Strangler Fig Pattern at Blackboard Learn (2011)

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The case study on Blackboard Learn's architectural transformation illustrates how the company employed the "Strangler Fig Application Pattern" to safely migrate from a tightly coupled, monolithic codebase to a modular and decoupled architecture. This approach enabled their developers to work with greater autonomy, independence, and safety, resulting in faster feedback cycles, improved quality, and enhanced productivity.

Blackboard Learn faced challenges with a legacy J2EE codebase that dated back to 1997, which included fragments of embedded Perl code. The increasing complexity of the monolithic codebase led to longer lead times, a more error-prone integration and testing process, and, ultimately, poorer outcomes for customers. This issue was highlighted by graphs demonstrating a decline in code commits despite increasing lines of code, indicating the growing difficulty of making changes.

In 2012, David Ashman, the chief architect at Blackboard, focused on re-architecting the codebase by applying the "Strangler Fig Application Pattern." They introduced "Building Blocks"—individual modules that were decoupled from the monolithic codebase and accessed through fixed APIs. This structure allowed developers to work with greater autonomy, eliminating the need for constant communication and coordination with other teams.

As developers transitioned code into the Building Block modules, the size of the monolithic source code repository began to shrink. Developers enjoyed working in the Building Block codebase, where they experienced increased autonomy, freedom, and safety. The shift to a modular architecture led to improvements in code quality and developer productivity, resulting in faster feedback cycles. By utilizing the Strangler Fig Pattern, Blackboard was able to safely decouple its architecture and empower teams to work more independently.

# References

Debois, P., Kim, G., Humble, J., Willis, J., & Forsgren, N. (2021). *DevOps Handbook, 2nd editionGene Kim, Jez HumbleJohn Willis, Nicole Forsgren*. IT Revolution Press.