Usiel Figueroa

June 23, 2025

CSD 380-A311 DevOps

Module 6.2 Assignment: Case Study Strangler - Pattern at Blackboard Learn (2011)

**Case Study: The Strangler Pattern at Blackboard Learn (2011)**

Modernizing legacy systems is a significant challenge for many organizations, especially when growth and innovation are suppressed by outdated architecture. One practical approach to addressing this issue is the Strangler Fig Pattern, which gradually replaces a legacy system with a modern structure. This paper explores how Blackboard Learn, an educational technology provider, successfully applied the Strangler Pattern to improve development efficiency and scalability. The case study demonstrates that by implementing modular design through Building Blocks, Blackboard was able to transition from a complex monolithic system to a more agile and maintainable architecture.

Blackboard Learn is a widely used platform among educational institutions, including Bellevue University. According to The DevOps Handbook (Kim et al., 2021), the company faced growing challenges maintaining a large, monolithic codebase that still included fragments of outdated Perl code. David Ashman, Blackboard’s Chief Architect, noted that this legacy code made it increasingly difficult for developers to introduce new changes. The number of code commits had declined, indicating that the existing system hindered progress and innovation.

In response, Ashman led a re-architecture effort in 2012 using the Strangler Fig Pattern. Instead of replacing the entire system simultaneously, his team built new functionality in parallel, allowing old components to be retired safely over time. The creation of Building Blocks independent, modular components accessed through fixed APIs was central to this strategy. These Building Blocks allowed development teams to work independently without directly interacting with the legacy system, significantly improving code modularity and team efficiency.

The benefits of this transformation were substantial. Developers reported increased autonomy, and teams could work more rapidly and safely on individual features. The decoupled structure meant problems could be isolated and resolved without risking system-wide failures. As Ashman concluded, this architecture led to a more manageable codebase, reduced technical debt, and better alignment with DevOps principles.

**Conclusion**

The Blackboard Learn case study highlights the effectiveness of the Strangler Fig Pattern in modernizing legacy systems. By transitioning to a modular architecture with Building Blocks, Blackboard improved developer autonomy, reduced system complexity, and increased its capacity for innovation. This example underscores the importance of thoughtful architectural strategies in achieving long-term agility and scalability in software development.

**References**

Kim, G., Humble, J., Debois, P., & Willis, J. (2021). The DevOps handbook: How to create world-class agility, reliability, & security in technology organizations (2nd ed.). IT Revolution Press.