

### ***Bumming a ride to orbit***

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An insightful thinker once opined that, of all the valuable things space has to offer us, quite possibly the most valuable thing is space itself. While we can't delve perfectly into just what this deep thinker had in mind, in many ways it applies perfectly to the satellite operators. As vast as the rest of the universe is, one of the greatest problems the users of space have is getting enough space. With constraints ranging from launch vehicle weight and volume restrictions to limited power and frequency availability, space is always at a premium to the operator who always needs more capacity, more capability and more reliability. Now, in these days where more is not necessarily better, many are beginning to see just how valuable a little extra space can be.

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In an era of tight credit markets and already highly-levered operators trying to find new and more creative financing, attention has turned to how to better use the space they already have. More and more interest has gone into the hosting of so-called secondary payloads – additional smaller instruments mounted onto an existing satellite, usually from a third party. For operators, it is an opportunity to offset the cost of their core operating assets. For smaller satellite communication companies, especially those who neither need nor can afford a full satellite system; these hosted opportunities provide an alternative access to orbit. For start-up ventures, or scientific programs or even militaries looking for low-cost ways to augment their constrained communications capacity, the hosted payload opportunity is a bonanza and often the preferred path to orbit.

Although riding aboard someone else's satellite represents a small loss of control, a hosted payload is moving into a space with all the amenities built-in – power, communications, control systems, the works. Consider also that the ride that it is hitching itself onto (in many cases a commercial telecom satellite), has every incentive to make it to its destination on schedule with a minimum of glitches. For those with a limited budget and a similarly limited payload, it makes sense financial and technical sense to share.

So far, hosted payloads have worked well for many operators. Satellites manufactured by Space Systems/Loral have already hosted a variety of payloads, including navigation services, military

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communications packages and even a Cisco router in space. Today, Intelsat's US government-focused subsidiary, Intelsat General Corp, has gone beyond selling satellite ground systems and solutions and now advertises its satellite platforms for custom US government payloads. More importantly, they have also been proven as a financing mechanism - the new Intelsat 22 satellite will in part be financed via a \$167 million contract to host a UHF payload from the Australian Defence Force. No small victory for Intelsat, who in doing so keep their fleet fresh and keep themselves one step ahead of its competitors, even while up to their eyeballs in debt.

How far can this go? As hosted payloads become more popular, an increasing number of projects are depending on hosted payload sales to bridge gaps in financing. This is all well and good for the project sponsor, except that a hosted payload is nothing but an empty space on a satellite without a paying customer. Are there enough potential payloads with the right needs (orbits, communications, etc) and the right fit with the host satellite? Certainly, there are many entrepreneurs and scientists itching for access to orbit with many diverse ideas and plans. More importantly, are there enough of these payloads backed by enough dollars, especially in a difficult financing environment? If large players with access to capital like Intelsat are depending on hosted payloads to provide capital, what does it say for smaller players without the scale of Intelsat?

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Right now, the next generation Iridium NEXT constellation of low earth orbit satellites is probably the most impressive and ambitious opportunity yet for hosted payloads. As we've previously discussed here before ("Capital crashes more important than orbital crashes"), Iridium is hoping for hosted payload contracts to cover a material part of the estimated \$2.7 billion cost of the new system, betting that the opportunity to use space aboard its new set of sixty-six satellites will prove irresistible to potential users.

By all accounts, many projects have explored the use of the new Iridium system. In some cases, the interest was short lived, as their requirements were found to be irreconcilable with the Iridium's core function, such as the wrong set of orbits or interfering communication and/or sensing frequencies. Even when a project might fit (such as for many innovative earth and environmental observation payloads), it still leaves open the question where the money will be coming from. Many environmental and earth



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observing projects rely on selling datasets to a small group of customers, often the US government through NOAA or the geospatial intelligence community. Kudos to these projects if they can win over an eager customer base and find financing, but it is at best a dicey proposition for Iridium to depend on them for up-front payments. Far more likely will be that many of these payloads will end up being operated directly by interested government agencies or militaries, many of whom can still write a big enough check up-front.

... secondaries are bringing just as much needed liquidity and just in time ...

The better news in all this is that the growing availability and greater demand for hosted payloads will ultimately drive greater modularity and compatibility among the world's satellites fleet, which will increase access and flexibility and reduce lead times for getting a payload in orbit. It also means more instruments that would not have had access to space, including new and innovative technologies. It also means the prospect for more joint ventures, as enterprises and startups team up to build and finance two or more projects for just a little more than the price of one. Demand and availability both increase, lowering prices but increasing the market – a win/win proposition for all.

In the financial markets, a secondary is someone who creates liquidity by being a buyer of assets after they are originated and sold the first time. In the satellite industry, secondaries are bringing just as much needed liquidity and just in time. In a tough economy, when many are being asked to cut back and reduce our environmental footprint, to the satellite operators of the world we say too - "Share your ride!"

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