

## CHAPTER 2

# Unlocking Efficiency

## TRANSITIONING TO MODERN CI PLATFORMS



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In the fast-paced world of technology, staying anchored to outdated continuous integration (CI) platforms can hinder an organisation's progress and stifle its growth.

Continuous integration is the beating heart of any software project. A poor CI experience impacts every aspect of the development process, from testing to deployment.

Legacy CI systems, once reliable, now struggle to keep pace with modern requirements, leading to frustrated developers and scalability bottlenecks. It's time for a change. It's time to transition to modern CI platforms that offer automated scalability, cost savings, and an improved developer experience. In this chapter, we delve into the challenges of legacy CI platforms and explore why organisations should embark on a journey toward modernisation.

### Challenges of Legacy CI Platforms

Is your organisation hindered by legacy CI platforms? Have your engineers toiled to keep your legacy platform running? You're not alone. A CI platform is easy to take for granted until it starts holding your development team back. While your CI platform may have served you well in the past, it often struggles

to keep pace with modern requirements, presenting challenges that can hurt productivity and growth.

Let's look at some common challenges legacy CI platforms present.

#### High Costs

One of the trickiest issues with legacy CI platforms is their hidden operating costs. While the product itself might be open-source and free, its maintenance is a major expense. Often, it requires dedicated personnel to manage server upkeep, conduct routine system checks, and implement periodic plugin updates. However, the costs don't stop there. During upgrades, these systems can experience significant downtime, halting progress and adding indirect costs from lost productivity.

To make matters worse, as organisations grow, so does their need for system resources. Legacy CI platforms may require costly hardware upgrades to keep pace with this growth.

Moreover, the onboarding process for these platforms is usually lengthy and complex. Training new team members can be time-consuming, adding to the financial strain.

## Subpar Scalability

Scalability is a crucial factor in any CI platform. As organisations expand, products become more complex, their codebases grow, and their teams develop, the CI system must be capable of keeping pace. Legacy platforms, however, often falter when faced with scaling requirements.

When a CI platform fails to scale, developers are forced to wait for system resources, leading to bottlenecks that slow development and frustrate teams. This drains the team's vitality, making progress and innovation more challenging.

## Poor Developer Experience

Speaking of vitality, legacy CI platforms are notorious for their complexity. They hail from a different era when the importance of a simple and streamlined interface wasn't yet a priority. This complexity can be off-putting to developers accustomed to more modern, user-friendly tools.

Legacy CI systems often require manual configuration and maintenance—tedious, mind-numbing work that diverts developers from their core work: creating code and delivering value to the business.

Limited scalability and general CI slowness compound the issue, leading to slower feedback loops. Slow feedback loops disrupt developers' train of thought because they either wait for the CI platform to finish its task or switch to another task and return later to check if their work has passed all the tests.

## Security Vulnerabilities

As with any software system, security is a primary concern. However, older platforms are often riddled with vulnerabilities. Outdated software versions and unmaintained plugins can be exploited by malicious entities, exposing the organisation to potential breaches, data loss, and liabilities.

Keeping the system secure and compliant requires continuous efforts, adding another layer of complexity and workload for the maintenance team. This necessitates that organisations stay alert to the latest security threats and updates.

## Lack of Support

Support is crucial to any software platform, and CI systems are no exception. When problems arise, having a support team standing by your side can be the difference between a minor hiccup and a significant delay.

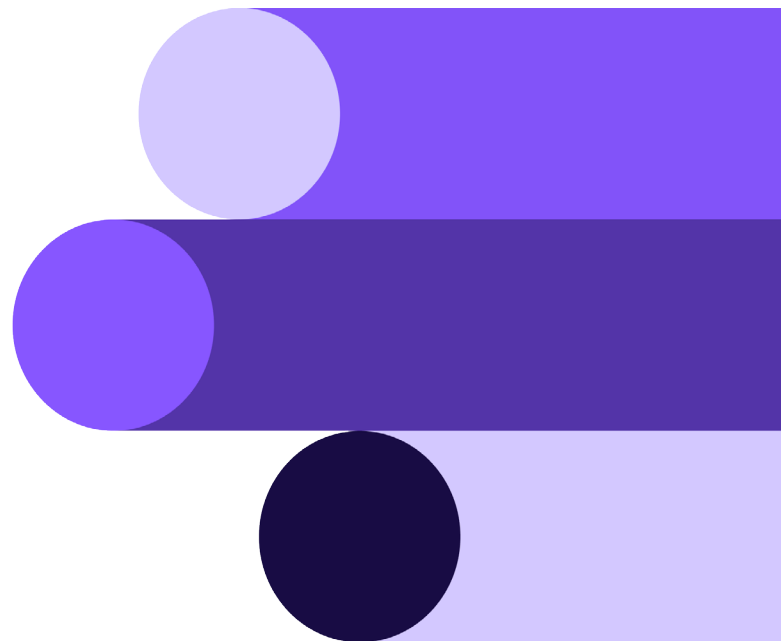
Legacy CI platforms often lack robust support systems. Without 24/7 support or service level agreements (SLAs), problems can seriously disrupt developers' work.

## Lower Performance

Performance is another area where legacy CI platforms often fall short. The performance is limited to the power of the machine running the CI. Even powerful servers can be overwhelmed by the testing needs of a modest project, slowing the entire development process and negatively impacting delivery timelines.

## Complex Configuration and Onboarding

The complexity of legacy CI platforms isn't limited to their interfaces. These platforms often require complex configurations for setup and management. Such a complex design discourages collaboration—when team members find a system difficult to use, they're less likely to fully engage with it.



# The Need for Transitioning to Modern CI

Given all the challenges legacy CI platforms pose, the need for a transition to more modern solutions becomes apparent. Modern CI platforms, such as [Semaphore CI/CD](#), are designed to [address these pain points](#), offering features and capabilities that can significantly improve efficiency, productivity, and developer happiness.

## Automated Scalability

Modern CI platforms are built with scalability in mind. They leverage both on-premise hardware and cloud capabilities, enabling them to scale to match any level of developer activity. In other words, the platform can always provision enough resources to meet demand.

This automated scalability eliminates one of the primary bottlenecks associated with legacy CI platforms—developers no longer need to wait for system resources.

## Cost Savings

Transitioning to a modern CI platform can also lead to substantial cost savings. These platforms free up resources for more productive tasks by eliminating the need for extensive maintenance efforts, since there are no servers to maintain or patch. Additionally, with many of these tasks being offloaded to the CI provider, the need for dedicated maintenance personnel can be reduced.

## Security

Ensuring that only the right people have access to the platform can be challenging in a large organisation. Modern CI platforms address this with features such as Single Sign On (SSO), [GitHub-based authentication](#), or integrating with identity management platforms like [Okta](#).

## Increased Developer Happiness

One of the most significant benefits of modern CI platforms is the improvement in developer

experience. These platforms are designed with developers in mind, offering user-friendly interfaces, comprehensive reports, and powerful tools to aid development.

Features like [automated deployments](#), [test reports](#), and [project insights dashboards](#) make the development process smoother and more enjoyable. Modern CI platforms provide an environment developers enjoy working in, leading to higher job satisfaction, lower turnover, and, ultimately, a more effective development team.

## Enhanced Performance

Modern CI platforms are designed to optimise performance. They support parallelism, allowing multiple tasks to be executed simultaneously and speeding up the overall execution time.

A faster execution time means quicker feedback for developers, leading to a more agile development process. Additionally, these platforms often offer optimised workflows, making the development process smoother and further improving performance.

## Compliance

Compliance is critical for many organisations, particularly those in regulated industries. Modern CI platforms are designed with compliance in mind, providing features and controls to help organisations meet their compliance obligations.

CI platforms are certified with stringent compliance standards. Semaphore, for instance, is [ISO 27001 certified](#), providing a high level of assurance for organisations handling sensitive data. Organisations can reduce their compliance risk and simplify their compliance efforts by using a CI platform that meets these compliance standards.

## Hybrid Operation

The flexibility to run on the cloud or on-premises is another benefit of modern CI/CD platforms. This is called “hybrid operation”. It allows organisations to leverage the benefits of both deployment models: the cloud and owned, on-premise hardware. A hybrid

operation can provide the best of both worlds: cloud platform scalability and ease of use with the control and security of [on-premise solutions](#).

Organisations can choose the model that best fits their needs and even switch between models as those needs change. This flexibility makes modern CI/CD platforms a robust solution for various organisations.

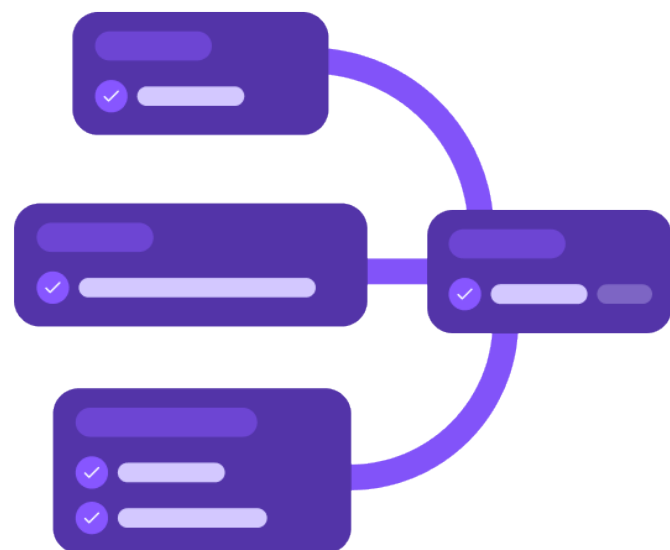
## Maintenance-Free Operation

With modern CI platforms, the provider handles the bulk of the maintenance. This model reduces the burden on the organisation's internal teams and minimises downtime. Maintenance tasks are handled by professionals deeply familiar with the infrastructure.

By eliminating the need for internal maintenance efforts, organisations can focus their resources on their core business, shifting the focus to what matters: producing valuable software.

## Comprehensive Support

Modern CI platform providers understand the importance of support and often offer [robust support services](#). A non-functioning CI pipeline means developers cannot work. Therefore, CI services are often backed by service level agreements (SLAs), ensuring the system is available and issues are resolved promptly.



A robust support system reduces the stress and frustration associated with system issues. Knowing that help is just a call or email away can provide peace of mind and allow developers to focus on their work.

# Transitioning to a Modern CI Platform: A Step-by-Step Approach

While the benefits of transitioning to a modern CI platform are clear, the transition is a project in itself. It requires careful planning, coordination, and execution.

We can split the transition project into six phases:

1. Assessment and planning phase
2. Establish a proof of concept
3. Setup and configuration
4. Migration
5. Training and documentation
6. Continuous improvement

Let's delve deeper into each of these phases.

## 1. Assessment and Planning Phase

The transition to a modern CI platform begins with a thorough assessment. During this phase, organisations should evaluate potential CI platforms, considering their scalability, performance, security features, support services, ease of use, and compatibility with existing tools.

Organisations should also examine their current CI/CD pipeline as part of this assessment. This examination should identify pain points, determine areas for improvement, and establish goals for the transition. By doing so, organisations can ensure that their new CI platform meets their needs and helps them overcome their current challenges.

Once the assessment is complete, the next step is to plan the transition. This plan should include a detailed timeline for the transition, resource allocation, and role definitions. Organisations can establish a clear plan to ensure the transition is well-coordinated, and everyone involved understands their role.

## 2. Establish a Proof of Concept

Before committing to a new CI platform, organisations should establish a proof of concept (PoC). During this phase, a small project or team is selected to test the new CI platform.

The PoC aims to validate the platform's capabilities and ensure it meets the organisation's needs. Success criteria should be defined, and the platform should be evaluated against these criteria. During the PoC, it's essential to work closely with the team, gathering feedback and addressing any issues that arise.

A successful PoC can provide valuable insights into the new platform's capabilities, help identify potential challenges, and provide a foundation for the full transition.

## 3. Setup and Configuration

Once the PoC is successful, the next step is to set up the necessary infrastructure and configure the CI platform. This step involves provisioning the required resources, setting up the system, and configuring it to meet the organisation's needs.

It's also important to implement security measures during this phase. This may include setting firewalls, configuring user access controls, and implementing encryption. By taking these steps, organisations can ensure that their new CI platform is secure and ready for use.

## 4. Migration of CI Workflows and Pipelines

With the new CI platform set up and configured, the next, and often longest, step is migrating workflows from the legacy system. This migration should be done incrementally, starting with less critical workflows and gradually moving to more critical ones.

During the migration, it's crucial to collaborate closely with the support teams of the CI platform provider. They can provide valuable insights and assistance, ensuring the migration goes smoothly. Each migrated workflow should be rigorously tested, with any problems addressed before proceeding further.

As more workflows are migrated, and the new system proves reliable, the migration can be expanded to include the entire codebase. It's important to continue monitoring the system and resolving any issues that arise during this phase to prevent problems down the road.

## 5. Training and Documentation

Training is a crucial part of the transition to a new CI platform. All system users should receive comprehensive training to ensure they are comfortable using the new platform. This training should cover all platform aspects, including its features, capabilities, and best practices.

In addition to training, detailed documentation is needed. This documentation can serve as a valuable reference for users, helping them navigate the new system and resolve any issues. A plan to promptly address user concerns and questions is also worthwhile to ensure everyone is confident using the new platform.

## 6. Continuous Improvement

Even after the transition is complete, the work is not over. As the needs of the organisation change, so must the CI workflows. Modern CI platforms provide productivity metrics to measure the effectiveness of the software development cycle.

In the last phase, the organisation should monitor these metrics to identify pain points and opportunities for optimisation. Then, take advantage of these opportunities and use the metrics provided to validate that productivity has increased.

### ABOUT SEMAPHORE

Semaphore is a CI/CD platform that allows you to confidently and quickly ship quality code. Trusted by leading global engineering teams at Confluent, BetterUp, and Indeed, Semaphore sets new benchmarks in technological productivity and excellence.

# Flagsmith

Get in Touch

Flagsmith is an open source feature flag software that lets developers release with confidence. We work with banks and financial institutions across the world to help them transition to modern feature management and software development, offering on-premise deployments, security features, and technical support to cover your needs. We also partner with OpenFeature to support open standards and prevent vendor lock-in.

“Our development speed and velocity have increased. Mainly, though, I just feel good about releases. I know when I ship something to production it’s going to be safe and I won’t have to do a thousand tests to make sure I don’t miss something. When things are behind a feature flag, I know what is and isn’t enabled in production and I have the visibility I need.”

## Vontobel

Globally active investment firm with Swiss roots

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