nebula
A SMARTER WAY

DevOps and Cloud Development:
Better Together

Working hand in glove
to accelerate software
development and
improve quality.

Table of Contents

Innovate faster.
Build better software

DevOps—which blends the words development and operations—has emerged as a key enabler for digital transformation. A cutting edge fusion of people, process and technology to accelerate software development and simplify operations, DevOps enables companies to innovate faster, become more agile and produce better software.

In DevOps, the traditionally siloed roles of development, IT operations, quality engineering and security are brought together in a single team or organisation. By collaborating more closely and with fewer boundaries, DevOps teams can deliver more reliable, user-centric software at a quicker pace. The teams share DevOps processes and priorities, failing fast and learning together.

Along with this organisational change, DevOps also usually increases automation and streamlines processes across the software lifecycle. Cutting edge DevOps toolchains and organisational structures empower organisations to release software in short cycles. This also allows for better risk management, faster iteration and continuous learning.

However, most organisations will struggle to unlock the full value of DevOps processes without modernising infrastructure and applications. To really unleash the potential of faster, more iterative software releases, enterprises need to move from capital IT investments towards cloud-powered, as-a-service models that enable them to access and provision computing resources at high speed.

Consider the example of an organisation with an idea for a new customer-facing application that will give it an edge. If it doesn't have both the DevOps practices plus the agile infrastructure to develop, deploy and integrate applications at high speed, it might see opportunities slip through its fingers because IT can't keep up with the application development backlog.

DevOps and the cloud: a natural pairing

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In theory, a business could deploy DevOps without embracing cloud-native development and it equally could shift towards developing software in the cloud without adopting DevOps practices. But in practice, the synergies between DevOps and cloud-native development are so obvious that few companies will want to implement one without the other.

DevOps and cloud development both accelerate speed to market with new software releases, help organisations to reduce costs of development, deployment and testing, boost software quality, move towards continuous improvement, and enable developers to be more responsive to end-user needs. But combined, they take these benefits to the next level.

DevOps is, at heart, a culture and set of tools and practices that build on and automate agile development methodologies. In so doing, DevOps helps developers to respond faster to the organisation's requirements, speeding up the development, testing and deployment of new software releases.

The cloud, meanwhile, offers a scalable and centralised platform that supports DevOps teams with easy access to infrastructure and services in support of rapid testing, deployment, and production. Developers and operations teams don't need to buy, configure, and maintain servers because they can provision 'serverless' resources in minutes and shut them off when they're not needed.

Shifting applications to cloud whether by rehosting, replatforming or refactoring is an ideal opportunity to achieve several goals at once: modernising applications, implementing modern DevOps practices and accelerating cloud adoption. As an added perk, FinOps tools and processes can be leveraged to track, control and optimise spending.

DevOps principles plus cloud adoption offers a smoother road to operational maturity. Using containers—orchestrated with tools like Kubernetes—helps companies to build, deploy, and scale their DevOps pipelines, for example. This enables teams to automate most of the manual labour that used to go into building and deploying their software releases.

What's more, most cloud providers provide a range of DevOps tools and features on their platforms, including continuous integration and continuous development tools as well as best practices like their Well-Architected Frameworks. This helps companies to accelerate and simplify adoption of DevOps processes and automation tools.

A guide to the cloud DevOps journey

A guide to the cloud DevOps journey

Whether the business is deep in the cloud, but immature in DevOps processes, advanced in DevOps but lagging in cloud migration, or inexperienced in both, a shift towards cloud DevOps is a major undertaking. The rewards are significant for companies that get it right—not just faster software development, but better quality software and higher levels of enterprise agility.

Here is a roadmap for the journey:

Assess the maturity of your cloud strategy and DevOps practices

An enterprise looking to get cloud and DevOps in lockstep should start with an evaluation of the as-is state. This includes an assessment of the current processes, technology, skills base and culture. Aspects to consider include how siloed the development and operations teams are, which toolsets are in place, how the business collaborates, how it uses the cloud for development and the level of automation across the software development lifecycle.

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Decide where you want to go

The next step is to understand where the business is going and how a more coherent cloud DevOps approach will help it get there. What is the business case for getting cloud and DevOps into alignment? How will cloud DevOps enable the business to achieve better agility, faster time to market and higher levels of developer and IT productivity?

Define DevOps processes and culture

Once the business knows where it wants to go with cloud DevOps, it needs to define the processes and culture that will get it there. Broadly speaking, this will involve shifting the mindset and pipeline from delivering software to delivering services. In general, waterfall development methods and tools will need to give way to agile methodologies.

Reactive development approaches will be replaced with a proactive approach of continuous development, deployment, testing and iteration. Rather than working independently then handing off work to the operations team, the development team will collaborate with ops to rapidly build, test and deploy code with a view to identifying problems early.

Shape the cloud DevOps team

Next up is the crucial step of defining the cloud DevOps team, which will need a mixture of people with DevOps, cloud engineering and software development skills. It might be necessary to recruit new talent and to reskill existing personnel in DevOps best practices. Restructuring teams so that developers and operations teams work together is just the start—but expect removing layers and tearing down siloes to be contentious for some. Change management is essential in helping developers who are new to DevOps, cloud or both to embrace dramatic changes to their ways of working.

Evaluate and choose tools

Evaluate the cloud platforms in place and existing development toolchains. Which new solutions will the business need to support its cloud DevOps environment? Any tools it chooses should work with its public and private cloud solutions of choice. DevOps tools should also work well with the security, governance, and monitoring features of target cloud platforms Pay close attention to continuous integration, continuous delivery, continuous development (CI/CD) automation tools as well as containerisation and microservices.

Implement and continuously improve

At last, the organisation can start to implement DevOps practices, processes, tools and the cloud platforms. It is wise to do so in increments, while watching for security, integration and operational challenges at each step. Even once the tools and processes are in place, the journey is not over. Cloud DevOps is all about continuous improvements to speed, agility and productivity.

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The dos and don'ts of cloud DevOps

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Because cloud and DevOps are still relatively new to many IT departments—especially when deployed as a duo—many enterprises make some easily-avoided mistakes in implementing cloud DevOps practices and structures. As is often the case in large-scale organisational change programmes, the biggest mistakes often relate to people and culture rather than technology.
Here is a checklist of eight things to do and not do to improve prospects for success in cloud DevOps:

Do prioritise culture over tools
The technology and toolchains are fundamental to DevOps success. But before even thinking about them, successful businesses will focus on the cultural change they wish to achieve. This includes getting buy in from the dev and ops teams as well as their user communities, focusing on how people work and what they do, and rethinking how teams collaborate and communicate.

Don't throw away every old practice or process
Cloud DevOps is a massive shift in tools, practices, processes and rules. Embracing this new culture is a journey rather than a big-bang deployment. To succeed, organisations may need to phase in new practices and processes over time, building on the routines and systems they already have in place.

Do embrace automation
Automation of provisioning, testing, development, deployment and other processes helps businesses to accelerate software iterations in a cloud DevOps environment. It's fundamental to an optimised and comprehensive CI/CD pipeline.

Don't forget to simplify processes before automating
Automating inefficient processes when shifting to cloud DevOps will not help the enterprise to achieve the hoped-for efficiencies and agility. Poorly optimised, complex processes will slow down delivery, even if the team attempts to automate them.

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Do invest in cloud-ready tools, skills and processes
If the business has an established DevOps culture, it has a head start in moving towards cloud DevOps. However, not all tools and skills can be shifted directly to the cloud. It is important to take stock of the skills and tool investments that are necessary to bring together a powerful cloud DevOps culture.

Don't imagine any single cloud provider has all the answers
The public cloud providers offer a range of tools and solutions to support cloud DevOps, from containers to serverless infrastructure. However, it's not wise for an enterprise to get locked in with a single cloud vendor. Ensure that applications can be deployed across multiple clouds and the cloud DevOps processes are cloud agnostic.

Do standardise governance practices
In a cloud DevOps environment, success hinges on the tools and processes that are in place to track access, usage, and cost across a sprawl of tools, services, and resources. Automation tools can help, but it's essential to have standard procedures for clean-up, rollback and security in place.

Don't neglect security
Cloud DevOps is an opportunity to embed security requirements into the development process from the start and make it part of automated testing and deployment. Companies should identify security and compliance requirements early in their DevOps journey with a view to automating as many of them as they can.

The future of DevOps in the cloud

The future of DevOps in the cloud

With the DevOps market expected to be worth $37 billion by 2030, DevOps practices are likely to play a starring role in every enterprise's cloud migration and digital transformation strategy. Through trends such as increased adoption of serverless computing, a shift towards DevSecOps and heightened levels of automation, cloud and DevOps are becoming even more closely associated.
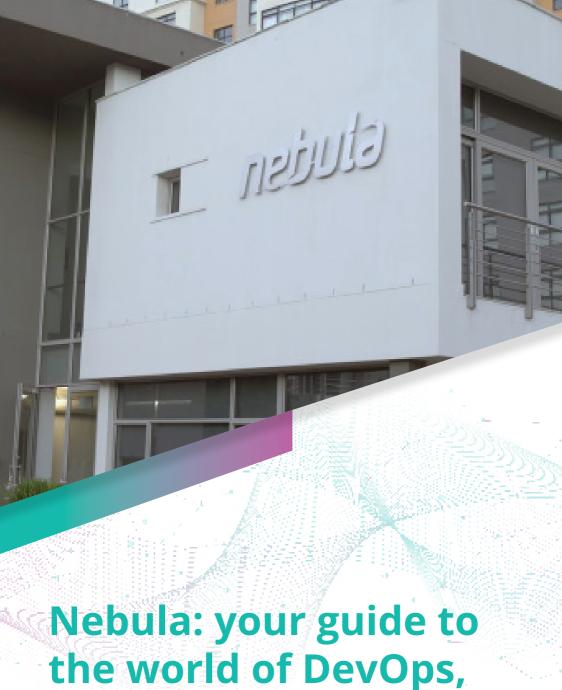
Look out for enterprises to expand their use of serverless computing to streamline DevOps operations and cloud-native development, from development to deployment, testing and maintenance in one place. Serverless computing allows companies to simplify both Dev and Ops by relieving them of many server-related maintenance chores.

Expect to see even more focus in future on how companies can leverage DevSecOps to build bulletproof, cloud-native systems. DevSecOps is a combination of development, security, and operations. DevSecOps enables developers to track, monitor and remediate security defects throughout development while improving the speed of delivery and quality.

It is also anticipated that artificial intelligence (AI) and machine learning will further streamline, automate and accelerate software development in cloud DevOps environments. AIOps will is likely to be an important part of the future. AIOps combines big data, AI and machine learning to automate IT operations processes.

Another potential game-changer for cloud DevOps is the rise of low-code/ no-code development. Low-code and no-code approaches enable developers to further accelerate software development. They even empower citizen developers to innovate and contribute to software development with drag-and-drop tools for app ideation, analysis, design, code development and quality assurance.

Taken together, these trends illustrate why DevOps and the cloud have an intertwined future as companies move ahead with digital transformation. Blending DevOps practices and toolsets with cloud technology and skills will enable enterprises to design, produce, launch and maintain high-quality software solutions at a velocity that keeps up with today's rate of change.

Nebula: your guide to the world of DevOps, FinOps and cloud

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Nebula has been helping companies to streamline cloud development and implement DevOps culture since these practices were new to the market. Our knowledgeable teams have partnered with some of South Africa's largest enterprises to automate complex IT and telecoms tasks and to simplify management of heterogenous technology environments.

Our cloud identity, cloud management and technology expense management solutions can facilitate a seamless transition to the cloud for your business. At a time of multi-cloud deployment, remote and distributed workforces, and relentless cost pressure, we can help your organisation gain better control over its cloud development processes and IT spending.

Our flagship Nebula OneView solution can help your organisation to shift towards a FinOps model based on robust automation and information. We can collaborate with your business to reduce wastage caused by overbilling, redundant infrastructure, poorly optimised usage management, governance gaps and an inability to monitor spending.

Contact us to learn more about how we can partner with you in optimising the performance and costs of your IT environment as you accelerate digital transformation.

For More Information

To find out more about DevOps and cloud developement, please send an email to ContactUs@nebula.co.za with "DevOps" in the subject line, and a 1Nebula staff member will contact you. You can also visit any of these platforms for more information and latest company news.

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