

A P2P Toolset for Distributed Requirements Elicitation

Filippo Lanubile, University of Bari

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Problem

- Globally distributed workgroups usually rely on centralized web-based development platforms
 - Ex.: SourceCast, SourceForge
- How decentralized systems, based on a P2P architecture, can be exploited to support collaboration of ad-hoc or small software teams?
 - Dynamic collaborative groups composed of people from different organizations accessing shared resources and interacting in a near real-time manner

Characteristics of collaborative P2P systems

- **Autonomy**
 - Every peer can share information but at the same time can pose restrictions on confidential data
 - Alternative to enforcing a convergence into a centrally managed data repository
- **Intermittency**
 - Any peer can disappear at any time because of network disconnections
 - Users can work to shared content even when offline and automatically propagate changes at the first reconnection
- **Immediacy**
 - Presence awareness and synchronous communication
 - Immediate responses by participants to enable effective person-to-person interaction

Requirements elicitation

- An information gathering activity with the goal to identify system stakeholders, their needs and expectations, system objectives and boundaries
- Elicitation techniques include
 - questionnaires and surveys
 - interviews and workshops
 - documentation analysis and participant observation
- Among the most communication-rich processes of software development
 - Different stakeholders, both from the customer and the developer sides, who need to intensively communicate and collaborate

A P2P infrastructure for the toolset

- Groove
 - An extensible P2P platform intended for communication, content sharing, and collaboration
 - A shared space, including tools and persistent data, is duplicated on every space member's computer
 - Changes to a shared space are propagated to the other peers: both synchronous and asynchronous
 - Critical services: storage, transport, encryption, synchronization, messaging, presence awareness
 - Default tools: Contact Manager, Outliner, Chat, ...
 - Developers can build and deploy their own tools

The requirements elicitation toolset

- Stakeholders
- Interview
- Requirements
- Workshop
- Vote

Stakeholders

Shared space members

Invite

Active

lanubile

Online

Not Online

Fabio Calefato

Suspended

Stakeholder list

Rqmt Elicitation Space - Stakeholders - Groove

File Edit View Options Help

Go To [User] [Group]

Rqmt Elicitation Space Stakeholders

lanubile (Manager)

Back New Stakeholder Remove Stakeholder Stakeholder details

Stakeholders

Name	Role
Fabio Calefato	Technology expert
Smith	Customer
lanubile	Domain expert

Invite...
Invite to chat...
Send message...
Manage roles...

Stakeholders Tool

The Stakeholders Tool is used to set project stakeholders.

Click **"New stakeholder"** button to add a new stakeholder to the list.

Click **"Remove stakeholder"** button to delete the selected stakeholder.

Click **"Stakeholder details"** button to view and set the selected stakeholder details.

Click **"Manage roles"** button to set used roles.

You can also invite, send a message or chat with selected stakeholder.

Send
Options

Hide Overview

Help

Interview

Navigate together

The screenshot shows the 'Rqmt Elicitation Space - Interview - Groove' application window. The interface includes a menu bar (File, Edit, View, Outline, Options, Help), a toolbar with navigation and editing icons, and a main workspace. On the left, there is a sidebar with an 'Invite' button, a list of participants (lanubile is active, Fabio Calefato is not online), and a 'Conversation' section with 'Hold-to-Talk' and 'Show Chat' options. The main workspace is titled 'Step : Functionality questions' and 'Status: Opened'. It features a 'Question' list table and a 'Question :' editor area. The 'Question' list table has two columns: 'Question' and 'Rqmt Type'. The 'Question' column contains several questions, and the 'Rqmt Type' column lists the corresponding requirement types. The 'Question :' editor area is currently empty. Below the editor, there are buttons for 'Save notes', 'New Interview...', 'Close interview', 'Multiple views', and 'Requirements...'. At the bottom, there is a 'Create multiple views for this interview' button and a tabbed interface with 'Stakeholders', 'Interview (1)', 'Requirements', 'Workshop', 'Vote', and 'Add Tool' tabs. The 'Interview (1)' tab is currently selected.

Question	Rqmt Type
▪ Will online help be required?	Online help
▪ Are there any constraints on the mechanism used to provide persistence?	Persistence
▪ Are both shared persistent data and user-specific specific persistent data required?	Persistence
▪ Will shared persistent data need to be made available to a "traveling" user who is working offline?	Persistence
▪ Will data manipulated by the system be written to disk?	Persistence
▪ Are there any constraints on the mechanism used to provide online help?	Online help
▪ Which human languages need to be supported?	Localization
▪ Are there any constraints on the mechanism used to provide localization capability?	Localization

Question list

Editor

Requirements

Rqmt Elicitation Space - Requirements - Groove

File Edit View Options Help

Go To [User] [Group]

Rqmt Elicitation Space Requirements Ianubile (Manager)

Back Add requirement Delete requirement Requirement Types

Requirements Show Rqmt List

Invite

Active
Online Ianubile
Not Online
Suspended Fabio Calefato

Conversation
Hold-to-Talk
Show Chat

Navigate Together

ID

Version 1.0

Name Response Time

Description
The system will take no more than 3 seconds to provide a reply to any request

Rationale
We do not want to bother users

Type Non functional Performance

Priority Normal

Difficulty Normal

Status Approved

Stability Low

Save

Stakeholders Interview **Requirements (1)** Workshop Vote Add Tool

Attributes

Workshop

Topic list

Chat

Editor

Rqmt Elicitation Space - Workshop - Groove

File Edit View Options Help

Go To [User Icon] [Lock Icon]

Rqmt Elicitation Space
Workshop

Ianubile (Manager)

groove.g

Back [Navigation Icons]

New Workshop Export Summary

Invite

Active
Ianubile

Online

Not Online
Fabio Calefato

Suspended

Conversation

Hold-to-Talk

Show Chat

Navigate Together

Current discussion topic

Introduction

Introduction
Non functional rqmts
Functional rqmts

Add topic
Remove topic

Workshop status

Started

Stop
End

Workshop goal :

Ianubile: 03/05/03 14:58
Hi

Ianubile: 03/05/03 14:59
This workshop will be used to discuss about open issues

Discussion summary

It looks like there is nobody here

Send
Options

Hide Topic List

Stakeholders Interview Requirements **Workshop (1)** Vote Add Tool

Vote

Rqmt Elicitation Space - Vote - Groove

File Edit View Options Help

Go To [User Icons] Rqmt Elicitation Space Ianubile (Manager)

Vote

Back [New Voting]

Invite

Active
Ianubile

Online
Fabio Calefato

Suspended

Conversation
Hold-to-Talk
Show Chat

Navigate Together

New question :

Add

Question	Voting type	Answer type	Vote
Do you want to include requirements about response time?	Evident	Closed	No

Remove

Define closed answers :
Yes

Add answer

Remove answer

Question : Do you want to include requirements about response time?

Express your vote here :
Yes
Yes
No

Submit your vote

Start Voting

Stakeholders Interview Requirements Workshop **Vote (1)** Add Tool

Question list

Voting area

Conclusions

- P2P applications can be seen as an alternative or a complement to centralized collaborative platforms for GSD
- Work is just at the beginning
 - Need for experimentation on the field
 - Extension to other RE phases or SE processes
 - e.g., peer reviews
 - Integration with commercial RE tools
 - e.g., RequisitePro
 - Investigation of alternative P2P infrastructure
 - e.g., JXTA