

OMG Activity Service

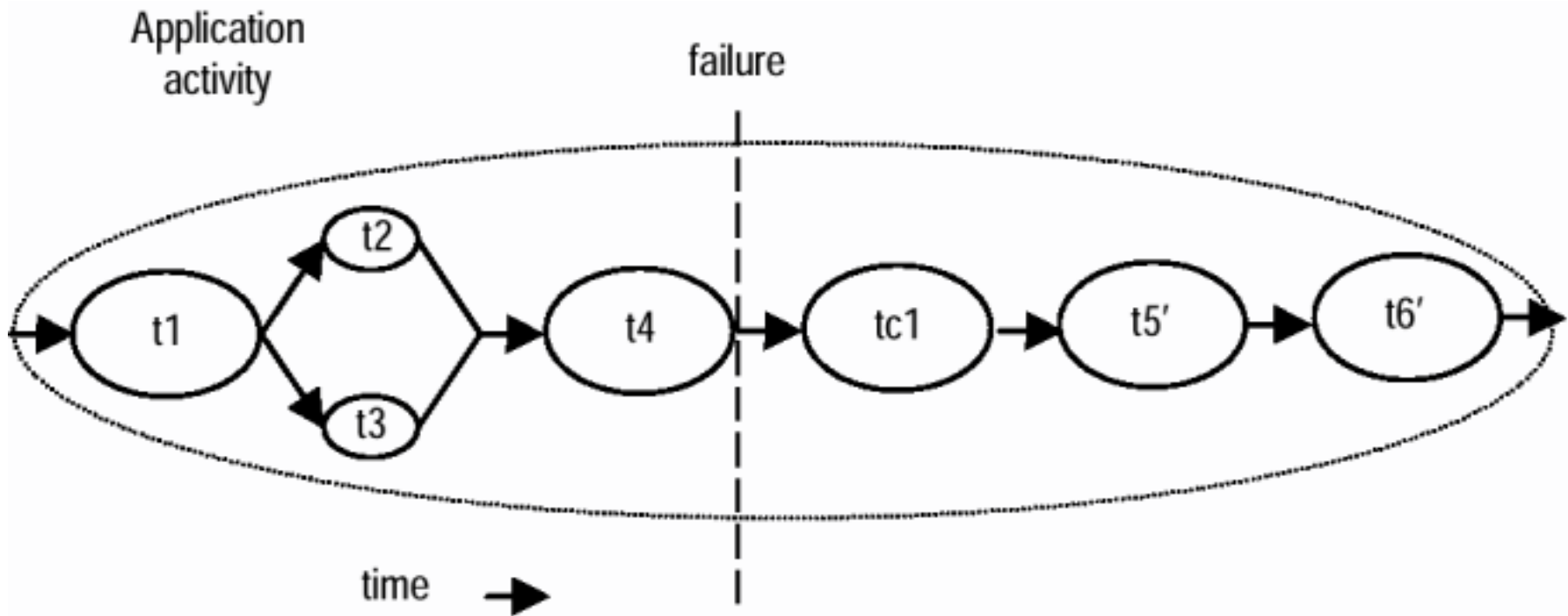
Brief Overview

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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.)**

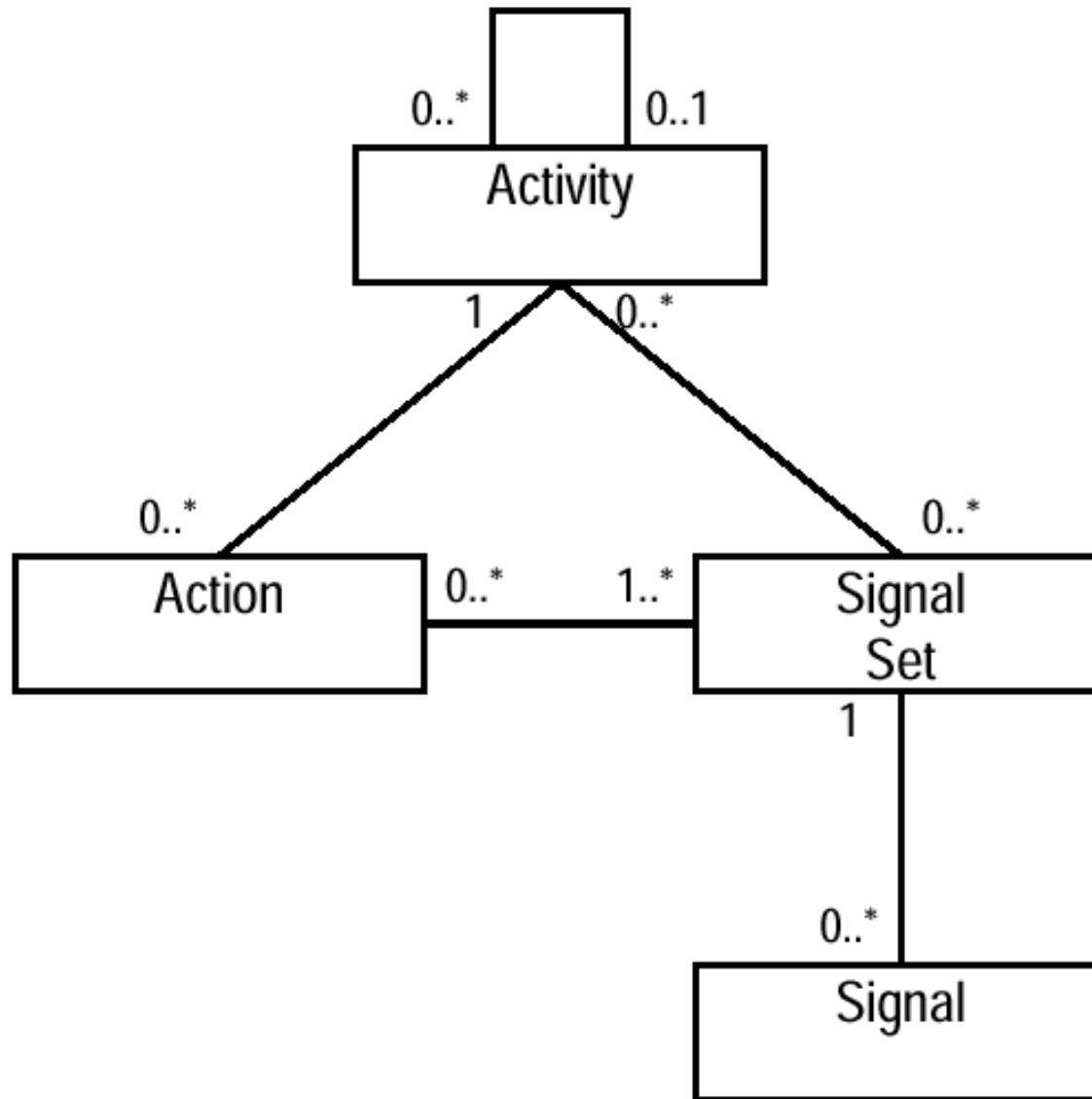
Activities

- **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, SignalSets



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**