

Security of Airplane Health Management Networks

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Abstract

As avionics industry moves towards the use of distributed asynchronous networks for manufacturing, software loading and upgrading as well as sensed data gathering within specific aircraft, design of protection mechanisms must be an integral part of such networks. In this talk, we will focus on the airplane health management network consisting of wired or wireless embedded systems, and present the challenges in ensuring the integrity and authenticity of the data that is gathered and aggregated by such network. Since the physical locations of the embedded sensors of the health management network are fixed, use of wireless medium for communication will enable an adversary to map the topology of the health management network and launch selective, intelligent attacks with minimal resource expenditure to lower airplane safety. We will discuss the vulnerabilities and approaches that are required to secure such networks in the presence of an adaptive adversary.