It's time to move into configuration management.

Configuration management means maintaining and changing the state of pieces of infrastructure in a consistent, maintainable, and stable way. Configuration management essentially means automated management of infrastructure configuration. Changes are a normal part of day-to-day life in the IT industry, and they always need to happen. We always need to make changes to keep our infrastructure up-to-date and to meet changing business needs.

Configuration management is a way of minimising configuration drift. Configuration drift is the accumulation of all of the small changes made to systems over time and then cause those systems to become different from one another. Configuration management is about doing these changes in a maintainable way.

If you think about it, every time someone logs into a system and makes a change, there's a chance that they have now made that system different from other systems that you manage when they should be standardised. Configuration management helps us minimise configuration drift by rolling out changes and managing configurations across a complex infrastructure in an automated and centralised way. There is a close relationship between configuration management and Infrastructure as Code.

Let us go into an example of what configuration management looks like. Say that we need to upgrade a software package on a bunch of servers. Without good configuration management, we would log in to each server and perform the upgrade manually, and this process can lead to many problems, some of which are from human error.

Maybe we forgot about one of the servers because we didn't have good documentation on it, and therefore the software package was not upgraded on one of the servers. Or perhaps while we're in the process of rolling out these upgrades

to a variety of different servers, there is a temporary version mismatch that causes something to break while we're in the process of manually standing up the server.

On the other hand, we define a new version of the software package in a configuration file or tool using sound configuration management principles. Then we use that tool to automatically roll the change out across various servers within our infrastructure.

Configuration management is about managing your configuration somewhere outside of the servers themselves. So in the case of the example here, we are working it in configuration files that are then applied using a configuration management tool.

Why should you do configuration management? First, it saves time. It takes less time to roll out configurations because of the benefits of automation. Secondly, good configuration management tools will provide you with insight, and you are able to roll out changes to servers. Additionally, configuration management tools give you insight into the current state of your infrastructure. This insight can allow you to better understand what has been rolled out to your servers and what their configuration is at present.

In summary, configuration management is very good for maintainability. Configuration management is essential because a maintainable infrastructure is easier to change with ease and consistency across all servers. Change or configuration drift always introduces the risk of instability, but the more maintainable your infrastructure is, the lower that risk.

Configuration management is an imperative tool for DevOps. Good DevOps infrastructures, especially in the cloud, can become very complex. You're going to need configuration management in order to manage that complexity in a stable and maintainable way.