We depend on services from our space assets for our everyday lives - from navigating us from point A to point B to predicting and monitoring our weather to defending our national security. As such, it is essential that both commercial and government entities have reliable and resilient tracking, telemetry and commanding of these space assets.
Overview

With the number of space assets expected to grow exponentially in the coming decades, legacy ground stations do not have the system availability to support all users. Ground stations must be architected to maximize asset availability and flexibility for future concepts of operation (conops). This begins with scaling the number of communication links available from the ground.

Increasing the number of links available is the first necessity for next generation ground stations. In addition, it’s critical to architect the ground station(s) to be as automated as possible to maximize availability to users. Phased Arrays, or electronically steerable antennas (ESAs) are reaching the cost breakeven point with traditional parabolic dishes at a much smaller footprint when comparing to the number of dishes one phased array replaces. Phased arrays allow the user to electrically steer multiple transmit and receive beams without physically moving the antenna.

Our Role

Ball Aerospace has more than three decades of experience providing leading-edge ground terminal solutions for commercial and government customers as a system integrator. This begins by working closely with our customers as a mission partner to develop appropriate solutions for their applications. Ball has a rich history in developing antenna solutions that are part of larger ground systems and maintaining them through the life of the mission.

Ball is also taking a lead in providing state-of-the-art, automated solutions that provide antenna scheduling and controlling software suite that can be accessed securely from any part of the world. With the evolution of digital suites in the antenna technology, along with commercial cloud services, Ball has developed platform and vendor agnostic ground terminal solutions that will pave the way of the next generation of ground station solutions.

Quick Facts

- Ball has supported multiple ground terminal system operations since 1999.
- Ball offers ground station design, cross domain solutions, space-ground link analysis, spacecraft compatibility testing, lights-out operation including remote operations and maintenance, antenna sharing, ground terminal scheduling and site integration and test.
- Ball’s leading-edge electronically steerable antennas (ESAs) use software to electronically steer and instantaneously track and connect with multiple live satellites via L/S/X band frequencies
- Ball’s ESA solutions are field tested and leverage more than 50 years of phased array design and manufacturing expertise.
- Ball electronically steerable antennas (ESAs) have no moving parts and can be serviced without interrupting missions.

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