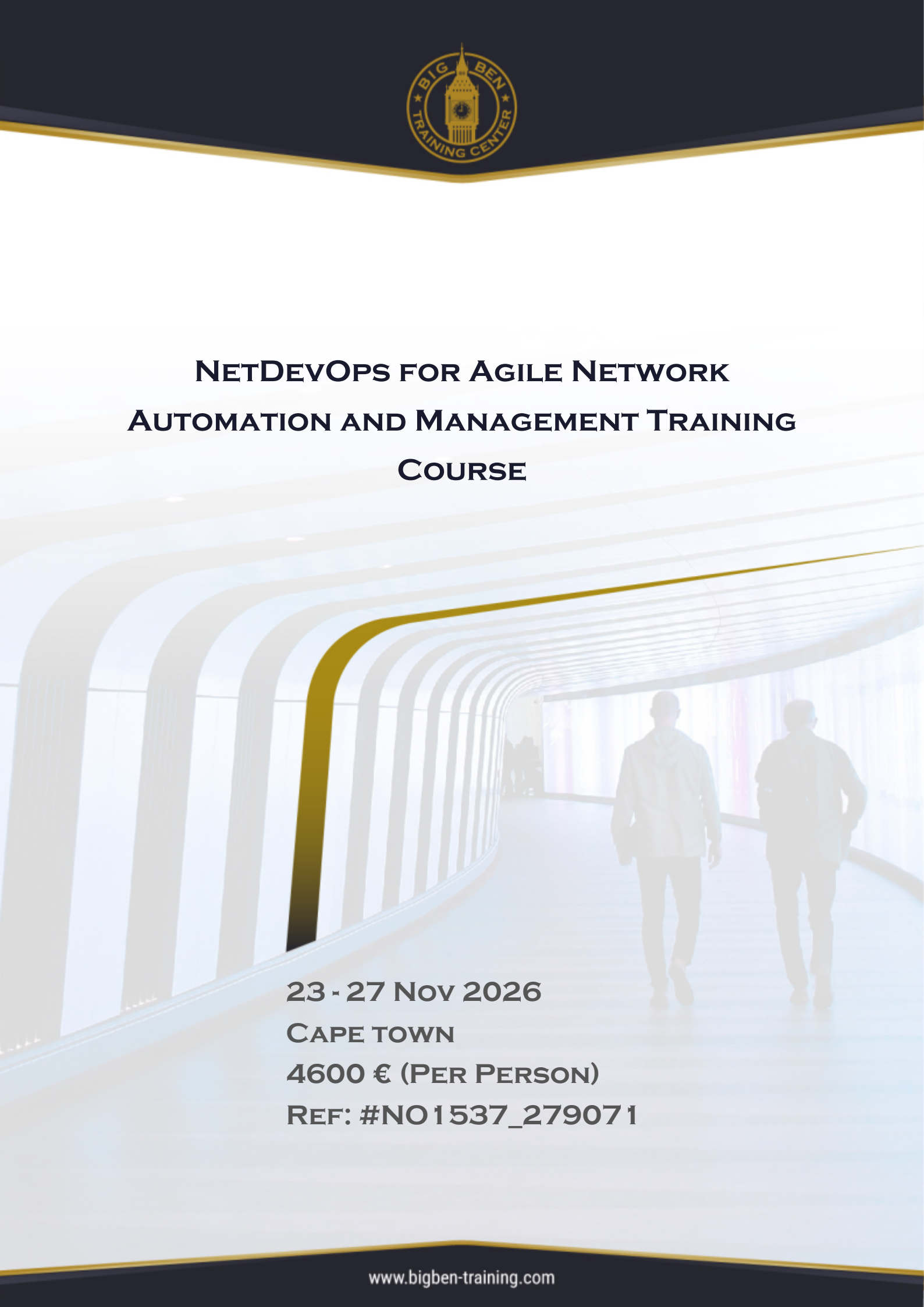
# NetDevOps for Agile Network Automation and Management Training Course



23 - 27 Nov 2026

Cape town

4600 € (Per Person)

Ref: #NO1537_279071

## Course Introduction / Overview:

This course provides a comprehensive exploration of NetDevOps, a transformative approach that applies DevOps principles to network infrastructure management. In today's fast-paced digital environment, traditional manual network operations are becoming a bottleneck, hindering agility and innovation. This training course is designed to equip participants with the skills, tools, and cultural mindset needed to automate network provisioning, configuration, and management, thereby creating a more agile, reliable, and secure network infrastructure. We will delve into the core concepts of Infrastructure as Code (IaC), continuous integration and continuous delivery (CI/CD) pipelines, and network programmability. Drawing on the foundational ideas presented by experts like Jason Edelman in works such as "Network Programmability and Automation", this program moves beyond theory. At BIG BEN Training Center, we focus on practical application, enabling you to build and manage automated workflows for complex network environments. Participants will learn to leverage powerful tools like Python, Ansible, Git, and Docker to transform their network operations from a reactive, manual process into a proactive, automated, and code-driven discipline, ensuring their organization can keep pace with modern business demands.

## Target Audience / This training course is suitable for:

- Network Engineers and Architects.
- DevOps and Site Reliability Engineers (SREs).
- System and Cloud Administrators.
- IT Managers and Team Leaders overseeing infrastructure.
- Solutions Architects involved in network design.
- Infrastructure Automation Specialists.
- Cybersecurity professionals focused on network security.

## Target Sectors and Industries:

- Telecommunications and Internet Service Providers.
- Financial Services and Banking.
- Technology and Software Development companies.
- Healthcare and Pharmaceutical sectors.
- E-commerce and Retail industries.
- Government agencies and public sector organizations.
- Managed Service Providers (MSPs).

## Target Organizations Departments:

- Information Technology Operations.
- Network Engineering and Administration.
- Cloud Infrastructure and Platform Engineering.
- Cybersecurity and Information Security.
- Software Development and Application Teams.
- Research and Development (R&D).
- Data Center Management.

## Course Offerings:

By the end of this course, the participants will have able to:

- Apply DevOps principles to network infrastructure management and operations.
- Automate network device configuration and management using Ansible playbooks.
- Develop Python scripts for network automation tasks and API interaction.
- Implement version control for network configurations using Git workflows.
- Build and manage a CI/CD pipeline for automated network testing and deployment.
- Utilize Infrastructure as Code (IaC) to define and manage network resources.
- Work with data serialization formats like YAML and JSON for network automation.
- Integrate container technologies like Docker into network service workflows.
- Implement network observability and telemetry for proactive monitoring.
- Adopt a NetDevOps culture of collaboration, automation, and continuous improvement.

## Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, immersive, and practical, ensuring participants can apply their learning directly to real-world challenges. This course moves beyond traditional lectures by integrating hands-on labs, where participants will write code, build automation playbooks, and configure CI/CD pipelines in a simulated enterprise environment. We emphasize a collaborative learning atmosphere through group discussions and team-based projects that mirror the cross-functional nature of a true NetDevOps culture. Real-world case studies will be analyzed to demonstrate successful implementations and common pitfalls of network automation initiatives. Our expert instructors facilitate sessions that encourage active participation, questioning, and knowledge sharing. Continuous feedback is provided throughout the course to help participants refine their skills and solidify their understanding of complex concepts. The curriculum is structured to build knowledge progressively, starting with foundational principles and advancing to complex, integrated automation workflows, ensuring a comprehensive and lasting learning experience.

## Course Agenda (Course Units):

### Unit One: Foundations of NetDevOps and Network Automation

- Introduction to NetDevOps principles and culture.
- Contrasting traditional network management with modern automated approaches.
- The core components of the NetDevOps toolchain.
- Understanding network programmability and its importance.
- Introduction to APIs, REST, and data models like YANG.
- Setting up a virtual lab environment for hands-on practice.
- Exploring the software development lifecycle for network engineers.

## Unit Two: Infrastructure as Code and Python for Networking

- Core principles of Infrastructure as Code (IaC).
- Working with data formats: JSON and YAML.
- Introduction to Python programming for network automation.
- Using essential Python libraries like Netmiko and NAPALM.
- Writing scripts to connect to devices and retrieve information.
- Automating configuration changes with Python scripts.
- Introduction to templating with Jinja2 for dynamic configurations.

## Unit three: Configuration Management with Ansible

- Introduction to Ansible architecture and core concepts.
- Writing and executing Ansible ad-hoc commands.
- Developing idempotent Ansible playbooks for network configuration.
- Using Ansible Vault to manage sensitive data.
- Managing device inventory and dynamic inventory sources.
- Leveraging Ansible roles and collections for reusable automation.
- Troubleshooting and debugging Ansible playbooks.

## Unit Four: CI/CD Pipelines and Version Control for Networks

- Fundamentals of version control with Git.
- Managing network configurations and code with Git repositories.
- Branching strategies for collaborative network development.
- Introduction to Continuous Integration (CI) and Continuous Delivery (CD).
- Building a network CI/CD pipeline using Jenkins or GitLab CI.
- Automating network testing and validation with pyATS.
- Implementing a source of truth for network data.

### Unit Five: Advanced NetDevOps and Modern Networking Concepts

- Introduction to containers with Docker for network services.
- Network automation in a containerized environment with Kubernetes.
- Implementing network observability and streaming telemetry.
- Integrating security into the NetDevOps pipeline (DevSecOps).
- Introduction to Software-Defined Networking (SDN) concepts.
- Exploring the future of network automation and AIOps.
- Developing a roadmap for adopting NetDevOps in your organization.

## FAQ:

### Qualifications required for registering to this course?

There are no requirements.

### How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

## Something to think about:

As network infrastructures become fully programmable and automated, what is the evolving role of the human network engineer, and where should they focus their skill development to remain indispensable?

## What unique qualities does this course offer compared to other courses?

This training course distinguishes itself by focusing on the holistic integration of culture, tools, and processes, which is the true essence of NetDevOps. While many courses concentrate solely on teaching a specific automation tool, our curriculum is built around instilling a DevOps mindset within a networking context. We emphasize the "why" behind the automation, teaching participants how to think like developers, apply software development best practices to infrastructure, and build robust, scalable, and maintainable automation workflows. The program's structure ensures a deep dive into the complete lifecycle of network automation, from version control with Git to building a full CI/CD pipeline for testing and deployment, a comprehensive scope often missing elsewhere. Rather than just providing code snippets, we guide participants through the process of designing solutions to complex, real-world problems. This focus on architectural thinking and practical problem-solving, combined with hands-on labs that simulate enterprise environments, ensures that graduates are not just tool operators but true NetDevOps practitioners ready to drive meaningful change and innovation within their organizations.