

## **Sense and Respond Framework for AEC/APC – Masahide Hirouchi**

[hirouchi@jp.ibm.com](mailto:hirouchi@jp.ibm.com)

IBM Japan Service Company Ltd.

733 Uematsu-cho, Teramachi-dohri, Matsubara sagaru, Shimogyo-ku, Kyoto 600-8028 Japan

Phone: +81 -75-365- 5591 Fax: +81-75-351-7869

Present Manufacturing Execution System (MES) of Semiconductor Factory is complicatedly composed of several applications such as APC, AEC, FDC, e-Diag and etc. These applications can be regarded as Event-Driven applications that respond to events generated by process tools. APC and AEC run in the same environment and are required to be integrated to these applications easily. In order to apply process improvements rapidly, they are needed to be developed by the software technology that enables ease and agility of development.

add Human decision to workflows wherever it is necessary. (Figure 2)

Service Oriented Architecture (SOA) makes it possible to integrate highly specialized distributed applications. It has become a dominant architecture of current IT environments. Applications based on SOA can be integrated to each other in flexible way. SOA was firstly applied to enterprise applications such as SCM/ERP, it has been applied to the field of MES recently. In this paper, as application infrastructure of MES of semiconductor factory with SOA, Sense and Respond Framework and its applications are explained.

Sense and Respond Framework (SaR) is a framework for event-driven applications based on SOA. SaR is composed of sense component and respond component. The former catches events and the latter responds to those events. (Figure 1)

The sense components detects not only events of MES and enterprise systems but also those of EDA Client data based on Interface-A and tools through HSMS. These events are transformed to formats of SaR and transferred to the respond components.

The respond component executes actions for the events as workflow. The workflow calls functionality of MES, SPC, APC, FDC, etc through web service. To implement the workflows, Business Process Execution Language (BPEL) is used. BPEL is a standard developed by OASIS and currently widely used standardized technology.

Using SaR framework, workflows of MES integrated to AP/SPC can be easily implemented. In addition to automation of workflows, it is possible to

