Parin Patel

Seattle ,WA 98034
Immigration Status: Permanent Resident

Email : parinpatel921996@gmail.com
Mobile : +1 (630) 998-5791
Linkedin || Profile

OVERVIEW

Senior Site Reliability Engineer at SpaceX , Managing platform for revolutionary Satellite Internet Provider. During my career, I have been involved in multiple medium to large scale projects from designing, leading , developing and managing their life-cycle. Few of existing projects include building infrastructure with Azure / On-Prem large size k8s clusters with multiple host profiles, Multi Region networking, database & observability solutions.

EDUCATION

- **Master in Computer Science (Major: hrefhttps://www.cc.gatech.edu/ms-computer-science-specializat**
  Georgia Tech, Atlanta, GA

- **B.Tech. (Major: Computer Science & Minor: Communication Technology)**
  DA-IICT, Gandhianagar, India   Aug 2013 - May 2017

TECHNICAL SKILLS

- **Languages:** Python, Bash, C, C++, NodeJS
- **Databases:** Administration, Management and Deployment of Multi Regional NoSQL databases (MongoDB), PostGresql databases (CockroachDB) & Schema-free SQL (Drill & Presto)
- Development of CI/CD pipelines in **NodeJS, Python, Java , C++** with Jenkins, Docker, SonarQube, Spinnaker.
- Building, architecturing and managing cloud platform for Starlink Platform using terraform.
- Expertise in managing custom kubernetes cluster in High Availability (HA)-Cluster custom setup including service mesh.
- Managing deployments of HA apps across multiregions.
- Virtual multi-layer file system management using HA alluxio cluster with Multilevel caching solution.
- Monitoring solution with ELK, Cortex + Grafana & Kube Prometheus.
- Creation and Design of AWS based platform for mobile app with RDS , Lambda, EKS, Aurora , API Gateway, Cloudwatch etc.
- CI/CD pipeline: Jenkins, SonarQube, Sentry, Docker registry.
- End to end pipeline setup on AWS using codedeploy , S3 , cloudfront , APIGateway, EC2 , Kubernetes(EKS), Fargate.

INDUSTRIAL EXPERIENCE

- **Sr Site Reliability Engineer, Starlink (SpaceX)**   *May, 2020 - Current*
  Seattle , Washington
  - Managing platform for managing various components (ground stations,satellites,gateways, point of presences etc) of starlink internet platform.
  - Migrated existing platform to Azure Government, with disaster recovery zone and Multi Region afterwards.
  - Designed a infrastructure to run edge packet processing software across the world with on prem K8s with support for Multiple NIC with GoBGP and SR-IOV.
  - Currently part of squad to build packet processing platform capable of processing 100Gbps worth of packets per host with HA setup. Project is foundations for removing third party vendors out loop for cost and effectiveness.
  - Migrated from standalone Prometheus monitoring instance to multi-regional [Cortex] cluster.
  - Lead security hardening campaign for network software to introduce service mesh and Zero Trust model.
  - Worked with team that supported scaling of platform to serve from couple thousand users to hundreds of thousands of customers.
  - Creation of one click hot swappable kubernetes cluster with Auth management, logging, Monitoring and istio using Tanka and jsonnet with GOLang service backed with Rancher RKE.

- I also Function as Responsible Engineer (RE) for several mission and life critical services, develop python-based libraries and tooling in-use throughout SpaceX for the provisioning and life-cycle management of compute resources.

- **Lead DevOps Engineer, Aunalytics**   *August, 2017 - May, 2020*
  South Bend, IN
  - Managed micro-service written in Node JS communicating with Rancher, NFS and HAProxy.
  - Contributed and later owned service for Data Science platform built on Jupyterlab and K8s.
  - Migrated and redesigned legacy apps to automated Zero Downtime deployment stack for containerized platform with HA across multiple regions on K8s backed with HA replicated MongoDB with 99.999% up time.
  - Manged and integrated Persistent Volume based solution Trident backed with Netapp for Kubernetes cluster.
  - Created and Migrated active Hadoop container workload off from Native hardware to Containerized platform.
  - Set up Spark/Hadoop backed by Alluxio providing 60 % increase with 40 % reduction in cost.
  - Managed Zero downtime deployment pipeline with Jenkins. Pipeline integrates Unit , Functional testing with static scanning for vulnerability using SonarQube
  - Storing Artifacts in docker registry (ECR , Harbor , Docker registry).
  - Lead team which designed, deployed & managed custom HA Kubernetes cluster with 50s Node with 8000 Pods with 5000 pods/hour frequency.
  - Worked closely with stack holders to architect multi tier cloud Alluxio with 3 Level of hierarchy.
  - Redesigned existing Monitoring & stack with HA Prometheus + Grafana & cluster HA Graylog for log volumes close to 200GB daily.
  - Designed Natural Language Processing based model API solution for Call center based client using Flask(Python) , Docker , K8s.
  - Automated setup of various host and platform via Ansible.

- **DevOps Engineer, Direct I (media.net)**   *August, 2016 - May, 2017*
  Mumbai, India
  - Created logging and Monitoring Pipeline for Nagios and AWS CloudWatch API using Logstash, Redis, Elasticsearch and Kibana (ELK stack) for unresolved abnormalities and problems.
  - Manged Elasticsearch cluster on AWS.
  - Created content delivery solution using nginx , varnish and EC2.
  - Created Alert Management solution on top of nagios to detect false positive alerts which result in 85 % reduction.
  - Written Kernel module for Network Sniffing tool for SIEM in C.
  - Created Monitoring dashboards showing cost , usage and detailed analysis for different audiences from Infrastructure to management.
  - Implemented innovative software for network Packet collection, storage and further real-time analysis using elastic stack, Wireshark, Kafka, Redis and neo4j.

- detailed work experience can be found at jobs page.

Research and Projects

Worked on projects of various topics like Operating Systems, Memory Management, Internet of Things and Computer Networks. Detailed description of the projects can be found Here .

- **File System**: Created file system that supported encryption(wolfTPM), corruption handling , user permission & Quota restriction.
- **Proxy with Cache support**: Created Proxy with support for cache GETFILE ,HTTP ,FTP and SFTP protocols.
- **New Functions in cycle accurate architectural simulator**: Added new simunation methods like second last used , markov chain based models in single processors, CMPs, PIMs, and thread level speculation (SESC).
- **Distributed Attendance System**: Developed a system that exploits the inherent parallelism in the problem of taking the attendance by deploying multiple NFC (Near Field Communication) readers across the classroom.
- **Vocals separation from music**: Used REPET (REpeating Pattern Extraction Technique) technique to subtract instrumental from the vocal and then gives you vocals.
- **Performance Bench marking in Super Scaler MIPS Process**: Extensively researched sesc to calculate additional bench marking like Branch Prediction , Cache misses etc.
- **MapReduce**: My take on MapReduce architecture code.

Achievements in Education and Extra Curricular

- Established Radio Club; Chaired Technical Committee in University; Active member of Programming Club