Materials List for:

Automated Deployment of an Internet Protocol Telephony Service on Unmanned Aerial Vehicles Using Network Functions Virtualization

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Materials

Name	Company	Catalog Number	Comments
AR. Drone 2.0 - Elite edition	Parrot		UAV used in the experiment to transport the RPis and thus, provide mobility to the compute units of the UAV cloud platform.
Bebop 2	Parrot		UAV used in the experiment to transport the RPis and thus, provide mobility to the compute units of the UAV cloud platform.
Commercial Intel Core Mini-ITX Computer	Logic Suppy		Computer server which hosts the OpenStack controller node (being executed as a VM) of the experiment's UAV cloud platform. In addition, another unit of this equipment (along with the RPis) conforms the computational resources of the UAV cloud platform.
Linux Containers (LXC)	Canonical Ltd.		(Software) Virtualization technology that enables the supply of the Virtual Network Functions detailed in the experiment. Source-code available online: https://linuxcontainers.org
Lithium Battery Pack Expansion Board. Model KY68C-UK	Kuman		Battery-power supply HAT (Hardware Attached on Top) for the computation units of the UAV cloud platform (i.e., the Raspberry Pis). In addition, this equipment encompasses the case used to attach the compute units (i.e., the Raspberry PIs or RPis) to the UAVs.
MacBook Pro	Apple		Commodity laptop utilized during the experiment to obtain and gather the results as described in the manuscript.
ns-3 Network Simulator	nsnam		(Software) A discrete-event simulator network simulator which provides the underlying communication substrate to the emulation station explained in the "Protocol" section (more specifically in the step "2. Validate the functionality of the softwarization units via

			Emulation"). Source-code available online: https://www.nsnam.org
Open Source MANO (OSM) - Release FOUR	ETSI OSM - Open source community		(Software) Management and Orchestration (MANO) software stack of the NFV system configured in the experiment. Source-code available online: https://osm.etsi.org/wikipub/index.php/OSM_Release_FOUR
OpenStack - Release Ocata	OpenStack - Open source community		(Software) Open source software used for setting up both the UAV cloud platform and the core cloud within the experiment. Source-code available online: https://docs.openstack.org/ocata/install-guide-ubuntu
Ping	Open source tool		(Software) An open source test tool, which verifies the connectivity between two devices connected through a communications network. In addition, this tool allows to assess the network performance since it calculates the Round Trip Time (i.e., the time taken to send and received a data packet from the network). Source-code available online: https://packages.debian.org/es/sid/iputils-ping
Power Edge R430	Dell		High-profile computer server which provides the computational capacity within the core cloud platform presented in the experiment.
Power Edge R630	Dell		Equipment used for hosting the virtual machine (VM) on charge of executing the MANO stack. In addition, the OpenStack controller node is also executed as a VM in this device. Note that the use of this device is not strictly needed. The operations carried out by this device could be done by a lower performance equipment due to the non-high resource specifications of the before mentioned VMs.
Prestige 2000W	ZyXEL		Voice over IP Wi-FI phone, compatible with the IEEE 802.11b wireless communications standard. This device is utilized to carry out the VoIP call through the network service hosted by platform described for the execution of the experiment.
Raspberry PI. Model 3b	Raspberry Pi Foundation		Selected model of Single Board Computer (SBC) used for providing the computational capacity to the experiment's UAV cloud platform.
SIPp	Open source tool		(Software) An open source test tool, which generates SIP protocol traffic. This tool allows to verify the proper support of the signalling traffic required in an IP telephony service such as the one deployed in the experiment.

			Source-code available online: http://sipp.sourceforge.net
Tcpdump	Open source tool		(Software) An open source tool that enables the capture and analysis of the network traffic. Source-code available online: https://www.tcpdump.org
Trafic	Open source tool		(Software) An open souce flow scheduler that is used for validating the capacity of the network service deployed to process data traffic generated during an IP telephony call. Source-code available online at: https://github.com/5GinFIRE/trafic