Mind Your P's: Processes, Policies, and Protocols

Introduction

Munindar P. Singh

`singh@ncsu.edu`

Department of Computer Science

North Carolina State University

Processes, Protocols, and Policies

- Heavy interest in practice and research

- Standardization efforts

- Concepts and trade-offs not adequately understood

- May standardize our confusions!

Goals of this Panel

- Identify key aspects of business process modeling and enactment

- Compare different styles for the above

- Delineate and distinguish contributions of different approaches

Themes

- *Business processes*. Conceptually centralized as scripts, physically centralized at an engine.

- *Protocols (or conversations)*. Models of interactions for some purpose, e.g., payment or negotiation.

- *Policies*. Executable representations of preferences or decision-making constraints.

- *Semantic Web services*. Represent meaning of services to support composition, e.g., via AI planning.

Motivations

- Need for extended activities over Web architectures: hence, *processes*.

- Need to specify interactions among heterogeneous partners: hence, *protocols*.

- Need to model decisions of autonomous partners: hence, *policies*.

Common Scenario

- A customer (C) looks up a book at a vendor (V) and is quoted price and availability.

- C orders the book from V.

- V arranges for a shipper (S) to deliver the book to C.

- C pays V.

Challenges: Modeling

- *Refinement:* pay by credit card versus pay

- *Extensibility:* verify C's attributes, e.g., age

- *Adjustment:* receive payment before shipping; receive book before paying

Challenges: Enactment

- *Behaving adaptively:* decide dynamically to ship before payment to trusted Cs

- *Handling exceptions*
  - External problems: cannot ship book
  - Detecting violations: no payment; book arrives damaged
  - Correcting violations: remind, complain, refund, . . .

- *Exploiting opportunities:* combine orders from same C

Questions

- How would you accommodate the above?

- What are shortcomings of the other approaches?

- What enhancements can your approach support?

Panelists

- Akhil Sahai, HP Labs
  - Policies, processes

- Jianwen Su, UCSB Computer Science
  - Protocols

- Kamal Bhattacharya, IBM Watson Business Informatics
  - Processes

- Benjamin Grosof, MIT Sloan
  - Rules, semantic Web services