Chapter XV

A Service-Based Approach for RBAC and MAC Security

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Abstract

Middleware security encompasses a wide range of potential considerations, ranging from the ability to utilize the security capabilities of middleware solutions (for example, CORBA, .NET, J2EE, DCE, and so forth) directly out-of-the-box in support of a distributed application to leveraging the middleware itself (paradigm) to realize complex and intricate security solutions (for example, discretionary access control, role-based access control, mandatory access control, and so forth). The objective in this chapter is to address the latter consideration: examining the attainment of advanced security capabilities using the middleware paradigm, namely, role-based

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access control (RBAC) and mandatory access control (MAC). The resulting security provides a robust collection of services that is versatile and flexible and easily integrates into a distributed application comprised of interacting legacy, COTS, GOTS, databases, servers, clients, and so forth.

**Introduction**

One challenge facing government and corporations today is to architect and prototype solutions that integrate new and existing software artifacts (that is, legacy applications, COTS, GOTS, databases, clients, servers, and so forth), facilitating their interoperation in a network-centric environment via middleware (collections of services), thereby providing the computing infrastructure to support day-to-day operations, as shown in the top portion of Figure 1. In these distributed collections of software artifacts, security...