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Analyzing How Query Optimization Technology Will Help India in Emerging As World Power

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Abstract: ***This research article helps in understanding the optimization technique use in case of computer based databases and mobile databases, etc. Query optimizers normally compile queries into one optimal plan by assuming complete knowledge of all cost parameters such as selectivity and resource availability. Query optimization is an important skill for SQL developers and database administrators (DBAs). In order to improve the performance of SQL queries, developers and DBAs need to understand the query optimizer and the techniques it uses to select an access path and prepare a query execution plan. Mobile technology, IT administrators control the installation process as well as the configuration policies that determine what optimizations take place per user or groups of users. Number of mobile internet users is going to be almost double till 2011 and the mobile web revolution is all set to come. Industries like travel, business and entertainment are getting potential benefit from the internet mobile search. Mobile search technology in its infancy comprises a lot of possibilities for future. Optimizing websites for mobile browsers now, can put your site ahead of your competitors; providing an incredible profit.***

Keywords: ***Optimization, DBAs, Query tunning, etc.***

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INTRODUCTION

Queries of a database can be fast or slow. Depends on a lot of things. The size of the table, the amount of data you are requesting from the query, etc. Query optimization is a function of many relational database management systems in which multiple query plans for satisfying a query are examined and a good query plan is identified. This may or not be the absolute best strategy because there are many ways of doing plans. There is a trade-off between the amount of time spent figuring out the best plan and the amount running the plan. Different qualities of database management systems have different ways of balancing these two. Cost based query optimizers evaluate the resource footprint of various query plans and use this as the basis for plan selection.

The turn of the last century has witnessed the largest expansion of the Internet ever. The widespread deployment and use of the Web was the key factor behind this exponential growth. It is now the primary medium shaping all present and future human activities. This has been particularly enabled by the technical advances achieved in different areas including high speed networking, communication protocols, mark-up languages, graphical interfaces, Java technologies, and communication middleware. The Web is continuously attracting waves of new users and service providers. It is now the de facto medium for exchanging information and services. This globalization has also spurred the development of tools and aids to navigate and share information in corporate intranets that were previously accessible online only in a restrictive way and at prohibitive costs. The information age revolution has highlighted the role of the database management system (DBMS) as a key enabling technology. DBMSs are currently the technology of choice for modeling, storing, managing, and efficiently querying large amounts of information. They also provide functions for protecting data integrity, facilitating reliable and flexible data access and manipulation, synchronizing concurrent accesses from applications, and securing data. The early Web (the period from 1992 to 1996) provided users access to text-based pages through hypertext links. Nowadays, the Web provides access to a variety of data that can be multimedia-rich. Readily available information retrieval techniques such as inverted indices, which allow efficient keyword-based access to text, largely enabled access to the exponentially growing Web. As pressure from users mounted to allow access to richer types of information and provide services beyond simple keyword-based search, the database research community responded with a two-pronged solution. First, by using databases to model Web pages, information could be extracted to dynamically build a schema against which users could submit SQL-like queries. By adopting XML for data representation, the second proposed solution centered on adding database constructs to HTML to provide richer, queriable data types. Data dissemination techniques and notification services must be developed to enable effective data delivery services. Web-centric applications such as e-

commerce and digital government applications pose stringent organizational, security, and performance requirements that far exceed what is now possible with traditional database techniques.

Data retrieval from different sites in a DDB is known as distributed query processing (DQP). So a distributed query is one that selects data from databases located at multiple sites in a network and distributed processing performs computations on multiple CPUs to achieve a single result. Query processing is much more difficult in distributed environment than in centralized environment because a large number of parameters affect the performance of distributed queries, relations may be fragmented and/or replicated, and considering many sites to access, query response time may become very high. It is quite evident that the performance of a DDBS is critically dependent upon the ability of the query optimization algorithm to derive efficient query processing strategies. DDBMS query optimization algorithms attempts to reduce the quantity of data transferred. Minimizing the quantity of data transferred is a desirable optimization criterion. The distributed query optimization has several problems relate to the cost model, larger set of queries, optimization cost, and optimization interval.

Today's DBMS technology faces yet another challenge as researchers attempt to make sense of the immense amount of heterogeneous, fast-evolving data available on the Web and mobile based. The large number of cooperating databases greatly complicates autonomy and heterogeneity issues. This requires better models and tools for describing data semantics and specifying metadata. Techniques for automatic data and metadata extraction and classification (on tolpogies, for example) are crucial for building tomorrow's Semantic Web. Query languages and query processing and optimization techniques need to be extended to exploit semantic information. Users also need adaptive systems to help them explore the Web and discover interesting data sources and interfaces that support different query and search paradigms.

OBJECTIVE OF STUDY

In this paper we outline a research agenda towards this ambitious goal, drawing upon many research threads from the database, information retrieval, machine learning, and web search communities. We begin with a discussion of what we mean by concepts and some of the challenges in representing and organizing concepts and instances of concepts. We then motivate our proposal for developing a web of concepts using a combination of example scenarios and data from Yahoo! logs and we discuss the challenges in extracting and reconciling concept-centric information from the web. We discuss several applications, including novel web search paradigms that are enabled by a web of concepts. We discuss some related work. In this paper we explore how such mechanisms can be exploited in building complex distributed information management systems that integrate independent sites in a volatile environment like the Web. The difficult questions are obvious: (a) can this be done by deploying a relatively small generic infrastructure in each node, and (b) is it worthwhile?

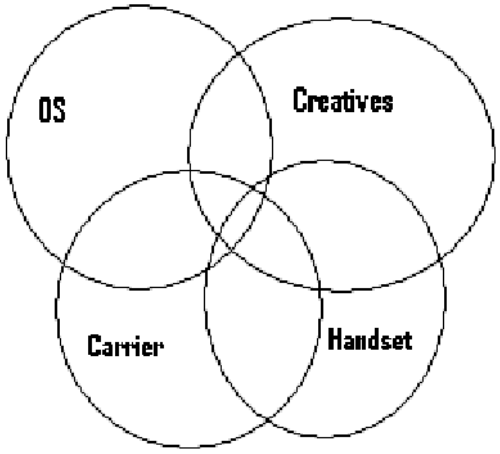
CONCEPTS

a) Mobile Optimization Technology

Smart phones and mobile internet devices (MIDs) have gained widespread popularity by placing compute power and novel applications conveniently in the hands of end users. The Apple iPhone serves as a good example of this usage trend and success. With the recent introduction of the Intel's low-power general purpose Atom™ processor family, future MIDs will enjoy a larger base of general-purpose applications that will run at much higher performance and power-efficiency. Emerging visual computing applications such as image/facial recognition, computational photography and motion tracking are quickly entering the mobile domain while nascent usage cases including virtual worlds and extreme 3D gaming are just around the corner. One usage model that has gained significant interest to end-users and handheld providers is Mobile Augmented Reality (MAR). An instance of the MAR usage model is best described with an example as follows. Consider a tourist walking the streets of a foreign city and scanning the surroundings using the camera in their smart phone (or MID). The smart phone should recognize the objects (and/or buildings) in the camera image and provide contextual data overlaid on the object in the display. For example, if you are walking in the streets of India (city of Jaipur) and point your MID camera at an interesting building, the MID should display historical information about the building. Similarly, walking inside such a building and pointing the camera towards a unique object should provide the user with contextual information about it.

(a) A building in a foreign city

(b) A sculpture



With dozens of traffic sources out there managing and optimizing campaigns across different channels it tedious and ineffective. In order to streamline and standardize operations we developed the first of its kind Mobile Post Click Optimization and Analytics Platform. The platform was built using the most accurate conversion tracking technology (server to server post back) and is able to track your campaign details like creative and placements along with the crucial mobile data like carrier, handset, and operating system. Our technology allows partners to:

b) Manage Cross Channel Mobile Marketing – This tool allows you to quickly deploy and manage campaigns from a single dashboard and uncover insights in your data by aggregating your analytics

c) Rule Based Click Optimization - Using a single url you can direct visitors to any desired destination based on visitors mobile characteristics including which device, carrier, or operation system they are using

d) Increase ROI through Data Segmentation - Drill down into your data up to 5 layers deep by over a dozen data points to find the combination of targeting that yields the highest performance

e) Optimization on the Web

Major difficulty in optimizing queries on the Web is that once a query is submitted to a specific information source, control over its execution is no longer possible. Further compounding this problem, that information source may exhibit a different behavior from what has been initially assumed, thus impairing predictions. As a result, traditional optimization techniques that rely heavily on statistical information may be hardly applicable.

Query optimization on the Web may also span a larger spectrum of criteria than those in the classical cost model. Such an example is the information quality criterion that codifies reliability and availability of sources, fees, etc.

Query optimization has received a particular attention in heterogeneous distributed databases systems. It was noted early on that the lack of statistical information from participating databases prevented a direct application of techniques developed for homogeneous systems.

Different techniques have been proposed to overcome the lack of statistical information.

The advent of the Web has brought to the fore the seamless interconnection of diverse and large numbers of information sources. Allowing uniform querying of those sources has been a major goal of several research efforts. Most proposed systems and techniques focused on making such uniform querying feasible despite all types of hurdles (e.g., heterogeneity, autonomy, unpredictability of the Web, etc.) However, achieving the full potential of uniformly querying disparate Web information sources is fundamentally dependent on devising adequate query optimization techniques.

Different approaches have been used for Web-based data integration.

A mediator typically performs three main tasks:

• Database selection. Locate and select the databases that are relevant to the query.

• Query translation. Decompose the query into sub-queries with respect to the previously selected databases. Each sub-query is transformed into a form that is executable by the corresponding database. The sub-query is then sent to the database (through a wrapper) and results are retrieved.

• Result merging. Combine the different results into a global answer to the user.

1) RESEARCH ISSUES

Query optimization has received a particular attention in different types of database systems (e.g., central, distributed, and multi-database). Indeed, the ultimate

goal of any database system is to allow efficient querying. Unsurprisingly, data integration systems over the Web do not escape to that objective. Query optimization is also central to the deployment of data integration systems over the Web. It has been deemed as more challenging due to the very nature of the Web (large heterogeneity spectrum, strict autonomy, large user base, dynamic behavior, etc.) Queries over Web information sources may be answered in various ways. Each alternative outputs usually the same results. However, alternatives may differ widely in terms of efficiency. This may relate to response time, network resources, number of information sources involved, quality of the information being accessed, quality of returned results, users' satisfaction, and so on. Consequently, query optimization techniques for the Web need to be carefully crafted. Devising the right techniques would necessitate to address a large spectrum of issues. In the following, we outline issues that are directly related to query optimization over data integration systems on the Web.

2) OPTIMIZATION PARADIGM.

Optimizing queries amounts usually to minimizing the response time. This is the objective function driving most optimizers. Although, this is still desirable on the Web, some applications may require the use of different parameters in the objective function. These include fees to access information sources, quality of the data (e.g., freshness), number of sources to access, etc. Devising an optimizer requires to first set up an adequate objective function that is relevant to Web applications.

3) OPTIMIZING OVER A LARGE NUMBER OF HETEROGENEOUS AND AUTONOMOUS INFORMATION SOURCES.

Data integration faces a far more incongruent environment than in the pre-Web era. Heterogeneity can happen at different levels of the data integration system. The time and resources required to bridge that heterogeneity may have an important impact on the optimization process. Autonomy has a more serious impact since several optimization techniques require specific information from information sources. This information is not always easily available. Furthermore, once a (sub-) query is submitted to a specific information source, the optimizer of the data integration system does not have any control over it. Finally, the Web is witnessing an exponential growth in terms of information sources and potential users. Query optimization should take into account scalability issues to avoid performance degradation. This degradation could lead to very inefficient query execution plans.

4) EVOLVING IN A DYNAMIC ENVIRONMENT.

A major characteristic of the Web lies in its high dynamism and volatility. Information sources availability and behavior can change without warning. In addition, unpredictable events could happen anytime during query processing and execution. The query optimizer would need adaptive mechanisms to avoid missing optimal query execution in the occurrence of any event. Adaptive techniques could be also used to gather optimization information on the fly and use them to modify the execution plan.

CONCLUSION

As if the boom created by computer and the world wide web was not enough, the tiny telecommunication device called the mobile has created an unprecedented trend. Such is the scenario that internet is accessible from cell phone itself and this market is all set to sweep everybody off their feet. Playing online games, shopping online, doing mobile banking to entertainment and travel needs, the mobile phone has become an all in one device which has unlimited potential. In such a scenario, optimizing your web portal for smart phones will give you an innate edge over your competitors and a definite advantage. Mobile phone SEO is a concept which is yet in a very nascent stage. Thus you have to bring into play mobile phone website SEO service to make certain that your mobile phone is compliant with technologies used in cell phones. While many sites work just fine on a mobile device without creating a mobile version, there is some where a mobile version works much better than surfing to the original site. My favorites are listed below. We can optimize the cell and web data according to the requirement but now day's user want mobile should work as an agent or for web optimization we consider content, web links, website title, heading tags, internal links, density for the website, sitemaps, Meta tags, URL structure, Domains. Whereas the mobile phone optimization include Simplify, Plan your side layout, Match the Branding Elements from Your Standard Site to Your Mobile Side, Utilize white space, avoid Flash or Java, Reduce the amount of text entry necessary, use mobile directions, allow the people to visit the website, somehow without use of WAN technology optimization of these gadgets have no sence, we use both of the optimization techniques hand in hand.

REFERENCES

1) S. Das, K. Shuster, C. Wu, Agent-based Complex Querying and Information Retrieval Engine , Proceedings of the First International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), Bologna, Italy, 2002.

2) Alaa Aljanaby, Emad Abuelrub, Optimization of Distributed Queries : A Survey

3) M. N. Huhns, and M.P. Singh, Ontologies of Agents, IEEE Internet Computing, 1997.

4) M. N. Huns, and M.P. Singh, Managing Heterogeneous Transaction Workflows with Cooperating Agents , N.R. Jennings M.Woolridge (eds.), Agent Technology, Sprinfer,1998.

5) S. Adali, K.S. Candan, Y. Papakonstantinou, and V.S. Subrahmanian, "Query caching and optimization in distributed mediator systems," in Proceeedings of ACM SIGMOD International Conference on Management of Data, Montreal, Canada, June 1996.

6) B. Amann, C. Beeri, I. Fundulaki, and M. Scholl, "QueryingXMLsources using an ontology-based mediator," in Proceedings of the Tenth International Conference on Cooperative Information Systems, Irvine, CA, USA, Oct. 2002.