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Workshop on ODP for Enterprise Computing (WODPEC 2006)

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Abstract

The RM-ODP standard still provides the only comprehensive and coherent framework of concepts for the specification of complex large scale IT systems, and has taken on a new significance in the light of the MDA (Model Driven Architecture). Following the success of WODPEC 2004 and WODPEC 2005, WODPEC 2006 aims to continue to provide a discussion forum where researchers, practitioners, system modellers, tool developers and representatives of standardization bodies can meet and exchange experiences, problems and ideas related to the ODP framework for system specification, its practical application and long term evolution, and its use in conjunction with other architectural practices and approaches (e.g., MDA, SOA, CBA, EDA) in the realm of Enterprise Computing.

Keywords: Reference Model for Open Distributed Processing (RM-ODP), viewpoints,

1. About the Workshop

The RM-ODP standard (ISO/IEC 10746 | ITU-T Rec. X.901-X.904, Reference Model of Open Distributed Processing) still provides the only comprehensive and coherent framework of concepts for the specification of complex large scale IT systems and has taken on a new significance in the light of the MDA (Model Driven Architecture) initiative from the OMG. Thus, we are witnessing major companies and organizations looking at RM-ODP as a promising approach for structuring their large-scale distributed IT system specifications.

In this context it is significant that the joint ISO/IEC and ITU-T project, launched in 2004, to define a standard for the use of UML for ODP system specifications (ITU-T Rec. X.906 | ISO/IEC 19793) is now coming to fruition. This standard will enable ODP modellers to use

UML notation for expressing their ODP specifications in a graphical and standard way, and UML modellers to use the RM-ODP concepts and mechanisms to structure their UML system specifications. Of equal importance, modelling tool suppliers will be able to develop UML-based tools capable of providing support for the specification of large-scale complex systems using the framework provided by the RM-ODP.

With this increase in the significance of the RM-ODP comes the need to address a range of issues arising from the practical application of the concepts.

There are issues related to how certain requirements are addressed in a specification. Business modelling approaches have evolved significantly since the RM-ODP and the ODP Enterprise Language standard were completed. How can the ODP enterprise specification be related to business modelling approaches developed for other purpose? How can business rules be integrated? Approaches to the specification of policy, security and system management need to be developed together with the management of enterprise federation. Technology has also evolved dramatically and current middleware approaches address major elements of the platform functionality of concern in the ODP Engineering Language. What adaptations does this imply for the ODP engineering and technology specifications?

There are issues related to the use of UML. The use of UML as the language and notation of choice for ODP system modelling is not free from problems. For instance, the object models followed by UML and ODP do not match completely (e.g., UML is class-based, whilst ODP is object-based; their behavioural models are different; etc.). Besides, the loose semantics of UML may represent an impediment to achieving the precise specification and analysis of ODP systems and the development of tools. What constraints and problems does the use of UML bring for ODP system specifications? Are there practical alternatives? Is there a need for further

refinements/extensions of the standard profiles proposed in ITU-T Rec. X.906 | ISO/IEC 19793) for particular application domains? How could these be managed?

Finally, there are issues concerning development approaches and processes, and current and emerging architectural approaches. Is the RM-ODP approach consistent with MDA and, if so, in what way? How well does it accommodate architectural approaches such as the Service Oriented Architecture (SOA), the Component-based Architecture (CBA), and the Event Driven Architecture (EDA)? Can it accommodate aspect-oriented development approaches? Can it be successfully integrated into development processes such as RUP?

2. Scope of the Workshop

The call-for-papers reflected the wide range of technical areas influenced by, and influencing, the work on ODP standardization. It requested submissions in five main areas.

- a) **RM-ODP system specifications** This area considers the scope and precision of the specification techniques used, including the suitability of the ODP enterprise approach for meeting a range of requirements, such as conveying more general business models, managing enterprise federations, specifying policy or business rules, or capturing other aspects of system design, such as security, system management and system evolution. It also addresses issues within the ODP framework itself, seeking contributions to the process of updating and refining the structure, in order to respond, for example, to the impact of new developments in technology on the ODP computational, engineering and technology languages, and to identify more clearly and manage the correspondences between viewpoints. Finally, this area includes contributions aimed at increasing the flexibility and precision of the conceptual and formal foundations of the RM-ODP.
- b) **The use of UML** In view of the interest in taking advantage of the widely known representations offered by the UML, this area looks at the current issues, limitations and problems in using UML profiles to represent ODP concepts. This involves openness to the consideration of the formal semantics of UML Profiles for the representation of ODP concepts and the definition of UML Profiles for ODP viewpoints, and for extensions and refinements of the RM-ODP for particular application domains. It also involves the use of UML for the representation of viewpoint correspondences. Finally, there is a need to consider the potential problems for, and benefits of, the industrial adoption of UML for ODP system specification, and of the possibility of the use of

modelling languages other than UML for ODP system specification.

- c) **The relation between development practices or approaches and the RM-ODP.** This area considers the relationship of the RM-ODP approach to, and its integration with, the key technologies based on the MDA, and with other architectural approaches such as SOA, CBA, EDA and aspect-oriented development. It also needs to consider the relationship of the RM-ODP approach to, and its integration with, development processes such as RUP.
- d) **Tooling.** It is generally accepted that integrated tool chains will play an increasingly important role in the development of enterprise systems. This area looks at the requirements on supporting tools or tool chains, either currently in use or under development.
- e) **Case studies and experience.** Finally, the impact of any architecture is best assessed by studying the way it is used. This area considers examples of the application of the RM-ODP approach to the specification of IT systems, in particular large-scale distributed systems, by examining specific application domains such as finance, telecommunications, health care, aerospace, and so on.

3. WODPEC 2006 Program

The responses to the call for papers cover the full range of topics envisaged by the organizers. The program this year consists of the presentation of three accepted papers, two solicited papers and additionally two invited presentations on current developments. All papers have been formally reviewed and are being published in the IEEE Digital Library.

A major focus of the papers is on various aspects of the specification mechanisms used or currently proposed for use in ODP. A counterpoint is established by contrasting these concerns with the broader view given by the discussion of issues on the tool chain and the experience arising from application of the ODP concepts in a major project on the interoperability of healthcare systems.

The accepted papers are:

- “On the Execution of ODP Computational Specifications”, José Raúl Romero and Antonio Vallecillo
- “What applying of the ODP viewpoints teaches us about tool-chains”, Lea Kutvonen
- “Policy Specification: Meeting Changing Requirements without Breaking the System Design Contract”, Peter F. Linington

The invited papers are:

- “A Basis for Constructing and Evaluating Design Concepts”, Remco Dijkman
- “Addressing interoperability in e-health: an Australian approach”, Zoran Milosevic

The two invited presentations covering current standardization activities are:

- “Revision of the RM-ODP standard: Objectives, Issues and Status”, Bryan Wood
- “The new ISO and ITU-T standard on UML for ODP”, Antonio Vallecillo

It is the intention of the workshop organizers to bring together the main issues and consensus agreements from the presentation sessions by drawing clear conclusions in a final discussion session. The results of this final session will be made available to the standardization and standards revision processes.

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