

Monolithic to Microservices migration :

Architecture Pattern Strangler:

1)What is strangler fig pattern:

Incrementally migrates a legacy system by gradually replacing specific pieces of functionality with new applications and services. As features from the legacy system are replaced, the new system eventually replaces all of the old system's features, strangling the old system and allowing you to decommission it.

2)What is the context and problem? What will be the solution?

Context:

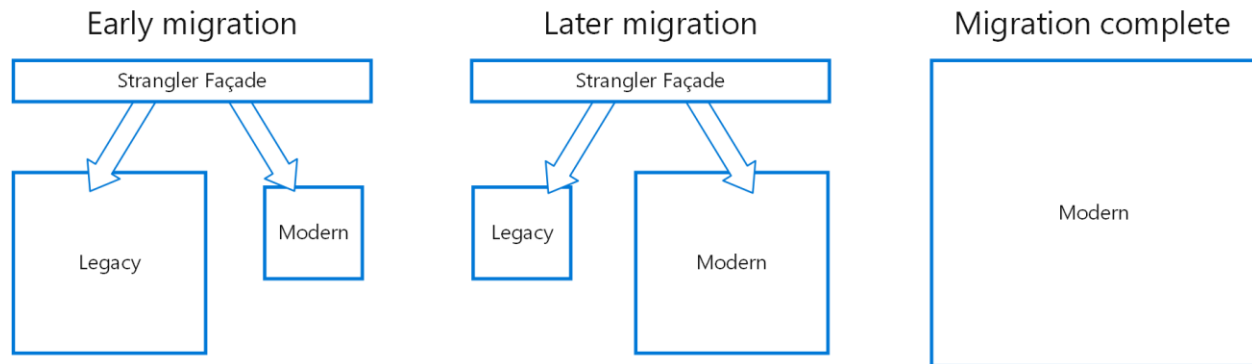
As systems age, the development tools, hosting technology, and even system architectures they were built on can become increasingly obsolete. As new features and functionality are added, the complexity of these applications can increase dramatically, making them harder to maintain or add new features to

Problem:

Completely replacing a complex system can be a huge undertaking. Often, you will need a gradual migration to a new system, while keeping the old system to handle features that haven't been migrated yet. However, running two separate versions of an application means that clients have to know where particular features are located. Every time a feature or service is migrated, clients need to be updated to point to the new location

Solution:

Incrementally replace specific pieces of functionality with new applications and services. Create a façade that intercepts requests going to the backend legacy system. The façade routes these requests either to the legacy application or the new services. Existing features can be migrated to the new system gradually, and consumers can continue using the same interface, unaware that any migration has taken place.



This pattern helps to minimize risk from the migration, and spread the development effort over time. With the façade safely routing users to the correct application, you can add functionality to the new system at whatever pace you like, while ensuring the legacy application continues to function. Over time, as features are migrated to the new system, the legacy system is eventually "strangled" and is no longer necessary. Once this process is complete, the legacy system can safely be retired.

3)What are the issues and considerations with this architecture pattern?

- Consider how to handle services and data stores that are potentially used by both new and legacy systems. Make sure both can access these resources side-by-side
- Structure new applications and services in a way that they can easily be intercepted and replaced in future strangler fig migrations
- At some point, when the migration is complete, the strangler fig façade will either go away or evolve into an adaptor for legacy clients
- Make sure the façade keeps up with the migration
- Make sure the façade doesn't become a single point of failure or a performance bottleneck

4)When to use this pattern?

Use this pattern when gradually migrating a back-end application to a new architecture

This pattern may not be suitable:

- When requests to the back-end system cannot be intercepted
- For smaller systems where the complexity of wholesale replacement is low

Resources:

<https://learn.microsoft.com/en-us/azure/architecture/patterns/strangler-fig>

Martin Fowler's blog post on <https://martinfowler.com/bliki/StranglerFigApplication.html>

Messaging Bridge Pattern : <https://learn.microsoft.com/en-us/azure/architecture/patterns/messaging-bridge>

An architect should evaluate how the Strangler Fig pattern can be used in their workload's design to address the goals and principles covered in the Azure Well-Architected Framework pillars

<https://learn.microsoft.com/en-us/azure/well-architected/pillars>