



## TUTORIAL II

### "RFID Middleware Standards, Tools, Techniques and the Open Source Community"

#### Abstract:

RFID middleware is gradually becoming a cornerstone for non-trivial RFID deployments. This is particularly true in the scope of complex heterogeneous environments comprising multiple readers, applications instances, legacy ICT systems, as well as sophisticated business processes and semantics. In these environments (e.g., in factories, warehouses, and distribution centres) many distributed readers and antennas capture RFID data, which must accordingly be conveyed to a variety of applications (e.g., ERP systems, WMS systems, corporate databases). This tutorial consists of two parts: The first introduces RFID technology and illustrates the main middleware functionalities and standards, notably standards built around the Electronic Product Code (EPC) Network Architecture. Accordingly, it underlines middleware gaps that are associated with the need to add business context to the low-level RFID readings. As a remedy to these gaps, some ideas for Business Event Generation and RFID-enabled business process management are introduced.

The second part of the tutorial outlines middleware platforms and tools, with a focus on current efforts of the Open Source community (e.g., FossTrak (<http://www.fosstrak.org>), Logicalloy (<http://www.logicalloy.com/>), Mobitec (<http://mobitec.ie.cuhk.edu.hk/rfid/middleware/>), RifiDi (<http://www.rifidi.org>), AspireRfid (<http://wiki.aspire.ow2.org/>)). The tutorial concludes by developing a vision for the Internet of Things (IoT), while also presenting the envisaged role of RFID middleware in IoT.

Prof. John Soldatos, (born in Athens, Greece in 1973), obtained his Bachelor/MSc degree in 1996 and his Phd (dealing with Broadband networks traffic control and programmable networks & services) in 2000, both from the ECE Department of the National Technical University of Athens. Dr. Soldatos has had a very active role in more than 20 research projects, which were co-funded by the EU in the scope of the EU FP4, FP5, FP6 and FP7 framework programmes. Dr. Soldatos has also considerable experience in several enterprise IT projects (including high-budget integrated projects), where he worked for leading Greek enterprises (INTRACOM S.A, IBM Hellas S.A, PEGASUS S.A, OTE S.A, TEMAGON S.A). Dr. Soldatos is currently an Associate Professor in Pervasive & Grid Computing at Athens Information Technology, Adjunct Professor at Carnegie Mellon University, technical director of the EU HERMES (FP7-216709) project (on pervasive computing for ageing well), and technical manager of the EU ASPIRE (FP7-215417) integrated project on RFID middleware. His current research interests are in pervasive autonomic and grid computing. Dr. Soldatos serves as a reviewer in major journals in these areas, while he has also served as organizing chair, tutorial chair, and technical programme committee member in a host of related conferences. Recently, he served as TPC co-chair of the 18th IEEE PIMC (Personal Indoor and Mobile Radio Communications) conference, a “flagship” IEEE conference held September 3 – 7, 2007, in Athens, Greece. Contact him via e-mail at [jsol@ait.edu.gr](mailto:jsol@ait.edu.gr) or through LinkedIn at: <http://www.linkedin.com/pub/3/591/92A>.