

# DE LA SALLE UNIVERSITY

Achieving Transparency in a Distributed Computing System  
Through Shared Function Process

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A Thesis  
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The Faculty of the College of Computer Studies  
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in  
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by

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This thesis entitled

**Achieving Transparency in a Distributed Computing System  
Through Shared Function Process**

developed by

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and submitted in partial fulfillment of the requirements for the Master of Science in Computer Science degree has been examined and is recommended for acceptance and approval.

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## ABSTRACT

This research is to design and implement a shared function process (SFP) for a distributed computing systems (DCS) which achieves transparency. SFP is designed such that the user does not know where the service is being executed. It provides an automatic search for the server. Execution by the server is as if the server is located in the local node. Each node in the DCS is totally independent, i.e. it has its own directory, functions and resources. The only objects which are shared are the executable files or function files.

The basic communication technique needed is a File-Transfer-Protocol (FTP) which runs on an OSI-layered protocol. FTP provides basic communication between each node in the system. OSI-layered approach makes it possible to run in a heterogeneous system. SFP which runs on top of FTP will shield the user from directly invoking FTP.

The design is kept simple and modular so it will spend the minimum overhead for computation of the SFP, and can easily be implemented in any OSI-based network. Therefore this algorithm has the advantage of transparency and can be used for testing other software applications that runs on a DOS.

Index Terms: distributed operating system, remote procedure call, OSI, distributed computing system, LAN, file transfer protocol.

