TOMORROW
starts here.

Welcome to the Enterprise Networking Stream

BRKRST-1001

Brad Holding, Systems Engineer

#clmel

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Agenda

- Introduction

- WAN Sessions

- Campus LAN Sessions

- Mobility Sessions

- Network Management, Automation and SDN Sessions

- Features & Technology Sessions

- Conclusion

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WAN Sessions

Introduction to iWAN

- High Level overview of Cisco's iWAN Solution

- Expect to learn about:
  - How to provide a business grade WAN service over regular internet links
  - Improve application performance over the WAN

- Ideal session for IT Managers, Solution Architects and Network Administrators responsible for designing, deploying and operating WAN environments

- Two Walk-in self-paced iWAN Labs available:
  - iWAN Featuring Performance Routing Version 3 (PFRv3)
  - iWAN 4451-X WAAS/Akamai Connect with Application Visibility and Control (AVC)

Implementing Next Gen Performance Routing – PFRv3

- Explains Performance Routing (PfR) technology to intelligently distribute network traffic via multiple WAN links

- Expect to learn how to configure and deploy PfR

- Ideal for Network Administrators wanting to gain a better understanding of how to implement PfR

Next Generation Branch Architectures

- Overview of the integrated services available in the ISR 4000 family of branch routers

- Expect to learn about the:
  – Innovations built into the ISR 4000 routers
  – Services that can take advantage of these new hardware innovations

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating WAN environments

- Walk-in lab available, featuring the UCS-E

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WAN Architectures and Design Principles

- Discusses end-to-end WAN design approach and best practices

- Expect to learn about:
  - High Availability
  - Quality of Service (QoS)
  - Application Optimisation
  - Data Privacy
  - Security

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating WAN environments

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Highly Available Wide Area Network Design

- Discusses a full range of WAN design options incorporating multiple network paths

- Expect to learn about network survivability and effective utilisation of all available paths

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating WAN environments

L3 VPN over IP Transport, Design and Solutions in the WAN

- Discusses Network Segmentation and Virtualisation in the WAN

- Expect to learn about:
  - Ethernet and IP transport options
  - VRF Solutions
  - MPLS BGP VPNs
  - Multipoint GRE
  - QoS Considerations

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating WAN environments

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LISP – A Next Generation Networking Architecture

- Focuses on using Locator/ID Separation Protocol (LISP) as a method for addressing routing scalability issues

- Expect to learn about:
  - Simplified and cost-effective multi-homing
  - Ingress traffic engineering
  - IP address (host) mobility
  - Session persistence across mobility events
  - IPv6 transition simplification

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating WAN and Data Centre environments

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Campus LAN Sessions

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Enterprise Campus Design: Multilayer Architectures and Design Principles

- Covers off best practices for deploying the Cisco Multilayer Campus Model with an emphasis on high availability

- Expect to learn about:
  - Non-stop Forwarding (NSF) and Stateful Switchover (SSO)
  - Hot Standby Router Protocol (HSRP)
  - Gateway Load Balancing Protocol (GLBP)
  - Various Spanning Tree Protocol (STP) modes of operation
  - Routing Protocol tuning

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN environments

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Enterprise QoS – The Most Widely Deployed Feature to any Enterprise Organisation

- Covers off Quality of Service (QoS) best practices and design principles for the Enterprise Campus Network

- Expect to learn about:
  - QoS Requirements
  - Tools for classification and marking of network traffic
  - Traffic policing and shaping
  - Network congestion management
  - Network Admission Control

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN environments

Designing Layer 2 Networks – Avoiding Loops, Drops, Flooding

- Discusses the traps and dependencies of designing a Layer 2 network and how to avoid them

- Expect to learn how loops, traffic drops and excessive flooding can affect Layer 2 networks and how to avoid these issues

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN environments

Cisco Catalyst 6800 Instant Access – Design and Migration Case Studies

- Discusses the Cisco Instant Access Solution which simplifies Campus or large Branch network deployments

- Expect to learn about the specific requirements for deploying an Instant Access topology as well as the expected behaviours around convergence and scalability

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN environments

- Walk-in self-paced lab available

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High Speed Data Networks – 40G, 100G & Beyond

- Provides an update on interface standards for 40Gbps, 100Gbps and beyond

- Expect to learn about the network infrastructure impacts in supporting 40Gbps and 100Gbps links

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN and Data Centre environments

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Mobility Sessions

Design and Deployment of Outdoor Wireless Mesh

- Discusses outdoor wireless bridging and mesh technologies on the new 1572 access points

- Expect to learn how to deploy outdoor wireless solutions for:
  - Service Providers
  - Municipalities
  - Transportation
  - Mining and Resources

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating outdoor Mobility environments

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Design and Deployment of Wireless LANs for Voice and Video

- Discusses how the Cisco Unified Access solution implements new protocols to optimise cell coverage and efficiency to support Voice and Video applications

- Expect to learn about:
  - Optimising your Wireless LAN (WLAN) Controller for high user density and mobile applications
  - New protocols such a 802.11v, 802.11r and 802.11k

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

- Walk-in self-paced lab available

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Design and Deployment of Branch Office Wireless Networks

- Discusses the various options to deploy Mobility services in remote office locations

- Expect to learn about HREAP and Flexconnect in detail and study some real world case studies on their use

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

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Design and Deployment of Enterprise WLANs

- Discusses the design and deployment concepts for Enterprise and Branch office Wireless LANs (WLANs)

- Expect to learn about:
  - WLAN protocols, including CAPWAP
  - New controller features
  - Various deployment models

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

Converged Access Mobility Design

- Discusses the design and deployment concepts for Enterprise and Branch offices using Cisco's Converged Access solution

- Expect to learn about:
  - Roaming
  - High Availability
  - Quality of Service (QoS)
  - Security
  - Guest Access

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

- Walk-in self-paced lab available

Understanding RF Fundamentals and the Radio Design of Wireless Networks

- Discusses the Radio Frequency part of designing and deploying a Wireless LAN (WLAN) network

- Expect to learn about:
  - 802.11 radio standards, including 802.11ac
  - Antenna placements
  - Antenna radiation patterns
  - WLAN deployment in various environments

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

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Design and Deployment of Mobility Services

- Discusses the various services available for use in Wireless LAN environments

- Expect to learn about:
  - Location based services
  - Location mapping
  - Analytics
  - Geo-fencing
  - Wireless Intrusion Prevention (wIPS)

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

Best Practices to Deploy HA in Wireless LAN

- Focuses on design guidance and best practices around building reliable and highly available Wireless LAN (WLAN) networks

- Expect to learn about how to achieve high availability in Centralised, Flexconnect and Converged Access deployment models

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

Best Practices for Configuring Cisco Wireless LAN Controllers

- Focuses on what Cisco considers best practice when configuring your Wireless LAN Controller

- Expect to learn about what tools, tips and tricks you can use in configuration your Wireless LAN controller to get the most out of your Mobility environment

- Ideal for Network Administrators responsible for designing, deploying and operating Mobility environments

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Deploying Wireless Guest Access

- Focuses on the design requirements and deployment considerations for Cisco's Wireless Guest Access solutions

- Expect to learn about:
  - The main components of an end-to-end guest access solution
  - Deployment of Guest Access on Centralised, Flexconnect and Converged Access Wireless LAN networks

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

Managing Policies for a BYOD Network

- Discusses the Bring Your Own Device (BYOD) trend and how it impacts wireless design both in terms of performance and security

- Expect to learn about:
  - Best practices for capacity planning and efficient spectrum usage
  - Radio Resource Management (RRM)
  - The most common device and user policy scenarios

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

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Securing Wireless LANs

- Discusses the risks associated with the deployment of Wireless networks and the mitigation strategies that can be used to keep them secure

- Expect to learn about security threats and mitigation strategies in an end-to-end view of a wireless network

- Ideal for Network and Security Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

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Creating a Connected Mobile Experience with the Mobility Services API And Mobility Application SDK

- Discusses how the Mobility Services APIs and Mobility Application Software Development Kit (SDK) can be used to enhance and personalise business applications and services

- Expect to learn about:
  - The different components of the Connected Mobile Experience (CMX) Solution
  - Specific use-cases and how to implement them with the API and SDK

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Mobility environments

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Troubleshooting Wireless LANs

- Focuses on basic concepts, troubleshooting techniques and best practices for Centralised Cisco Wireless Networks

- Expect to learn about:
  - Cisco's Technical Assistance Centre (TAC) Support model
  - Access Point Join process
  - RF Tuning
  - Understanding client debugs and Mobility

- Ideal for Network Administrators responsible for designing, deploying and operating Mobility environments

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Troubleshooting Converged Access Wireless Deployments

- Focuses on basic concepts, troubleshooting techniques and best practices for Cisco's Converged Access solution

- Expect to learn about:
  - Cisco's Technical Assistance Centre (TAC) Support model
  - Access Point Join process
  - Client connectivity issues
  - Understanding client debugs and Mobility

- Ideal for Network Administrators responsible for designing, deploying and operating Mobility environments

Network Management, Automation and SDN Sessions

Enterprise Networking Configuration Management with Prime Infrastructure

- Discusses how to use Prime Infrastructure (PI) to make configuring, monitoring and understanding your network easier

- Expect to learn:
  - How to perform a basic setup
  - Configuration management
  - Inventory management
  - How to use the PI topology tool

- Ideal for Network Administrators responsible for designing, deploying and operating LAN environments

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Using Prime to Manage Wireless LAN Deployments

- Discusses how to use Prime Infrastructure (PI) to manage your Cisco wireless network

- Expect to learn:
  - Various deployment options (templates and auto-provisioning)
  - How to use the Mapping Tool
  - How to use the System Dashboard
  - And much more

- Ideal for Network Administrators responsible for designing, deploying and operating WLAN environments

Simulating Networks using Cisco Modelling Labs

- Discover how to use Cisco Modelling Labs (CML) to run a simulated network environment

- Expect to learn how to design, build, virtualise and launch a fully simulated Cisco network

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

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Cloud Managed Networking with Meraki

- Covers off how Cisco's Meraki cloud-managed networking solution provides the tools to implement scalable networks with dramatically simpler management

- Expect to learn about:
  - Meraki's unique cloud architecture
  - The latest Meraki wireless, switching and security hardware
  - Meraki's complete BYOD offering

- Session will include a live demonstration and discuss various deployment strategies

- Ideal for Network Administrators responsible for designing, deploying and operating WAN, LAN and WLAN environments

- Walk-in self-paced lab available

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Enterprise SDN – APIC Enterprise Module

- Discusses the problems SDN is trying to solve and the work Cisco is doing to address these issues with the Application Policy Infrastructure Controller – Enterprise Module (APIC-EM)

- Expect to learn about:
  - Cisco's SDN solution for the Campus and WAN
  - Different SDN approaches
  - APIC-EM Applications and REST APIs

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

- Walk-in self-paced lab available

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Implementing Network Automation – Power Tools for Enterprise Switching

- Explores a number of Cisco IOS Network Programming and Automation capabilities to automate operational tasks

- Expect to learn about:
  - Real-life examples of embedded network automation
  - IOS Embedded Event Manager (EEM)
  - Cisco One Platform Kit (onePK) APIs
  - TCL Scripting

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

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vCPE and Network Function Virtualisation for Enterprises

- Introduces the use-cases for Network Function Virtualisation (NFV) for Enterprise Network Architectures

- Expect to learn about:
  - Virtualising branch routers
  - Enabling Enterprise Hybrid Cloud deployments
  - Placement and Chaining of network functions
  - Performance of virtualised functions

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN and WAN environments

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Features and Technologies Sessions

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IOS Routing Internals

- Discusses how IOS routers do their job

- Expect to learn:
  - How Cisco Express Forwarding (CEF) works
  - Impact on CPU and Memory Utilisation
  - Equal Cost Routing
  - Routing Fast Convergence

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environment

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Advanced Topics and Directions in Routing Protocols

- Discusses new capabilities and improvements in traditional routing protocols, including EIGRP, IS-IS, OSPF and BGP

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

Advances in BGP

- Discuss the evolution of the Border Gateway Protocol (BGP) from connecting sites together with plain IP, to a multi-protocol control-plane vehicle used to send services end-to-end across the network

- Expect to learn:
  - How to provide better redundancy, scalability, security and convergence with BGP
  - How to configure these BGP enhancements across different Cisco platforms

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

Troubleshooting Routing Protocols – BGP/OSPF/EIGRP

- Discuss troubleshooting techniques for BGP, OSPF and EIGRP using real world examples

- Expect to learn how to troubleshoot:
  - Route installation issues
  - Route advertisement issues
  - Route redistribution issues
  - Route summarisation issues
  - Route flapping issues
  - Neighbour Relationship issues

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

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Understanding MPLS

- Provides an overview of the applications and benefits that Multiprotocol Label Switching (MPLS) can offer

- Expect to learn about:
  - Basic MPLS technology components
  - Layer 2 VPNs
  - Layer 3 VPNs
  - Market segments where MPLS is positioned

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN and WAN environments

Understanding IPv6

- Provides an introduction to IPv6

- Expect to learn about:
  - Address types
  - Basic header information
  - Protocol Mechanics
  - Deployment concepts

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

IPv6 Planning, Deployment and Operation Considerations

- Covers the deployment and operation of IPv6 enabled networks

- Expect to learn how to plan, design and implement an IPv6 solution

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN and WAN environments

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IP Multicast – Concepts, Design and Troubleshooting

- Provides an overview of the concepts, design and troubleshooting of IP Multicast technology

- Expect to learn about:
  - Addressing
  - Host-Router signalling
  - Distribution trees
  - Reverse Path Forwarding (RPF)
  - Protocol Independent Multicast (PIM) and its various modes of operation

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating LAN and WAN environments

Securing Your Network Simply with TrustSec

- Discuss how Trustsec Security Group Tagging can be used to simplify network access controls and provide network segmentation

- Expect to learn about:
  - Extending context-aware controls from the access layer into the data centre
  - Facilitate BYOD

- Ideal for Network and Security Administrators and Solution Architects responsible for designing, deploying and operating LAN and WAN environments

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Overview of Troubleshooting and Packet Capturing Tools in Cisco Switches and Routers

- Provides an overview of troubleshooting and packet capturing tools available in Cisco Switching and Routing platforms

- Expect to learn:
  - The Cisco Technical Assistance Centre (TAC) troubleshooting methodology
  - What troubleshooting tools are available on the various Cisco platforms
  - How to use these tools to solve real world networking issues

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

Cisco Silicon – Delivering Innovation for Advanced Routing & Switching

- Discusses the latest advances in Cisco ASIC Silicon development

- Expect to learn about the:
  - Unified Access Data Plane (UADP) chip
  - QuantumFlow Processor (QFP) chip
  - Platforms that leverage these chips
  - Technical and Business Advantages enabled by these chips

- Ideal for Network Administrators responsible for designing, deploying and operating LAN and WAN environments

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Industrial Networking Concepts, Design, Resilience and Security

- Provides an introduction to Industrial Networking

- Expect to learn about:
  - Commonly used products, protocols and associated technologies
  - Cisco's Converged Plant-wide Ethernet architecture
  - Industrial applications
  - Network topology choices
  - Performance considerations
  - Security trends

- Ideal for Network Administrators and Solution Architects responsible for designing, deploying and operating Industrial LAN environments

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The Evolution of your Enterprise Networking Strategy and Architecture

- Discusses the directions and transitions that are occurring in Cisco's product portfolio and solution developments

- Expect to learn about the latest offerings within the Enterprise Networking portfolio

- Ideal for Network Administrators, IT Managers and Solution Architects responsible for designing, deploying and operating Enterprise Network environments

Q & A

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Thank you.