Cisco Unified Communications Manager (CUCM)

Introduction to Cisco Unified Communications Manager

- Overview of CUCM
- Evolution and versions of CUCM
- Architecture and components of CUCM
- Deployment models (Single site, multi-site, clustered)

Installation and Initial Configuration

- System requirements and hardware specifications
- Installation methods (ISO, OVA)
- Initial setup and configuration wizard
- Basic settings: time, NTP, DNS, etc.

Administration Interfaces

- Cisco Unified CM Administration interface
- Cisco Unified Serviceability interface
- Cisco Unified Reporting
- CLI overview and basic commands

User Management

- User accounts and groups
- LDAP integration and synchronization
- Authentication and authorization
- User features and permissions

Endpoint Management

- Endpoint types: IP phones, softphones, video endpoints
- Auto-registration and manual registration
- Device pools and device mobility
- Phone button templates and softkey templates

Dial Plan and Call Routing

- Dial plan fundamentals
- Route patterns and route lists
- Dial plan digit manipulation
- Class of Control (CoC) and partitions
- Translation patterns and transformation masks

Features and Services

- Call coverage features (hunt groups, call pickup groups)
- Call park, call hold, and call transfer
- Call forwarding and call hunting
- Call Admission Control (CAC)
- Media resources (Music on Hold, Annunciator, Conference Bridge)

Quality of Service (QoS)

- QoS requirements for VoIP
- Traffic prioritization (LLQ, DSCP markings)
- Bandwidth management and RSVP

Fault Tolerance and High Availability

- Redundancy and failover concepts
- Clustering and server redundancy
- Disaster recovery strategies

Monitoring and Troubleshooting

- System monitoring tools (Real-Time Monitoring Tool, Unified CM traces)
- Alarm configuration and management
- Troubleshooting common issues (call setup, media quality)
- Log analysis and reporting

Security in CUCM

- Authentication methods (LDAP, local database)
- Role-based access control
- Certificate management
- Secure communications (TLS, SRTP)

Integration with Other Cisco Collaboration Solutions

- Integration with Cisco Unity Connection (voicemail)
- Integration with Cisco Unified Contact Center Express (UCCX)
- Integration with Cisco Webex and Webex Calling

Upgrades and Patch Management

- Upgrade paths and procedures
- Patch management and best practices
- Backup and restore operations

Best Practices and Recommendations

- Configuration best practices
- Performance tuning and optimization
- Documentation and change management

Advanced Topics (Optional)

- SIP trunk configuration
- Multisite deployment considerations
- Cisco Expressway integration for remote access