

SQUARE Case Study

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SQUARE Case Study

Background

The Ideal Company is a private company headquartered in Pennsylvania, with a staff of approximately 1,000 employees spread across multiple offices in the United States. It provides technical and management services to various public sectors and a number of diversified private companies.

The Ideal Company has experienced situations in the past in which sensitive client data was accidentally transmitted to an unauthorized user or other access violations have occurred. While developing POP, Ideal realized that they had no process in place to respond to this kind of security situation and had no historical or statistical data. Therefore, they decided that they should have a formal security requirements engineering process. They had recently heard of SQUARE being effective in a similar situation with a company in their field, so they decided to try it.

Ideal is also interested in knowing more about the SQUARE process, how the steps specifically work, so that they can employ it locally. The client team should be willing to ask questions if they do not understand the reasoning for a piece of data. Such requests might be forwarded on to the moderator, since in this case the RE team is not experienced, but the client team should treat the RE team as if they were experienced.

Case Study Overview

PLU (Possessions Listing Unlimited) Services is one of the four major subsidiaries of The Ideal Company. PLU provides a range of specialized services related to managing assets. One of its software products is the Possessions Organization Program (POP). POP is a tool for helping companies to make strategic allocations and plans for their critical IT assets. It is an Executive Asset Management Information System that provides decision support capabilities via customized views. These views are displayed in graphical forms and consist of information such as asset information, operational performance, and other user-defined metrics.

POP also integrates with many third-party software suites to provide enterprise-level services and features. BILDL0DE/AM, which is used internally, is a facility infrastructure management and operation tool that supports all aspects of infrastructure management. It is also fully integrated with AutoCAD, an industry standard software application that ensures proper change management. All changes made on architectural drawings are immediately reflected in the database. Another integrated tool is a backend Geographical Information System (GIS) used to organize information and geographic locations by site. Overall, the POP Software Suite is a full-service support product in all aspects of infrastructure management and facility-related services.

The company is planning on a major expansion of the system, moving it from a local implementation to a distributed one. As a company, Ideal is uncertain as to what risks this might entail. They are asking for help in identifying security requirements in part to avoid drawing attention to the potential weakness of this new expansion.

Student Instructions

Instructions for students are embedded in each workbook.

Instructor notes

When SQUARE is taught, case studies can be assigned to student teams. The materials include separate workbooks for a ***Client*** team and a ***Requirements Engineering*** team. This works best in a workshop format. The case study workbooks include a complete case study. However, there is no “standard” solution provided. The student teams report back at the end of each step, or more likely at the end of a logical packaging of steps.

In a short course (half-semester) on software assurance, SQUARE can be taught to the students as part of the course. You could also use the case study workbooks and have 2 sets of teams (requirements engineers and clients).

Alternatively, students can be divided into teams to work only on the requirements engineering side. The student teams can either propose their own case study OR you can assign a case study to the students, such as the one in the SQUARE Technical Report, which is a real example, and an earlier version of the one in these workbooks.

The version of the case study in the SQUARE Technical Report, analysis includes a sample solution. Therefore, you would not want to give the SQUARE Technical Report to the students as a reference before assigning the case study. In my half-semester courses, the student teams defined their own projects. Usually at least one person on a team had existing projects from other courses or a work-related project that could be used for purposes of the case study. This worked well because each team could pick a case study that they were comfortable with, and ideally apply the results of the SQUARE analysis to it. Otherwise, if they did not have a case study on hand, they could make one up or find one online. This allowed for a deeper requirements analysis than the workshop format but gave them less of an understanding of the dynamics of client interaction.

Example solution

None at this time.

References

For the complete set of SQUARE materials, see <https://resources.sei.cmu.edu/library/asset-view.cfm?assetID=503700> SQUARE Instructional Materials

The SEI SQUARE Technical Report found here contains an actual case study that forms the basis for the one provided in the workbooks, and its solution <https://resources.sei.cmu.edu/library/asset-view.cfm?assetid=7657> . Many other reports on different aspects of SQUARE can be found on the SEI Website, using a search on SQUARE.