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Cisco Certified Network Associate - Routing and Switching
Cisco-id - CSCO11821324
AWS Certified Solutions Architect - Associate
BTech – Electronics & Communication (University of Allahabad)

Summary:

- Adept in planning, designing, and implementing scalable, highly available and secure solutions in an enterprise, datacenter, service provider and cloud architecture. Skilled in multi-vendor networking devices, AWS services, Kubernetes, DevOps practices, Docker image, containerization, infrastructure automation, Continuous Integration and Continuous Delivery (CI/CD), wireless technologies (LTE, 5G-NF) and cloud native VNFs.
- Skilled in solution demo, PoC, HLD, LLD, MoPs, Test Plans creations.

Skills:

- **Devops and Infra Automation**: DevOps tools in Cloud Native environment with expertise in:
  - Docker, Containers, Swarm, Kubernetes cluster planning, implementation, deployment, and maintenance.
  - Kubernetes apps deployment with services of type ClusterIP, NodePort and LoadBalancer.
  - Service based kubernetes architecture with rolling updates, blue-green upgrade strategy, scaling endpoints using replica sets.
  - Skilled in deploying and managing applications using Rancher and OpenShift.
  - Adept with OVS, Linux Bridges, CNI-Plugins (Calico/flannel/multus), overlays, macvlan, BIRD, Vyos and FRR
  - Virtualization using XEN, KVM, VMware, Workstation, Openstack, and VirtualBox
  - Infrastructure automation using Terraform, Bash, Ansible, Jenkins and Python
  - Application's software lifecycle management using Continuous Integration and Continuous Delivery (CI/CD)
  - Certificate management for SSL/TLS-based applications
  - Skilled with open source to fulfill diverse requirements, adapting and customizing them to meet specific needs.
- **Cloud**: Working Experience in Cloud
  - Hands-on experience with AWS core services: EKS (Elastic kubernetes services) | Route 53 | S3 buckets | AWS Global Accelerator | Auto Scaling Group | AWS WAF | Security Groups | VPC Peering | AWS CloudWatch
  - AWS advanced networking - specialty (AWS concepts): AWS Networking | Interface and Gateway Endpoints | Application Load Balancer | Network Load Balancer | AWS client VPN endpoint | AWS VPN Tunnels | AWS VPN for on-premises to AWS connectivity | IPAM in AWS | Elastic network interface | Enhanced networking
  - High level understanding of Azure services like VM, WebApp, Storage, Backup, Key Vault, Application Gateway, Load balancers, Automation, vNET, Route table, Subnet, Availability Set, Networking, Monitoring, Alert.
- **Networking**: Experienced networking professional with:
  - 5 years Tier1 Communication service provider integration (transmission asymmetric path)
  - 3 years datacenter experience (East-West & North-South data traffic handling using leaf-spine architecture)
  - 3 years enterprise networking (on-prem multi-tier architecture)
  - 2 years cloud advanced networking (AWS concepts)
  - Hybrid networking (on-prem to AWS connectivity)
  - 4 years SDN expertise (Netris, Netfoundary, OpenDaylight)
  - Multi-vendor interoperability functional validation of routing protocols.
  - Performance benchmarking: Mainly throughput, latency and jitter under load generated through iperf, tcpreplay and nc tools.
  - Testing of network devices routers, switches, and firewalls for OSI layers protocols for different filters and flows.
  - Wireless technologies: 3G, LTE, 5G, Wi-Fi (802.11)
  - Cisco catalysts (C2950, C3560, C3850, C6500, C6800-modular, C9400-modular), ASR series (7609, 9006, 9010) and Nexus (like 7K, 9K), Nokia (SAR-7105, 7210-SAS, SR-7750), HP (5500, 5900), Huawei (S5720), Summit 200-24, Extreme x450e, Juniper (SRX5400, MX240, EX3300, vMX).
  - OSI model seven-layer protocols, Routing protocols, and redundancy (HSRP/VRRP/GLBP, Keepalived, HA Proxy) protocols
  - L3 VPNS like MP-BGP, GRE, IPSEC, OpenVPN and L2 VPNs like EVPN-MPLS, VPWS, VPLS
  - 10 years of emulator experience (GNS3, EVE-NG, eNSP, Packet Tracer)
- **Logging and Monitoring**: Experience
  - ELK: Hands-on experience with ELK stack, including custom Logstash filters for visualizing severity levels in Kibana.
  - Logging with Elasticsearch, monitoring with Prometheus and node-exporter and alerting with Nagios.
  - Nagios, Zabbix, cacti, Net-flow Analyzer, Log analyzer, Checkpoint Smart View Tracker, Cyberoam iview.
- **Security**:
  - SSL/TLS certificates enabled web services | WAF | DDOS | IPS.
  - IDS: HIDS (OSSEC), Fail2ban, NIDS (Snort) and hardening to comply with CIS standards.
  - Vulnerability assessment, reconnaissance, and penetration testing using nmap, Nessus scan to validate application and system compliance status.
- Leadership | Quick learner | An individual contributor | Process oriented | Work prioritization | Risk analysis | Estimation

Professional Experience:

Senior Lead Software Engineer | Alef Edge Inc, India. Jan 2020 – Present

Brief Introduction
Alef Edge is a product-based company that offers a software product called MNAAS (Mobile Network as a Service), which has undergone several architectural transitions during my tenure to meet customer requirements.

Role and Responsibilities
Working with the development team as a solution architect, responsible for planning, designing, implementing, and automating the architectural deployment strategy through CI/CD release process. Coordinate with the Quality Assurance and Operations teams to ensure smooth integration in various test beds and deployment environments.

- Designing and deploying scalable, highly available and secure Prometheus and licensing services on AWS Cloud.

- Migration of on-premises applications to AWS EKS cluster and deployed them as Load Balancer service type.
- Dive into the details of applications packet flow behavior and suggested many customizations in product development.
- Implemented multi-site hybrid mesh network between on-prem sites and AWS VPC hosted services.
  - Architected **4 private edge sites in Datacenters and established connectivity with AWS services**. The operations, monitoring and licensing services are deployed in AWS. Enabled routing and connectivity between edge sites and AWS using LDP signaled VPLS. The same is leveraged by the operation team for Management and monitoring services.
- Planned and Designed NFR-KPI solution for Private Mobile Edge. Implemented at all **65 edge point sites** in US.
  - Designed latency, jitter, and packet loss measurement solution using Twamp as base protocol. All components are released in containers form and deployed in swarm-based Docker environment among distributed Bare Metal.
- Planning and designing of NAC (Network Access Control) components and their integration at private edge
  - NAC feature is for authenticating and authorizing UEs through enterprise NAC server before enabling any service access. Network also supports COA and DM triggers.
- Edge Net based Alef's Edge point deployment for **65 Nike sites** in United states (Private Mobile edge)
  - Established mesh networks using WireGuard VPN and implemented FRR routing stack for eBGP peering. Filtered routes with route-maps and IP prefix-lists. Steered subscriber traffic to Alef's edge point for data offloading.
  - Integrated Netfoundary's zero trust overlay network for enhanced network capabilities to selective customers.
- Overlapping subscriber's IP support in data offload path per edge point to support multi-tenancy (Private Mobile edge)
  - Implemented network slicing using VLAN IDs, and VRF per enterprise for overlapping subscriber IP in private mobile edge.
- Planning, Solutioning, Designing and Deployment of Alef's solution at RAN edge of service providers (CDMA/3G/4G) network.
  - Integrated Alef's solution at **2 sites** in TTSL and **4 sites** in MTS LAB CDMA network.
    - Overall, **6 Sites are provisioned** and integrated for POC.
  - Deployed, Integrated, and maintained Alef's solution at **12 sites in Vodafone 3G/4G** and **2 sites in Airtel 4G networks**.
    - Created MOPs for integration with billing nodes and implemented security standards.
- Integrated and deployed **2 Ad servers in TTSL's datacenter** for serving public Wi-Fi zones like Airports, Starbucks for ad-monetization. Responsible for planning and execution of product integration.

Sr. Architect- Network & DevOps | Rebaca Technologies Pvt. Ltd., India. Oct 2010 – Jan 2020

Brief Introduction
Rebaca Technologies is a service-based company that offers a software service to multiple customers like Cisco, Ericsson and many more.

Role and Responsibilities
Worked for clients Cisco, Canonical, WURL, and on an in-house Abot, with focus on network and DevOps. My responsibilities included manual installations, achieving repeatability, and automating VNF (Virtual Network Function) and associated NFVI (Network Function Virtualization Infrastructure) deployments using Python, Ansible, and open-source orchestrators such as Heat Orchestration Template, Mirantis Fuel, Cloudify, and Juju.

- Orchestrated test automation application (ABot) as a cloud native VNF on multiple platforms. Deployed Canonical OpenStack on bare metal, using MAAS and Juju. Deployed ABot charms for OAI EPC, and VoLTE as Network function.
- Deployed Clearwater IMS as VNF on Openstack using MAAS and Juju. Validated functionality with X-Lite softphones.
- Implemented SDN controllers for private OpenStack cloud setup. Validated networks through REST interface.
- Deployed TripleO architecture - Undercloud and OpenStack environment (the Overcloud) with 5 Dell PE 630 BareMetal.
- Installed, maintained, and configured OpenStack with diverse topologies like web services, Transparent-squid proxy with LBaas, and implemented multiple ISP scenarios. Demonstrated packet flow using neutron drivers (Vxlan/GRE/flat), network topology, virtual network creation, and security policy.

Network & System Engineer | ITI Ltd., India. Apr 2008 – Sep 2010

- Installation, Maintenance and Monitoring of Internal NOC
  - Managed internal NOC, including administration, configuration, and maintenance of Firewalls, routers, switches, servers (Linux), and user desktop systems. Configured VPN tunnels, performed traffic analysis, and monitored bandwidth. Utilized virtualization technologies and supported VSAT networks. Ensured NTP configuration and synchronization.

Achievements

- Live integration approval from all stakeholders in (Mobile network operators) MNOs by showcase emulator based POC.
- Complex brown and green field live integration in Vodafone, Airtel and TTSL service provider with bypass option.
- Integrated SDN capable virtual switches in all private edge deployments.
- Edge components containerization story built with service discovery and integration with legacy VM-based components.
- Orchestrated IMS, OAI EPC and VoLTE network functions in OpenStack NFVI environment.

Education & Certifications:

- Bachelor of Technology – Electronics & Communication Engineering; JK Institute of Applied Physics and Technology. University of Allahabad; Year of Passing: 2007
- Bachelor of Science – Physics, Mathematics & Chemistry; Ewing Christian College (Autonomous); University of Allahabad. Year of Passing: 2004
- BUSINESS PROFESSIONAL PROGRAMMER 'O' Level from DOEACC.