Identifying Evolvability for Integration

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Abstract. The seamless integration of commercial-off-the-shelf (COTS) components offers many benefits associated with reuse. Even with successful composite applications, unexpected interoperability conflicts can arise when COTS products are upgraded, new components are needed, and the application requirements change. Recent approaches to integration follow pattern-based design principles to construct an integration *architecture* for the composite application. This integration architecture provides a foundation for addressing the problematic interactions among components. However, little attention has been paid to the evolvability of these architectures and their embedded functionality. In this paper, we discuss the need for design traceability based on the history of interoperability conflicts and resolution decisions that comprise an integration architecture. Additionally, we advocate that certain functional aspects of a pattern can be pinpointed to resolve a conflict. Combining these two aspects of integration architecture design, we illustrate that often evolution is possible with minimal change to the integration solution.