

# Pablo Koll

SOFTWARE DEVELOPER · AT BALLOON GROUP

Madrid, Spain

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## Tech skills

Discussing problems and their possible workarounds is what I enjoy the most. Even more if done with people equally passionate. Always learning and trying to teach when possible. I enjoy working in **Linux** environments and have familiarity with cloud infrastructure, mostly with **AWS** and **GCP**, where most of the interaction is done either through **SDKs** or IAC tools like **Terraform**. My experience includes working with technologies like **ECS** and **Docker**, but my eyes are currently more into **Kubernetes** and **Podman**. Throughout my career, I developed in different languages, including C, PHP, and NodeJS. However, in recent years, I have channeled the majority of my efforts into **Golang** and **Python**. This shift has concurrently piqued my interest in diverse **Software Architecture** paradigms, including (but not limited to) **DDD** or **Clean Architecture** among others.

## Experience

### Danggeun Pay Inc. (KarrotPay)

Seoul, S.Korea

FOUNDING MEMBER & SITE RELIABILITY ENGINEER & INFRASTRUCTURE TEAM LEAD

Mar. 2021 - Present

- Everything that matters.
- Designed and provisioned the entire infrastructure on the AWS cloud to meet security compliance and acquire a business license for financial services in Korea.
- Continuously improved the infrastructure architecture since launching the service. (currently 3.6 million users)
- Established a standardized base for declarative management of infrastructures and service deployments, enabling operational efficiency and consistency. Over 90% of AWS resources were all managed through standardized terraform modules. All add-ons and service workloads on the Kubernetes cluster were managed on a GitOps basis with Kustomize and ArgoCD.
- Saved over 30% of the overall AWS costs by establishing a quarterly purchasing strategy for RI (Reserved Instance) and SP (Savings Plan) and by introducing Graviton instances.
- Established a core architecture for regulating of outbound DNS traffic in multi-account and multi-VPC environments utilizing AWS Route53 DNS Firewall and FMS. This significantly increased the level of security confidence in the financial sector's segregated environment.
- Introduced Okta employee identity solution in the company, establishing security policies and configuring SSO integration with over 20 enterprise systems including AWS, GitHub, Slack, Google Workspace. Set up a Hub and Spoke architecture, enabling a collaborative account structure with the parent company, Daangn Market.

### Danggeun Market Inc.

Seoul, S.Korea

SITE RELIABILITY ENGINEER

Feb. 2021 - Mar. 2021

### Kasa

Seoul, S.Korea

FOUNDING MEMBER & DIRECTOR OF INFRASTRUCTURE DIVISION

Jun. 2018 - Jan. 2021

- Designed on-boarding process to guide new engineers, help them to focus on the right tasks, and set expectations to help them be successful at Infrastructure team.
- Migrated the orchestration system from DC/OS to Kubernetes which is based on AWS EKS. Managed 3 Kubernetes clusters and 300+ pods. Managed all Kubernetes manifests declaratively with Kustomize and ArgoCD.
- Designed and managed complex network configurations on AWS with 4 VPC and 100+ subnets. Separated the development network and operation network according to financial regulations. Established dedicated network connections from AWS VPC to partners' on-premise network based on AWS Direct Connect with secure connection using IPsec VPN. Provisioned OpenVPN servers with LDAP integration.
- Provisioned a observability system with Kafka, Elastic Stack(Filebeat, Heartbeat, APM Server, Logstash, Elasticsearch, Kibana). Collected log, uptime, tracing data from hosts, containers, pods and more. The ES cluster which has 9 nodes processed more than 1 billion documents per month. Wrote Terraform module to easily provision ES cluster on AWS EC2 instances.
- Provisioned a monitoring system with Kafka, Telegraf, InfluxDB, Grafana. Collected metrics from hosts, containers, pods and more. Wrote Terraform module to easily provision InfluxDB with HA on AWS EC2 instances.
- Introduced Kong API Gateway to easily connect all API microservices with a declarative management method based on Terraform and Atlantis to collaborate and audit change history.
- Provisioned the Directory Service for employee identity management based on OpenLDAP which guarantees HA with multi-master replication.
- Implemented Worker microservices consuming Kafka event topics for email, SMS, Kakaotalk and Slack notification. Developed in-house framework to easily build Kafka consumer microservice with common features including retry on failure, DLQ(Dead Letter Queue), event routing and more.
- Introduced Elastic APM to help distributed tracing, trouble-shooting and performance testing in MSA.

## Omnious. Co., Ltd.

Seoul, S.Korea

SOFTWARE ARCHITECT

Jun. 2017 - May 2018

- Provisioned an easily managable hybrid infrastructure(Amazon AWS + On-premise) utilizing IaC(Infrastructure as Code) tools like Ansible, Packer and Terraform.
- Built fully automated CI/CD pipelines on CircleCI for containerized applications using Docker, AWS ECR and Rancher.
- Designed an overall service architecture and pipelines of the Machine Learning based Fashion Tagging API SaaS product with the micro-services architecture.
- Implemented several API microservices in Node.js Koa and in the serverless AWS Lambda functions.
- Deployed a centralized logging environment(ELK, Filebeat, CloudWatch, S3) which gather log data from docker containers and AWS resources.
- Deployed a centralized monitoring environment(Grafana, InfluxDB, CollectD) which gather system metrics as well as docker run-time metrics.

## PLAT Corp.

Seoul, S.Korea

CO-FOUNDER & SOFTWARE ENGINEER

Jan. 2016 - Jun. 2017

- Implemented RESTful API server for car rental booking application(CARPLAT in Google Play).
- Built and deployed overall service infrastructure utilizing Docker container, CircleCI, and several AWS stack(Including EC2, ECS, Route 53, S3, CloudFront, RDS, ElastiCache, IAM), focusing on high-availability, fault tolerance, and auto-scaling.
- Developed an easy-to-use Payment module which connects to major PG(Payment Gateway) companies in Korea.

## Undergraduate Research, Machine Learning Lab(Prof. Seungjin Choi)

Pohang, S.Korea

RESEARCHER

Mar. 2016 - Exp. Jun. 2017

- Researched classification algorithms(SVM, CNN) to improve accuracy of human exercise recognition with wearable device.
- Developed two TIZEN applications to collect sample data set and to recognize user exercise on SAMSUNG Gear S.

## R.O.K Cyber Command, MND

Seoul, S.Korea

SOFTWARE ENGINEER & SECURITY RESEARCHER (COMPULSORY MILITARY SERVICE)

Aug. 2014 - Apr. 2016

- Lead engineer on agent-less backtracking system that can discover client device's fingerprint(including public and private IP) independently of the Proxy, VPN and NAT.
- Implemented a distributed web stress test tool with high anonymity.
- Implemented a military cooperation system which is web based real time messenger in Scala on Lift.

## NEXON

Seoul, S.Korea & LA, U.S.A

GAME DEVELOPER INTERN AT GLOBAL INTERNSHIP PROGRAM

Jan. 2013 - Feb. 2013

- Developed in Cocos2d-x an action puzzle game(Dragon Buster) targeting U.S. market.
- Implemented API server which is communicating with game client and In-App Store, along with two other team members who wrote the game logic and designed game graphics.
- Won the 2nd prize in final evaluation.

## Undergraduate Research, Computer Vision Lab(Prof. Bohyung Han)

Pohang, S.Korea

RESEARCHER FOR <DETECTING VIDEO'S TORRENTS USING IMAGE SIMILARITY ALGORITHMS>

Sep. 2012 - Feb. 2013

- Researched means of retrieving a corresponding video based on image contents using image similarity algorithm.
- Implemented prototype that users can obtain torrent magnet links of corresponding video relevant to an image on web site.

## Software Maestro (funded by Korea Ministry of Knowledge and Economy)

Seoul, S.Korea

SOFTWARE ENGINEER TRAINEE

Jul. 2012 - Jun. 2013

- Performed research memory management strategies of OS and implemented in Python an interactive simulator for Linux kernel memory management.

## ShitOne Corp.

Seoul, S.Korea

SOFTWARE ENGINEER

Dec. 2011 - Feb. 2012

- Developed a proxy drive smartphone application which connects proxy driver and customer. Implemented overall Android application logic and wrote API server for community service, along with lead engineer who designed bidding protocol on raw socket and implemented API server for bidding.

## SAMSUNG Electronics

S.Korea

FREELANCE PENETRATION TESTER

Sep. 2013, Mar. 2011 - Oct. 2011

- Conducted penetration testing on SAMSUNG KNOX, which is solution for enterprise mobile security.
- Conducted penetration testing on SAMSUNG Smart TV.

# Education

## POSTECH(Pohang University of Science and Technology)

Pohang, S.Korea

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Mar. 2010 - Aug. 2017

- Got a Chun Shin-II Scholarship which is given to promising students in CSE Dept.

## Extracurricular Activity

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### **B10S (B1t On the Security, Underground hacker team)**

*S.Korea*

CORE MEMBER

*Nov. 2011 - PRESENT*

- Gained expertise in penetration testing areas, especially targeted on web application and software.
- Participated on a lot of hacking competition and won a good award.
- Held several hacking competitions non-profit, just for fun.

### **WiseGuys (Hacking & Security research group)**

*S.Korea*

MEMBER

*Jun. 2012 - PRESENT*

- Gained expertise in hardware hacking areas from penetration testing on several devices including wireless router, smartphone, CCTV and set-top box.
- Trained wannabe hacker about hacking technique from basic to advanced and ethics for white hackers by hosting annual Hacking Camp.

### **PoApper (Developers' Network of POSTECH)**

*Pohang, S.Korea*

CORE MEMBER & PRESIDENT AT 2013

*Jun. 2010 - Jun. 2017*

- Reformed the society focusing on software engineering and building network on and off campus.
- Proposed various marketing and network activities to raise awareness.

### **PLUS (Laboratory for UNIX Security in POSTECH)**

*Pohang, S.Korea*

MEMBER

*Sep. 2010 - Oct. 2011*

- Gained expertise in hacking & security areas, especially about internal of operating system based on UNIX and several exploit techniques.
- Participated on several hacking competition and won a good award.
- Conducted periodic security checks on overall IT system as a member of POSTECH CERT.
- Conducted penetration testing commissioned by national agency and corporation.

### **MSSA (Management Strategy Club of POSTECH)**

*Pohang, S.Korea*

MEMBER

*Sep. 2013 - Jun. 2017*

- Gained knowledge about several business field like Management, Strategy, Financial and marketing from group study.
- Gained expertise in business strategy areas and insight for various industry from weekly industry analysis session.