

Role of Database Administrator in the I.T. Industry

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Abstract:

A database administrator is a person responsible for the installation, configuration, upgrade, administration, monitoring and maintenance of databases in an organization. The role includes the development and design of database strategies, monitoring and improving database performance and capacity and planning for future expansion requirements. This paper focuses on the role of DBA in the IT industry.

Keywords: DBA, IT, DBMS

I. INTRODUCTION

As a human being, we all think about our development. As we plan for our development we also have to decide our working area, or the most possible / approachable area. Every one likes to cover bigger area as much as he can cover. Initially we had a small area of operation in each segment of life. But as the technology developed, we become part of global makeover and now we are able to cope with the market development at large.

Information technology has made a tremendous development in respect of our approach at a mass level. It opens the door of several avenues as well as has brought in several threats, which should be analyzed carefully. Due to development in technology, the information can be transferred from one place to another in very short span of time, earlier which required lot of time. Transfer of large information and storing capacity for a long period also has some draw backs, inherent in the process itself. For example manipulation of message is very easy and it requires small level of technical literacy. It is also observed that master in a subject may not be many times able to express his views effectively as compared to a person having less knowledge of subject but more computer literacy, who can make better presentations. Here the knowledge part of the core subject has been compromised with proficiency with technology. .

IT in the modern enterprise has evolved from a back-office component to a core operational constituent that can improve business performance and increase market value. Administrator now have an opportunity to demonstrate a truly executive level leadership role in defining their enterprises.

By implementing an agile development approach, for example, IT can improve time to market for products, thereby realizing business value earlier than traditional approaches. IT also plays a central role in data management and the delivery of advanced analytics, both of which enhance competitive advantage and profitability. IT can also improve customer service excellence by implementing solutions that improve the ease of doing business. And centralizing functions such as infrastructure or procurement to optimize economies of scale not only enables more effective expense management, but frees up senior management to focus on surpassing the competition.

In today's world, the most important aspects of human life are fastened to the computer, a machine, which has changed our expectation due to its tremendous capability and ability. This machine, could convert our manual world into automated and systemized one with the highest speed and the least mistakes, due to inter-relational and "data" accessibility of it. Data is manipulated with the help of "database-management system (DBMS)" which consists of a collection of interrelated data and a set of programs to access those data. The collection of data, usually referred to as "Database (DB)", contains information about one particular project or enterprise. The primary goal of a "Database Administration (DBA)" is to provide an environment that is both convenient and efficient to use in retrieving and storing database information. Database systems are designed to manage large bodies of information. The management of data involves both the definition of structures for the storage of information and the provision of mechanisms for the manipulation of information. In addition, the database system must provide for the safety of the information stored, despite system crashes or attempts at unauthorized access. If data are going to be shared among several users, the system must avoid possible anomalous results. The importance of information in most organizations, which determines the value of the database, has led to the development of a large body of concepts and techniques for the efficient management of data, which can be called as "database management".

A database administrator (short form DBA) is a person responsible for the installation, configuration, upgrade, administration, monitoring and maintenance of databases in an organization.

The role includes the development and design of database strategies, monitoring and improving database performance and capacity and planning for future expansion requirements. They may also plan, co-ordinate and implement security measures to safeguard the database.

DBA's are also known by the titles Database Coordinator or Database Programmer.

The role is closely related to the other jobs of Database Analyst, Database Modeler, Programmer Analyst, and Systems Manager.

II. DATABASE

A database can be summarily described as a repository for data. This makes clear that building databases is really a continuation of a human activity that has existed since writing began; it can be applied to the result of any study keeping or recording activity that occurred long before the advent of the computer era.

Database Management Systems

A database management system (DBMS) is an aggregate of data, hardware, software, and users that help an enterprise manage its operational data. The main function of a DBMS is to provide efficient and reliable methods of data retrieval to many users.

Database Administrator Roles and Responsibilities

Depending on the company and the department, this role can either be highly specialized or incredibly diverse. The primary role of the Database Administrator is to administer, develop, maintain and implement the policies and procedures necessary to ensure the security and integrity of the corporate database. Sub roles within the Database Administrator classification may include security, architecture, and warehousing and/or business analysis. Other primary roles will include:

- Implementation of data models
- Database design
- Database accessibility
- Performance issues
- Capacity issues
- Data replication
- Table Maintenance

Database Administrators are often on-call and required to work as needed. This position carries an enormous amount of responsibility.

The DBA role naturally divides into three major activities: ongoing maintenance of production databases (operations DBA); planning, design, and development of new database applications, or major changes to existing applications (development DBA, or architect); and management of an organization's data and metadata (data administrator). One person may perform all three roles, but each is profoundly different.

Modern organizations depend on several utilities - centrally managed services distributed across networks - the most common being electricity, water, and telephone services. Increasingly, organizations also depend on LAN and database services. Some organizations, such as airlines, with their reservation systems, or Amazon.com, with its Internet-based order system, are extremely sensitive to the availability of an underlying database service.

Career Prospects in Database Administration

A person dealing with the storage and management of databases is termed a Database Administrator (DBA). A DBA works with Database Management System Software. While seeking career prospects as a Database Administrator, a person is required to be familiar with products related to database management like Structured Query Language, Oracle based database management software, and SAP.

Career prospects in Database Administration are available in workstations, mid-range systems and large mainframe systems. In government, education, banking, data processing and health care, the services of a Database Administrator are required. A Database Administrator is needed in almost every field, but the Computer Industry is the one where largest numbers of Database Administrators are employed. In order to keep pace with technological advancements, hardware and software vendors, employers, universities, colleges and private training institutions offer various continuous training and education programs. By attending professional development seminars you can keep abreast of the latest developments in the field.

III. CONCLUSIONS & SUGGESTIONS

1. Today is an age when quality of resource data gives a great influence to a business. There is a high possibility that wrong value of data gives tremendous damages to the society. Importance of managing resource data with high quality will come to be recognized furthermore from now on.
2. Survey carried out in Nagpur region to study the Study of Role of Database Administrator in the I.T. Industries. DA essentially had played a role of pursuing consolidation from the viewpoint of whole company. Nevertheless, it could not persuade sufficiently in regard to effectiveness due to the fact that it had functioned in individual systems as managerial area under various constraints. However, it is considered that DA function has just come to be recognized again as a prime supporting function in accordance with acknowledge of necessity on program management.
3. There are two levels of DBA's used by IT companies of Nagpur region, Central DBA and Local DBA. Central Level Central DBA will refer to CMS staff in the Division of Data Services (DDMSS), which is in the Enterprise Database Group (EDG). DDMSS will be totally responsible for all administrative functions. The Central staff's responsibilities encompass all platforms. The Central DBA will have final approval for all database objects running on all database

servers. Each Central DBA will have a backup to assure coverage and continuity of task assignments. The Central DBA will be responsible for administration of all activities in the production environment as it pertains to databases on each database server.

4. The Local DBA will refer to the day-to-day operational support person responsible for activities necessary to implement and maintain the database for a project. The Project Manager, components or divisions will name a team member as the Local DBA. Alternatively, components may contract outside vendors to serve in the role of the Local DBA. If so, contractors are subject to the same requirements placed on CMS personnel serving in the same roles.
5. The Local DBA will ensure that the Central DBA is informed of new developments within the application. It is extremely important that the individual chosen as Local DBA be well versed in database administration, particularly, for the database platform chosen. The Project Manager will ensure that the Local DBA is highly skilled in Database Administration to perform the role assigned.
6. Developing & maintaining naming standards for database objects such as table spaces, tables, indexes & views, participating in database migration reviews, assisting in product installation & reviewing initial installation options; for Oracle, the Central DBA will assist in product installation and specify initial installation options, providing functional guidance to the systems programmer & the operator. For Oracle, the Central DBA will provide this functional guidance to the Unix System Administrator is the functions and responsibilities of central DBA.
7. While there are many types and teams and gradations of expertise across the DBA team in IT companies, the advent of supporting data applications will change their tasks, priorities, and the way they are managed. In the beginning only a few specialists will have the requisite knowledge and skills; however, as the business implements more applications and adds more users into the mix, the entire team must be involved in data support.
8. In the course of doing business, records are created, received, and maintained through a variety of activities, and in a variety of forms. Although computers were once thought to be ushering in the age of the "paperless office," we are experiencing exponential growth and replication of records.
9. Moreover, the management of the records no longer falls strictly to a record management unit or an administrative support staff. Therefore, it is essential to develop sound records management programs that are grounded in thoughtful and effective policies and procedures that inform agency personnel: as to nature of what is a record; which records are open to the public and which are confidential; how to classify, organize, and maintain records; and how to dispose of records properly.
10. It is imperative that the design and implementation of records and information management systems include project teams that are multidisciplinary, with a spot reserved for records management personnel.
11. Security is becoming challenging. 80% of IT companies of Nagpur do not have a DBMS security plan. Many mission-critical databases are vulnerable, largely as a result of poor authentication processes, using default configurations, and having weak data access controls. The key DBMS security administration challenges include creating a robust DBMS security plan, using database encryption, protecting data from administrators, and ensuring that only authorized users access private data. In the next three to five years, DBMS vendors will introduce highly innovative and easy-to-use database security solutions that will help overcome these challenges.
12. Upgrade and patch deployment is poised to become the most challenging activity. Most enterprises continue to struggle with upgrade and patch deployments that often take enormous amounts of time and effort. Upgrade and patch deployment will become the single most challenging activity.
13. Database performance tuning is becoming less challenging. Although performance tuning has been the most challenging task this past decade, it is becoming less challenging as vendors roll out highly automated self-management features. The key challenges are often related to poorly written SQL statements, improper configuration layout, and a lack of clear understanding of how to tune to solve performance issues. Study believes that in the next two to four years, top commercial DBMS vendors will deliver highly intelligent and automated administration capability to reduce administration efforts.
14. Upgrade to new DBMS releases as an ongoing initiative. Every new DBMS release from the top commercial vendors will continue to focus on automation and self-management features. Therefore, it is important that enterprises upgrade to new releases to benefit from increased automation and improved availability, in addition to lowering administration costs.
15. Give more focus to database-related security. DBMS security is likely to become even more challenging in the near term; therefore, all companies must have a DBMS security plan that focuses on protecting private data.

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