

Interactive comment on “Web services for distributed and interoperable hydro-information systems” by J. Horak et al.

Anonymous Referee #2

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General comments

This paper manages to convey the feeling that the authors have, in T-DSS, constructed in interesting system. The use of a distributed system architecture to address certain difficult realities of trans-boundary water management is itself a worthy subject, while the particular architecture of T-DSS and the specifics of implementation are also of interest. The paper is however too short to do these subjects justice. In four sides, the authors attempt to provide background, survey related work, introduce the T-DSS system, and present examples of the integration of modelling components. In the end none of these aspects is adequately treated, and a clear picture of the use of T-DSS in a real, trans-boundary decision context is not established.

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The paper touches in the introduction on the critical issue of the relationship between the architecture of software systems and the social (including institutional) context in which that software must be deployed and used. I would prefer to see this important matter given a more thorough treatment.

Specific comments

The main body of the paper is a bit of a "jargon soup", and will I think be difficult or impossible for many HESS readers to understand. The higher level issues are likely to be of greater interest than for example details of the implementation of particular simulation services (e.g. that ModFlow is mounted on a Linux system and the Perl language is used to expose it as a service).

On the other hand, those with the technical background to understand the details are likely to be interested in specifics such as the message formats used to communicate with services. SOAP defines a standard "envelope"; it says nothing about the contents of this envelope. I would not suggest that any attempt is made to describe these in this paper, but it would be useful if references were provided to any available documentation of these (are existing standards used, or ad-hoc XML scemata? how general are they? does each modelling service use a different message format?).

A discussion of the work needed to turn T-DSS into a practical tool for integrated water management is needed. There will surely be both technical and social (including institutional) problems to solve. Who will set up compatible modelling services, how will use of these services be controlled, and how will their running costs be recovered, for example? The cost recovery question will surely be answered differently by different service providers.

The authors state that "T-DSS incorporates a framework for building web based applications". Can any examples of such applications be provided? Is T-DSS a decision support system, or a framework for building such systems? The name suggests the first interpretation, while the description, particularly including this statement about web

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based application, is more consistent with the latter.

The second page of the paper begins with the statement, "The architecture of the RODOS DSS is N-tier and Plug-in based, with an Object Relational Mapping solution for system data management and GIS subsystem." This sentence carries very little information even to those who are familiar with the terms "n-tier", "plug-in", and "object relational mapping" (none of which terms require capitalisation). For most of the readership of HESS, who will not be familiar with software-architectural concepts and jargon, it will be entirely meaningless.

The authors then inform us That RODOS utilises some class called IModel for model management, but that "the class and its role are not fully documented". Since it seems that the authors have no real idea what the IModel class does, it is not clear why they decided to mention it.

These are examples of a more general problem. The authors make many statements which carry little meaning. What is/are "document attached info"? "WMS"? "Info panels"? What does the second paragraph of section 2 mean? A word has surely been omitted from the first sentence, but the second is also problematic. Solutions to what problem? How, why, when should parts of a distributed system be interconnected "more tightly"?

In the discussion of OpenMI, we are told that "OpenMI creates an independent multi-platform environment above modelling systems". Independent of what? Multi-platform in what way? Just two sentences later we are told that "OpenMI does not possess sufficient independence ...". It is still not clear what this independence is from, but this statement seems to conflict with the earlier. Then "it is impossible to connect wrappers prepared in C# and Java": so OpenMI isn't multi-platform; there are simply two OpenMIs. What is "variable marking"?

While the authors will understandably not wish to reproduce the findings of the TANDEM project (ref Tyler et al., 2004) in full, an indication of why those findings are rele-

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vant to the discussion is certainly needed.

Potential users, we are told, indicated a desire for a system which is "freely available". It would be interesting to know why. Is this really to do simply with the cost of licenses, does it derive from a rational analysis of whole life costs, or does it have to do for example with flexibility and lack of vendor lock-in (so "free" in the sense used by the Free Software Foundation: free as in "free speech" rather than "free beer").

Was the simpler REST style of web services considered? Is the complexity of WS-* justified?

Fig 1 suggests that a "business logic" server coordinates all communication in the system, except for a direct link between data store and spatial data processing service. The term "business logic" is a fuzzy one in its original context of general purpose (business supporting) computing, and it seems inappropriate here. Whatever term is used, an explanation of the role(s) of this component of the system is needed.

Technical corrections

The figures are too small. Fig 2 in particular uses much too small a font.

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