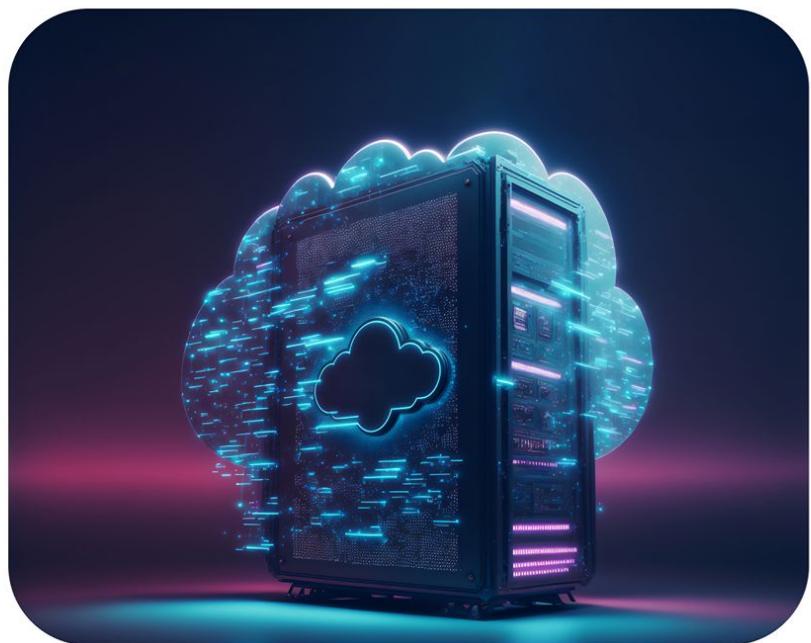




## CCNA



**The Best Training Institute in Hyderabad**



### MODULE 1

#### **Operation of IP Data Networks**

- Functions of Routers, Switches, Bridges and Hubs
- OSI and TCP/IP models
- Data flow between two hosts across a network

#### **LAN Switching Technologies**

- Identify basic switching concepts
- Types of Switching
- Collision / Broadcast Domains
- CAM Table
- Configure and verify initial switch configuration
- Switch operation (ping, telnet and ssh)
- Identify enhanced switching technologies
- RSTP / PVSTP
- Ether channels
- Configure and verify VLANs / Trunking
- DTP / Auto negotiation
- Configure and verify PVSTP operation
- Root bridge election / STP Modes



# IP Routing Technologies

- Describe basic routing concepts
  - C E F
  - Packet forwarding
  - Router lookup process
- Describe the boot process of Cisco IOS routers
- Configure and verify basic Router configuration
- Configure and verify interface (serial and Ethernet)
- Configure and verify Static & Default routing
- Manage Cisco IOS Files
  - Boot preferences / Cisco IOS image(s)
  - Licensing
- Differentiate methods of routing and routing protocols
- Static vs. Dynamic
- Link state vs. Distance Vector



### IP addressing (IPv4 / IPv6)

- Private and public IP addresses for IPv4
- IPv6 addressing scheme
- IPv4 addressing scheme using VLSM and summarization
- IPv6 in conjunction with IPv4 such as (dual stack)
- Describe IPv6 addresses
  - Global unicast
  - Multicast
  - Link local
  - Unique local
  - eui 64
  - auto configuration



# Network Device Security

- Configure and verify network device security
  - Enable secret vs enable
  - Disable telnet
  - SSH / VTYs
  - Physical security
  - Service password
- Configure and verify Switch Port Security
  - Sticky MAC / MAC address limitation
  - Static / dynamic
  - Violation modes(Err disable/Shutdown)
  - Protect restrict
  - Err disable recovery



### Troubleshooting

- Troubleshoot and Resolve VLAN problems
  - Identify that VLANs are configured
  - port membership correct
  - IP address configured
- Troubleshoot and Resolve trunking problems
  - trunk states
  - encapsulation
  - Allowed vlans
- Troubleshoot and Resolve STP
  - Root switch
  - Priority
  - Mode
  - Port states
- Troubleshoot and Resolve routing issues
  - Administrative distance



- Configure and verify OSPF (single area)
  - Benefit of single area
  - neighbor adjacencies
  - OSPF states, Multi area
  - Configure OSPF v2 & OSPF v3
  - Router ID, Passive interface, LSA types
- Configure and verify EIGRP (single AS)
  - Feasible Distance / Feasible Successors
  - Administrative distance
  - Feasibility condition
  - Metric composition
  - Router ID, Auto summary, Path selection
  - Load balancing (Equal & Unequal)
  - Passive interface
- InterVLAN routing (Router on a stick)
  - sub interfaces, encapsulation
- Configure SVI interfaces



### IP Services

- Configure and verify DHCP (IOS Router)
  - Configuring router interfaces to use DHCP
  - DHCP options
  - Excluded addresses, Lease time
- ACL (Types, Features & Applications of ACLs)
  - Log option
- Configure and verify ACL
- Identify the basic operation of NAT
  - Purpose, Pool, Static, 1 to 1 & Overloading
  - Source addressing & One way NAT
- Configure and verify NAT
- Configure and verify NTP as a client
- Recognize High availability (FHRP, VRRP, HSRP & GLBP)
- Configure and verify Syslog.



- Describe SNMP v2 & v3
  - Routing is enabled
  - Routing table is correct
  - Correct path selection
- Troubleshoot and Resolve OSPF problems
  - Neighbor advances
  - Hello and Dead timers
  - OSPF area
  - Interface MTU
  - Network types, Neighbor states
  - OSPF topology database
- Troubleshoot and Resolve EIGRP problems
  - Neighbor adjacencies
  - AS number
  - Load balancing



- Troubleshoot and Resolve interVLAN
  - Connectivity
  - Encapsulation
  - Subnet, Native VLAN
  - Port mode trunk status
- Troubleshoot and Resolve ACL issues
  - Statistics, Permitted networks, Direction
- Troubleshoot and Resolve WAN implementation issues
  - Serial interfaces, PPP, Frame relay
- Monitor NetFlow statistics
- Troubleshoot ether channel problems

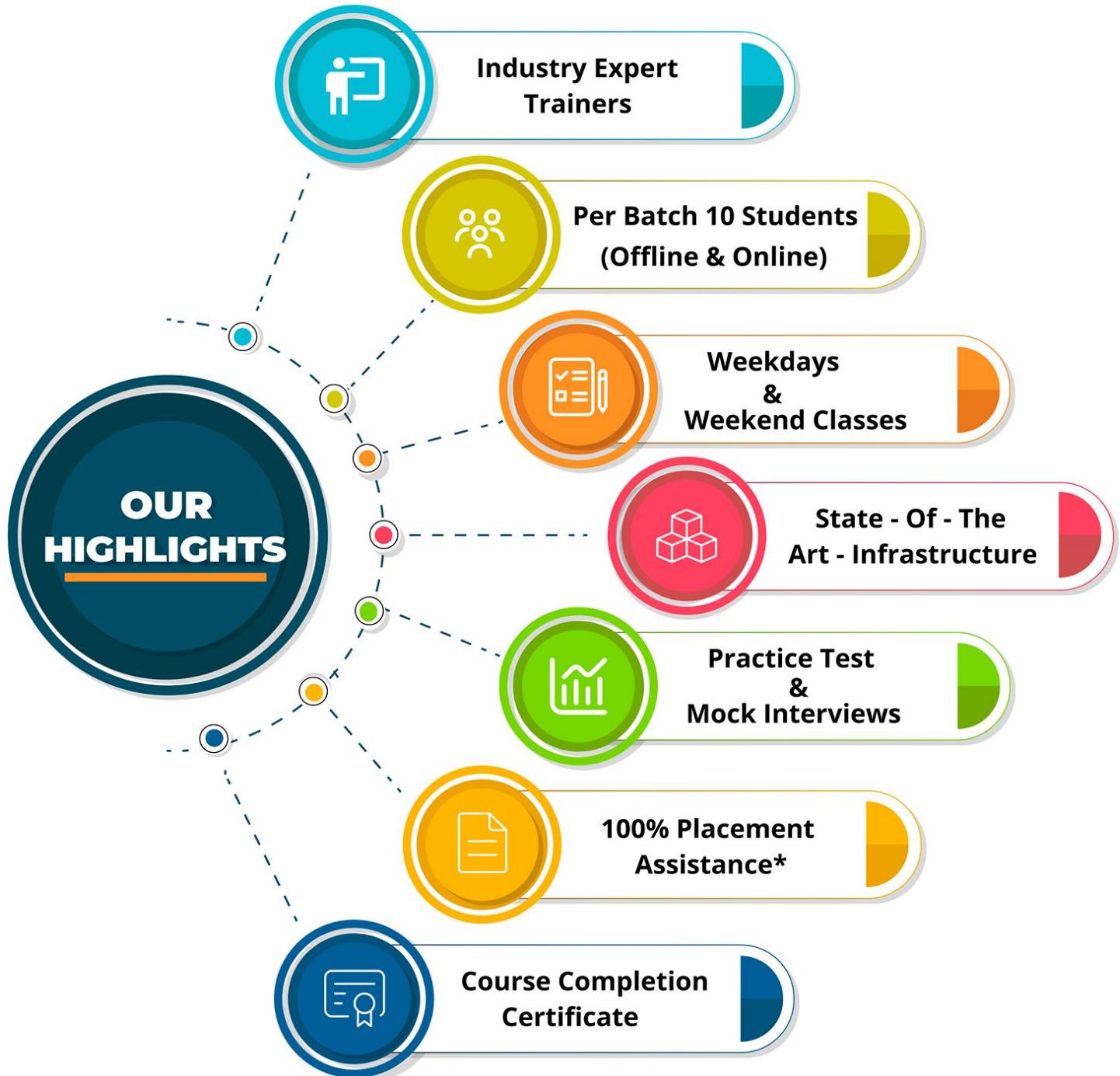


### WAN Technologies

- Identify different WAN Technologies
  - Metro Ethernet, VSAT, Cellular 3G & 4G
  - ISDN, DSL, Frame relay, MPLS, VPN & Cable
- Configure and verify Frame Relay on Cisco routers



## CLOUD VISION TECHNOLOGIES



📞 +91 8520002606

🌐 [www.cloudvisiontechnologies.com](http://www.cloudvisiontechnologies.com)

#Samhitha Enclave, 3rd Floor, KPHB Phase 9, Kukatpally, Hyderabad, Telangana - 500085