Rocketplane Kistler

Support for Space Exploration

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KISTLER aerospace corporation

RPK

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Diverse Markets Minimize Risk

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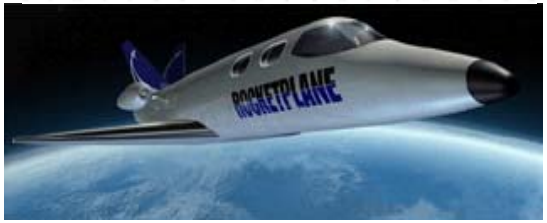

- Rocketplane XP - *Suborbital services*
  - *Space tourism*
  - *USAF "Responsive space"*
  - *Microgravity research*
- XP Program
  - *Vehicle 1 is 25% complete*
  - *First flight late 2008*
- ***Estimated $10-20 billion market over ten years. (Futron/Zogby study)***

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- Kistler K-1 - *Orbital services*
  - *ISS servicing*
  - *USAF "Responsive space"*
  - *Satellite launch (comm'l & gov't)*
- K-1 Program
  - *Vehicle 1 is 75% complete*
  - *First flight late 2008*
- ***Estimated $4 billion market per year over next five years.***

Support for Space Exploration

RpK's Unique Position:

- *Low cost sub-orbital and orbital access through a single interface.*

RpK's Direct Support:

- *Low cost technology and systems development and demonstration*
  - *Sub-orbital with the XP*
  - *Orbital with the K-1*
- *Exploration logistics train to LEO*
  - *And beyond with evolutionary vehicle development*
- *Crew transfer to LEO*
  - *And beyond with evolutionary vehicle development*

RpK's Indirect Support:

- *Support STS retirement to free resources for space exploration*
  - *Cargo*
  - *Crew transfer*
- *Lower cost of space access*
  - *Enable supportive space enterprise in near earth space*
  - *Enable a **sustainable** presence in the solar system*

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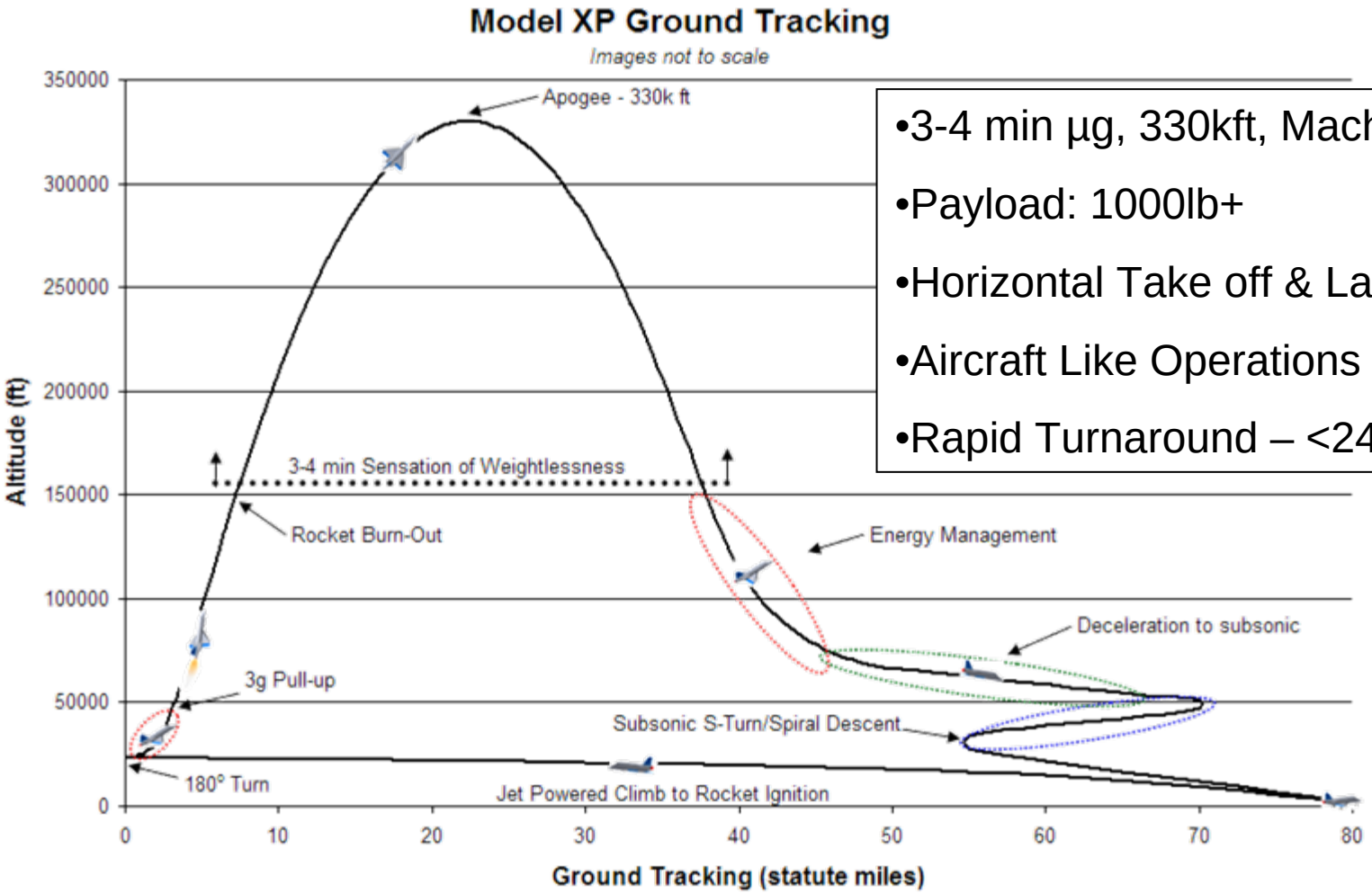
Rocketplane XP

Suborbital Passenger and Payload Services

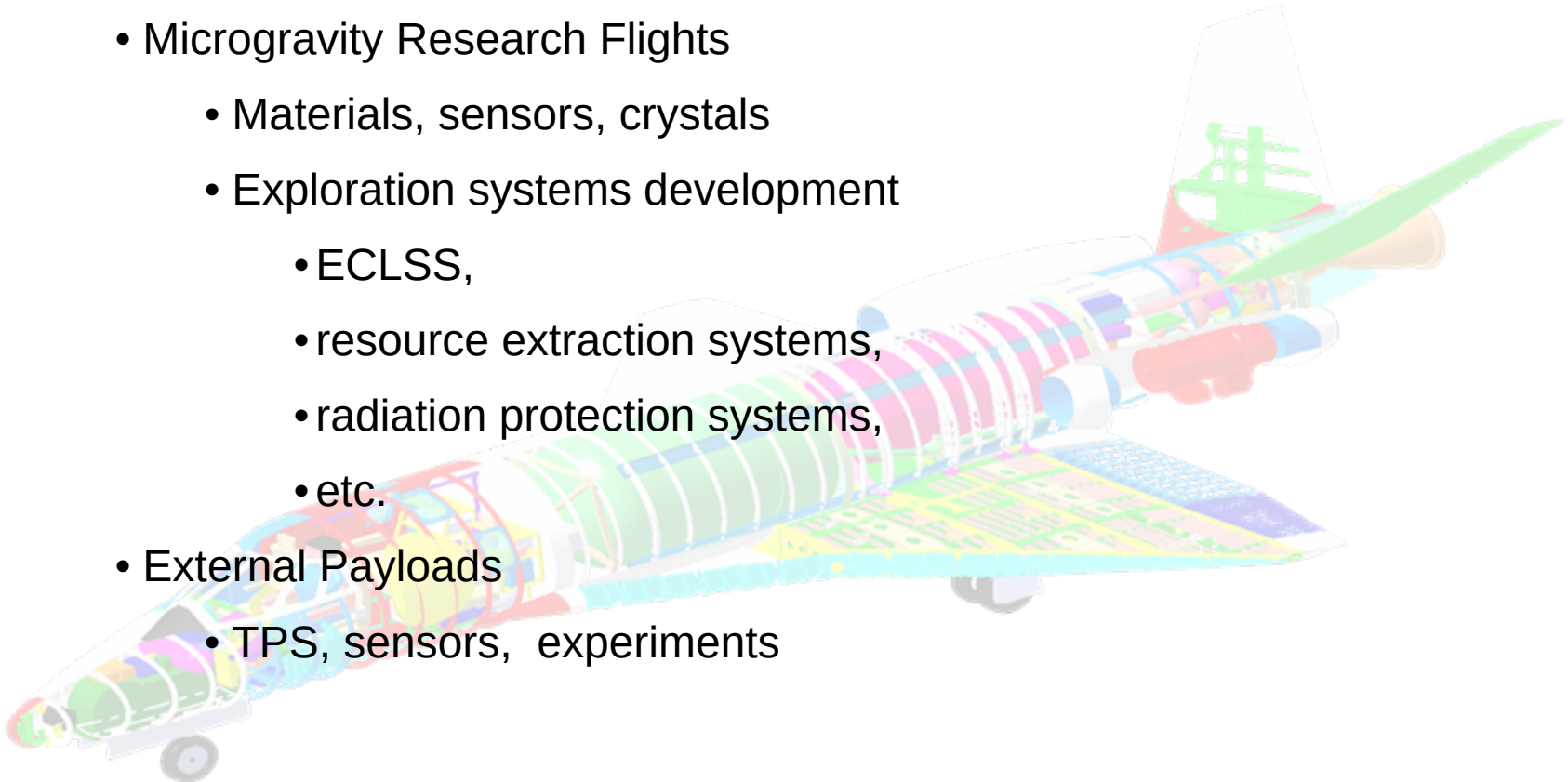
XP Offers Microgravity Time and Responsive Space Access



- 3-4 min µg, 330kft, Mach 3.5
- Payload: 1000lb+
- Horizontal Take off & Landing
- Aircraft Like Operations
- Rapid Turnaround – <24 hours

Potential XP Support Services

- Microgravity Research Flights
  - Materials, sensors, crystals
  - Exploration systems development
    - ECLSS,
    - resource extraction systems,
    - radiation protection systems,
    - etc.
- External Payloads
  - TPS, sensors, experiments



All of these development programs can be "passed along" to the K-1 when they reach that point in development.

XP Competitive Features

- **XP brings unique competitive features to each market segment.**

	Space Tourism	Research	Media
Windshield View	X	X	X
“Right Hand” seat	X		X
Payload services		X	
Payload Operator		X	
Operational Reliability (Availability)	X	X	X

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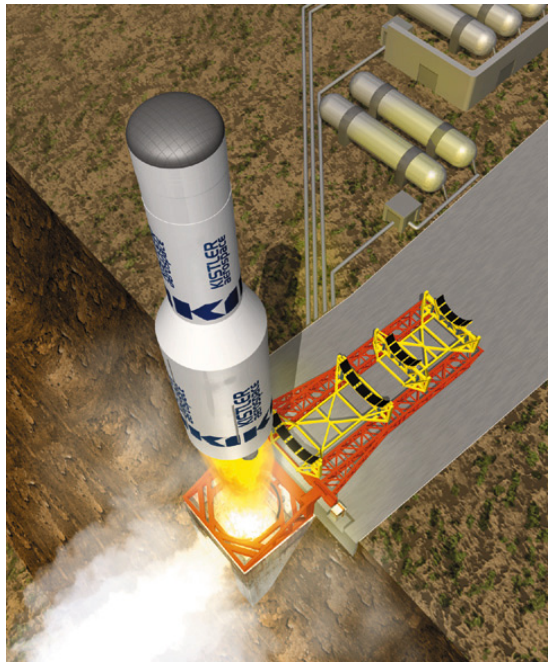
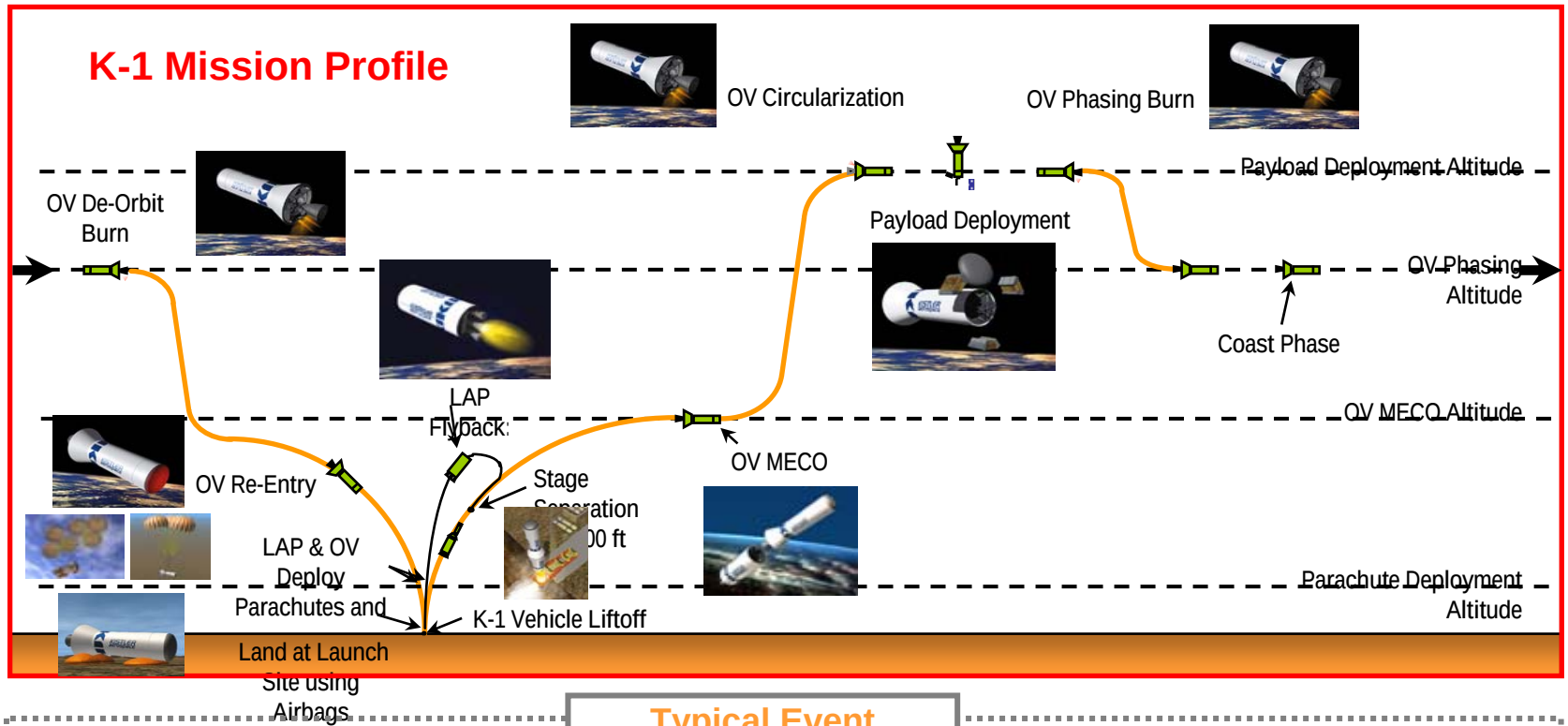


Kistler K-1
Orbital Space Transportation Services

K-1 Satellite Deployment Profile



Event	Time
LAP Ignition	0:00:00
LAP Boost C.O.	0:02:20
Separation	0:02:20
LAP Restart	0:02:24
LAP Flyback C.O.	0:02:54
LAP Landing	0:10:47

Typical Event Sequence

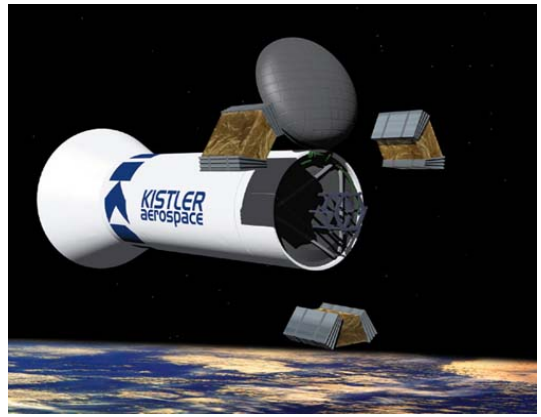
OV Ignition	0:02:27
OV C.O.	0:06:19
OMS Insertion Burn	0:50:22
Payload Deployment	1:05:00

Event	Time
OMS Phasing Burn #1	1:30:31
OMS Phasing Burn #2	13:39:06
OMS Re-entry Burn	22:50:22
Re-entry Interface	23:34:22
OV Landing	23:50:04

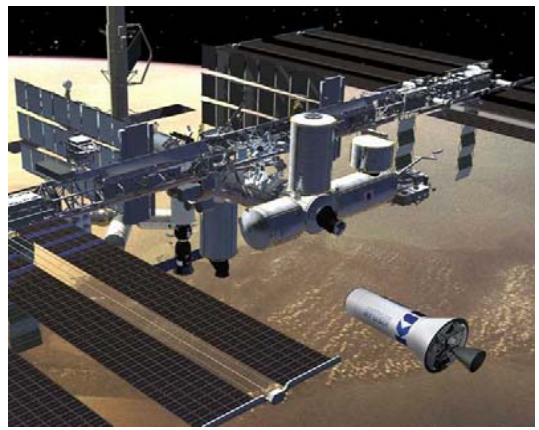
Time in Hrs:Min:Sec

K-1 Services are About More Than Just Satellites

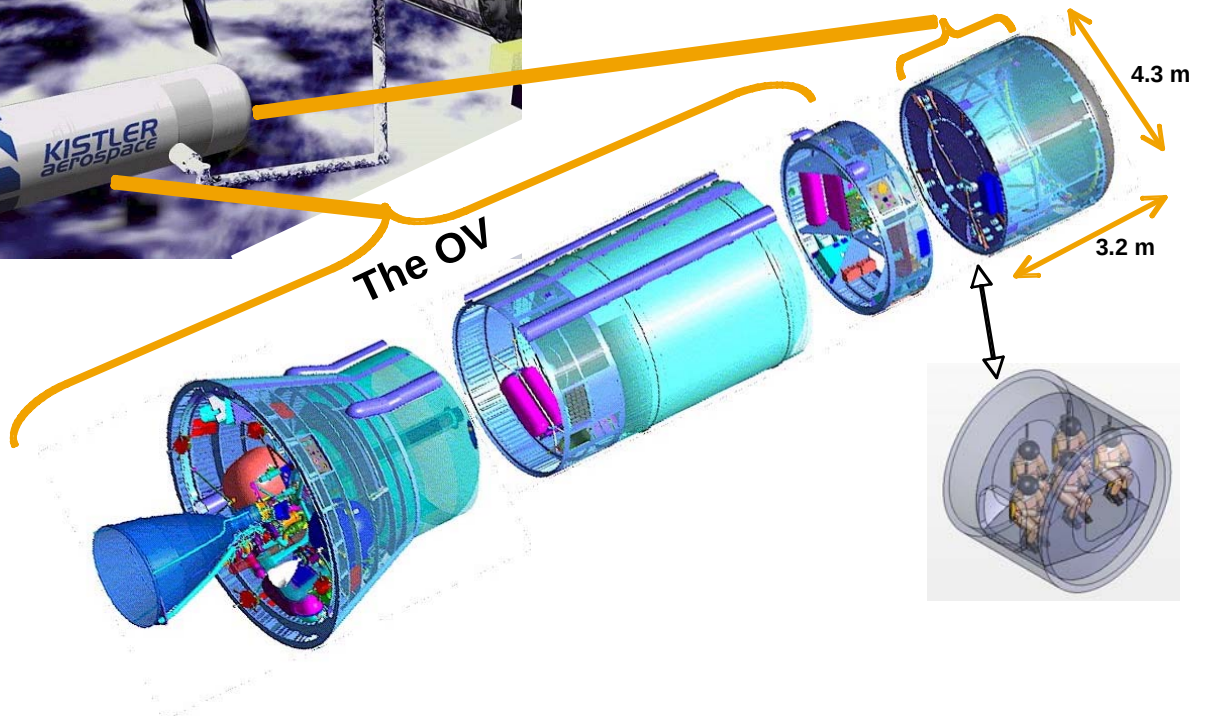
- K-1 vehicle can accommodate Multiple Missions
  - Deliver payloads to space
  - Return payloads from space
  - Test technology, instruments, and experiments
  - Re-use hardware for repeat flights



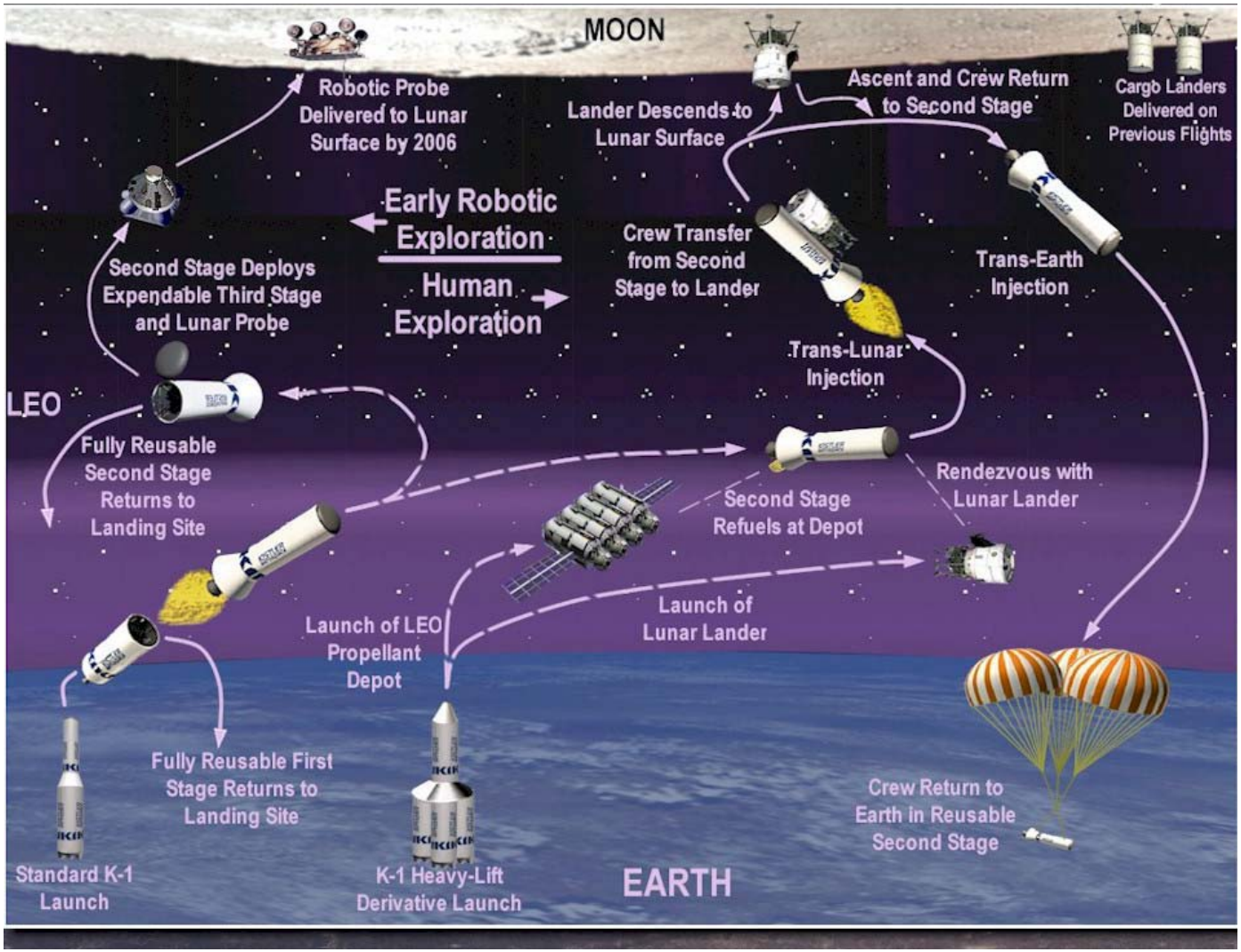
- K-1 offers wide range of performance for dedicated or rideshare missions, to ***and from*** space
  - LEO satellites (telecomm, earth observations)
  - Interplanetary exploration missions
  - International Space Station resupply
  - On-orbit space operations
  - Technology demonstrations
  - Evolutionary path to crew transfer



Clear Evolutionary Path to Crew Transfer



K-1 Path to the Moon



Implementing the Vision

Space Exploration Conference 2006