Pearl Aaisha Dsilva

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EXPERIENCE SUMMARY

- **2 years 3 months** of work experience in the field of virtualization of network solutions, NFV, container technologies
- Worked with **Network monitoring tools like NetSNMP**, gained good understanding of the architecture and workflow
- Have good understanding and experience with **virtualization and hypervisor technologies like Qemu, KVM, libvirt, VMWare**
- Good knowledge and understanding of **NFV-MANO** architecture for management and orchestration of resources in cloud datacenters
- Worked with **ConfD and Yang data modelling** for configuration and management of network functions and as a service registry in cloud environments
- Hands-on experience with container technologies and orchestrators – **Docker, Kubernetes,** and **helm**
- Involved in creation of helm charts for deployment of kubernetes applications
- Worked with automation tools like **Packer –** for building customized VM images and **Ansible** for automated configuration management
- Worked with monitoring tools like **Prometheus and Grafana** and have good understanding of writing Prometheus exporters for adding custom metrics
- Worked with virtual switching technology with accelerated packet processing support - **OVS-DPDK**
- Good understanding of protocols like NETCONF, OpenFlow, SNMP, REST
- Strong knowledge of cloud computing concepts and platforms like **Openstack**
- Primarily involved in Telemetry service – **Ceilometer Integration** and experience in **enabling new custom meters** for various openstack plugins in Ceilometer
- Involved in **enablement of monitoring DPDK related statistics** through **collectd (read) plugin and write them to ceilometer via collectd-ceilometer (write) plugin**
- Expertise in debugging and Handling Openstack related issues.
- Have experience in Code Management and Version Control systems – **GitHub**
- Strong knowledge of linux networking and administration – repo management
- Worked in **C, Java, Python and shell** Good debugging skills – C, Python

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TECHNICAL EXPERIENCE

Platforms	Ubuntu, CentOS, RHEL, Windows XP/10
Languages	Python, Java, C, Shell, C++
Databases	MySQL, Oracle, MongoDB
Open source Projects	NetSNMP, Open vSwitch, DPDK, Ostinato, Log Analyzer, Packer
Cloud Platforms	Openstack
Monitoring/Visualization Tools	Prometheus, Grafana, AlertManager
Container technologies	Docker
Container Orchestrator	Kubernetes
Configuration Management(IaC) Tool	Ansible
Version Control Systems	GIT
Web Technologies	HTML, CSS3, XML, JSON, REST

PROFESSIONAL EXPERIENCE SUMMARY

Project 2: Cisco Ultra Services Platform
Title: Senior Project Engineer
Duration – 27th October, 2017 – till date
Role: Developer

Ultra M is an easy-to-use virtualization platform from Cisco designed to simplify the deployment of mobile core virtual network functions (VNFs). The solution combines Cisco Ultra Gateway Applications with a Cisco Validated OpenStack infrastructure to give mobile operators the confidence to start deploying services quickly. This virtualization platform can then be upgraded to the Ultra Services Platform, a 5G-ready virtual mobility network platform.

Responsibilities:

- Understanding of the ETSI MANO architecture for management and orchestration of all resources in a cloud environment
- Onboarding and management of VNFs in Openstack
- Worked on monitoring of applications using tools like **Prometheus** and **Grafana** and the alerting counterpart **Alertmanager**
- Familiar with writing **Prometheus exporters**/custom collectors to fetch metrics from other monitoring or instrumentation systems.
- Worked with Infrastructure build tools - **Packer** for building customized machine images.
- Worked with Configuration and Automation tool - **Ansible** , for configuration, deployment and orchestration of applications

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- Involved in build automation tasks using Gradle
- Worked on deployment of microservices using **Docker, Kubernetes**
- Deployment and management of various Kubernetes applications using Kubernetes package manager - **Helm**
- Worked on facilitating preservation of data in case of pod failures by provisioning persistent volumes on bare-metal (using local, hostPath), on openstack (using Cinder volume provisioner and enabling openstack cloud provider during k8s cluster deployment) and on VMware (using vsphere cloud provider) and also worked with rook for provisioning persistent volumes using ceph
- Creation of Dockerfiles and Helm charts for Containerization and deployment of applications as microservices
- Facilitated enablement of bulk statistics collector as a sidecar to Prometheus pod for collection and storage of queried statistics in CSV format for the purpose of processing using any 3rd party tools
- Involved in tasks for provisioning ConfD interface for configuration of Prometheus server, alert-rules and Grafana
- Integration of Thanos with Prometheus for facilitating global query view and long term storage
- Containerization and configuration of messaging system – Kafka for providing a common pipeline for transmission of data between various components/applications
- Designed a system with Vault integrated for providing common interface for authentication to a system using LDAP authentication backend and integration with ConfD
- Involved in development of a system for converting faults generated by alertmanager to VES format defined by ONAP
- Worked with distributed key-value store like etcd and service discovery tolls like Consul

Project 1: vCPE
Title: Project Engineer
Duration – 22nd August, 2016 – 26th October, 2017
Role: Developer

vCPE is whitebox solution used to provide solution to some of the contemporary issues being faced by telecom industry in NFV and SDN area. As part of this endeavor, WIPRO has product vCPE to provide Customizable H/W Platform having unique Main Board + Daughter Card Combo-Support for intel DPDK based VNF for faster packet processing-Optimized VM.

Responsibilities:

- **Openstack**
  - Gap analysis between the 3 different **firewalling approaches namely native OVS, Intel OVS-DPDK and OVN controller** based firewall

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- Integration of **collectd(read plugin) and ceilometer-collectd(write plugin)** with openstack - newton release
- Fix memory mapping issue between primary and secondary processes faced with collectd-dpdkstat plugin
- Fix keystone authentication issue between collectd-ceilometer and ceilometer (Newton release)
- Deployment of Openstack Environment – **Newton and Ocata releases – Source Code, rpm installation , devstack and packstack**, also familiar with Triple-O installation procedure
- Design for fetching **Networking-SFC statistics using ceilometer** – focusing mainly from the ceilometer end, which included:
    - Design of **Pollsters and Discovery Agents**
    - Design for **Addition of new meters** collected using either **Notification Agent or Polling Agent**
- Source code installation of **Gnocchi** – a time series database and Integration with ceilometer as a dispatcher of the metrics to overcome scalability issue faced encountered with ceilometer's legacy backend database – MongoDB
- Bring-up of **Grafana Dashboard**, a Go language based dashboard service from **source code** - to display time-series data stored by Gnocchi efficiently
- Source code installation of **grafana-gnocchi-datasource,** a gnocchi plugin for Grafana, Configuration of **CORS (Cross-Origin Resource Sharing)** at Gnocchi and Keystone end to provide access from Grafana, running in another domain
- **Collectd-gnocchi** Installation from source code on Compute Node. Involved the following tasks:
    - Correction of Authorization Payload format sent to keystone by collectd service via collectd-gnocchi plugin
    - Handling creation of new Resources and Meters in Gnocchi
    - Modification of metric naming convention for the meters to be identified by gnocchi

- **NetSNMP:**
    - Enhancement of VM-MIB(RFC 7666) used for fetching VM details via hypervisor by provisioning support for SNMPTraps and Event Notifications to identify VM state changes and handle updating of cache with VM state change
    - VRRP-MIB validation

- **OVS-DPDK**
    - Root cause analysis and solution for issue being faced while using dpdkvhostuser interface with vyatta
    - Support(Bug fixing) for QoS shaping feature for PHY-dpdk and vhost insterfaces (OVS-2.6/DPDK-16.07)
    - Default Queue mapping feature enhancement for QoS shaping (OVS-2.7/DPDK-16.11)
    - Porting of QoS and KNI feature to OVS-2.7/DPDK-16.11

EDUCATION

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PESIT – Bangalore South Campus – B.E., Electronics and Communication Engineering – Aug'12 – July'16
IIIT-B – Post Graduation Diploma is Software Development (Full Stack) - Sept'18 – In Progress