

# Serdica Journal of Computing

Volume 2, Number 1, 2008

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## Abstracts

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**PUSHING THE QUALITY LEVEL IN NETWORKED NEWS BUSINESS:  
SEMANTIC-BASED CONTENT RETRIEVAL AND COMPOSITION IN  
INTERNATIONAL NEWS PUBLISHING**

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*ACM Computing Classification System (1998): H, H.3, H.3.5.*

*Key words:* News management, semantic-based content coupling, news distribution

Abstract. Electronic publishing exploits numerous possibilities to present or exchange information and to communicate via most current media like the Internet. By utilizing modern Web technologies like Web Services, loosely coupled services, and peer-to-peer networks we describe the integration of an intelligent business news presentation and distribution network. Employing semantics technologies enables the coupling of multinational and multilingual business news data on a scalable international level and thus introduce a service quality that is not achieved by alternative technologies in the news distribution area so far. Architecturally, we identified the loose coupling of existing services as the most feasible way to address multinational and multilingual news presentation and distribution networks. Furthermore we semantically enrich multinational news contents by relating them using AI techniques like the Vector Space Model.

Summarizing our experiences we describe the technical integration of semantics and communication technologies in order to create a modern international news network.

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## APPLICATION OF CLASSIFICATION METHODS TO A PROBLEM RELATED TO SPECIFIC GROUPS OF E-GOVERNMENT USERS

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*ACM Computing Classification System (1998):* I.5.4.

*Key words:* classification methods, application, e-government.

This paper was partly supported by ELOST - a SSA EU project -No 27287.

**Abstract.** One of the important tasks of the EU ELOST project on E- government and Low Socio-Economic Status Groups (LSG) was to compare experts' opinions on fundamental problems of the subject. This papers shows how the application of specific classification methods to experts' formalized answers could lead to some non-trivial and objective conclusions about interdependencies and the interrelation between e-government policies/tools and experts' background and country affiliation.

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## QUALITY MEASUREMENT OF BUSINESS WEB APPLICATION

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*ACM Computing Classification System (1998):* D.2.9, K.6.1, K.6.3.

*Key words:* CMMI model, Software quality measurement, web 2.0 business model, web applications.

**Abstract.** With the development of the Internet culture applications are becoming simpler and simpler, users need less IT knowledge than earlier; from the 'reader' status they have reached that of the content creator and editor. In our days, the effects of the web are becoming stronger and stronger| computer-aided work is conventional almost everywhere. The spread of the Internet applications has several reasons: first of all, their accessibility is widespread; second, their use is not limited to only one computer or network on which they have been installed. Also, the quantity of accessible information now and earlier is not even comparable. Not counting the applications which need high broadband or high counting capacity (for example video editing), Internet applications are reaching the functionality of the thick clients associates. The most serious disadvantage of Internet applications - for security reasons -| is that the resources of the client computer are not fully accessible or accessible only to a restricted extent. Still thick clients do have some advantages: better multimedia performance with more exhibility due to local resources and the possibility for offline working.

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## QUALITY OF SERVICE SYSTEM APPROXIMATION IN IP NETWORKS\*

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*ACM Computing Classification System (1998):* C.4, C., C.2.

*Key words:* Packet network, IP, Quality of Service, VoIP, shaping.

\*This paper is sponsored by the Ministry of Education and Research of the Republic of Bulgaria in the framework of project No 105 "Multimedia Packet Switching Networks Planning with Quality of Service and Traffic Management".

Abstract. This paper presents Quality of Service analyses in wired and wireless IP networks based on the three popular techniques - RSVP, IntServ, and DiffServ. The analyses are based on a quick approximation schema of the traffic system with static and dynamic changes of the system bounds. We offer a simulation approach where a typical leaky bucket model is approximated with a G/D/1/k traffic system with flexible bounds in waiting time, loss and priority. The approach is applied for two cascaded leaky buckets. The derived traffic system is programmed in C++. The simulation model is flexible to the dynamic traffic changes and priorities. Student criterion is applied in the simulation program to prove results. The results of the simulation demonstrate the viability of the proposed solution and its applicability for fast system reconfiguration in dynamic environmental circumstances. The simulated services cover a typical range of types of traffic sources like VoIP, LAN emulation and transaction exchange.

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## STUDY OF QUEUING SYSTEMS WITH A GENERALIZED DEPARTURE PROCESS\*

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*ACM Computing Classification System (1998): G.3, I.6.5.*

*Key words:* Loss and delay system, Queueing analyses, State dependent service rate, Birth and death process, Peaked and smooth traffic.

This work was supported by the Bulgarian National Science Fund under grant BY-TH-105/2005.

Abstract. This paper deals with a full accessibility loss system and a single server delay system with a Poisson arrival process and state dependent exponentially distributed service time. We use the generalized service flow with nonlinear state dependence mean service time. The idea is based on the analytical continuation of the Binomial distribution and the classic M/M/n/0 and M/M/1/k system. We apply techniques based on birth and death processes and state-dependent service rates. We consider the system M/M(g)/n/0 and M/M(g)/1/k (in Kendall notation) with a generalized departure process Mg. The output intensity depends nonlinearly on the system state with a defined parameter: "peaked factor p". We obtain the state probabilities of the system using the general solution of the birth and death processes. The influence of the peaked factor on the state probability distribution, the congestion probability and the mean system time are studied. It is shown that the state-dependent service rates changes significantly the characteristics of the queueing systems. The advantages of simplicity and uniformity in representing both peaked and smooth behaviour make this queue attractive in network analysis and synthesis.

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## INTEROPERABILITY OF CROSS-BORDER EUROPEAN EGOVERNMENT SERVICES: SOME DESIGN ISSUES

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*ACM Computing Classification System (1998): J.1..*

*Key words:* Administrative data processing; Government, Business; Distributed databases; Security, integrity, and protection; Transaction processing; User/Machine systems; Human information processing.

Abstract. The authors analyse some of the research outcomes achieved during the implementation of the EC GUIDE research project "Creating an European Identity Management Architecture for eGovernment", as well as their personal experience. The project goals and achievements are however considered in a broader context. The key role of Identity in the Information Society was emphasised, that the research and development in this field is in its initial phase. The scope of research related to Identity, including the one related to Identity Management and Interoperability of Identity Management Systems, is expected to be further extended. The authors analyse the abovementioned issues in the context established by the EC European Interoperability Framework (EIF) as a reference document on interoperability for the Interoperable Delivery of European eGovernment Services to Public Administrations, Business and Citizens (IDABC) Work Programme. This programme aims at supporting the pan-European delivery of electronic government services.

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## ON THE VARIOUS BISECTION METHODS DERIVED FROM VINCENT'S THEOREM

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*ACM Computing Classification System (1998):* F.4.1.

*Key words:* Vincent's theorem, real root isolation method, bisection method, continued fraction method, Descartes' method, modified Uspensky's method.

Abstract. Abstract. In 2000 A. Alesina and M. Galuzzi presented Vincent's theorem "from a modern point of view" along with two new bisection methods derived from it, B and C. Their profound understanding of Vincent's theorem is responsible for simplicity | the characteristic property of these two methods. In this paper we compare the performance of these two new bisection methods | i.e. the time they take, as well as the number of intervals they examine in order to isolate the real roots of polynomials - against that of the well-known Vincent-Collins-Akritas method, which is the first bisection method derived from Vincent's theorem back in 1976. Experimental results indicate that REL, the fastest implementation of the Vincent-Collins-Akritas method, is still the fastest of the three bisection methods, but the number of intervals it examines is almost the same as that of B. Therefore, further research on speeding up B while preserving its simplicity looks promising.