Advanced Security Monitoring Tools

Cybersecurity

SIEM 2 Day 2

Class Objectives

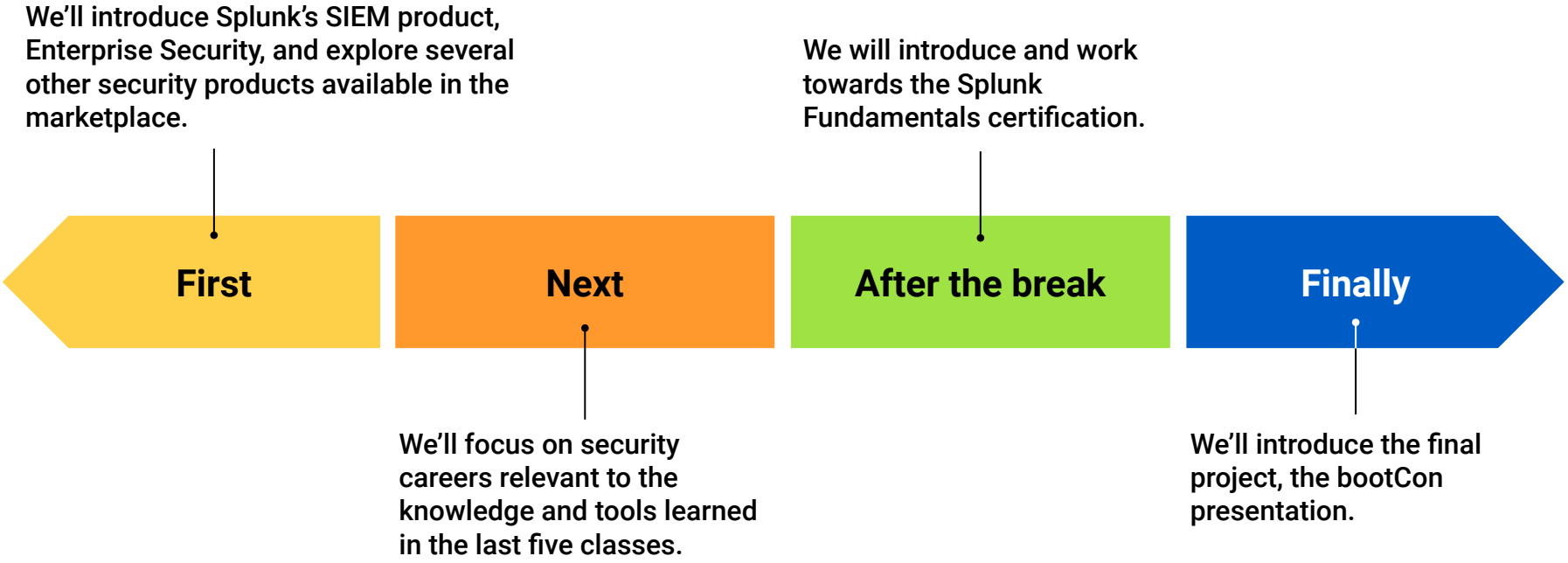
By the end of class, you will be able to:

- Differentiate between various advanced security monitoring solutions, such as SOARs, UBAs, and UEBAs, and determine which is most appropriate for a specific security situation.
- Understand how knowledge of SIEM software and Splunk is valued in the information security job market.
- Continue learning about Splunk with free Splunk training courses.

Advanced Security Monitoring Tools

Introduction to Advanced Security Monitoring Tools

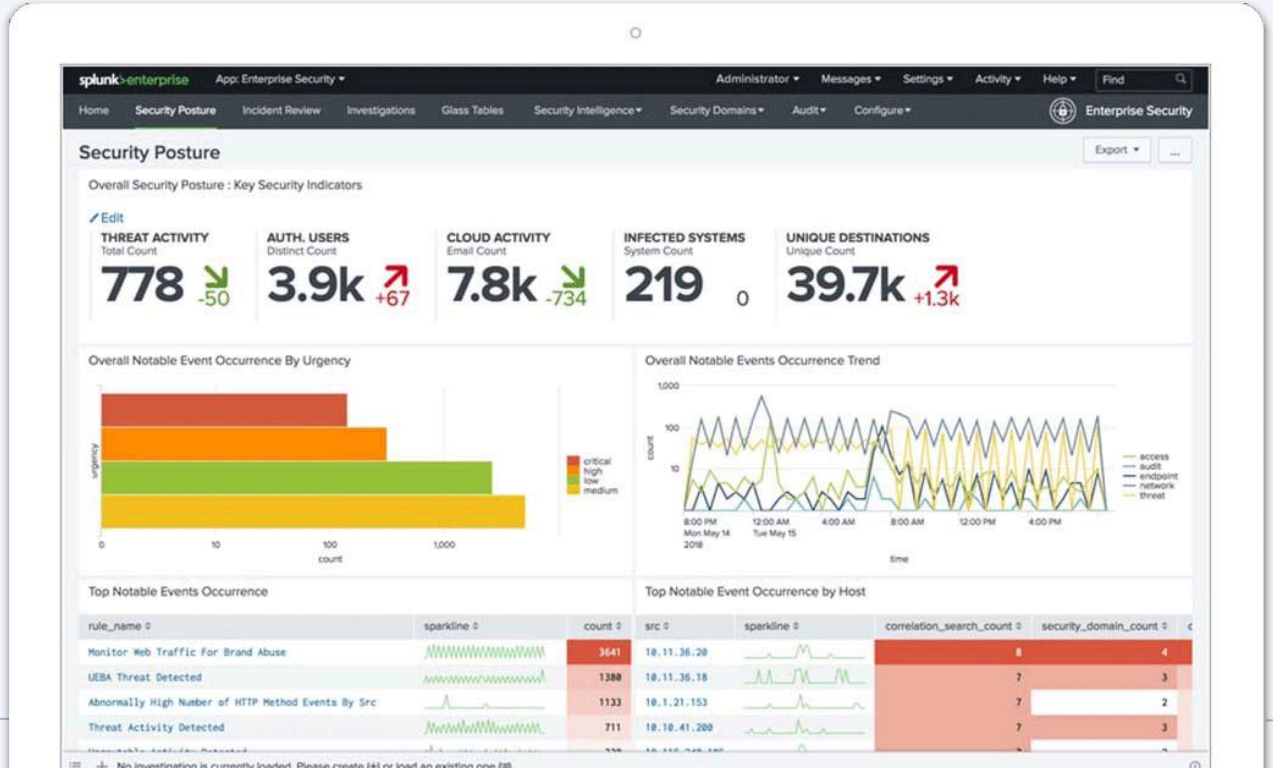
Today, we'll learn about other information security products used by security organizations.



Splunk Enterprise Security

In the past five classes, we covered many of Splunk's capabilities and add-on applications.

The Splunk SIEM product, **Splunk Enterprise Security (ES)**, is one of the most popular add-on products for security professionals.

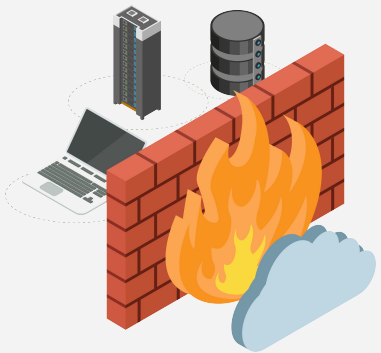


Splunk ES

Splunk ES is a SIEM product that provides security professionals insights from machine-generated data generated by such sources as:

01

Network devices
like routers and firewalls



02

Endpoint devices
like antivirus solutions

03

Vulnerability management systems
like Nessus

Splunk ES is one of the most popular add-on products for security professionals, as it has pre-built dashboards, reports, and built-in features.

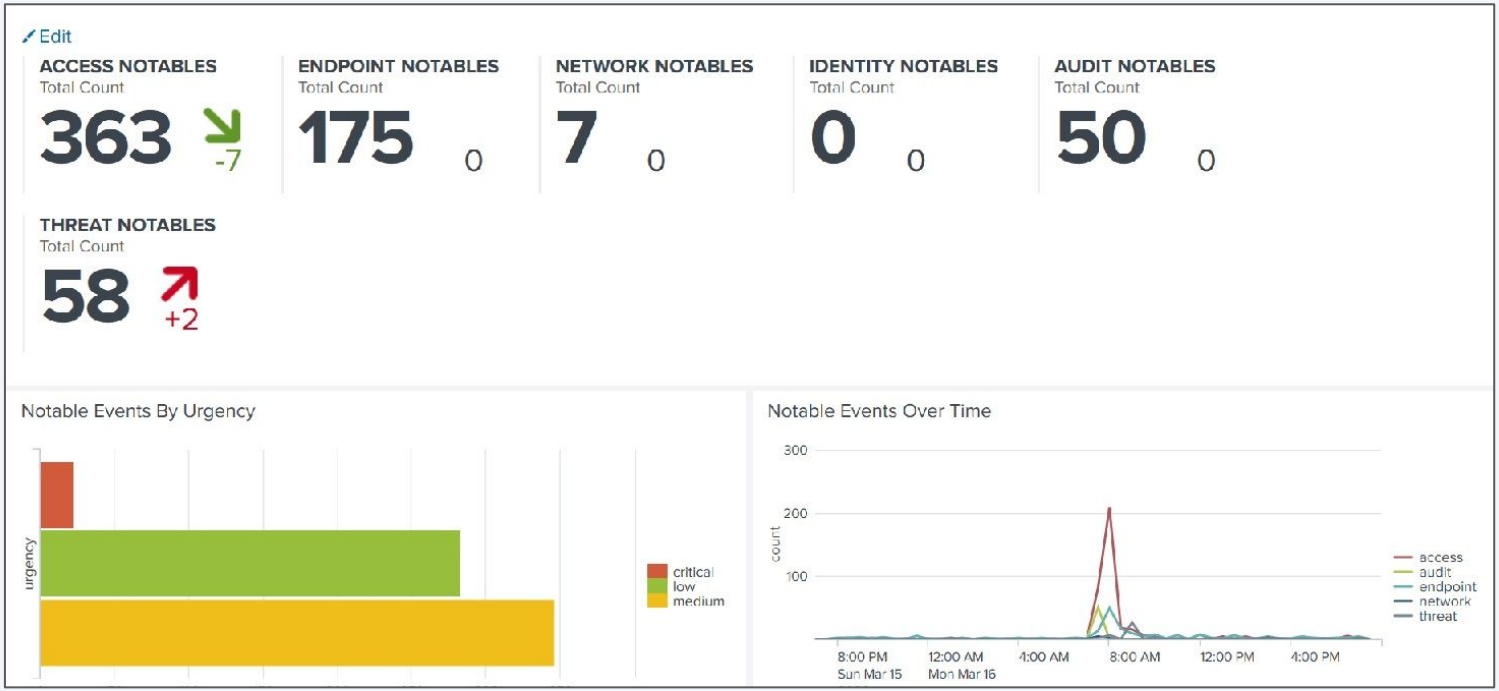
Splunk ES

Splunk ES features allow you to:

- Identify, prioritize, and investigate security events
- Gain insights into security events
- Monitor the status of a security environment
- Audit security events
- Navigate these tasks with a pre-built, easy-to-use interface

Splunk ES

Example of a basic Splunk ES dashboard



Advanced security monitoring solutions provide additional benefits such as machine learning, artificial intelligence, automation, and response.

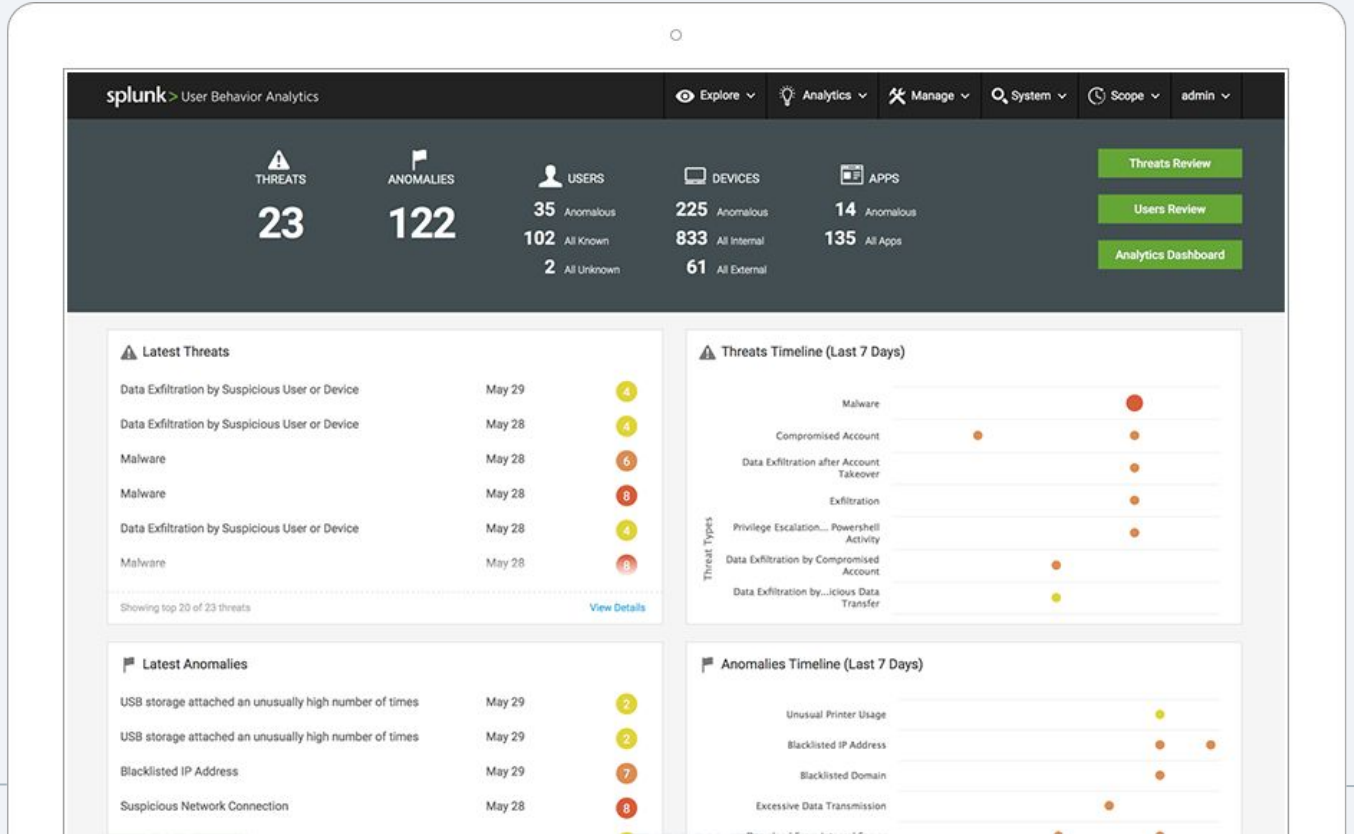
Advanced Security Monitoring

The most popular advancements in the information security industry include:

UBA	**User behavior analytics**	A security monitoring tool that uses machine learning, artificial intelligence, and data processing to detect abnormalities in user activity
UEBA	**User and entity behavior analytics**	A security monitoring tool similar to UBA, except it extends its monitoring to other “entities”
SOAR	**Security orchestration, automation, and response**	Comparable to a SIEM, it automates security processes and responds to security incidents

UBA

UBA gathers information about typical user behaviors and creates baselines.



UBA

For example:

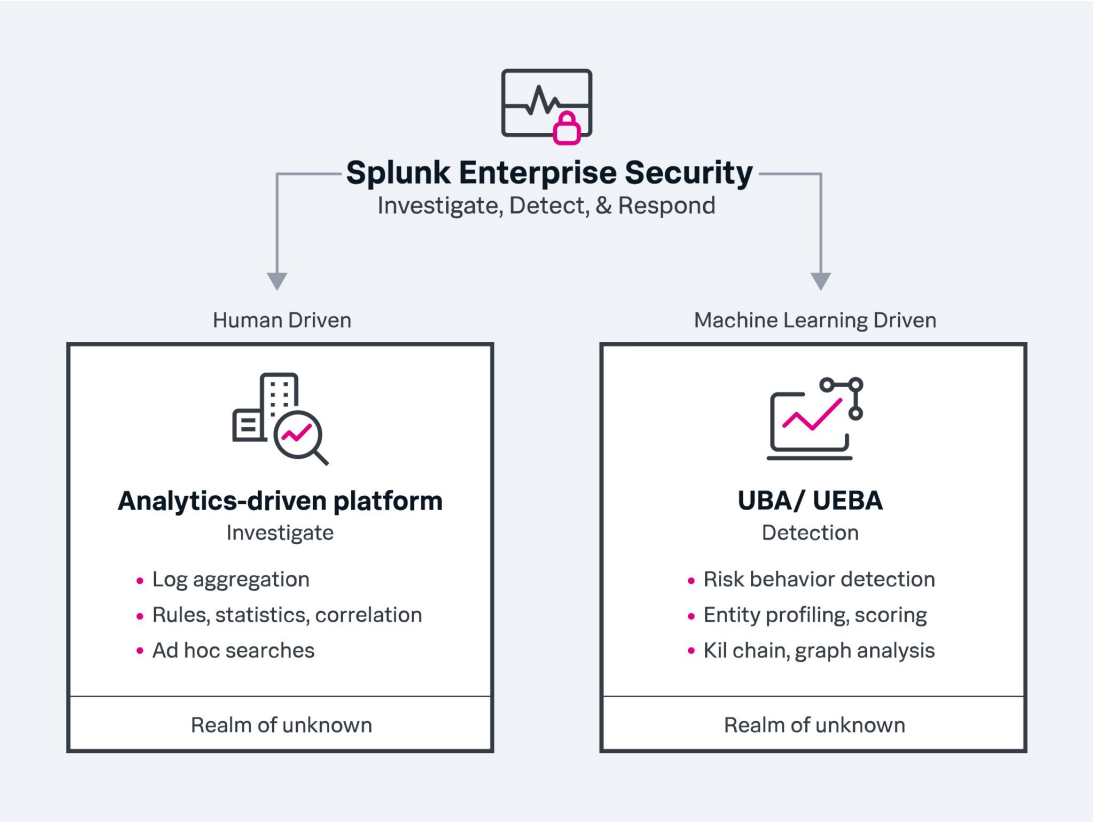
- UBA can gather information on the servers and systems that a user accesses, as well as when and how frequently they do so.
- UBA can then create alerts for when a user's activity deviates from this typical behavior.
- If a user usually only logs in to a server between 9am and 5pm Monday through Friday, UBA would create an alert if the user logged in at 2am on a Saturday.

UEBA is a security monitoring tool similar to UBA, except it extends its monitoring to other “entities.”

Entities can include routers, servers, and IoT devices.

UEBA

UEBA looks at typical user and entity behaviors and creates alerts when they display unusual activity.



SOAR, comparable to a SIEM, automates security processes and responds to security incidents.

SOAR

Examples of:

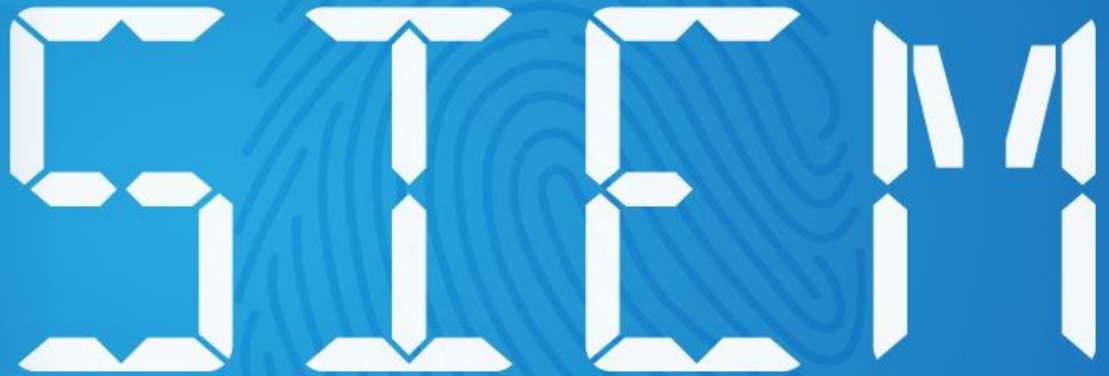
Automating security processes

- Creating logging
- Assigning priorities to security incidents

Responding to security

- Launching security investigations
- Mitigating threats

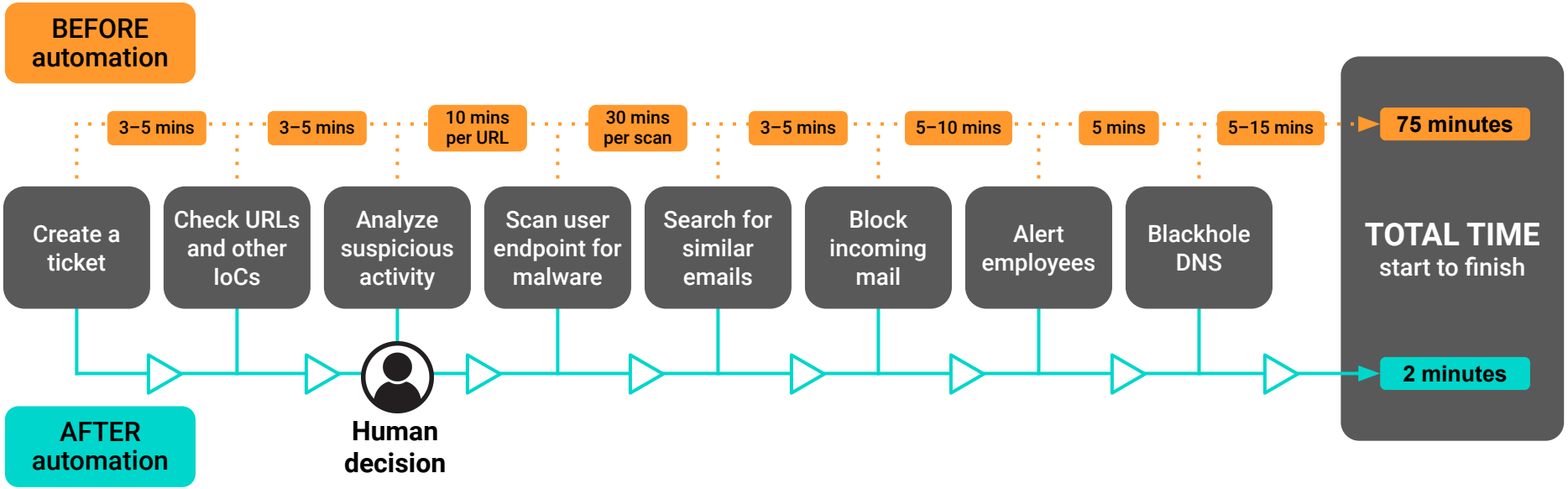
Similar to a SIEM, SOAR gathers machine data from multiple entities and analyzes the data for security events.



SOAR uses **playbooks** that detail the processes and response actions for specific events.

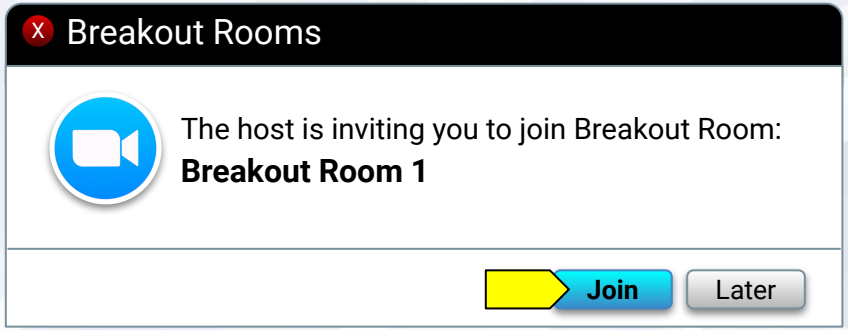
SOAR

This diagram illustrates how using SOAR playbooks can decrease incident response time. Playbooks are uniquely designed and configured by each organization.



Activity: Advanced Security Monitoring Tools

In this activity, you will research SOAR, UBA, and UEBA vendors to find a best fit for your organization.



Suggested Time:

15 Minutes

Time's Up! Let's Review.

Questions?

Splunk Careers

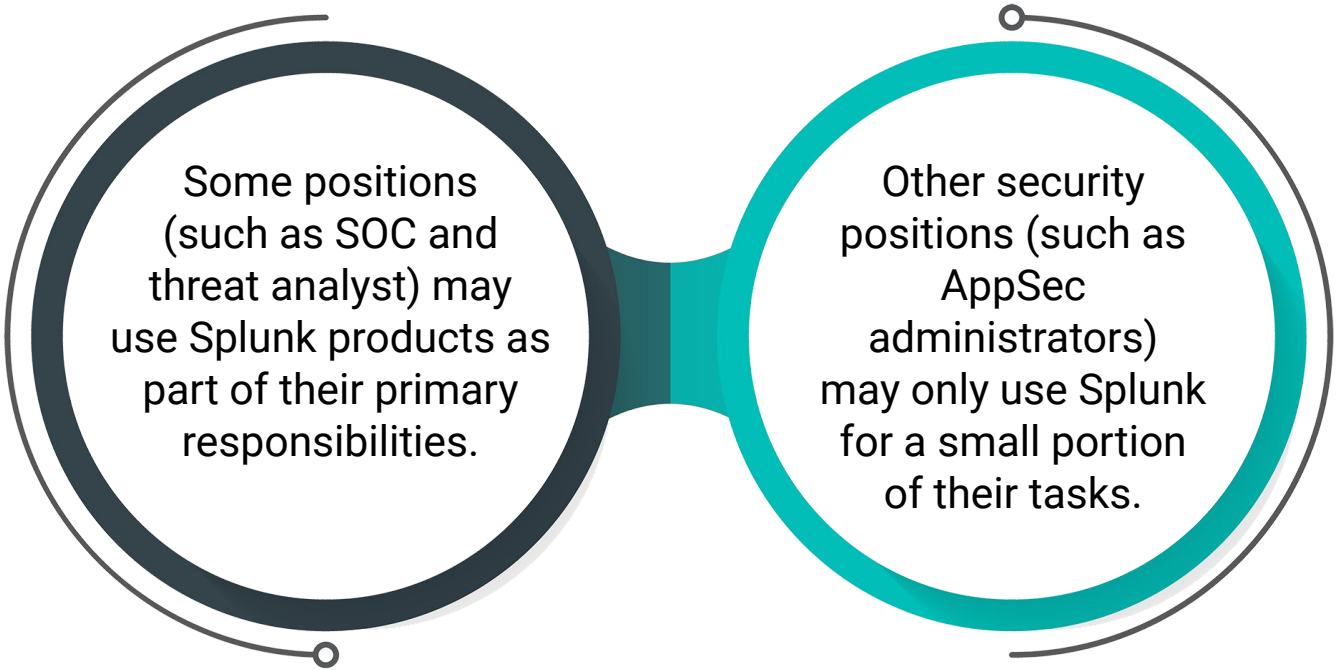
Now, we'll explore careers and certifications related to the Splunk knowledge and tools learned over the past five lessons.

Experience working with Splunk is a desirable qualification for many information security positions.

Splunk Careers: InfoSec Positions

SOC analysts	Work in a security operations department alongside security engineers. Their positions involve detecting, containing, and potentially remediating information security threats. Most SOC analysts use SIEM products, such as Splunk ES, to monitor their environment.
Cyber threat analysts	Analyze an organization's networks and applications to protect organizations from cybercriminals. Cyber threat analysts often use Splunk products to make predictions about cybercriminals and what attacks they may conduct.
Application security engineers	Use Splunk to fix web and mobile application vulnerabilities. AppSec engineers use Splunk to analyze their application logs to assist with creating and testing their remediation.
Network security administrators	Use products like Splunk to monitor suspicious network traffic, such as DDOS attacks. They can use the findings from Splunk logs to mitigate and prevent future attacks.
Incident response managers	Use Splunk to monitor the status of ongoing security investigations when an incident has occurred.

Splunk Careers: InfoSec Positions

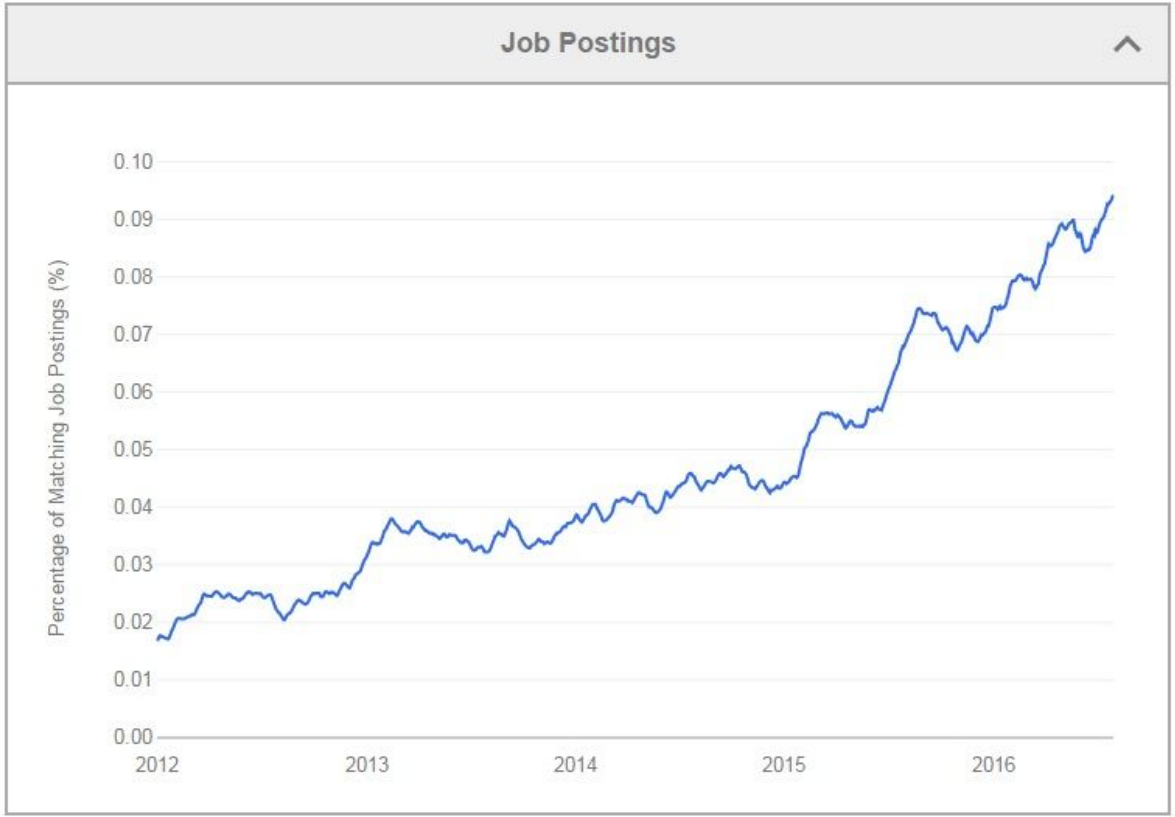


Either way, understanding how to use Splunk is a valuable skill for InfoSec professionals.

Splunk in InfoSec Careers

Splunk is already a required skill in many roles, and the industry demand is increasing every year.

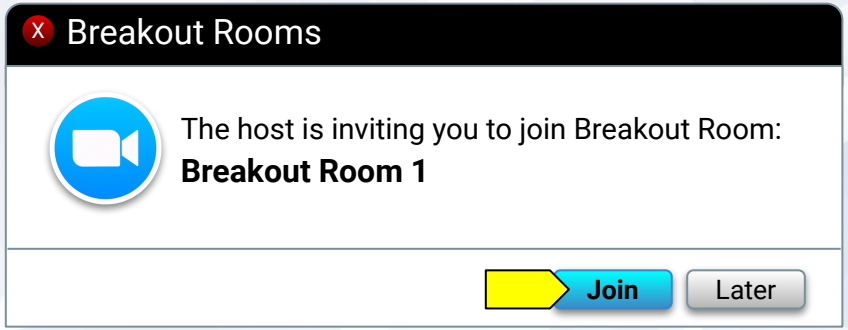
This chart shows the rising percentage of job postings for Splunk roles.



(Source: edureka!)

Activity: Splunk Careers

In this activity, you will search several job sites for Splunk-related careers and answer questions about each position.



Suggested Time:

15 Minutes

Time's Up! Let's Review.

Questions?

Countdown timer

15:00

(with alarm)

SIEM Certifications

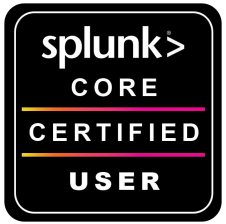
Similar to other domains in cybersecurity, Splunk skills are validated through certifications.

Splunk Certifications

Having a certification can help a cyber professional acquire a new position, receive a promotion, and attain networking opportunities with professionals who have similar certifications.

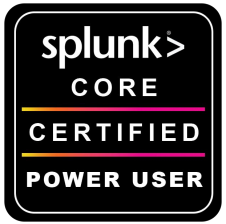
Splunk Certifications

Splunk offers many certifications, for a variety of skill levels.



Splunk Core Certified User

Entry-level certification that demonstrates a user's basic ability to use the Splunk software



Splunk Core Certified Power User

Demonstrates a user's foundational skills with Splunk's core software, plus more complex skills, such as creating calculated fields and data models

Splunk Core Certified Advanced Power User

Demonstrates a user's capability to design reports, complicated searches, and dashboards

Splunk Certifications

Splunk offers many certifications, for a variety of skill levels.

Splunk Enterprise Certified Admin

Focused on an individual's ability to support daily administrative tasks using Splunk ES

Splunk Enterprise Certified Architect

Focused on a Splunk administrator's role supporting advanced troubleshooting, configurations, and deployments in Splunk ES

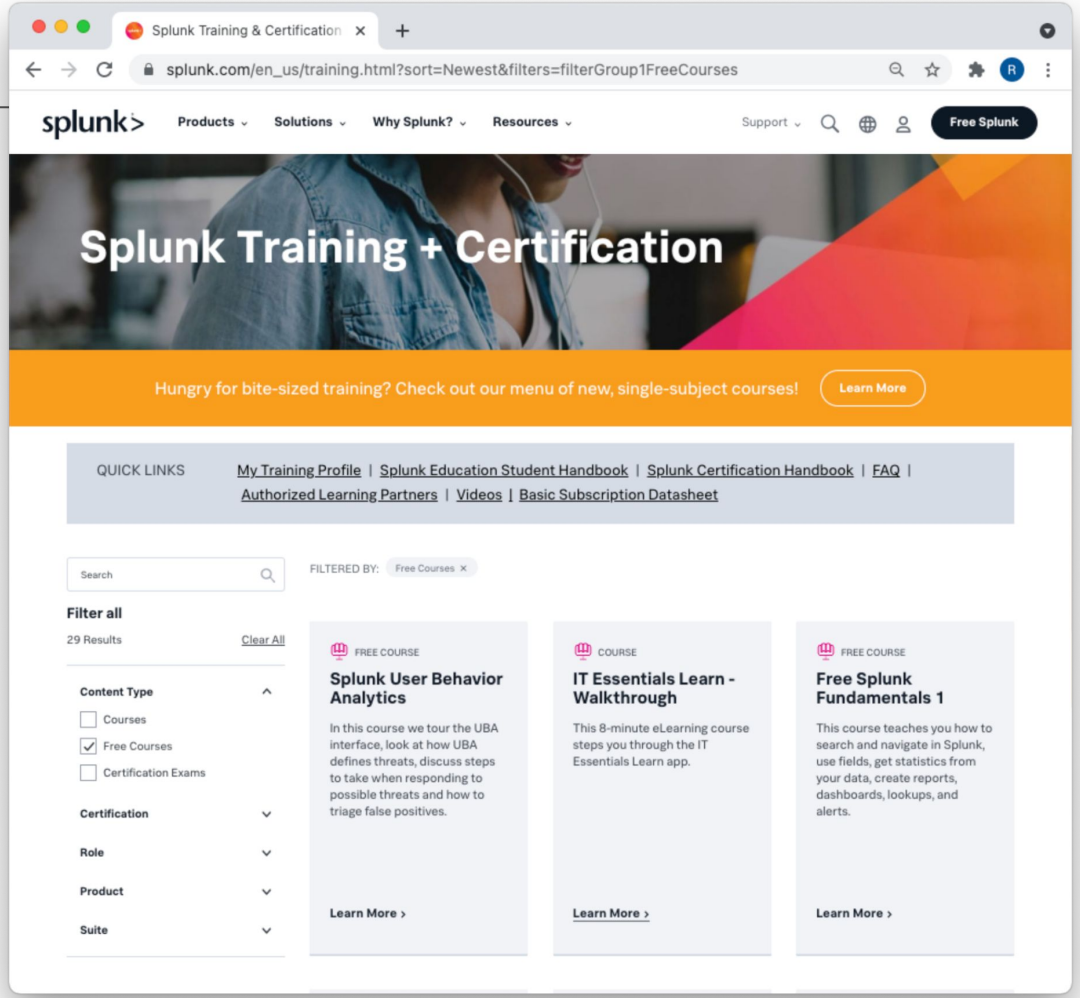
Splunk Enterprise Security Certified Admin

Focused on a Splunk administrator's role to support installation, advanced troubleshooting, configurations, and deployments in Splunk ES

Splunk Certifications

Like for many certifications in the InfoSec field, training for Splunk certifications is expensive.

Fortunately, Splunk offers many single-subject courses for free.



(splunk.com)

Activity: Splunk Certifications

In this activity, you'll register for a Splunk account and begin single-subject courses.

Suggested Time:

60 Minutes

Activity: Splunk Certifications

Resources for taking the Core Certified User certification exam:

- **Splunk:** Core Certified User certification
- **Splunk:** Journey to getting certified (video)
- **Splunk:** Exam registration tutorial
- **Pearson VUE:** Exam registration
- **Splunk:** Certification study guide

Splunk Certifications

If you are interested in continuing your education towards a **Splunk Core Certified User** certification:

You can access additional learning courses in your own time.

You can take the Splunk Core Certified User exam to earn a Splunk certificate.

Questions?

Next Week

Next week, we will move on to the Forensics module

Project Weeks

You will complete two more projects in this course:

01 Defensive Security Project

- This project will occur at the end of the Defensive Security module and incorporate everything you learn in this module.
- We'll cover the details next week.

02 Final Project: BootCon

- This project will occur in the last week of class.
- We'll get an overview now so that you can begin brainstorming and preparing.

Cybersecurity Research Presentations

Cybersecurity professionals commonly present the following to their peers:

- Security research they're conducting
- Newly discovered security vulnerabilities of products, devices, software, or hardware
- Demonstrations of the "hacks" that will exploit these vulnerabilities
- Mitigations to protect against these vulnerabilities

- These presentations often occur at security conferences, trade shows, and other industry events.
- Cybersecurity professionals commonly attend these events to remain up to date with new technological developments and techniques.

BootCon Presentations

Similarly, you will have an opportunity to showcase your skills during bootCon.

On the last day of class, we will hold a cyber class conference called bootCon.

Each student will have an opportunity to showcase the skills they learned during the bootcamp with a presentation.

If students elect to present as a group, every group member must participate in the presentation.

Most cyber professionals present at conferences when they've found a new vulnerability. However, for bootCon presentations, it is acceptable and recommended that you recreate a finding that has already been discovered.

A bootCon presentation
is NOT a research paper.

While research will be required, all presentations must be tangible and demonstrable.

A demonstration can either be:

- Conducted in person
- A prerecorded video that accompanies the presentation *(if a live demonstration isn't practical)*

BootCon Presentations

Each bootCon presentation should fall into one of the following three categories:

	01	02	03
Category	Exploiting a vulnerability of an IOT device	Developing code or a program that can complete a cybersecurity task	Demonstrating how a cybersecurity tool that was not covered in class can accomplish a specific goal
Example	Hacking your personal Blu-Ray player	Developing a Python script that can automate an Nmap scan	Using SET to design a social engineering campaign

BootCon Rules and Requirements

BootCon Rules and Requirements

You must submit a project summary to your instructor for approval.
The summary should be submitted with a Slack message by **Week 22**.

Your project summary should include:

Topic and title of your presentation

End goal or vulnerability being exploited

List of devices and/or technologies that will be used to accomplish the goal

Summary of how the devices and technologies will be used to accomplish the goal

BootCon Rules and Requirements

Under no circumstances may any aspect of your bootCon presentation be unethical or illegal.

You must:

- Perform all hacks and tests in simulated environments
- Complete any network connections in your home and/or controlled environment
- Only perform IoT hacks on devices that you own

BootCon Rules and Requirements

Presentations must have a goal whose achievement you can demonstrate.

For example:

Goal:
Cracking WEP wireless traffic from your home router

Demonstration:
How you captured and cracked your wireless traffic

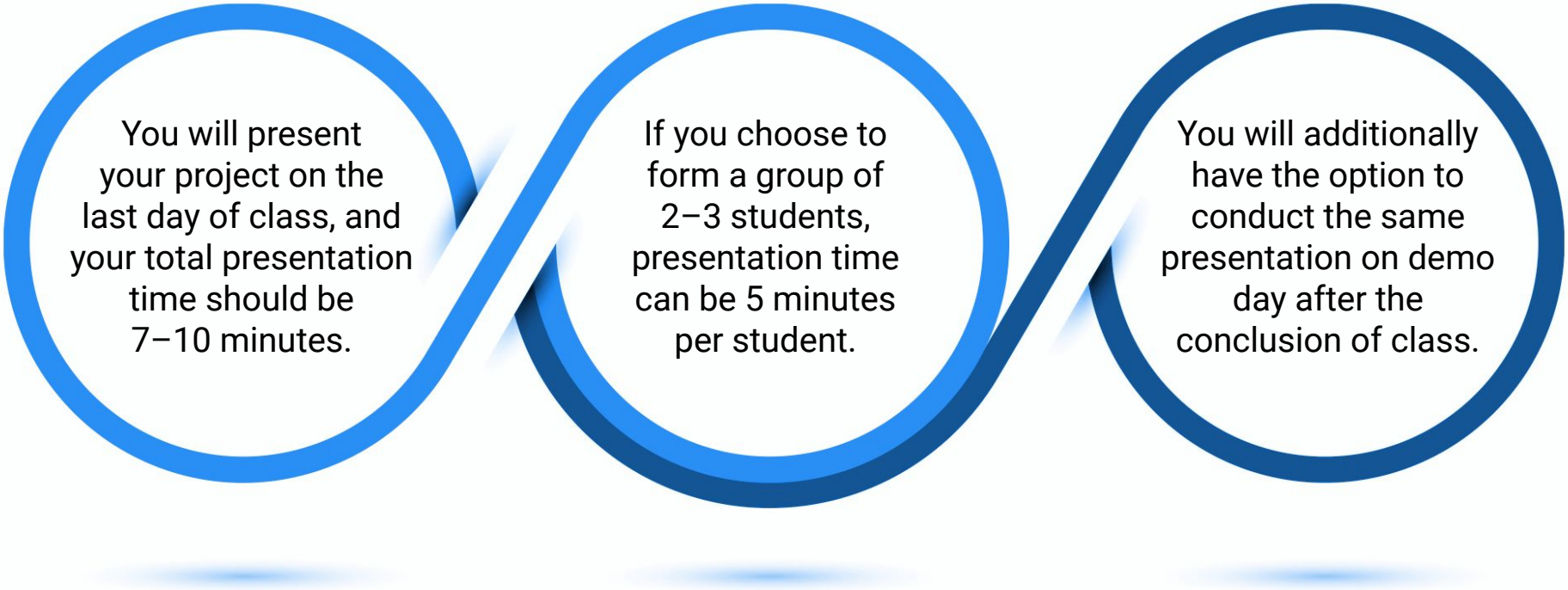
You can either conduct your demonstration live or record it and present it while you walk through what took place.

BootCon Rules and Requirements

You must submit your presentation in the form of a Google Slides deck that, at a minimum, includes the following:

Cover slide	Presentation title and team member(s) presenting
Technical background	● Explanation of why you selected the topic you are presenting ● Networking, cryptographic, or security concepts applied ● Research steps taken
Demonstration preview	Preview of the steps that you'll take in the upcoming demonstration
Demonstration	A live or recorded demonstration is conducted here
Demonstration summary	Summary of the demonstration that you just conducted and any impact that it may have
Mitigation	Recommendations for mitigating against the attack that you just conducted. If your presentation isn't about an attack, this is not required.

BootCon Rules and Requirements



BootCon Presentations

If you need ideas for your presentation, refer to the [bootCon presentation guide](), which contains:

Sample presentations

List of Kali Linux tools

List of IoT hacks

Videos of hacks presented at security conferences

Remember: Your project proposals are due in Week 22!


The End.