



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات

لم ترد بالأصل



Mansoura University
Faculty of Engineering
Department of Computer
Engineering and Systems

A Semantic Grid with Automated Virtual Organization Management

By

Eng. Abdulrahman Yahva Abdulfatah Azab

A Thesis Submitted in Partial Fulfillment of the Requirements for the Masters of Science
Degree in Automatic Control Engineering

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2008

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Thesis Title:

**A Semantic Grid with Automated Virtual Organization
Management**

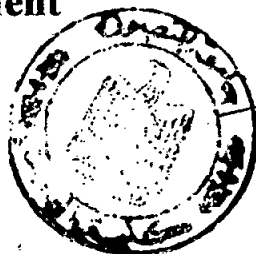
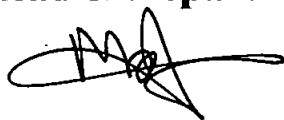
Researcher Name:

Eng. Abdulrahman Yahya Abdulfatah Azab

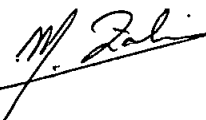
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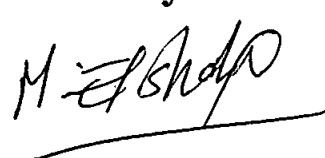
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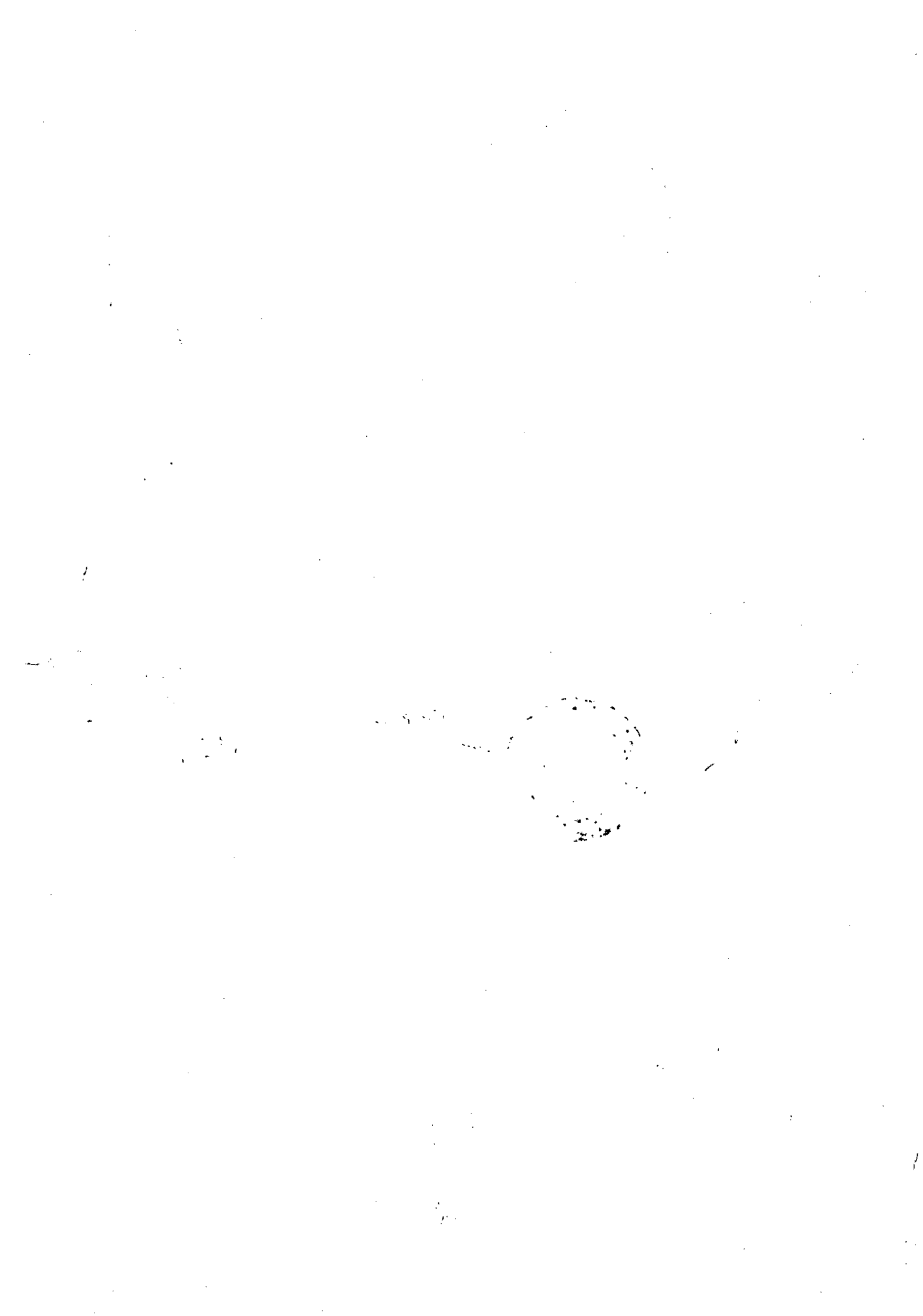
Vice Dean



Faculty Dean



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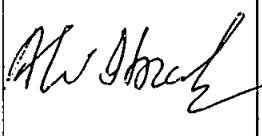
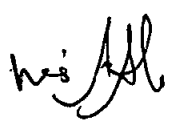
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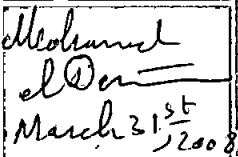

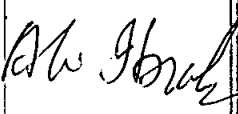
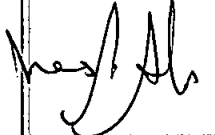
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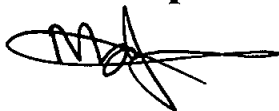
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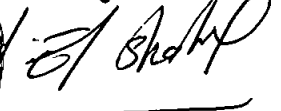
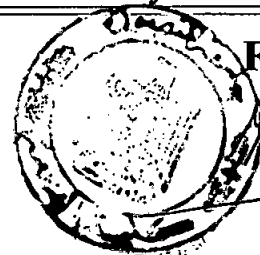
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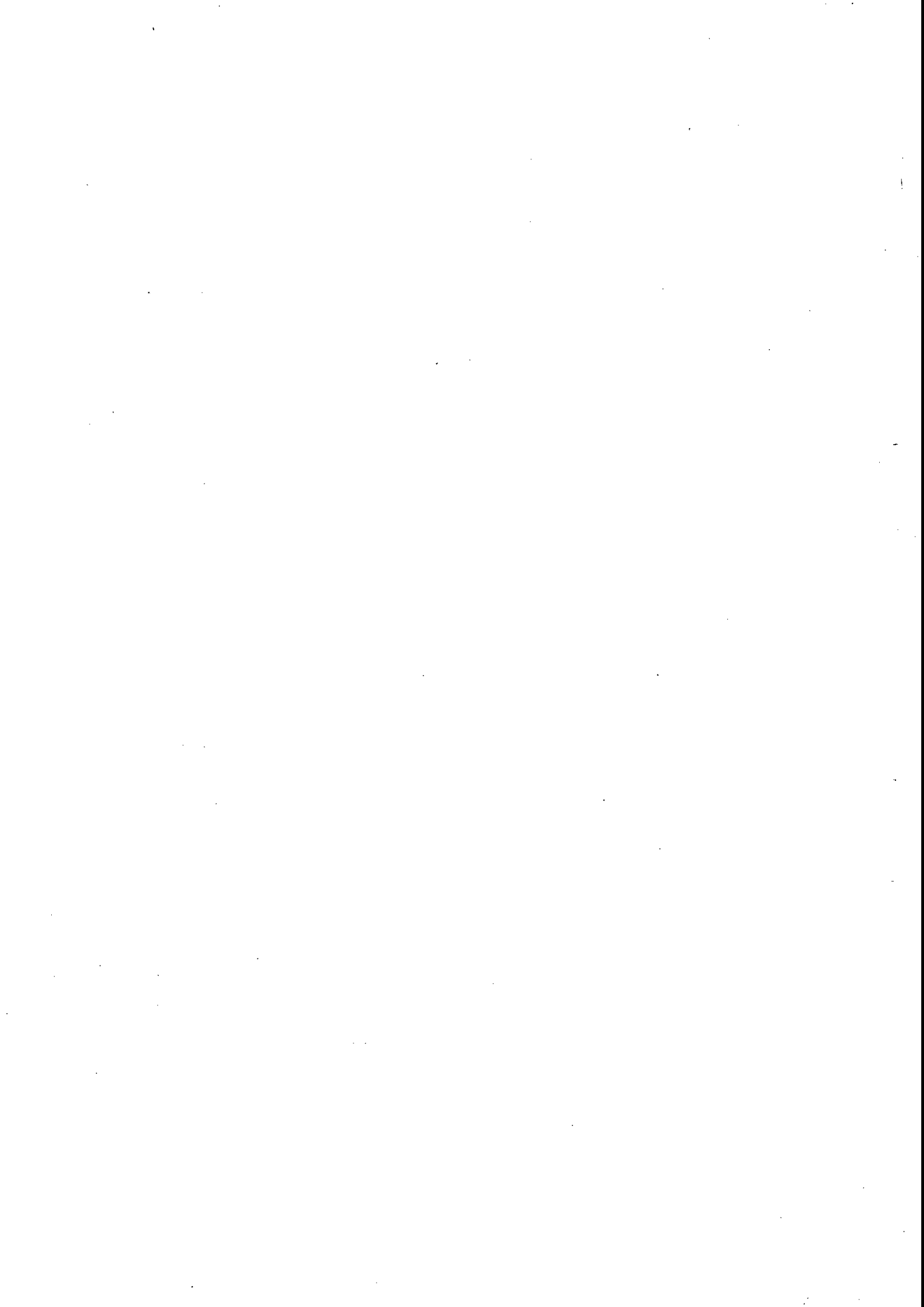
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A Semantic Desktop Grid with Automated Organization and Management

Abstract

Desktop Grid has recently been an attractive computing paradigm for high throughput applications. Desktop Grid can be considered as a P2P (i.e. peer-to-peer) computing environment, where each node acts as a peer, so that, it can act as a resource provider (i.e. Grid Worker) or as a resource consumer (i.e. Grid Client).

However, Desktop Grid computing is complicated by heterogeneous capabilities, failures, volatility, and lack of trust because it is based on desktop computers. In a Desktop Grid computing environment, workers have heterogeneous properties such as CPU, memory, network, etc. Decentralization, Interoperability, scheduling, Connectivity and Fault tolerance are important issues of Desktop Grid.

The most important challenges for Desktop Grid involve: 1) minimizing reliance on central servers to achieve decentralization, 2) providing interoperability with other platforms, 3) providing interaction methodologies between grid nodes that overcome connectivity problems in the Internet environment, 4) providing efficient fault tolerance to maintain performance with frequent faults, and 5) developing scheduling mechanisms that adapt to such a dynamic computing environment. Although, several techniques had been

Abstract

developed concerning Desktop Grid issues, there still remain lacks to achieve the promised performance especially in fault tolerance and decentralization.

This thesis proposes a novel pure P2P Desktop Grid framework in which: decentralization is completely achieved, heterogeneity problem is eliminated through providing communication between peers based on standard protocols (e.g. HTTP and FTP), implement an efficient fault-tolerance technique through application level incremental checkpointing, and provide a decentralized scheduling mechanism with matchmaking based on fuzzy logic.

The proposed framework has been tested on a real desktop grid to evaluate the performance of the implementation of both serial and parallel executions.

Experimental results show that: Using the proposed framework as a platform for running distributed applications has a great impact on improving fault tolerance, beside achieving full decentralization, Interoperability and solving connectivity problems. Implementing the proposed distributed scheduling mechanism maximized the resource utilization of the executing worker without exceeding the maximum execution time of tasks.