Satellites to bring 'fast, cheap' Internet to 'under-connected'

June 24 2013, by Laurent Banguet

A Soyuz rocket lifts off on December 16, 2011 from Europe's space base in Sinnamary, 12km from Kourou, French Guiana. The first four of 12 satellites in a new constellation to provide affordable, high-speed Internet to people in nearly 180 "under-connected" countries, will be shot into space on Tuesday, the project's developers said.

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The orbiters, part of a project dubbed O3b for the "other 3 billion" people with restricted Internet access, will be lifted by a Russian Soyuz rocket from Kourou in French Guiana at 1854 GMT.

"We are very close to launching a network that has the potential to change lives in very tangible ways and that is a tremendous feeling," O3b Networks chief technical officer Brian Holz said in a statement.

The project was born from the frustrations of Internet pioneer Greg Wyler with the inadequacy of Rwanda's telecommunications network, while travelling there in 2007.

"Access to the Internet backbone is still severely limited in emerging markets," Wyler said in unveiling the O3b venture in 2008—promising multi-gigabit Internet speeds to countries "whether landlocked in Africa or isolated by water in the Pacific Islands".

"Only when emerging markets achieve affordable and ubiquitous access to the rest of the world will we observe locally generated content, widespread e-learning, telemedicine and many more enablers to social and economic growth, which reflect the true value of the Internet," he said.

Wyler's plan was to bypass costly ground-based infrastructure like fibre-optics or cables by deploying a constellation of small satellites around the equator to serve as a spatial relay between users and the world wide web using only satellite dishes.

Such a system would cover a region between the latitudes of 45 degrees North and 45 degrees South—the entire African continent, most of Latin America, the Middle East, southeast Asia, Australia and the Pacific

Islands.

There are already geostationary satellites providing this type of services, but at a prohibitive cost for many end-users.

Existing satellites generally obit at an altitude of some 36,000 kilometres (22,000 miles) above Earth, weigh in at a hefty four to six tonnes each, and take much longer to bounce a signal back to Earth—about 500 milliseconds to be exact, according to an O3b document.

"It is such a long delay that people speaking over a satellite link will shorten conversations, interactive web has an extremely poor experience and many web-based software programmes just won't function," it said.

The O3b satellites, built by the Franco-Italian company Thales Alenia Space, will orbit at 8,062 km and will weigh only 650 kilogrammes (1,400 pounds) each.

Crucially, they will communicate with Earth four times faster, said the company, and six would be enough to assure permanent coverage.

"O3b's prices will be 30 - 50 percent less than traditional satellite services," said the document.

And it added that a country like the Democratic Republic of Congo could move from being one of the most poorly-connected on Earth to one of the best.

Launch company Arianespace, which will put the satellites in orbit, said the O3b constellation will combine "the global reach of satellite coverage with the speed of a fiber-optic network".

Project investors include Internet giant Google, cable company Liberty

Global, satellite operator SES, HSBC bank and the Development Bank of Southern Africa.

The first four satellites were due to be boosted into space on Monday but the launch was postponed by a day due to unfavourable weather conditions.

The next four satellites will be launched within weeks, according to Arianespace, and a final four "backup" orbiters early next year.

To refine its coverage, the constellation could in the end have as many as 16 supplementary satellites in addition to the 12 main ones, said O3b networks.