Enhancement for Middleware in Distributed Object Computing

The Distributed Object Computing (DOC) paradigm is the integration of object-oriented technology and distributed computing, which is a new computing paradigm. The Common Object Request Broker Architecture (CORBA) provides a standard infrastructure for performing object interoperability transparently. A core piece of CORBA is the use of the Interface Definition Language (IDL). IDL specifies interfaces between CORBA objects and provides multiple inheritance mechanism to ensure CORBA language independence and enhance interface reusability. Designing a suitable inheritance hierarchy, easily lead to repeated inheritance and redundant inheritance, that suffers from error-prone and difficult to test. In this paper, we explain how redundant inheritance makes complicated CORBA middleware difficult to maintain, and we give a concrete example of the problems that arise. We show that the difficulty lies in the fact that we lack an effective detection tool suited for work with inheritance problems in DOC. Therefore, a formal checking mechanism is proposed to detect and resolve redundant inheritance. Furthermore, this checking mechanism can be easily incorporated with CASE tool to enhance CORBA middleware quality.