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**Greenidge et al.**(10) **Pub. No.: US 2023/0231624 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **FRACTIONATED SATELLITE  
CONSTELLATION**(52) **U.S. Cl.**  
CPC ..... **H04B 7/18584** (2013.01); **H04B 7/18519**  
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(US)(57) **ABSTRACT**(21) Appl. No.: **18/184,031**(22) Filed: **Mar. 15, 2023****Related U.S. Application Data**(63) Continuation of application No. 17/294,289, filed on  
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Systems and method for supporting a fractionated satellite constellation are disclosed. A gateway satellite may route communications to and from auxiliary satellites using a first communication protocol. The auxiliary satellites may be orbitally-coupled with the gateway satellite and may be equipped with respective payload types that provide respective functionalities. The auxiliary satellites may also use respective communications protocols that are different than one another and the first communication protocol. Routing communications to and from auxiliary satellites may include relaying a communication between multiple auxiliary satellites. Routing communications between auxiliary satellites may include relaying a communication between multiple gateway satellites. Routing communications to and from auxiliary satellites may also include relaying communications between commercial satellites and auxiliary satellites.

