Chapter 13
Integrating Security into Agile Models:
Scrum, Feature-Driven Development (FDD), and eXtreme Programming (XP)

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ABSTRACT

Agile methodologies have gained recognition in recent years as being efficient development processes through their quick delivery of software, even under time constraints. Agile methodologies consist of a few process models that have their own criteria in helping different types of projects. However, agile methods such as Scrum, Feature-Driven Development (FDD), and eXtreme Programming (XP) have been criticized due to the lack of availability of security elements in their various phases, resulting in the development of unsecure software. Thus, the authors propose the idea of a set of security-focused elements to enhance the existing agile models. In this chapter, the findings of the related research and the highlights of improved agile models after the integration of security are presented.

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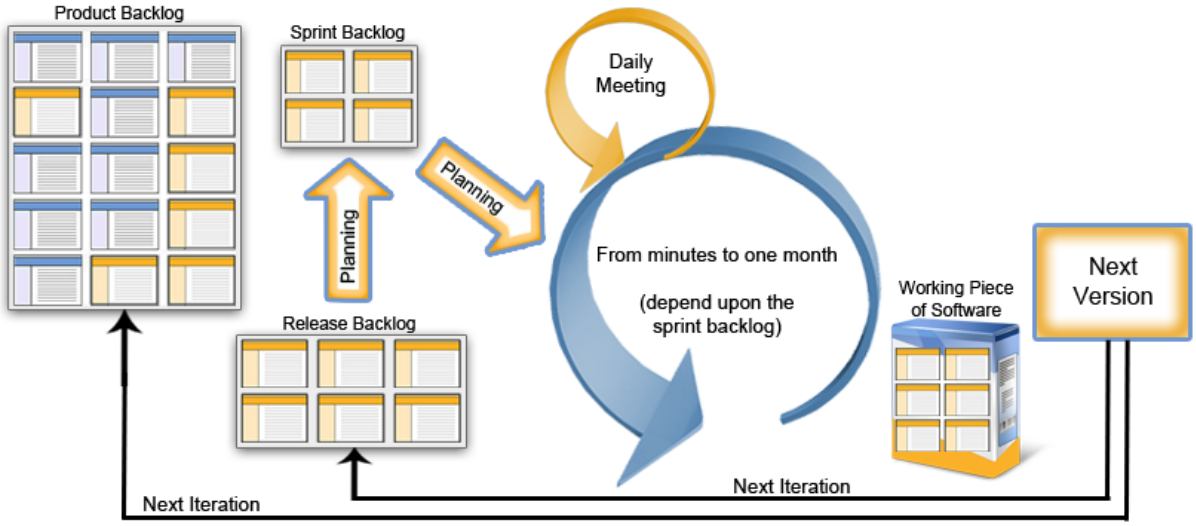
Figure 1. Scrum process model



1. AGILE MODELS

1.1. Scrum

Scrum (Schwaber & Beedle, 2002) is an iterative, incremental software process, which is by far the most popular agile developmental process (Version one, 2006). Scrum can assist with small to medium size projects consisting of many subtasks that need to be done. In relation to the idea of iteration, decomposition to small tasks that group them in backlogs and daily meetings; scrum ensures that the process is simple and effective in delivering small and working software packages.

Figure 1 shows the processes of Scrum within a project. It starts with collecting the user stories (requirements) in product backlog; from this product backlog, a sprint backlog is then created. Each sprint will undergo development process while a daily scrum meeting will be held to evaluate the progress and hold discussions about any problems that may have arisen with the current sprint. After concluding the sprints, the finished sprint will become the potentially shippable product to the customer.

1.2. FDD

Even though people have always maintained that iterative processes do not require much planning (Hunt,2006), FDD has proven otherwise. By planning the building of the list of feature processes and subsequent planning by these feature processes, FDD has become well-known for its efficient project management processes. FDD is deemed suitable for small to large scale projects respectively.

Figure 2 shows the existing FDD process model that consists of 5 main phases. In the first phase, Develop an Overall model, the architect will seek to draw out the whole design of the system. The second phase is the creation of a Building a Feature list. This phase will identify a list of features for the whole set of systems. After acquiring a set of features, the project manager will then, specifically: plan the features based on the due dates; assign the feature to class owners and rank the features based on priority. The design of the feature sets will then be started in the Design by Feature phase. Lastly, the feature will be built incrementally by features designed in the Build by Features' phase.