Francesco Ciocchetti
Site Reliability Engineer
CKA Certified
Linux System Engineer

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Github: https://github.com/primeroz

Nationality: Italian
Languages: Native Italian, Fluent English

ABOUT ME

A self-driven Site Reliability Engineer / Linux System engineer with 15+ years of experience building and operating complex distributed systems on-prem as well as in the cloud.

After spending more than 10 years in England I have been back in Italy working remote-only from 2017 for both European and US based companies.

I have a passion for Observability and Automation in order to build repeatable, predictable and reliable systems and infrastructure.

AREAS OF EXPERTISE

- **Kubernetes** Platform Engineering and management since **version 1.6**
- **CKA Certified**: CKA-1900-001411-0100
- **GKE , EKS, AKS and Kubernetes from scratch**
- **Cluster-API and KubeADM**

- **AWS, Azure and Google Cloud Platform**
- **Infrastructure as Code: Terraform**. **Terragrunt, Atlantis**

- **Hashicorp Vault** in production
- **Istio** service mesh in production

- **Prometheus** and **Prometheus Operator**
- **Loki**
- **Cortex and Thanos**

- **GitOps** with ArgoCD and Flux(V2)
- KubeCFG , Tanka , **Jsonnet**, Helm

- **Large production environment** with over **20 Kubernetes production clusters** across multiple cloud providers
- **Aggregate inbound of 10000+ requests per second** across the infrastructure

- Operating **Stateful Replicated Workloads** on kubernetes
- **ECK ElasticSearch** operator
- **Strimzi Kafka** operator

- Production experience with **GitLab CI** and **Github Actions**
- Production experience writing Pipelines for **Tekton**

- Configuration management using **Cfengine, Chef , Puppet, Ansible**

- Extensive on-prem Linux Sysadmin production experience

kubernetes-sigs/image-builder - Contributor

Multiple contributions around the CAPI/Z Flatcar builder configuration

banzaicloud/bank-vaults - Contributor

Multiple contributions to the project while working at Mintel international where we used the project

- Add support for missing backends
- Add support to use kubernetes Secrets for vault configuration snippets
- Add support for groups configuration
- Extend prometheus metrics exposed by the operator

kubecfg/kubecfg - Contributor

- Port build and release pipeline from TravisCI to Github Actions
- Improve Integration testing
- Collaborate in defining roadmap to improve features set for production environments

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WORK EXPERIENCE

Sr Site Reliability Engineer - AT GiantSwarm
DE / Remote from Italy
NOV 2022 - Present

SRE on the **CAPZ Azure Cluster API** Project with the responsibility to integrate Azure in the company fleet management product

- Added support for Azure (CAPZ) to the in-house **Bootstrap tool** to **spin up CAPI Management Clusters** in the cloud provider
- Convert OS for CAPZ cluster from Ubuntu to **Flatcar** with multiple contributions to *kubernetes-sigs/image-builder*
- Implement **Tekton pipelines** to build Flatcar images for cluster nodes for Azure image gallery
- Write **Cluster Api Helm Chart** to define CAPZ clusters by rendering required CR manifests
- Upgrade and Adapt most of the already used Helm Charts for CAPZ

Sr Site Reliability Engineer / Team tech lead - AT InfluxData
USA / Remote from Italy
Jan 2021 - Nov 2022

Senior member of the **SRE** Team owning the whole Cloud Infrastructure and Kubernetes Platform,
including Infrastructure Observability and Automation

- Be the go-to person for the engineering department about Kubernetes and Cloud questions

- Deploy and Operate **20+ production clusters of up 200 nodes each** over 3 cloud providers
  - Lead effort for Kubernetes versions catch up , bringing the whole fleet up to date with
    current supported versions in 1 year
  - Manage a production mix of **EKS, AKS, GKE and KubeADM AWS** Kubernetes Clusters
  - Full **GitOps** environment using **Terraform and Atlantis** for the infrastructure with
    KubeCFG and ArgoCD for workloads
  - Manage a distributed infrastructure handling **10000+ requests per second**

- Lead **refactoring of the Platform Observability** infrastructure
  - Deployment of a distributed **Prometheus** infrastructure using Prometheus Operator
    across the fleet of clusters
  - **Thanos** global long term storage of metrics
  - **Loki** Logging Infrastructure
  - Implement deployment of consistent *Rules and Dashboards* for deeper observability of
    the platform with *flexible* alerting pipelines using *Alertmanager, Pagerduty and Slack*
  - Overhaul of the **Jaeger** infrastructure to address scalability and performances issues by
    moving to the Jaeger Operator and implementing the Streaming architecture with Kafka
    and Elasticsearch

- Drive **Standardization of Manifests management** for the Core workloads
  - Define **Jsonnet coding standards and best practices** to ensure quality across the
    codebase and create a more flexible structure
  - Collaborate with KubeCfg project in order to get the native Helm parsing features
  - Implement Github Actions for testing manifests using **Conftest, Rego and Pluto** and
    definition of workload best practices and security standards

- Lead effort to **replace in-house workloads with operator based deployments**
  - Replace Kafka statefulset with **Strimzi Operator Kafka**
  - Replace Elasticsearch statefulset with **ECK Operator**

- Improve **Istio** service Mesh adoption across the engineering department by
  - Training other teams about Istio features so they could leverage the mesh
  - Expose metrics and build dashboard for wider audience , aggregated for SLO
    monitoring
  - Convert to **Istio operator** and define update patterns and processes

- Introduced **KEDA, HPA and Proactive node autoscaler**
- Introduction of **Crossplane** for cloud resource provisioning to push towards a more self-service
  infrastructure
- Manage Multi-Cloud internal network using cross cloud networking features like IPSEC Tunnels,
  Gateways and dynamic routing for internal services
- Manage AWS SSO and AWS Organization , integration with Google SSO

Sr Site Reliability Engineer - AT Mintel International Group.
London UK / Remote from Italy
Jun 2017 - Dec 2020

Senior, and founding, member of the SRE team with the responsibility of defining the company's new generation of Infrastructure and Workloads platform.

- *Start and Lead* the effort in moving the company's technology stack to **Kubernetes**.

- Drive both the R&D and Production phases of the kubernetes migration project.
  Working in a small autonomous team we delivered the first production version of the new platform in 6 months including all the necessary building blocks for starting the adoption by the software engineering teams.

- Deployment and lifecycle management of **scratch Kubernetes distribution** using CoreOS , Packer and Terraform
- Deploy and Operate and monitor **Kubernetes GKE clusters** and the cloud infrastructure using **terraform , terragrunt and Atlantis**
- **5 Regional Production clusters** of around 50 nodes each

- Management of multiple **Vault Clusters** using **bank-vaults operator** using GitOps methodology. Multiple contributions to the upstream project to add configuration and observability features.

- Designed and implemented the *Unified observability project* by deploying **Cortex** and **Loki** to aggregate both Cloud and OnPrem metrics and logs.
- Build alerting pipeline using **Alertmanager** and **OpsGenie**

- Initial design of the *Manifests Codebase* using **Kustomize** to aggregate individual **Tanka**, **Jsonnet** repositories using **FluxCD** GitOps delivery.
  Initial set of *conftest*, *rego* rules for workloads *best practices and security standards*.

- Extensive use of **ECK Elasticsearch** operator to manage multiple instances of elasticsearch

- Drive the implementation of **progressive deployment** using **Flagger** and **Contour Ingress**

- Setup AWS Landing zones using the *gruntwork framework*

Sr. Linux System Engineer - AT Mintel International Group.
London UK
Dec 2014 - Jun 2017

Since rejoining the Company I mostly focused on modernizing various aspects of the current Infrastructure including:

Driving the first *migration of services* from onPrem to **Google Cloud Platform**
- Helped define *coding standards* for **Terraform modules and Terragrunt architecture**.
- Implemented *Gitlab Pipelines* for building images using **Packer** and CFEngine
- Build and Operate the *Network Connectivity* between OnPrem and Cloud VPCs

Standardization and Modernization of Logging and Monitoring for the current generation of services using **ELK** and **Prometheus:**
- Distributed **Prometheus** for local visualization and alerting , using local consul clusters for service discovery
- Centralized **Federated prometheus** for longer retention of data and global visualization
- Centralized **Elasticsearch** cluster for log aggregation with distributed **Logstash** and **Kafka**

Deploy and manage the Infrastructure for the Company's first **cloud exclusive application running in AWS**.
- Multi Account AWS setup with Shibboleth SSO for access control into multiple AWS Accounts
- Participate in the architectural design of the application and implement the codebase to deploy the underlying infrastructure
- **Terraform** deployment with **Chef** configuration management of instances and services

Senior Linux Engineer AT Piksel - Contractor
York UK
May 2014 - Dec 2014

Senior Engineer in the "Channel 4 Managed Services team"

AWS Production Farms management for a total of 200+ Instances
- OS and AMI management using Hashicorp **Packer**
- Network and Cloud Security , User and IAM Roles auditing
- Configuration Management of instances through a combination of in-house configuration system and Puppet
- Design and deployment of **Graphite Cluster** in AWS for farms performance monitoring

Traveling
Asia
Oct 2013 - May 2014

Traveling across Asia from Turkey to Vietnam overland
Turkey - Iran - Turkmenistan - Uzbekistan - Kazakhstan - China - Laos - Thailand - Myanmar - Cambodia - Vietnam

IT Infrastructure - Global Team Leader AT Mintel International Group.
Chicago USA
June 2012- Sept 2013

IT Infrastructure - Global Team Leader AT Mintel International Group.
London UK
Jan 2011 - June 2012

- Responsible for the reliability and performance of all IT Infrastructure services distributed over *13 Physical sites* over North and South America, Europe and APAC with *5 extra Virtual DC* setup in the cloud
  - Network Services and Infrastructure - *150+ GRE/IPSEC links on the backbone and 18 different sites managed with OSPF and BGP*
  - Core Services
  - Servers Infrastructure - *1500+ hosts (virtual and metal)*
- *Linux KVM* infrastructure migration from FreeBSD Jails using **OpenNebula** Infrastructure
- *IT Infrastructure Modernization* Introducing new technologies like:
  - Automated products and services deployment with: Spacewalk , *Cfengine3* and *Fabric*
  - Servers and Infrastructure orchestration and inventory with *Func* framework and in-house deployement tools based on it.
  - Network Storage for both Linux KVM VMs and services with **ISCSI** and **Ceph RBD**
  - Design and implement backups and archiving with Amazon S3 and Amazon Glacier backend for business critical data.
  - *Complete Redesign of the systems configuration management policies* with migration from **CFEngine2 to CFEngine3** for the new Linux KVM infrastructure
- *Akamai Content Delivery network* integration
- Ownership and Management of Infrastructure related **Jenkins** CI pipelines

Sr. System and Network engineer in the IT Infrastructure team AT Mintel International Group.
London UK
Nov 2007 - Jan 2011

- Management of 1000+ FreeBSD/Linux Servers (virtual and metal) distributed over 7 locations and multiple branch offices in the world.
- Management of the IPSEC based backbone distributed over 10 countries based on virtual GRE+IPSEC links with OSPF and BGP Routing
- Use CFengine configuration management system to manage all Core Services and applications

Network and Systems Administrator AT Kyneste Group
Rome Italy
Jan 2005 - Nov 2007

Network Administrator AT Jnet2K
Rome Italy
Jan 2003 - Dec 2004

EDUCATION AND TECHNICAL FORMATION

2003 - Cisco CCNA Network Academy	2004 - Cisco CCNA Certification Validation ID: A183F042D003ED73

2004 - Unix System Administration	2005 - Cisco SECUR Exam
2004 - IBM AIX, Base Administration	2005 - Cisco Secure PIX Firewall Advanced
2006 - Adva FSP3000 DWDM Official Training	2005 - Cisco qualified Specialist - Firewall Specialist
2006 - Juniper CJNR, AJNR	2006 - Training Adva DWDM FSP 3000 Certification
2006 - Juniper Series M/T Packet Walk	2014 - PuppetLabs Puppet Training
2006 - Juniper MPLS/TE	2014 - Architecting AWS solutions
2006 - Force10 E1200 Packet Walk and Training	2019 - CNCF Kubernetes CKA Certified CKA-1900-001411-0100