**ServiceMosaic: Interactive Analysis and Manipulation of Service Conversations**

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**INTRODUCTION**

- A conversation is a set of messages exchanged between two or more services
- Business protocols models all possible conversations that a service supports
- Business protocol benefits
- Provides support for compliance checking, binding, routing, validation, logging, and monitoring
- ServiceMosaic
- An interactive and model-driven CASE tool for analyzing and managing service interactions

**ARCHITECTURE**

- Conversation Log
- Protocol Discovery
- Refined Protocol
- Message Log
- Protocol Analysis and Manipulation
- Difference
- Compatibility Analysis
- Intersection
- Replaceability Analysis
- Protocol Refinement (meta-data based, and distance based)
- Protocol Discovery Module
- Protocol Definition / Modeling
- Protocol Management Module

**SCREENSHOTS**

- Model Discovery and Refinement Editor
  - The editor shows the discovery algorithm applied on the log of a Retailer business service.
  - Due to log imperfection, discovered models may need refinement.
  - ServiceMosaic helps users in model refinement by providing a visual, interactive approach:
    - Meta-data based refinement
    - Distance-based analysis of uncertain conversations
  - ServiceMosaic is implemented in Java 1.5, and as Eclipse plug-ins

- Protocol Management Editor
  - After model discovery, ServiceMosaic allows analysis of models with respect to models of other services and clients.
  - Management operations that are provided include: checking compatibility, similarity, and differences of models.
  - Management operations are useful in checking if two or more services can successfully interact, provide the same or similar conversations (replaceability), and explore differences of two models (evolution)

**DESIGN OVERVIEW**

- Conversation Log
- Noise Identification
- Threshold 6
- Incorrect Conversations
- Correct Conversations
- Protocol Discovery (Dealing with Incompleteness)
- Protocol Refinement (meta-data based, and distance based)
- Discovered Protocol
- Refined Protocol

**Analysis & Manipulation of Service Protocols**

ServiceMosaic offers a simple modelling formalism (based on state machines), an algebra and manipulation operators for analysis of service protocols in the same spirit of the relational model and model management operators in database.

Model-driven analysis and manipulation of protocols is important to facilitate the exploration of existing services proxy to their integration into larger business processes.