

NASA Validates IT Security Readiness With Objective Skills Metrics

In NASA's sensitive information environment, IT security plays a large role in the daily operations of its systems administrators. These administrators, including 3,000 employees and contractors, work in a variety of systems environments across ten different operations centers in the U.S. For NASA, the ability to measure and validate the IT security skills of these professionals is essential.

At a gathering in October 2002, decision-makers from across the agency explored new strategies for measuring and certifying security skills, identifying skills gaps, and supporting training programs. They also sought a way to develop information that would document agency progress in meeting the performance mandates of the President's Management Agenda.* To achieve these goals, NASA needed a reliable skills measurement system that would provide objective skills data across a large enterprise environment.

NASA decision-makers considered a variety of alternatives. Unfortunately, most were biased by their ties to vendor services, or too inflexible to meet NASA's unique IT needs. After the group examined and rejected several options, Robert Solomon, a project leader in NASA's IT Security Awareness and Training Center, put forth a new suggestion—an online skills measurement solution, not tied to training services, available across the enterprise regardless of location. His recommendation gained interest, and later resulted in the successful implementation of a program uniquely suited to the agency's need for objectivity, flexibility, ease of administration and cost-effectiveness.

NASA's online skills measurement system minimizes the manpower investment needed for a successful initiative.

Online System Gives NASA Objective Skills Data

According to Solomon, an accurate assessment of skills would have to be based on objective data. In many skills development solutions, the assessment component is geared towards building the case for purchasing further services from the vendor. In others, a certification in a skill is nothing more than a certificate of completion from a training course. NASA's online solution is a product of Brainbench, an established enterprise skills measurement provider, and it works independently of training or consulting services.

Under NASA's system, the test-taker can measure each critical skill through an online test enabled by Computer Adaptive Technology. This technology dynamically selects each question as the test progresses. Each question is selected based on the level of knowledge indicated by a test-taker's answer to previous questions. As a result, Solomon explains, the tests adapt to the boundaries of the test-taker's knowledge—a key feature for any organization that wants an accurate, unbiased snapshot of critical employee skills.

Flexible Solution Enables Administrators to Meet Unique Agency and Individual Needs

NASA tailored its skills measurement program to address the unique needs of its systems administrators, developing a customized test to assess critical IT security skills. Rather than create this test from scratch, the agency selected from an item bank of over 100,000 questions that make up the existing Brainbench ISO 9001-2000 certified assessments. Available in NASA's Brainbench system, these assessments included an online general IT security tests, as well as system-specific tests. Customization required much less development time than creating the test from scratch. The result was a challenging IT security assessment, relevant to the job functions of system administrators across the agency.

Another feature of NASA's skills measurement program is a flexible structure that enables different individuals to assess skills that apply to their unique individual needs. The first component of that structure is the required Primary Certification, covering Internet security and basic systems environments, including Windows 2000, WindowsNT, Unix, Linux, and other operating systems. A Secondary

Certification then allows users to take “elective” tests covering other specified operating system tests. Once certified, participants are given access to the entire Brainbench testing library.

For test-takers, this structure provides the ability to certify essential IT security skills while providing the opportunity to validate additional skills for career development. For managers, these results help deliver a detailed picture of available skills across the agency. The flexible, modular nature of its online skills system now enables NASA to use a consistent approach to measuring security skills relating to every operating system. This approach eliminates the need to determine equivalency of different tests from different sources.

Online Delivery and Reporting System Reduces Administrative Burden

With 3,000 systems administrators in ten different centers nationwide, Solomon’s department faced a significant challenge in administering its skills assessment program. To do so effectively, they required an assessment process that would not consume the resources of program managers or the available time of the test-takers.

NASA’s online solution addresses both concerns, accommodating the time and resource constraints of test-takers and program managers alike. Users can access the assessments at any time from any location. Results are made available immediately, to both the user and to the manager or other decision-makers.

The immediate availability of assessments and test results is instrumental in keeping the costs of the program within budget. NASA’s online skills measurement system minimizes the manpower investment needed for a successful initiative. According to Solomon, four people in his department are currently involved in running a program that will accommodate 3,000 people.

Continuing Program Helps NASA Address Executive Mandate for Critical Skills Validation

A consistent measurement platform, a consistent reporting system, and assessments validated through an ISO 9001-2000 certified development process—these are primary components of the NASA skills measurement solution. According to Solomon, they are key ingredients in the continuing success of NASA’s program.

The initiative may have begun as a way to demonstrate how the agency is following the President’s Management Agenda, but during the course of implementation it is also providing much needed consistency for tracking skills improvement and focusing training programs. According to Solomon, the independence of the skills measurement system provides a valuable advantage in training, giving his organization the option of using any training supplier or leveraging in-house learning resources. It is also giving contractors the data they need to prove their ability to provide service to the agency. In many cases, contractors have approached NASA looking for information about adopting an online skills measurement system for their own organization.

Like many agencies, NASA approached its skills measurement strategy looking for a way to show that its people had the capabilities to perform and succeed in their job functions. Today NASA’s skills measurement system is delivering results. It is not only providing objective metrics to validate critical skills, but it is serving as a catalyst for continuous improvement among employees and contractors who are crucial to the agency’s success.

* Published by the Office of Management and Budget in 2002, The President’s Management Agenda is a comprehensive outline of strategic initiatives aimed at helping agencies achieve measurable improvement in all areas of operational performance. For more about the Agenda, see our feature article on the subject in Skills Measurement Report: Vol. 2, Issue 1: January 23, 2003