

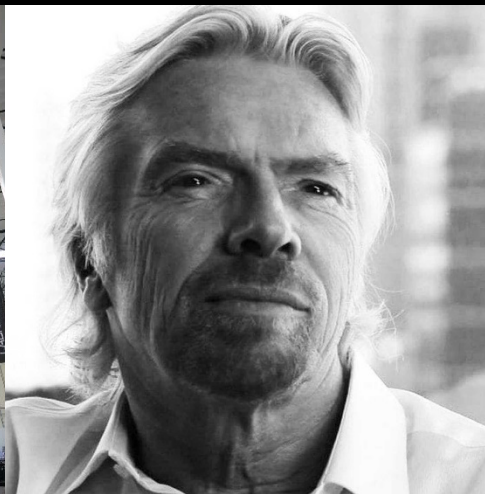


ORBIT

Cubesat Launch 1-2-3

Cubesat Developers Workshop 2018

SISTER COMPANIES WITH A SHARED FOUNDER



 **ORBIT**
SPACE LAUNCH

 **GALACTIC**
HUMAN SPACEFLIGHT

LOW COST
ON DEMAND
AT ANY TIME
FROM ANYWHERE



LAUNCHERONE

RESPONSIVE, LOW COST LAUNCH SOLUTIONS

SIMPLE, LOW-COST
ROCKET ARCHITECTURE

+

RELIABLE, PROVEN,
HIGHLY REUSABLE
FIRST STAGE

+

ADVANCED
MANUFACTURING
TECHNIQUES



The LauncherOne Rocket: Proven Technology

- Two stage
- Expendable rocket
- LOX/RP engines
- Air launched (747-400)

- Weight: 57,000 lbm
- Length: 70 feet





**COSMICGIRL
ARRIVAL**

**COSMICGIRL IN
FLIGHT**

**COSMICGIRL
TESTING**

LAUNCHERONE

PYLON TESTING

FAIRING SEPARATION



N4 HOTFIRE



FACTORY FLOOR



GNC



N3 HOTFIRE



PAYLOAD ADAPTOR



LAUNCH REHERSAL



AVIONICS

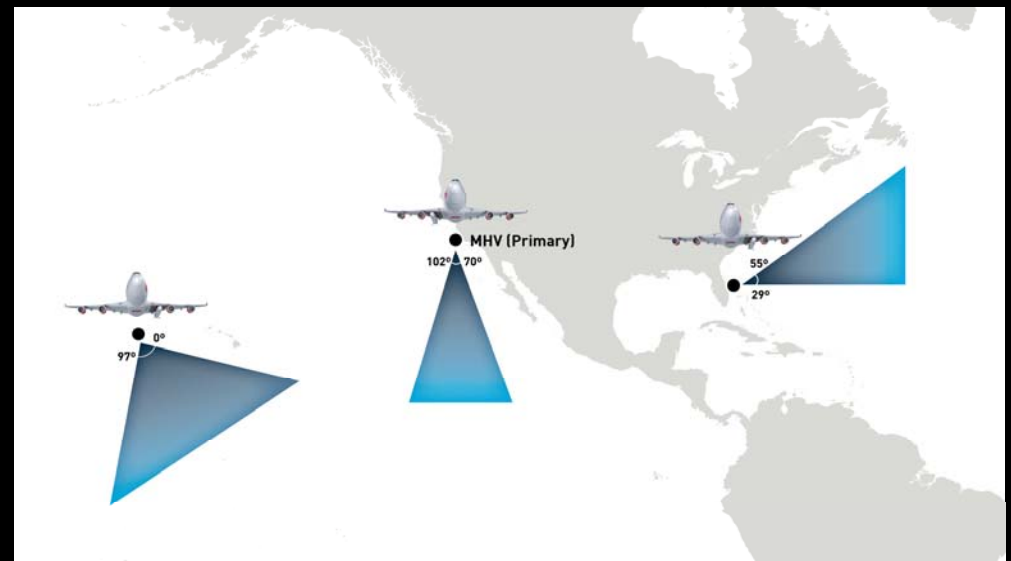


FIN CAN



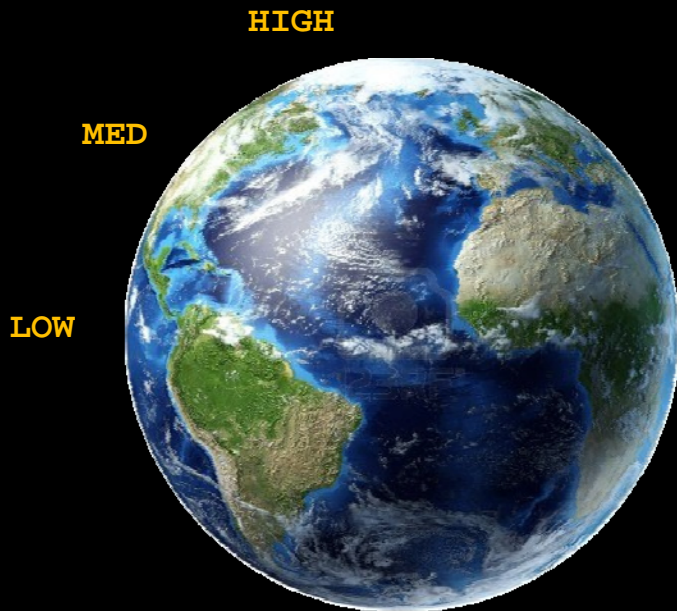
LAUNCH FROM ANYWHERE

- Ultimate portability:
 - Aircraft as launch platform,
 - Trailerized ground support equipment,
 - Mobile mission control
- Multiple launch sites for flexibility and resiliency
 - Mojave
 - Shuttle Landing Facility
 - Pacific Launch Facility
 - More to come...



Virgin Orbit Service Segments

Virgin Orbit is primed to be a market leader for the small satellite community based on its launch cadence, schedule flexibility and delivery to a diversity of orbits



Service Options:

Dedicated Launch: For single satellites or populating constellations

Operations & Maintenance: for replacement of satellites when mission life runs out

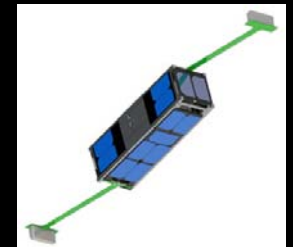
Responsive Service: quick call-up in the event of an on-orbit anomaly (need for replacement) or if a sudden launch is required (<3 month call-up)



VO can service any orbit and inclination

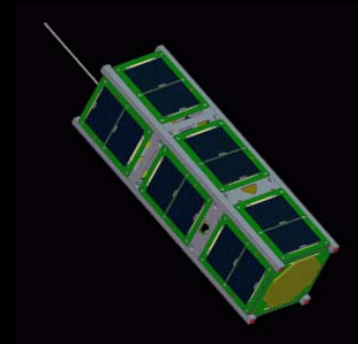
How is Launching a Cubesat on a LauncherOne Different?

- The small launcher “Rideshare” – more like an Uber Pool than a city bus
 - **Fewer rideshares**: more like ~three customers rather than thirty
 - **Less risk and reduction of Conflict**: including multi-customer scheduling, payload stack design changes due to re-manifesting, and integrated operations
 - **Greater Transparency**: integration process is transparent to you
 - **Ensuring Compatibility**: with primary and secondary spacecraft
- Greater Diversity of Orbital Choices
 - The vast majority of medium and heavy launcher rideshare missions only go to SSO (with 1030 LTAN) or ISS orbit
 - L1 cubesat rideshare missions manifested to a variety of high, medium, and low inclination missions--including equatorial!

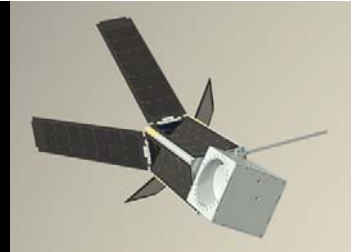


How is Launching a Cubesat on LauncherOne Different?

- Pure Commercial Launch Experience
 - We operate from an FAA licensed, purely commercial, launch site; No DoD Range!
 - No range congestion
- Payload Processing for all launch sites occurs in Long Beach, CA
 - No need to travel to austere locations
 - Quick integration process and turnaround time
- The Inherent Flexibility of Air Launch
 - Less susceptible to weather and errant vehicles in the trajectory
 - Entire launch operations infrastructure is mobile
 - Schedule flexibility



The Virgin Orbit Difference



- The Paperwork – Tailored Launch Contract and Statement of Work
 - Slimmed down Cubesat launch contract made customer friendly
 - Favorable payment terms that benefit small organizations and startups
 - Flexibility in manifesting
- Full service launch – show up and go
 - Provide dispensers from your favorite vendor or bring your own
 - Handle all of the regulatory requirements on the launch side
 - Help with navigating customer requirements (NOAA, JSpOC, FAA, FCC, etc)
- Customer Service
 - We're doing this for our customers—Virgin elevated customer experience
 - Getting to space should be a truly enjoyable experience every step of the way

VIRGIN'S SUPERSTAR TEAM IS READY TO SERVE





Thank You

Proprietary and Company Confidential