



Transformational Space Corporation



Transformational Space Corp. founded in 2004

- Headquarters in Reston, VA

Goal: commercially viable crew and cargo to LEO

Executed **\$6 million study** and field tests for NASA

- Activity in 2004-05 was a predecessor to NASA's Commercial Orbital Transportation System (COTS) program



t/Space used Scaled Composites' Proteus to conduct several air release tests in 2005



Charles Duelfer, *Chairman and CEO*

- Directed technical staff of 1,600 in post-invasion Iraq WMD search



David Gump, *President*

- As LunaCorp president, did ISS events: RadioShack, Fox Sports, MLB



James Voss, *VP Space Exploration Systems*

- Former astronaut spent 162 days building ISS on Expedition Two



Lon Levin, *Chief Strategic Officer*

- Cofounder of XM Satellite Radio



Bretton Alexander, *Senior Adviser*

- White House space policy adviser drafted Vision for Space Exploration



A.B. "Buzzy" Krongard, *Member, Board of Directors*

- Former CIA Executive Director; former CEO of Alex. Brown.

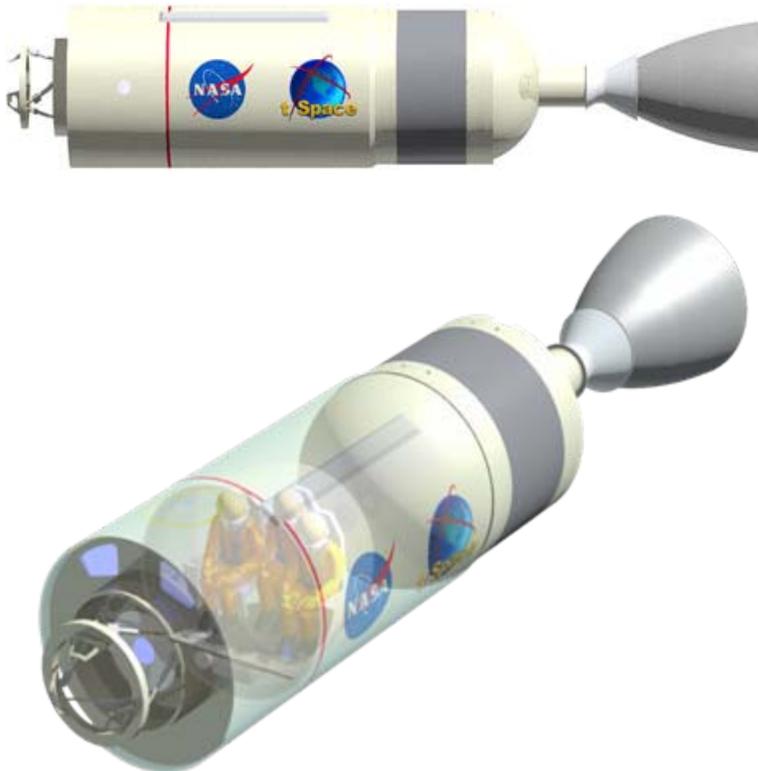


Booster/CXV stack released at altitude



CXV- Crew Transfer Vehicle

Carries passengers plus internal cargo; also functions as tug



Cargo Modules

PCM is part of turn-key service offered by t/Space



PCM - Pressurized Cargo Module

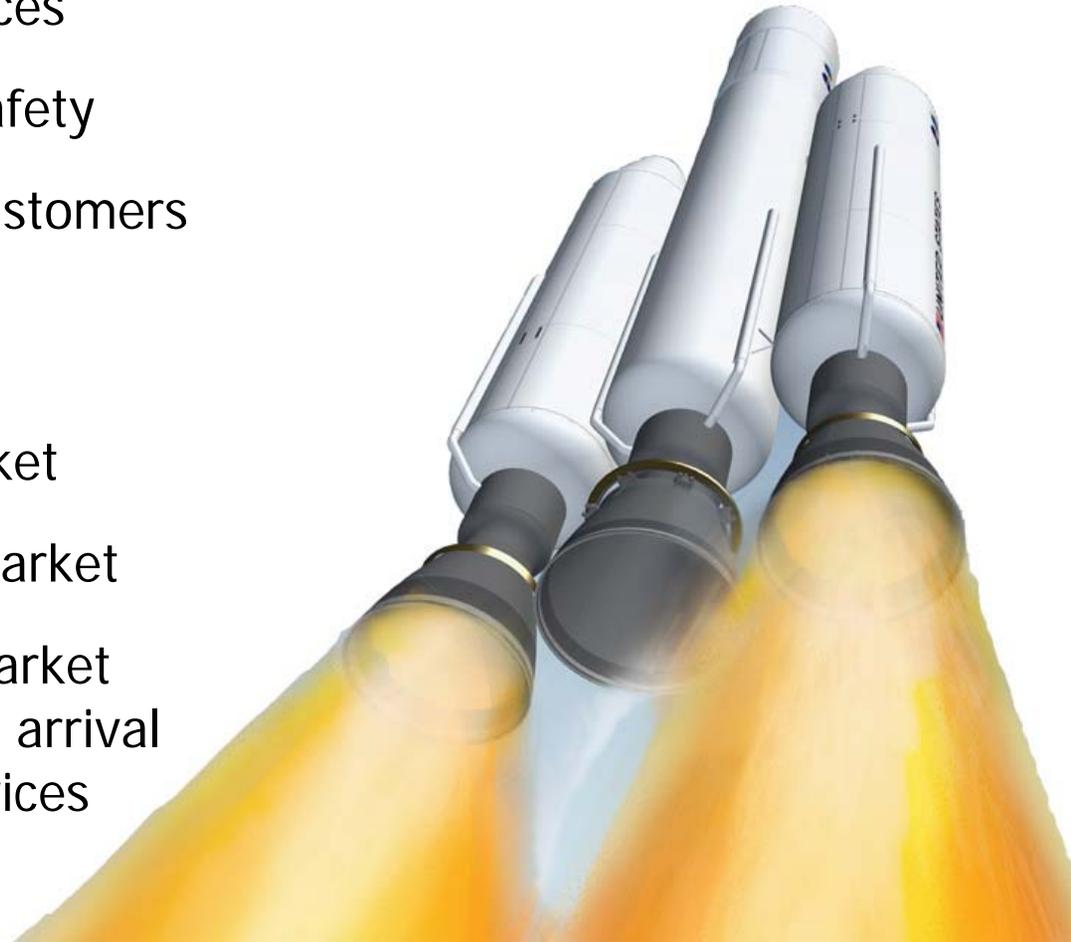


Delivering people and cargo to orbit

- At dramatically lower prices
- With greatly improved safety
- Responding quickly to customers

Three major markets

- Existing large NASA market
- Existing large Defense market
- A nascent commercial market that will expand with the arrival of affordable launch services



First Market: International Space Station



**NASA needs transportation services to ISS
when Space Shuttle is retired in 2010**

NASA estimates annual demand at \$500-\$700 million

t/Space solution is safer, simpler, lowest cost



Space Act Agreement (SAA) with NASA



NASA signed SAA in January 2007 that includes:

- Providing t/Space with technical assistance
- Providing updated data on International Space Station cargo and crew markets
- Service to investors as an expert third-party monitor of t/Space progress on its development milestones



Corporate microgravity research and production

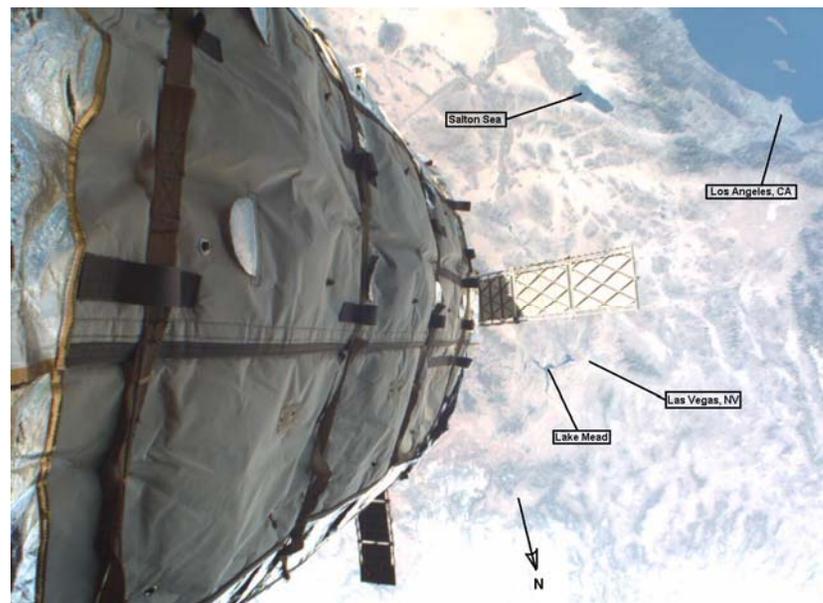
- Genetic research, screening of potential drugs, organ bandages, etc.

Astronauts from non-ISS space agencies

Adventure travelers and media companies

- Twice-yearly Russian seats have sold out at \$20M each recently
- t/Space seats at \$5 million will expand affordability

Bigelow Aerospace now has two small prototypes of commercial space stations in low Earth orbit





U.S. Defense community

**Spends 50% more
on space than NASA**

**t/Space characteristics
fit national security needs**

**Current discussions with Defense community focus on
early use of uncrewed spacecraft**





One Team...Organized Around a Mission



**Overall system integrator and operator;
design and integration of spacecraft**

Two Primary Contractors:



**Ball Aerospace for Avionics, GNC,
communications, electrical power, CDH**



**AirLaunch LLC for booster development
and aircraft modification**

NASA Wallops Role in AirLaunch Activities

TEAM AIR LAUNCH

- NASA Wallops is known as a “friendly entry point” for new launch vehicles, especially those from small, entrepreneurial companies
- Wallops is the lead space range for QuickReach™ Small Launch Vehicle (SLV) under the DARPA/Air Force Falcon SLV program
 - Wallops provided key contributions to AirLaunch’s safety process and in providing use of test facilities for hardware
- Multiple areas for collaboration, now and in the future
 - Range operations and safety personnel
 - Autonomous flight termination system
 - Payload processing facilities
 - Propellant handling equipment
 - Standard adapter for small satellites





QuickReach™ Fairing Fabrication Using Innovative Tooling at Delta Velocity in Leesburg, Virginia



Payload nose cap



Payload adapter cone



Payload adapter cone with base ring



Fairing Fabrication



QuickReach™ Payload Fairing



Fairing Shown with Payload Adapter



Composite Mandrels for Payload Fairing & Adapter





QuickReach™ Payload Fairing Separation Test



AirLaunch's QuickReach™ Payload Fairing Separation Test Conducted at NASA Wallops New Payload Processing Facility on October 4, 2006



Support greater use of small satellites

- Virginia has several companies and colleges with expertise in small satellites; state should provide funding for small science satellites as part of space education and outreach
- Encourage using Wallops for test and operation of new small launch vehicles

Budget money to complete Wallops preparation of commercial-friendly launch infrastructure and to support test launches of new small launch vehicles from Wallops

Support expanded number of companies receiving funding in NASA Commercial Orbital Transportation Services (COTS)



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