This issue contains five research articles. The first by Belalem, et. al. offers a new paradigm in grid computing originating from distributed data bases, namely data grids. The research article uses an academically available simulator (OptorSim) to manage data grids employing two techniques: dynamic data replication and scheduling of data retrieval events. The author presents an extension of the OptorSim software by adding a consistency management module of the replicas in Data Grids by proposing a hybrid approach which combines the economic models conceived for a hierarchical model with two levels. The author claims that the suggested approach has two implications: the first reducing the response time compared to a pessimistic approach, and the second giving an improved quality of service compared to optimistic approach.

In the second article, Kamthan develops a framework for incorporating credibility issues in Web engineering. This article considers the issue of credibility of Web Applications with its increased importance in human participation and collaboration. The article identifies relevant stakeholder types to which credibility of Web Applications, with emphasis on the role of addressing credibility within the auspices of an agile development process. The author develops a taxonomy of credibility that explores the origins of the issue of credibility specific to Web Applications and presents supporting examples. Then the article proposes a framework for understanding and improving the credibility of human-centric Web Applications in a systematic manner. This framework includes quality attributes of concern to stakeholders and process- and product-oriented means for improving them in a feasible manner. Finally, the author presents challenges and directions for future research.

The third article by Miller et. al. describes the theory and implementation of testing the security of Web-based systems at the server side. The construction and testing of web-based systems has become more complex and challenging with the continual innovations in technology. Security is a major concern; particularly for the deployment of mission critical applications. One of
the principal vulnerabilities in web-based systems revolves around deficient input validation, where issues related to SQL injection flaws, cross-site scripting and improper HTTP requests, i.e. those sent in HTML forms, are not checked. This article describes a partially automated mechanism, the tool *InputValidator*, which seeks to address this issue through bypassing the client-side checking and sending test data directly to the server to test the robustness and security of the back-end software. The tool allows a user to construct, execute and evaluate a number of test cases through a form-filling exercise instead of writing bespoke test code. Furthermore, regular expressions can be used by the tester. On the input side, a range of test data can be specified through regular expressions, which the system then uses to construct and execute a number of test cases within the defined range. The regular expressions are also used on the output side to model of a range of return values, which define the test oracle or result comparison component. The author state that this facility effectively allows the tester to define a single test pattern, while the system automatically constructs, executes and validates multiple test cases.

The fourth article by Lu and Gohale constructs a model for performance requirements of Web servers. These performance requirements have a direct influence on the choice of the configuration options of the hardware and the software infrastructure on which a Web server is deployed. In addition, it is necessary to estimate the performance of a Web server prior to deployment. The basis of performance analysis and capacity planning is a validated model. Considering the fact that modern Web servers can typically process multiple requests concurrently, the article proposes the use of an $M/G/m$ queue to model the performance of a Web server. The performance metric of interest is the response time of a client request. The authors then validate the model for deterministic and heavy-tailed workloads using experimentation. The results indicate that the $M/G/m$ queue provides a reasonable estimate of the response time for moderately high traffic intensity. Finally the article concludes, while being an accurate representation of the characteristics of modern Web servers, the model is conceptually simple, requires the estimation of few parameters, and is hence easy to apply.

In the fifth and last article, Sikder, et. al. characterize the requirements of Geographic Information Systems (GIS) middleware and its components for dynamic registering and discovering of spatial services specifically for collaborative modeling in environmental planning. The article explores the role of Web services with respect to implementation standard and protocols. Furthermore, it identifies implementation features for exposing distributed GIS business logic and components via Web services. Specifically, the article illustrates applications of the interoperability specifications of Open GIS Consortium’s (OGC) Web Mapping Service (WMS), and Web Processing Standards (WPS) with respect to implementation features. The article demonstrates a prototype implementation of collaborative environmental decision support systems (GEO-ELCA- Exploratory Land Use Change Assessment),
where Web service-enabled middleware adds core functionality to a Web mapping service. The application demonstrates how individual workspace-based namespaces can be used to perform Web mapping functionality (such as spatial analysis in visualization) through the integration of environmental simulation models to explore collective planning scenario. The developed system includes interactive supports for geospatial data query, mapping services, and visualization tools for multi-user transactions.

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