

A Survey on Network and Web Optimization Techniques

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Abstract

Web page optimization streamlines the content to increase display speed. With the average internet speed increasing globally, it is suitable for website administrators and webmasters to consider the time it takes for websites to render for the visitor. Fast speed performance is the key to success with website. It enlarges profits, decreases costs, and improves customer satisfaction. Reorganization converts the pages to display navigable content quicker, and to defer or delay off-site content. The ranking functions are usually learned to rank search outcomes based on features of individual documents i.e., point-wise features. This work will enlarge the website visibility and make the user to achieve the information what they are actually looking for. Web Services have appeared as a new Web-based technology paradigm for altering information on the Internet with heavy speed and best quality. They have become a promising technology to plan and build complex inter-enterprise business applications.

Keywords: Network, Web Optimization Techniques,

I. INTRODUCTION

Website has become increasingly popular due to their wide range of applications. Energy consumption is one of the biggest constraints of the network a typical deployment of large number of nodes have added many challenges to the design and management of networks. Regarding continuous network optimization, it focuses on two ideas, which are also fundamental in general mathematical programming: duality and iterative cost improvement. It provides an extensive treatment of iterative algorithms for the most common linear cost problem, the minimum cost flow or transfer good from problem, and for its convex cost extensions.

The one of the major conspicuous successes of the communications industry is network, and has introduced all the aspect of our lives. Indeed, it is

evidence to its relevance in modern lifestyle that Internet connectivity is now taken as an essential service like water supply and electricity. This work performs with ideas of a centralized optimization framework and show how congestion control, scheduling and routing in wired and wireless networks can be shown as fair resource allocation. Then transfer to the learning process of controllers that permit a decentralized solution of this problem. These controllers are the analytical equivalent of protocols in utilized on the Internet today, and illustrate the existing protocols as understanding of such controllers. A dynamic system is an internet with feedback delays and flows that appears and departs, which means that stability of the system cannot be taken for granted. Page popularity is used to rearrange a web site can direct to a substantially more accessible and more effective hypertext scheme.

The web service software consists of two main divisions, which are service and service consumer. Service consumer utilizes certain mechanism to place the remote service. Then service method is invoked to achieve its goal. To increase the web page display speed, performs the following 10 techniques:

- Diminish HTTP requests.
- Size of the image is changed and optimizes images.
- Optimize multimedia.
- Alter JavaScript behavior to Cascading Style Sheets (CSS).
- Utilize server-side sniffing.
- Optimize JavaScript for file size and execution speed.
- Change table layout to CSS layout.
- Alter inline style with CSS rules.
- Diminish the initial display time.
- Load JavaScript wisely.

The enlarged interest on processing large scale & heterogeneous issues in distributed environments develops the need for more easily and flexible accessed software tools. In this work offers the improved web

based optimization tool that can use the solution of particular optimization problems.

Web-site Quality Evaluation Method (QEM) is a technique for the quantitative evaluation and comparison of Web site quality. The core models and procedures for artifact performances are carried by the Logic Scoring of Preference (LSP) model and continuous preference logic as mathematical background. Website Optimization is the "key ingredient" for a successful Web promotion campaign.

II. RELATED WORK

In today's Web, Web Services are created and updated on the fly. Rostami et al (2014) answering complex needs of users, the construction of new web services based on existing ones is required. It has received a great attention from different communities. This problem is known as web services composition. However, it is one of big challenge problems of recent years in a distributed and dynamic environment. Web services can be composed manually but it is a time consuming task. The automatic web service composition is one of the key features for future the semantic web. The various approaches in field of web service compositions proposed by the researchers.

Recently, web service is growing more and more popular. Java is a representative language to implement web based services. But its platform independency slows its running speed. Partial evaluation can be used to improve Java bytecode efficiency. Lin et al (2004) present a distributed Java bytecode partial evaluation architecture to accelerate Java based web service running speed by optimizing service according to certain context or, if possible, localizing remote service.

To reduce the environmental impact, it is essential to make data centers green, by turning off servers and tuning their speeds for the instantaneous load offered, that is, determining the *dynamic configuration* in web server clusters. Bertini et al (2010) model the problem of selecting the servers that will be on and finding their speeds through mixed integer programming; then it also show how to combine such solutions with control theory.

Dual descent methods are commonly used to solve network optimization problems because their implementation can be distributed through the network. However, their convergence rates are typically very

slow. Zargham et al (2011) introduces a family of dual descent algorithms that use approximate Newton directions to accelerate the convergence rate of conventional dual descent. These approximate directions can be computed using local information exchanges thereby retaining the benefits of distributed implementations. The approximate Newton directions are obtained through matrix splitting techniques and sparse Taylor approximations of the inverse Hessian. We show that, similarly to conventional Newton methods, the proposed algorithm exhibits super linear convergence within a neighborhood of the optimal value. Numerical analysis corroborates that convergence times are between one to two orders of magnitude faster than existing distributed optimization methods.

Gofman et al (2009) sets out to explore different approaches to optimizing web sites based on consumer preferences, introducing the most advanced form of landing page optimization, multivariate landing page optimization, and its variations. The approach aims to allow for the testing of a large number of web page prototypes with consumers and find real optimal solutions on an aggregated, segmented and individual basis. The latter aims to paving the road to individually optimized pages and one-on-one marketing in the near future.

Motivated by the ongoing success of Linked Data and the growing amount of semantic data sources available on the Web, new challenges to query processing are emerging. Especially in distributed settings that require joining data provided by multiple sources, sophisticated optimization techniques are necessary for efficient query processing. Schwarte et al (2011) propose novel join processing and grouping techniques to minimize the number of remote requests, and develop an effective solution for source selection in the absence of preprocessed metadata.

Chen et al (2014) shows a multiple kernel-based regularization method is proposed to handle those issues. Multiple kernels are conic combinations of fixed kernels suitable for impulse response estimation, and equip the kernel-based regularization method with three features.

Web service composition enables seamless and dynamic integration of business applications on the web. The performance of the composed application is determined by the performance of the involved web services are shown by Alrifai et al (2010). Therefore, non-functional, quality of service aspects is crucial for

selecting the web services to take part in the composition. Identifying the best candidate web services from a set of functionally-equivalent services is a multi-criteria decision making problem. The selected services should optimize the overall QoS of the composed application, while satisfying all the constraints specified by the client on individual QoS parameters. In this work, propose an approach based on the notion of skyline to effectively and efficiently select services for composition, reducing the number of candidate services to be considered.

Achieving sustainability in manufacturing requires a holistic view spanning not just the product, and the manufacturing processes involved in its fabrication, but also the entire supply chain, including the manufacturing systems across multiple product life-cycles. Jayal et al (2010) requires improved models, metrics for sustainability evaluation, and optimization techniques at the product, process, and system levels. This paper presents an overview of recent trends and new concepts in the development of sustainable products, processes and systems.

The effective optimization of machining process parameters affects dramatically the cost and production time of machined components as well as the quality of the final products. Venkata et al (2010) presents optimization aspects of a multi-pass milling operation. The objective considered is minimization of production time (i.e. maximization of production rate) subjected to various constraints of arbor strength, arbor deflection, and cutting power. Various cutting strategies are considered to determine the optimal process parameters like the number of passes, depth of cut for each pass, cutting speed, and feed. Development of web based optimization service for distributed heterogeneous frameworks are done by Moussas et al (2013).

Network lifetime (NL) is a critical metric in the design of energy-constrained wireless sensor networks (WSNs). Wang et al (2010) investigate a joint optimal design of the physical, medium access control (MAC) and routing layers to maximize NL of a multiple-sources and single-sink (MSSS) WSN with energy constraints.

Pfetsch et al (2014) investigate methods to solve a fundamental task in gas transportation, namely the validation of nomination problem: given a gas transmission network consisting of passive pipelines and active, controllable elements and given an amount of gas at every entry and exit point of the network, find

operational settings for all active elements such that there exists a network state meeting all physical, technical, and legal constraints. They describe a two-stage approach to solve the resulting complex and numerically difficult nonconvex mixed integer nonlinear feasibility problem. The first phase consists of four distinct algorithms applying mixed integer linear, mixed integer nonlinear, nonlinear, and methods for complementarily constraints to compute possible settings for the discrete decisions. The second phase employs a precise continuous nonlinear programming model of the gas network.

In designing phase of systems, design parameters such as component reliabilities and cost are normally under uncertainties. Garg et al (2014) presents a methodology for solving the multi-objective reliability optimization model in which parameters are considered as imprecise in terms of triangular interval data. The uncertain multi-objective optimization model is converted into deterministic multi-objective model including left, center and right interval functions. A conflicting nature between the objectives is resolved with the help of intuitionistic fuzzy programming technique by considering linear as well as the nonlinear degree of membership and non-membership functions. The resultant max-min problem has been solved with particle swarm optimization (PSO) and compared their results with genetic algorithm (GA). Finally, a numerical instance is presented to show the performance of the proposed approach.

Search engine optimization is often about making small modifications to parts of your website. Kalaivani et al (2014) viewed individually, these changes might seem like incremental improvements, but when combined with other optimizations, they could have a noticeable impact on your site's user experience and performance in organic search results.

III. PROBLEMS AND DIRECTIONS

Optimization problems are common in many disciplines and various domains. In optimization problems, this work has to find solutions which are optimal or near-optimal with respect to some goals. Usually, it is not able to solve problems in one step, but it follows some process which guides us through problem solving. Often, the solution process is separated into different steps which are executed one after the other. Commonly used steps are recognizing and

defining problems, constructing and solving models, and evaluating and implementing solutions.

Combinatorial optimization problems are concerned with the efficient allocation of limited resources to meet desired objectives. The decision variables can take values from bounded, discrete sets and additional constraints on basic resources, such as labor, supplies, or capital, restrict the possible alternatives that are considered feasible. Usually, there are many possible alternatives to consider and a goal determines which of these alternatives is best. The situation is different for continuous optimization problems which are concerned with the optimal setting of parameters or continuous decision variables. Here, no limited number of alternatives exists but optimal values for continuous variables have to be determined.

An important aspect of problem definition is the selection of relevant decision alternatives. There is a trade-off between the number of decision alternatives and the difficulty of the resulting problem. The more decision alternatives have to consider, the more difficult it is to choose a proper alternative. In principle, it considers all possible decision alternatives and tries to solve the resulting optimization problem.

IV. CONCLUSION

In this work the improvement of a web based optimization tool that maintain the solution for a specific optimization problems was introduced. By utilizing web services, MATLAB is used for optimizer development that publishes its function to the all over the world with different technologies.

Website optimization gives effective strategies and precise techniques to help for website attract more prospects and successfully. The website optimization have perform; faster sites convert more users, reduce money on bandwidth bills, and even increase potential search engine rankings, while search-friendly sites develop with standards-based CSS are quicker and more accessible.

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