

A P2P Toolset for Distributed Requirements Elicitation

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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

- Ianubile

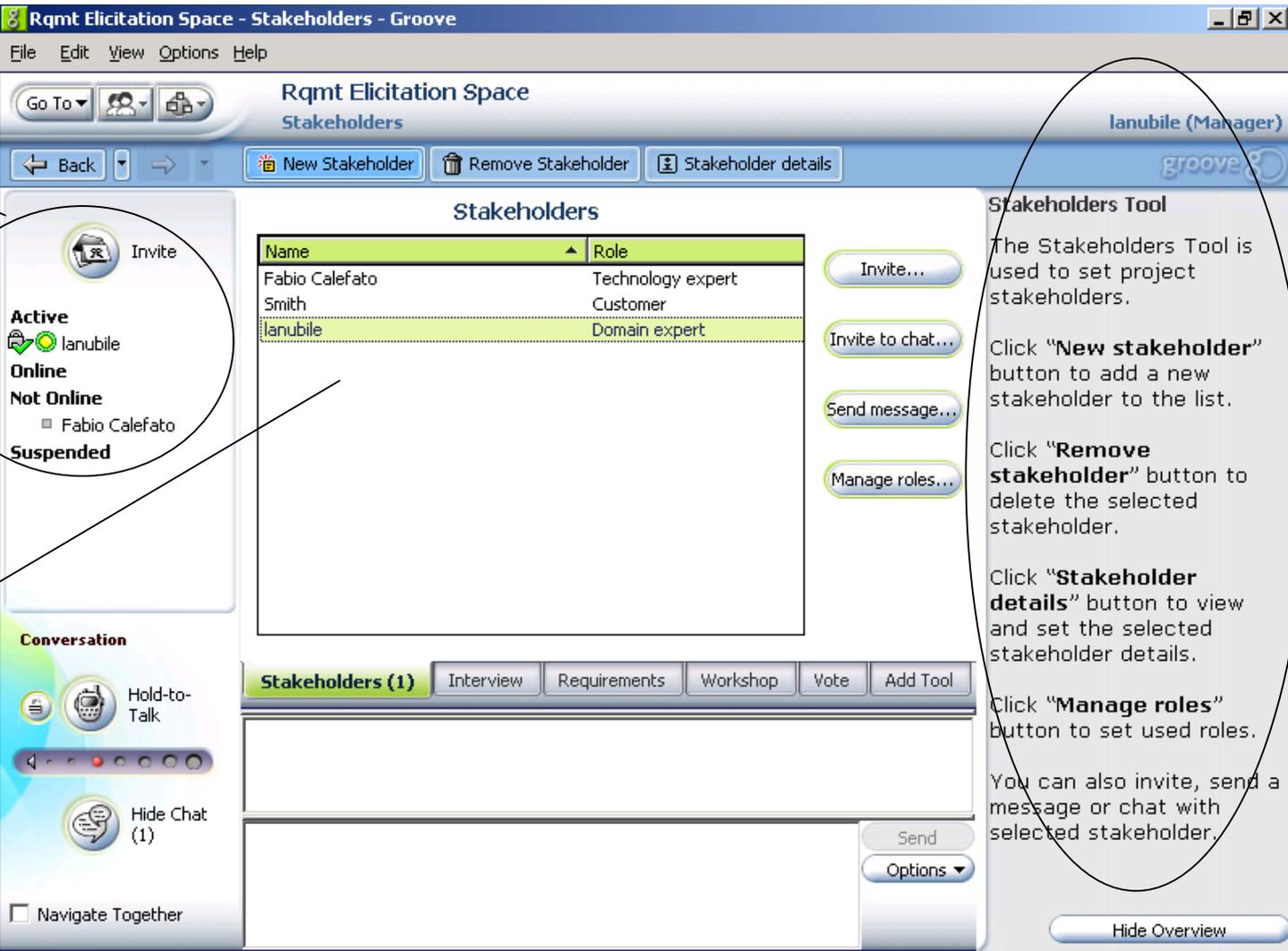
Online

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

Ianubile (Manager)

Back New Stakeholder Remove Stakeholder Stakeholder details

Stakeholders

Name	Role
Fabio Calefato	Technology expert
Smith	Customer
Ianubile	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.

Hide Overview

Conversation

Hold-to-Talk

Hide Chat (1)

Navigate Together

Stakeholders (1) Interview Requirements Workshop Vote Add Tool

Send Options

Help

Interview

Navigate together

Step : Functionality questions Status: Opened NavigateTogether

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 :

Save notes

New Interview... Close interview

Multiple views Requirements...

Create multiple views for this interview

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

Question list

Editor

Requirements

Rqmt Elicitation Space - Requirements - Groove

File Edit View Options Help

Go To [User Icons]

Rqmt Elicitation Space Requirements Ianubile (Manager)

Back Add requirement Delete requirement Requirement Types

Requirements Show Rqmt List

Invite

Active
Ilanubile

Online
Fabio Calefato

Suspended

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

The screenshot displays the 'Rqmt Elicitation Space - Workshop - Groove' window. The title bar includes 'File Edit View Options Help'. The main header shows 'Rqmt Elicitation Space Workshop' and 'lanubile (Manager)'. Below the header are navigation buttons: 'Go To', 'Back', 'New Workshop', and 'Export Summary'. The interface is divided into three main columns:

- Left Column:** Contains 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' buttons.
- Middle Column:** Titled 'Current discussion topic', it shows a 'Topic list' with 'Introduction' selected. Below the list are 'Add topic' and 'Remove topic' buttons. The 'Workshop status' is 'Started', with 'Stop' and 'End' buttons.
- Right Column:** Titled 'Workshop goal :', it contains a chat area with messages from 'lanubile' and a 'Discussion summary' section with an 'Editor' for text input. A 'Send' button and an 'Options' dropdown are located below the chat area.

Annotations with arrows point to the 'Topic list' on the left, the 'Chat' area in the middle, and the 'Editor' in the right column.

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