

WHAT IS CLAIMED IS:

1. A method for communicating with a satellite, the method being implemented by one or more processors configured to execute one or more computer program instructions, the method comprising:

receiving, from a client device, a request for communicating with a satellite;

determining a device identifier associated with the client device;

determining, based on the device identifier, an account of a server system that is authorized to connect to one or more satellite ground stations;

generating a first secure connection between the server system and the client device based on the account being authorized to connect to the one or more satellite ground stations;

~~retrieving, upon determining that the device identifier is associated with an account authorized to connect to one or more satellite ground stations,~~ a schedule of activity for the account based on the first secure connection being established, wherein the schedule of activity indicates a time period during which the client device is authorized to connect to the one or more satellite ground stations such that data is communicated between the satellite and the client device associated with the account, and wherein the one or more satellite ground stations are configured to communicate with the satellite;

generating, at a start of the time period, a second secure connection between the ~~client device~~ server system and a satellite modem of the one or more satellite ground stations; and

providing, ~~via the connection,~~ telemetry data from the satellite to the client device based on the first secure connection and the second secure connection being bridged together.

2. The method of claim 1, wherein:

generating the first secure connection comprises establishing a first virtual private network (VPN) connection between the client device and the server system; and

generating the second secure connection comprises ~~establishing a virtual private network~~ (“second VPN”) ~~connection with a~~ between the server system and the satellite modem located at each of the one or more satellite ground stations, wherein the satellite modem facilitates data transmission to and from the satellite.

3. The method of claim 2, further comprising:

determining an end of the time period; and

causing at least one of the first VPN connection or the second VPN connection to be

disconnected at the end time such that the data transmission facilitated by the satellite modem is discontinued.

4. The method of claim 1, further comprising:

receiving, at the server system via the first secure connection, an instruction to be provided to the satellite from the client device; and

providing, via the second secure connection, the instruction to the satellite modem of at least one of the one or more satellite ground stations, wherein the satellite modem of the at least one of the one or more satellite ground stations is configured to ~~provide~~ transmit the instruction to the satellite.

5. The method of claim 1, wherein the device identifier comprises an Internet Protocol (“IP”) address associated with the client device, retrieving the schedule of activity for the account comprises:

accessing an account database that stores a plurality of authorized accounts, wherein each authorized account includes one or more IP addresses indicating client devices allowed to access the authorized account, and each authorized account comprises a corresponding schedule of activity between one or more of the client devices allowed to access the authorized account and at least one of the one or more satellite ground stations.

6. The method of claim 1, further comprising:

determining, from the schedule of activity for the account, one or more tasks with which data received from the satellite is to be obtained or data is to be provided to the satellite, wherein each of the one or more tasks comprises associated metadata indicating a corresponding time period that the task is to occur;

accessing a clock synchronized with the one or more satellite ground stations;

determining, based on the clock, a temporally proximate task to occur; and

adding the temporally proximate task to a task executor to facilitate the second secure connection to the one or more satellite ground stations being generated at the start time.

7. The method of claim 1, wherein the schedule of activity for the account is pre-generated based on an orbital trajectory of the satellite and a geographical location of each of the one or more satellite ground stations.

8. The method of claim 1, wherein providing the data comprises:
buffering the data to local memory resident at the one or more satellite ground stations; and
providing the data to the client device from the local memory in response to the client device requesting the data.
9. The method of claim 1, further comprising:
receiving an additional request from an additional client device;
determining an additional device identifier associated with the additional client device;
determining an additional account associated with the additional device identifier, wherein the additional account is authorized to connect with the one or more satellite ground stations;
retrieving an additional schedule of activity for the additional account, wherein the additional schedule of activity indicates that ~~a connection between the additional client device and is not authorized to connect to~~ the one or more satellite ground stations ~~is unauthorized for during~~ the time period; and
preventing the additional device from connecting to the one or more satellite ground stations.
10. The method of claim 1, wherein:
each of the one or more satellite ground stations comprises a satellite dish to communicate with the satellite;
~~the request is received at~~ the server system comprises a cloud-based server configured to facilitate communications with at least one of the one or more satellite ground stations;
the first secure connection comprises a first VPN connection and the second secure connection comprises a second VPN connection;
~~the client device is configured to establish a~~ the first VPN connection connects the client device to the cloud-based server in response to the device identifier being determined to be associated with the account;
~~the connection comprises a second VPN connection such that the cloud-based server is configured to establish the second VPN connection~~ connects the cloud-based server to the satellite modem of the one or more satellite ground stations in response to determining that the schedule of activity for the account indicates that the start of the time period is occurring;

the data received from the satellite is provided to the client device as a stream of telemetry data; and

the stream of telemetry data flows from the satellite to at least one of the one or more satellite ground stations through the second VPN connection to the cloud-based server, and through the first VPN connection from the cloud-based server to the client device.

11. A system for communicating with a satellite, the system comprising:
memory comprising one or more computer program instructions; and
one or more processors that, when the one or more computer program instructions are executed, are configured to:

receive, from a client device, a request for communicating with a satellite;

determine a device identifier associated with the client device;

determine, based on the device identifier, an account of a server system that is authorized to connect to one or more satellite ground stations;

generate a first secure connection between the server system and the client device based on the account being authorized to connect to the one or more satellite ground stations

~~retrieve, upon determining that the device identifier is associated with an account authorized to connect to one or more satellite ground stations,~~ a schedule of activity for the account based on the first secure connection being established, wherein the schedule of activity indicates a time period during which the client device is authorized to connect to the one or more satellite ground stations such that data is communicated between the satellite and the client device associated with the account, and wherein the one or more satellite ground stations are configured to communicate with the satellite;

generate, at a start of the time period, a second secure connection between the ~~client device~~ server system and a satellite modem of the one or more satellite ground stations; and

provide, ~~via the connection,~~ telemetry data from the satellite to the client device based on the first secure connection and the second secure connection being bridged together.

12. The system of claim 11, wherein ~~the one or more computer program instructions associated with the connection being generated, when executed, cause the one or more processors to be configured to:~~

the first secure connection being generated comprises establishing a first virtual private network (VPN) connection between the client device and the server system; and
~~establish a virtual private network (“VPN”)~~ the second secure connection with a being generated comprises establishing a second VPN connection between the server system and
the satellite modem located at each of the one or more satellite ground stations, wherein the satellite modem facilitates data transmission to and from the satellite.

13. The system of claim 12, wherein the one or more processors, when the one or more computer program instructions are executed, are further configured to:

determine an end of the time period; and

cause at least one of the first VPN connection or the second VPN connection to be disconnected at the end time such that the data transmission facilitated by the satellite modem discontinued.

14. The system of claim 11, wherein the one or more processors, when the one or more computer program instructions are executed, are further configured to:

receive, at the server system via the first secure connection, an instruction to be provided to the satellite from the client device; and

provide, via the second secure connection, the instruction to the satellite modem of at least one of the one or more satellite ground stations, wherein the satellite modem of the at least one of the one or more satellite ground stations is configured to ~~provide~~ transmit the instruction to the satellite.

15. The system of claim 11, wherein the device identifier comprises an Internet Protocol (“IP”) address associated with the client device, the one or more processors, when the one or more computer program instructions associated with retrieving the retrieving the schedule of activity for the account are executed, are further configured to:

access an account database that stores a plurality of authorized accounts, wherein each authorized account includes one or more IP addresses indicating client devices allowed to access the authorized account, and each authorized account comprises a corresponding schedule of activity between one or more of the client devices allowed to access the authorized account and at least one of the one or more satellite ground stations.

16. The system of claim 11, wherein the one or more processors, when the one or more computer program instructions are executed, are further configured to:

determining, from the schedule of activity for the account, one or more tasks with which data received from the satellite is to be obtained or data is to be provided to the satellite, wherein each of the one or more tasks comprises associated metadata indicating a corresponding time period that the task is to occur;

accessing a clock synchronized with the one or more satellite ground stations;

determining, based on the clock, a temporally proximate task to occur; and

adding the temporally proximate task to a task executor to facilitate the second secure connection to the one or more satellite ground stations being generated at the start time.

17. The system of claim 11, wherein the schedule of activity for the account is pre-generated based on an orbital trajectory of the satellite and a geographical location of each of the one or more satellite ground stations.

18. The system of claim 11, wherein the one or more processors, when the one or more computer program instructions associated with the data being provided are executed, are further configured to:

buffer the data to local memory resident at the one or more satellite ground stations;

and

provide the data to the client device from the local memory in response to the client device requesting the data.

19. The system of claim 11, wherein the one or more processors, when the one or more computer program instructions are executed, are further configured to:

receive an additional request from an additional client device;

determine an additional device identifier associated with the additional client device;

determine an additional account associated with the additional device identifier,

wherein the additional account is authorized to connect with the one or more satellite ground stations;

retrieve an additional schedule of activity for the additional account, wherein the additional schedule of activity indicates that ~~a connection between~~ the additional client device ~~is~~ is not authorized to connect to the one or more satellite ground stations ~~is~~ is not authorized for during the time period; and

prevent the additional device from connecting to the one or more satellite ground stations.

20. — A method for communicating with a satellite, the method being implemented by one or more processors configured to execute one or more computer program instructions, the method comprising:

—— retrieving, upon determining that an account of a client device is authorized to connect to a satellite ground station, a schedule of activity for the account, wherein the schedule of activity indicates a time period during which the satellite ground station is authorized to communicate data to a client device associated with the account;

—— generating, at a start of the time period, a connection to the satellite ground station; and

—— obtaining, via the connection, telemetry data from the satellite ground station.