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IECON 2012 Special Session

Special Session on: **Technologies and architectures for future cloud based industrial systems**

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Technical Outline of the Session (50 words) and Topics:
We are still at the dawn of an era where complex system of systems will further blur the fabric of business and physical worlds. Distributed and networked monitoring, control, diagnosis and other supervisory control functions embedded in smart devices and heterogeneous systems will be of key importance for any real-world application. The virtualization of those real-world applications that is supported by applying the Service-oriented Architecture and the Cloud Computing paradigms, among others, allows that such systems will be able to handle the upcoming heterogeneous large-scale infrastructures and support evolvable architectures, management and control of emergent behavior, etc. Large and widely distributed automation systems are composed of a complex set of multi-disciplinary, heterogeneous, networked components and systems. They may link a wide variety of sensors/actuators, whole control, monitoring, supervisory control systems – performing SCADA and DCS functions – and up to MES and ERP systems – performing operational and strategic management functions. Service orientation as well as large-scale distribution and virtualization of functions will become the basis for innovative technical approaches at all automation levels and new business concepts in automation industry.
Topics of interest include architectures, concepts and technologies in the following directions:
Architectures and technologies for next generation distributed automation systems
Large scale industrial systems monitoring, management and control
Service Oriented Architectures for future automation systems
Real-time web services for industrial applications
Enterprise integration via web services / REST
High performance convergence of event-driven and scan-based system execution methods
Migration and integration strategies from today's automation systems to service oriented ones addressing all levels of automation systems
Virtualization techniques and concepts applied to automation architectures
Engineering methods, programming and tools for service based and mixed (with classical) systems
New business models, trials and lessons learned
Next generation SCADA / DCS systems
Security and Safety issues in future SOA industrial automation systems
Complex systems and system of systems aspects in future industrial automation
Industrial applications of Cloud Computing and Systems-of-Systems paradigms

IES Technical Committee Sponsoring the Special Session (if any):
This Special Session is supported by the IES Technical Committee on Industrial Informatics and the IES Technical Committee on Industrial Agents.