Providing Local ORB-Like Services to Collocated CORBA Components

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Abstract. The CORBA Component Model (CCM) middleware provides a standard way to configure, manage and deploy distributed components. However, some current implementation of CCM is flawed with unreasonable communication overhead when components are in the same address space. Previous attempts to alleviate this drawback have tried to provide mechanisms for direct local communication of such components, but have sacrificed ORB services all together. Since such components do not communicate through ORB, they are deprived from ORB services such as events and naming. In case of need, programmers should implement such services themselves. This paper presents an alternative approach that likewise eliminates the unnecessary communication overhead between local components, but in addition provides them with local ORB-like services. A unit inside each container is made responsible for directing the communications between components within or outside the container. In case of local communications, requests are passed to the local components without ORB involvement. ORB-like services, namely events and naming, are provided by this unit locally for local components. Implementation results of the proposed approach with local event and naming services support show a favorable reduction of local communication overheads.

Keywords. CORBA Component Model (CCM), ORB Services, Container, Collocation.