The three configuration tools are simple to use and yet facilitate robust capabilities to automate complex multi-tier IT application environments.

The differences between Ansible, Chef and Puppet are portrayed on the basis of different factors including Availability, Configuration Language, Setup and Installation, Ease of Management, Scalability, Interoperability, Tool Capabilities and Pricing.

1) Availability

The availability of the three configuration tools in the event of main master or server failure is very high. Every tool has the facility of a backup server or an alternative master to render support in case of main server failure.

DevOps Tool	Availability (in case of server failure)
Chef	Backup Server
Puppet	Alternative Master
Ansible	Secondary instance

2) Configuration Language

Configuration language plays a prominent role in determining the applications of a configuration management tool.

DevOps Tool	Configuration Language	Suitable for	Learning Level
Chef	Ruby DSL	Developers	Difficult
Puppet	Ruby, Puppet DSL, Embedded Ruby (ERB), DSL	System Administrators	Difficult
Ansible	Python, YAML	System Administrators	Simple

3) Setup and Installation

When it comes to ease of setup and installation, Ansible dominates the other two tools as it has 'agentless' architecture. Chef and Puppet follow master-agent or master-slave architecture.

DevOps Tool	Architecture	Ease of Setup and Installation
Chef	Master-Agent	Difficult and complex due to Chef Workstation
Puppet	Master-Agent	Difficult due to certificate signing between master and agent
Ansible	Only Master (Agentless)	Easy

4) Ease of Management

The management of the DevOps tools depends upon the language and configuration of the tools.

There are two types of configurations including 'pull' and 'push'. Pull configuration involves pulling all configurations from a central server to the slave nodes without any commands. Whereas, in a push configuration, all the configurations in the server will be pushed to the nodes with specific commands.

In terms of configuration language, YAML is considered to be the easiest one as it is similar to English and is human-readable. While Puppet DSL and Ruby DSL languages create setbacks for management.

Once again Ansible portrays its dominance over the others in terms of management as it supports YAML language and follows both push and pull configurations.

DevOps Tool	Configuration	Ease of Management
Chef	Pull	Difficult
Puppet	Pull	Difficult
Ansible	Push and Pull	Easy

5) Scalability

Scalability of the configuration tools is one of the main factors considered by the enterprises before choosing the tool.

Chef, Puppet and Ansible are capable of managing large infrastructures while handling the burden in scaling configurations. However, there is a slight difference between them in

DevOps Tool	Scalability
Chef	High
Puppet	High
Ansible	Very High

terms of scalability owing to the complexity of their configuration language.

6) Interoperability

In terms of interoperability, all the three tools, Chef, Puppet and Ansible, have similar features. In three cases, all the servers work on Linux or Unix machines while slaves or nodes will work on Windows machines.

DevOps Tool	Interoperability
Chef	Chef Server should be on Linux/Unix; Workstation and Chef Client support Windows
Puppet	Puppet Master should be on Linux/Unix; Puppet Agent or Client supports Windows
Ansible	Ansible Server should be on Linux/Unix; Client machines support Windows

7) Tool Capabilities

A review of the product capabilities of each configuration management tool can help in choosing the most suitable tool for your requirements. Each tool has its own set of capabilities that are better in its own way.

Product Capabilities		
Chef	**Puppet**	**Ansible**
Continuous delivery with automated workflow Compliance and security management Infrastructure automation	Orchestration Automated provisioning Code and node management Configuration automation Simple visualization and reporting High transparency Role-based access control	Simple orchestration Streamlined provisioning Continuous delivery with automated workflow App deployment Security and compliance integration into automated processes

8) Pricing

DevOps Tool	Pricing	Pricing
Chef	High	USD 13700/year for up to 100 nodes

Puppet	Medium	USD 11200-19900/year for up to 100 nodes
Ansible	Low	USD 10000/year for up to 100 nodes

Pricing plays a prominent role in decision making for the adoption of configuration management tools or, in general, any product or technology.