Advanced Network Infrastructure Design and Implementation Training Course

06 - 10 Dec 2026

Doha

5500 € (Per Person)

Ref: #NO7388_200919

Course Introduction / Overview:

This comprehensive training course is designed to provide senior network professionals with the advanced skills required to design and implement robust network infrastructures for large-scale enterprises. In a world where business continuity and performance are directly tied to network reliability, the ability to architect a scalable, secure, and efficient network is a critical and highly sought-after skill. This program goes beyond foundational concepts to cover complex topics such as multi-layer network design, WAN architecture, data center networking, and advanced security integration. Participants will learn how to make strategic decisions that impact network performance and stability for thousands of users and devices. The curriculum is based on real-world best practices and academic frameworks, drawing from the work of renowned authors like Russ White and his foundational book "The Art of Network Architecture." This program at BIG BEN Training Center will equip you with the strategic and technical expertise to design and manage the next generation of enterprise networks.

Target Audience / This training course is suitable for:

- Senior network engineers and architects.
- IT infrastructure managers.
- Solutions architects.
- Data center engineers.
- Network security specialists.
- DevOps and cloud engineers.
- Technical leaders.

Target Sectors and Industries:

- Telecommunications.
- Financial services.
- Enterprise IT departments.
- Managed service providers.
- Cloud computing.
- Government agencies and equivalents.
- E-commerce.

Target Organizations Departments:

- Network Engineering.
- IT Infrastructure.
- Data Center Operations.
- Information Security.
- Systems Architecture.
- Cloud Services.
- Research and Development.

Course Offerings:

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

- Design a scalable and resilient network infrastructure.
- Implement advanced routing and switching protocols for large enterprises.
- Integrate robust network security into the architectural design.
- Develop a comprehensive plan for network migration and expansion.
- Master the design principles of data center networking.
- Utilize network automation tools for efficient large-scale deployments.
- Troubleshoot complex issues in a multi-layered network.

Course Methodology:

This training course at BIG BEN Training Center uses an architecturally focused and highly collaborative methodology. The program combines expert-led sessions with a series of in-depth case studies and a capstone design project. Participants will work in teams to design and present a network infrastructure solution for a simulated large enterprise, from the initial requirements gathering to the final implementation plan. The course emphasizes strategic decision-making, cost analysis, and risk mitigation. The instructor, acting as a lead architect, will provide detailed feedback on each design, challenging participants to think critically about scalability, security, and performance. This approach prepares participants to think like a network architect, not just a network engineer, providing them with the skills to lead and influence major infrastructure projects.

Course Agenda (Course Units):

Unit One: Strategic Network Architecture

- The role of a network architect.
- Principles of scalable network design.
- The network designs are lifecycles.
- Gathering and analyzing business requirements.
- Top-down vs. bottom-up design.
- Risk management in network design.
- Case study: a high-level enterprise network plan.

Unit Two: Campus and Wide Area Network (WAN) Design

- Core, distribution, and access layer design.
- Implementing advanced switching technologies.
- WAN topology and transport options.
- Designing a resilient WAN with redundancy.
- Optimizing network performance across long distances.
- Securing WAN connections.
- Practical lab: a multi-site network design exercise.

Unit Three: Data Center Networking

- Data center network architecture.
- Spine-and-leaf vs. three-tier architecture.
- Server virtualization and network virtualization.
- Storage area networks (SANs).
- Load balancing and traffic management.
- Implementing automation in the data center.
- Case study: data center network migration.

Unit Four: Network Security Integration

- Integrating security into the network design.
- Designing a layered security model.
- Network segmentation and micro-segmentation.
- Implementing zero-trust architecture.
- Firewall placement and policy design.
- Security auditing and compliance.
- Practical lab: designing a secure network.

Unit Five: Implementation, Operations, and Future Trends

- Creating an implementation and migration plan.
- Network management and monitoring best practices.
- Automating network tasks for efficiency.
- Troubleshooting complex network problems.
- The future of enterprise networking.
- Final project: a comprehensive network design presentation.
- Exploring emerging technologies.

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:

With the increasing adoption of cloud services and as-a-service models, what will be the long-term impact on the role of the traditional on-premises network architect and how can they remain relevant?

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

This course stands out because it focuses exclusively on the high-level, strategic discipline of network architecture for large enterprises. Unlike many technical certifications that focus on device configuration, this program teaches you the principles and methodologies for designing a network from a business perspective. The curriculum is built around a hands-on, end-to-end design project that challenges you to apply your knowledge in a realistic setting, from gathering requirements to creating a full implementation plan. The emphasis on business alignment, risk management, and strategic planning distinguishes this course from others. It is for senior professionals who want to transition from a technical role to a leadership role. This program provides the skills to influence and shape an organization's entire IT infrastructure.