| Course Name | CCIE Data Center v3.1 |
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| About the Course | Demonstrate advanced skills to plan, design, deploy, operate, and optimize complex data center networks. Maximize the potential of a better connected world with the Cisco Certified Internetwork Expert (CCIE) Data Center certification. |
| Key Skills You Will Learn | The CCIE Data Center certification program teaches a range of skills related to data center technologies, including: Data center architecture, Network overlays, Security, Troubleshooting, Networking fundamentals, Automation, Cloud computing |
| Course Pre-Requisite | While there are no formal prerequisites for the CCIE Data Center certification, you should have a good understanding of the exam topics and relevant experience. Candidates are recommended to have five to seven years of experience designing, deploying, operating, and optimizing data center technologies and solutions. You should have a strong understanding of data center networking technologies, including Cisco Nexus switches, UCS servers, and FabricPath |
| Target Audience | The target audience for the Cisco Certified Internetwork Expert (CCIE) Data Center certification is experienced data center professionals who want to advance their skills to lead roles in IT data center solution |
| Job prospects with this role | Senior Network Engineer, Solutions Architect, Technical Consulting Engineer, Network Architect Network Security Engineer, IT Director/Manager, Solutions Integrator, Network Operations Manager, Lead Infrastructure Enginee |
| Course Duration | ~ 120 Hrs |
| Course Customisation | Not applicable |
| Certification | READYBELL CCIE Data Center v3.1 Certificate |
| Mode of Training | Instructor-led 100% Online or 100% Classroom (Salt Lake, Kolkata - India) or hybrid mode (Online + Classroom) as suitable for the learner |
| Course Fees | Please contact us |
| Refund Policy | Get a 3-hours free trial during which you can cancel at no penalty. After that, we don't give refunds |
| Job Assistance | Will assist candidate in securing a suitable job |
| Contact | READYBELL SOFTWARE SERVICES PVT. LIMITED<br>AH 12, SALT LAKE SECTOR 2, KOLKATA (INDIA) - 700 091<br>E-MAIL: contact@readybellsoftware.com<br>PH: +91 - 9147708045/9674552097, +91 - 33-79642872 |

| CURRICULUM | | |
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| **Topic** | **Sub-Topic** | **Duration (Hrs)** |
| **CCIE Data Center v3.1** | **Introduction** | 120 Hrs |
| | Updates on the new version v3.0 | |
| | Hardware and Software updates | |
| | Topics covered throughout the course | |
| | What is Data Centre? | |
| | Topologies in a Data Centre | |
| | **Nexus Module** | |
| | Module 1: Introduction to NXOS | |
| | Module 2: Hardware | |
| | 9K | |
| | 7K | |
| | 5K | |
| | 2K | |
| | Module 3: Virtual Device Context (VDC) | |
| | What is VDC? | |
| | Different types of VDC | |
| | Resource allocation, Templates, Boot-Order, HA- Policies. | |
| | Module 4: Virtual Port-Channel (VPC) | |
| | Introduction to vPC | |
| | vPC Terminologies | |
| | vPC Control Plane | |
| | vPC Data Plane (L2 + L3) | |
| | vPC with HSRP | |
| | vPC Loop avoidance | |
| | Types of VPC (Regular/E-vPC/Back to Back VPC) | |
| | vPC Lab (Regular/EVPC/B2B vpc/VPC + HSRP) | |
| | Module 5: Multicast | |
| | IGMP (Internet Group Management Protocol) | |
| | PIM (Protocol Independent Multicast) | |
| | Bidirectional PIM | |
| | Module 6: VXLAN | |
| | VXLAN Introduction | |
| | Advantage/Limitation of VXLAN | |
| | VXLAN Terminologies | |
| | VXLAN Packet Format | |
| | VXLAN Data Plane Based forwarding | |
| | VXLAN Control Plane Based | |

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| | **Nexus Labs** | |
| | Virtual Device Context (VDC) | |
| |   Task 1: Check basic information of N7K | |
| |   Task 2: Create a Non-Default VDC | |
| |   Task 3: Allocate interfaces to the vdc | |
| |   Task 4: Change the CPU-share and boot-order for the vdc | |
| |   Task 5: Create a new resource template | |
| |   Task 6: Assign the mgmt IP address to the vdc | |
| |   Task 7: Create local users and check access | |
| | Virtual Port-Channel (VPC) | |
| |   Task 1: Building Virtual Port-Channel | |
| |   Task 2: Changing the Role-Priority by bouncing the peer-link | |
| |   Task 3: Changing the Role-Priority by enabling vPC Role Pre-empt | |
| |   Task 4: Make the peer-keepalive link down and check the behavior | |
| |   Task 5: Make the peer-link down and check the behavior | |
| |   Task 6: Peer-Switch | |
| |   Task 7: vPC with HSRP (Peer-Gateway) | |
| |   Task 8: Dual-Sided vPC | |
| | Virtual Extensible LAN (VXLAN) | |
| |   Task 1: Same VLAN, Same VNI, Same Subnet, Same Mcast-group | |
| |   Task 2: Same VLAN, Same VNI, Different Subnet, Same Mcast-group | |
| |   Task 3: Different VLAN, Same VNI, Different Subnet, Same Mcast-group | |
| |   Task 4: Different VLAN, Different VNID, Different Subnet, Same Mcast-group | |
| |   Task 5: Different VLAN, Different VNID, Different Subnet, Different Mcast-group on both VTEPs | |
| |   Task 6: Different VLAN, Different VNID, Different Subnet, Different Mcast-group (Between VTEPs) | |
| |   Task 7: Extending L2 Bridging using BGP-eVPN (Asymmetric IRB) | |
| |   Task 8: Inter-VNI routing using L3 VNI and BGP-eVPN | |
| |   Task 9: VXLAN + VPC | |
| |   Task 10: Multicast (ASM/SSM) | |
| | **Application Centric Infrastructure (ACI) module** | |
| | Module 1: Introduction to SDN | |
| | Module 2: Nexus 9K Hardware Revisit | |
| | Module 3: ACI Introduction | |
| | Module 4: ACI Leaf & Spine architecture | |
| | Module 5: APIC Controller | |
| | Module 6: Protocols in ACI | |
| | Module 7: APIC Initialization & Cluster | |
| | Module 8: ACI Fabric Discovery | |

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| | Module 9: ACI Dashboard Overview | |
| | Module 10: Terminologies in ACI | |
| | Module 11: ACI Policy Construct | |
| | Module 12: 3 Tier Architecture in ACI | |
| | Module 13: ACI packet forwarding Bare Metal in ACI | |
| | Module 14: VMM integration | |
| | Module 15: L2 Out | |
| | Module 16: VPC in ACI | |
| | Module 17: L3 out in ACI | |
| | Module 18: Transit Routing in ACI | |
| | Module 19: L4-L7 Integration in ACI | |
| | Module 20: Inter-Tenant Communication in ACI Micro segmentation in ACI | |
| | Module 21: Introduction & Configuring/Implementing Multi Pod & Multi Site in ACI | |
| | **ACI Labs** | |
| | Task 1: ACI Fabric Initialization | |
| | Task 2: Configuring VLAN Pools | |
| | Task 3: Configuring Physical and External Domains | |
| | Task 4: Configuring Interface policies for Leafs and Spines | |
| |   Link Level Policy | |
| |   CDP Interface | |
| |   LLDP Interface | |
| |   Port-Channel Policy | |
| | Task 5: Creating Interface Policy Group | |
| |   Leaf Access Port | |
| |   PC Interface | |
| |   VPC Interface | |
| | Task 6: Configuring Interface Profiles | |
| |   Leaf Profile | |
| |   FEX Profile | |
| | Task 7: Creating Switch Profile | |
| | Task 8: Bare-Metal Host Communication | |
| |   End points in the same EPG under the same Application Profile. | |
| | Task 9: VMM Integration | |
| | Task 10: Intra-Tenant Communication | |
| | Task 11: Inter-Tenant Communication | |
| | Task 12: ASAv Integration in Transparent Mode | |
| | Task 13: ASAv Integration in Routed Mode | |
| | Task 14: L3Out OSPF Communication | |
| | Task 15: L3Out BGP Communication | |

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| Task 16: L2 Extension using OTV | |
| Task 17: Configuring OOB Contracts for Fabric Management | |
| Task 18: Configuring ACI fabric as DHCP Relay Agent | |
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| Task 19: Configuring Monitoring Sessions in ACI | |
| Task 20: Configure ACI for Transit-Routing | |
| Task 21: Configuring Loop-prevention Mechanism, BPDU Guard, End-Point Movement, End-point Retention Policy, IP Aging Policy/GARP | |
| Task 22: Configuring Security Policies in ACI. | |
|   AAA | |
|   LDAP | |
|   RADIUS | |
| **Storage** | |
| Module 1: Introduction to Storage | |
| Module 2: Topologies in Storage | |
| Module 3: JBOD, RAID | |
| Module 4: Introduction to Storage Protocols | |
| Module 5: What is FC? | |
| Module 6: Addressing schemes in FC | |
| Module 7: Fabric Services | |
| Module 8: NPV, NPIV, Zoning | |
| Module 9: What is FCoE? | |
| Module 10: How FCoE is a lossless protocol? | |
| Module 11: FCoE Initialization Protocol (FIP) | |
| Module 12: Configuring FCoE | |
| **Unified Computing System** | |
| Module 1: What is UCS? | |
| Module 2: Benefits | |
| Module 3: Components | |
| Module 4: Introduction to GUI | |
| Module 5: Configuring interfaces on FI | |
| Module 6: Aggregating Server ports into a port-channel | |
| Module 7: Creating Port-channel | |
| Module 8: Creating VLANs and allowing them through PCs. | |
| Module 9: Creating MAC & IP Pool | |
| Module 10: Creating vNIC Templates | |
| Module 11: Creating LACP, LAN Connectivity, Network Control, Storage Disk Group Policies | |
| Module 12: Creating Storage Profile | |
| Module 13: Creating WWNN & WWPN Pool | |

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| Module 14: Creating VSANs | |
| Module 15: Creating FC / FCoE Port-channels | |
| Module 16: Creating vHBA Templates | |
| Module 17: Creating SAN Connectivity Policy | |
| Module 18: Configuring NTP on UCSM | |
| Module 19: Creating UUID Pool | |
| Module 20: Creating Scrub, Maintenance, KVM, Local Disk & Boot Policies | |
| Module 21: Configuring zoning on N5K. | |
| Module 22: Configuring FCoE on N5K. | |
| Module 23: Creating a Service Profile Template | |
| Module 24: Creating a Service Profile from the template. | |
| **UCS Labs** | |
| Task 1: Discovering compute devices and chassis | |
| Task 2: Understanding and configuring UCS Infrastructure Connectivity | |
| Task 3: Configuring UCS Global Policies | |
| Task 4: Configuring VLANs and VSANs | |
| Task 5: Configuring Resource Pools in UCS | |
| Task 6: Converting Interfaces on FI | |
| Task 7: Configuring Uplink Port-channels | |
| Task 8: Creating VLAN-GROUPs | |
| Task 9: Configuring NTP on UCS | |
| Task 10: Creating Policies | |
|   Network Control Policy | |
|   Local-Disk Configuration Policy | |
|   LACP Policy | |
|   Storage Profile | |
|   Storage Policy | |
|   Multicast Policy | |
|   vNIC Template | |
|   LAN Connectivity Policy | |
|   QoS Policy | |
|   vHBA Template | |
|   SAN Connectivity Policy | |
|   vMedia Policy | |
| Task 11: Converting Interfaces to FC on 5K | |
| Task 12: Configuring VSANs and Zone Distributions | |
| Task 13: Configuring FCoE on 5K | |
| Task 14: Checking FLOGI Database | |
| Task 15: Creating Boot Policies | |
| Task 16: Creating Service Profile Template | |

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| Task 17: Creating Service Profile | |
| Task 18: Configure Boot from SAN | |
| Task 19: Configuring Appliance VLANs | |
| Task 20: Creating Overlay vNIC and Booting using SAN | |
| **Data Center Automation and Programmability** | |
| Module 1: Data Center Automation - Python – Beginner to Maestro | |
|   Syntax and Integrated Development Environment | |
|   Operators and Operands | |
|   Control structures, Loops and Loop Controls | |
|   Functions and Modules | |
|   In-built Data Structures | |
|   Functional programming | |
|   Decorator and Generator | |
|   Object Oriented Programming (OOP) concept | |
|   Regular Expressions | |
|   File and Exceptional Handling | |
| Module 2: Libraries for CLI automation | |
|   Scripting practice using the open libraries available | |
|   Paramiko | |
|   Netmiko | |
|   Napalm | |
|   Telnetlib | |
| Module 3: Data serialization and libs | |
|   json | |
|   yaml | |
|   xml | |
|   Related libraries and how to use them | |
| Module 4: REST-API and Tools | |
|   HTTP and its terminologies | |
|   HTTP CRUD and ERROR codes (google CRUD now !!) | |
|   API | |
|   REST | |
|   Curl | |
|   Postman | |
| Module 5: ANSIBLE | |
|   Basics of Linux environment | |
|   Ansible components | |
|   Hosts/inventory and .cfg | |
|   Ad-hoc and modules | |
|   Jinja templating | |

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| | Module 6: Cisco Devices Programmability NX-OS | |
| | NX-API | |
| | Overview of programmable features | |
| | Developer Sandbox | |
| | NX-OS Object | |
| | Data Management Engine (DME) | |
| | Management Information Tree (MIT) | |
| | Visore | |
| | Module 7: ACI | |
| | Tenant | |
| | ACI GUI | |
| | EPG | |
| | Object Model | |
| | Cobra, Arya and Toolkit | |
| | CRUD a Tenant | |
| **To register for this course please e-mail/call us** | | |