Abstract

Service providers are looking to computer vendors to provide low-cost, scalable fault-tolerant solutions. The prime requirement is to minimise reliance on specialist equipment and techniques for delivering core services. Indeed, an ideal solution would make use of ‘standard’ middleware services (e.g., CORBA services for persistence, transactions etc.). Research results on distributed objects and software implemented fault-tolerance techniques hold the promise of providing such solutions. However, the task of constructing such solutions using general-purpose, low cost components, such as commodity UNIX servers, middleware services etc. is extremely challenging. The central problem is that any software implemented distributed fault-tolerance technique consumes resources (a combination of network bandwidth, processing power and disk storage) that otherwise would be available for normal use. Thus software implemented distributed fault-tolerance techniques must be applied with care.

In this tutorial, we will cover basic principles of software implemented fault-tolerance techniques and discuss their application in the construction of reliable distributed applications. Emphasis will be placed on applications in the Internet/Web domain.

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