CCDE Practical Exam

Expansion of CCDE Practical 1.0 Blueprint
Detailed Checklist of Topics to Be Covered

Please be advised that this topic checklist is not an all-inclusive list of CCDE Practical exam subjects. Instead, we provide this outline as a supplement to the existing practical blueprint to help candidates prepare for their practical exams. Other relevant or related topics may also appear in the actual CCDE Practical exam.

1	**Gather, clarify, and analyze existing and new requirements**	
1.1	Identify requirements and determine how they shape the purpose and expectations of a given network	
	1.1.1	Recognize the impact of business plans on network design
	1.1.2	Recognize the impact of functional specifications on network design
	1.1.3	Identify applications with special needs and/or requirements and consider their affect on network design
	1.1.4	Identify and resolve conflicting requirements
	1.1.5	Identify and challenge functional specifications that conflict with the existing network
	1.1.6	Determine physical considerations that impact network design (e.g., number of sites, geographic locations of sites, availability of services)
	1.1.7	Ask appropriate questions to clarify ambiguities
	1.1.8	Recognize the business impact of network failures
1.2	Demonstrate the ability to gather and validate information about an existing network(s)	
	1.2.1	Analyze existing network documentation
	1.2.2	Analyze existing network infrastructure and its impact on network design
	1.2.3	Recognize when clarification and/or further information is required to adequately understand the existing network
	1.2.4	Ask appropriate questions to clarify ambiguities
	1.2.5	Identify where additional specific tests or data gathering are necessary and determine how to most efficiently/effectively get the needed information

2	Develop network designs to meet functional specifications	
2.1	Choose the correct technology to resolve a specific design problem	
	2.1.1	Demonstrate the ability to focus on technology, not features, in the overall network design
	2.1.2	Perform a benefits analysis on various technologies as they relate to the functional specifications
	2.1.3	Model and evaluate different (standards-based) solutions to determine suitability in a particular network design
2.2	Create a network design that minimizes or eliminates negative impact on the existing network and services	
	2.2.1	Model and evaluate design changes to determine what applications and services will be impacted
	2.2.2	Model and evaluate design changes to optimize the design and minimize or eliminate any adverse impacts
	2.2.3	Determine the impact of adding, removing, or modifying services on an existing network
2.3	Create a network design that is scalable	
	2.3.1	Identify scaling requirements based on the functional requirements
	2.3.2	Evaluate technology choices (e.g. routing protocols, tunneling techniques) that meet scalability requirements
	2.3.3	Evaluate different physical and logical topologies to determine impact on scalability
2.4	Create a network design that is elegant and supportable	
	2.4.1	Create a network design to support the common case(s)
	2.4.2	Separate common case requirements from worst-case scenarios
	2.4.3	Identify the minimum set of technologies required to optimally meet the functional requirements
	2.4.4	Differentiate between necessary and unnecessary services and technologies based on the functional specifications
	2.4.5	Determine the level of complexity necessary to support the functional specifications
	2.4.6	Develop consistent and modularized solution sets throughout the network
	2.4.7	Determine the impact of the network design on operational expense (OPEX)
2.5	Create a network design which is resilient	
	2.5.1	Create a network design that minimizes impact of network failures
	2.5.2	Evaluate different physical and logical topologies to determine their impact on fault tolerance
	2.5.3	Model failure scenarios and create designs that mitigate the impact on network performance and availability

3	Develop a plan to implement network design changes	
3.1	Evaluate the impact of implementation options	
	3.1.1	Consider the impact of migration on network design
	3.1.2	Evaluate how an implementation plan will impact network performance and availability
	3.1.3	Evaluate how an implementation plan will impact the business
	3.1.4	Evaluate the level of risk and consequence for a given implementation plan
	3.1.5	Identify risk to migration from foreseeable changes in functional or technical requirements
3.2	Design a phased implementation plan	
	3.2.1	Identify migration interdependencies between services, failure domains, and other architectural elements (e.g. data center, core, edge, branch)
	3.2.2	Use failure domains as a guideline for identifying independent modules
	3.2.3	Develop a process for migrating each module
	3.2.4	Create specifications to determine when one phase of the transition is completed and when the next phase is to be started
3.3	Develop contingency plans for network restoration	

4	**Convey design decisions and rationale**	
4.1	Justify design choices based on functional specifications	
	4.1.1	Compare and contrast the operational impact of implementing different design solutions
	4.1.2	Compare and contrast the impact of different design solutions upon availability
	4.1.3	Map design decisions to functional specifications
4.2	Justify technology choices based on technical requirements	
	4.2.1	Compare and contrast the impact of implementing different technology solutions
	4.2.2	Map technology decisions to functional specifications

