OMG Activity Service
Brief Overview

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Additional Structuring Mechanisms for the OTS: History

- **May 1999**: Additional Structuring Mechanisms for the OTS RFC Issued

- **December 1999**: Initial submissions
  1. IBM, Vertel/Expersoft (Univ. of Newcastle upon Tyne): Activities, Actions, Signals, SignalSets
  2. Iona: No mechanisms needed
  3. Alcatel/Expersoft (INRIA, Bull): Activities, sub-activities, compensations

- **May 2000**: Revised joint proposal

- **November 2001**: Final Proposal (Alcatel, Bank of America, IBM, INRIA & Bull, Iona, Univ. Newcastle upon Tyne, Vertel/Expersoft)

- **May 2002**: Activity Service adopted
Activity Service Example
Application Framework

- It is not expected that AS is directly used by end-user programmers

- Intended for programmers of workflow managers and component management systems (extended containers of EJB, etc.)
Activities

- **Activity** is a unit of work
  - Transactional or non-transactional
  - May be nested
  - A thread is (or is not) associated with an activity (POA policies, activity propagation)

- **Operations:**
  - Create/Run/Complete
  - Suspend/Resume (Suspend → all enclosed transactions suspended, modification of OTS needed)

- **Activity outcome**
  - Checked by application and used for driving flow control (establishing compensating activities, etc.)
Actions and Signals

- Each activity can be associated with one or more actions

- Actions may be registered to receive Signals
  - Similar to registering CosTransactions::Resource
  - Action may be entry/exit point of some signal
  - When finished, an action emits signals

- Signals grouped to SignalSets
  - Actions associated with signal sets (only registered actions receive signals from a specific signal set)

- Each activity is associated with Activity Coordinator driving interactions between signals and actions
Activities, Actions, Signals, Signal Sets
Activities and Transactions

- AS can terminate activities and transactions
- OTS can terminate activities
  - Modification of OTS needed (proprietary solution)
  - Registering activity as Resource to a transaction (preferred)
Recovery

- **No requirements for specific persistence and recovery mechanisms**
  - OTS: Data consistency
  - AS: Activity structure recovery
    - Application logic
    - Rebinding of activity structure
    - Application object consistency
    - Recovery of actions and signal sets
J2EE Activity Service

- **JSR 95**
  - HP, Netscape, Sun, IBM, Iona, Pramati, Intalio, Autodesk, Silverstream, Bank of America

- **Ian Robinson (Specification Lead, IBM):** “Draft is prepared, I can’t release it before presenting to the expert group”

- **Related to OMG Activity Service**