Research on construction of productline system by re-engineering legacy system

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1 Introduction

Recently, the software development of the embedded system field is developing remarkably. With it, the increase of the development man-day and the degradation of the quality by the magnification of the software and the complication becomes a problem. These problems are cause with the multi product a little production and short life cycle which is the characteristic of the embedded system .

The software product line is the software development methodology to support the software development of such a characteristic. The software productline usability is remarkable, but the initial investment to prepare the core assets which are common assets is high. This research proposes technique that build software product line environment by rebuilding a legacy system. The software re-engineering is the development methodology which creates new software, rebuilding existing system which deals with the identical domain. The software productline is development methodology to building the new software products by it combine software components called core asset.

This research purposes fusing in both development methodologies, and developing the core assets of the software product line efficiently and safely.

2 Construction Method for Productline by Re-engineering

This research proposes the technique which does the core assets of the product line in the derivation from the legacy system by the following approach.

Re-Engineering Request Specification It analyzes and collects requests about rebuilding a legacy system and creating new software.

Reverse Engineering To purpose that reuse by the product line environment, it analyzes a legacy system and it extracts a specification and a program and so on as the reuse assets.

Productline Request Specification It analyzes and collects requests about the kind and the feature of the producibility product of the product line environment.

Forward Engineering It extends the reuse assets which were got in the reverse engineering to satisfy a required specification and it does restructuring as the core assets of the software product line.

3 Example

I tried appiying technique which this research proposed to authoring system, and verified the effectivity of this research. The authoring system is the system which creates the image disk as seen by the DVD title of commercial from the material of the image, the sound, the caption and so on. The authoring system of the professional use is equipped with the creating feature of the menu and the security function which prevents an illegal copying, the reconstruction simulation facility on the PC and so on in addition to the image composition.

4 Summary

this research proposed reuse a legacy system and to build the core assets of the software product line. By this approach, it's aimed at the introducing software product line environment safely and efficiency. It analyzed

a legacy system by the reverse engineering and create core assets in the derivation by the forward engineering from the result of analysis. And, It defined the Re-Engineering Request Specification which clarifies the motivation which rebuilds a legacy system and the Productline Request Specification which clarifies the product image which is realized in the product line environment to build newly and it did the proposal to specify the goal of the process.