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CYBERSECURITY | INNOVATION . AWARENESS . TRAINING

Role-Based Learning Paths for More Effective Training Results

NIST National Institute of Standards and Technology U.S. Department of Commerce

LEARNING TREE INTERNATIONAL

DESIGN & TECH TEAM

PRESENTED BY:

Richard A. Spires,
Chief Executive Officer
Learning Tree International
- Cyber Security and Program Management Course Author and Instructor
- Former CIO of Internal Revenue Service
- Former CIO of U.S. Department of Homeland Security

@raspires | @learningtree

Gregory L. Adams, P. Eng.
- Cybersecurity Mapping
- Member of NICE Training and Certification Sub-committee

Various Cybersecurity Subject Matter Experts, Authors & Instructors

LEARNING TREE INTERNATIONAL

OVERVIEW

Today we will discuss:

- **The nature of role-based training:**
  Why it is so important for cybersecurity

- **The development of role-based learning paths:**
  How this can improve the efficiency of cybersecurity

- **How you can participate and collaborate to provide ongoing improvement of the role-based learning paths**

* http://onlinelibrary.wiley.com/doi/10.1111/irel.12066/full

BACKGROUND

For Many Organizations, a Cyber Security Breach is One of its Largest Risks

- Private sector, government and military
- Can cause financial, reputational or even physical harm

83% of CIOs Agree that Workforce Competence is Key *

- More than technology used or the processes followed

It is Anticipated there will be a Shortage of Over 3,000,000 Cyber Professionals Over the Next 5 Years **

Effective Training is Key to Providing Needed Protection

* http://onlinelibrary.wiley.com/doi/10.1111/irel.12066/full

EVOLUTION OF ROLES

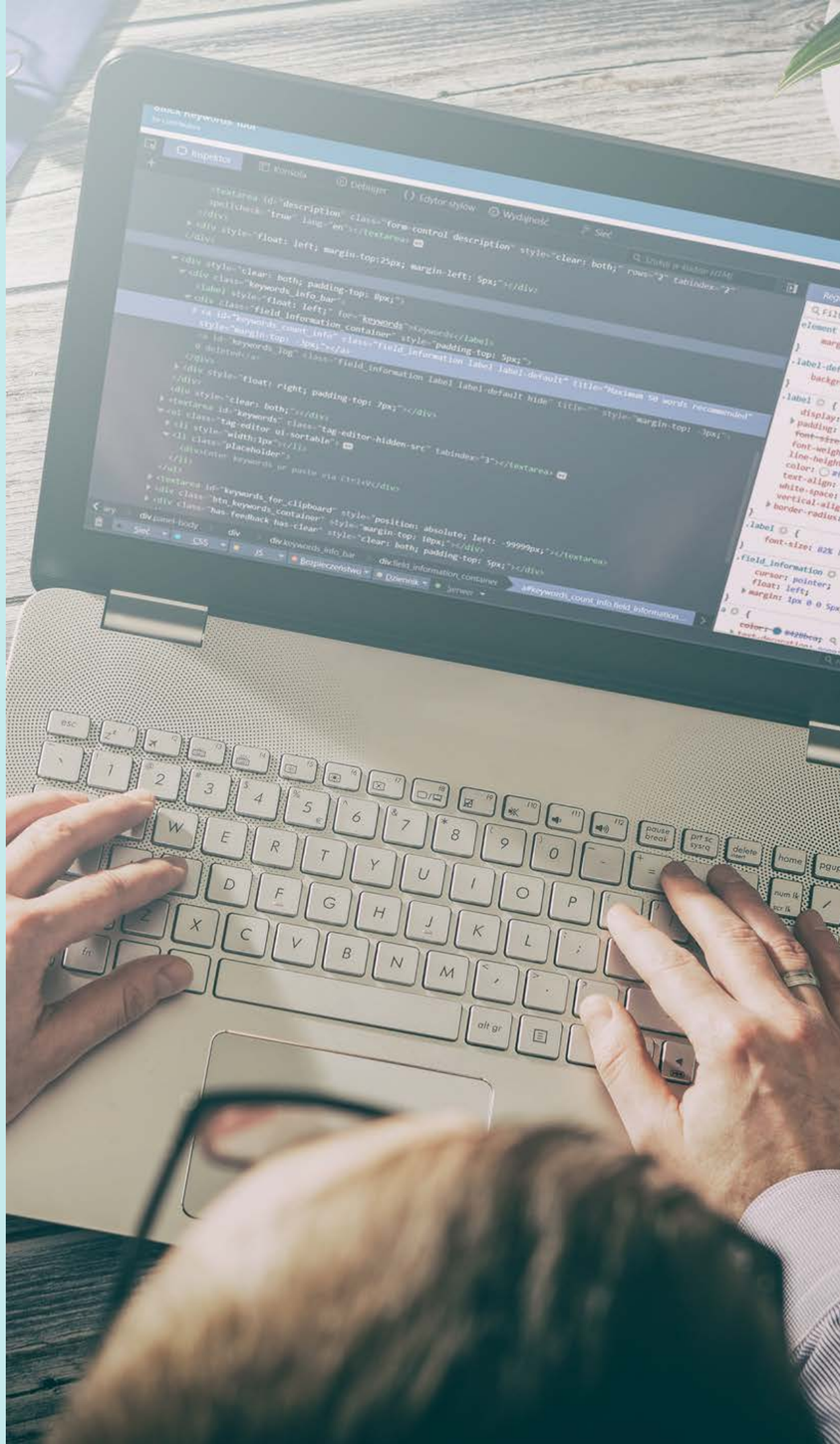
Selecting Training for a Technology has always been straightforward

- Progressively more courses from intro to advance, Java for example:
  Introduction to Java *(Course 471)*
  Advanced Java, Design Patterns & Best Practices *(Course 516)*

Usually Technology is adopted for a purpose

- Java, for example, is most often used for enterprise web development
- Training would add the following related Java areas:
  Java Web Development *(Course 570)*
  Java Enterprise Apps *(Course 974)*
  Integrating EJB, JSF, JPA *(Course 978)*

Introduces the concept of a role - in this case,
'Java Enterprise Web Developer'



ROLES DEFINITION

Roles are not jobs or positions

- Often more than one role needed to fill a position

Example: Functional Job = Java Enterprise Web Developer + Agile/Scrum Developer + Soft Skills

Roles and positions are typically derived from the organization's competency model (skills needed)

- Often self-developed KSAs and tasks at multiple progressive levels
- Creating can be challenging, time consuming and necessary

In modern times, competency modeling is expedited

- Various Industry Standard Frameworks have appeared
- These have the advantage of saving organizations to create more accurate competency models in significantly less time

The NIST/NICE National Cybersecurity Workforce Framework is invaluable

- Adoption is widespread and increasing
- Nicely helps answer the question

"What skills do we need?"

NICE FRAMEWORK

The NICE Framework organizes roles under categories and specialties

- 50 roles specified as ‘professional’ competencies – meaning technology agnostic
- Full KSAs and tasks are defined for each role

In a practical sense, for these roles to be deployed within an organization, they need to be expanded to include ‘technical’ competencies

- Example: how to secure databases is different for SQL Server vs. Oracle
- Depends on the organizations infrastructure

As organizations adopt the NICE Framework, two additional questions appear:

“What skills do we have?”

“How do we fill the gaps?”

LEARNING PATH EVOLUTION

As a workforce development company, Learning Tree has strived to provide answers to these questions

- As early adopters of the NICE Framework, it was recognized that we could not do it all ourselves

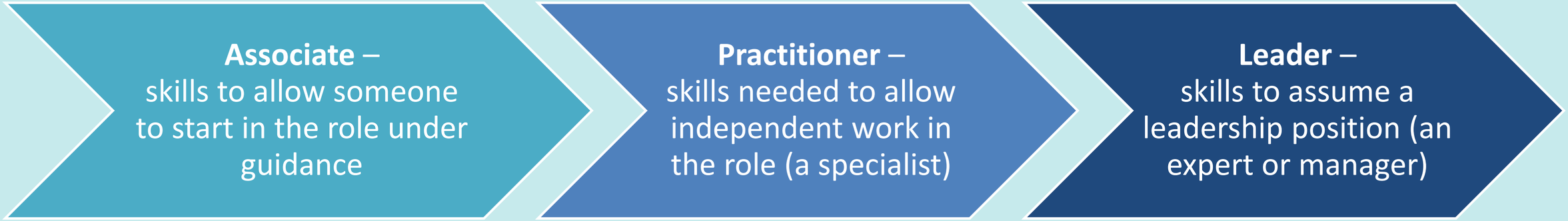
For full coverage, the broader industry offered many useful cyber courses and certifications

- Some unique, some with overlap, and many at different competency levels and coverage

(to name a few)

LEARNING PATH LEVELS

Customer feedback and training available indicated three levels were needed



A collaboration website was created to establish defined paths

- Initially using ‘concise topic definitions’ and automated tools to compare to NICE Framework skill definitions
- Ultimately validated by subject matter experts
- Development of the paths is ongoing – we encourage you to participate in the evolution http://LPaths.org

LEARNING PATH BENEFITS

Primary benefit: provide guidance on how to achieve competency in a role

- Both individually and as an organization

Brings an additional question… *“Where am I in the learning path?”*
A significant additional benefit is skills assessment

- Objective Knowledge Validation to ensure correct placement into a training program
- Courses, certifications, onboarding, coaching and other implementation services

Learning Tree is committed to providing accurate placement

- Regardless of the training vendor used
- For more information: http://learningtree.com/Skills

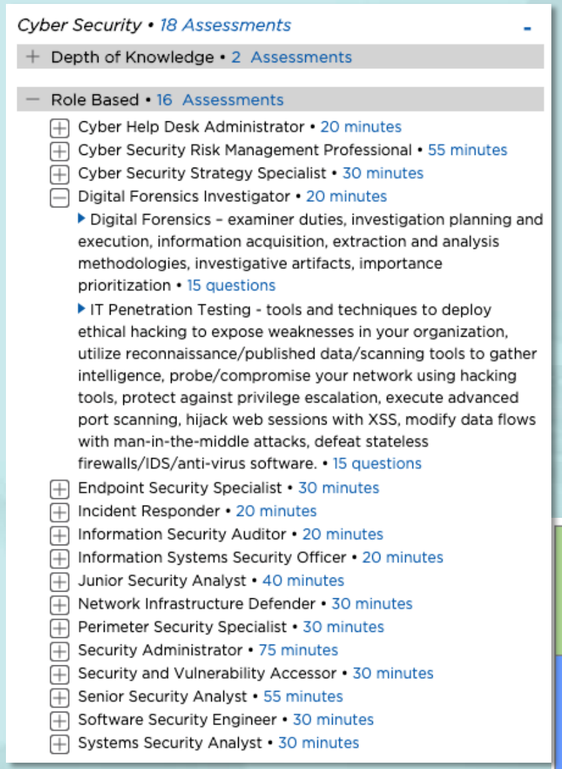
ROLE BASED PATHS & ASSESSMENTS

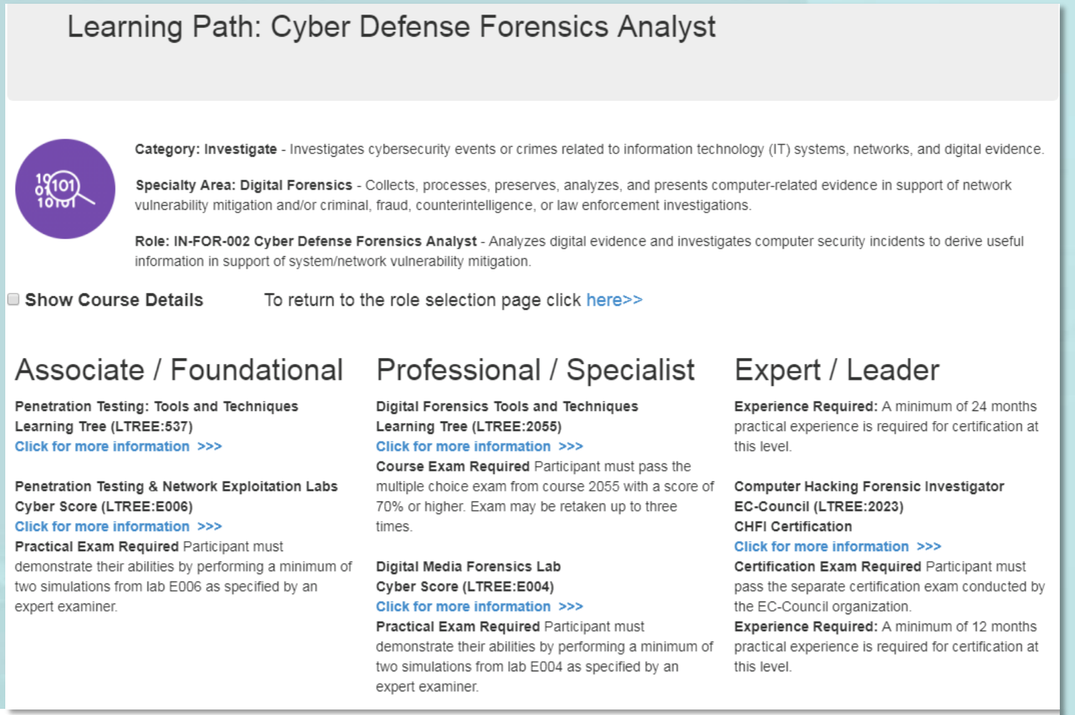
Path at Three Levels

- **Foundational –** what is needed to get started
- **Specialist –** needed to be independent practitioner
- **Expert –** what is needed for leadership

Skills Assessments Aligned to Paths

- Accurate training recommendations





Advanced	Daniel demonstrated expert level understanding of Penetration Testing Tools and Techniques (537)
Intermediate	Daniel possesses a good understanding of Digital Forensics Tools and Techniques. It is recommended that Daniel raise his skills through day-to-day on-the-job practice and experience
Primary	
Not-Qualified	Daniel has only modest knowledge of Computer Hacking Forensic Investigator skills. It is recommended that Daniel attend Learning Tree course 2033 and gain the experience to comple the EC-Council CHFI Certification

SUMMARY– HOW WE CAN HELP

Learning Tree is a full service provider for workforce development

- From courses to certifications to coaching Enterprise services from LMS integration to skills assessment to implementation workshops

Proven track record of helping organizations with digital transformation

- All the training you need at the right time
- Accurate placement for the exact correct path

QUESTIONS? COMMENTS?

LET US KNOW!

https://www.learningtree.com/business-solutions/cyber-security-initiative/