RISK AWARE QUERY REPLACEMENT APPROACH FOR SECURE DATABASES PERFORMANCE MANAGEMENT

ABSTRACT

Large amount of data and increased demand to extract, analyze and derive knowledge from data are impairing nowadays performance of enterprise mission-critical systems such as databases. For databases, the challenging problem is to manage complex and sometimes non-optimized queries executed on enormous data sets stored across several tables. This generally results in increased query response time and loss of employee productivity. In this paper, we investigate the problem of enterprise computing resources availability. Our goal is to minimize performance degradation arising from resource intensive queries. We propose a risk aware approach that decouples the process of analyzing resource requirements of sql queries from their execution.

We leverage XACML to control users’ requests and to monitor database loads. This allows us to adjust available resources in a database system to computing resource needs of queries. A query can therefore run in a database if it does not severely impact the performance of the database. Otherwise, we propose to the requester a replacement query denoted what-if-query. Such query proposes results that are similar to the results of the requester’s query, is secure and provides
acceptable answers when it executes without compromising the performance of the database.

**EXISTING SYSTEM**

A contrasting observation however is that enterprises do not generally invest much on acquiring an IT infrastructure that best fit their needs.

**DRAWBACK OF EXISTING SYSTEM**

- When workforce or data increases, it oftentimes induces more computing resources usage.
- Affect IT systems performance.
- Poor processing power can make low transaction volume or rate, dissatisfied customers, loss of employee productivity, and more.

**PROPOSED SYSTEM**

Few proposals approach the problem of availability from the perspective of computing resources usage monitoring and performance management. unavailable due to intensive demands and the ensuing consequences should the risk occurs. From a security point of view, we are interested in defining an access control framework.

We focus on databases and propose an approach to control their performance while ensuring the need-to-know of the users.
ADVANTAGE OF PROPOSED SYSTEM

- Ability to meet their rising computing needs while reducing their operational costs on hardware.
- Preventing unauthorized access to sensitive data or denial of service attacks.
- An approach that most databases administrators use to reduce workloads and thereby increase system performance.

SYSTEM SPECIFICATION

Hardware Requirements

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Pentium IV 2.4 GHz</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>40 GB</td>
</tr>
<tr>
<td>Floppy Drive</td>
<td>1.44 Mb</td>
</tr>
<tr>
<td>Monitor</td>
<td>15 VGA Colour</td>
</tr>
<tr>
<td>Mouse</td>
<td>Logitech</td>
</tr>
<tr>
<td>Ram</td>
<td>512 Mb</td>
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</tbody>
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Software Requirements

- Operating system: Windows XP
- Technology Used: Microsoft .NET
- Backend Used: SQL Server