# Advanced Linux Networks for Server and Data Management Training Course



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4100 € (Per Person)

Ref: #NO7881_264137

## Course Introduction / Overview:

This comprehensive training course is designed for IT professionals who want to master Linux networking and its application in server and data management environments. In today's digital landscape, the ability to manage and secure robust network infrastructures is a critical skill for any organization. This course moves beyond basic commands, diving into advanced topics like network service configuration, performance tuning, and the security of Linux-based systems. Participants will learn how to design, implement, and troubleshoot complex network architectures that support enterprise-level data management. The curriculum covers a wide range of subjects, from firewall configuration and VPN setup to advanced routing and DNS administration. We will explore network automation tools, discuss container networking, and examine the best practices for maintaining high availability in server environments. Drawing from the expertise of authors like W. Richard Stevens, particularly his work in "TCP/IP Illustrated," this course provides a strong academic and practical foundation. The BIG BEN Training Center is proud to offer this program, which combines theoretical knowledge with hands-on, real-world scenarios. The goal is to prepare participants to handle the most challenging network administration tasks. By the end of this course, you will possess a deep understanding of how to build and maintain secure, efficient, and scalable Linux-based networks for any data-intensive application.

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

- System administrators and network engineers.
- DevOps professionals and cloud engineers.
- IT managers and infrastructure architects.
- Cybersecurity specialists.
- Data center operators.
- Database administrators.
- Technical support staff.

## Target Sectors and Industries:

- Information Technology and software development.
- Telecommunications and internet service providers.
- Financial services and banking.
- Data centers and cloud computing.
- Manufacturing and logistics.
- Government agencies and defense.
- Research and academic institutions.

## Target Organizations Departments:

- IT and Network Operations.
- System and Database Administration.
- DevOps and Site Reliability Engineering (SRE).
- Information Security.
- Cloud Infrastructure.
- Data Management and Analytics.
- Corporate R&D.

## Course Offerings:

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

- Master advanced Linux networking commands and tools.
- Configure and secure network services like DNS, DHCP, and SSH.
- Implement robust firewall rules using iptables and notables.
- Troubleshot complex network connectivity issues and performance bottlenecks.
- Automate network configuration and management using scripting.
- Design and deploy containerized network solutions.
- Ensure data integrity and security across Linux-based server networks.

## Course Methodology:

This training course at BIG BEN Training Center uses an immersive and practical methodology to ensure a deep understanding of advanced Linux networking concepts. The curriculum combines instructor-led presentations with extensive hands-on lab exercises, allowing participants to apply what they have learned in a live environment. We will use a case-study approach, analyze common network scenarios and work together to devise effective solutions. Group exercises and collaborative troubleshooting sessions will be a core part of the learning experience, fostering teamwork and practical problem-solving skills. Participants will receive personalized feedback on their lab work and project assignments, helping to correct misconceptions and build confidence. The course is structured to be highly interactive. It encourages questions and discussions, ensuring that every participant's learning needs are met. This approach goes beyond simple theory. It provides the real-world experience and skills necessary for managing the complex network infrastructure that is essential for modern servers and data management.

## Course Agenda (Course Units):

### Unit One: Advanced Linux Networking Fundamentals

- Linux network stack and kernel configuration.
- Network interface configuration and management.
- Advanced routing and static route management.
- Network service file management.
- Monitoring network performance with command-line tools.
- Managing network devices and bridges.
- Introduction to network virtualization.

### Unit Two: Network Security and Firewall Management

- Configuring firewalls with iptables and nftables.
- Network address translation (NAT) and port forwarding.
- Securing network services with TCP wrappers and SELinux.
- Implementing virtual private networks (VPNs).
- Analyzing network traffic with tcpdump and Wireshark.
- SSH security and access control.
- Intrusion detection and prevention systems.

## Unit Three: DNS, DHCP, and Service Management

- DNS server configuration and zone management.
- DHCP server setup and IP address management.
- Troubleshooting DNS and DHCP issues.
- Configuring network services for high availability.
- Service management with systemd.
- Load balancing and failover strategies.
- DNSSEC and advanced DNS security.

## Unit Four: Network Automation and Data Center Networking

- Network configuration with Ansible and Puppet.
- Scripting network tasks with Bash and Python.
- Container networking with Docker and Kubernetes.
- Managing network bridges and overlays for containers.
- Data center network architectures and spine-leaf topologies.
- Network monitoring and logging.
- Practical labs on automating network tasks.

## Unit Five: Storage Networks and Performance Tuning

- Configuring Network Attached Storage (NAS) and Storage Area Networks (SAN).
- Managing iSCSI and NFS protocols.
- Optimizing network performance for data transfer.
- Network-based data backup and recovery.
- Advanced network performance tuning.
- Troubleshooting data transfer bottlenecks.
- Final project: Designing a secure and efficient server network.
- Frequently Asked Questions:

# 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:

In an increasingly containerized and virtualized world, how can traditional network administrators adapt their skill sets to manage the dynamic and ephemeral nature of modern data center networks?

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

This course provides a specialized and comprehensive approach to Linux networking; a field often covered only superficially in broader IT training. It goes deep into the core of Linux server management, focusing on how networks function and can be optimized in real-world data centers. Unlike other courses that might touch on a wide range of topics, this curriculum is tailored for those who need to master the command line and configuration files to build robust, secure, and scalable network infrastructures. The training emphasizes practical skills over abstract theory, with a strong focus on security, performance tuning, and automation. This means participants will not just learn about tools, but how to use them effectively to solve complex problems. It also includes an in-depth look at modern topics like container networking and cloud integration, ensuring that the skills learned are relevant for today's IT challenges. The course is designed to empower professionals to move beyond basic administration and become a genuine network expert, capable of designing and maintaining critical systems.