# Dimitris Aragiorgis

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Date of Birth: 21, August 1985
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## Academia

EDUCATION

- **Diploma in Electrical and Computer Engineering, ECE, NTUA**, Greece, Sep 2011
- **Abitur/High School Diplom, Deutsche Schule Athen**, Greece, Sep 2003

PUBLICATIONS

D. Aragiorgis, A. Nanos, and N. Koziris: **Coexisting Scheduling Policies boosting I/O Virtual Machines**, in Proceedings of the 6th Workshop on Virtualization in HighPerformance Cloud computing (VHPC 2011), held in conjunction with Euro-par 2011, Bordeaux, France.

## Industry

WORK EXPERIENCE

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|---|---|
| ✧ Senior Cloud Developer, HPE [1] | 2023-present |
| ✧ Staff Engineer, Arrikto | 2021-2023 |
| ✧ System Administrator, Developer, Integration Manager, Arrikto [2] | 2015-2021 |
| ✧ Software Engineer, Synnefo Cloud IAAS platform,[3] GRNET[4] | 2012-2015 |
| ✧ System Administrator, Developer, Greek Air Force | 2012 |
| ✧ Teaching Assistance in Operating Systems, ECE, NTUA | 2011-2012 |
| ✧ System Programmer for custom network applications, Prologic SA | 2008-2010 |

TECHNICAL SKILLS

**Advanced**
Linux, Git, Kubernetes, Istio, etcd, Qemu/KVM, Docker, AWS, GCP, Python, Bash, C, Rego/OPA, Django, CMake, Make, Kustomize, Helm, Debian, Ansible, Ganeti, NGINX, PXE, dnsmasq, OpenVPN, ferm, iptables, tcpdump, Sphinx, Vim, LaTeX

**Intermediate**
Azure, VMware ESXi, MS Windows, Xen, libvirt, Openstack, Ceph, Windows WiX, Webpack, gdb, Buildbot, Apache2, strace

**Basic**
Golang, C++, Cassandra, PostgreSQL, LDAP, Open vSwitch, Pyrasite, GitHub Actions, containerd, Scheduling, Network Devices, Block Devices, Device Mapper

## Public Presence

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|---|---|
| OpenSource Contributions | ✧ KServe path-based serving [5]<br>✧ Google Ganeti virtual machine cluster management tool (4th contributor) [6]<br>✧ Synnefo IAAS cloud software [7]<br>✧ QEMU machine emulator and virtualizer [8]<br>✧ py2deb Python package [9]<br>✧ Debian ca-certificates package[10]<br>✧ NFQUEUE-based DHCP, DHCPv6 and RA server [11]<br>✧ Scapy python-based interactive packet manipulation library [12]<br>✧ XenServer Windows Virtual Network Interface Device Driver [13]<br>✧ OpenStack Volume discovery and local storage management lib [14] |
| Conference Attendee | GanetiCon 2016, Dublin<br>GanetiCon 2015, Prague<br>GanetiCon 2014, Portland<br>Xen Hackathon 2013, Google Docks Dublin<br>GanetiCon 2013, Athens<br>Cloud Computing Technology and Science 2011, Athens [15]<br>Virtualization for High-Performance Cloud Computing 2011, Bordeaux [16] |
| Distinctions & Awards | ✧ Google's open source contributor award proposed by Iustin Pop 2014<br>✧ Award for distinction in nation-wide contest on Physics 2003 |

## Additional Info

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|---|---|
| Language Skills | English (fluent), German (adequate), Greek (native) |
| Preferred Working Environment | *Operating System:* Linux (Debian)<br>*Windows Manager:* xmonad<br>*Versioning:* Git<br>*Writing:* Vim, Sphinx, LaTeX<br>*Email:* Mutt |
| Research Interests | Computer Systems, Operating Systems, Virtualization, Scheduling, Profiling, Networking, Storage |
| Military Obligations | Fulfilled, Greek Air Force, 2013 |
| Recommendation Letter | Available upon request (HPE, Arrikto, GRNET, CSLab@NTUA, Greek Air Force) |

**Highlights**

HPE

**Multitenancy support** Ensure platform apps work in a multitenant environment where we want isolation between users but also supporting shared resources and collaboration. Ensure fine grain authorization using OPA when accessing shared resources.

**Integration with external storage systems** Design and implement integration with external storage systems and ensure smooth transition of existing customer Kubernetes deployments.

**Licencing and Billing** Participate in the design and implementation of the Licencing and Billing model of customer deployments and ensure this works for both online and air-gap enviroments.

**Authn/Authz in Central Platform** Design and implement authentication and authorization mechanism (Keycloak, Istio) for HPE Ezmeral [17] where customer deployments and HPE Support Team register and interact with a centralized management Platform.

Arrikto

**On-prem support** Add support for deploying our software on-prem (NVIDIA Bright), including air-gapped environments.

**KServe performance tuning** Conduct a performance analysis on KServe inference services, manage to find the bottlenecks of vanilla setup and suggest tweaks for Istio and KNative to improve request throughput and latency.

**Scaling** Work on supporting deploying the software at scale, i.e., on Kubernetes clusters with hundreds of nodes.

**Istio** Work on enabling Istio for all components in our software to allow for fine-grained authorization policies within the Kubernetes cluster.

**Cloud Integration** Integrate and deploy our software on various Cloud Platforms (AWS, CGP, and Azure).

**MiniKF** Design and implementation of a stripped down version of our software as a pre-packaged VM on AWS, GCP, and Vagrant.

**Cassandra** Work on restoring Datastax Cassandra nodes using point-in-time snapshots of local data to avoid full re-sync and allow nodes to join the cluster faster.

**Software containerization** Design and implementation of the containerization of our software that used to be appliance-based.

**Release management** Design the build system of the software, how to version, package and distribute it in the context of every commit is a release while emphasizing on a GitOps process for deploying it.

**Customer support** Be on-call and deal with SEV1 customer issues in real time, debug systems at scale, troubleshoot, and be able to identify even customer-side misconfiguration on Cloud platforms or on-prem.

**Full stack awareness** Know the whole stack of the software, know how all components integrate with each other, and as such be able to identify and troubleshoot pretty much any issue.

**Bug hunting** Insist on finding the root cause of an issue, be able to reproduce it, and finally identify where the bug is and what need to be done for solving it.

**Infra** Set up physical servers and switches in our on-prem site, and use Ansible to configure them.

**BSOD on AWS** Allow for backing up Windows VMs running on-prem, e.g., on ESXi, and be able to launch them on AWS. Initially we were getting BSOD, without being able to debug further. I had to simulate AWS EC2 environment locally, Xen Hypervisor, proper PVHVM setup, patch iPXE software, inspect XenStore, use Windows kernel debugger, patch official XenServer xenvif driver, install this drivers and tweak windows registry offline using WinPE and finally watch it boot.

**Packaging for Windows** Managed to have CMake running on Linux generate a setup.exe for Windows using PyInstaller, Wine and WiX toolset. This has been proved to be really helpful for our CI/CD since on each commit we had the corresponding Windows installer.

**Nested ESXi** To be able to have ESXi servers on demand, primarily for development, I managed to boot ESXi on Ganeti. To take advantage of nested virtualization features, I had to dig into QEMU and Linux kernel code, and cherry-pick couple of commits to our production environment and only then we could have Hardware CPU and MMU support for our nested VMs.

GRNET

**Device Hotplug in Ganeti** In older versions of Google Ganeti, one had to reboot a VM in order to add/remove devices NICs/Disks. Managed to submit and merge upstream a PR supporting device hotplug for VMs running with the KVM hypervisor.

**L2 isolated Network in Synnefo** In synnefo, to be able to have private networks per user at first place we had to rely on physical VLANs. But this had a limit of approximately 1000 private network. I had designed a software implementation based on unique MAC prefixes and ebtables rules.

Greek Air Force

**Booking management platform** During military service, I designed and implemented a booking management platform [18] from scratch for a resort of National Air Force. They have been using it since then, which translates to more than 10 years up-and-running.

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[1] https://www.hpe.com/
[2] http://www.arrikto.com
[3] https://www.synnefo.org
[4] https://okeanos.grnet.gr
[5] https://github.com/kserve/kserve
[6] https://github.com/ganeti/ganeti
[7] https://github.com/grnet/synnefo
[8] https://github.com/qemu/qemu
[9] https://pypi.org/project/py2deb/
[10] https://bugs.debian.org/cgi-bin/bugreport.cgi?bug=920348
[11] https://github.com/grnet/snf-nfdhcpd
[12] https://github.com/secdev/scapy
[13] https://github.com/xenserver/win-xenvif
[14] https://github.com/openstack/os-brick
[15] CloudCom'11
[16] VHPC'11
[17] https://www.hpe.com/us/en/alliance/technology-ezmeral.html
[18] https://github.com/dimara/keda