Reality Bytes: Preparing

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Times are changing, and not just in regard to technology. Certification exams also are evolving. Performance-based tests that look not at whether a candidate can memorize and recall facts, but how well the person can replicate actual tasks in a real-world environment, are replacing traditional exams.

The shift has occurred partly because employers increasingly demand proof that certification holders are not "paper tigers." Today's employers need to know that the candidates they examine for contract and full-time employment have the right skills and are capable of executing a job. Accordingly, preparation for these more intense and rigorous performance- or competency-based exams requires more effort and more time to study.

What Do I Need to Pass This Test?

"The world of performance-based exams and performance-based certifications is entirely different from the knowledge IT certifications of the past," said Dan Veitkus, global vice president of training services, Novell Inc. "Competency-based exams require a demonstration of competency far beyond what classic IT exams of the past have required. Our customers continue to tell us and research has shown consistently over the years that certification pursuers prefer to use multiple methods to prepare for an exam and on average will use two different types of media or services in preparation for their certification."

Veitkus said to study effectively for performance-based exams, candidates might need to mesh a combination of instructor-led courses, online labs, self-study kits, mentoring or even authorized books from the major vendors, depending on the certification. However, one of the best ways to prepare for a performance-based exam is to go through an authorized, instructor-led course and lab. Novell provides its students with all of the software and labs they require to prepare for and pass Practicum certification exams. The company also prescribes general hardware requirements, which satisfy 95 percent of the audience. "Once you enter the realm of performance-based, it is critically important that students and cer-

tification seekers have access to true subject-matter expertise in the form of an instructor-led, instructor-mentored or some may say a subject-matter-expert-mentored learning experience. We feel that's the most important thing, providing that access not only to the labs, equipment and the software, but to a true subject-matter-expert mentor in the form of a trainer or an online mentor. That's key."

"To me it's clear that they just have to get lots of hands-on experience with the actual application, the real hardware, whatever it is they're preparing for," said Wallace Judd, executive director of The Performance Testing Council. "They need to feel comfortable with that particular interface. Real equipment, real software, the real deal. That's probably the best preparation they can do."

Michael Reid, manager of the Cisco Certified Internetwork Expert (CCIE) program at Cisco Systems Inc., agrees. "When it comes to performance exams—we see this with the CCIE specifically because the lab is so strongly performance-based—the strongest indicator of success is how much time a candidate can actually spend configuring real equipment," Reid said. "Whether that's in a structured environment like a boot-camp type of thing or self-paced practice, we find both are useful. The key thing is how much time they spend with the real gear. When it comes to the CCIE lab component, book learning is useful but mostly as background. If somebody only touches the book, they will probably score less than 20 percent on the exam, and that's generous. The reason for that is that in a performance test you are actually testing their hands-on ability. If they don't practice the hands-on ability, they simply will not perform at all."

Cisco's new CCIE Assessor Lab was deliberately designed to provide certification seekers with a

for Performance Exams

workable platform for practicing performance-based tasks. The lab offers four-hour assessments featuring different scenarios so students can try to master different topics from the test. "We've produced a four-hour, live-equipment-based practice lab that people can take from anywhere," Reid said. "The scenarios are written by the same people who write the test, so it looks and feels like the CCIE exam only in a shorter form. We know that customers have a hard time getting equipment, and this is an option for them that also has scenarios that are very similar to the test. Even boot camps produced by training partners and vendors probably won't look like our test because they're done independently from the CCIE program."

Microsoft provides a variety of preparation tools based on a certification seeker's learning style so those pursuing performance-based certification can choose the best study fit. "We have books, ILT (instructor-led training). We also work with practice test providers to provide additional information regard-

ing our exams and how to prepare for them," said Keith Loeber, group product manager for certification, Microsoft Learning. "Specifically for performance-based testing, ILT obviously offers the labs and classrooms that give you hands-on experience with the product, which we think is the best way to learn and study for the performance-based exams. Both of our preferred practice test providers, Self Test Software and MeasureUp, have either already incorporated simulation technology within the practice exams or are currently in the process of doing so. For e-learning we also have an offering of v-labs (virtual labs)."

"When you learned to drive a car, you didn't just read the book. You got behind the wheel and you practiced, and most of us don't have our own car to practice on. Lots of us took classes, driver's ed, or you went out and purchased that, and we found people who could mentor us," said Marc Vaglio-Laurin, manager of certification test development, SAS. "Most of us pursued the quest to learn how to drive pretty seri-

ously. IT performance-based tests are no different. You have to have seat time with the technology. You have to have experience driving. It doesn't have to be with a live system. There are lots of training classes out there where they use simulators. A number of vendors including SAS offer learning editions of their software where it's real technology, but it's designed for individuals to learn on. You get data, exercises and instruction on how to do different procedures."

Vaglio-Laurin said it can be advantageous to study for performance-based exams in a community college setting rather than an authorized vendor lab because quarter- or semester-long college courses offer a longer period in which to study, practice and acquaint oneself with performance-based tasks. Further, community colleges often give access to training or computer labs at all hours of the day and night—ample opportunity to practice on real equipment, which is critical to pass a performance-based exam. A study buddy can be helpful too. "Find some-

one who is interested in taking the exam, has taken the exam or is maybe at a similar level in terms of experience, and challenge each other," Vaglio-Laurin said. "Say, 'I went into the online system and I took away this person's access privileges. You need to go in and restore that.'"

Obtain the guidelines or objectives for your particular exam and practice those specific tasks. Those tasks are vetted by certification vendors based on real job-task analyses, as is the case with Microsoft. "We do a job-task analysis and base the exam on that analysis so that we're validating skills that should be or will be used as they get into the job," Loeber said. "Then we have people who are already in those jobs validate those skills for us and help us write those exams."

"A significant amount of investment and sacrifice has been made to elevate the level of IT certifications that are available in the marketplace," Veitkus said. "Part of this investment is tied to capital and hardware. To

PERFORMANCE-BASED CERTIFICATIONS

Although this is not an exhaustive list, these are some of the best-known performance-based certifications available to IT professionals today:

- **Cisco:** Less than 3 percent of Cisco certified professionals earn the Cisco Certified Internetwork Expert (CCIE) credential. In addition to a multiple-choice written exam, CCIE certification requires an eight-hour, hands-on lab exam. For more information, see www.cisco.com/go/ccie. Cisco also includes simulation-based items on the exams for its other certification levels.

- **Microsoft:** Microsoft has added simulation-based questions to many of its certification exams. The Microsoft Certified Architect certification requires candidates to submit an architectural solution to a board for review, similar to the way Ph.D. candidates submit a thesis for review as the culmination of their academic careers. For more information, see www.microsoft.com/learning.

- **Novell:** The Novell Certified Linux Professional (CLP) and Novell Certified Linux Engineer (CLE) certifications both require candidates to pass a performance-based Practicum exam—two-and-a-half hours of testing in a real-world, hands-on environment. For more information, see www.novell.com/training/certinfo.

- **Oracle:** The Oracle 9i DBA Certified Master (OCM) certification requires candidates to sit an intensive two-day, hands-on practical exam. For more information, see education.oracle.com.

- **Red Hat:** Red Hat has long been known for its tough lab exam, required for the Red Hat Certified Engineer (RHCE) certification. RHCEs must pass a two-part lab exam, five and a half hours total. The Red Hat Certified Technician (RHCT) requires a two-part performance-based lab exam of three hours total. RHCEs can go on to earn the Red Hat Certified Architect (RHCA) or Red Hat Certified Security Specialist (RHCSS) certifications. Both of these credentials require various performance-based endorsement exams, ranging from two to eight hours in length. For more information, see www.redhat.com/training.

demonstrate competency so that an individual can actually go back and replicate what they've learned, we feel it's absolutely imperative to have the complete systems and comparable hardware to what they find in their enterprise. Comparable hardware and installation of applicable software are absolutely a must in terms of performance-based exams because that's what they will be asked to manage competently in the workplace. In order to provide them with the best opportunities to prepare for the exam and the most relevance in achieving their certification, it's a requirement, not an option."

How Long Must I Study?

Memorization techniques are handy for knowledge tests, and many certification seekers can cram in copious amounts of information in short periods of time before an exam and pass. That won't work in the performance-based test arena. Effective preparation for performance-based exams is tied to the exam's level of complexity. It's all about how you study, how long you study and what you study.

"For a multiple-choice exam you can cram," Judd said. "You can open up the books a couple of days before, find the major, important points in there and do reasonably well. With a performance test you cannot cram in the same way. It just doesn't work because you have to get hands-on experience— preferably over a fairly extensive period of time—that lets you feel comfortable with the environment and the application that you're using. The whole cram methodology just doesn't work the same for a performance test. You have to do things. When you're practicing for a performance test, what you want to do is take a look at the outline that is typically available online. Usually it will be a bunch of processes or tasks that need to be done. Set yourself those tasks to do, and then practice them. That's the best way to study, and do that over an extended period of time."

"You have to walk before you run, so preparation should start with the basics, general knowledge as well as experience in the area of expertise that you're pursuing certification to prove. You're going to have a much more difficult time in this new world of IT certification if you're just coming out of a book-study situation," Veitkus said. "Real-world experience is step one. The second step is to pursue authorized sources of content and services from the different vendors, whether that's from an authorized partner or directly from the vendor, pursue those outlets, and again we strongly recommend live subject-matter-expert-led training or mentoring. That is the best start. The third step, which many candidates fail to appreciate, is their responsibility and need to go back to the workplace and their lab, whether that be at home or at a work location, and practice what they've learned and work with the technology in a real and living environment. The worst thing they can do is complete a course and head right off to the examination because the failure rate is very high. We're not testing them on the knowledge they've picked up in a five-day course, for example, but rather their ability to respond on demand to real network problems or real network issues, and that is only developed over time and experience. We'll give them the tools. We'll give them the platforms. We'll give them the mentoring, but they really must practice what they've learned in order to develop true competency."

"In the IT world ongoing training is critical," Loeber said. "Not only to keep up with new technologies, but also to keep up with best practices as new technologies or new things are found within the technologies.

It's an ongoing process. We have found within our community that most people take approximately six months to prepare for an exam before sitting through it."

"If you're going to take a class, the smart thing is just to use that setup as long as they make it available to you," Judd said. "Stay after class, get there early. Stick around at lunch. Brown-bag it if you have to. That hardware and access to those labs is probably one of your biggest assets in the class, and you want to capitalize on it."
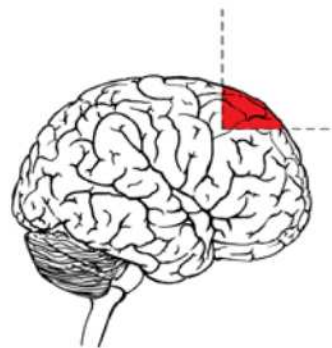
Value Beyond Certification

The shift from using exams to test knowledge to using exams to test skills has meant a steep increase in the complexity of competency-based tests. Therefore, it takes more time to practice what you learn in a class, lab or from a mentor in order to develop a skill. "It's important to recognize that the journey can be as productive and fruitful to the individual in their career as the destination or achievement of the certification," Veitkus said. "The preparation for performance-based certifications is extensive, and it drives an individual to continue to replicate, repeat and practice that which they've learned. So regardless of the pass or fail grade they may receive on their first time, they should take encouragement that the time has not been lost. The journey will develop skills that they can apply and use in their career moving forward. An IT professional today is much more like an athlete than in previous years. An athlete develops and hones their skills over years of practice and determination and commitment, and truly, until they reach a point of physical no return, they're always getting better based on their experiences. The vision and goal of raising the bar on IT certifications again and renewing confidence in an IT certification that customers and partners demand has a lot to do with lifelong learning and moving

from knowledge proficiency to competency, which is built over time. It's built to experiences both good and bad, and reinforces that the journey is ultimately most important and will be most beneficial to their careers."

"If you're pursuing a credential that will be tested with a performance-based test, I don't think you should expect to learn the skills needed to pass that test without some real effort," Vaglio-Laurin said. "It's an ongoing process. We're talking about acquiring a real, credible skill that employers are willing to pay for. In turn, you need to invest something. Otherwise the exam is not discriminating against those who really know it and those who don't, so why would employers be willing to pay for it? Try to get hands-on. There are lots of options out there, and I think they keep increasing. Roll up your sleeves, get your hands dirty, work with vendors or peers, take training, review objectives. Then after you've done all the preparation, when you come to the exam, show us what you can do."

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