



**Intellectual**  
POINT

# CREATING THE NEXT GENERATION CYBER PROFESSIONALS BEST PRACTICES & LESSONS LEARNED

Prem Jadhvani  
President & CEO  
Intellectual Point

[Prem@IntellectualPoint.com](mailto:Prem@IntellectualPoint.com)

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# Agenda

- ❑ About Intellectual Point
- ❑ Today's Cyber Threat Landscape
- ❑ Shortage of Cyber Security Skills
- ❑ Tools, Best Practices and Skills for building Next-Gen Cyber Security Workforce.
- ❑ Success Stories



# About Intellectual Point

Intellectual Point is a Global Information Technology, Training, Consulting and Software Development Company. Intellectual Point provides professional hands-on computer and IT training and consulting to prepare you with the skills and knowledge needed for today's competitive job market.

- Workforce Development
- IT Training & Certification
- Authorized Testing Center
- Job Placement & Staff Augmentation
- Cyber Security Consulting
- Risk Assessment & Compliance



# Partnerships & Contracts



# ABOUT ME

- CEO & Founder – Intellectual Point (IP) – IT Training and Workforce Development & Consulting
- CTO – Government Acquisitions Inc. (GAI) – IT Solutions Provider to the Federal Government
- 20+ years in IT Industry in various capacities
- BS & MS (Computer Science), IIT, Chicago
- MBA (Marketing and Strategy), IIT, Chicago
- Completed Coursework in Ph.D. (Information Assurance & Cyber Security), George Mason University (GMU)
- Hold 100+ certifications and advanced credentials including Security+, CISSP, CEH, CISM, CCNA, VCP, AWS, CCNP.
- Served as a Commissioner of the TechAmerica Commission for Big Data Analytics and Cloud Computing
- Speaker at reputable conferences and industry tradeshows and author of many publications.



**PREM JADHWANI**  
**CEO & PRESIDENT**

**[PREM@INTELLECTUALPOINT.COM](mailto:PREM@INTELLECTUALPOINT.COM)**

**PHONE: 703-554-3827**

Excellence through Education



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# STATE OF THE CYBER SECURITY LANDSCAPE

MARKET SURVEY

# New Threat Landscape and Advanced Targeted Attacks

- Malware has gone beyond most existing signature based security controls
  - Organizations largely unaware of the problem
  - They are actively and silently sending data out the door
  - We MUST change our strategy to match the problem
- Random Attack:
    - Viruses / Worms
    - Port Scans
    - Phishing
  - Targeted Attack:
    - Denial of service
    - Theft of service
    - Information theft
    - IP theft
    - Ransomware

## Targeted Malware Is Hard to Detect



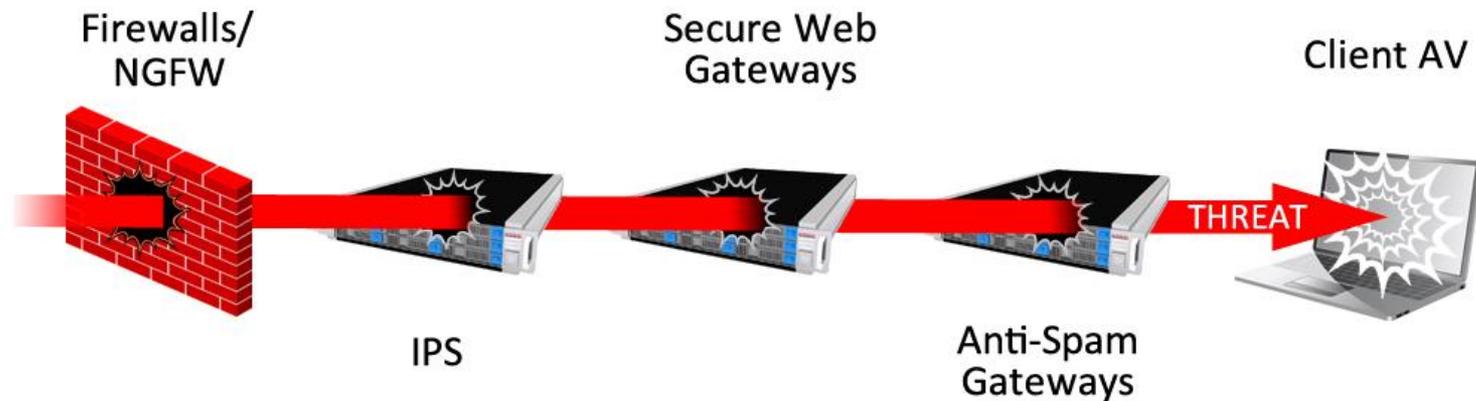
**243**  
**Days**



**63%**  
**Discovered**  
**Externally**

# Traditional Defenses Don't Work

- The new breed of attacks evade signature-based defenses



# The Future of Security



# New Mindset for Information Security

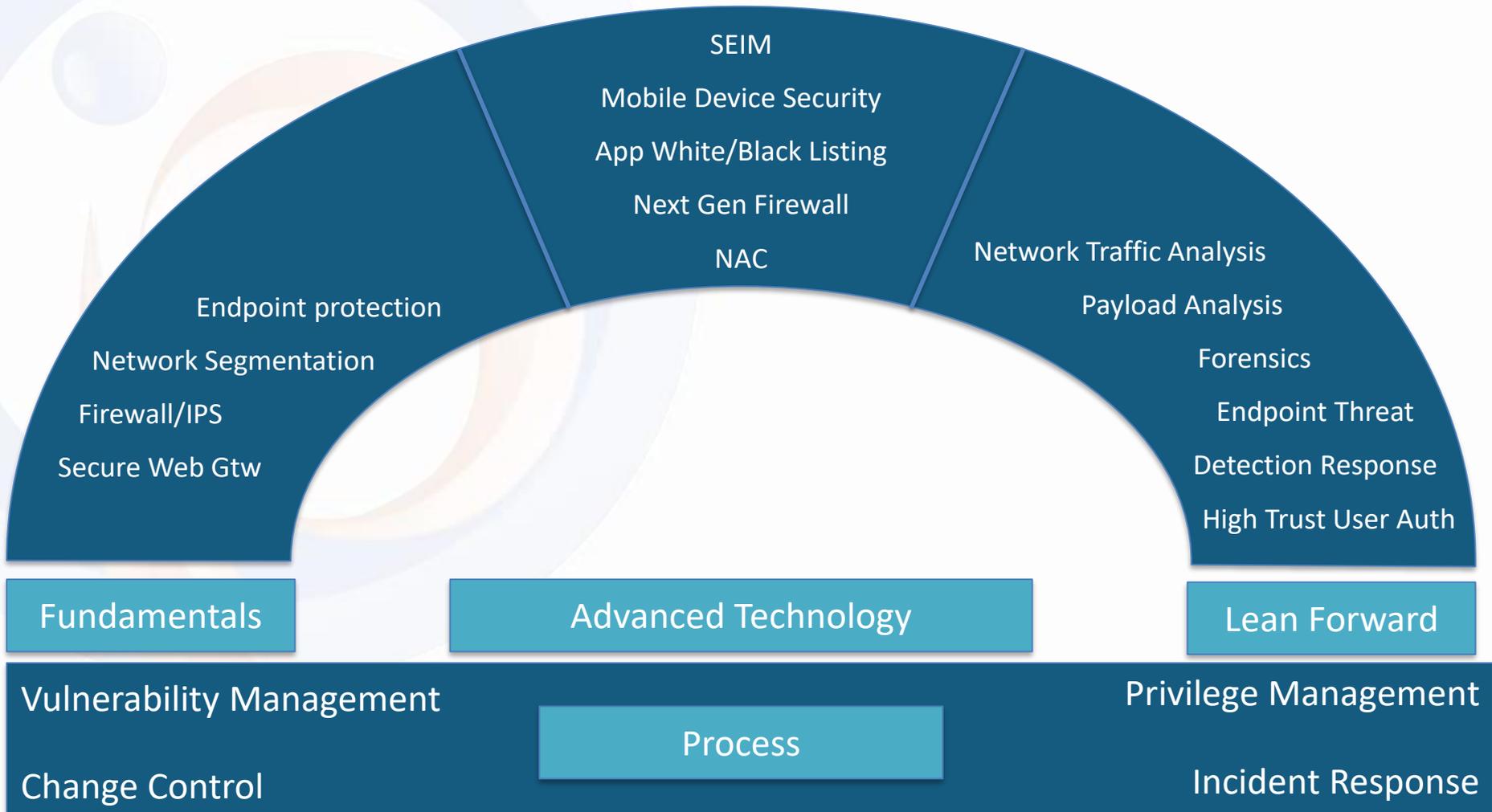
- Old Mindset

- Signatures →
- Point solutions →
- Fixed perimeters →
- Ownership = trust →
- Security “Boxes” →
- Security solution silos →
- Manual policy config →
- Block and prevent →
- Incident response →
- Protect devices / networks →

- New Realities

- Algorithms
- Platforms that correlate and share
- Adaptive perimeters
- Repudiation services
- Security software, some in HW
- Security as an adaptive system
- Security automation
- Detect and Respond
- Continuous response
- Protect information

# Security Technologies and Skills Spectrum



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# SHORTAGE OF CYBER SECURITY SKILLS

MARKET SURVEY



# 1.5 Million

**MORE** cybersecurity professionals will be needed to accommodate the predicted global shortfall by 2020

Source: (ISC)<sup>2</sup> 2015 Global Information Security Workforce Study



On average,

# 52%

of IT professionals surveyed stated fewer than **25%** of all applicants were qualified

Source: State of Cybersecurity: Implications for 2015:  
An ISACA and RSA Conference Survey

## The biggest skill gaps of today's cybersecurity professionals



**72%** Ability to Understand the Business



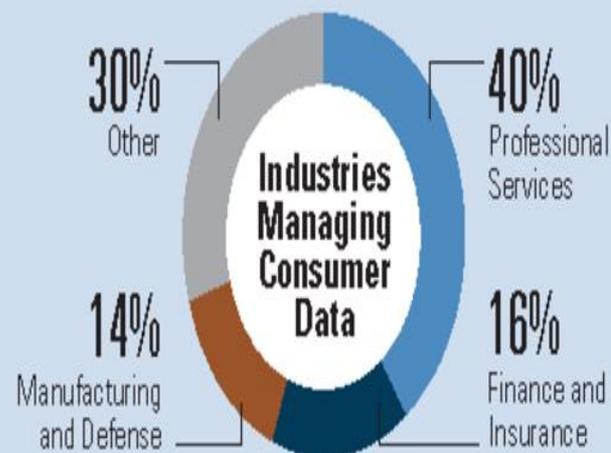
**46%** Technical Skills



**42%** Communication Skills

Source: State of Cybersecurity: Implications for 2015 An ISACA and RSA Conference Survey

## Fastest cybersecurity demand sectors are in industries managing consumer data



Source: Job Market Intelligence: Cybersecurity Jobs, 2015-2016  
Burning Glass Technologies

# Cybersecurity

job postings took  
**8%** longer to fill than  
IT job postings overall

Source: (ISC)<sup>2</sup> 2015 Global  
Information Security  
Workforce Study

## Expertise required for various cybersecurity roles in demand

- Information Security
- Network Setup
- Auditing
- Network Protocols
- Core Database, Coding and Scripting
- Systems Administration



Source: Job Market Intelligence: Cybersecurity Jobs, 2015

Approximately  
**10%**  
of the current cybersecurity  
workforce are comprised of women



Source: (ISC)<sup>2</sup> 2015 Women in Security:  
Wisely Positioned for the Future of InfoSec

**18%**  
Growth



Computer and mathematical  
occupations will grow much  
faster than the average job  
during 2012–2024

Source: Bureau of Labor Statistics,  
U.S. Department of Labor

## Fastest growing skills in cybersecurity job postings

- Python
- HIPAA
- Risk Management
- Internal Auditing
- Audit Planning

Source: Partnership for  
Public Service

## Hardest to fill skills in cybersecurity job postings

Source: Job Market  
Intelligence:  
Cybersecurity  
Jobs, 2015–2016  
Burning Glass  
Technologies



- Software Architecture
- Network Attached Storage (NAS)
- Software Issue Resolution
- Internet Security
- Legal Compliance
- Data Communications
- Platform as a Service (PaaS)
- Computer Forensics
- Internal Auditing
- Apache Hadoop

## Has a shortage of cybersecurity skills had a negative effect on your organization?

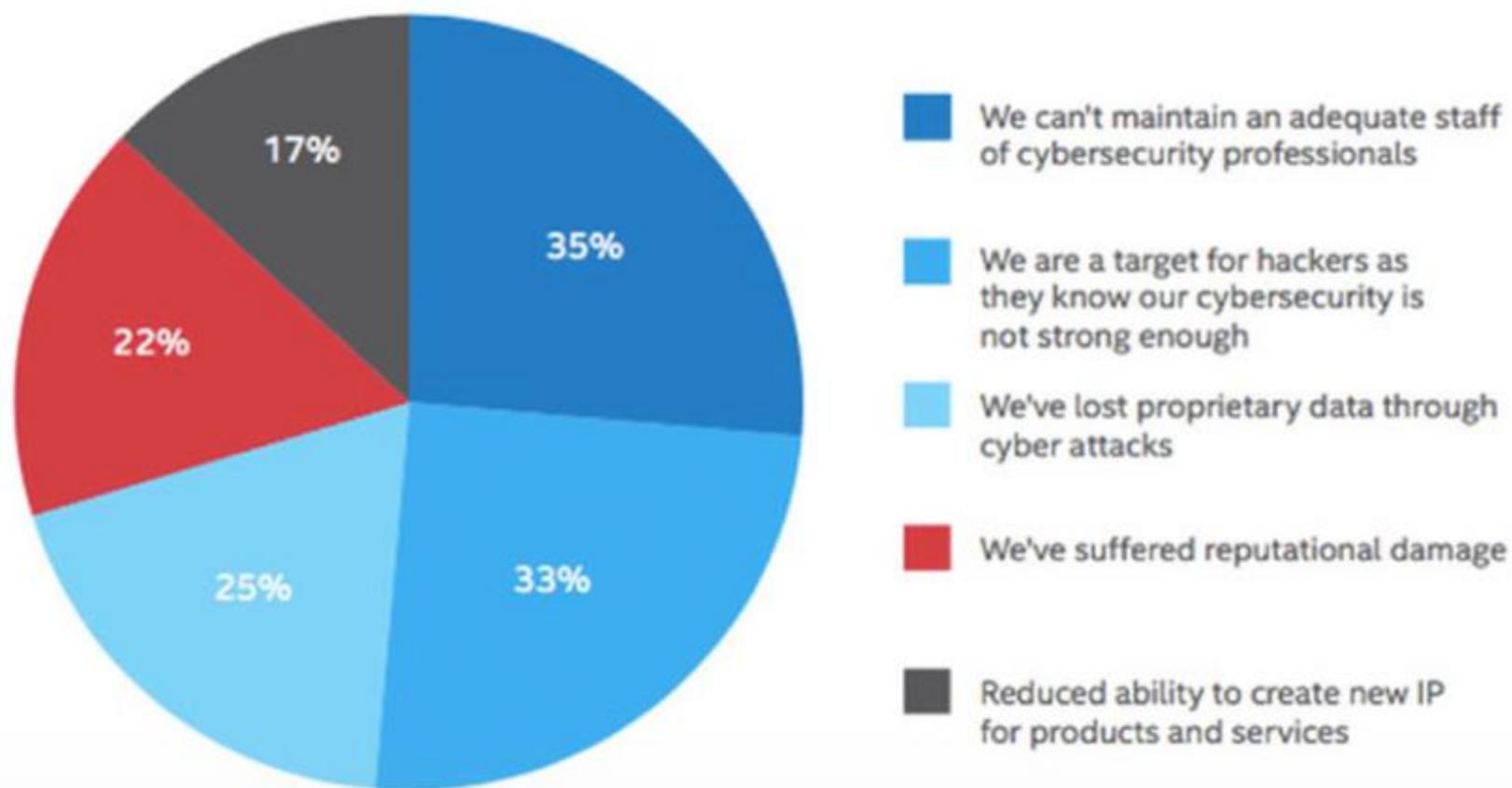
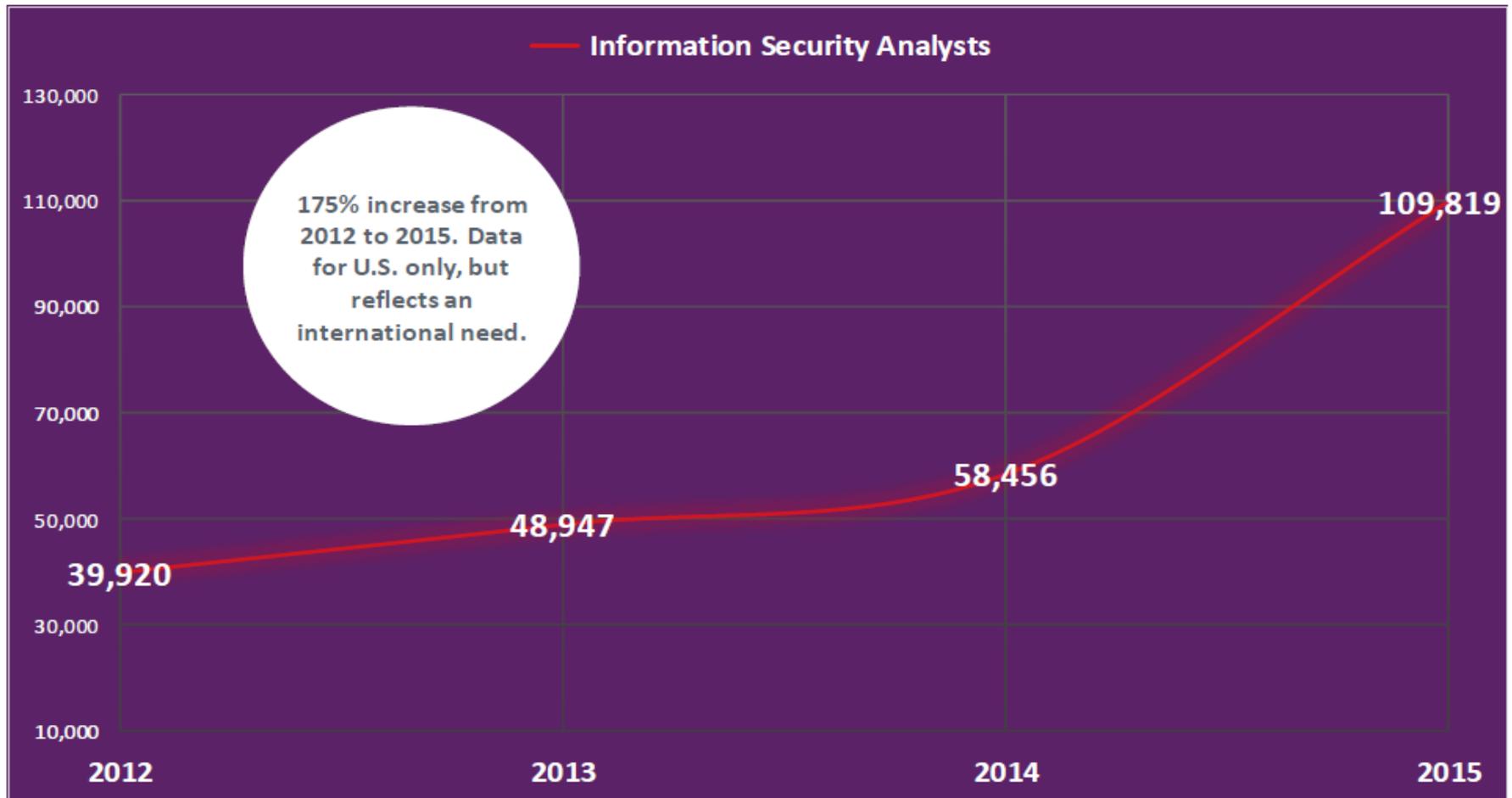


Figure 5. Impact of cyber workforce shortage.

# TOTAL NUMBER OF JOB POSTINGS: Security Analyst Job Role



# Top 10 Security Skills

Dice®

*Average salaries*

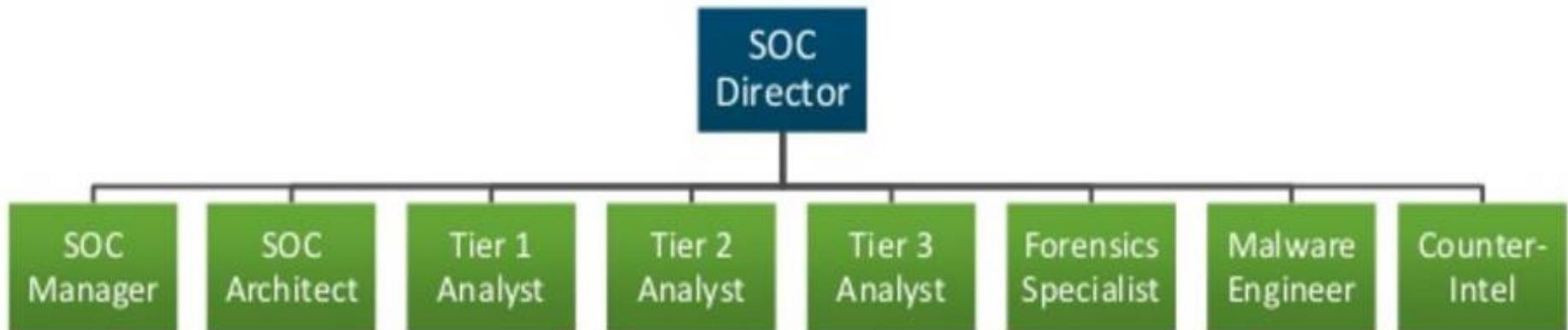


Source: Dice Jobs Database, 2013-15

# Various Cyber Job Roles within the SOC

## SOC Roles

Multiple roles with different background, skills, pay levels, personalities



- On-the-job training and mentoring, and external training & certifications
- Need motivation via promotion path and challenging work
- Operating hours and SOC scope play key role in driving headcount

# Cybersecurity Analyst

## AVERAGE SALARY ⓘ

\$85,000

Cybersecurity Analyst



## COMMON JOB TITLES ⓘ

- Information Security Analyst
- Security Analyst
- IT Security Analyst
- Cyber Security Analyst
- Senior Security Analyst

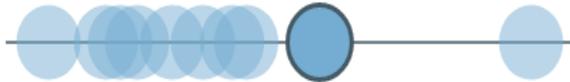
## REQUESTED EDUCATION (%) ⓘ



## TOTAL JOB OPENINGS ⓘ

22,635

Cybersecurity Analyst



## COMMON NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORIES ⓘ

Analyze



Collect and Operate



Securely Provision



Operate and Maintain



Protect and Defend



Investigate



## TOP CERTIFICATIONS REQUESTED ⓘ

- CISSP
- GIAC
- CISA
- CISM
- Security+

# Incident Analyst / Responder

## AVERAGE SALARY ⓘ

\$69,000

Incident Analyst / Responder



## COMMON JOB TITLES ⓘ

- Incident Team Lead
- Senior Information Security Analyst - Incident Management
- Senior Analyst - Information Security
- Technical Team Lead
- Cyber Incident Handler

## REQUESTED EDUCATION (%) ⓘ



## TOTAL JOB OPENINGS ⓘ

15,463

Incident Analyst / Responder



## COMMON NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORIES ⓘ

Protect and Defend

Cyber Defense Analysis

Cyber Defense Infrastructure Support

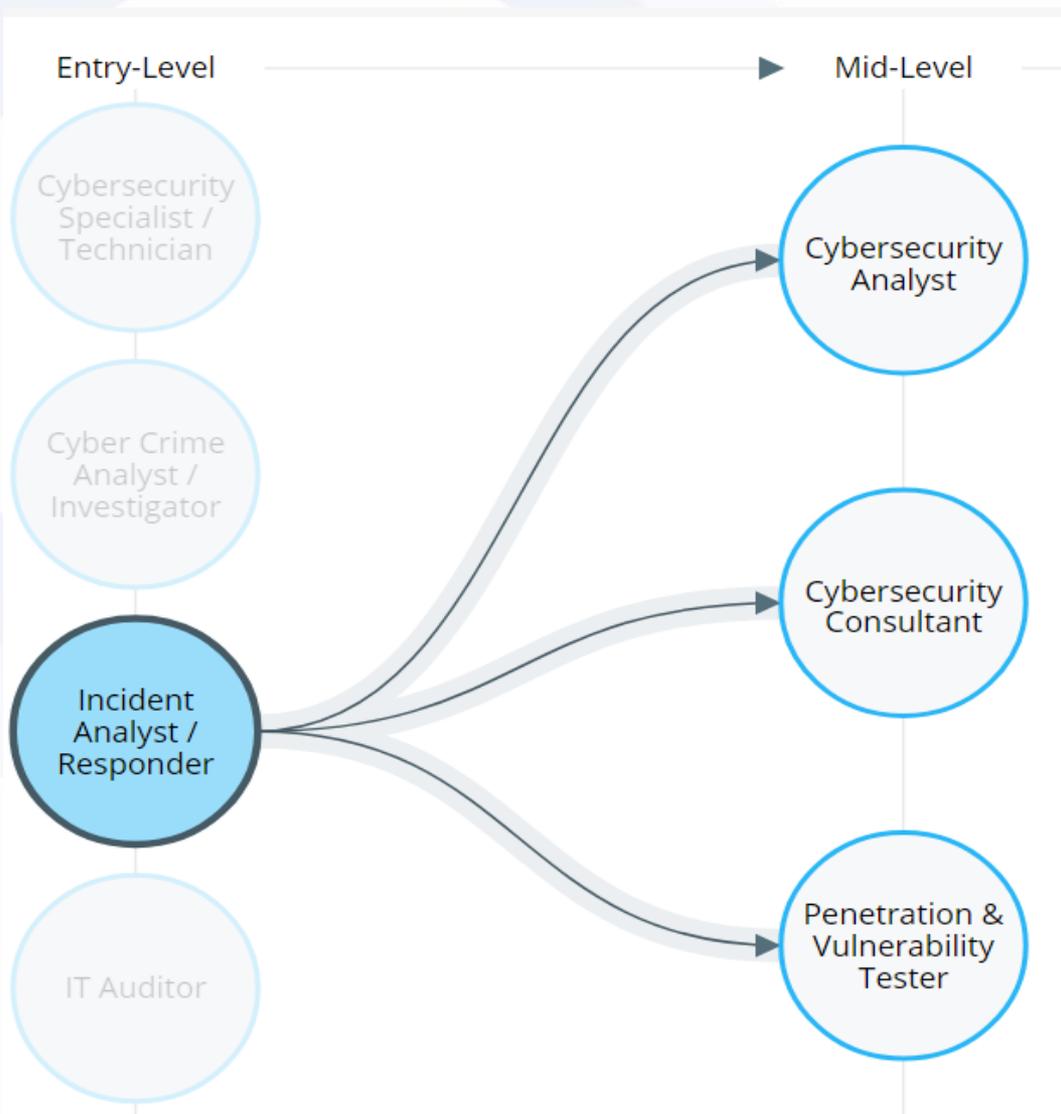
Incident Response

Vulnerability Assessment and Management

## TOP CERTIFICATIONS REQUESTED ⓘ

- CISSP
- GIAC
- CISM
- CISA
- Security+

# Roadmap from Entry Level to Mid Level Cyber Jobs (Cyberseek.org)



## TOP CYBERSECURITY JOB TITLES ⓘ

- Cyber Security Engineer
- Cyber Security Analyst
- Network Engineer / Architect
- Cyber Security Manager / Administrator
- Software Developer / Engineer
- Systems Engineer
- Systems Administrator
- IT Auditor
- Vulnerability Analyst / Penetration Tester

# Mapping Job Roles to NIST NICE Cybersecurity Workforce Framework (SP 800-181)

## (7 Categories, 33 Specialty Areas, 52 Work Roles)

<b>Security Provision</b>	Information Assurance Compliance	Software Engineering	Enterprise Architecture	Technology Demonstration	Systems Requirements Planning	Test and Evaluation	Systems Development
<b>Operate &amp; Maintain</b>	Data Administration	Info System Security Mgt	Knowledge Mgt	Customer & Tech Support	Network Services	System Administration	Systems Security Analysis
<b>Protect &amp; Defend</b>	Computer Network Defense (CND)	Incident Response	CND Infrastructure Support	Security Program Mgt	Vulnerability Assessment & Mgt		
<b>Analyze</b>	Cyber Threat Analysis	Exploitation Analysis	All-source Analysis	Targets			
<b>Operate &amp; Collect</b>	Collection Operations	Cyber Operational Planning	Cyber Operations				
<b>Oversight &amp; Development</b>	Legal Advice & Advocacy	Strategic Planning & Policy	Education & Training				
<b>Investigate</b>	Investigation	Digital Forensics					

*Establishing National Standards*

The screenshot shows the NIST NICE website with the following content:

- INSTRUCTIONS ON HOW TO USE**
- Access Guide Contents**: To navigate to a particular category from the home page, click on one of the main category boxes or (alternatively) click on the link at the bottom of the page. The framework chart's upper-left corner of the grid allows you to filter through the content within the view to return to a specific point in the hierarchy.
- Give feedback**: Give feedback on categories you consider are specific, complete, clear, you would like to further explore, including a specialty area will bring up a feedback form of the category you're viewing. An associated table with IDs as well as an additional set of specific, more specific, non-specific examples. You can also request the table or IDs in any form by selecting the "ask" or "ask" link at the bottom.
- Search for Information**: To search for a specific piece of information, click on the search icon in the top right of the page. The search results will appear in the right-hand pane when you click on the search icon.
- Provide Feedback**: We are continually trying to improve the framework and we value your input. To provide feedback, please select the feedback button below, which will take you to [http://www.nist.gov/niice/feedback.html](#). Thank you for your feedback.

**Job**

**Task/Workrole**

**Knowledge, Skills, and Abilities (KSA)**

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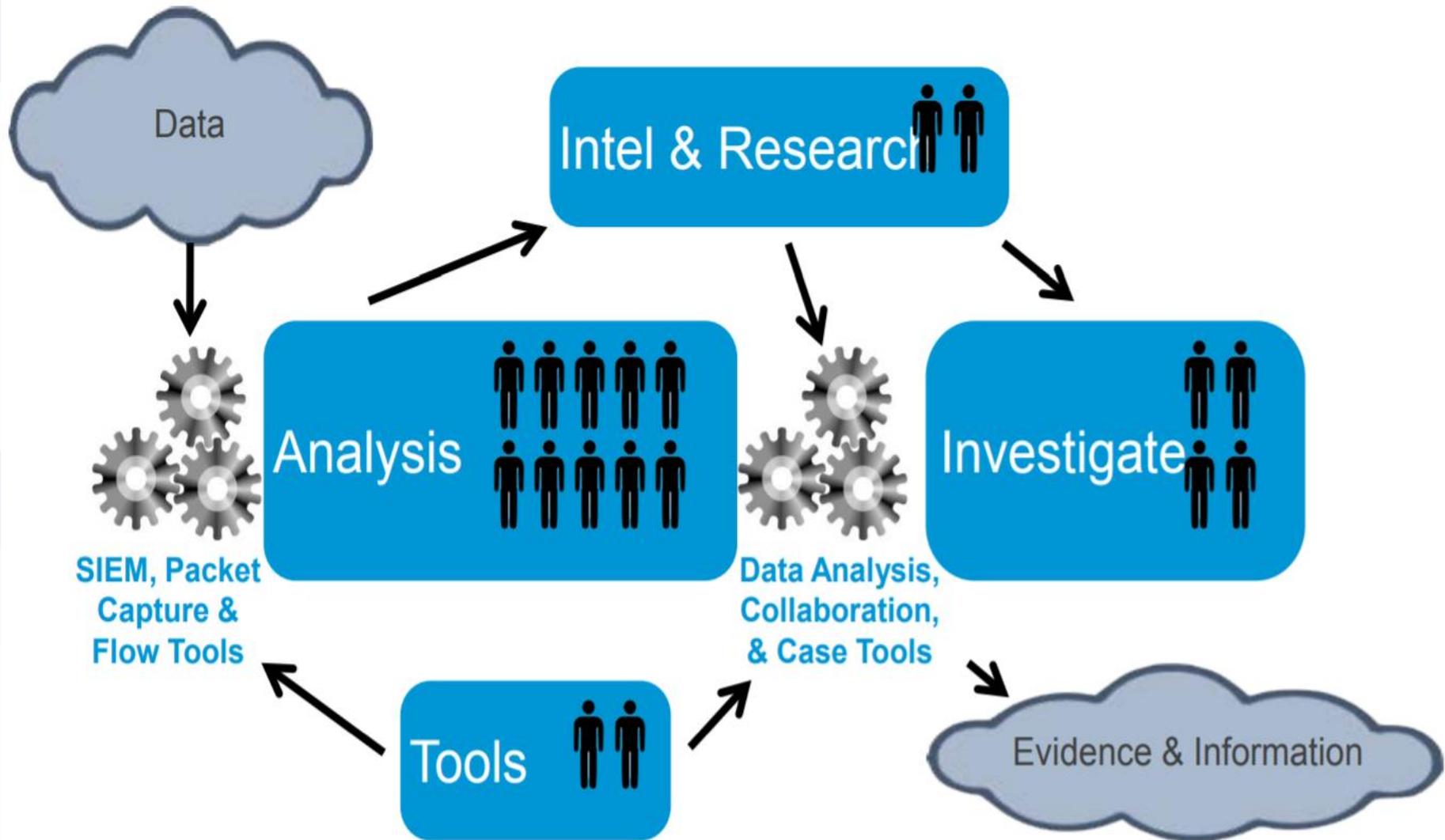
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# TOOLS, SKILLS & BEST PRACTICES TO CREATE NEXT GEN CYBER SECURITY PROFESSIONALS

BASED ON INTELLECTUAL POINT EXPERIENCES



# Essential Skills for Next Gen SOC Analyst



# Essential Skills for Next Gen Cyber Security Professional (NEXT GEN CYBER WARRIORS)

**TCP/IP, NETWORKING,  
ROUTING & SWITCHING**

**WINDOWS & LINUX  
OPERATING SYSTEMS**

**N/W TRAFFIC MONITORING &  
PACKET ANALYSIS**

**FIREWALL, IDS/IPS &  
PERIMETER DEFENSES**

**VULNERABILITY SCANNING &  
PEN TESTING**

**INCIDENT RESPONSE  
PROCEDURES**

**SECURITY POLICIES &  
PROCEDURES**

**SIEM TOOLS & CONTINUOUS  
THREAT MONITORING**

**DLP, ENDPOINT PROTECTION  
FOR ZERO DAY & APT**

**AUTOMATING COMPLIANCE &  
RISK (FISMA, RMF, FEDRAMP)**

**CYBER THREAT & IOC & IOT  
LANDSCAPE AWARENESS**

**USER BEHAVIOR ANALYTICS &  
INSIDER THREAT**

**SECURITY CONTROLS USING  
MACHINE LEARNING & NLP**

**HELP DESK / TECH SUPPORT  
EXPERIENCE**

**UNDERSTANDING SOCIAL  
ENGINEERING**

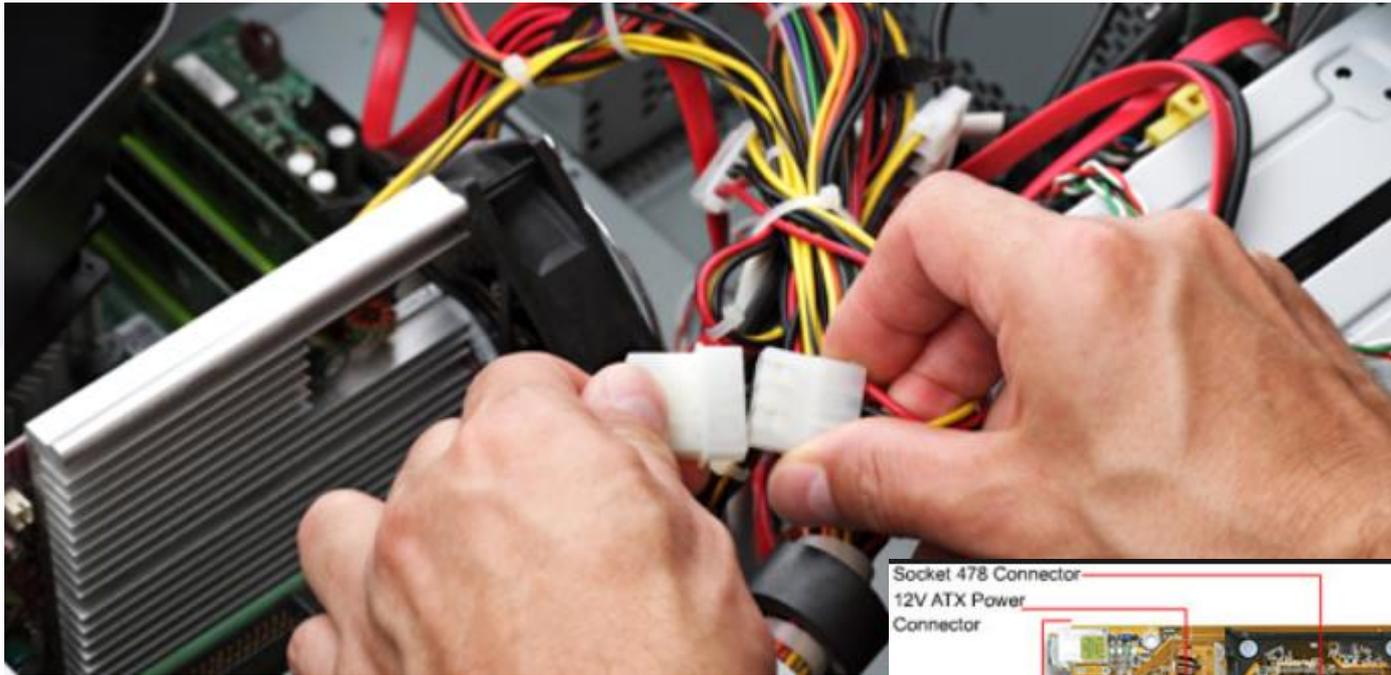
**OPEN SOURCE TOOLS &  
THREAT INTELLIGENCE**

**COMMERCIAL SECURITY  
CONTROLS DEFENSE IN DEPTH**

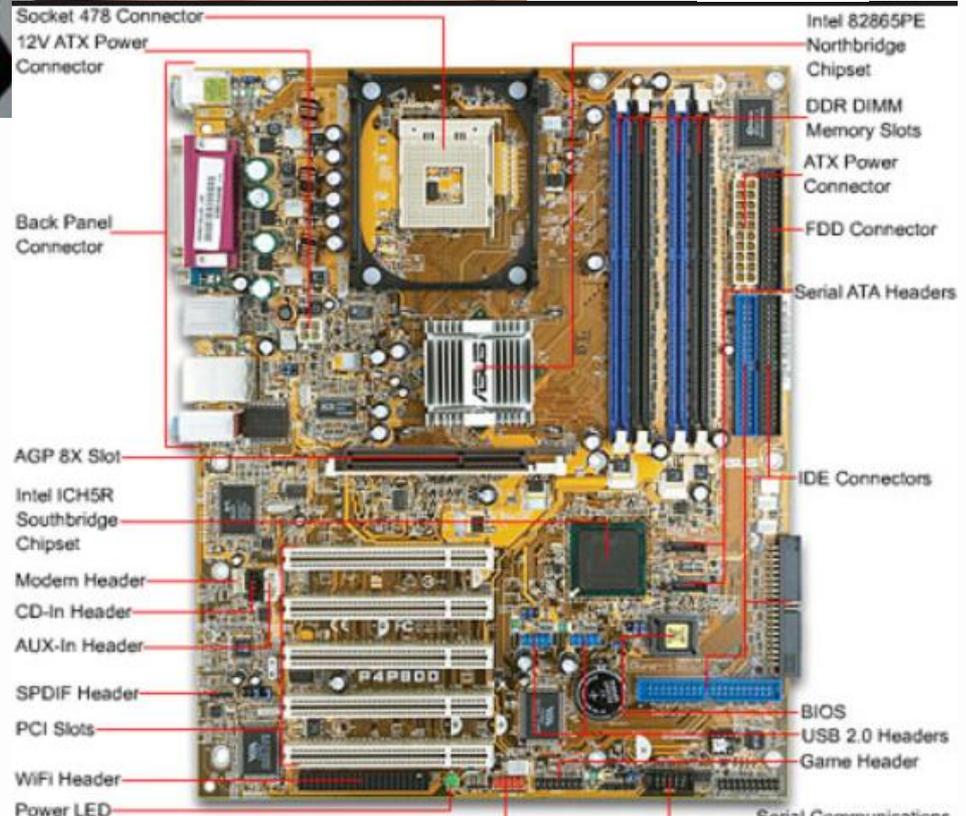
**SCRIPTING SKILLS WITH  
PYTHON**

**BUSINESS SKILLS, COMMUNICATION SKILLS, REPORT WRITING SKILLS, ANALYTICAL SKILLS,  
INVESTIGATION & TROUBLESHOOTING SKILLS**

**IT CERTIFICATIONS & EDUCATION**



**Security &  
Networking Concepts  
& Hands-On Cyber  
Analysis &  
Troubleshooting  
Skills Are Good Place  
to Start**



# Next Gen Cyber Professionals need a solid grasp on Open Source Cyber Security Tools



# Hands-On Skills for Network Traffic Analysis with Wireshark Are Extremely Valuable



- Fundamentals of network traffic flow
- Structure of network traffic
- Common protocols
- How to use Wireshark for traffic analysis

## Course Outline:

Section 1: Troubleshooting Methodology

Section 2: Master Key Wireshark Troubleshooting Tasks

Section 3: Learn Capture Methods and Use Capture Filters

Section 4: Troubleshoot with Time

Section 5: Master Basic and Advanced IO Graph Functions

Section 6: Focus on Traffic Using Display Filters

Section 7: TCP/IP Communications and Resolutions Overview

Section 8: Analyze Transmission Control Protocol (TCP) Protocol

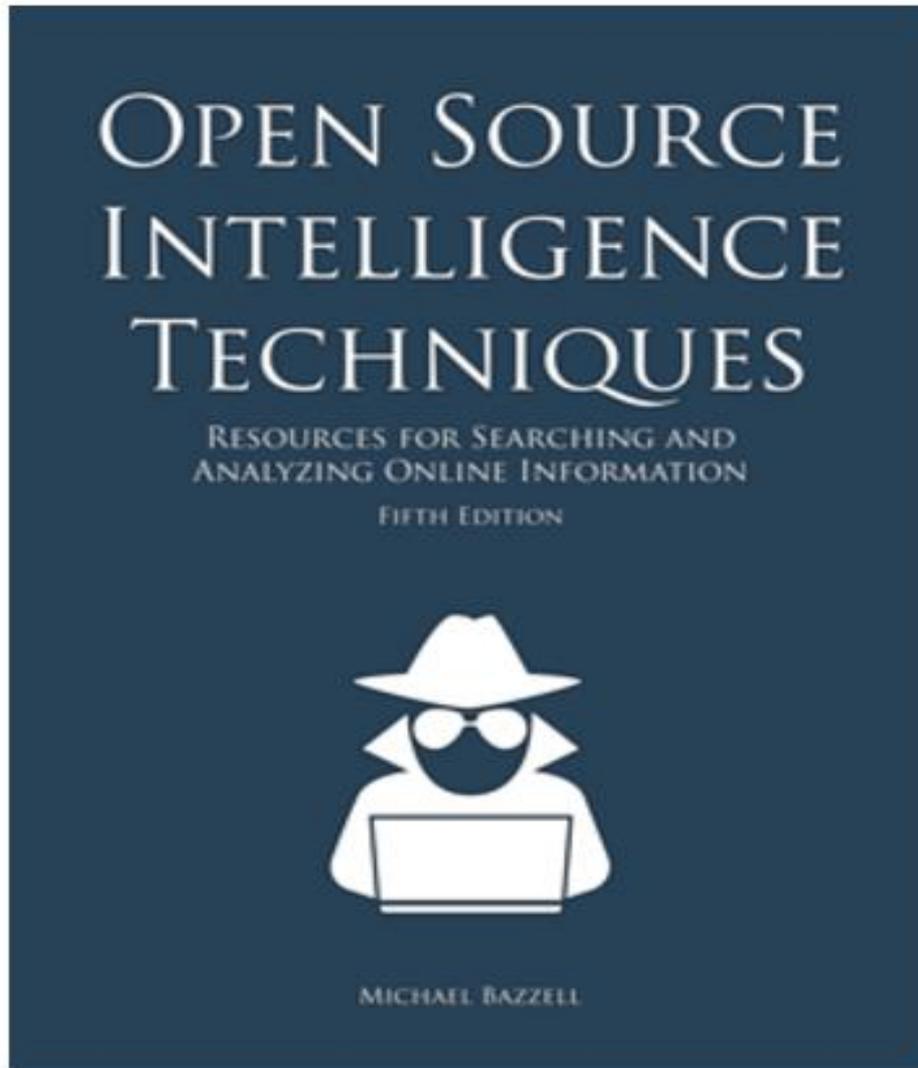
Section 9: Identify Problems Using Wireshark's Expert

Part 10: Command-Line and 3rd Party Tools





# Cyber Analysts need to learn Open Source Intelligence Tools that can be leveraged on the job



Hidden Social Network Content  
Cell Phone Subscriber Information  
Deleted Websites & Posts  
Missing Facebook Profile Data  
Full Twitter Account Data  
Alias Social Network Profiles  
Free Investigative Software  
Useful Browser Extensions  
Alternative Search Engine Results  
Website Owner Information  
Photo GPS & Metadata  
Live Streaming Social Content  
Social Content by Location  
IP Addresses of Users  
Additional User Accounts  
Sensitive Documents & Photos

# Next Gen Cyber Security Professionals have hands-on knowledge of Commercial SOC Tools



# Knowledge of FISMA/RMF Compliance is necessary for Public Sector Cyber Security Jobs

- 18 Security Control Families
- 256 Controls to Monitor
- Requires Continuous Monitoring of hundreds of metrics
- Across a range of Data Sources (Applications, Servers, Endpoints, VMs)
- Huge Volumes - Terabytes of data to be collected, indexed and searched daily
- Create Authorization Package (System Security Plan, Security Assessment Report, Plan of Action & Milestones)
- Requires real-time visualization dashboards
- Requires ad-hoc search and forensic navigation across all IT data.

ID	FAMILY	ID	FAMILY
AC	Access Control	MP	Media Protection
AT	Awareness and Training	PE	Physical and Environmental Protection
AU	Audit and Accountability	PL	Planning
CA	Security Assessment an Authorization	PS	Personnel Security
CM	Configuration Management	RA	Risk Assessment
CP	Contingency Planning	SA	System and Services Acquisition
IA	Identification and Authentication	SC	System and Communications Protection
IR	Incident Response	SI	System and Information Integrity
MA	Maintenance	PM	Program Management*



# FISMA

# Cyber Professionals should know how to Analyze Vulnerability Scan Reports

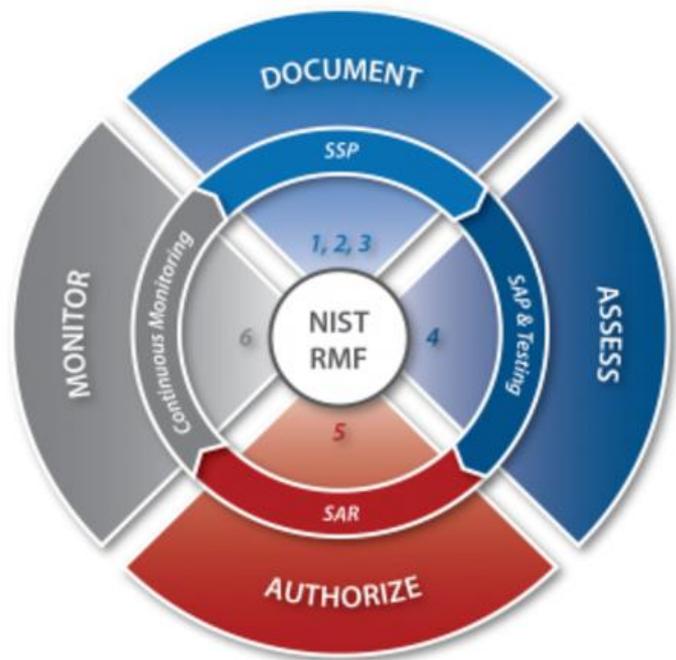
128.143.13.168		
Summary		
Critical 0	High 0	Medium 4
Low 1	Info 16	
Details		
Severity	Plugin Id	Name
Medium (5.1)	<a href="#">18405</a>	Microsoft Windows Remote Desktop Protocol Server Man-in-the-
Medium (5.0)	<a href="#">26920</a>	Microsoft Windows SMB NULL Session Authentication
Medium (5.0)	<a href="#">57608</a>	SMB Signing Disabled
Medium (4.3)	<a href="#">57690</a>	Terminal Services Encryption Level is Medium or Low
Low (2.6)	<a href="#">30218</a>	Terminal Services Encryption Level is not FIPS-140 Compliant
Info	<a href="#">10150</a>	Windows NetBIOS / SMB Remote Host Information Disclosure
Info	<a href="#">10287</a>	Traceroute Information
Info	<a href="#">10394</a>	Microsoft Windows SMB Log In Possible
Info	<a href="#">10785</a>	Microsoft Windows SMB NativeLanManager Remote System Inf
Info	<a href="#">10940</a>	Windows Terminal Services Enabled
Info	<a href="#">11011</a>	Microsoft Windows SMB Service Detection
Info	<a href="#">11219</a>	Nessus SYN scanner
Info	<a href="#">11936</a>	OS Identification
Info	<a href="#">12053</a>	Host Fully Qualified Domain Name (FQDN) Resolution
Info	<a href="#">19506</a>	Nessus Scan Information
Info	<a href="#">24786</a>	Nessus Windows Scan Not Performed with Admin Privileges
Info	<a href="#">25220</a>	TCP/IP Timestamps Supported
Info	<a href="#">26917</a>	Microsoft Windows SMB Registry : Nessus Cannot Access the
Info	<a href="#">35716</a>	Ethernet Card Manufacturer Detection
Info	<a href="#">45590</a>	Common Platform Enumeration (CPE)
Info	<a href="#">54615</a>	Device Type

# Cyber Professionals need to know how to Read and Write Plan of Action & Milestones (POAM) & SSP & SAR

Plan of Action and Milestones (POA&M)



<Vendor Name>  
<Information System Name>  
Version 1.0



## Plan of Action and Milestones (POA&M)

System Name	DoD Network
Company/ Organization Name	CDSE
Sponsoring Service/Agency	Defense Security Service
ISSM Name	John Doe
ISSM Phone	410-xxx-xxxx
ISSM Email Address	john.doe1000.civ@mail.mil

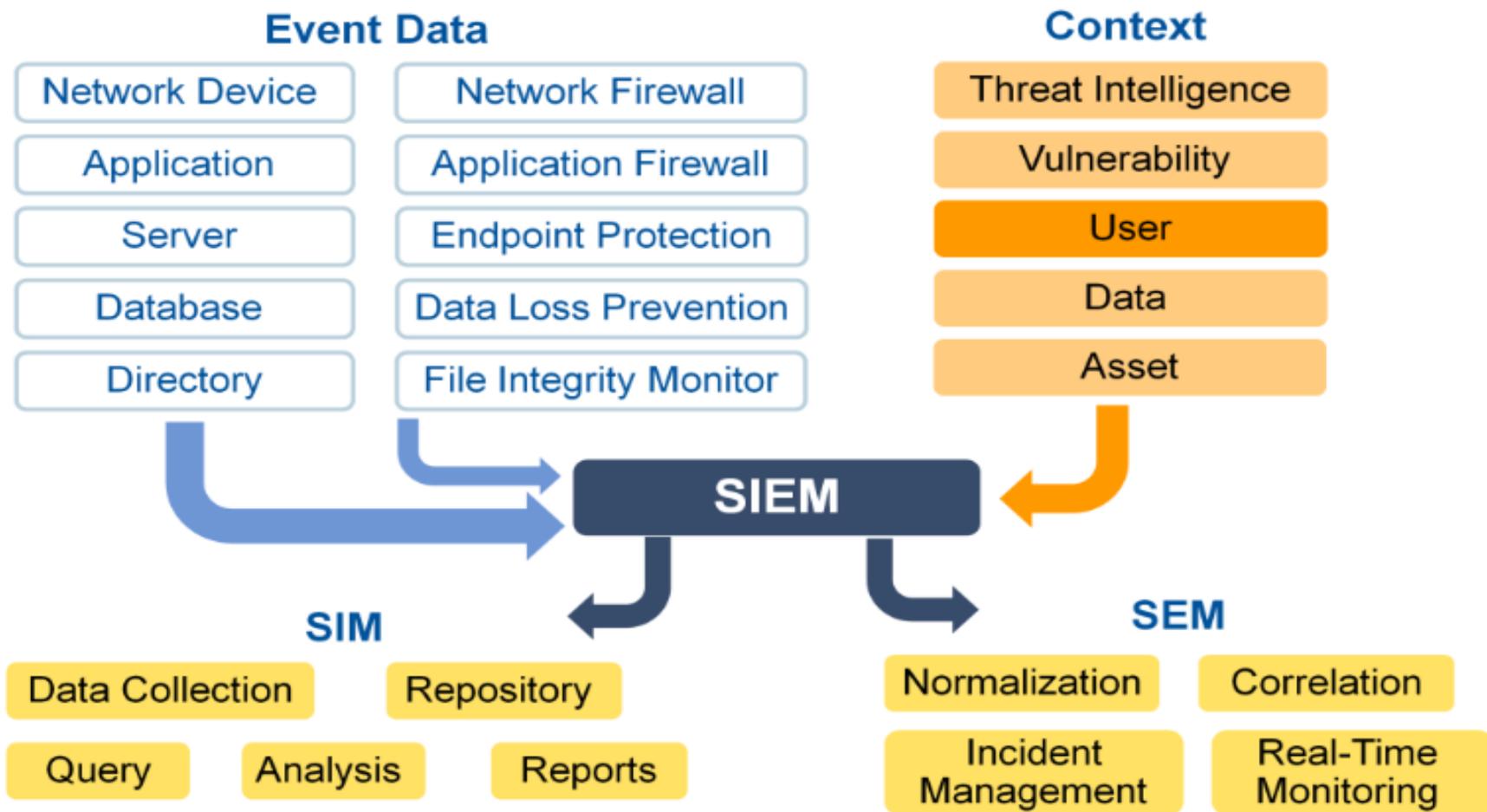
Date of this POA&M	10/1/2016
Date of last update	2/15/2016
Date of original POA&M	10/1/2015
IS Type	Enclave
UID	009-1111-2222

**SAMPLE POA&M**  
*For Training Purposes Only*

Item Identifier	Weakness or Deficiency	Security Control	POC	Resources Required	Scheduled Completion Date	Milestones with Completion Dates	Changes to Milestones	Weakness/ Deficiency Identified by	Risk Level (Low/Med/High)	Estimated Cost	Status	Comments
FY16_001	Users are able to connect remotely	AC-17	John Doe	Network Administrator	3/15/2016	Disable remote access 3/15/16	N/A	Annual Audit	Medium	500.00	Completed	

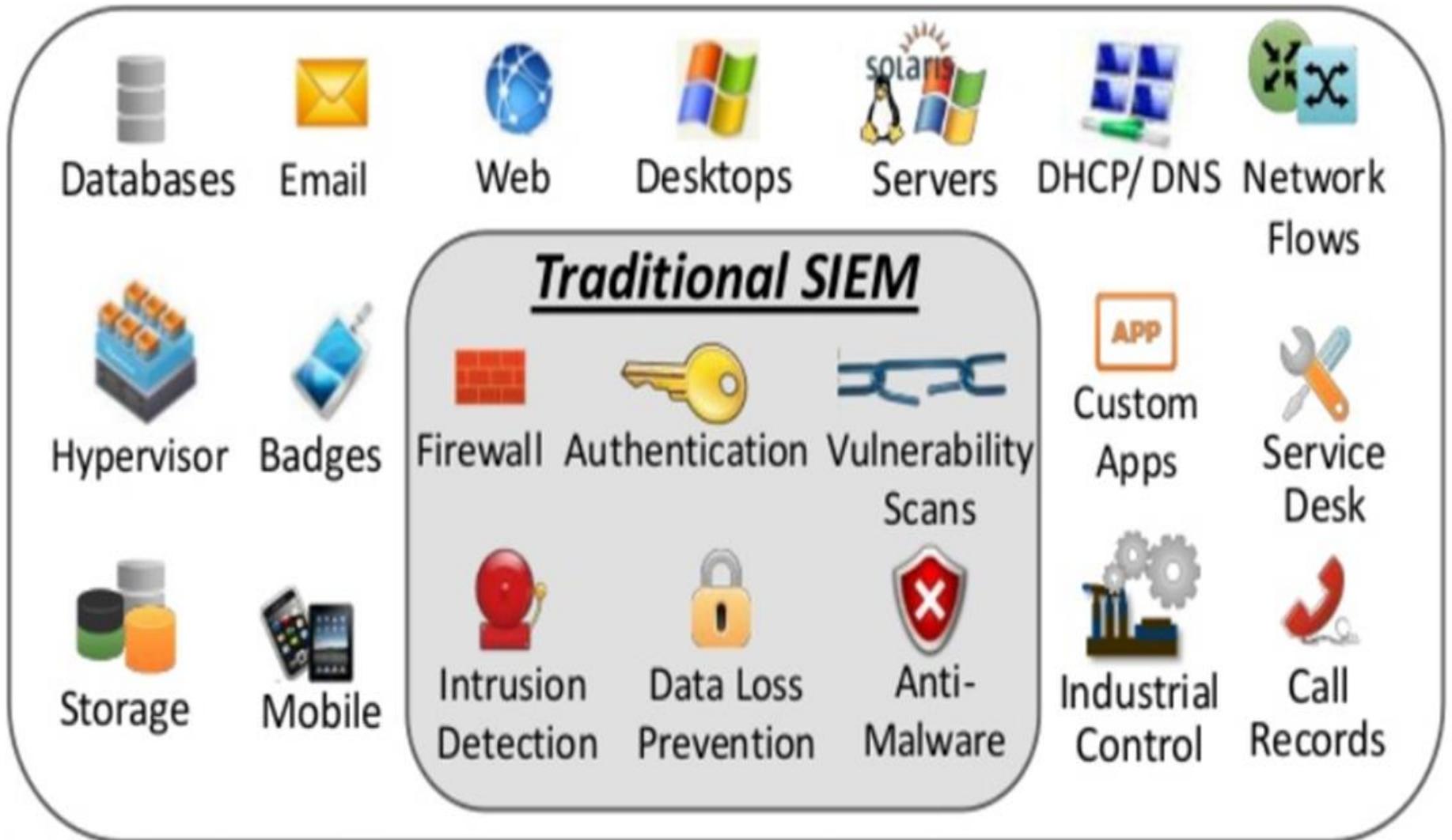
# Teaching Students Valuable Cyber Threat Hunting Skills

## Security Information and Event Management



# Teaching Students how to Mine Machine Data

All Data is Security Relevant = Big Data



# Tracking RMF Reports Across Security Control Families

## Enterprise Opportunities

[Edit](#)
[More Info](#)
[Download](#)
[Print](#)

Sub Organization: 
 System: 
 Time Selector:

### Enterprise Capability Priorities

82.22

Hardware Asset Management

82.22

Software Asset Management

100.00

Vulnerability Management

53.04

Configuration Management

17.72

Enterprise Audit

### Hardware Asset Management

NIST 800-53 Control	Control Name	Score
CA-07	Continuous Monitoring	100.00
CM-02	Baseline Configuration	46.67
CM-04	Security Impact Analysis	100.00
Average		82.22

### Software Asset Management

NIST 800-53 Control	Control Name	Score
CA-07	Continuous Monitoring	100.00
CM-02	Baseline Configuration	46.67
CM-04	Security Impact Analysis	100.00
Average		82.22

### Vulnerability Management

NIST 800-53 Control	Control Name	Score
CA-02	Security Assessments	100.00
CA-07	Continuous Monitoring	100.00
IR-05	Incident Monitoring	100.00
RA-05	Vulnerability Scanning	100.00
SI-11	Error Handling	100.00
Average		100.00

### Configuration Settings Management

NIST 800-53 Control	Control Name	Score
AC-02	Account Management	49.00
AC-03	Access Enforcement	100.00
AC-05	Separation Of Duties	100.00
AC-07	Unsuccessful Logon Attempts	100.00
AC-10	Concurrent Session Control	100.00
AC-11	Session Lock	0.00
CA-02	Security Assessments	100.00

# Cyber Forensic Analysis Skills for Incident Responders

## Authentication Overview

Edit | Download | Refresh

ClearPass Server

Last 24 hours

All

10142

TOTAL AUTHS

6315

TOTAL SUCCESSFUL AUTHS

114

TOTAL USERS

59

TOTAL ENDPOINTS

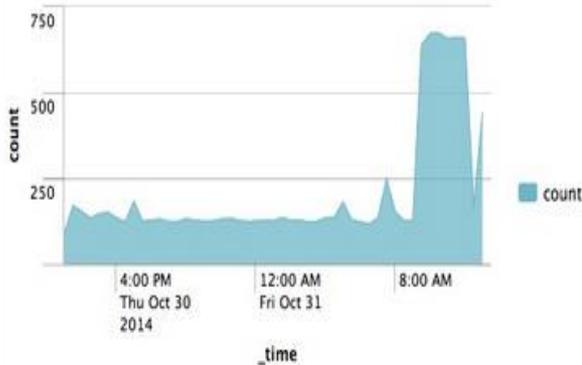
28

TOTAL SERVICES

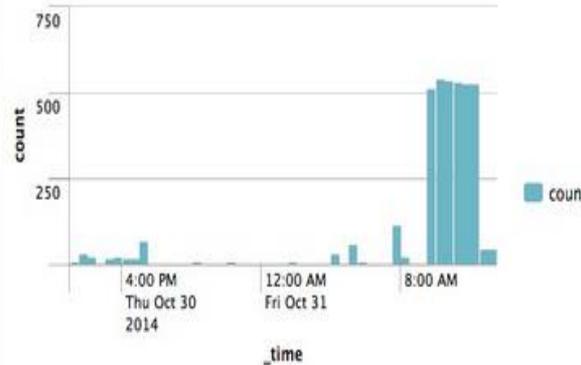
20

NAS USED

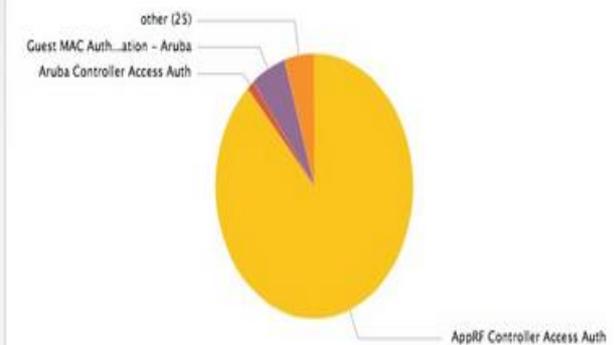
### Incoming Auth Requests



### Auth Failures



### Service Categorization



### Top 10 User Auths

user_name	count	percent
SEELDemo	5621	89.010293
d850e686dbf0	344	5.447348
70-73-CB-DA-06-A7	46	0.728424
dcomfort	27	0.427553
rlichte	17	0.269200
fmartos	14	0.221694

### Top 10 Services Used

service_name	count	percent
AppRF Controller Access Auth	5569	88.186857
Guest MAC Authentication - Aruba	359	5.684877
Aruba Controller Access Auth	78	1.235154
TACACS Service	52	0.823436

### Top 10 Alerts Raised

alert	count	percent
Failed	3896	50.27
Applied 'Reject' profile	3344	43.15
[Endpoints Repository]	148	1.90
MSCHAP: AD status:Access denied (0xc0000022)\nMSCHAP: AD status:Access denied (0xc0000022)	84	1.08

### Top 10 Incoming Client MAC

mac_address	count	percent
d850e686dbf0	345	64.485961
7073cbda06a7	46	8.598131
1c7b21530ca7	9	1.682243
d4f46f74ccec	8	1.495327
182032ae83c6	8	1.495327
00131a637c31	7	1.308411

### Top 10 IP Used

ip_address	count	percent
10.79.219.233	142	6.869860
172.17.3.57	141	6.821480
10.79.219.52	141	6.821480
10.79.219.219	141	6.821480
172.17.120.125	140	6.773101
172.17.120.123	140	6.773101

# Teaching Students how to track SOC KPIs & IOCs

## Account Management Center

Edit More Info Download Refresh

Result: All Action: All Organizational Unit: All Account Type: All Sub Organization: All System: All Last 90 Days

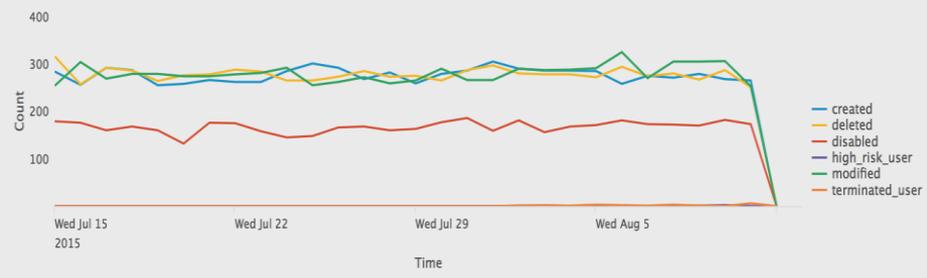
### Key Account Management Indicators



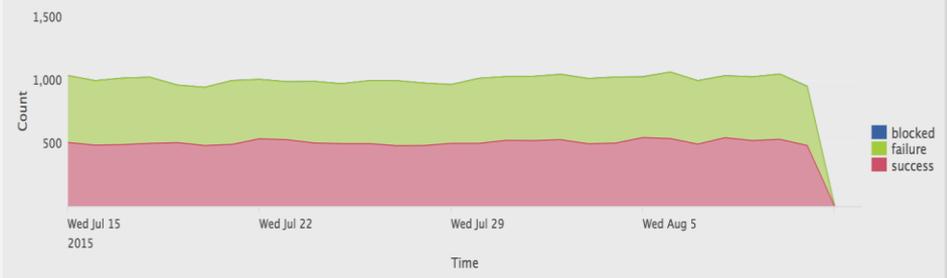
### Key Human Resource Indicators



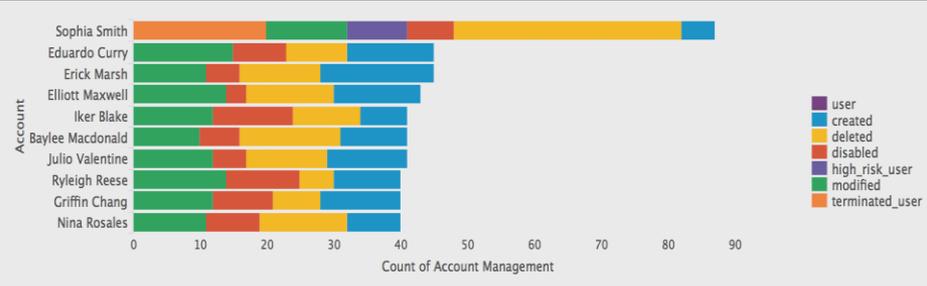
### Account Management Over Time by Action



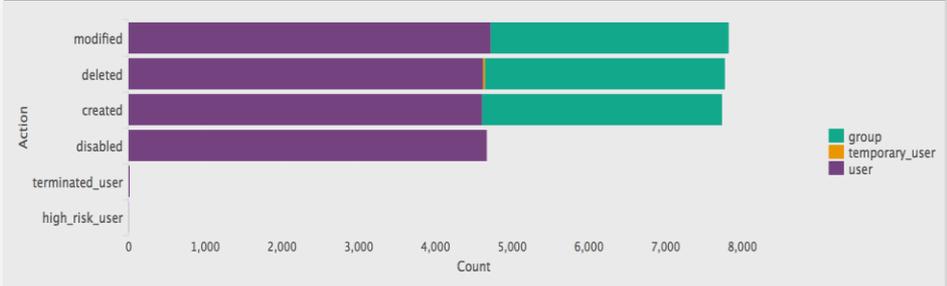
### Account Management Over Time by Result



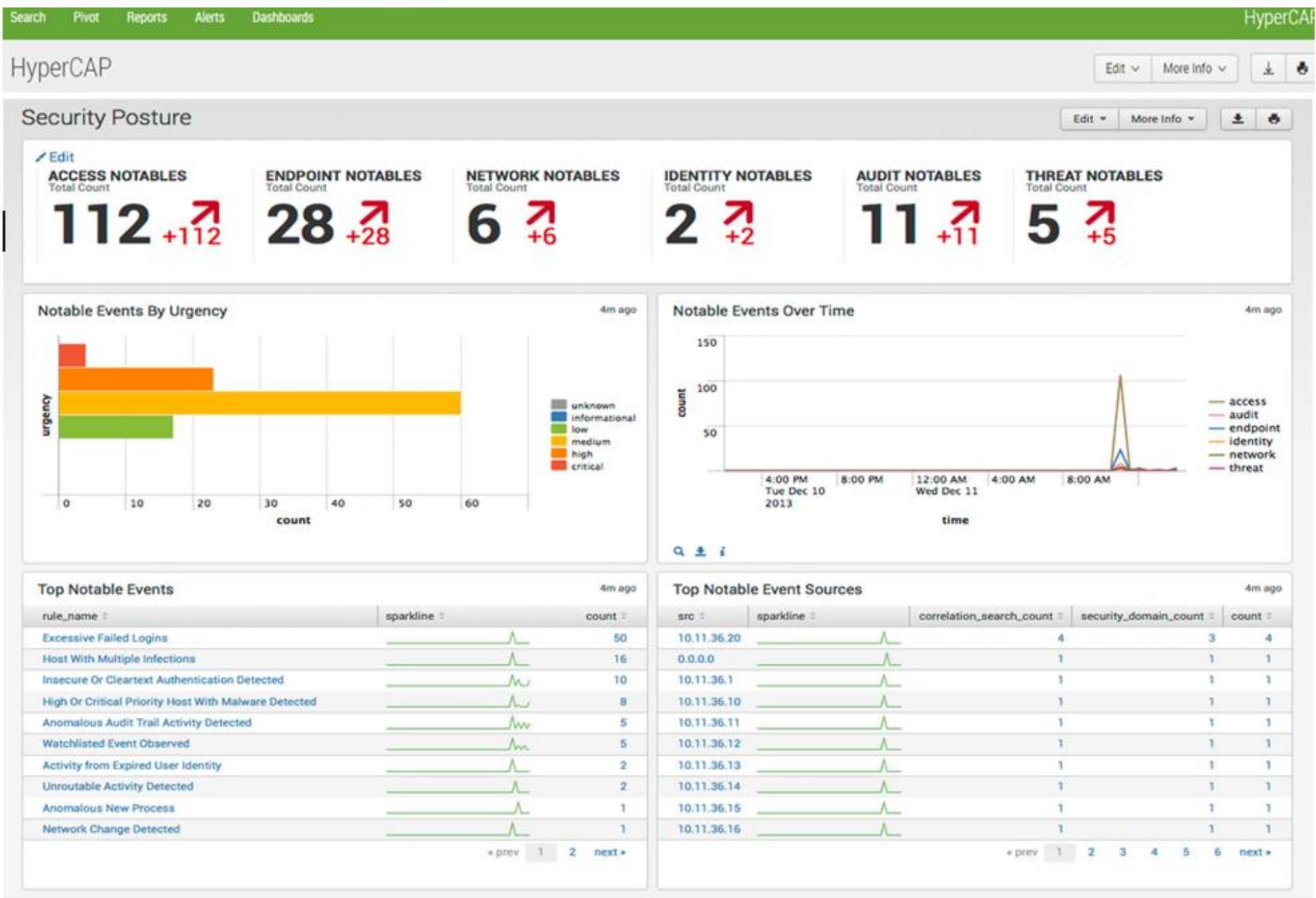
### Top Account Managers by Action



### Top Actions by Account Type



# Skills to Visualize Security Posture & Cyber IOCs



# Skills to Create Dashboards for Tracking FISMA Compliance Trends

## POAM Overview

Edit More Info Download Print

### Total POAM Cost For Sub Organization A



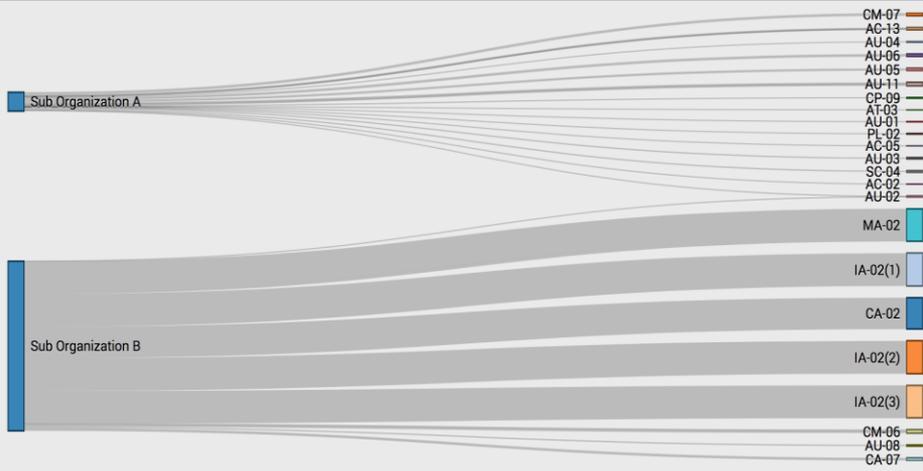
### Total POAM Cost For Sub Organization B



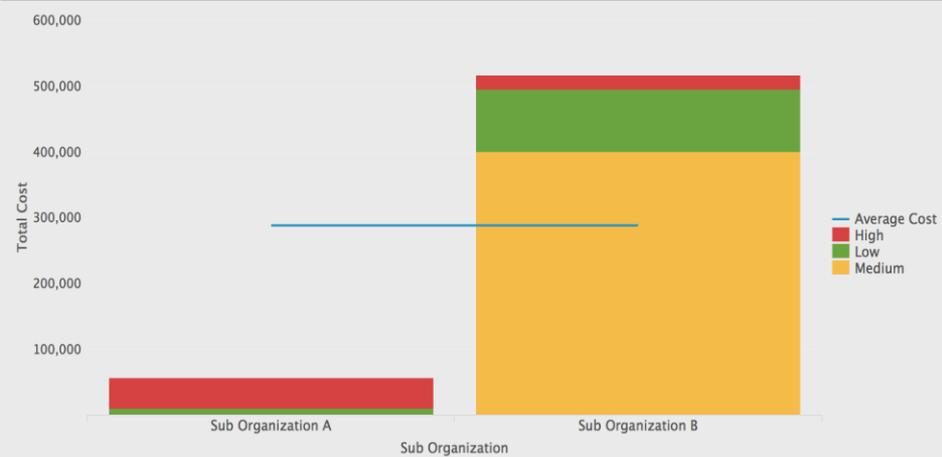
### POAM Statuses For Fiscal Year 2016



### POAM Cash Flow



### Total POAM Cost By Criticality



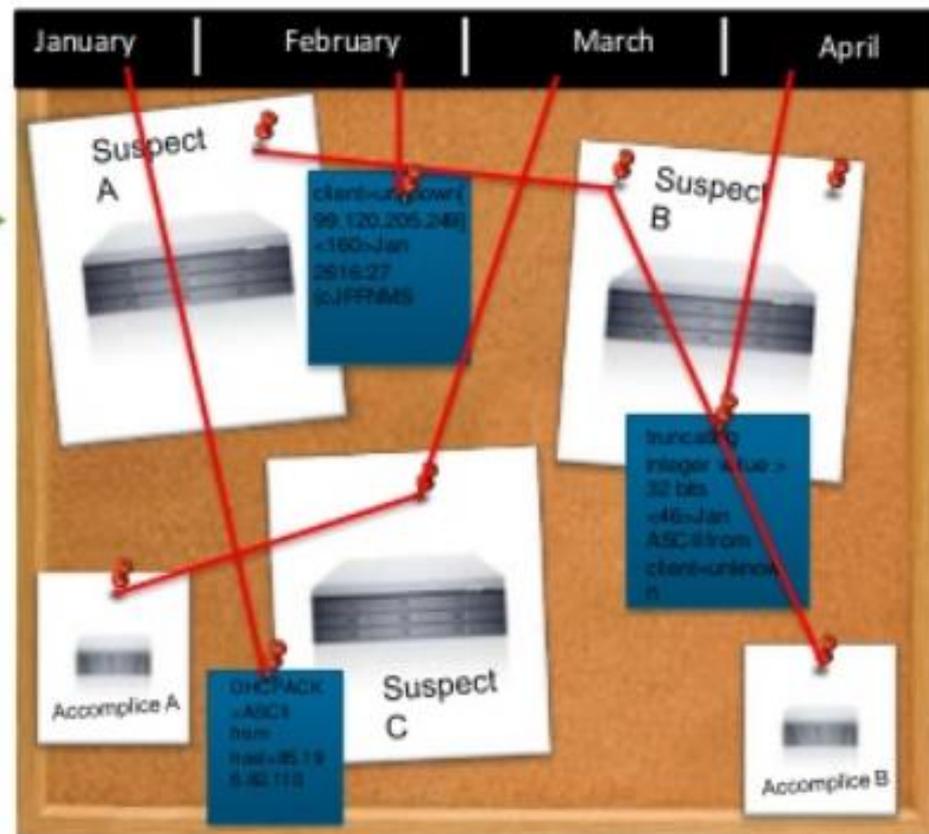
### POAM Cost By Sub Organization



# Teaching Students Incident Investigation Techniques

## Use Case 1 - Incident Investigation/Forensics

- Often initiated by alert in another product
- May be a “cold case” investigation requiring machine data going back months
- Need all the original data in one place and a fast way to search it to answer:
  - What happened and was it a false positive?
  - How did the threat get in, where have they gone, and did they steal any data?
  - Has this occurred elsewhere in the past?
- Take results and turn them into a real-time search/alert if needed



# Teaching Students how to create Real Time Dashboards for Compliance Reports

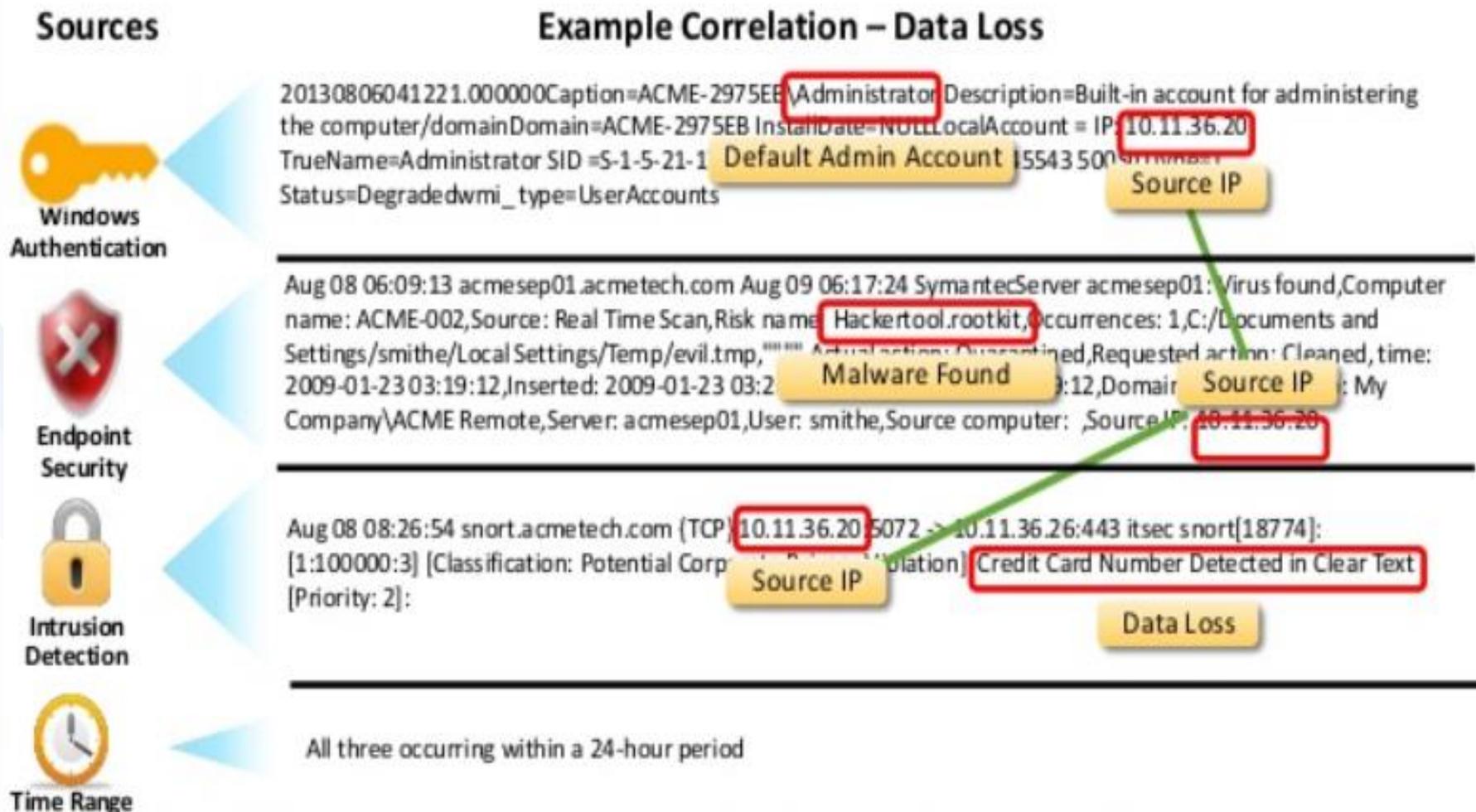
## Case #2 – Security/Compliance Reporting

- Many types of visualizations
- Easy to create in Splunk
  - Ad-hoc auditor reports
  - New incident list
  - Historical reports
  - SOC/NOC dashboards
  - Executive/auditor dashboards



# Skills for Monitoring Known Threats

## Case #3 – Real-time Monitoring of *Known* Threats





# Valuable skills on Indicators of Compromise

## Case #4 – More Examples

Attack Phase	What Threat is Doing	What to Look For	Data Source
Lateral movement	Creating new admin accounts	Account creation without corresponding IT service desk ticket	AD/ Service Desk logs
Data gathering	Stealing credentials	For single employee: Badges in at one location, then logs in countries away	Badge/ VPN/ Auth
Data gathering	Gathering confidential data for theft	Employee makes standard deviations more data requests from file server with confidential data than normal	OS
Exfiltration	Exfiltration of info	Standard deviations larger traffic flows (incl DNS) from a host to a given IP	NetFlow

# Valuable Skills to understand IOCs & Ability to perform Correlations with Context

## Examples: Correlations / Detections / Context

Detection	Indicator	Analysis
Printer usage	Number of print jobs over a given period of time	Outlier
	Increase in size of print jobs	Outlier
	Unusual times of day	Outlier
	Rare network printer use (the one not closest employee)	Outlier
Logins to AD or use of SSO	Local vs. remote	Outlier
	Time of day	Outlier
	During vacation times	Outlier
Abrupt change in the ratio of website categories visited	Monitor's employee behavior and attitude changes (proxy data)	Outlier/Context

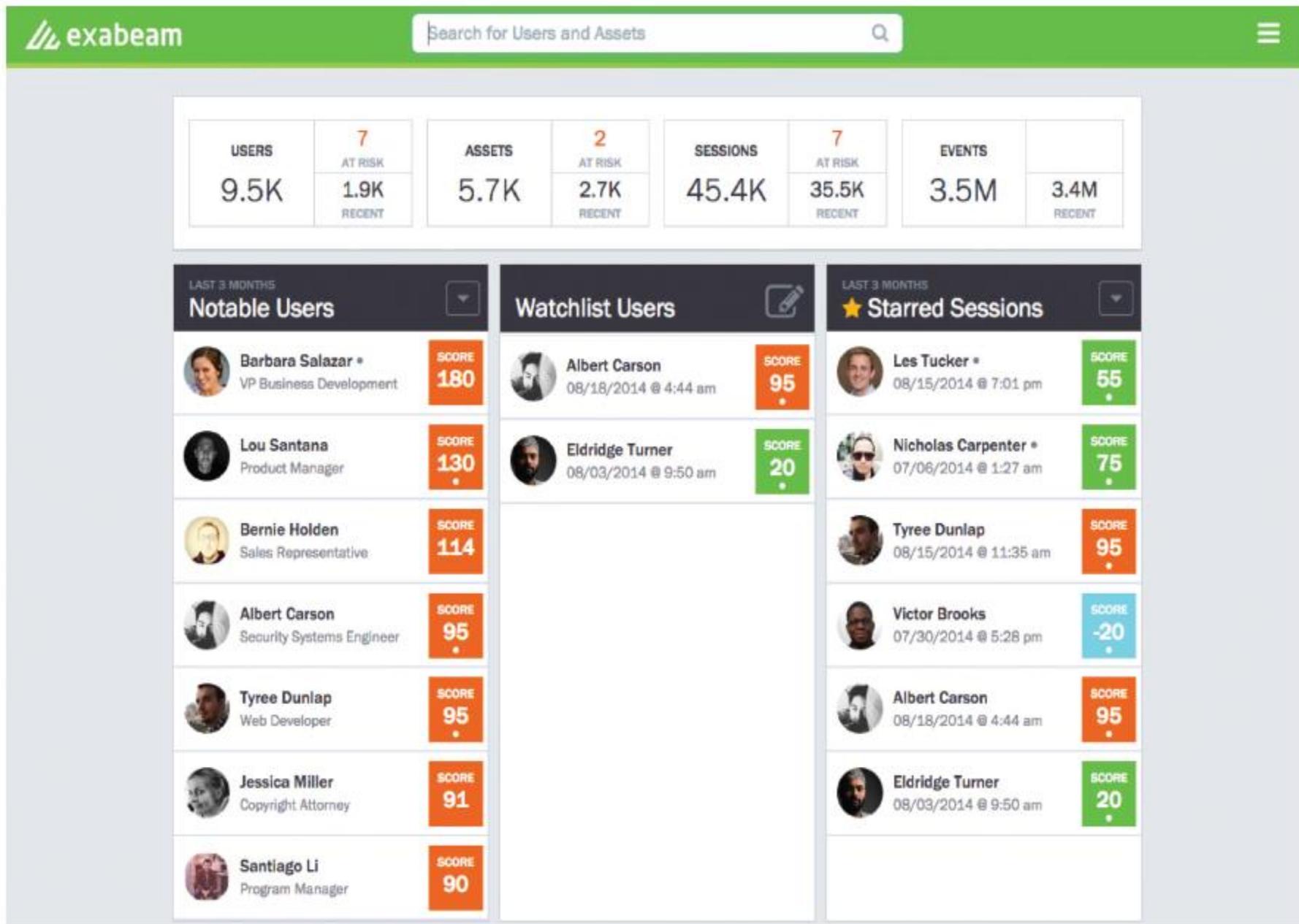
# Learning Valuable Skills on Next Generation Firewalls (NGFW) Security Platform

Firewall	The solution includes a stateful inspection.
VPN	Offers IPSEC (for site-to-site tunnels) and SSL VPN (for remote access) options.
Anti-Malware	Built-in perimeter anti-virus and anti-spyware protection.
Intrusion Prevention	Ability to recognize and restrict inappropriate and unauthorized access.



Identity-Based Control	Mapping of specific security policies to defined user groups and individuals.
Data Leakage Protection	Restriction on the egress of sensitive privileged or confidential data.
Network Access Control	Endpoint integration to ensure each connecting device has appropriate security.
URL Filtering	Restrictive filtering of web surfing to limit exposure to harmful and inappropriate sites.
Application Control	Ability to restrict, on a granular level, which web apps are allowed to run.
Wi-Fi Network Control	Ensuring Wi-Fi networks have the same security stance and abilities as the perimeter.
WAN Routing & Optimization	Dynamic routing of WAN traffic backed by QoS and prioritization capabilities.
Encrypted Data Control	Native decryption and re-encryption of SSL and SFTP traffic for thorough inspection.
Web App Firewalling	Ability to protect web servers against attacks like SQL injections.

# User Behavior Analytics Skills for Insider Threat Detection



# Risk Management on Unstructured Human Generated Data

## Identify Risk – Over-exposed Sensitive Data

The screenshot displays a Windows Explorer window showing a directory tree on the left and a table of permissions on the right. The table lists the following data:

Directory	Permissions	Explanations	Violation...	Notes
corpfs02			203	Social Security Numbers (75), american ...
Share	F M R W X L	Inherited from "Everyone(abstract)"	203	Social Security Numbers (75), american ...
B4			34	Social Security Numbers (10), american ...
BBB-Project			0	
BI			0	
databases	M R W		0	
DataShare1			0	
dsr	M R W		0	
Embd-Engine...			0	
ERP-Arc			0	
finance			0	
Fondue			0	
groups	R W X L	Inherited from "Everyone(abstract)"	0	
HR			0	
HR-Private			78	Social Security Numbers (30), american ...
HumanResources	M R W X L	Inherited from "Everyone(abstract)"	0	
legal			91	Social Security Numbers (35), american ...
Market			0	

The right pane shows the 'Recommended Users and Groups' window with 'Everyone (Abstract)' selected. A red dashed line connects this selection to the 'B4' and 'legal' folders in the directory tree. A central text box reads:

**Over-Exposed Folders  
Containing Sensitive Data**

# DoD ACAS Solution Skills Are Very Valuable for the Public Sector Cyber Jobs

- In 2012, the Defense Information Systems Agency (DISA) awarded the Assured Compliance Assessment Solution (ACAS) to HP Enterprise Services and Tenable Network Security. The ACAS mission is simple: Assess DoD enterprise networks and connected IT systems against DoD standards, as well as identify any known system vulnerabilities.
- ACAS provides complete visibility and prioritized, actionable data through customized reporting. It's also Security Content Automation Protocol (SCAP) 1.2 compliant and is a follow-on capability to the Secure Configuration Compliance Validation Initiative (SCCVI) tool commonly referred to as "Retina."



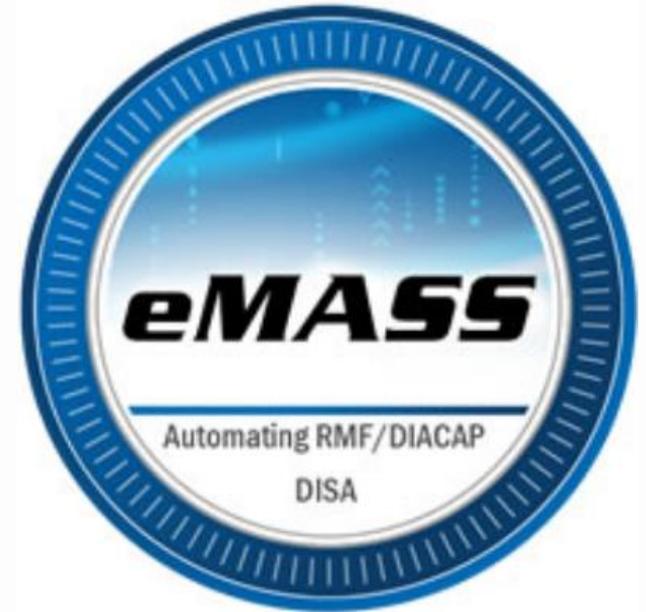
# DoD HBSS / ESS Skills are very valuable for the Public Sector Cyber Jobs

- The DOD Endpoint Security Solutions (ESS) is an integrated set of capabilities that work together to detect, deter, protect, and report on cyber threats across all DOD networks. Endpoint security is a DOD-wide effort that leverages the collaborative capabilities of the NSA, Services, DOD CYBER Range, Red Team support, and continuous market research through components and the MITRE corporation.
- The Endpoint ecosystem includes integrated solutions such as Comply to Connect (C2C), Containment, Visibility, and Assessment tools.
- Evolve DOD HBSS to Endpoint Security and integrate endpoint data to situational awareness tools such as SECDEF CYBER SCORE CARD.



# eMASS Skills for RMF Automation are very valuable for the Public Sector Cyber Jobs

- eMASS (Enterprise Mission Assurance Support Service) is a government-owned web-based application which supports cybersecurity program management.
- The students learn the features of eMASS specific to their roles. It describes the role of eMASS in the Risk Management Framework for Information Technology; defines eMASS's implementation of the Authorization Process; and covers how to operate through eMass in order to support the creation, assessment, and authorization of a completed RMF A&A package.



# Hands-on Python Skills are highly valued for Cyber Jobs

- It's easy to learn and it is a great language to know when working in InfoSec and Cybersecurity
- Programming knowledge is crucial for analyzing software for vulnerabilities, identifying malicious software and other tasks required for cyber security analysts
- It is a very popular language used to create many security tools
- Python on your resume helps you stand out from other candidates and industry professionals
- Employers are looking for fully stacked programmers. you can automate daily tasks with scripts written in Python



- Introduction to Python Concepts
- Advanced use of Python
- Web Recon
- Port Scanning
- TCP Packet Sniffing
- Perform Forensic Analysis
- Evasion of Antivirus Software

# Intellectual Point hosts free Meetups to educate the workforce and spread Cyber Awareness

*meetup*

## NoVA IT & Cyber Security Group

[Home](#) [Members](#) [Photos](#) [Discussions](#) [More](#)

[Join us!](#)



Reston, VA

Founded Jun 26, 2014

Enthusiasts 424

Group reviews 3

Upcoming Meetups 1

Past Meetups 21

Our calendar 

This group is for all IT professionals, past, present, and future. We are a dedicated group of professionals who love to learn about anything in the broad IT field, and our group is for all skill levels. We host at least one meetup a month where we get together to learn about new technologies, fields, and opportunities. Our guest speakers are full time professionals who work with cutting edge technologies and want to share their passions.

Recruiters are always welcome at our events. Networking is a key to success when you are job hunting, so please reach out to any of the organizers with your resume if you would like us to give it to our recruiting partners.

Intellectual Point has been kind enough to host our meetup since its inception and as such is our only group sponsor at this point. If you would like to connect with someone at Intellectual Point please use [info@intellectualpoint.com](mailto:info@intellectualpoint.com).

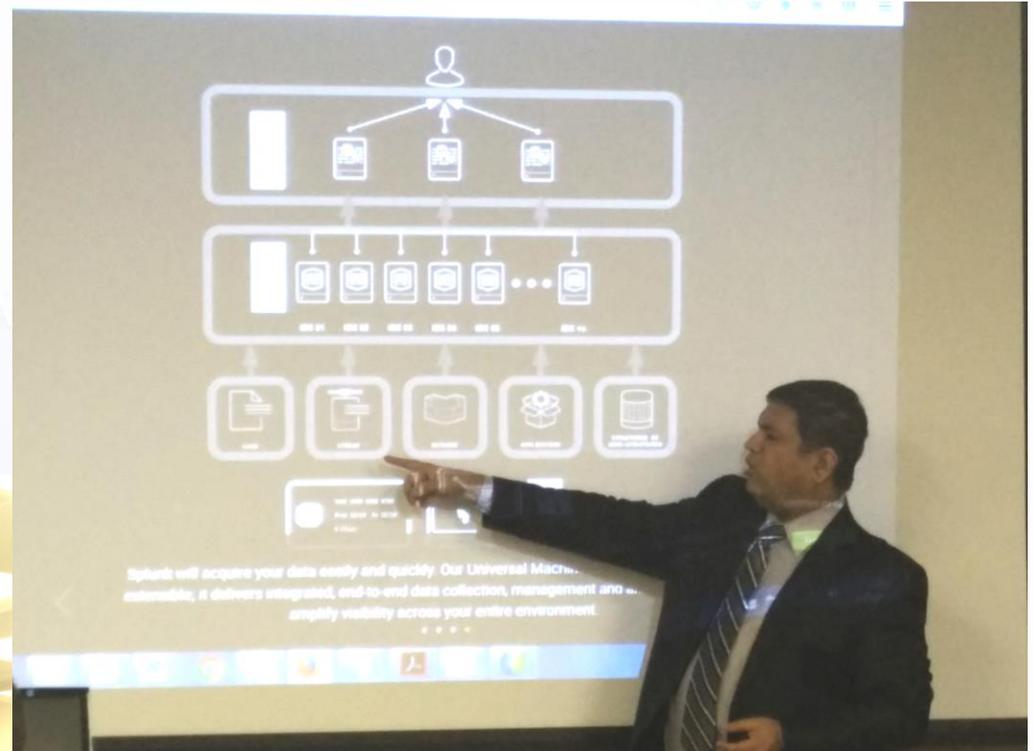


**Our attendees are  
from various  
backgrounds**

**Business, Arts,  
Science, Math  
We welcome all!**



**We love keeping  
them updated  
with emerging  
technologies**



**And we're  
dedicated to  
spreading the  
knowledge**

# Career Counseling is important step to success and launch of Cyber Professionals

- Pre & Post Career Counseling
- Discuss career options, job roles, pay-scales, growth opportunities
- Helping candidates pick the right courses and make informed decisions aligned with their skills & career aspirations
- Mentoring students throughout the course and after the course completion.
- Part of Intellectual Point Culture



# Overcoming Skills Gap via Career Counseling is very critical

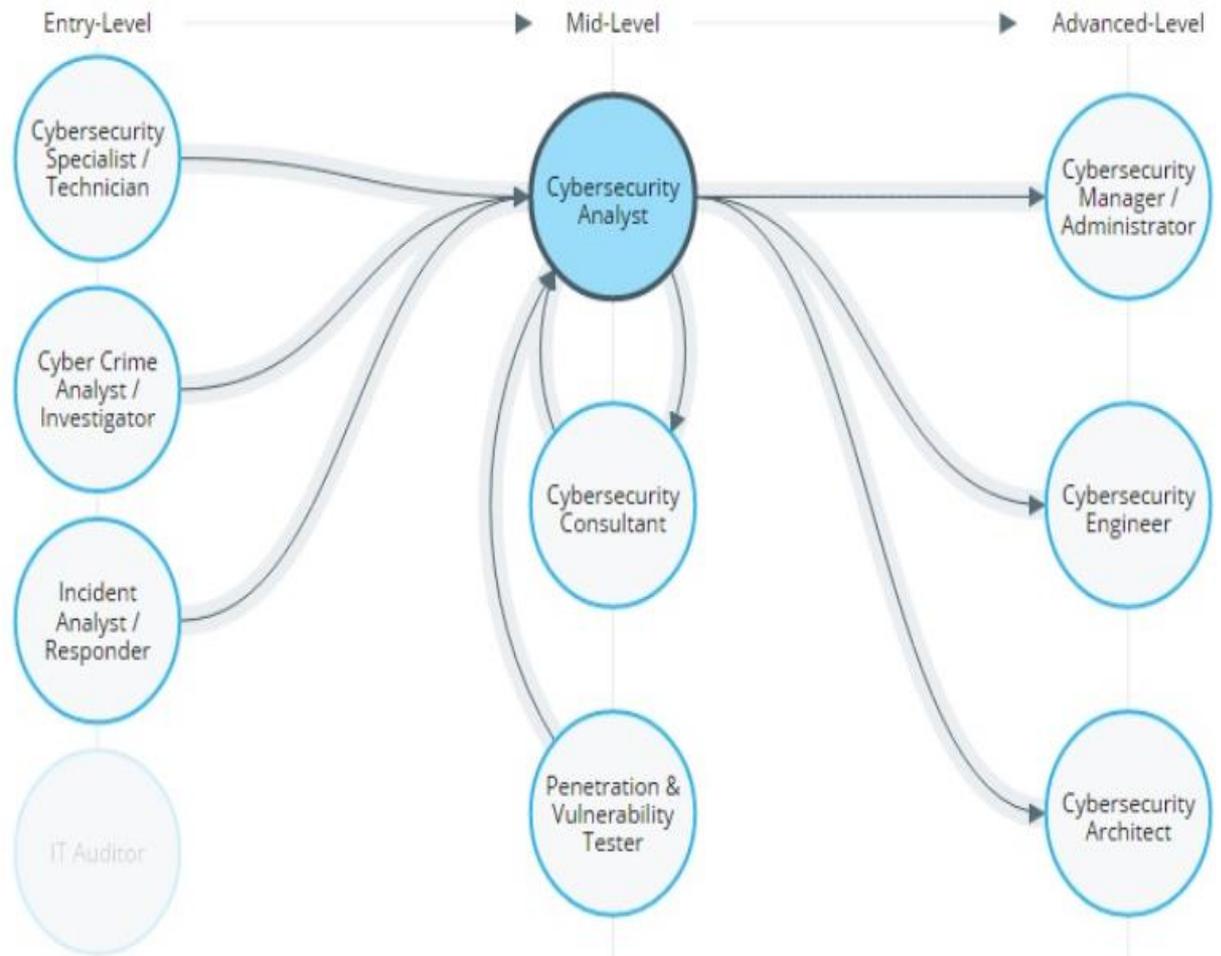


# Utilizing Cybersecurity Career Pathway at Cyberseek.org to mentor students

## Cybersecurity Career Pathway

There are many opportunities for workers to start and advance their careers within cybersecurity. This interactive career pathway shows key jobs within cybersecurity, common transition opportunities between them, and detailed information about the salaries, credentials, and skillsets associated with each role.

Share



# Assisting Clients with writing a cyber oriented resume leveraging past skills like Help Desk, QA, Breakfix etc.

Nicole Black

(703) 680-4451 • newjob4nikki@gmail.com

## OBJECTIVE

Seeking an Information Assurance Specialist or Cyber Security Analyst position in a growth oriented organization where I can utilize my various information security and Business Continuity skills.

## STANDARDS

COSO/COBIT, Sarbanes-Oxley Act, SAS-70, ITIL, ISO 27001, Privacy Act of 1974, Gramm-Leach-Bliley Act (GLB), Certification and Accreditation, General Computer Controls, Application control, Testing, Compliance Testing, Vulnerability Scans, Project Management, Risk Assessment, Change Management, Configuration Management, Contingency Planning, Policies and Procedures, Intrusion Detection Systems, Incident Response, Media Protection, Physical Security, Computer operations, Environmental Security, Network Security, System Security, Personnel Security, OMB Circular A-130 Appendix III, NIST 800-53, FIPS, STIG, DITSCAP, DIACAP, FISMA, FISCAM, RMF (Risk Management Framework).

## SOFTWARE AND PLATFORM

UNIX, Sun Solaris, HP-UX, Linux Red Hat, Wintel, LDAP, Windows, LAN/WAN, Wireless Network, TCP/IP, ACL tools, Remedy, HP-UX, Linux Red Hat, DMZ, IDS, Checkpoint, Cisco Routers/Switches, Sybase, Eye Retina Scan, SAINT, Tenable security center, Big fix, Tripwire, RSA, PL/SQL, Power Point, Visio.

## KEY SKILLS

- Network & System Security ; Risk Management: Physical and environmental security
- Authentication & Access Control
- Good knowledge of FISMA compliance
- Vulnerability Assessment Expert
- Good knowledge on technologies like: Kerberos, RADIUS, TACACS+, WPA2 AES 256, Intrusion Detection system (IDS), Intrusion Prevention systems (IPS) and DoS attacks Threat Mitigation
- Excellent in developing security policies, procedures and guidelines
- Regulatory Compliance . Strong technical writing and managerial skill
- Excellent with Microsoft Word, Excel, Project, Access, Power Point, Publisher and Visio
- Fast learner and Ability to multi-task, can work independently and as a contributing team member
- Interpersonal and verbal/written communication skills
- Experience with Windows / OSX / Kali Linux / iOS / Android
- Knowledge of information security standards, rules and regulations.

## CERTIFICATION

- CompTIA Security + & CompTIA Cloud Essentials
- Certified Ethical Hacker (CEH)
- CompTia Network+
- ISC<sup>2</sup> Computer Information Systems Security Professional (CISSP)
- ITIL Foundation
- HDI Help Desk Institute Support Team Lead (HDSCTL)



# On-The-Job (OJT) Training is Extremely Valuable for workers entering Cyber Workforce.

- On-the-job training, also known as OJT, is teaching the skills, knowledge, and competencies that are needed for employees to perform a specific job within the workplace and work environment.
- Employees learn in an environment in which they will need to practice the knowledge and skills taught in the on-the-job training.



# Providing Job Placement Assistance & OJT for potential Clients



*Presented by  
Fairfax County DFS Employment and Training Program  
In partnership with Intellectual Point*



# DOD 8570.1M

DOD DIRECTIVE 8570.01M CHANGE 2 PROVIDES THE BASIS FOR AN ENTERPRISE-WIDE SOLUTION TO TRAIN, CERTIFY, AND MANAGE THE DOD INFORMATION ASSURANCE (IA) WORKFORCE

## Intellectual Point Course Offerings

### IAT LEVEL I

A+  
CCNA-Security  
Network+

### IAM LEVEL I

Security+

### IASAE I

CASP  
CISSP

### IAT LEVEL II

CCNA-Security  
Security+

### IAM LEVEL II

CASP  
CISSP  
CISM

### IASAE II

CASP  
CISSP

### IAT LEVEL III

CASP  
CISSP

### IAM LEVEL III

CISSP  
CISM

### IASAE III

NA – at this time

**CNDSP  
Analyst**

CEH

**CNDSP  
Infrastructure  
Support**

CEH

**CNDSP  
Incident  
Responder**

CEH

**CNDSP  
Auditor**

CEH

**CNDSP  
Manager**

CISM



INTELLECTUAL POINT  
11321 SUNSET HILLS RD  
RESTON, VA 20190

Email | [info@intellectualpoint.com](mailto:info@intellectualpoint.com)  
Phone | 703.554.3827  
Phone | 571.577.7890

[www.intellectualpoint.com](http://www.intellectualpoint.com)

# CYBER SECURITY CAREER PATHWAY

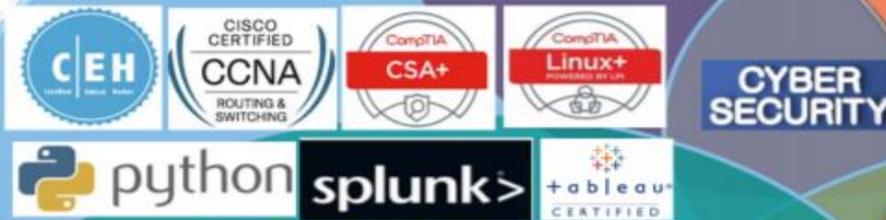


## Core Skills



**Cyber Security, Cloud Computing & Big Data Certifications**

## Hands-On Cyber Skills



## Cyber Management Skills



## Specialized Cyber Security Skills



## Cloud Computing Skills



Excellence through Education



**Intellectual**  
POINT

# CAREER TRANSFORMATION SUCCESS STORIES



# Putting People into Cyber Security Careers

## Career Transformation

- We get many students that come from a non-IT background.
- We ascertain that they have analytical skills, writing skills, communication skills, teamwork skills, quick learning ability.
- We put them through the cyber programs, short courses, workshops and certifications and get them into successful cyber security careers.

## Current Profession

- Accountants
- Technical Writers
- Banking
- ATM Tellers
- QA / Testing
- Uber Drivers
- Help Desk / Tech Support
- Network Engineers
- Project Managers
- Business Analyst

## New Profession

- Cyber Security Analysts
- SOC Analysts
- Firewall Engineers
- Incident Responders
- Tech Support
- Jr. Network Engineers
- Help Desk Support
- Security Engineer
- Technical Project Managers

# Eric Jennings' Success Story

## LUCRATIVE EMPLOYMENT FOLLOWS CERTIFICATION TRAINING



Eric Jennings, an Army Veteran with a Service-Connected Disability, was referred to the Northern Virginia Jobs for Veterans (J4Vets) program in June 2014, after being laid off from a Cyber Security Analyst position with AT&T. One month later he enrolled and received J4Vets-funded assistance to develop a Federal Government style resumes tailor his resume for two Federal Government positions.

In parallel, Jennings pursued Certified Information Systems Security Professional (CISSP) and Certified Ethical Hacker (CEH) training. In August, he successfully completed both programs. One month later, Jennings gained employment as a Security Analyst with Apex Systems and is now collecting a six-figure salary. Jennings stated his J4Vets funded CEH

and CISSP trainings were essential to the interview process, since he was asked to recall many of the topics that he learned in class.

- Name: Eric Jennings
- Previous Profession: Business Analyst
- New Profession : Cyber Security Analyst
- Program: WIOA J4VETS
- Certifications Completed: Security+, CEH, CISSP

# Mary Clark's Success Story

- Lost her job at BT as Config Specialist
- Came as a referral from Fairfax Skillsource Center under WIOA program.
- Completed the following certifications at Intellectual Point
  - CompTIA Security+ & Cloud+
  - ITIL Foundation
  - Cisco CCNA
  - Certified Ethical Hacker (CEH)
- Got placed at ASM Research (Accenture Federal Services Company in Fairfax) in June 2015 as a Cyber Security Analyst in record time.

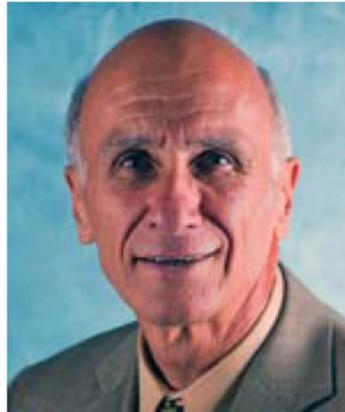


# John Leach's Success Story

## DOL Working for You

### Training Program Gets Veteran Off the Sidelines and Into a Job

Even with 22 years of accounting and sales experience and five years in the U.S. Air Force, John Leach could not find a job. His last contracting job had ended in July 2012, and he spent the next year applying for countless positions without even landing an interview. Feeling hopeless, Leach believed that making a transition to a more in-demand career field would open up doors. In September 2013, he dropped by a Leesburg, Va., event and, by what he calls "an act of God," met a representative from the Jobs 4 Veterans program. Funded by the department's Veterans Workforce Investment Program, J4Vets provides employment and training services for Virginia veterans and creates a pipeline of qualified veterans to high-demand industries. J4Vets connected Leach to an information technology training and education company based in Reston, Va., that provided career guidance and assisted him in obtaining certifications in project management and IT. He then participated in the Northern Virginia Technology Council's Networking pilot program, where he learned about a six-week IT training program offered by Accenture. Leach completed the program and, on Oct. 22, began working at Accenture as a software engineering associate. "I would have continued to be overlooked and on the sidelines indefinitely, and would have lost my house and been homeless if it was not for these programs that help veterans," he said. Leach plans to give back by helping other veterans seeking employment.



- Name: John Leach
- Profession: Accountant
- Program: WIOA J4VETS
- Certifications Completed: CAPM, ITIL, Security+, Cloud+
- Went from unemployed accountant through a full career change and now gainfully employed at Accenture as a Software Engineering Associate

# Doug Pedersen's Success Story

- **Name:** Doug Pedersen
- **Degree:** Liberal Arts
- **Previous Profession:** Help Desk Lead
- **New Career :** Cyber Security
- **Certifications Earned:** Sec+, Cloud+, ITIL, CISSP, CEH, CCNA, Splunk Power User, CISM, AWS Cloud Architect
- **Current Title :** Global Managing Consultant at IBM (Cyber Intelligence & Operations).
- Went from Help Desk Lead to cyber security intelligence and operations managing consultant at IBM/Trustwave in 6 months. Almost doubled his salary in 6 months.



# Cyber Security Pathways to Success Program Success



- Special Honor Trophies for students successfully completing multiple certifications in the cyber program and getting placed in cyber analyst roles from help desk positions.



*Presented by  
Fairfax County DFS Employment and Training Program  
In partnership with Intellectual Point*



# Summary & Key Take-Aways



- Cyber Threat Landscape around us has changed dramatically.
- Traditional point products and security tools are no longer effective and there is an acute shortage of trained and skilled cyber professionals.
- IT Certifications are extremely valuable in today's market.
- Hands-on experience and On the Job Training are extremely valuable.
- Providing a continuous learning environment to workforce with access to open source and commercial cyber security tools is critical in building the next gen cyber workforce.
- Non-technical skills such as communication, writing, analytical & investigative skills are equally important as technical skills for a successful cyber career.
- Automation, Machine Learning, Co-relating events with Big Data Tools & AI is changing the way we all deal with massive amounts of cyber events.
- Mentoring and career counseling is a critical element to guide the workforce transitioning from non-IT and non-cyber jobs into highly lucrative next generation cyber security careers.

# How to Contact Us

## Contact Us

Should you wish to contact us via email, please click the following link, or call us at the number provided below.



Intellectual Point LLC  
Sunset Hills Professional Center  
11321 Sunset Hills Road,  
Reston, VA 20190.

Phone : 703-554-3827

Email: [contact@intellectualpoint.com](mailto:contact@intellectualpoint.com)

**Prem Jadhvani**  
**President and CEO**  
**Intellectual Point**

[Prem@IntellectualPoint.com](mailto:Prem@IntellectualPoint.com)

**703-554-3827**

<http://www.intellectualpoint.com>