Resources Allocation in Distributed Systems Using AI/OR Techniqu

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Abstract

This   paper presents a conceptual basis for

resources   allocation in distributed systems.

That basis will be implemented in a human -

aided   computer   design   package   [2]   that

enables the DS designers to have rationale

decisions   in designing   and allocating the

resources in the DS design. Thesis objective

has been formulated to minimize the traffic

across the DS by relocating the data-base

using a proposed distribution scheme and then

optimize   (cost-effectively)   the   distributed

packet-switched data network design of the

DS.

As the problem is intractable and does not

have an exact solution , it has been subdivided

into three modules(phases), named Data-base

Distribution   module,   Distributed Computer

Network   Design,   and   Analysis   and

Monitoring module.

The   problem   solving   exploits   the

techniques   of AI   and   OR to   tackle the

problem   and it is an iterative process that

enables the designer to have an efficient and

cost   effective   solution   under the problem

constraints.

sites (Processing Elements, PE's)

connected together into some kind of

communication network in which a user (end

user or application programmer) at any site

can access data stored at any other site [8].

4 As the distributed communication

� network of the DS is used to transmit

data and messages among the PE's

(nodes) of the DS and since the research

focuses on how to allocate resources in

DS's, the thesis objective has been

formulated to minimize the traffic

across the DS by relocating the data¬

base using a proposed distribution

scheme and then optimize (cost-

effectively) the distributed packet-

switched data network design

(topology, flow and capacity

assignment) of the DS. The following

figure shows the proposed system

approach.