

# Juniper Networks Design Fundamentals (JNDF)

Engineering Simplicity

## COURSE LEVEL

JNDF is an introductory level course.

## AUDIENCE

This course is targeted specifically those who have a solid understanding of operation and configuration and are looking to enhance their skill sets by learning introductory principles of network design.

## PREREQUISITES

- Knowledge of routing and switching architectures and protocols.
- Knowledge of Juniper Networks products and solutions.
- Understanding of infrastructure security principles.
- Basic knowledge of hypervisors and load balancers.

## ASSOCIATED CERTIFICATION

[JNCDA](#)

## RELEVANT JUNIPER PRODUCT

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|--|---------------------------|
| • Design                                   | • Junos SDK               |
| • Network Design                           | • Junosphere / VJX        |
| • ACX Series                               | • LN Series               |
| • Appsecure                                | • M Series                |
| • C Series                                 | • MAG Series              |
| • Contrail                                 | • MX Series               |
| • CSE Series                               | • NFX Series              |
| • CTP Series                               | • Odyssey Access Client   |
| • E Series                                 | • QFabric                 |
| • EX Series                                | • Policy Enforcer         |
| • IDP Series                               | • QFX Series              |
| • ISG Series                               | • SBR Series – Software   |
| • J Series                                 | • Sky ATP                 |
| • JCS1200                                  | • SRX Series              |
| • JSA Series                               | • SSG Series              |
| • Junos OS                                 | • T Series                |
| • Junos Space                              | • vGW Series              |
| • Junos Space Network Director             | • Design Track            |
| • Junos Space Security Director            | • Instructor-Led Training |
| • Junos Space Services Activation Director |                           |

## RECOMMENDED NEXT COURSE

- *Juniper Networks Design – Data Center (JND-DC)*
- *Juniper Networks Design – Service Provider (JND-SP)*
- *Juniper Networks Design – Security (JND-SEC)*

## CONTACT INFORMATION

[Contact Juniper Education Services](#)

## COURSE OVERVIEW

This three-day course is designed to cover introductory best practices, theory, and design principles for overall network design

## OBJECTIVES

- Provide an overview of network design needs and common business requirements.
- Identify key product groups related to campus, WAN, data center, and security architectures.
- Describe and interpret common RFP requirements.
- Scope a network design by gathering data and working with key stakeholders.
- List ways of processing customer data and design requests.
- Identify boundaries and scope for the design proposal.
- List some considerations when creating a design proposal.
- Provide an overview of network security design principles and common vulnerabilities.
- List high-level design considerations and best practices for securing the network.
- List the components of the campus network design.
- State best practices and design considerations for the campus.
- Describe architectural design options for the campus.
- List the components of the WAN.
- Describe best practices and design considerations for the WAN.
- Describe design options for the WAN.
- List the components of the data center design.
- Describe best practices and design considerations for the data center.
- Describe architectural design options for the data center.
- Define business continuity and its importance in a network design.
- Describe high availability design considerations and best practices.
- Provide an overview of high availability offerings and solutions.
- Describe Class of Service design considerations.
- Provide an overview of environmental considerations in network design.
- List design considerations and best practices for managing the network.
- Provide an overview of Juniper Networks and third party options for network management.
- List design considerations and best practices for network automation.
- Provide an overview of automation tools.
- Explain the foundational topics that have been taught throughout the course.
- Create a network design proposal that satisfies customer requirements and business needs.
- Provide an overview of the steps involved in migrating a network.
- Describe best practices used in network migration.
- List the various campus network topographies.
- Describe sample design options for the campus.

## COURSE CONTENT

### Day 1

<b>1</b>	<b>COURSE INTRODUCTION</b>
<b>2</b>	<b>Network Design Fundamentals</b> <ul style="list-style-type: none"> <li>• A Need for Design</li> <li>• Knowledge is King</li> <li>• A Proposed Design Methodology</li> <li>• A Reference Network</li> </ul>
<b>3</b>	<b>Understanding Customer Requirements</b> <ul style="list-style-type: none"> <li>• RFP Requirements</li> <li>• Scoping the Design Project</li> <li>• Analyzing the Data</li> </ul> <p><b>LAB: Understanding Customer Requirements</b></p>

<b>4</b>	<b>Organizing the Data</b> <ul style="list-style-type: none"> <li>• Processing the Data and Requests</li> <li>• Understanding Boundaries and Scope</li> <li>• Design Proposal Considerations</li> </ul>
<b>5</b>	<b>Securing the Network</b> <ul style="list-style-type: none"> <li>• Why Secure the Network?</li> <li>• Security Design Considerations</li> </ul>

### Day 2

<b>6</b>	<b>Creating the Design—Campus</b> <ul style="list-style-type: none"> <li>• The Campus Network: An Overview</li> <li>• Best Practices and Considerations</li> <li>• Architectural Design Options</li> </ul> <p><b>LAB: Creating the Design—Campus</b></p>
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<b>8</b>	<b>Creating the Design—Data Center</b> <ul style="list-style-type: none"> <li>• The Data Center: An Overview</li> <li>• Best Practices and Considerations</li> <li>• Data Center Design Examples</li> </ul> <p><b>Lab: Creating the Design—Data Center</b></p>
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<b>7</b>	<b>Creating the Design—Wide Area Networks</b> <ul style="list-style-type: none"> <li>• The WAN: An Overview</li> <li>• Best Practices and Considerations</li> <li>• WAN Design Examples</li> </ul> <p><b>Lab: Creating the Design—WAN</b></p>
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<b>9</b>	<b>Business Continuity and Network Enhancement</b> <ul style="list-style-type: none"> <li>• Business Continuity Planning</li> <li>• High Availability Design Considerations and Best Practices</li> <li>• Offerings and Solutions</li> <li>• CoS and Traffic Engineering Considerations</li> <li>• Environmental Design</li> </ul>
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### Day 3

<b>10</b>	<b>Network Management</b> <ul style="list-style-type: none"> <li>• Designing for Network Management</li> </ul>
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<b>12</b>	<b>Putting Network Design into Practice</b> <ul style="list-style-type: none"> <li>• Network Design Recap</li> <li>• Responding to the RFP</li> <li>• Final Lab Introduction</li> </ul> <p><b>Lab: Putting Network Design into Practice</b></p>
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<b>11</b>	<b>Automation</b> <ul style="list-style-type: none"> <li>• Designing for Network Automation</li> </ul> <p><b>Lab: High Availability</b></p>
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## Appendix A: Network Migration Strategies

- Migration Overview
- Migration Approaches
- Migration Examples

## Appendix B: Sample Campus Designs

- Campus Topology Examples

## Appendix C: Sample Response to RFP

- Example of an Actual Juniper Networks RFP Response