

# IT Infrastructure Automation

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## Summary

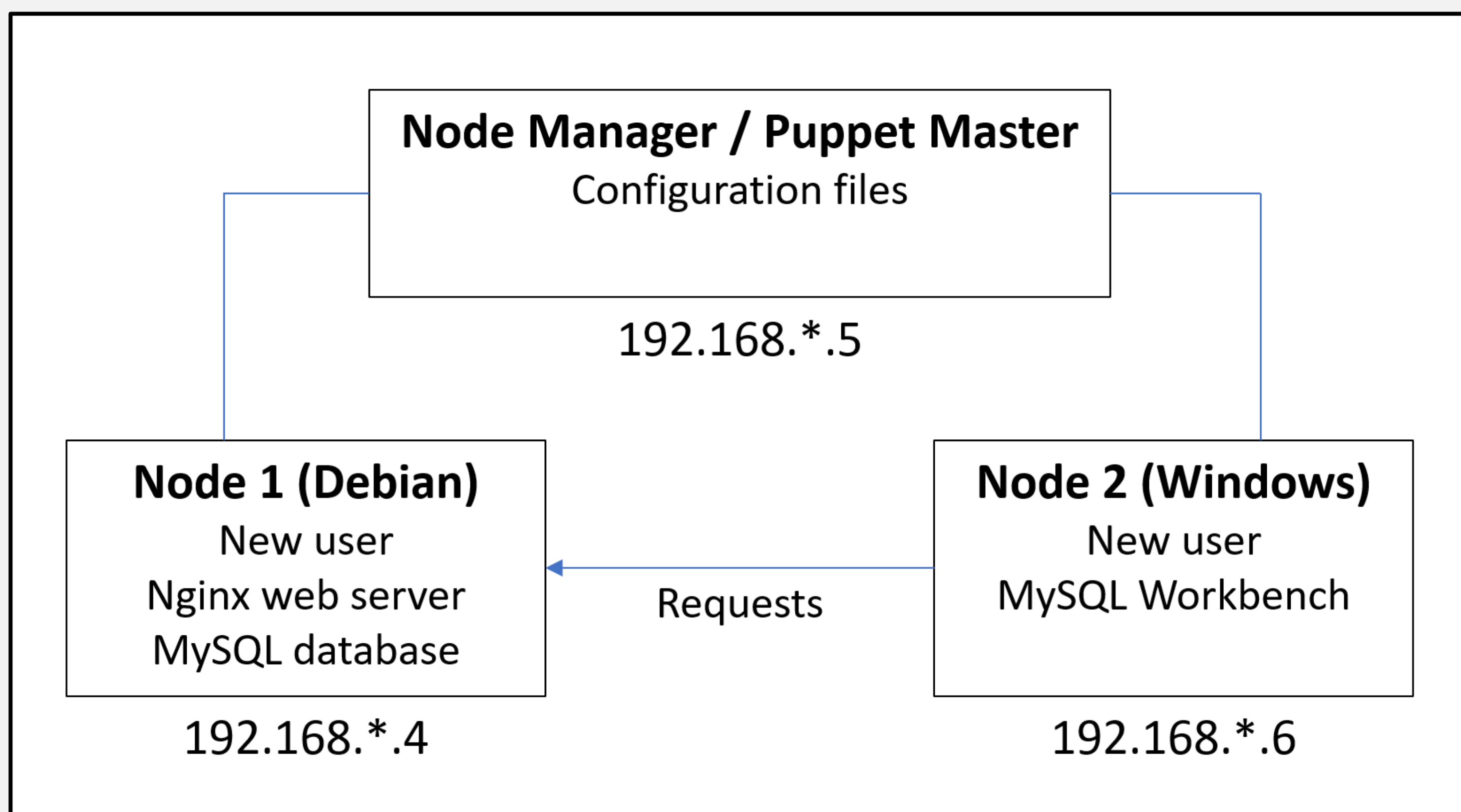
1. State of the art of **information technology infrastructure automation**
2. Analysis of a variety of open-source **configuration management tools**
3. Establishment of **two virtual labs** with Ansible and Puppet
  - **Installation** process of each environment
  - **Configuration** of each environment according to use cases

## Introduction

- Companies nowadays work with an increasing number of software and devices to create always **more complex infrastructures**.
- System administrators need a way to **manage and control** their IT infrastructure easily, without wasting time and effort into repetitive tasks that can be automated.
- **Infrastructure as Code (IaC)** software provide the necessary tools to reach that goal.
- The research is mainly focused on **configuration management** software.

## Uses Cases (Virtual labs)

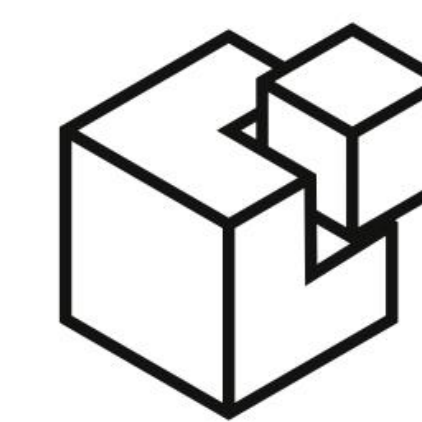
- Ansible and Puppet were tested in more detail to achieve the following tasks using Linux and Windows operating systems :
  1. Installation and initial configuration of the software
  2. Creation of a simple user
  3. Configuration of an Nginx web server
  4. Configuration of a MySQL database
  5. Deployment of updates and upgrades



## Technologies



CHEF



SALTSTACK



puppet



HashiCorp  
Terraform

## Steps

- The research has been conducted as follows :
  1. **State of the art** of IT automation concepts
  2. **State of the art** of 5 open-source infrastructure as code (IaC) software
  3. **Analysis and testing** of each software individually
  4. **Comparison** of 4 configuration management software and **selection** of 2 of them according to a set of criteria
  5. **Establishment of 2 virtual labs** with the selected software using VirtualBox

## Conclusions

- Two groups of configuration management software can be made : Ansible and Salt aim more towards accessibility, while Chef and Puppet provide a configuration language allowing more complex operations.
- All software can be used with efficiency, it depends on the user's needs and competencies.