SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Architectures (4)

Author: Mr. Ronald Kohl
R. J. Kohl & Assoc, United States, rjkohl@prodigy.net

LOW EARTH ORBIT (LEO): INFRASTRUCTURE NEEDS AND CHALLENGES

Abstract

As the many and varied space enterprises (e.g. space tourism, NASA's MMB, satellite repair, etc) formulate their travel missions, plans and schedules, there is now emerging information that suggests many of these space enterprises have LEO (Low Earth Orbit) in their plans. Some will come and visit LEO and then return to Earth (e.g. space tourism). Some will come to work in LEO and then return to Earth (e.g. tourism lodging services, On-Orbit Servicing/Assembly). Others, perhaps many others, will come to LEO, rest up and refuel, transfer payloads or crews and head off to other space destinations (e.g. MMB, Lunar commerce, Lunar tourism, etc). What is becoming clear is that LEO is becoming the preferred and likely location for a great diversity of space enterprises, space farers and other space 'stuff'. And as these various space enterprises further define and refine their concepts and missions, it is becoming possible to start to identify and even quantify the types and amounts of infrastructure services that will be needed in LEO (and perhaps other Earth Orbit zones). This paper will attempt provide an early look at and a broad insight into the variety and diversity of space enterprises and their plans for LEO and then to suggest an initial list of the variety of infrastructure services and capabilities needed to support these various LEO-related plans. This paper will also highlight some of the challenges and impediments that this need for 'architecting LEO' will present to global space community.