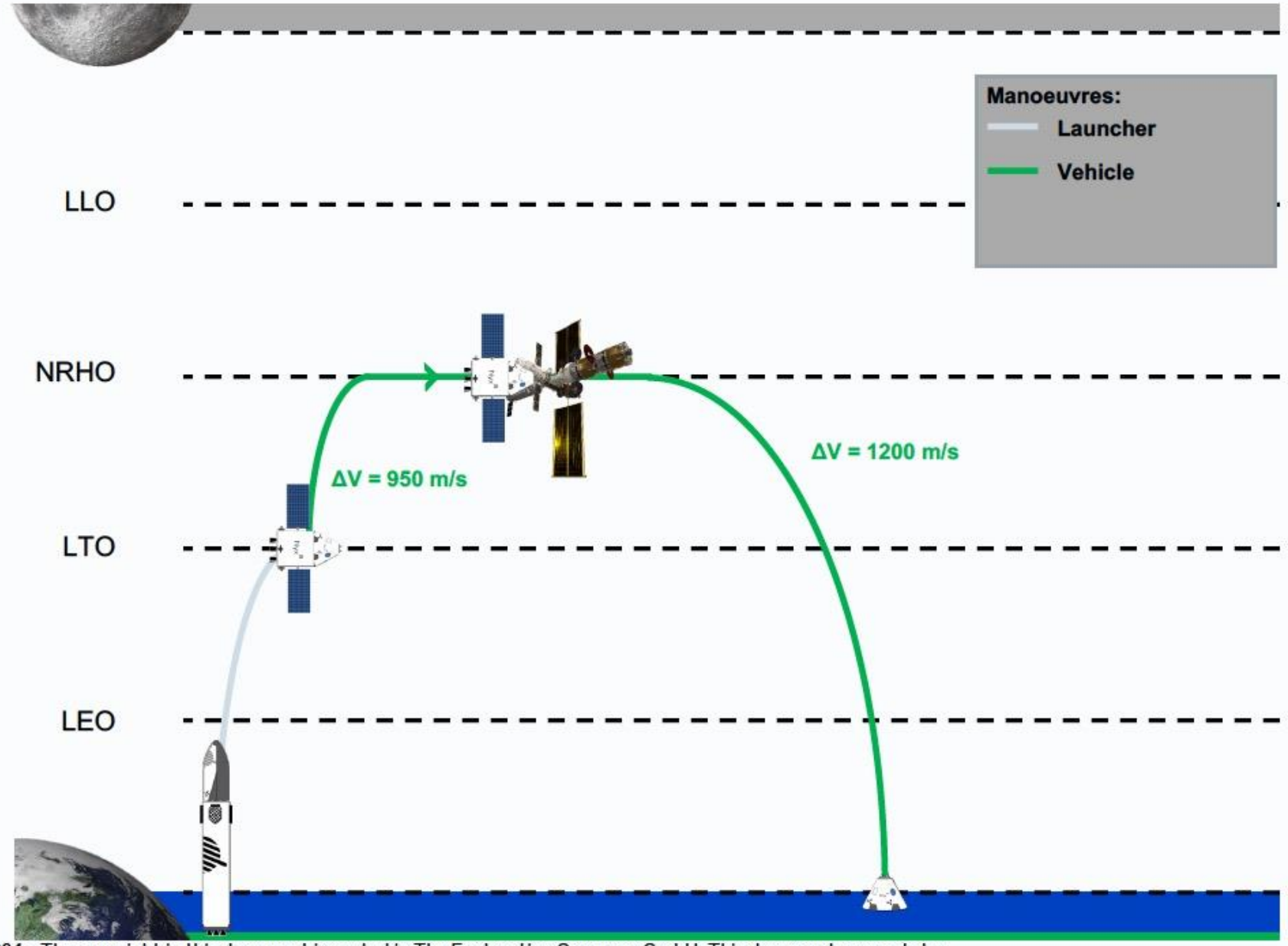


TEC - INTERNAL

ConOps and Staging strategies

Crew transport Earth <-> Gateway

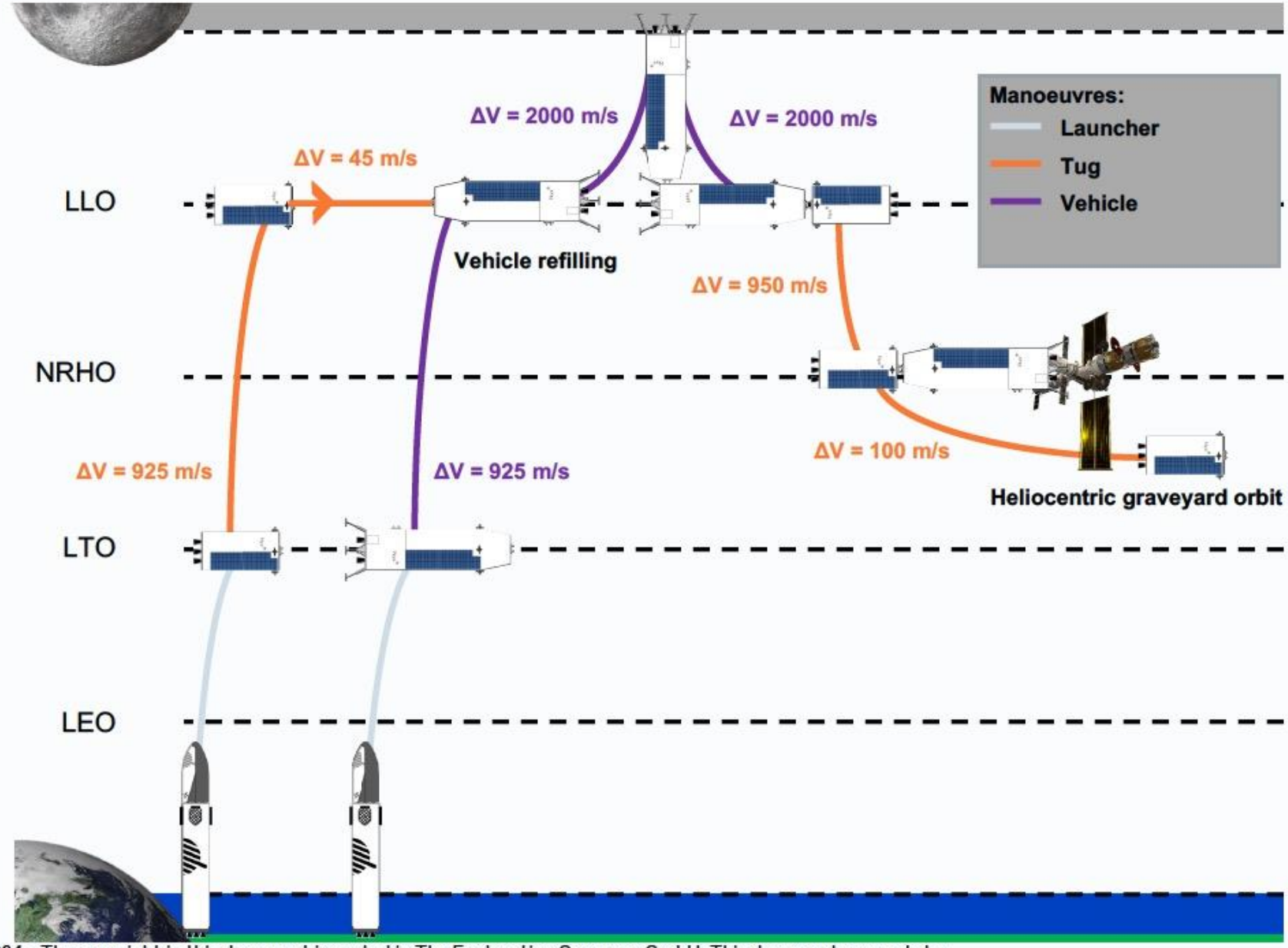
1. Vehicle start of mission: Injection to TLO
2. Vehicle LTO to NRHO (incl RPOD to Lunar Gateway)
3. Unloading of payload to Gateway
4. Loading of payload from Gateway
5. Vehicle end of mission: NRHO to Earth surface



ConOps and Staging strategies

Cargo transport Earth -> LLO -> Lunar Surface -> Gateway

1. Vehicle start of mission: Injection to TLO
2. Tug start of mission: Injection to LTO
3. Vehicle LTO to LLO
4. Tug LTO to LLO
5. Tug RPOD to Vehicle
6. Vehicle Docking and Refilling from Tug
7. Tug undocking from Vehicle
8. Vehicle LLO to Lunar Surface
9. Unloading of payload to Lunar Surface
10. Loading of payload from Lunar Surface
11. Vehicle Lunar Surface to LLO (incl RPOD to Tug)
12. Tug + Vehicle LLO to NRHO (incl RPOD to Lunar Gateway)
13. Unloading of payload to Gateway
14. End of mission: Tug+Vehicle NRHO to Heliocentric graveyard orbit

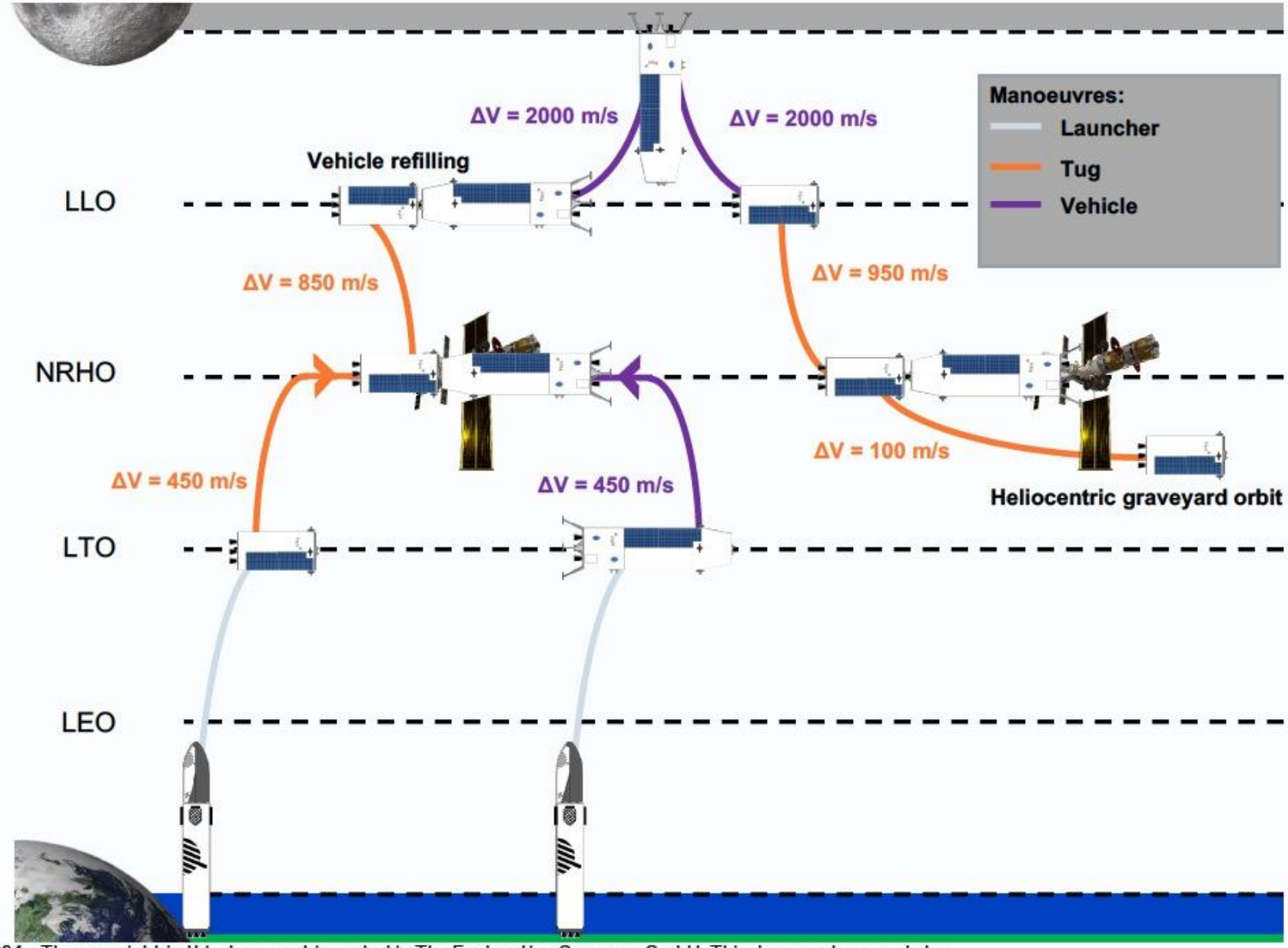


ConOps and Staging strategies

Crew transport Gateway <-> Lunar Surface

1. Vehicle start of mission: Injection to LTO
2. Tug start of mission: Injection to LTO
3. Vehicle LTO to NRHO (incl RPOD to Lunar Gateway)
4. Tug LTO to NRHO (incl RPOD to Vehicle)
5. Vehicle Refilling from Tanks & jettison of empty Tanks
6. Tug + Vehicle Gateway to LLO
7. Tug undocking from Vehicle
8. Vehicle LLO to Lunar Surface
9. Unloading of payload to Lunar Surface
10. Loading of payload from Lunar Surface
11. Vehicle Lunar Surface to LLO (incl RPOD to Tug)
12. Tug + Vehicle LLO to NRHO (incl RPOD to Lunar Gateway)
13. Unloading of payload to Gateway
14. Tug end of mission: NRHO to Heliocentric graveyard orbit

Note: this mission requires a parallel Crew transport Earth <-> Gateway mission



Nyx Architecture Performances

Baseline strategy	Requirement	Nyx
Cargo transport Earth <-> LEO		
Cargo mass way-in [kg]	3000	4000
Cargo mass way-back [kg]	2000	2600
Crew	0	0
Number of launches	3	1
Crew transport Earth <-> LEO		(to LEO)
Cargo mass way-in [kg]	0	2000
Cargo mass way-back [kg]	0	1000
Crew	3	4
Number of launches	3	1
Cargo transport Earth <-> Gateway		(to LEO)
Cargo mass way-in [kg]	2000	2000
Cargo mass way-back [kg]	2000	2000
Crew	0	0
Number of launches	3	1
Crew transport Earth <-> Gateway		(to LTO)
Cargo mass way-in [kg]	0	3000
Cargo mass way-back [kg]	0	1000
Crew	3	4
Number of launches	3	1
Cargo transport Earth -> LLO -> Lunar Surface -> Gateway		(to LTO)
Cargo mass way-in [kg]	5000	5000
Cargo mass way-back [kg]	2000	2000
Crew	0	0
Number of launches	3	2
Crew transport Gateway <-> Lunar Surface		(to LTO)
Cargo mass way-in [kg]	0	200
Cargo mass way-back [kg]	0	200
Crew	2	2
Number of launches	3	2
		(to LTO)