- Network Device
- Network Host

<u>Identity Management, Information Exchange, and</u> Access Control

- ISE scalability using multiple nodes and personas.
- Cisco switches & Cisco Wireless LAN Controllers for network access AAA with ISE.
- Cisco devices for administrative access with ISE
- AAA for network access 802.1X & MAB using ISE.
- Guest lifecycle management using ISE & Cisco Wireless LAN controllers
- BYOD on-boarding and network access flows
- ISE integration with external identity sources
- LDAP
- AD
- External RADIUS
- Provisioning of AnyConnect with ISE and ASA
- Posture assessment with ISE
- Endpoint profiling using ISE and Cisco network infrastructure including device sensor
- Integration of MDM with ISE
- Certificate-based authentication using ISE
- Authentication methods
 - EAP Chaining
 - Machine Access Restriction (MAR)
- Identity mapping on ASA, ISE, WSA, and FTD
- pxGrid integration between security devices WSA, ISE, & Cisco FMC
- Integration of ISE with multi-factor authentication
- Access control and single sign-on using Cisco DUO security technology

Advanced Threat Protection and Content Security (20%)

AMP for networks, AMP for endpoints, and AMP for content security (ESA & WSA)

Detect, analyze, and mitigate malware incidents

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Work hard in silence, let your success be your voice.

Perform packet capture and analysis using Wireshark, tcpdump, SPAN, ERSPAN, and RSPAN

DNS layer security, intelligent proxy, and user identification using Cisco Umbrella

Web filtering, user identification, and Application Visibility and Control (AVC) on Cisco FTD and WSA.

WCCP redirection on Cisco devices

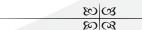
Email security features

- Mail policies
- DLP
- Quarantine
- Authentication
- Encryption

HTTPS decryption and inspection on Cisco FTD, WSA and Umbrella

SMA for centralized content security management

Cisco advanced threat solutions and their integration: Stealthwatch, FMC, AMP, Cognitive Threat Analytics (CTA), Threat Grid, Encrypted Traffic Analytics (ETA), WSA, SMA, CTR, and Umbrella







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Course Highlights

Perimeter Security and Intrusion Prevention

Deployment modes on Cisco ASA and Cisco FTD

- Routed
- Transparent
- Single
- Multi-Context
- Multi-Instance

Firewall features on Cisco ASA and Cisco FTD

- NAT
- Application inspection
- Traffic zones
- Policy-based routing
- Traffic redirection to service modules
- Identity firewall

Security features on Cisco IOS/IOS-XE

- Application awareness
- Zone-Based Firewall (ZBFW)
- NAT

Cisco Firepower Management Center (FMC) features

- Alerting
- Logging
- Reporting

NGIPS deployment modes

- In-Line
- Passive
- TAP

Next Generation Firewall (NGFW) features

- SSL inspection
- User identity
- Geolocation
- AVC

Detect, and mitigate common types of attacks

- DoS/DDoS
- Evasion Techniques
- Spoofing
- Man-In-The-Middle
- Botnet

Clustering/HA features on Cisco ASA and Cisco FTD

Policies and rules for traffic control on Cisco ASA and Cisco FTD Routing protocols security on Cisco IOS, Cisco ASA and Cisco FTD

- Network connectivity through Cisco ASA and Cisco FTD
- Correlation and remediation rules on Cisco FMC

Secure Connectivity and Segmentation

- AnyConnect client-based remote access VPN technologies on Cisco ASA, Cisco FTD, and Cisco Routers.
- Cisco IOS CA for VPN authentication
- FlexVPN, DMVPN, and IPsec L2L Tunnels
- Uplink and downlink MACsec (802.1AE)
- VPN high availability using
- Cisco ASA VPN clustering
- Dual-Hub DMVPN deployments
- Infrastructure segmentation methods
- VLAN
- PVLAN
- GRE
- VRF-Lite
- Micro-segmentation with Cisco TrustSec using SGT & SXP

Infrastructure Security

Device hardening techniques and control plane protection methods

- CoPP
- IP Source routing
- iACLs

Management plane protection techniques

- CPU
- Memory thresholding
- Securing device access

Data plane protection techniques

- uRPF
- QoS
- RTBH

Layer 2 security techniques

- DAI
- IPDT
- STP security
- Port security
- DHCP snooping
- RA Guard
- VACL

Wireless security technologies

- WPA
- WPA2
- WPA3
- TKIP
- AES

Management plane protection techniques

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Monitoring protocols

- NetFlow/IPFIX/NSEL
- SNMP
- SYSLOG
- RMON
- eStreamer

Security features to comply with organizational security policies, procedures, and standards BCP 38

- ISO 27001
- RFC 2827
- PCI-DSS

Cisco SAFE model to validate network security design and to identify threats to different Places in the Network (PINs) Interaction with network devices through APIs using basic Python scripts

- REST API requests and responses
- HTTP action verbs, error codes, cookies, headers
- JSON or XML payload
- Authentication
- Data encoding formats
- JSON
- XML
- YAML

Cisco DNAC Northbound APIs use cases

- Authentication/Authorization
- Network Discovery