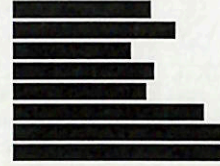


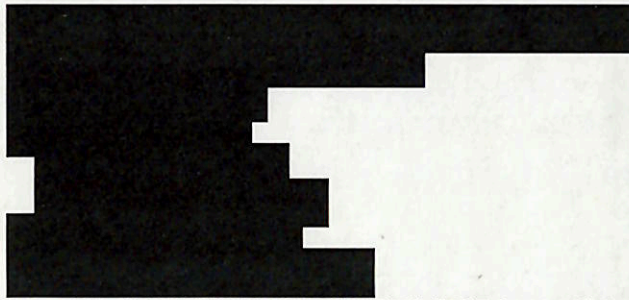


Alberto Berti

development, networking and devops



Contact Information:



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About

From an early age, I have been deeply fascinated by computers, programming languages, and operating systems.

My journey began when I was just ten years old, and that curiosity has since evolved into a career spanning over 25 years in the IT field.

Today, I bring a wealth of experience in designing and developing cutting-edge, reliable software solutions through continuous learning and hands-on practice.

As an accomplished software architect and developer, I specialize in creating robust web, service, and desktop applications, spanning everything from operating system-level functionality to user-friendly front-end interfaces. My technical expertise extends to the development and maintenance of CI/CD pipelines on Kubernetes, as well as the administration and monitoring of small-scale data centers.

This extensive background has equipped me with deep knowledge of various operating systems, infrastructure management, and essential services such as data persistence, replication, caching, and publication. I also possess advanced skills in load distribution using load balancers, orchestration, and virtualization technologies.

I am proficient in both dynamic and compiled programming languages, choosing the appropriate tools to ensure optimal performance across platforms. My understanding of platform constraints and presentation layers allows me to plan efficient development strategies and timelines, delivering solutions that maximize both functionality and user experience.

Despite my long-standing career, my passion for learning new technologies remains undiminished. Recently, I've focused on exploring asynchronous programming patterns and distributed algorithms. I've authored several utility packages in Python, which can be found on my PyPI and GitHub profiles.

In addition to my core services, I now offer expertise in the development of CI/CD pipelines using Nix/NixOS and Kubernetes, with a proven track record of successful production deployments. I am also

expanding my knowledge of functional programming languages such as Scheme/LISP and Elixir/Erlang, while exploring the evolving field of Deep Learning through online courses from leading institutions.

Outside of work, I find balance in the natural beauty of the Alps, where I enjoy hiking and capturing the essence of nature through photography.

I look forward to bringing my experience and enthusiasm for technology to new challenges and collaborating with teams of skilled professionals to create innovative solutions.

Education

School

Technical Industrial High School "G. Marconi" of Rovereto

I graduated with a vote of 50/60 in 1995 with a project involving the design and implementation of a system for remote control and monitoring of industrial automation.

V.S.V. Elettronica Industriale of Trento

September, 1995: post-graduation stage.

University of Trento

October, 1996 to June, 1997: I attended the first year of the Degree in Physics (while still working).

Foreign languages knowledge

English: I've good knowledge of both written and oral;

French: I've a basic knowledge.

Certifications

CKA: Certified KUBERNETES Administrator, issued in November 2021;

Conference and other events attendance and participation

- 9 to 11 of May, 2002: participation at the second Plone sprint in Padua;
- 10 to 15 of September, 2003: participation at the first Plone CastleSprint in Goldegg, Austria;
- 20 to 23 of September, 2004: attended the second Plone Conference in Wien, Austria;
- 13 to 15 of January, 2006: participation at the Plone Versioning sprint, in Pisa;
- 9 to 11 of July, 2007: attended the EuroPython 2007 conference in Vilnius, Lithuania;
- 9 to 11 of May, 2008: attended and participated as speaker to the PyCon.It Due conference in Florence, where I've presented the new business application development framework made for the municipality of Riva del Garda;
- 27 of June to 1 of July, 2011: attended the EuroPython 2011 conference in Florence;
- 2 to 7 of July, 2012: attended the EuroPython 2012 conference in Firenze.
- 1 to 7 of July, 2013: attended the EuroPython 2013 conference in Firenze.
- 9 to 14 of July, 2017: attended the EuroPython 2017, also presenting a talk on web applications.

- **25 to 27 of October, 2019:** attended the NixCon 2019 in Brno.
- **20 to 22 of October, 2022:** attended the NixCon 2022 in Paris.

Summary of Qualifications

I am currently working as a freelancer, specializing in the administration of GNU/Linux servers, particularly utilizing NixOS and Kubernetes clusters. My focus also extends to developing applications for deploying software distributions on embedded devices.

The primary tool in my development toolkit is the Python programming language, which I leverage extensively to build efficient, scalable solutions. Over the years, I have honed the following skills in the field of programming and systems management:

Programming Languages and Environments

assembly: knowledge of some kinds of assembly used in embedded systems, both RISC and CISC;

BASIC: my first language on Commodore-C64;

BASH: *UNIX* shell. Basic knowledge;

C: compiled language. Basic knowledge;

CSS: element properties definition language for *HTML*;

C++: compiled object oriented language. I'm able to read it;

Dart/Flutter: Language and UI framework for the development of advanced mobile applications;

Emacs: programming editor and Swiss army knife;

Elixir: highly concurrent language for the BEAM/OTP platform;

Go: Compiled language. Basic Knowledge;

JAVA: compiled object oriented language. Basic knowledge;

JavaScript: object oriented language. Some of the libraries I have extensively used are: *MochiKit, jQuery, ExtJS, BackboneJS, MarionetteJS, BabelJS, KnockoutJS, Webix, ReactJS, ReactNative, BabelJS, VueJS*;

Pascal, Delphi: compiled object oriented language and IDE for MS-Windows. I've acquired good knowledge of *win32* APIs;

Python: object oriented language. Some of the libraries I have extensively used are: *PyQT, Twisted, SQLAlchemy, Zope, Plone, Grok, Pylons, Pyramid, Django, Flask, aiohttp, MacroPy*;

Smalltalk: object oriented language. Basic knowledge;

SQL: data definition and search. In this field i worked with the following implementations: *SQLite, PostgreSQL, MySQL, Firebird/Interbase, MS-SQL server*;

Titanium: framework for mobile application development;

WAP: mobile UI definition. Mobile as it was;

XML, XPath, XSLT: The W3C standard for data document definition and its transformation language.

Services and server management

Ansible: Server and service stateful configuration and orchestration;

Apache, NGINX: HTTP servers;

Argo CD, Argo Workflows: Modern CI/CD following gitops standards;

Asterisk, Yate: server and hub for *VOIP communication*;

Debian, Ubuntu: GNU/Linux distros;

Docker: application containerization;

Dovecot, Courier: IMAP2 and POP3 services;

Grafana: application for the creation of dashboards;

IPtables, IPchains, Shorewall: stateful packet filtering and routing on Linux;

Kerberos v5: modern infrastructure for user and services authentication;

Kubernetes: modern, google scale cluster management;

Linux kernel: customized versions compilation;

Linux-vserver, OpenVZ, KVM, VirtualBox: Linux virtualization services;

LTSP: services and applications for building *thin clients* on GNU/Linux;

Nagios: monitoring and notification service for data centers;

NFSv3, NFSv4: file sharing services with Kerberos authentication;

NixOS: functional GNU/Linux distro;

Nomachine NX, X2go: *terminal services* on GNU/Linux and Windows;

OpenLDAP: directory service;

Openstack: the open source cluster manager;

Prometheus: the new kid on the block on the monitoring arena;

Proxmox PVE: Debian GNU/Linux virtualization cluster distribution;

QMail, Postfix: SMTP services;

Rancher: Docker-oriented service orchestration;

Samba: file sharing services with SMB protocol;

Terraform: declarative cluster management

Professional Experience

Since 2001 I've carried out collaborations and jobs at various levels with various organizations and companies and among them there are:

- **Simevo s.r.l.** of Turin
*Deployment of web based applications using NIXOS.
Deployment of KUBERNETES on OPENSTACK using TERRAFORM, ARGO and NIXOS.*
- **Endian s.r.l.** of Bolzano
*Development of applications and API using PYTHON.
Development of CI/CI pipelines using ARGO/KUBERNETES.
Installation and administration of KUBERNETES clusters.*
- **Municipality of Trento**
Teacher for a 140 hour course on modern tools for development automation, containers and GITOPS to their internal IT department.
- **Appia** of London
Software development and service maintenance in the field of crypto currencies.
- **Fondazione iCons** of Lodi
Deployment and maintenance of some of the services offered by the foundation to its EU founded project partners.
- **eTour s.r.l.** of Trento
*Devops, networking and Linux system administrator services for the deployment of multiple applications using NIXOS and KUBERNETES.
Development of advanced web application for the management of tour packages using ELIXIR.*
- **Arstecnica s.r.l.** of Rovereto
Co-founder, application framework and frontend developer for an application built to manage security profiles of work places and the risks for the workers. Developed with POSTGRESQL /PYTHON (AIOHTTP/SQLALCHEMY) / JAVASCRIPT (WEBIX). I've also developed the CI/CD system using GITLAB pipelines and Rancher.
- **JAA Interactions** of Milan
Development of a service for the control, coordination and monitoring of servo motor drives for on-stage automation. The project involved Ethernet/IP packet generation and parsing and the creation of an asynchronous scheduler built in Python in turn connected via a message bus to the programming/monitoring stations.
- **Abstract s.r.l.** of Rome
From February to July 2015 I've worked at Abstract s.r.l. of Napoli as a full stack developer on web applications.
- **Suaweb s.r.l.** of Rovereto
Development of backend services and frontend parts of the HTML5/JAVASCRIPT application that runs the portal at <https://passionhub.com>, especially the parts dealing with real-time communication and uploading/transcoding of media resources using Amazon infrastructure.
- **Airpim s.r.l.** of Rovereto
*Development of web services dedicated to the creation and transformation of SVG documents.
Development of a web service that manages user sign-up.
Development of a mobile application for the iOS and Android platforms.*

- **Operaprima scuola musicale dei quattro vicariati** of Ala
Server administration and management of IT services.
- **Provincial Health Services of the Autonomous Province of Trento**
Migration and refactoring of their intranet portal implemented using Plone CMS from version 2.1 to the 3.3 then to version 4.3 and later to version 5.0.8. Maintenance of the portal since then;
- **Municipality of Riva del Garda**
Implementation of their firewall using IPTables.
Analysis and development of the "PyPaPi" framework used to build multi-platform applications using Python and Qt. Done in collaboration with Emanuele Gaifas;
- **Comunità Montana del Lario Orientale** of Lecco
Development of a web portal and a digital library for the management and publication of historical documents;
- **ICRAS s.r.l.** of Rovereto
Development of a web data-oriented application for the management of processing stages and collection of stage work times;
- **chiaroscuro.com** of Rovereto
GNU/Linux systems administration and development of web applications;
- **Leader.IT s.r.l.** of Trento
GNU/Linux systems administration and development of a mobile application for monitoring pollution data using the WAP language and Windows NT / IIS / MS-SQL;
- **Delta s.p.a.** of Trento
Development of data management applications with Borland Delphi;
- **Demetra Libri s.p.a.** of Verona
Maintenance of applications developed with Borland Delphi;
- **Daldoss Elevtronic s.p.a.** of Pergine Valsugana
Development of a printer conversion filter from a "graphic" text based format to Postscript;
- **Istituto Tecnico Industriale Statale "G. Marconi"** of Rovereto
Teaching in the course "Computer Networks and Operative Systems" to students and technical employees of the school;
- **Heidi s.p.a.** of Rovereto
Development of applications for system integration and monitoring of Linux and Window systems.
Administration of GNU/Linux systems used for the delivery of mail and SMS messages;
- **Jobs Service of the Autonomous Province of Trento**
Development and maintenance of the new web site using Plone CMS.
Development of a web application devoted to let the citizens find new jobs on-line.
Work done in collaboration with Emanuele Gaifas;
 - www.agenzialavoro.tn.it

- **Arti e Mestieri Cooperativa Sociale o.n.l.u.s.** of Rovereto

*Server administration and collaboration on their project **PlanPlone** partly founded by the Autonomous Province of Trento, whose goal was the creation of an IT company management platform with FLOSS tools.*

Development of their firewall using Shorewall and implementation of centralized authentication and authorization using Kerberos and NFS v.4.

- **Reflab s.r.l.** of Cascina (Pisa)

Consultancy for the development of many customizations of the Plone CMS. Collaboration for the development of Plone's service for the management of multiple document's revisions.

- **University of Turin**

Advanced training for the setup and management of Zope clusters in the Linux environment;

- <http://www.klips.it>

Rovereto, 19/09/2024

