

## Why GAO Did This Study

DOD manages the nation's defense satellites, which are worth at least \$13.7 billion, via ground stations located around the world. These ground stations and supporting infrastructure perform three primary functions: monitoring the health of the satellite; ensuring it stays in its proper orbit; (activities collectively known as satellite control operations), and planning, monitoring, and controlling the execution of the overall mission of the satellite. Based on the House Armed Services Committee Report and discussions with defense committee staff, GAO (1) reviewed the Air Force's satellite control operations to assess the potential for fragmentation or duplication, (2) assessed the status of modernization efforts, (3) identified any commercial practices that could improve the Air Force's satellite control operations, and (4) identified any barriers to implementing them. GAO reviewed modernization funding documents, related studies and interviewed DOD and 7 commercial satellite companies, from a nongeneralizable sample selected in part because of their companies' satellite capabilities.

## What GAO Recommends

GAO recommends that the Secretary of Defense direct future DOD satellite acquisition programs to determine a business case for proceeding with either a dedicated or shared network for that program's satellite control operations and develop a department-wide long-term plan for modernizing its AFSCN and any future shared networks and implementing commercial practices to improve DOD satellite control networks. DOD concurred with our recommendations.

View [GAO-13-315](#). For more information, contact Cristina Chaplain, (202) 512-4841, [chaplainc@gao.gov](mailto:chaplainc@gao.gov).

# SATELLITE CONTROL

## Long-Term Planning and Adoption of Commercial Practices Could Improve DOD's Operations

### What GAO Found

The Department of Defense (DOD) satellite control networks are fragmented and potentially duplicative. Over the past decade, DOD has increasingly deployed standalone satellite control operations networks, which are designed to operate a single satellite system, as opposed to shared systems that can operate multiple kinds of satellites. Dedicated networks can offer many benefits to programs, including possible lower risks and customization for a particular program's needs. However, they can also be more costly and have led to a fragmented, and potentially duplicative, approach which requires more infrastructure and personnel than shared operations. For example, one Air Force base has 10 satellite programs operated by 8 separate control centers. According to Air Force officials, DOD continues to acquire standalone networks and has not worked to move its current standalone operations towards a shared satellite control network, which could better leverage DOD investments.

The Air Force Satellite Control Network (AFSCN), DOD's primary shared satellite control network, is undergoing modernization efforts, but these will not increase the network's capabilities. The Air Force budgeted about \$400 million over the next 5 years for these efforts. However, these efforts primarily focus on sustaining the network at its current level of capability and do not apply a decade of research recommending more significant improvements to the AFSCN that would increase its capabilities.

Commercial practices have the potential to increase the efficiency and decrease costs of DOD satellite control operations. These practices include: interoperability between satellite control operations networks; automation of routine satellite control operations functions; use of commercial off-the-shelf products instead of custom ones; and a "hybrid" network approach which allows a satellite operator to augment its network through another operator's complementary network. Both the Air Force and commercial officials GAO spoke to agree that there are opportunities for the Air Force to increase efficiencies and lower costs through these practices. Numerous studies by DOD and other government groups have recommended implementing or considering these practices, the Air Force has generally not incorporated them into Air Force satellite control operations networks.

DOD faces four barriers that complicate its ability to make improvements to its satellite control networks and adopt commercial practices. First, DOD has no long-term plan for satellite control operations. Second, the agency lacks reliable data on the costs of its current control networks and is unable to isolate satellite control costs from other expenses. Third, there is no requirement for satellite programs to establish a business case for their chosen satellite control operations approach. And fourth, even if program managers wanted to make satellite control operations improvements, they do not have the autonomy to implement changes at the program level. Until DOD begins addressing these barriers by implementing a long-term plan for future satellite control network investments that can capture estimates of satellite control costs as well as authorities that can be given to program managers and incorporates commercial practices, the department's ability to achieve significant improvements in satellite control operations capabilities will be hindered.