

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

Author: Mr. Chuck Beames
Vulcan Aerospace Corp., United States

NEXTSPACE

Abstract

Vulcan played a key role in forging the new commercial space industry with its development of SpaceShipOne and winning the Ansari XPrize in 2004. In 2011, Paul Allen initiated his next commercial space project called Stratolaunch Systems to explore the possibility of changing from the current model of how orbital launches are performed to a much more flexible and less expensive model. Stratolaunch is developing and will demonstrate an air launch system capable of transporting medium-class payloads to low Earth orbit, with a large carrier aircraft acting as a mobile range. This new architecture will expand mission and operational flexibility for various payloads by decoupling launch service from its dependence on the traditional ground launch ranges. Currently, choices are very limited for ranges capable of supporting medium-class launch vehicles and they are all operated through U.S. government entities. Locations of the launch pads and support equipment are fixed and the wait to get on the launch schedule is long. Delays and scrubs are common, which ultimately equate to cost increase and delayed revenue streams. Regardless of advancements in launch vehicle systems, range and operational infrastructure is often the bottleneck in space access. Stratolaunch's ability to launch from variable locations will enable both satellite and human payloads to be efficiently inserted into their most optimal orbit at a time of the customers choosing. Launching far away from populated areas (i.e. middle of the ocean) also significantly reduces the public safety risk. Flexibility will be even greater when the Stratolaunch system is adapted to launch various launch vehicle types. In sum, these system features will reduce total launch costs and offer an attractive option for customers requiring highly responsive launch in either time or inclination. The world continues to witness the impact that SpaceShipOne had in what is now called "New Space," and Vulcan remains committed to continuing the revolution with Stratolaunch. Much like the repurposing of the computer chip from its sole use in centralized mainframes into home and handheld computers altered the course of human history, highly versatile, very low cost access to space on demand will do the same for the expansion of the physical boundaries of mankind.