Requirements for an infrastructure to support Activity-Based Computing in Global Software Development
Outline

• Global Software Development (GSD)
  • Issues
  • Tool support for GSD
• Activity-Based Computing (ABC)
  • Brief introduction
  • Principles
• Requirements
• ABC4GSD
• Conclusion and Future Work
GSD - Issues

- Distances
  - Geographical
  - Temporal
  - Linguistic
  - Cultural

- Increased complexity
  - Communication
  - Collaboration
  - Coordination
Tool support for GSD an overview (1/3)

• Enhancement of a specific software engineering activity
  • Requirement management (RM-Tool), inspection meetings (IBIS)

• Awareness support
  • FASTDash

• Expansion of development environments
  • Mylyn, Jazz Band
Tool support for GSD an overview (2/3)

- Enhancement of a specific software engineering activity
  
  Requirement management (RM-Tool), inspection meetings (IBIS)

- Awareness support
  
  FASTDash

- Expansion of development environments
  
  Mylyn, Jazz Band

- Integration at the model level
  
  - SoftDock, ADAMS

- Integration at the application level
  
  - Client/Server - PeerToPeer
Integration provided at the application level (C/S)
“The basic idea is simple. Make it possible to have all the material needed for an activity ready at hand, available with little or no mental overhead.”  
[D. Norman, 1999]

“But instead of seeing support for collaboration as an external application, the ABC framework integrates support for collaboration as a basic feature.”  
[J.E. Bardram, 2009]

ABC - Principles

• Activity-Centered Resource Aggregation

• Activity Suspension and Resumption

• Activity Sharing

• Activity Roaming

• Activity Awareness
GSD - Understanding requirements (2/3)
GSD - Understanding requirements (3/3)

- System quality requirements
  - Unity
  - Flexibility
  - Scalability
  - Intuitivity

- System requirements for computer-mediated teamwork
  - Communication
  - Collaboration
  - Coordination
  - Awareness
Conclusion and Future work (1/2)

• Through this work we identified fundamental quality requirements that an infrastructure for supporting GSD needs to address

• The work was based on a Systematic Mapping Study of technologies supporting Global Software Development that we are currently undertaking

• We have concurrently designed and developed ABC4GSD, a middleware based on the client/server architectural paradigm able to spread activity-related information throughout the connected clients
• Development of concrete tools for supporting GSD teams
  • Eclipse plug-in
    • Connector to ABC4GSD infrastructure
    • UI elements to enhance users’ experience
  • Modeling tool
  • ...
• ‘Complete’ testbed for evaluation
  • Software architecture evaluation
  • Development activities
Requirements for an infrastructure to support Activity-Based Computing in Global Software Development

Thank you

Paolo Tell - pate@itu.dk
Muhammad Ali Babar - maba@itu.dk