Giuseppe Lavagetto

Site Reliability Engineer / Backend Developer

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I am a Developer turned Site Reliability Engineer with more than 10 years of experience managing high-traffic websites.

EXPERIENCE

Wikimedia Foundation, remote —Principal SRE

APR 2014 - PRESENT

During my tenure, I've been involved in many projects. Here are some highlights.

- **Multi-datacenter setup**: moving the Wikimedia infrastructure from working in a single datacenter to work in multiple ones, and automating all the procedures for managing pooling/depooling and moving services across datacenters.
- **Microservices architecture**: I was the first proposer of the migration to Kubernetes, and I drove the definition of quality standards and base requirements of microservices. Addition of service-mesh-like components in the stack. System for managing the build and security updates of docker images.
- **Software migrations**: I've been part of our efforts to move first from PHP 5 to HHVM, and then from HHVM to PHP7. I've managed transitions between major versions of various other parts of the stack (etcd, etc.)
- **SRE code quality**: contributed to the internal puppet style guide and of the corresponding linting plugin. Also set up maintained the CI for the puppet and the helm charts repositories.
- **Technical Committee**: I've been a component of the Wikimedia Technical Committee, the council of engineers who had decision/mentoring power over technical and architectural decisions for 4 years.
- **SRE onboarding**: I have defined the procedure for onboarding new hires onto any of the SRE teams, including a full set of training videos created by various SREs, with clear instructions for mentors on how to optimally organize the first 3 months of work of a new SRE. This is particularly important in a fully remote team.
- **MediaWiki on k8s**: I am the tech lead on a multi-team project to port the Wikimedia installation of MediaWiki to work on Kubernetes, completing the migration of our services infrastructure. This migration required reimagining how we serve MediaWiki.

SKILLS

Linux
System Administration
Configuration Management
Containers
Applications design and Architecture
Troubleshooting in production
Kubernetes
Monitoring
Tracing

Development: Python, Go, PHP, Ruby, bash. Basic knowledge of javascript, C/C++

Talks

Kubecon EU 2018 - Building a Kubernetes on Bare-Metal Cluster

IDI 2019 Keynote - Microservices: when, why and how? Lessons learned at Wikimedia

Envoycon 2020 - Improving performance of RPC with Envoy at Wikimedia

IDI 2020 - Testing in production for fun and profit

Autistici.org, remote — *admin*

MARCH 2010 - present

I am part of the autistici.org collective, providing blogging/email/IM services that respect the privacy of our users, aimed at helping activists avoid state control.

Exepdia.com, Rome — *Head of Technical Operations, Venere.com*

MAY 2011 - MARCH 2014

I was hired as a senior Operations engineer, and was moved to lead the team shortly afterwards. Some highlight of my team during my tenure:

- **Drove adoption of MySQL** for the availability engine, and of NoSQL databases for the hotel catalog, resulting in a 70% reduction in latencies for the customers, a 90% reduction in software licensing costs, and less hardware used
- **Introduced devops practices**: configuring infrastructure-as-code with Puppet, got the Operations engineers to work daily with development teams to ease lines of communication and collaboration
- **Introduced RED-like metrics** for all services, improved reliability together with the development teams to get to 99.97% availability

Immobiliare.it, Rome — *Sr. Software engineer*

MARCH 2008 - APR 2011

I was hired as technical employee #3 during the startup phase of what would become the largest real estate classifieds site in Italy.

- Built an infrastructure from the ground up for a website that would go on and grow 30% every trimester in terms of traffic and data size
- Helped debug and fix backend performance problems across the stack
- Wrote a REST API for the mobile application and took it to production in 1 week.
- Added observability and debugging tools to all the applicational stack, to allow developers to profile their code and find bad SQL queries before they hit production
- Lead the team that built a comprehensive asynchronous classified imports system, that would ingest about 1M classifieds/hour in many different formats, both from an API and ftp uploads.

Palermo University, Palermo — *Post Doctoral Researcher*

JULY 2004 - FEB 2008

I worked for 4 years as a postdoctoral researcher in applied and theoretical astrophysics, participating in more than 30 publications on peer reviewed international journals.

Palermo University, Palermo — *Ph.D. in Physics*

JUNE 2001 - JUNE 2004

Graduated cum laude with a dissertation on the effects of General Relativity on the evolution of binary systems.

Parma University, Parma — *M. Sc. in Physics*

NOV 1995 - NOV 2000

Graduated in theoretical physics (cum laude) with a dissertation on gravitational waves emitted by a binary system.

SOFTWARE PROJECTS

Github Artic Code Vault Contributor

Over my career, I contributed patches to, or created many software projects. Check out my github profile (linked above). Here are a few of the projects I contributed to that I feel are most interesting:

- [Conftool](#) – a tool to manage a k-v set of entities, with associated tags and a validation schema. Used at wikimedia to control most of our automation via etcd
- [PyBal](#) – Wikimedia's L4 load-balancer
- [Purged](#) – Our daemon for managing cache invalidation on our CDN. I wrote the code to move invalidation consumption to kafka.
- [spicerack](#) – Wikimedia's own automation system

When I'm not working, I pride myself with writing silly projects. A couple I particularly like:

- [Memeoid](#) – the only FLOSS memegenerator supporting animated GIFs
- [Xkcli](#) – a cli tool (that I use in IRC/slack bots) to search the corpus of XKCD for a specific term.

BLOG POSTS

- [Impact of using HTTP connection pooling for PHP applications at scale](#) – Blog post about the effect of introducing a service proxy for all http calls from a large PHP application
- [Some insight on the inner workings of noblogs](#) – An article introducing how a cheaply distributed installation of wordpress for noblogs.org works.