Chapter 2

Preparation

I fear not the man who has practiced 10,000 kicks once,
but I fear the man who has practiced one kick 10,000 times.

—Bruce Lee

The VMware Certified Design Expert (VCDX) is the highest level of VMware certification. It is a premier certification akin to the Cisco Certified Architect and other top-tier architecture certifications. The certification is geared towards veteran professionals who seek to demonstrate and validate their expertise as design architects developing virtualization, desktop, and cloud solutions. It measures a candidate's ability to design, implement, document, and validate a design using VMware technologies to meet customer objectives.

The VCDX Panel Defense is an oral interview consisting of three phases: a defense of the submitted design, a design scenario, and a troubleshooting scenario.

Candidates often approach us about the best way to prepare for the certification. This question has no catchall answer—it depends on the skills and experience of the candidate. What we *can* shed light on are the qualifications successful candidates demonstrate and, conversely, challenges that candidates who lack these qualifications face.

We assert that the majority of early certified individuals were intrinsically rather than extrinsically motivated. They chose to move forward with the certification process because of personal interests, not directives from management or the company.

Wade Holmes, VCDX-015, shares how he prepared:

> As an outsider looking in, the VCDX program was a goal that drove me to work on my craft and become a better architect. I had no idea what to expect when coming to defend and was extremely nervous. I spent countless hours preparing, reviewing my design, making sure I knew the ins and outs and could justify every granular detail I documented. Luckily, that was exactly the approach necessary for me to be successful. I can't describe how happy I was when I got a phone call that I passed and was a VCDX! (Yes, back then I was actually contacted by phone to be informed I had passed.)

Experience

One of the key differentiating factors that successful candidates possess is experience in designing a variety of complex architectures with enterprise customers. It is not enough to have experience; you need the right *type* of experience. Candidates typically have a background of several years in architecture design but are not limited to experience in the role of a datacenter architect. Individuals who have been certified include architects, consultants, technical support, sales systems engineers, and technical account managers. Job title doesn't matter—what counts is having spent time working on projects that developed the requisite skills.

Understanding enterprise architecture can be a valuable asset. Although knowledge of the frameworks and methodologies involved in a process is not required, it provides a broader perspective on architecture design. Throughout the process of design, design decisions must link back to the higher-level business goals that drive the overall solution capabilities. Tactical and strategic considerations are also important factors.

What Demonstrates Design Expertise?

Successful candidates invest significant time in aligning their design submission with the VCDX Blueprint and constantly reviewing the details of their design. Any aspect of the submitted material is fair game for questioning, so candidates spend a large amount of time preparing to defend all submitted material. For experienced consultants, this is no different from presenting a project summary to the customer at the end of an engagement. Being able to defend your design is an elemental skill of successful architects.

Consider spending time working with senior architects and reviewing designs from others to gain additional experience. Ask peers for constructive feedback to determine your strengths and weaknesses. Understanding deficiencies gives you the opportunity to seek appropriate training or experience, to improve your chances of succeeding.

Mastery of design considerations includes:

- Identifying and understanding business and technical requirements
- Identifying constraints and risks
- Understanding different enterprise architecture strategies
- Making and justifying design decisions
- Understanding the impact of design choices
- Knowing the implication of design choices, including the associated risks

During your design defense you should be able to:

- Provide a panelist with your solution, addressing requirements, constraints, and risks
- Answer all questions and defend your design choices
- Effectively manage your time, to demonstrate your ability to work effectively in design meetings with customers

We expect that candidates know their design but not necessarily know every component of the solution in excruciating detail. The following can put this in perspective:

> If you do not know the answer to a question, be honest about it. You can still try to explain how you think it works, but let them know that, in "real life," you would research this and come back to it as you would in a customer situation.
> —Duncan Epping, VCDX-007

What Demonstrates a Lack of Design Experience?

Most successful candidates have both deep architectural experience and strong technical skills. In most cases, when candidates do not successfully defend, it results from an inability to follow a common design approach, not from technical deficiencies. Designs that exhibit major technical flaws do not make it past the submission stage. We often hear the question, "How do I know when I'm ready to defend?" It sounds cliché, but if you are asking that question, you probably need more experience and confidence before you apply.

Insufficient mastery of design skills includes:

- A design that primarily focuses on delivery from templates, without addressing requirements

- Inability to articulate design decisions during the defense
  - Cannot understand or consider major aspects of a design
  - Cannot logically defend questions pertaining to a design decision
  - Does not demonstrate an understanding of the technologies included in the design
- Difficulty with starting a design process in front of a customer
- Inability to troubleshoot potential design or implementation issues

The Application

The VCDX Blueprint provides the areas covered during the review of submitted materials and the panel defense session. Carefully review the blueprint and ensure that your design is in alignment. In addition to the blueprint criteria, extensions can be included in the design, which might provide additional scoring opportunities, such as the following:

- Governance
- Multi-site considerations
- Risk analysis resolution
- Regulatory compliance

As an example, multi-site considerations are not mandatory but can provide additional opportunities for discussion that demonstrate a candidate's strengths. If the extensions are ultimately determined to be superfluous to the overall design goals and have incorrect components, this can have a negative impact. Extra content submitted should support the design and should reflect careful thought and review.

Carefully read the VCDX Blueprint and the VCDX Handbook and Application. Soliciting multiple reviews of your application package might be helpful, to ensure that you have included everything before you submit.

When planning for your prerequisite exams and budgeting time to work on your application, remember that applications should be ready approximately three months before the actual defense dates. This is due partly to deadlines, but also to the time and effort required to understand the application and complete the required material for submission.

Two registration fees are involved. One pays for the review of the application form and the technical review of the design by panelists. The second covers the actual defense session costs. Considering that three current VCDX-qualified architects painstakingly review your design, the cost is quite reasonable. As Michael Webster, VCDX-066, describes it, "This is the cheapest design review you'll ever get in your life!"

Application Submission Process

Complete the following steps for the actual panel defense.

1. Check the VCDX defense dates listed at http://www.vmware.com/go/vcdx. Use this to plan your timeline for preparation. Start early to ensure completeness and quality.
2. Download the latest versions of the VCDX Handbook, Application, and Blueprint.
3. Validate that your design matches the requirements in the VCDX Blueprint.
4. Request the defense date you prefer. If you have insufficient time, plan on a later date to complete your design, match the blueprints, and study all areas of the design.
5. Submit your completed application package to vcdx@vmware.com. This includes the completed application form, a signed attestation and statement of conduct, the documentation set, and the registration fee. This registration fee is for the initial review to determine whether the material demonstrates qualifications to sit for the VCDX defense.
6. The application is reviewed for completeness. Incomplete applications are returned to the applicant.
7. Accepted candidates receive confirmation of the complete application submission and an application fee payment link.
8. Upon receipt of payment, complete applications are advanced to the Technical Review phase.
9. Applications undergo a rigorous technical review by VCDX panelists.
    - Complete applications are reviewed for architecture design content (technical and operational).
    - Multiple individuals review and provide feedback on the content submitted. This takes up to four hours per design by up to three panelists.

10. The applicant receives the results of the Technical Review phase.
    - Accepted applicants receive an invitation to defend.
    - Rejected applicants receive a customized report of the top deficits in their design materials. This provides feedback on the topic area but does *not go* into detail on the deficits themselves.
11. Accepted applicants must confirm the date and time of their defense. The defense panel fee is due at this time.

VCDX Application

The VCDX Handbook provides instructions on the application and the process. The VCDX Blueprint provides the content areas that serve as the criteria for the design. Download the application and submit it with your design. The application is open to any individuals who meet the defined prerequisites.

Fictional Components

The submitted design can be fictitious, but you must be able to defend fictitious components. Designs that are entirely fictitious pose challenges to candidates, typically in the steps of conceptual and logical architecture design, and are *not* recommended. The panelists use the same standard for evaluation.

If content is missing for any VCDX Blueprint area, expand on your design to meet the missing areas or select another design for submission. This is an example of adding fictional components. Alignment of a design to the VCDX Blueprint provides a strong advantage because it demonstrates knowledge and skills required. The design must be consistent across both the documentation and the application. Missing blueprint items in your design minimize the scoring opportunities available and poses a risk to passing.

Designs that include fictitious components might be weak on listing requirements, constraints, assumptions, and risks. If fictional components are included, work on the details and have an architect review them. To be successful, understand all details of the design. Ensure that you provide these details in the design and are able to defend all of them.

Participation as an Architect

If the design is based on an actual project, you are required to have undertaken the architect role. While there may be multiple contributing architects, you are responsible for communicating areas beyond the part that you designed. In the application, document all contributors who worked on the design and their role.

Based on the experience of panelists, candidates who present a design that they had little involvement in tend to have major challenges in their panel defense session. Usually, these candidates cannot remember sufficient details, requirements, justification, impact, and risks.

Design for the VCDX Certification You Are Seeking

Each VCDX certification has a primary design component, as shown:

- VCDX-DCV primary component = VMware vSphere
- VCDX-DT primary components = VMware View
- VCDX-Cloud primary component = VMware vCloud Suite

Additional technologies may be included, such as VMware vCenter Site Recovery Manager, to cover the availability requirement in the blueprint. Remember that these additional areas open the door for more questioning by the panelists. This can lead to improved scoring opportunities, but it can also hurt scoring opportunities if a lack of understanding is exposed. Panels consist of individuals with a variety of different skill sets and specialties. As an example, you might submit a design with SRM included, and the panel might have extensive experience in SRM, mixed experience, or minimal experience. The experience level determines the level of questioning.

All design components included in the submission are subject to review and questioning under their relative scoring areas. When answering questions, focus on the requirements, constraints, assumptions, design considerations, and design patterns.

Be ready to answer any questions related to the submitted material. Failure to do so results in reduced scoring opportunities. This is an area where unprepared candidates typically face challenges. Know your design inside out!

Mandatory Documentation

A minimum set of documentation is required. The VCDX certification material includes the most current list. The Architecture Design, the Installation Guide, the Implementation Plan, the Testing Plan, and the Standard Operating Procedures are covered here. All documentation must align with the submitted design. Some candidates lose scoring opportunities by using generic test plans that do not support the details of the design or are not specific to the customer.

- The *Architecture Design* includes the following as a minimum: logical design, physical design, diagrams, requirements, constraints, assumptions, and risks. As part of this, justifications and implications of design considerations included in the documentation typically provide an advantage to the candidate.
- The *Installation Guide* should include instructions on installation steps specific to the overall design. This includes items beyond the core components.
- The *Implementation Plan* should include roles, responsibilities, timelines, and deployment guidance specific to the overall design.
- The *Testing (or Validation) Plan* considers the overall design. Perform both unit-level testing (ULT) and system-level testing (SLT) to validate individual components and integration points between these components. References to vendor integration guidelines and validation should be included where appropriate. This can include compatibility guides and integration-level testing (ILT).
- The *Standard Operating Procedures* provide the recurring operating procedures for the design submitted.

VCDX panelists review your application and the documentation submitted. Qualified design experts prevalidate a candidate during this review. They create questions for the defense and identify both strengths and weaknesses. These questions guide the defense session and validate the candidate's skills. If details are missing, the reviewers cannot guess what they are.

Use of best practices may apply for a majority of implementations, but these are not customer specific or applicable in all situations. A qualified design expert knows when to deviate from a best practice while providing a justifiable and supportable solution. Michael Webster, VCDX-066, elaborates on this point:

> Best practices are a baseline from which we work in the absence of specific requirements that would justify deviation. Knowing why it is a best practice is important so that you know where to create a new best practice specific to your design and customer.

Consider that best practices provide the best approach to implementing a specific feature or function for a given, or predetermined, scenario. If your customer requires modification to the best practice, provide the customer-specific best practice, with supporting details.

Strict confidentiality of candidate materials is enforced. Access to their materials is restricted to those involved in prereview and in the panel defense. This material is used to generate questions for use in the defense. All submitted material is removed within a specific internal, legally required window of time.

Creating a VCDX Study Group

A study session benefits from different perspectives and points of view. When setting up a study session, identify other candidates at or above your current progress. We recommend that the study group you select includes individuals who have completed the VCAP design-level certification for the VCDX defense you are attempting. As a group, help each other work through challenges and provide feedback to improve designs and develop your scenario skills.

Practice and Supporting Materials

Focus study sessions on design content, design defense, and scenarios. Several scenarios are included as examples to use during your study session, to practice your skills.

- Review designs for alignment with VCDX Blueprints.
- Have each candidate delivers his or her presentation.
- Have other group members ask questions on the design areas chosen by a candidate.
- Use the scenarios provided in this book to simulate the design and troubleshooting scenario sections.
- Have the panelists review a candidate's design and generate a list of questions.
- Have the panelists review scenarios used to determine solution areas that will validate the skills of the VCDX candidate.
- Review Chapter 4, "Defense Overview," and the section on the VCDX Panel Defense participants, to understand the roles of everyone who participates in a defense session. The next section outlines specific guidelines for soliciting VCDX panelists to run or participate in a VCDX Boot Camp or Study Session.

VCDX Panelist Restrictions

VCDX panelists are not permitted to review or comment on a design outside their assigned VCDX defense reviews or as part of their work assignments. The best way to leverage active panelists is to have them conduct a VCDX panel defense boot camp that does not go into specifics about a candidate's design.

Panelists cannot mentor candidates. This includes providing feedback on a candidate application form or submitted materials. A panelist can participate in VCDX panel defense boot camps that focus on providing guidelines for success, but they must not go into details that would provide an unfair advantage to a candidate. Preparation workshops run by VCDX panelists can cover only the information in the official VCDX preparation workshop material available on VMware.com.

Running a VCDX Panel Defense Boot Camp

A defense boot camp covers material from this book and uses a variation of the boot camp slide deck available at http://www.vmware.com/go/vcdx.

Panelists can run a boot camp without going into specific design feedback. They can provide high-level feedback during the design and troubleshooting scenarios.

Practice

A mock defense is similar to a real defense.

- A similar environment is created with a white board, a projector, a timing device, and participants.
- One person is designated the moderator, to manage the clock.
- Three people (if possible) act as panelists. They review the candidate's design and create questions for the candidate. More than three people can participate as panelists during this mock defense.
- Stick to the time constraints, and do not provide a time extension.
- Focus on asking questions tied to the VCDX Design Blueprint and relevant areas in the design.

Room Layout

The room layout should look similar to Figure 2.1.

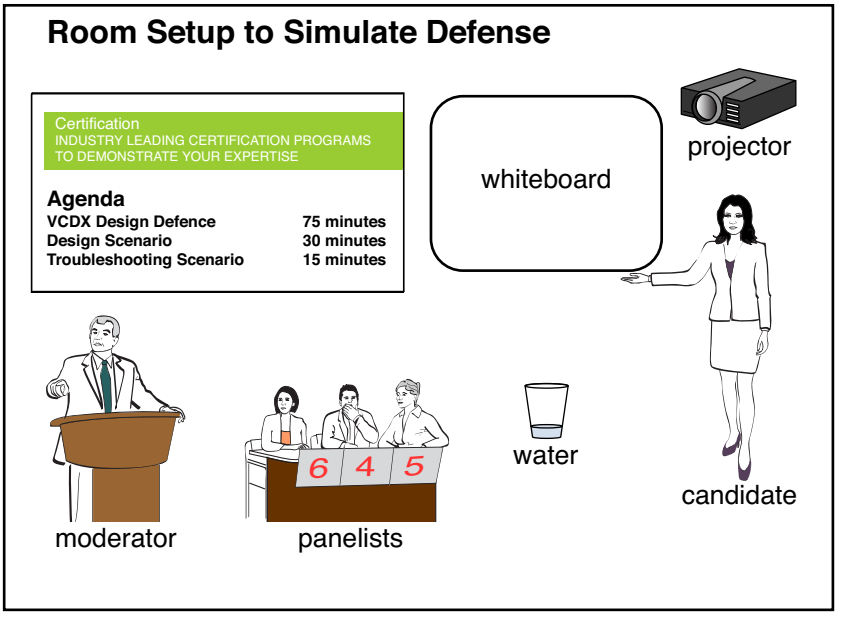

Figure 2.1 Mock defense room setup.

Take advantage of all available instruments: the whiteboard, the projector with presentations and scenarios, and the panelists, as illustrated in Figure 2.2. If possible, use two projectors to ease the process of working through the design and troubleshooting scenarios.

Voicing your thought process is critical for displaying your design methodology to the panelists. Doing so may also preemptively answer questions that the panelists have formulated, saving time for other scoring opportunities.

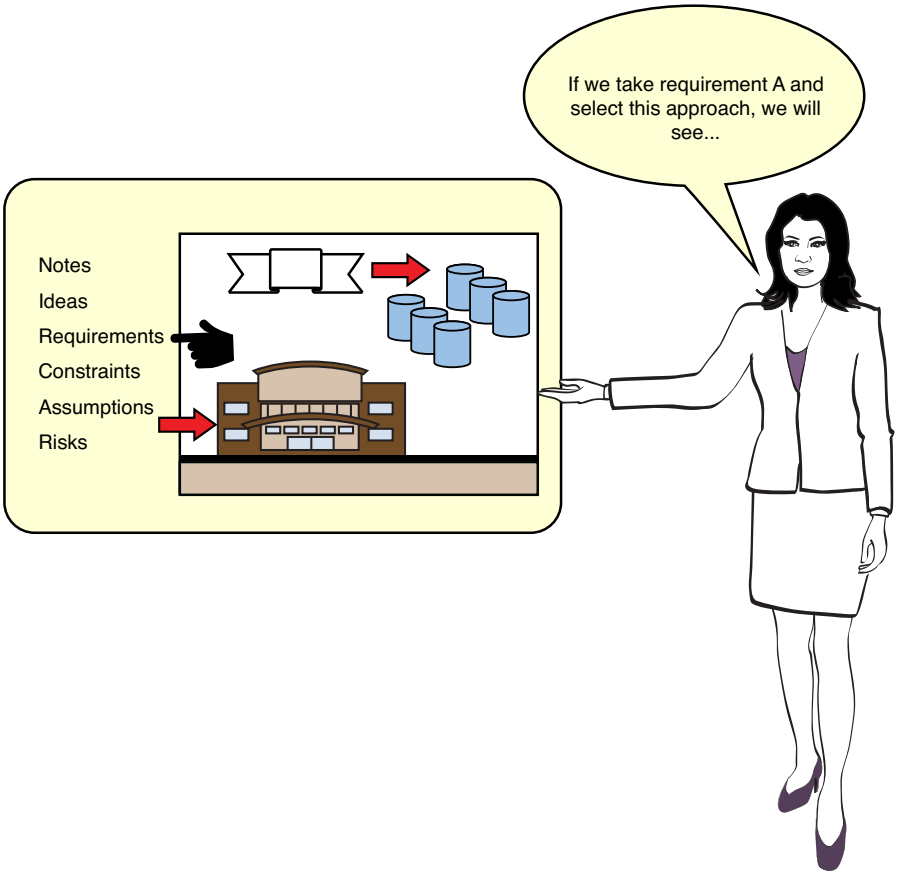

Figure 2.2 Thinking aloud and using the whiteboard.

Running the Defense Within a Set Timeline

The moderator sets up a timer. This can be as simple as a watch or stopwatch, or a custom-designed timer similar to that used in the actual defense.

Here is a recommended timeline:

- Set up the room = 20 to 30 minutes
- Conduct Design Defense = 75 minutes
- Break = 15 minutes

- Conduct Design Scenario = 30 minutes for VCDX-DCV, 45 minutes for VCDX-Cloud and VCDX-DT
- Conduct Troubleshooting Scenario = 15 minutes for VCDX-DCV, 30 minutes for VCDX-Cloud and VCDX-DT
- Discuss feedback with the candidate = 30 to 45 minutes

Mock Defense Checklist

- ☐ Identify participants.
  - ☐ Recommended: 1 candidate, 3 mock panelists, 1 moderator
  - ☐ Minimal: 1 candidate, 1 mock panelist/moderator
- ☐ Provide a timer.
- ☐ Have mock panelists review the candidate's design and create questions (completed before the mock defense).
- ☐ Select a design scenario to use (matched to the chosen VCDX certification).
- ☐ Select a troubleshooting scenario to use (matched to the chosen VCDX certification).
- ☐ Run the defense following the rules and timelines defined.
- ☐ Ensure that the timer used is visible to both the panelists and the candidate.
- ☐ Provide water or other refreshments.

Review

Use the following checklist to determine your readiness:

- ☐ Can you identify and understand all business requirements and demonstrate how they are addressed in the design?
- ☐ Can you explain each decision and defend the choice?
- ☐ Can you discuss other possible options and justify why you made the choice that you did?

- ☐ Do you have experience in all areas and technologies that the design covers?
- ☐ Have you selected a design that matches the requirements of the blueprint and the application?
- ☐ Did you use best practices and understand why they are best practices for the project at hand?
- ☐ Can you identify areas where you deviated from best practices? Can you defend why you did so?
- ☐ Did you provide a complete solution to meet the business requirements?
- ☐ Can you identify the constraints imposed?
- ☐ Can you identify the risks inherent in the design, the likelihood of the risk occurring, and the mitigation steps?
- ☐ Do you have a concept of enterprise architecture strategies?
- ☐ Have you validated that all decisions are sound and that you understand their impact on other areas of the design or the project, such as budget, required skills, timelines, and technologies?
- ☐ Can you answer all questions panelists raise?
- ☐ Have you run your own study session, boot camp, or mock defense with others?
- ☐ Can you effectively manage your time in a high-pressure, time-sensitive defense session?
- ☐ Can you whiteboard your design with all relevant components?