Igor D.C.

Basic Data

Full name:	Igor Duarte Cardoso
Degree:	Master of Science in Computer and Telematics Engineering
Location:	United States of America
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Objectives

Having mostly worked in the fields of fields of Cloud Computing (IaaS), Software-Defined Networking (SDN) and Network Functions Virtualization (NFV), I'm always open to take on new challenges, leveraging parts of my experience and knowledge and applying that to other fields.

Both engineering and research interest me, and I have a tendency to enjoy design and architecture, including working with protocols (more on this in Work Experience).

I want to take part in the evolution of existing (and development of new) technologies, learning and improving day after day.

Skills

Basic Experience:	Ansible, ASP.NET, bison, C, C++, Computer Architecture, Dansguardian, docker, flex, Google Analytics, iOS dev, Jekyll, Jenkins, MIPS assembly, Objective-C, OpenDaylight, OpenWrt, OSM, Perl, PHP, Public Speaking, Ruby, Squid3, x86 assembly, Intel RSD.
Intermediate Experience:	Android dev, bash, C, C#, Cisco IOS, CSS, ETSI NFV, Excel, git, GlassFish, GNS3, GNU/Linux, HTML, IETF SFC/NSH Intel Rack Scale Design, Java, JavaScript, JSON, LAMP, LaTeX, Network Protocols, Neutron, OpenFlow, OpenStack, Open vSwitch, Python, Redfish, SQL, Technical Writing, UML, Vim, Visio, XML, Wireshark.

Interests and Activities

Software
Cloud Computing
OpenStack
GNU/Linux
Open-Source
Computer Networks
Technology and Gadgets
Brainstorming
Health and Fitness
Brazillian Jiu-Jitsu
Reading

Work Experience

Current – November 2018 | Cloud Software Engineer
Intel Corporation (Hillsboro, Oregon, United States of America)
Open Source Technology Center (OTC).

November 2018 – September 2015 | Network Software Engineer
Intel Communications Europe (Shannon, Ireland)
I have helped use cases and projects in the SDN, NFV and Orchestration areas on multiple occasions. Originally, I worked on the Group-Based Policy OpenStack project where I integrated QoS support from existing Neutron's APIs. Later, and during the majority of my time at Intel Communications Europe, I worked with SFC (Service Function Chaining). With a deep understanding of IETF SFC's proposal, architecture and the NSH protocol, I have fought through different obstacles in the OpenStack community in order to enable standards-compliant SFC, designing and proposing a compatible solution. I later implemented SFC Encapsulation support for OpenStack's Neutron (networking-sfc) through multiple patches, mainly the ones enabling Service Graphs and the NSH protocol (for Open vSwitch). Additionally, I have designed, developed and successfully contributed an abstract SFC interface for the VIM connector layer in the Open Source MANO (OSM) project, together with an OpenStack implementation of it, and enabled ETSI NSD/VNFFGD to be converted to the VIM connector's SFC interface, thus enabling top-to-bottom, end-to-end SFC from orchestration all the way down to Open vSwitch (optionally together with OpenDaylight), all based on open source projects. Another very significant endeavour was resurrecting the effort around traffic classification in OpenStack's Neutron, by founding and leading the Common Classification Framework project, creating an initial design and bringing the community together to discuss, suggest and agree on use cases and models. Most recently, I began working with Intel Rack Scale Design (RSD), where I have provided contributions on a diverse set of layers. My most tangible contribution in RSD is the inception of the `rsb_` module umbrella and the creation of the `rsd_node` module, allowing Ansible to deploy composed nodes in an idempotent manner. Finally, I've worked on multiple innovation tasks during my time.

September 2015 – October 2014 | Researcher and Software Engineer
Instituto de Telecomunicações (Aveiro, Portugal)
Given the experience I acquired in OpenStack during my Master's Dissertation and the related work I did during it, I was invited to stay at Instituto de Telecomunicações doing research related to Network Functions Virtualization (NFV). There, I kept working on OpenStack although initially not upstream. Then started making contributions to the Group-Based Policy project for OpenStack. Most of my work, though, has been around other aspects of NFV: automating configuration of Virtual Network Functions (VNFs), improving and discussing the Traffic Steering implementation to meet the purposes of Service Function Chaining (SFC), testing and integrating other implementation artifacts of the team.

November 2015 – May 2013 | Developer, Designer and Marketeer
Wrkout (Aveiro, Portugal)
Not really a job, but an amazing work experience. Wrkout is a mobile Android app which I've created. By dealing with multiple aspects related to developing, publishing and monetizing the app by myself, I have learned plenty. This project turned product also teaches me exactly why I should be working in a team. On November 2015 the app was made free and I became less engaged with it in order to better focus on my new endeavours.

Achievements and Awards

2018 Intel DSG DRA (Division Recognition Award) for my work in advancing IETF SFC and NSH.
2017 Intel DNSG DRA (Division Recognition Award) for my work in advancing IETF SFC and NSH.
2016 Founded the CCF for Neutron in OpenStack, successfully bringing the community together.
2016 Intel DNSG recognition for co-organizing the first ever OpenStack Days Ireland.
2014 Invited to develop a a mobile Android app (ActUA) by the University's top staff.
2013 First place on a University's Mobile App Development challenge awarded by Blip.pt.
2011 Research Integration1 Scholarship (12-month) at IEETA, financed by FCT.
2008 Top (#1) High School finalist.

Education

2014 Master of Science in Computer and Telematics Engineering,
Universidade de Aveiro, Aveiro, Portugal,
Dissertation: "Network Infrastructure Control for Virtual Campus",
Integrated Master's includes both Bachelor's and Master's degrees:
Degree with a broad Computer Science foundation and multiple practical projects.
Final grade: 16 out of 20.

2008 High School,
Agrupamento de Escolas da Guia, Guia, Portugal:
Final grade: 18 out of 20.

Master's Dissertation

On my Master's Dissertation I have designed and developed an extension for OpenStack Neutron that allows virtually any computer network to be extended beyond their physical boundaries up to a Cloud-managed network, per a Cloud tenant's request. This is achieved through an architecture that uses pluggable drivers to communicate with remote devices that directly connect or manage these computer networks, automating all the process of reconfiguring them in order to extend their managed networks' broadcast domains up to the Cloud infrastructure (usually via some form of tunnelling). Examples of use cases that can be satisfied or made easier are: a) incrementally migrating legacy computer networks to the cloud; b) achieving the notion of a virtual campus, composed by multiple heterogeneous devices managed by the Cloud tenant or administrator, with virtual services deployed on top; c) on NFV, migrating current physical home gateways to a virtual home gateway environment, without replacing the customer's home gateway itself. Other use cases and in-depth coverage can be read on my publication: "Seamless integration of Cloud and Fog networks", referenced at the Publications section.

Non-formal education

- Public Speaking course (1 day) - 2016.
- Crucial Conversations and Conflict Resolution course (1 day) - 2017.
- Bitnami Kubernetes training (CKA+CKAD-like) (3 days) - 2019.

Languages

Portuguese:	Native
English:	Fluent
Spanish:	Basic understanding
French:	Basic understanding (if reading)
Italian:	Basic understanding (if reading)

Publications

2016 Vitor Cunha, Igor D.C., J.P. Barraca, R.L. Aguiar:
"Policy-driven vCPE through dynamic network service function chaining".
NetSoft Conference and Workshops (NetSoft), 2016 IEEE, 156-160.

2016 Igor D.C., J.P. Barraca, Carlos Goncalves, R.L. Aguiar:
"Seamless integration of Cloud and Fog networks".
International Journal of Network Management 26 (6), 435-460.

2015 Igor D.C., J.P. Barraca, Carlos Goncalves, R.L. Aguiar:
"Seamless integration of Cloud and Fog networks".
1st IEEE Conference on Network Softwarization (NetSoft 2015).

2014 Paulo Dias, Tiago Sousa, Joao Parracho, Igor D.C., André Monteiro, Beatriz Sousa Santos:
"Student Projects Involving Novel Interaction with Large Displays".
IEEE Computer Graphics and Applications, vol. 34, no. 2, pp. 80-86, Mar.-Apr., 2014.

2014 Tiago Sousa, Igor D.C., João Parracho, Paulo Dias, Beatriz Sousa Santos:
"DETI-Interact: Interaction with Large Displays in Public Spaces Using the Kinect".
HCI 2014 - 16th International Conference on Human-Computer Interaction: 196-206.

2014 Igor D.C.:
"Network infrastructure control for virtual campuses".
Universidade de Aveiro (Master's Dissertation).

2013 Tiago Sousa, João Parracho, Igor D.C., Paulo Dias, Beatriz Sousa Santos:
"Interação com ecrãs de larga dimensão usando o kinect".
Atas da 5 Conferência Nacional sobre Interação-Interação.

2012 Igor D.C., Paulo Dias, Beatriz Sousa Santos:
"Interaction with large displays in a public space using the Kinect sensor".
20 Encontro português de Computação Gráfica - EPCG 2012, pp. 81–88 (2012).

Public Presentations

Empower your NFV Services through Service Function Chaining and SFC Graphs
OpenStack Summit 2016, Barcelona

Developing, Deploying, and Consuming L4-7 Network Services in an OpenStack Cloud
OpenStack Summit 2016, Austin

Cloud, SDN, NFV
ENEI 2016, University of Aveiro, Portugal

I also voluntarily participate at my site's Lightning Talks from time to time.

Open-Source Output

I have made upstream contributions to a diverse set of projects within the OpenStack umbrella.

I have made other contributions to Open-Source software that are public but not all of them upstream, including irssi, Yakuake, metastore, tox, etc. I have also developed other simple side projects in the past, some of them available at my GitHub.

You can check most of my public output through the links/profiles/dashboards/pages below:

- OpenStack Gerrit
- OpenStack Stackalytics
- OSM Gerrit
- CCF Wiki
- Launchpad Profile
- GitHub Profile

Presence

ATNoG September 2013	Advanced Telecommunications and Networks Group I became associated with ATNoG as part of my Master's Thesis. This group is established inside Aveiro's pole of Instituto de Telecomunicações.
GLUA July 2011	University of Aveiro's Linux Group Member of the University of Aveiro's Linux Group (Grupo Linux da Universidade de Aveiro).

Events

As a speaker and attendee	OpenStack Summit 2016, Barcelona
	OpenStack Summit 2016, Austin
	ENEI 2016, University of Aveiro, Portugal
As an attendee and meeting participant	OpenStack Summit 2017, Boston
	OpenStack PTG 2017, Atlanta
	OpenStack Summit 2015, Tokyo
	OpenStack Summit 2015, Vancouver
As an attendee	OpenStack Summit 2014, Paris
As a co-organizer	OpenStack Days Ireland 2016
As different roles	Other events, conferences and challenges less related.

Patents

- 1 Patent application, 2018, (title hidden until publicly available)