Case study: A system for project management

The description below covers the project to be used as example for the case study.

The first step in the case study is to write a requirements specification for a system corresponding to the description below. This can be the full system, or a significant subset that you have chosen to focus on.

Although there is no absolute rule, a typical length may be 4 to 15 pages.

Identified Stakeholders

- Company Management
- System Administrator
- Project Team Leader
- Project Team Member

Statements

Management

We develop custom software solutions for different customers. Having a project-driven management model, we have organized our developers into project teams. Each team is led by a team leader and typically includes 2 to 20 developers. Increasingly, our development is distributed: team members may be in different locations, often several time zones apart.

Currently every team manager is using a specific software product, or no software at all, for maintaining the project schedule and to organize the tasks of the project. This situation causes numerous problems:

- It is difficult for the company management to get an overview of the project status.
- It is difficult to move project leaders from one project to another, as there is no common standard for the important project information.
- Data is stored on the individual laptops of project leaders, with all the well-known implications on safety and security.
- Management has trouble understanding the effect of changed circumstances such as a delay in one part of the project (what is the effect on the rest of the project and the final delivery date?), the temporary unavailability of a team member.
- Marketing has trouble obtaining realistic costs for change requests by customers or initial offers to new customers, as comparable tasks are not available.

The goal of the project is to develop a global solution that will remedy these problems.

Team Leader A

The system must support the specific needs of the management of software projects. Applicability to other kinds of projects is not required.

The functionalities must include:
● Defining tasks and subtasks
● Defining dependencies between tasks
● Assigning time estimates to tasks
● Assigning people to tasks (one person may be assigned to multiple tasks, and one task may be assigned to multiple people)
● Assigning availability levels to people (e.g. number of hours per week)
● Changing any previous assignment
● Reporting completion of task
● Estimating the completion time of a task, on the basis of timing estimates for subtasks, dependencies between tasks, project members’ assignments and availability, completion data.
● Providing output in various forms including individual project member schedules, overall project schedules, PERT, Gantt
● “What-if?” scenarios: assessing the results of various hypothetical changes.
● User login with various privileges, including at least “manager” and “project member”

**Team Leader B**

As I am traveling a lot and do many of the project management tasks during these travels. I am currently using a spreadsheet to manage projects. The most important ability of a software project management system for me is the ability to experiment with the scheduling of tasks. That way, I can interactively develop the project schedule together with the other developers and the customer.

Report generation should offer many different views. Specifically, the possibility to plot GANTT diagrams is important to me. Other functionality should include the definition of tasks, the assignments of developers to tasks, describing the dependency of tasks, and to connect risks with tasks.

It would be great if the project management tool could also interface with a bug tracking tool. Currently we seem to converge on Mozilla but it doesn’t really matter what the tool is as long as we can interface with it.

The tool should also interface with a configuration management systems such as CVS or SourceSafe.

**Team Members**

A questionnaire with six questions was issued among all team developers. A number of statements were rated. The scale is between 1 (strong disagree) to 5 (strong agree).

Results:
● “I always want to know the exact time frame of the project.” 2.8
● “My vacations are important to me and I need to book them half a year in advance.” 4.2
● “Rescheduling of tasks must be avoided.” 1.7
● “I am not interested in the exact schedule of the project. That is the job of the team leader.” 4.1
● “It would be great if I could easily switch tasks within a project.” 3.5
● “I do not want to be moved away from a project until it is finished.” 2.2
● “There needs to be better ways to collaborate with other developers.” 3.2.
System Administrator

We are supporting a very heterogeneous landscape of operating systems. The application should run on several operating systems, including at least Windows (XP and perhaps Vista), Linux and MacOS X.

It is very important that there is clean procedure on how to do updates and fix security bugs. I believe that the application should be implemented as a web-based application that runs on our web server. That way, it is located within our DMZ, accessible from the outside as well as from within the company. This is important, as the project teams often work at customers and not within the company building. The web server is running a standard LAMP (Linux, Apache, MySQL, Perl) environment.