A Complete Solution For DevOps

Why Every Agency Needs A PaaS

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ABSTRACT

Implementing DevOps best practices can seem like a daunting task when you don't know where to begin. And scaling those practices as your agency grows can be an even greater challenge. The purpose of this white paper is to demonstrate the business case for web agencies looking to optimize their DevOps through a platform-as-a-service approach. We will look at a series of commonly held software development issues and use case studies to understand how cloud platforms can offer a unified solution. These studies will show how best practices in DevOps can be achieved quickly, painlessly, and lead to dramatic efficiencies and savings.

ACKNOWLEDGEMENTS

Before we begin we would like to introduce the three digital agencies who kindly agreed to be the focus of our case studies. Many thanks to the good people at Real Life Digital, Liip and Redstage.

Real Life Digital

Real Life Digital is a Drupal website and application agency based in South East England, UK. With 10 years experience, they count major brands such as Sony, Virgin, Deutsche Bank, Peugeot and HSBC as clients.
www.reallifedigital.com

Liip

Liip is one of the largest web development agencies in Switzerland, employing around 150 people. They specialize in all aspects of the web development cycle, from consultation on initial concepts, through to implementation and maintenance. Their customers include Swisscom, Adobe and The World Health Organization.
www.liip.ch/fr

Redstage

Redstage is an ecommerce agency and certified partner for the world's leading ecommerce platforms Magento, Shopify and BigCommerce. With offices on 4 continents, Redstage has created and/or supported over 600 ecommerce sites supplying a wide range of goods and services around the globe, from electronics to fashion and food.
www.redstage.com

INTRODUCTION

What exactly do we mean by DevOps? Sure, it's about being "lean" and "agile," but what does that really mean for today's web agencies?

DevOps is concerned with automation and tooling, but it's also about using technology to encourage best practices, closer collaboration, and strong organizational culture. It's about looking after your people as well as your processes, and if web agencies are serious about remaining competitive and retaining talent they need to master DevOps - ASAP!

Ok, these abstract principles are all very well! But how does better DevOps help us overcome the challenges we face on a daily basis: complicated infrastructure, competing tools, irregular deployments, delays in testing, and unscheduled downtime? How does finding an optimal approach to DevOps boost our bottom line? »

INTRODUCTION

By understanding that these problems are interlinked we can start to think about a unified solution. Shorter project lead-times, reduced infrastructure costs, zero systems admin chores, happy developers, and even happier customers, can all be achieved through a single approach to DevOps. And that's where Platform as a Service (PaaS) comes in.

Let's take a closer look at how Real Life Digital, Liip and Redstage overcame a set of common DevOps challenges by migrating to a PaaS.
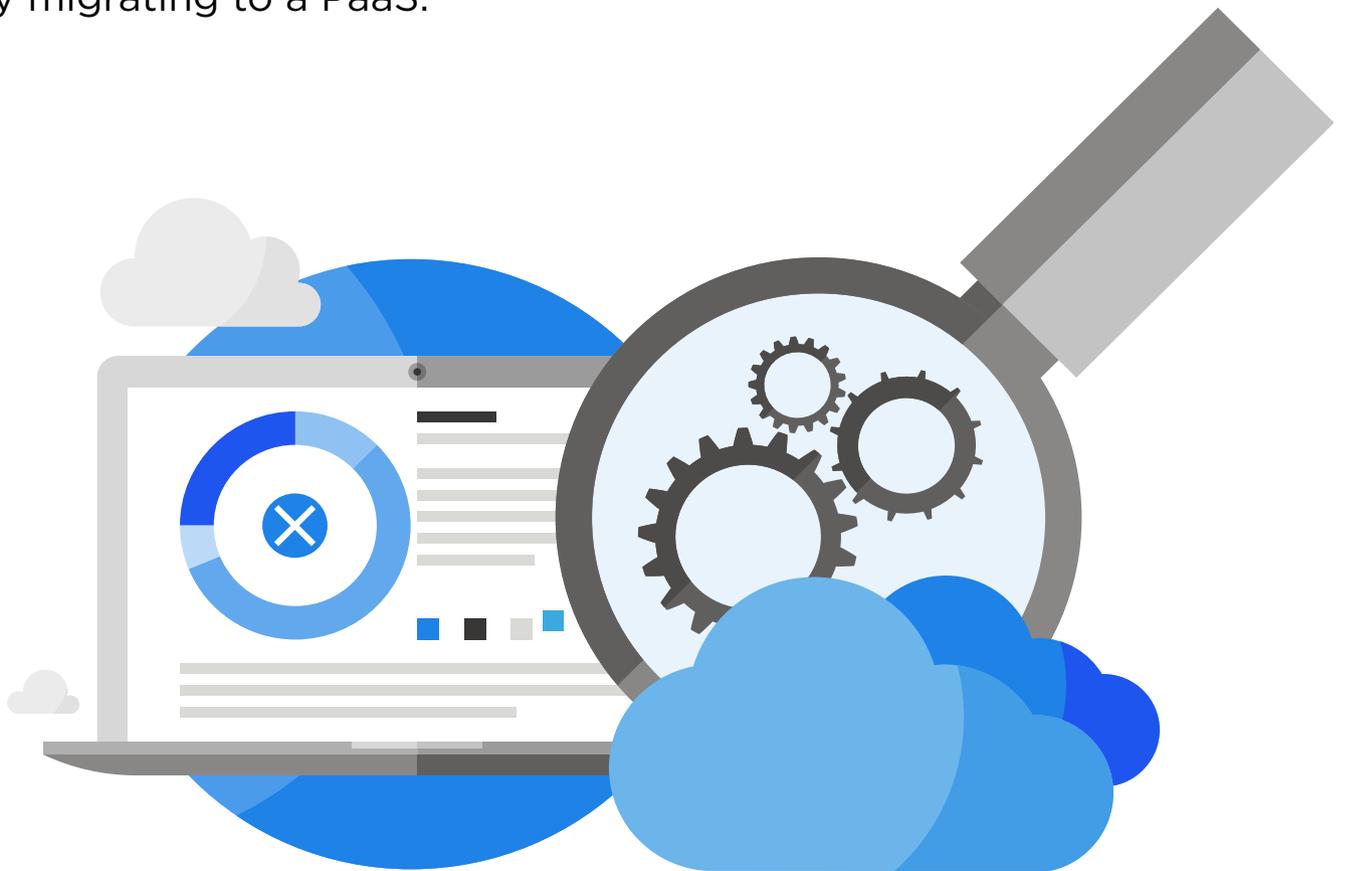
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Complex Infrastructure

One of the most common problems faced by agencies involves complex infrastructure and the feeling of being stuck with legacy systems. Rapid growth can be messy and an organization can quickly end up with a host of teams and projects using very different sets of tools. This is especially true if you've been developing bespoke solutions for your customers.

COMPLEX INFRASTRUCTURE

Developing a range of unique solutions is good for your clients, but it soon becomes an organizational nightmare for you. Collaboration between teams becomes difficult, bottlenecks occur due to an over reliance on individual developers, and a lack of automation requires manual interventions which hold back your deployments.

Real Life Digital had grown its business by providing bespoke services for their clients. This resulted in their teams using a lot of different tools and hosting solutions. Eventually it became too much for the organization to handle:

Having different infrastructure setups for different clients meant that we needed to follow different processes for continuous deployment. Each one was error prone and typically required manual actions to be taken in order to complete a deployment successfully.

This often meant that our developers needed to understand the extra steps required for deployment for each different site and take care to ensure production sites weren't left in a broken state. This wasted a lot of time and deployments sometimes needed to be fixed quickly by our main DevOps person which meant them dropping what they were doing. »

COMPLEX INFRASTRUCTURE

By migrating to a PaaS, **RLD** were able to standardize and be consistent across all of their projects and teams. Eliminating the different processes needed for continuous deployment meant that they were able to remove bottlenecks from their DevOps pipelines and save their supervisors valuable time.

This has saved our technical lead 20% of his time. This equates to roughly 48 working days a year. From a business perspective, finding a reliable infrastructure solution has been hard. It's taken a few years to get there, but it was important to find the right provider as it will determine how well we can support our clients. Our PaaS provider complements our automation and standardization goals as it is a flexible solution which saves us time and money.

48
working days saved per year
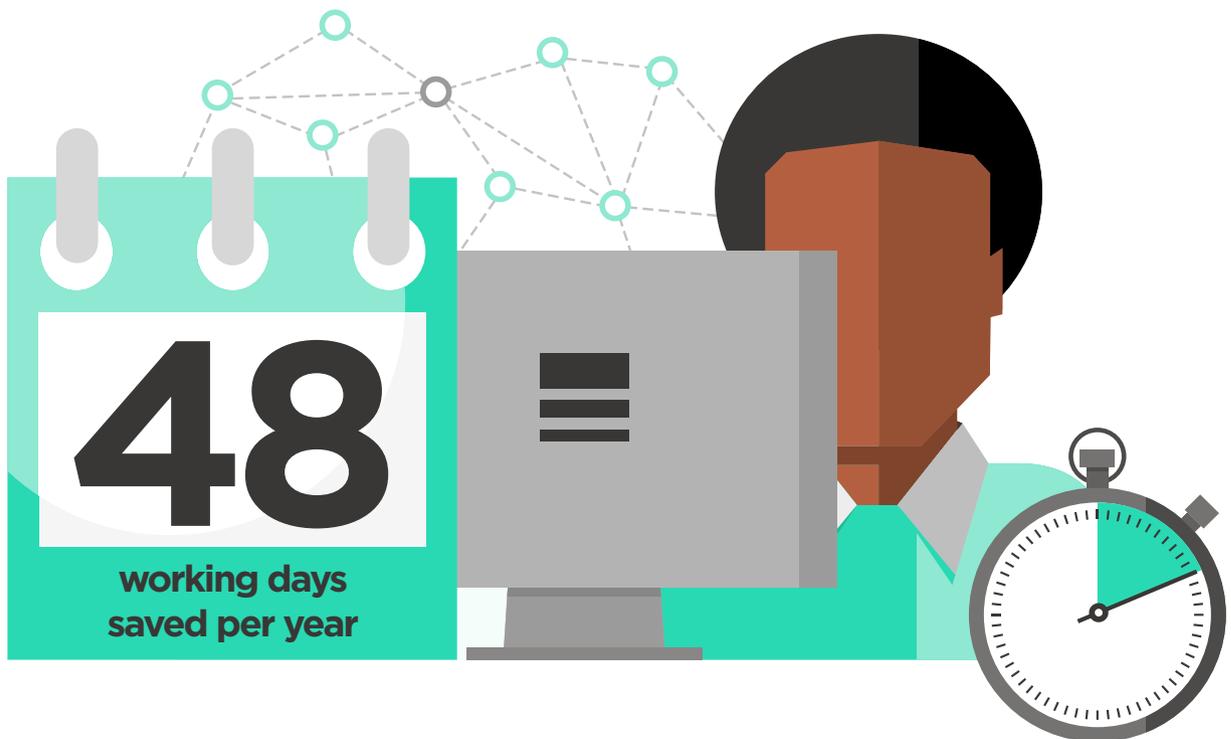
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Project
Lead Time

For web development agencies offering complete solutions it is important to have an agile way of getting a project up and running as soon as possible. With a unified platform there is no longer any need for debate among your development teams about configuration for the client.

PROJECT LEAD TIME

Using a platform allows your developers to simply specify which type of site they require, which features are needed, and after a simple commit of the code the site is up and running without any need for system administrators. Hey presto!

It's not unusual for **Liip** to work with customers who need a complete overhaul of all their web-based properties. Some of their clients need to start over by adopting a completely new infrastructure, different internal processes, and the right CMS and ecommerce solutions for their products and services. One of their recent clients, Freitag, a high-end Swiss fashion retailer, needed an agile way to deal with the demands of running a web-store for one-off accessories. **Liip** realized that they required a flexible infrastructure with low fixed costs that could replace their old web presence quickly and smoothly.

PROJECT LEAD TIME

"*The great thing about our PaaS provider is that they really care about your setup. We do very complex projects which involve a lot of DevOps because we have to connect a lot of dots. Following a platform-as-a-service model has helped us to save basically all the DevOps time for the core application environment. In projects like Freitag it enabled us to save 80% of overall DevOps time.*"

"*With a simple application we don't have to care about DevOps at all.*"

"*The PaaS we use fitted wonderfully with Freitag's strategy because it gave us an agile and lightweight way of being able to test and deploy things - to change things quickly in the live environment.*" »

80%
saving on project setup time
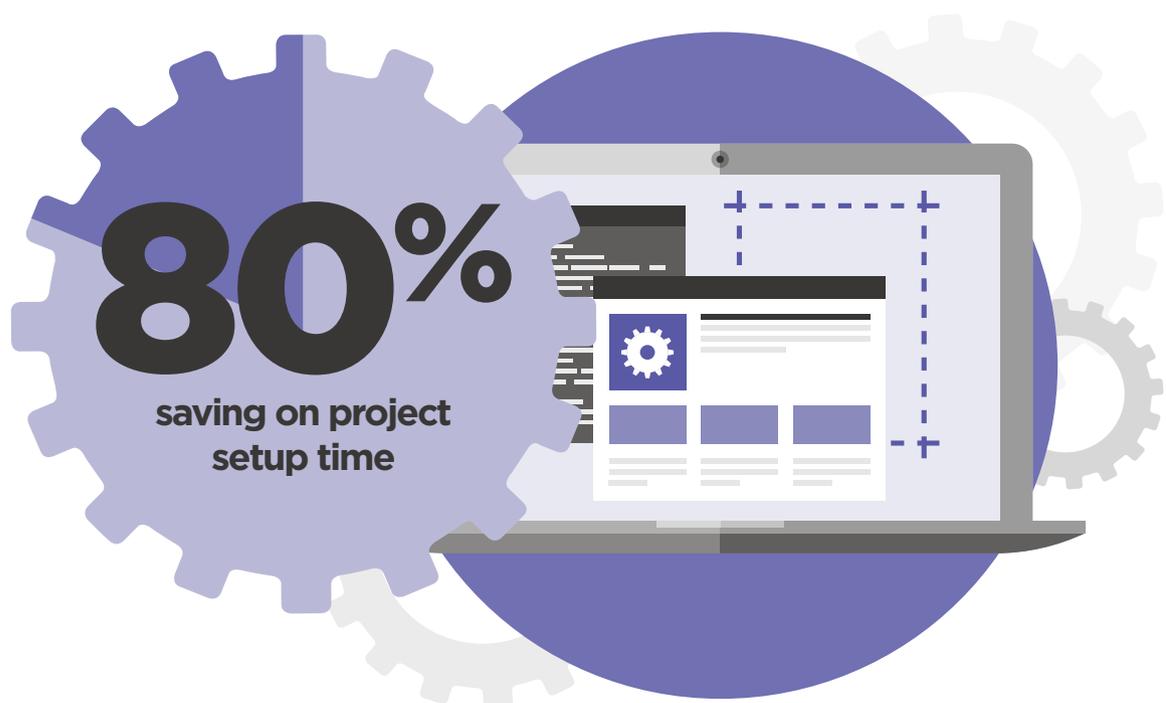
PROJECT LEAD TIME

When it came to setting up new projects **Redstage** already had a good DevOps approach in mind. They wanted separate, integrated environments for each stage of their delivery pipeline. However, they didn't have the infrastructure to implement their DevOps philosophy and the process of creating new environments became increasingly complicated and time-consuming.

We wanted to be able to implement several branched environments for each part of our projects: development, integration, staging, UAT, etc. But this failed miserably with our dedicated servers because they were never properly configured or optimized and the environments quickly went out of sync. We even had difficulty creating new environments for existing projects.

The speed and ease of creating new projects and environments was one of the main reasons we moved to a PaaS.

A PaaS can allow agencies to set up as many ephemeral environments as they need. And this was a huge factor in **Redstage's** decision to migrate their DevOps to the cloud. Their developers are now free to develop and test new features on demand.

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Irregular Deployments

Periodic "big bang" releases are stressful for your development team and expose your customers to risk. When it comes to deployments your developers shouldn't have to spend time out-of-hours crossing their fingers, praying to the Gods, and hoping for the best. And, if your customers have a global presence, they may not even recognize the concept of out-of-hours anyway.

IRREGULAR DEPLOYMENTS

They may not have a convenient window for you to make deployments because they require a fully functioning, continuous live environment. If the nerves of your developers are shot to pieces it could be time to move to a PaaS.

This was the second major issue faced by **RLD**. The uncertainty caused by complicated infrastructure and tooling was also having a negative impact on deployments. New releases were becoming unreliable and inconsistent. The development teams became so nervous about upcoming releases that out-of-hours deployments started to become normal.

> *These factors combined meant that deployments weren't reliable and consistent, which created a great deal of caution from the developers (and the overseeing technical lead) when releasing new functionality.*

> *The problems we faced were never insurmountable, but we became increasingly aware that we needed to improve the deployment flow to create consistency and reliability across the growing number of projects we maintain.* »

By standardizing their tooling and DevOps procedures on a cloud platform, **RLD** were able to deploy much more frequently and successfully. Automation, particularly in testing, gave the **RLD** development teams the confidence to consistently deploy new features straight to the production environment.

> *Using a PaaS has meant that we can safely deploy new functionality during the middle of a business working day rather than having to wait until 'out-of-hours'. In turn, this has meant we no longer have to worry about doing ex-gratia work in the evenings which would happen once or twice a week.* »

**Ticket
reduction x3**

**Deployment
time reduction x6**

**Deployment
frequency x2**

IRREGULAR DEPLOYMENTS

"That being said, some of our clients have international presence, so there isn't really a concept of 'out-of-hours'. For them it's more important to be able to deploy new functionality with minimum fuss. For these clients there's always a risk in deployment, however, using a PaaS for our continuous delivery has meant we have far more confidence in pre-flight testing before new functionality is rolled out to the production site."

But what about agencies who already practice continuous deployment and demand it as standard? This was the case at **Liip** where they already had a longstanding commitment to continuous deployment. How did migration to a PaaS meet their expectations?

"We have been an agile company since the beginning, so for us there really isn't a way around continuous delivery - it really is key for us. We do it with every infrastructure we have, so it was a prerequisite for us and our PaaS fulfils our needs perfectly."

Whether you're looking to achieve continuous deployment, or simply maintain it, migration to the right PaaS provider is the best way to get your DevOps pipelines flowing at optimal speed.

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Delays
in Testing

Lack of automation has a huge impact on testing.
In conventional development pipelines new features
disappear into a staging area for days or even weeks
before finally being tested and returned to the original
developer for bug fixes.

DELAYS IN TESTING

By the time the developer is notified he might be working on a totally different project. The result is confusion, disruption, and more delay.

Liip have been following a continuous deployment methodology for over two years. But, delays at the testing stage were a major obstacle in the beginning. Fixing bugs from commits made several weeks ago slows down developers and distracts them from their current user stories. Confused workflows like this were the very opposite of the continuous deployment strategy they were aiming for. The platform they now use makes it easy to work on more branches in parallel and deliver immediate feedback to developers over any anomalies. Continuous deployment can only be achieved with near real-time testing.

Compare it to how it was before - developers developed, they put the code in a staging area and after some weeks it is tested by the client. By the time it comes back to the developer he has mostly forgotten what he did. What we needed is that when something is developed it is immediately put on a testable environment where it is tested by the client and within an hour it is back on the developer's desk. »

Liip now has much tighter feedback loops when it comes to sending new features to clients for UAT. That allows them to deliver new functionality and better value for their customers quicker than ever. Why wait?

For **Redstage** the old way of performing UAT meant submitting a whole host of new features at once. Trying to isolate which of the new features was negatively affecting performance in the live environment was tricky and time-consuming. Being able to test each new function on a case by case basis made their UAT process much more agile. »

## 50% increase in feature sign off and UAT acceleration
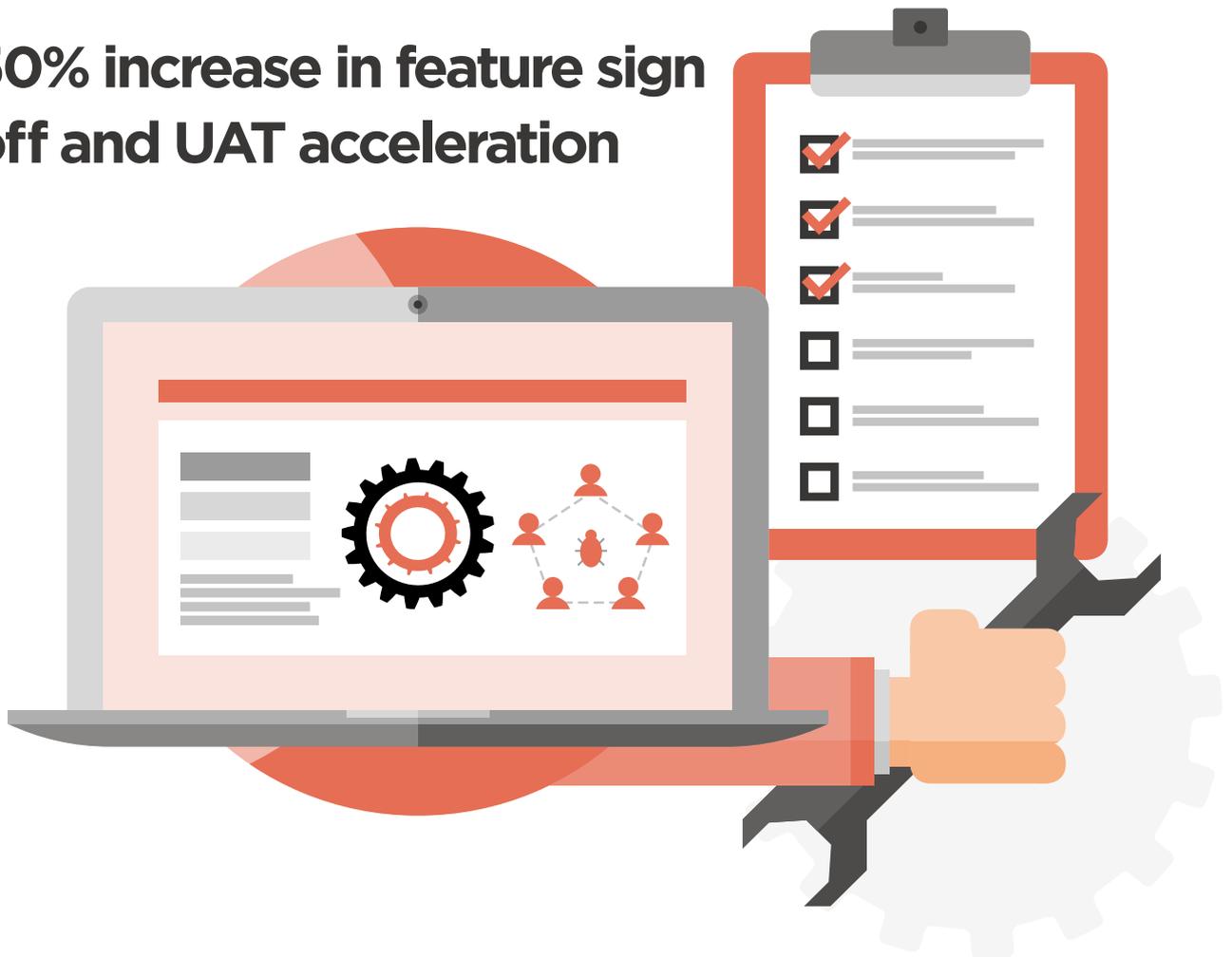
DELAYS IN TESTING

" *Being able to create environments at low cost allows us to test features and patches in isolation. We used to have to send a whole set of new features for UAT at the same time. Now we can sign off new functionality on a feature-by-feature basis. This was impossible before moving to a PaaS.* "

" *Developers have become more comfortable deploying their own code and taking ownership.* "

A cloud platform means you can create as many throwaway test environments as you need with a single click. Developers shouldn't have to wait for a colleague to finish testing in an environment before they can access it, or worry that their work will create bugs for someone else. Instead, every developer at **Redstage** is free to develop and test in their own environment, safe in the knowledge that they can't break the build or affect live performance.

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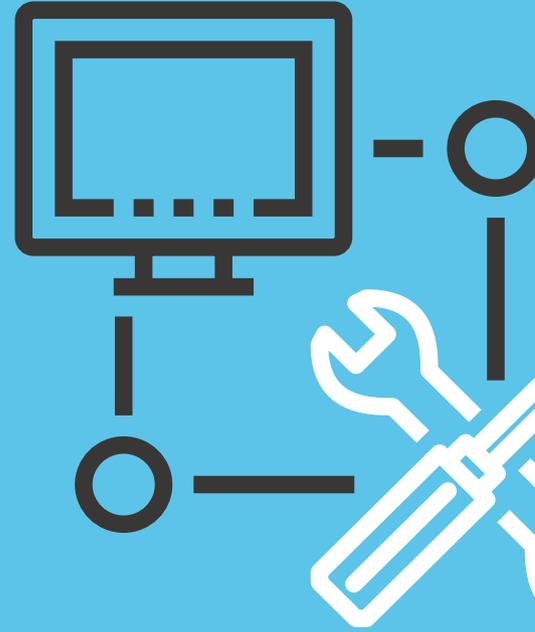
Availability
and Maintenance

Even if you already have reasonably agile development
processes there is still the prospect of poor performance
and an inability to scale as your business grows.
Scheduled downtime is bad enough, but unscheduled is
even worse.

AVAILABILITY AND MAINTENANCE

The job of maintaining your existing systems and monitoring their capacity are sys admin tasks that distract your developers and eat into their working day. And then, when all hell breaks loose and you need to get systems back up and running asap, human error inevitably comes into play. What if we could just stop worrying about this stuff?

RLD also had frustrations about availability, performance, and developer time being wasted on server maintenance. Cloud hosting was clearly an option, but like other digital agencies, **RLD** had concerns about incurring unpredictable monthly costs. Once they found a PaaS that could scale without undermining their budgets, the decision to move to the cloud was an easy one. By migrating to their managed PaaS provider, **RLD** completely eliminated both downtime and maintenance tasks.

" Our clients appreciate the fixed monthly cost model, so they can budget consistently. Native cloud providers have complex pricing structures which leave the client not knowing how much they can expect to spend on hosting. The platform we use provides all the benefits of a cloud service without the cost uncertainties. " »

AVAILABILITY AND MAINTENANCE

"We no longer have to worry about security updates (and server security hardening) for each individual server we host for our clients. We'd normally spend 2-4 hours a month per server. That time has been reduced to zero. We estimate this has saved us about 40-50 hours a month."

Some agencies suffer from much more fundamental problems when it comes to performance. Poorly configured servers can result in major customer grievances and is a source of huge frustration for your DevOps teams. Before using a PaaS **Redstage** experienced debilitating performance issues due to poorly configured server provision. »

Total number of live hour interruptions: zero! Saving 40-50 hours per month
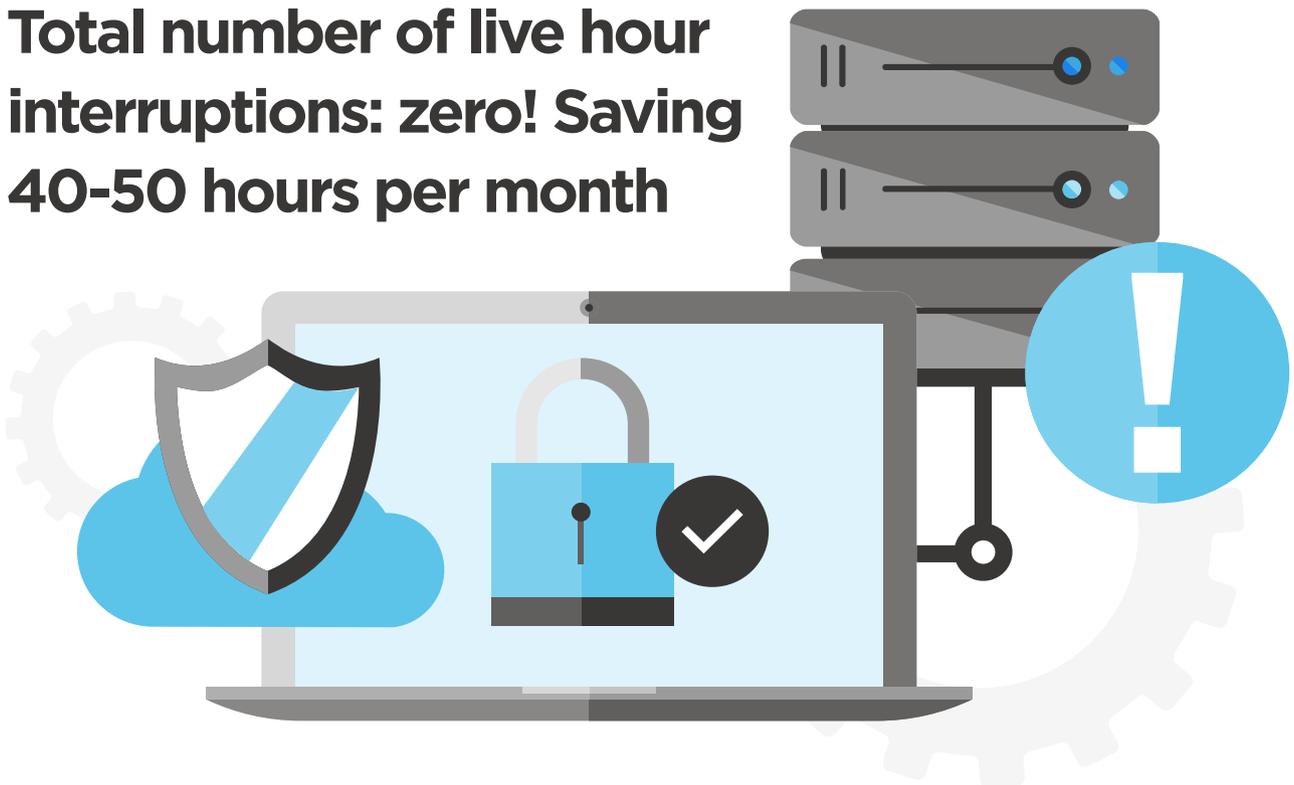
AVAILABILITY AND MAINTENANCE

"Our server resources were shared across projects with no real way to allocate usage. One busy UAT environment could render every other suite either unusable or completely unreachable."

"Since migrating to a PaaS we've seen our instances outperform the old dedicated server boxes. Broken projects no longer have negative effects on other work. Everything is automated with our PaaS. Now we just set it up and forget about it."

Migrating to a cloud platform means **Redstage** now has an instantly scalable hosting solution and no more worries about availability, downtime, or having to reallocate resources to solve maintenance issues.

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Developer Productivity

In an ideal world your developers would be free to simply code and deploy. This is the Holy Grail - especially if your business model relies upon selling developer time to your clients. The less time they waste on internal problems, the more time they can spend working billable hours and delivering new features for your customers.

DEVELOPER PRODUCTIVITY

Cloud platforms give your developers the freedom to do what they love while generating maximum income for the business. Imagine a world of happy developers who aren't scared to deploy on a Friday. It's not as crazy as it sounds!

For **Liip** this is a hugely important metric because their business model basically relies upon it. Increased developer productivity means increased revenues and growth.

> *For us developer productivity is one of the most important things because it's basically the only way for us to make money - we sell developer hours.*

By moving all of their DevOps procedures to a Paas, **Liip** have been able to boost developer productivity in every way. Their developers now benefit from automated, near time testing that allows them to deploy continuously. They no longer have to familiarize themselves with a variety of tools and infrastructure. And they are now free from sys admin and maintenance tasks. »

" With our PaaS we can also onboard new developers very quickly. "

As your business starts to scale the need to recruit and quickly onboard new developers becomes a top priority. By providing their developers with all the necessary tools and services in one platform, **Liip** has found it much easier to onboard their new recruits. And that means the new faces can get stuck into real projects and feel like valued team members from day one.

Onboarding time for new developers 50% quicker

Overall developer productivity increased by 5%
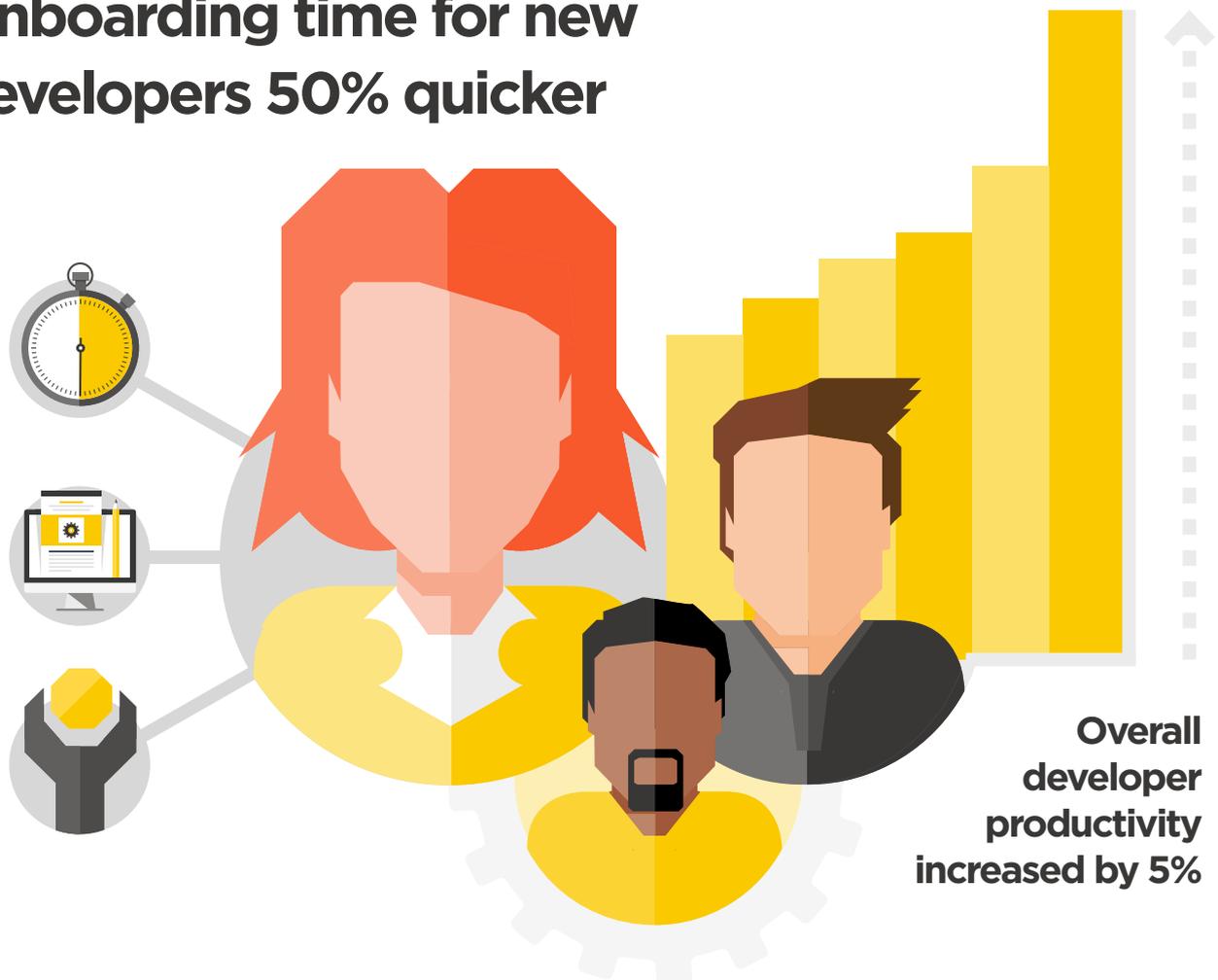
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Conclusion

Trying to tackle any one of these problems in isolation is futile. As we have seen, they are all interrelated. We can't increase deployments or speed up project lead time with outdated infrastructure. Nor can we improve developer productivity without automating test environments.

CONCLUSION

Cloud platforms offer a holistic approach that is capable of meeting all of these challenges simultaneously. It's a panacea for DevOps.

The agencies featured in this paper are clients of Platform.sh and the gains they have experienced with us are shared by all of the customers in our portfolio.

Our agencies typically report:

- Up to 50x more feature sign-offs and UAT acceleration
- 100% ticket reduction
- 8x faster project setup times
- 300% increases in developer productivity
- Deployment frequencies measured in minutes rather than days or weeks

For information about our onboarding programme contact: