

Introduction to Cloud Infrastructures and Interoperability Minitrack

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Information exchange and processing as well as service provisioning are at the heart of any e-government effort. Furthermore governmental processes are often data-intensive, consume many resources and contain similar elements that can be shared. These efforts require vertical and horizontal interoperability, and integration of government operations.

Interoperability is a property referring to the ability of diverse systems and organizations to work together. Interoperability is thus required to enable public and private organizations to collaborate. Infrastructures are public and quasi-public utilities and facilities that are typically used by large numbers of different users, such as the Internet, clouds and libraries. Cloud infrastructures are one way of achieving interoperability and integration, by providing and using virtualized resources through the internet.

The cloud infrastructures and interoperability minitrack covers topics such as enterprise and service-oriented architectures, information and cloud infrastructures as well as related scalability, reliability and flexibility issues, and more generally an interoperable services approach for the public sector (software, platform, infrastructure as services). Authors were invited to submit theoretical papers, literature reviews, case studies, longitudinal studies, and so on.

Three papers were accepted in this minitrack, covering both main topics and dealing with various aspects of e-government infrastructure and cloud infrastructures.

The first paper of this minitrack, “Understanding Interoperable Systems: Challenges for the Maintenance of SOA Applications”, by Laura White et al., describes a prototype of SOA search and maintenance, as well as a related case study. It discusses rather extensively the issues of the maintenance of SOA composite applications and explains why this is important to e-government applications. Indeed the distribution of ownership or the heterogeneity of the applications are quite a challenge in traditional silo-type of public

administrations. The authors also discuss the issues related to the code itself (generally XML flavors such as WSDL or XSD), i.e. readability of the code by human beings, sheer size of the source code, or XML flexibility and its consequent lack of standardization.

The next paper “Semantic MDA for e-Government Service Development”, by Peter Salhofer and Bernd Stadlhofer, presents a UML meta-model that combines Model Driven Architecture and Semantic Web Services. The conceptual approach for service identification, based on “desire templates”, is quite interesting. The authors furthermore describe a prototype implementing the framework, based on languages such as WSML and BPEL. Finally the authors contextualize their approach with regard to other similar projects.

The last paper, titled “A Reference Guide to Cloud Computing Dimensions: Infrastructure as a Service Classification Framework”, by Jonas Repschläger, Stefan Wind, Rüdiger Zarnekow, and Klaus Turowski, focuses on a provider independent classification framework for Infrastructure as a Service. This theoretical framework was built on an international literature review and the relevance of the target dimensions was evaluated through an additional survey conducted amongst IT managers and experts.

The three papers cover a wide scope of interoperability and cloud infrastructure topics, e.g. modeling and maintaining interoperable systems, addressing challenges such as distribution of applications’ ownership, or assessing cloud services’ providers.

We believe that cloud infrastructure and interoperability will remain important topics in the coming years, as many research issues are not resolved yet. Especially, we expect that cloud infrastructures will take off and that other ways of sharing and consuming resources will appear, powered by Internet of Services and Internet of Things, allowing the introduction of novel interdisciplinary approaches and research methodologies grounded in theory.