Cisco Meraki Switching Solutions Workshop (CMSSW)

COURSE OVERVIEW
This 3-day workshop provides students with the skills to configure, optimize, and troubleshoot a Cisco Meraki switching solution. Students will learn how to install and optimize Meraki MS switches as well as how to configure the Meraki dashboard. Students will learn how to troubleshoot and configure the Meraki environment and learn how to diagnose and resolve user and network issues that may arise.

Please note, this workshop is based on real-world use cases and deployment experiences that also will be discussed with the students. We will point out real-life deployments whenever discussing topics or performing practical exercises. This will enable students to conduct POV / POC events for verifying business cases after attending this workshop.

WHO WILL BENEFIT FROM THIS COURSE?
IT staff, network and systems engineers interested in comprehensive knowledge of all Meraki products and solutions.

PREREQUISITES
Before taking this course, you should have earned CCNA certification or be familiar with:
- Network Fundamentals
- IP Addressing and Subnets
- Routing and Switching Technology

COURSE OBJECTIVES
After completing this course, students will be able to:
- Understand various use cases and design the best solution for a given enterprise customer
- Conduct a related POV / POC to allow the customer to verify their particular business case
- Design, deploy, and monitor a Cisco Meraki switching solution
- Diagnose and resolve most user and network issues in enterprise-scale deployments

COURSE OUTLINE
Introduction to Meraki
- Why Cisco Meraki
  - The Meraki Mission
  - Cloud Managed Networking Architecture
  - Benefits of a Cloud Based Solution
  - The Meraki Full Stack: New and Unique Value Proposition
  - Meraki Deployment
  - Use Cases: Why Customers choose Meraki

- Meraki Product Overview
  - Meraki MS Switches
  - Meraki MR Wireless Access Points
  - Meraki MX Security and SD-WAN Appliances
  - Meraki MV Vision Security Cameras
  - Meraki System Manager (SM)
  - Meraki MT Sensors Access Points
  - Cisco Meraki Insight
- Meraki API Overview
- Meraki Licensing and Support
  - Meraki Licensing
  - Enterprise Support and Warranties
  - Cisco Meraki Documentation

Cloud Management with the Meraki Dashboard

- Overview of the Meraki Dashboard
  - The Cisco Meraki Dashboard
  - Dashboard: Organizational Structure
  - Out-of-Band Cloud Management
  - Loss of Connectivity to the Cisco Meraki Cloud
  - Meraki Dashboard Logins
  - Create Dashboard Accounts and Organization
  - MSP Logins – Manage Multiple Organizations
  - Modify an Organization
  - View Organizations Health
  - Meraki Dashboard Best Practices
  - Dashboard Search
  - Meraki Help
- Organization-Wide Settings
  - Configuring Organizational Wide Settings
  - Using Configuration Sync to View and Copy Settings
  - Administrators
  - Configuring and Monitoring Licensing
  - Creating Bulk Networks
  - Creating and Managing Networks (Sites)
  - Managing the Meraki Inventory
- Monitoring
  - Overview
  - Change Log, Login Attempts
  - Monitoring the Security Center
  - Using Location Analytics
  - Monitoring VPN Status
  - Scheduling and Managing Firmware
  - Using the Summary Report

- Creating and Managing Configuration Templates
  - Understand Configuration Templates
  - VLAN Templates
- Configuring Network-Wide Settings
  - Traffic Analysis
  - Location and Scanning
  - Configuring CloudShark for Capturing Traffic
  - Manage the Local Status Page
  - Manage Syslog, SNMP, Location, and NetFlow Services
  - Managing Network Admins and Guest Ambassadors
  - Managing Network Users
  - Managing Port Management Privileges
  - Configuring Group Policies
  - Adding Devices to the Network
- Monitoring Networks
  - Clients, Traffic Analytics
  - Displaying and exploring the Meraki Topology
  - Performing Packet Captures
  - Using the Event Log to Perform Troubleshooting

Meraki MS Switching

- Overview and Features
  - Avoiding Downtime, Client Disruption
  - Cloud Managed from Access through Aggregation
  - Ongoing Feature Updates Delivered from the Cloud
  - MS Feature: Multigigabit Ethernet
  - Integrated Event Logs, Alerts, and Anomaly Detection
  - Advanced Network-Wide Security
- Meraki Switching Platforms
  - Layer 2 Access Switches
  - Layer 3 Access Switches
  - Distribution Switches
  - Prepare for 802.11AX with Meraki MS355 Switches
- Switch Configuration
  - Using Tags to Search, Monitor and Configure Meraki Switches
  - Add a Switch to the Network
  - Meraki Switch Settings
  - VLAN Configuration
  - Configuring Layer 2 and Layer 3
  - Configuring Static Routing
  - Configuring Access Control Lists (ACL)
  - Configuring Access Policies (802.1X)
  - Integrating Radius and ISE with Access Policies

- Switch Stacks
    - Stacking Mechanisms and Availability
    - Meraki Stacking: Virtual and Physical
    - Cloud-Managed Physical Stacking
    - Flexible Stacking
    - Provisioning Switch Stacks
    - Create the Switch Stack
    - Delete the Switch Stack
    - View the Stack
    - Configuring Ports on a Stack Switch Ports
    - Blink the Switch
    - Add and Remove Members to the Stack
    - Clone and Replace a Member of the Stack
    - Port Configuration
    - Configuring Ports on a Switch
    - Configuring Ports using Ranges and Search Criteria
    - Configure Link Aggregation on a Switch
    - Configuring Port Schedules
    - Configuring Access Policies
    - Configure Port Mirroring
- Meraki Multicast Configuration
    - How Does IP Multicast Work?
    - Internet Group Management Protocol
    - Enable Multicast Routing
    - IGMP Snooping Querier
    - Multicast Routing
- Open Shortest Path First (OSPF)
    - OSPF Areas
    - OSPF LSA Types
    - Normal Area
    - Stub Area
    - Not-So-Stubby Areas (NSSA)
    - Open Shortest Path First (OSPF) Routing
    - Create OSPF Areas
    - Configure Interfaces into OSPF Areas
    - OSPF for Static Routes
    - OSPF Timers
    - OSPF Authentication
    - View OSPF Routes and OSPF Neighbors
- Switch Monitoring
    - Monitoring Switch Status
    - Monitoring Switch Port Status
    - Monitoring Real-time and Historical Data

- o Monitoring DHCP on the Switch
- o Monitoring Power
- o Monitoring DHCP
- o Monitoring Event Logs
- Firmware Upgrades

Automating Meraki Networks
- Introducing Meraki Automation
- Dashboard APIs
- Setting up Postman for Meraki

Lab Exercises

Generic Configuration Tasks
- Creating a Dashboard Account
- Configure Organizational Settings
- Add Devices to Your Organization
- Create Networks
- Manage Network-Wide Settings
- Create Group Policies
- Manage Firmware Upgrades
- Create Templates
- Manage VLAN Templates
- Bind Templates to Networks

Configuring MS Switches
- Switch Configuration
  - o Basic Switch Settings
  - o Spanning Tree
  - o DHCP Servers and ARP
  - o Routing and DHCP Servers
  - o OSPF Routing
  - o Access Control List (ACL)
  - o Access Policies
  - o Packet Captures
  - o Port Policies
- Configure Switches Using a Network Template
- Configuring Ports
  - o Trunk Ports, Access Ports
  - o Link Aggregation
  - o Port Schedules
  - o Port Mirroring
- Switch Monitoring
  - o Switch Status, Port Status
  - o Real-Time and Historical Data
  - o DHCP and Routing
  - o Event Logs

- Troubleshooting Tools
  - o Packet Captures, Cable Tests, Port Reset
  - o Throughput
  - o ARP and Route Tables
  - o Ping and Traceroute
- Managing Firmware Upgrades

Automation using Meraki APIs
- Meraki Dashboard API with Postman
- Meraki Organization and Networks Import into Postman
- Meraki Devices into the appropriate Networks using APIs
- Troubleshooting Meraki using APIs
  - o Dashboard
  - o Device Dashboard

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