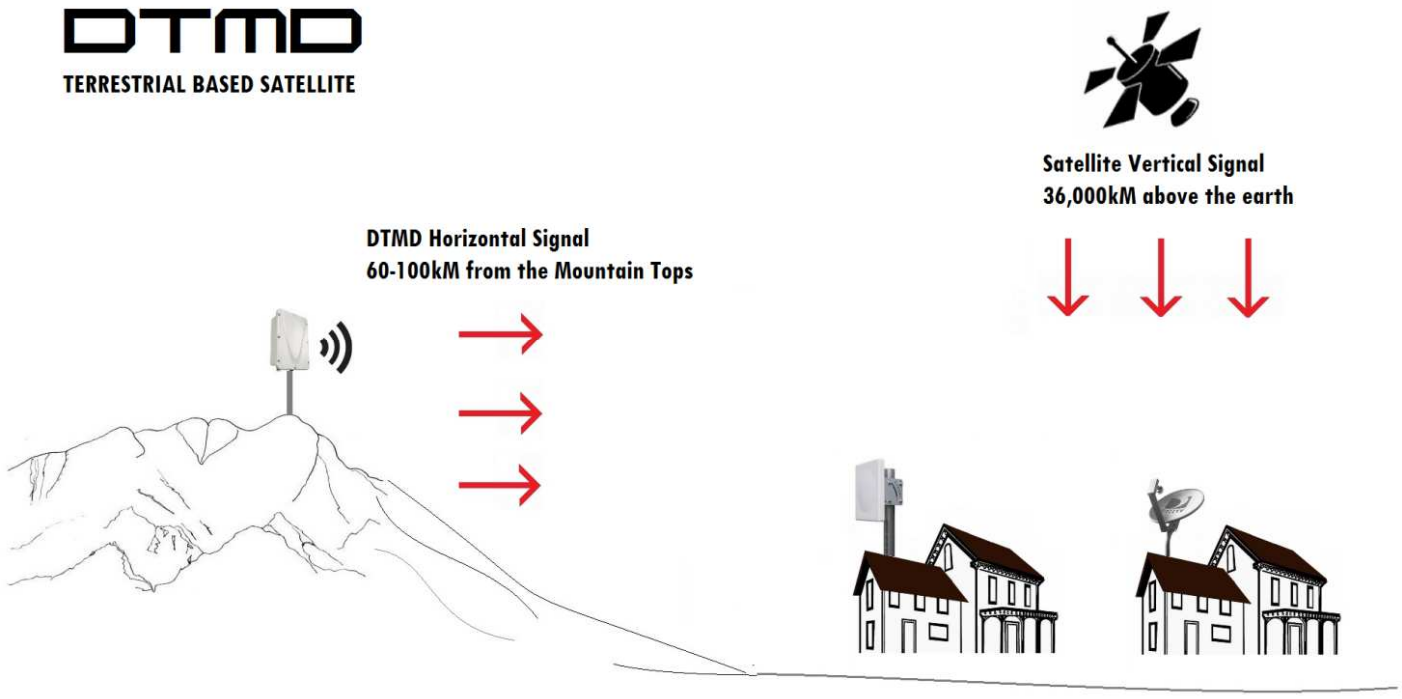
DTMD Spectral Reuse and Interference Issue

DTMD offers a novel method of spectral reuse. Abundant spectral bands which are being used by downlink satellite providers can be reused by a terrestrial system. A method of deploying a Low Vertical Angle phased array antenna is taken to enable transmission flexibility while employing a form of spatial diversity. Coupled to feedback from the potentially affected satellite receivers, the systems would adapt to reduce points of maximum interference yet continue to deliver the same coverage to existing locations.

Spectral reuse is essentially transmitting at the same time and frequency as another user without interfering. This is usually improbably due to the fact that when, where, and how each user will be transmitting is usually unknown.

Fortunately, satellite television providers are an exception in that all of the satellite provider's customers must angle their directional dish antennas upwards towards the respective satellite. The fact that all of the satellites are in geosynchronous orbit allows the assumption that in a given city, all of the customers dish antennas are pointing in the same direction. The dish antennas are constructed in a highly directional fashion to recover the weak signals received from satellites. This design minimizes the customer's interference from other sources while increasing the power of the received satellite's signal. A large amount of bandwidth is allocated to satellite television for the purpose of accommodating the abundance of channels. By reusing those channels, the new system would have a large capacity and be able to enable high traffic volume.



With all of the new emerging technologies, more and more users are becoming accustomed to transmitting information wirelessly. With limited spectrum available, the problem arises as to how to efficiently send data with limited bandwidth.

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