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across the spectrum of faculties

in research universities

worldwide.

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Disciplinary Note

JUSTICE AND SPACE-BASED COMMUNICATION ARCHITECTURES

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My research is on the design and development of large scale satellite architectures. Two examples relevant to this discussion are the Global Positioning System (GPS) and the current development of global space based systems to provide world wide internet access. There are several currently in development and deployment with the two which are furthest along being Starlink by SpaceX (backed by Elon Musk), OneWeb (backed a consortium including Sofbank and the UK Government), Kuiper from Amazon (backed by Jeff Bezos).

From a Government Supported Public Good

GPS was developed by the US Air Force, an arm of the US Government, fundamentally for military purposes which was to guide nuclear bombers to their targets. Initially it had an open “civilian” signal and an encrypted “military” signal. The civilian signal gave a degraded position and timing signal while the military signal was very accurate. After the Soviet shootdown of KAL007, the US Government declassified the system and said anyone could use the civilian signal. In 1997, the US Government removed the encryption from the military signal and said anyone in the world could use it. The existence of a highly accurate position and timing signal is now estimated to over a billion dollars a day in economic return underwritten by the US Government. The contributions of this system to justice are manifest in that it enables anybody in the world to accurately map land, to accurately show the position of resources and of course guides cars though apps all over the world. It has become a global commodity that being free to the world enhances the provision of justice.

To a For-Profit Private Commodity

In contrast, the systems now under development and deployment that will provide world wide internet access are being put up by commercial companies who will charge a price for access to this service. While people in cities will have access to the internet through abundant cellular service, this same access will not

be true of people in rural areas or the poor all over the world. This access will be provided by the for profit satellite networks.

Justice and Fairness in Internet Communications

A fundamental question is whether access to the internet can and should be thought of as a right or a privilege. The internet allows access to information, good and bad, from around the world. It also allows terrorists to communicate and coordinate and for hate speech to spread quickly. However as a question of distribution, it seems unfair for some to have easy access and others, the poor, not to have access.

Perhaps the just and fair thing would be for the global networks to provide a basic level of network access for all for free and then for faster speeds to charge an amount for them to make a profit. This is the strategy that the Europeans have decided upon for their Global Positioning System (called Galileo). Everyone gets access to basic services for free, if you want more then you have to pay. This allows justice and fairness to be balanced.

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