

The logo for AirLaunch, with "AIR" in blue and "LAUNCH" in red, set against a blue sky background.

AIRLAUNCH

A white F-16 fighter jet with two missiles mounted on its wings, flying in the upper left quadrant of the sky.

***It's a Small World After All:
Small Launchers and Small Satellites"***

***Presented to:
Center for Strategic and International Studies***

A silver Boeing Stearman biplane flying in the middle of the sky.

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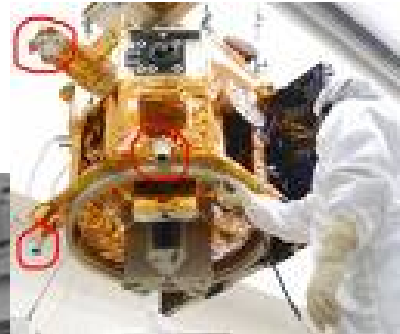
October 26, 2007



Small Satellites: A Disruptive Market Force



Google™
Earth



Is the U.S. Leading in these Markets? No.

TEAM AIR LAUNCH

→ Small Satellites: Surrey Satellite

- Piggyback launch opportunities to dedicated small launchers
- Standard interfaces and buses
- Education and training of workforce

→ Small Launchers

- Russian / Ukrainian excess missiles
- Ariane 5 > Soyuz > Vega
- India, China

→ How did this happen?

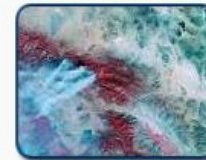
- Leadership
- Innovation
- Cooperation / Partnerships
- Open markets

→ ITAR concerns further limit U.S. ability to innovate

High Quality Commercial Data Products ...



Agriculture



Environment

Rapid Response Disaster Monitoring ...



**Growing number of small satellites & constellations in orbit,
with practical applications and economic benefits**



Market Drivers



- The market stimulates the need
 - Communication, Weather, Disasters
 - Earth Observation, Reconnaissance
 - Scientific Experimentation
 - Cargo & Crew Delivery
 - Exploration
 - Destinations, Adventure
 - Education



- Space transportation is the enabler
- Think what can happen when we have truly low-cost, responsive launch and payloads

Space Launch leads to an infrastructure in space, creating opportunities for new markets & space travel.





What Can We Learn? What Can We Do?

- Recognize that small is *different*
 - “Critical, traditional activities” will and should continue on their own
- Look broadly at multiple markets, customers, partners
- Get over the politics, naysaying, and “not invented here”
- Eliminate borders and bureaucracy
- Invest in R&D and in the future
- Develop, demonstrate, test – and do it again
- Use a spectrum of innovative approaches
- Exploit unexpected synergies and market applications
- Reward innovation and risk-taking, whether it “works” or “not”
- **Just do it!**
 - If it doesn’t work, try something else, then try again.
 - If it works, keep doing it. And then do it again.



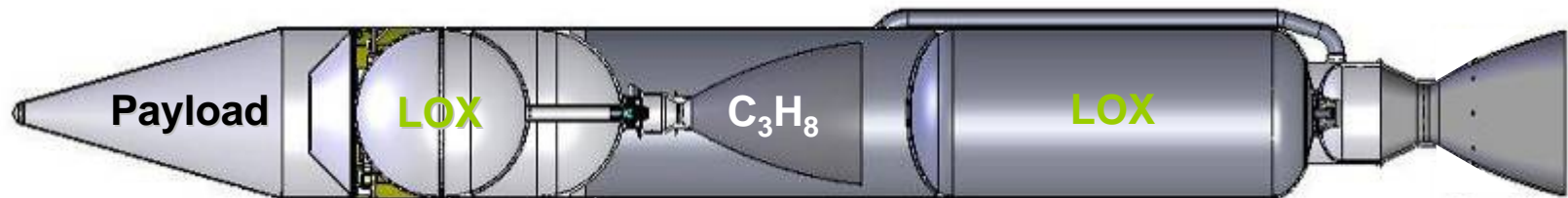
AirLaunch QuickReach™ Small Launch Vehicle



→ 1000 lbs to LEO

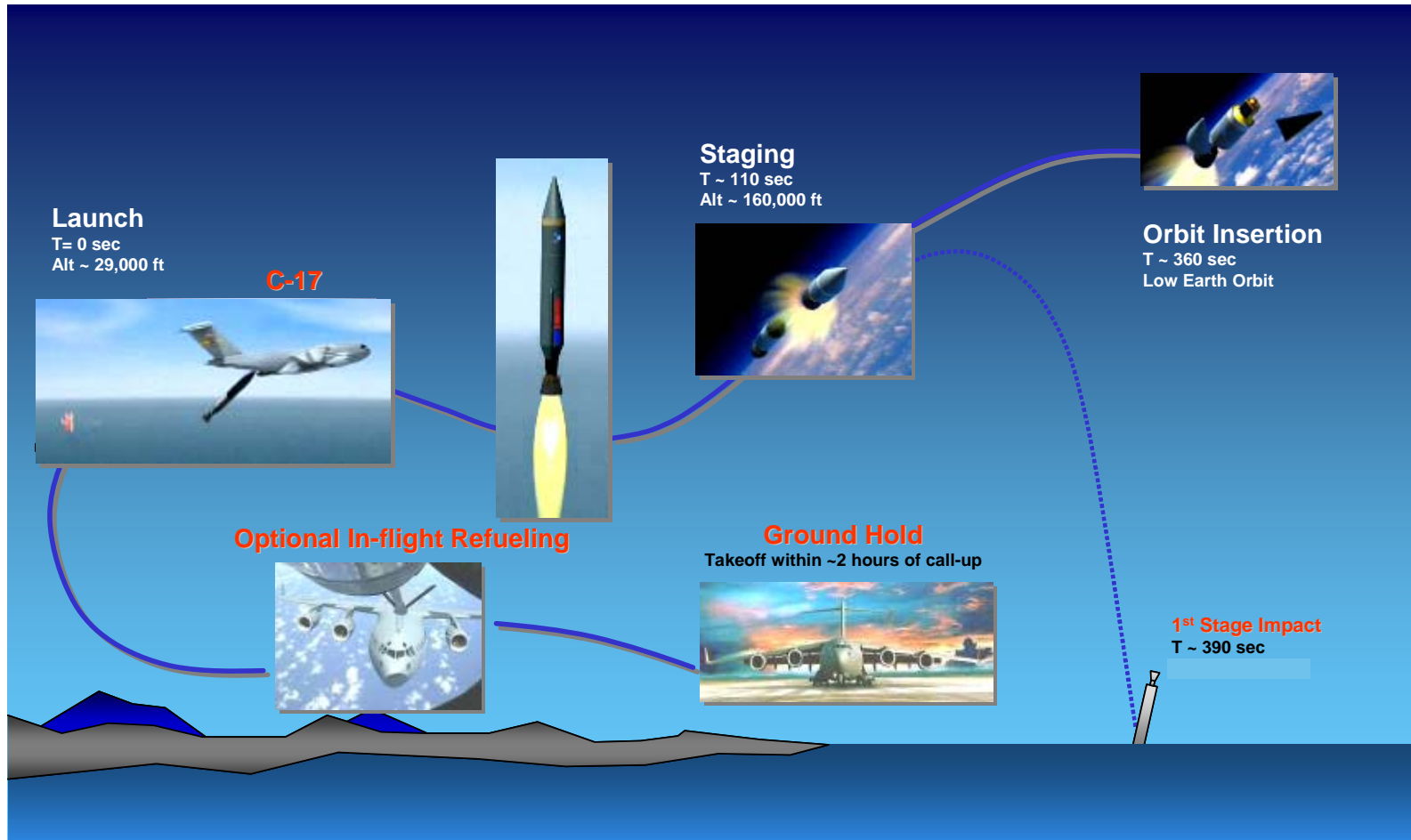
→ \$5M / Flight

→ < 24 hrs Response Time



Maximum Flexibility – Minimum Infrastructure

AirLaunch CONOPS Enables Multiple Missions



→ New Missions → Augmentation → Reconstitution → Time-Critical Needs

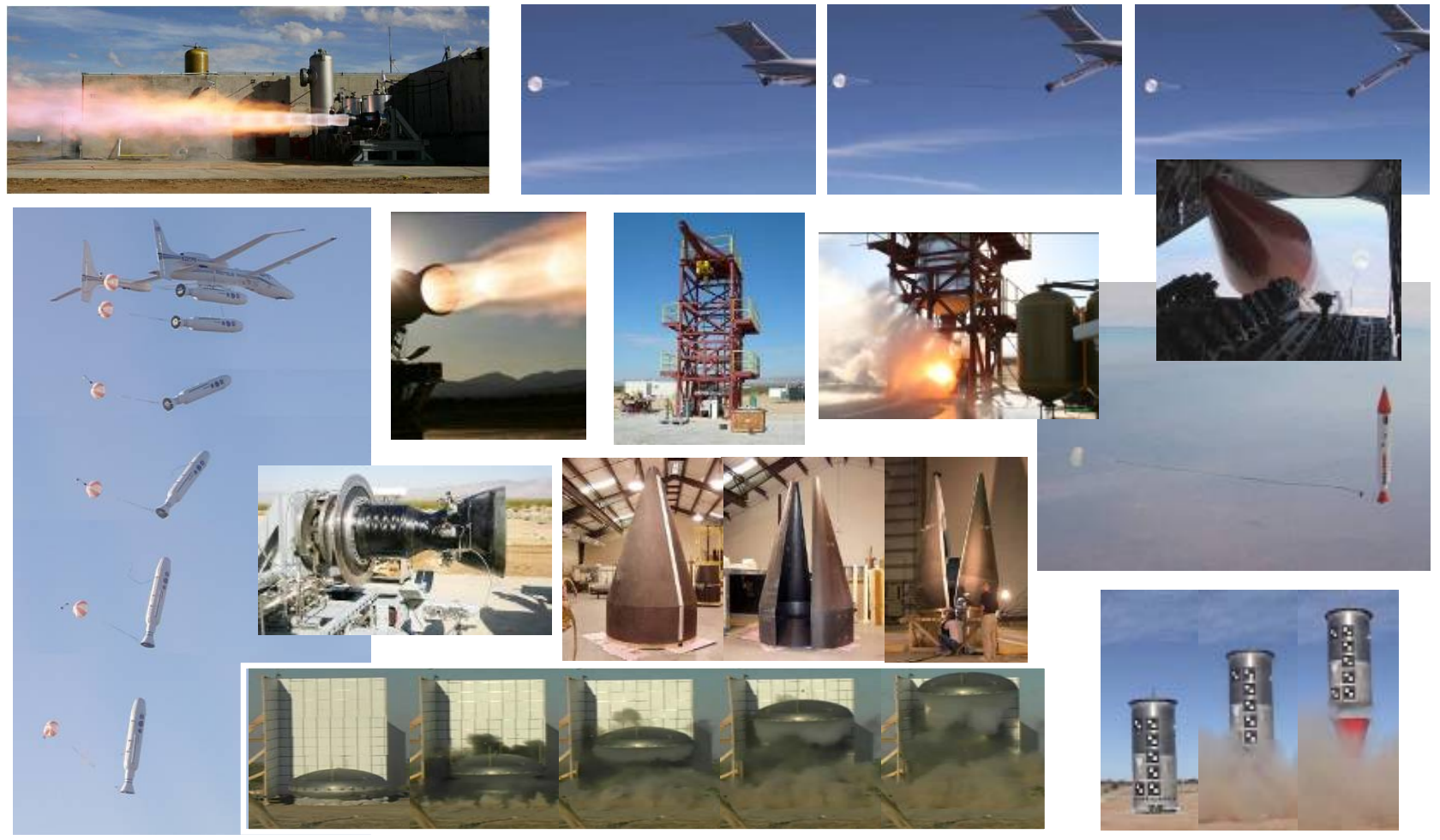
All Azimuth Launch, from Anywhere, at Anytime





TEAM AIR LAUNCH

The Future is Underway



...in the "Wild West" of the Mojave Desert,
and with many small companies and entrepreneurs.

