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Project Acronym: PEPITO
Title: PEer-to-Peer Implementation and TheOry
First Progress Report on Formal Models
Due date: project month 12
Delivery Date: 2003-04-10
Responsible Partner: UCAM
Participating Partners: INRIA, UCAM

Deliverable no:	D1.7
Title:	First Progress Report on Formal Models
Workpackage no:	WP1
Due date:	12
Delivery date:	16

Short Description

This deliverable gives a brief report on the activity in WP1: Formal Models during the first 12 months.

Good progress was made towards the goal of this workpackage: developing foundational models to support the construction of robust P2P systems, addressing particularly their decentralized and dynamic characteristics.

This was pursued in three major tasks: In *Transactions and the Semantics of Failure* we studied the failure models of the real-world network primitives used by these systems, and also transactional primitives to be used by sub-systems for programming in the presence of failure. In *Versioning and Modularity* we developed programming-language constructs for type-safe communication in the presence of dynamic *version change* and *resource change*, with dynamic rebinding and abstraction-safe marshalling. Finally, in *Models of P2P Group Collaboration*, we focussed on a specific class of P2P system, those providing anonymous interaction using Distributed Hash Tables and/or Mix Networks, giving some of the first rigorous analyses thereof. In this task our original Technical Annex suggested a *P2P calculus*; after substantial consideration, we realize this was not a well-formed scientific goal; much more fruitful is to have a *selection of focussed calculi and models* which each address specific problems. The space of these will be described in Deliverable D1.1, due Month 18.

To place this work in the broad context of the project, we refer to the original Technical Annex and the response to the review. This revised cover sheet was prepared in Month 16. Revision of the deliverable was not requested in the review.

Partner owning:	UCAM
Partner contributing:	INRIA, EPFL, UCAM, and UCL
Available to:	Public