# Designing Cisco Data Center Infrastructure for Traditional and AI Workloads v1.2 (300-610)

**Exam Description:** Designing Cisco Data Center Infrastructure for Traditional and AI Workloads v1.2 (DCID 300-610) is a 90-minute exam associated with the CCNP Data Center Certification. This exam certifies a candidate's knowledge of data center infrastructure design including network, compute, storage network, and automation. The course, Designing Cisco Data Center Infrastructure, helps candidates to prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

**35% 1.0 Network Design**

- 1.1 Describe AI/ML concepts
  - 1.1.a Application and uses
  - 1.1.b Deep learning and machine learning concepts (inference vs training)
  - 1.1.c Hardware components (GPUs and DPUs / SmartNICs)
  - 1.1.d Network requirements
  - 1.1.e Operational sustainability
- 1.2 Evaluate technologies for high-performance networks and AI workloads
  - 1.2.a ROCEv2
  - 1.2.b Ethernet
  - 1.2.c InfiniBand
  - 1.2.d Remote Direct Memory Access
- 1.3 Evaluate options for Layer 2 connectivity
  - 1.3.a Endpoint mobility
  - 1.3.b Redundancy / high availability
  - 1.3.c Convergence
  - 1.3.d Services insertion
  - 1.3.e vPC and LACP
- 1.4 Evaluate options for Layer 3 connectivity
  - 1.4.a IP mobility
  - 1.4.b Redundancy / high availability (graceful restart, NSF)
  - 1.4.c Convergence
  - 1.4.d Services insertion (load balancing, security)
  - 1.4.e Routing virtualization with VRF lite
- 1.5 Evaluate QoS for lossless Ethernet

1.6 Evaluate options for interconnecting data centers with VXLAN EVPN

1.7 Evaluate network management and redundancy strategies
- 1.7.a Management and monitoring (in-band, out-of-band)
- 1.7.b Redundancy options such as active / active and disaster recovery site
- 1.7.c Centralized management and monitoring such as Nexus Dashboard

1.8 Evaluate network segmentation methods using VXLAN and Cisco ACI

**25% 2.0 Compute Design**

2.1 Evaluate options for Ethernet connectivity
- 2.1.a Redundancy / high availability
- 2.1.b Bandwidth
- 2.1.c Fabric interconnect operation mode (switch mode, end host mode)

2.2 Evaluate options for storage connectivity
- 2.2.a Bandwidth
- 2.2.b Fabric interconnect operation mode (switch mode, end host mode)
- 2.2.c Direct-attached storage (appliance, FC storage, and FCoE ports)

2.3 Evaluate options for network device virtualization in a data center (Cisco VIC adapters)
- 2.3.a Service profiles
- 2.3.b Ethernet adaptor policies
- 2.3.c Fibre Channel adapter policies

2.4 Evaluate UCS-X design options based on deployment and performance requirements

2.5 Describe compute requirements for AI/ML applications

**20% 3.0 Storage Network Design**

3.1 Plan for iSCSI deployment in a data center (Multipathing and addressing schemes)

3.2 Evaluate QoS requirements in a data center
- 3.2.a Fibre Channel
- 3.2.b iSCSI

3.3 Determine Fibre Channel interface
- 3.3.a Port types
- 3.3.b ISL
- 3.3.c Oversubscription

3.4 Evaluate storage deployment options for traditional and high-performance networks

**20% 4.0 Automation Design**

4.1 Evaluate options for network orchestration and automation
- 4.1.a Cisco Intersight
- 4.1.b REST API (NX-API, JSON encoding, and XML encodings)
- 4.1.c Model-driven programmability

- 4.1.d Ansible
- 4.1.e Python
- 4.1.f Terraform CLI

4.2 Evaluate options for compute orchestration and automation
- 4.2.a Service profile templates
- 4.2.b vNIC templates
- 4.2.c vHBA templates
- 4.2.d Global policies vs. local policies

4.3 Describe Cisco Intersight Cloud Orchestrator workflows

4.4 Evaluate options for implementing automatic network deployment using Nexus Dashboard