

CHAPTER 1

INTRODUCTION

1.1. Background and Motivation

At University Duisburg-Essen, a synchronous groupware named PASSENGER has been developed at the institute of Computer Engineering throughout the last years. This client-server based groupware application enables student teams to communicate and cooperate via Internet, even if the members are located at distributed sites. The client application is implemented in a way that it consists of a fixed set of tools to support exactly one scenario (Software Engineering education).

Apart from its good feature, there are some limitations from the system that this thesis project wants to solve. First of all, the system does not allow integrating any other tools. Fixed tools of the system—CASE-tool, text messages, video streaming, voice conference—are always available. They neither can be turned off, nor can be added with other tools. Secondly, the usage of the system is limited to a fixed arrangement of groups. There is only 4 person allowed to joined a session at maximum, and there is no way for late joiners to enter an ongoing session. Furthermore, the system is only intended to be used in Software Engineering education. Therefore, the system is not suitable to be used in other scenarios. From these illustrations, it can be seen that PASSENGER has no flexibility. User must accept all conditions available. Or refuse it all.

Based on the gained experiences and some limitations founded, a new system is under development at the institute of Computer Engineering, University of Duisburg-Essen (UDE). The new system is envisioned to overcome the boundaries of limitations, thus providing a groupware that allows a tailor-made

configuration of the system prior to a session and flexible adaptations to special scenarios and situations during a session.

1.2. Goal and Scope of Work

The goal of this thesis is to develop a flexible and tailor-made framework for a synchronous groupware.

The scope of this thesis work is restricted on the design of the groupware framework, while its implementation is only the prototype.

1.3. Problem Statement & Approach

The main problem of this thesis work is to provide flexible adaptation and tailor-made configuration of a synchronous groupware, which in this thesis defined as:

Tailor-made configuration: includes the selection of components and tools and their configuration according to special group parameters (e.g. number of members and their possible roles, openness of group) and scenarios (e.g. brainstorming, design session, text reviewing).

Flexible adaptation: regarding the change of situations during a session (for e.g. allowing the creation of sub-groups) and behaviors of members (e.g. change of floor control policy is due to multicultural background of members). The system should be flexible enough to provide alternatives or to suggest alternatives according to group parameters or profiles of participants.

The approach to provide flexible and tailor-made groupware by using component based software for the development of the groupware and hybrid collaborative architecture for the replication and communication between server and clients. Further, several mechanism—floor control, concurrency control, replication, distribution—will be investigated. To bring flexibility and tailorability, the system will always offer best choice, but decision will be back to the user.

1.4. Thesis Organization

This thesis is divided into five main chapters. The remainders of the following chapters are written as:

Chapter 2 specifies the theoretical background and research study related to the problem specified on the first chapter. It includes the fundamental issue on Computer Supported Collaborative Work (CSCW), the software development process phases which will be supported by the system, some collaborative architecture available and component based software models.

Chapter 3 contains argumentation of the approach used to solve the problem. It contains some requirement which should be provided to have a flexible and tailorable groupware.

Chapter 4 contains analysis of the problem, scenarios to overcome any problem possibly exists, and designs of the groupware.

Chapter 5 summarizes the work and concludes its results. This chapter also refines some future works to be done to develop this synchronous groupware system.