Integration Fundamentals (Lecture/Tutorial)

It is well accepted that different types of distributed architectures require differing degrees of coupling. For example, in client-server and three-tier architectures, application components are generally tightly coupled, both with one-another and with the underlying middleware. Meanwhile, in on-line transaction processing, grid computing and mobile applications, the degree of coupling between application components and with the underlying middleware needs to be minimised. Terms such as "synchronous", "asynchronous", "blocking", "non-blocking", "directed", and "non-directed" are often used to refer to the degree of coupling required by an architecture or provided by a middleware. However, these terms are used with various connotations. And while various informal definitions have been provided, there is a lack of an overarching formal framework to unambiguously communicate architectural requirements with respect to (de-)coupling. We have attempted to address this gap by:

- formally defining three dimensions of (de-)coupling
- relating these dimensions to existing middleware; and
- proposing notational elements to represent various coupling integration patterns.

Business Process Integration (Lecture/Tutorial)

The modelling of integrated business processes is challenging at many levels. Firstly there are the innate technical challenges associated with heterogeneous computing environments, and vendor-driven middleware/SoA stacks. Connected to this are problems of heterogeneous process execution environments. Business processes, with their model-driven pedigree, may tend to avoid the "petty details" of middleware but while such an approach might work for some, it is dangerous in that it ignore fundamental patterns of interaction. Consequently such process integration models run the risk of becoming devoid of technical merit, and sufficient detail. This discussion introduces some business process oriented constructs that embrace some fundamental aspects of middleware integration, and in doing so, provide a solid framework onto which to build process integration models that is technically deep enough, when it needs to be, while retaining the tenets of model-driven approaches.

JCoupling Architecture (Informal Workshop/Session)

JCoupling is a glue service that will sit in between the well known process execution environment known as YAWL and well known forms of middleware such as JMS, etc. It is designed to provide a series of process-oriented services focussed around aggregating disparate forms of middleware as common services for business processes to use, and an abstraction layer for simplifying the one of the most frequently occurring problems where many instances of processes share common communication pathways - correlation of a message to *right* process instance.

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