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Progress and achievements in WP*22 FIWARE Lab Setup and Operation*

1. Progress towards objectives and details for each task

WP Objectives:

The main goal of WP22 is to coordinate the overall operations of FIWARE Lab nodes (including activities for supporting end users and the deployment of new nodes), as well as to provide support and monitoring for FIWARE GEris running in FIWARE Lab.

The main objectives of this WP are:

- Coordination of the operations on and maintenance of existing FIWARE Lab nodes, aiming at achieving and ensuring service level availability above 95% threshold.
- Coordinating and facilitating the deployment of new nodes within FIWARE Lab.
- Provide Level 1 to Level 3 Help Desk support (Mon-Fri 8:00-17:00) to FIWARE Lab end users.
- Coordination of Jira Help Desk channel, aiming to solve as much issues as possible, respecting ticket resolution time and response time agreed threshold.
- Managing the process related to the Community Account requests.
- Providing support for and monitoring FIWARE GEris running in FIWARE Lab nodes.

WP tasks and interrelations:

Both the tasks of this Work Package - T2.2.1: FI-Lab nodes coordination, and operation and support and T2.2.2: FI-services operation and support - are strictly interrelated with Work Package 21, as they make use of the monitoring tools developed in WP 21 in order to improve the experience of the different FIWARE Lab nodes and GEris.

Strong interrelations also with all other FI-Core technical Chapters, since GE Owners have to give within WP22 support to FIWARE Lab users willing to use their GEs installed and available within the FIWARE Lab.

Main Progress in the period:

During this reporting period FIWARE Lab operations office performed a number of activities

to coordinate FIWARE Lab operations and to supply support to end users. Several challenges were overcome. The most relevant one was to ensure the usage and performance of FIWARE platform to an ever-growing public composed by startups, SMEs, Web entrepreneurs and developers all around the world.
As a matter of fact, in March 2015, more than 9.000 users joined FIWARE lab, but hardware and physical resources available resulted not to be enough, and this brought FIWARE Lab to perform not as good as expected and wanted.

The need to recover this issue as soon as possible and the understanding that a more commercial approach should have been taken, brought to set-up a dedicated “Task Force”. It was decided to start in advance (in April 2015 - M8) WP22 activities that were planned to begin only in September 2015, since the operations on the nodes were carried out by the XIFI project and, according to the DoW, should be covered in FI-Core only after the end of XIFI.

All the activities performed within this Work Package were handled through a full cooperation with the XIFI team. During this period started and was progressively carried out, thanks to the help and support of XIFI team, a handover between XIFI and FI-Core concerning the operations on the FIWARE Lab.

The Task Force team (composed by XIFI and FI-Core partners) addressed a number of issues through daily meeting and daily activities for almost three months. A lot of enhancements were identified and implemented in order to improve the usability and availability of FIWARE Lab, that is what actually happened. The most relevant actions undertaken concerned:

- new policies for managing the user account;
- increase of computing capacity;
- control of Trial Users;
- control over (limitation) the use of resources;
- upgrade of OpenStack;
- continuous assessment of the nodes part of the federation and usage of new monitoring tools;
- improvement of the support given to FIWARE Lab users through the Help Desk tool.

WP22 partners agreed to approach the evaluation of the availability and usage of FIWARE Lab nodes through positive or negative scores. The karma scores, defined and used within the FI-Core project, were definitely considered a reliable method to assess the performance of a node with objective metrics. For each node scores are computed, according to its health status, by evaluating given parameters:

- sanity check, performed every morning;
- presence in the infographics;
- resources usage.

As for the deliverables of this WP, it was agreed to unify the two deliverables due at M13 (D22.1.1 - FI-Lab nodes coordination, and operation and support yearly report and D22.2.1 - FI-services operation and support yearly report), into a single deliverable:D.22.1.1 FIWARE Lab coordination operation and support report.

Task 22.1 FI-Lab nodes coordination, operation and support

Task Objectives:

The main objective of this task 22.1 are:

- Coordinate the deployment, integration and federation of FIWARE Lab nodes.
- Give support for additional FIWARE Lab nodes deployment.
- Coordinate with the XIFI team to ensure the operation of the nodes and level 2/3 support (provided by FIWARE Lab nodes).
- Level 1 support to FIWARE Lab users.
- The deployment and operation tools will initially rely on the XIFI FIWARE Ops and, later on, will adopt the new releases developed in WP2.1. This task will ensure that the transition will be transparent for the system administrators and end-users.
- Level 3 support to the system administrators of FIWARE Lab (provided by FIWARE GEis owners).

Task Activities during the period:

The breakdown of the **contribution, results, deviation and proposed corrective action** of each partner in this task 22.1 are:

- **01-TID:**
  Contribution and results:
  - Finalisation of the setup of the OpenStack Juno installation in Spain2 node and stabilisation of this node due to Distributed Virtual Router problems in Juno.
  - Installation and configuration of CEPH and integration with Swift in Spain2.
  - Support in the maintenance process to increase the node capacity during this period of time.
  - Providing Level 1 to Level 2 support for the FIWARE Lab node in Spain where 449 FLUAs and 713 HELP-DESK tickets were solved.
  - OpenStack Juno Migration in Spain2 node.
  - OpenStack Kilo Migration in Spain2 node.
  - The new implementations of Pegasus - PaaS Manager, Sagitta - SDC Manager, Bosun - Policy Manager, Sextant - Monitoring GE and Murano (R4) was deployed in FIWARE Lab like global instances and was provisioned for the R4.
  - TID provided support for users that approached to the pre-R4 release images of the different GE(r)i on the FIWARE LAB infrastructure.
  - Help in the configuration, testing and federation of the FIWARE Lab Mexico node and FIWARE Lab Sao Paulo node (Brasil).
  - Help in the configuration and testing of the FIWARE Lab Uberlandia node (Brazil) and FIWARE Lab Netherland node.
  - Support to old FIWARE Testbeds: GE and UC testbed maintenance and operation.

- Spain and Spain2 support and operation.
- Moving resources from datacenters in order to prepare migrations.
- Security: Detecting and stopping intrusions and abusing use of the Spanish FIWARE Lab nodes.
- Deleting old users who did not accept the new Terms and Conditions.
- Deleting resources associated to the expired Trial Users account.
- Collaboration in design of the new network topology for the Spain2 node.
- Weekly security analysis of vulnerabilities in all the FIWARE Lab Spain2 node and global instances deployed on it and corrective actions to resolve them.
- Support for upgrading users into community account.
- Generate Tips&Trips of the different OpenStack migration to be used to the rest of FIWARE Lab nodes.

Deviation and proposed corrective action:

- No deviation in this reporting period

- **02-Orange:**
  Contribution and results:

  - Maintenance of the EspR4FastData/Cepheus instance
  - Support users with the use Cepheus
  - Maintenance of the Cepheus image, dockerisation.
  - Regarding support for the French nodes of FIWARE Lab, there was no specific request during the period
  -

  Deviation and proposed corrective action:

  - Involvement will be improved in Year 2 with the creation of Orange FIWARE Lab node
- **03-TI:**
  Contribution and results:

  - As all the GEris owned by TI were new in the course of R4, there were no actions required to support the deployment and integration in FIWARE Lab of GEris developed in previous releases.
  - Support in the definition of initial verification for integration of GEris implemented in FIWARE R4, in close conjunction with activity of partner Consoft.

  Deviation and proposed corrective action:

  - Due to the recommendations by EC to stop the development of GEris provided by TI, taken at the FI-Core review meeting in July 2015, their support in FIWARE Lab was finally dismissed.

- **04-IBM:**
  Contribution and results:

  - Maintenance of the CEP global instance: update the instance and make sure it is available for experiencing with the CEP technology.

- Support users with the use of the CEP instances deployed in the FIWARE lab
- Maintenance of the CEP images.
- User Support and Maintenance of OpenStack Swift
- User Support for user that want create Docker Hosts on FIWARE, based on the guide the IBM published.

Deviation and proposed corrective action:

- No deviation in this reporting period

- **05-ConSoft:**
  Contribution and results:

  - Participation to the meeting calls.
  - Verification for the deployment and integration of GEris to FIWARE Lab.

  Deviation and proposed corrective action:

  - Activities involving ComSoft started in M11 instead of M7, for this reason the effective effort is lower than planned.
  - The related activities has been dismissed due to the recommendations by EC to stop the development of the new GEris, consequently the FIWARE Lab integration was not finalized.

- **06-E-IIS:**
  Contribution and results:

  - E-IIS is work package leader and leader of this task, thus coordinated all the related activities.
  - Leading the FIWARE Lab Task Force meetings, where decisions taken led to significant and visible results with respect to the usability and availability of FIWARE Lab (as described sections Main Progress in the period and Significant results). E-IIS has been responsible of those meetings since April 2015. The meetings had a daily frequency for almost 3 months and then, at M12 when an acceptable and normal level of availability of FIWARE Lab resources was restored, it was agreed to have a weekly frequency.
  - E-IIS is coordinating the Nodes management since M12, being also responsible of weekly meetings for the coordination of activities and for regular checks of the status of all nodes belonging to the federation.
  - Support and help were given to the nodes owners for the deployment of new nodes.
  - Coordination of the process for migrating resources among nodes.
  - Coordination of karma score calculation for the nodes.
  - E-IIS used the monitoring tools to check the status of the FIWARE Lab and eventually understand possible critical events and situations t be recovered.
  - Leading and responsible of the coordination and communication among WP22 and others WPs, as well as drafting Deliverables and any other official documents.
  - E-IIS is administrating the following Mailing Lists: fiware-lab; fiware-lab-help; fiware-lab-federation-node; WP22-list.
  - E-IIS took care of the editing and delivering of the “D.22.1.1 FIWARE Lab coordination operation and support report” (submitted on time in

September), since it was agreed to have a unique report to be delivered instead of the two deliverables due at M13 as per DoW (D22.1.1 - FI-Lab nodes coordination, and operation and support yearly report and D22.2.1 FI-services operation and support yearly report).
  - In addition, as owner of the SpagoBI GE, the activities performed in order to make available SpagoBI GE within FIWARE Lab were:
    - Creation of Chef recipes and blueprints for FIWARE Lab.
    - Creation of a Data Visualization Framework - SpagoBI image to be available within the FIWARE Lab.
    - Support for GE utilization to the users/developers.

Deviation and proposed corrective action:
  - No deviation in this reporting period

- **07-TCS:**
  Contribution and results:

  - A very small contribution mainly as observer.

  Deviation and proposed corrective action:
  - The GEs were available only at the end of the first period. the consequence was that the most part of this effort was postponed in the second year.

- **08-TS:**
  Contribution and results:

  - Maintenance of the AuthZForce (Authorization PDP GEri) instance: scripts provided for automatic status monitoring by FIWARE Lab monitoring framework.
  - Registration and support of new users to access the Authzforce global instance.
  - Maintenance of the Authorization PDP GE FI-Lab image.
  - Support users of the Security Monitoring GEri.

  Deviation and proposed corrective action:
  - Due to the recommendations by EC to stop the development of CyberSecurity GEris provided by TS, taken at the FI-Core review meeting in July 2015, their support in FI-Lab was finally dismissed.

- **09-ATOS:**
  Contribution and results:

  - ATOS attended all the follow up calls and started the preliminary reading and plan the work for this WP.

  Deviation and proposed corrective action:
  - Activities involving ATOS started in M13 (at the end of it) for this reason we

have not reported efforts in this WP.

- **10-NEC:**
  Contribution and results:
  - During a visit of XIFI Partner ISSG NEC discussed FIWARE Lab operation issues with them to prepare own support of the FIWARE Lab after M12.
  - NEC maintained the IoT Broker testbed/filab instances

  Deviation and proposed corrective action:
  - No deviation in this reporting period

- **11-CREATE-NET:**
  Contribution and results:
  - No activities in the period considered because all the activities related to the FIWARE Lab nodes have been carried out in the context of XIFI project.

  Deviation and proposed corrective action:
  - No deviation in this reporting period

- **12-CYBER:**
  Contribution and results:

  - Created Blueprint template and Images for GE that are provided by CYBER. The GE implementation offered by the partner are now available for automatic deployment in the FIWARE LAB infrastructure.
  - Provided support for the GE deployments in FIWARE LAB. Recipes for Blueprints were improved based on user feedback.

  Deviation and proposed corrective action:
  - No deviation in this reporting period

- **13-ADMINO:**
  Contribution and results:

  - Created Blueprint template and Images for GEs that are provided by Adminotech. The GE implementation offered by the partner are now available for automatic deployment in the FIWARE LAB infrastructure.

  Deviation and proposed corrective action:
  - Blueprints and Images for POI GE were delayed, help from other GE owners and partners brought it back on track.

- **14-ET:**
  Contribution and results:

  - Participation in meeting calls.
  - Work done towards maintenance planification and re-planification.
  - The planification has been done to provide support and monitoring for FI-ROS running in FIWARE Lab nodes.

Deviation and proposed corrective action:

- Due to the recommendations by EC to stop the development of FI-ROS GEris, taken at the FI-Core review meeting in July 2015, their support in FIWARE Lab was finally dismissed.

- **15-OKF:**
  Contribution and results:

  - Work has been done to make CKAN extensions used by FIWARE lab conform with CKAN's latest version.
  - Work has also gone into making CKAN 2.3 deployable via FIWARE lab's chef scripts (as part of GEi implementation).
  - Support users with the use of the CEP instances deployed in the FIWARE lab

  Deviation and proposed corrective action:
  - No deviation in this reporting period.

- **16-EPROS:**
  Contribution and results:

  - No contribution yet

  Deviation and proposed corrective action:

  - During the first months of FI-Core we were concentrated in the development and publication of the Advanced Middleware GE (WP 18). At this point we are starting with the other WPs. No corrective action required.

- **17-Naevatec:**
  Contribution and results:
  NAEVATEC activities in this WP have been concentrated on providing the appropriate tools, software artifacts and support for maintaining the Stream-oriented GEri (aka Kurento) facilities in operation. This has involved the following efforts.
  - Creation and maintenance of FILAB Kurento images: different images associated to different Kurento versions have been created and made available FILAB developers.
  - Creation of FILAB Kurento blueprints: NAEVATEC has led the creation of Kurento blueprints templates for the FILAB.
  - Maintenance of Kurento global instance: NAEVATEC has contributed to maintaining in operation a Kurento global instance in the FILAB for demonstrating Kurento capabilities.
  - Maintenance of bundle blueprints: NAEVATEC has contributed to maintaining bundle blueprints for Kurento+Orion.

  Deviation and proposed corrective action:
  - No deviation in this reporting period.

- **18-URJC:**

Contribution and results:

URJC activities in this WP have been concentrated on providing the appropriate tools, software artifacts and support for maintaining the Stream-oriented GEri (aka Kurento) facilities in operation. This has involved the following efforts.

- Creation and maintenance of FILAB Kurento images: different images associated to different Kurento versions have been created and made available FILAB developers.
- Maintenance of FILAB Kurento blueprints: URJC has contributed to maintaining Kurento blueprints providing fixes and optimizations.
- Maintenance of Kurento global instance: URJC has contributed to maintaining in operation a Kurento global instance in the FILAB for demonstrating Kurento capabilities.
- Maintenance of bundle blueprints: URJC has contributed to maintaining bundle blueprints for Kurento+Orion.

Deviation and proposed corrective action:

- No deviation in this reporting period.

- **19-UPM:**

Contribution and results:

- Maintenance and upgrade of the FIWARE Lab user, organizations and regions database into the Keyrock identity manager.
- Different optimizations on the FIWARE Lab deployment regarding the cache for the different identification tokens in order to speed up the platform.
- High availability deployment for the cloud portal and the identity manager.
- Support for the Spain to Spain2 deployment.
- Support in the maintenance process to increase the node capacity during this period of time regarding the authentication process.
- Adaptation and databases modification to support the different type of FIWARE Lab users and regions.
- Attending audio-conferences regarding some optimizations for the response times for FIWARE Lab and to improve them.
- Attending audio-conferences regarding the maintenance of FIWARE Lab.
- Support for Keystone-Keyrock migration in OpenStack in different FIWARE Lab regions.
- Support for the Cloud, Store, Mashup, Data and Account portals at FIWARE Lab.

Deviation and proposed corrective action:

- No deviation in this reporting period.

- **20-ZHAW:**

Contribution and results:

During the first months of FI-Core we were concentrated in the development and publication of the Advanced Middleware GE (WP 18). There was no activity for GEi support required until the GEs were in the catalogue.

Activities in this chapter started for us not before October 2015 (M14) by transferring our activities on the Zurich FIWARE Lab node management and the transition from XIFI to FI-Core.

Deviation and proposed corrective action:

- No deviation

- **21-DFKI:**

Contribution and results:

DFKI has significantly contributed to the Lab operations via the discussions and sharing its experience in deploying Docker infrastructures (e.g. in FIcontent Lab, http://lab.mediafi.org). Furthermore DFKI maintained its GEs and added Bundles within the WebUI chapter. A significant part of the efforts was devoted to supporting the GEs by answering tickets and external questions. Regarding the latter, DFKI raised the better integrate the answering of external questions (e.g. through github or by direct email) into the ticket system.

- Created Blueprint template and Images for GE that are provided by DFKI. 3D-UI-XML3D and Synchronization - FiVES are now available for automatic deployment
- Created Blueprint bundles that encompass POI Data Provider, GIS Data Provider and 3D-UI-XML3D. Bundle creation helped to track down issues in the individual recipes, as well as limitations by the FIWARE LAB infrastructure.
- Maintained the existing GEs including adding Docker support.
- Provided support for individual GE, as well as bundle Blueprints, both for deployment and usage in the FIWARE LAB infrastructure

Deviation and proposed corrective action:

- “No deviation in this reporting period”

- **22-UNIROMA1:**

Contribution and results:

- The new implementation of OFNIC (R4) is intended to be executed locally as network controller; only a Docker image packaging solution was provisioned for the R4.
- UniRoma1 provided support for users that approached to the pre-R4 release image on the FIWARE LAB infrastructure.

Deviation and proposed corrective action:

- No deviation in this reporting period

- **23-UNIS:**

Contribution and results:

- Preparation and maintenance of Blueprint recipes for autonomous deployment of IoT Discovery GEi
- Preparation and maintenance of release images for autonomous deployment of IoT Discovery GEi.
- Integration and maintenance of IoT Discovery GEi with Wilma PEP proxy

(and it's subsequent upgrades) for authentication with Keyrock GEi running on the FIWARE LAB.
- Preparation of Nagios configuration files for remote monitoring status of GE instance.
- Preparation and maintenance of Docker image for IoT Discovery GEi
- Handling and Addressing technical help issues raised by testers/developers

Deviation and proposed corrective action:
- No deviation in this reporting period

- **25-Red.es:**
Contribution and results:

  - Spain and Spain2 support and operation ensuring service level availability above 99% threshold.
  - Maintenance of the biggest fiware node, Spain and Spain2 nodes.
  - Optical, Level2 and Level3 network operations. Because Spain node is a distributed infrastructure around several datacenter and the resources, servers and storage, are located in different cities , a level 2 network is configured through RedIRIS-NOVA for connecting the resources.
  - Support and operation of the VPN access service. This service allows to fiware nodes a way for ensuring the access to the MD-VPN network.
  - Operation and maintenance of the physical core infrastructure for supporting the fiware core services, including the provisioning of the new resources and support for migrations from Spain to Spain2.
  - Security: Detecting and stopping intrusions and abusing use of the Spanish fiware nodes. Analysing of the network traffic to fiware machines.
  - Improving the physical resources by increasing the memory of the servers at Malaga Node and Canarian node.
  - Improving the optical channels by providing redundancy at optical level.

  Deviation and proposed corrective action:
  - No deviation in this reporting period

- **26-ILB:**
Contribution and results:

  - Finalization of the setup and federation of the Lannion node in Juno. Migration of the existing user's environment from the node in Grizzly into the new node in Juno.
  - Doubling the node capacity in Juno by adding bare metal servers, used by the one in Grizzly.
  - Providing Level 1 to Level 2 support for the FIWARE Lab node in Lannion where 125 FLUA and 44 HELP tickets were solved.
  - Preparing upgrade of the node to Kilo

  Deviation and proposed corrective action:
  - No deviation in this reporting period

- **27-TNNET:**
Contribution and results:

- During second half of August the node has been restored in an IceHouse "Single-node" mode due to a upgrade failure performed in order to augment the node functionalities with the Object-Storage (container) feature, that was not supported by Keystone-proxy using CEPH as high availability storage.
- Partially performed migration to KILO in HA mode with Ceilometer and Murano. The node will not be configured with CEPH cause the problem about containers with Keystone.
- Backup procedures for openstack database and configuration files
- Bandwidth throughput improvements via best practices configuration of the infrastructure
- Security improvements with the activation of a brand new firewall infrastructure

Deviation and proposed corrective action:

- No deviation in this reporting period.

Task 22.2 FI-Services Operation and Support

Task Objectives:

The main objective of this task 22.2 is to ensure the operation and support of the FIWARE services running on the FIWARE Lab nodes.
The operation will be achieved by addressing the following SLAs:

- FIWARE Lab availability above 97% threshold.
- FIWARE Lab node availability above 95% threshold.
- Level 1 and Level 2 support, Mon to Fri, 8 am to 5 pm.
- Ticket response time below 24h for 98% of requests.
- Ticket resolution time below 48h for 95% of requests.

Any anomalous behaviour of GEis will be monitored and detected through the monitoring tools and proper feedback will be given to the GE owner.

Task Activities during the period:

The breakdown of the **contribution, results, deviation and proposed corrective action** of each partner in this task 22.2 are:

- **01-TID:**
  Contribution and results:
  - Support and operations in FIWARE core services.
  - Coordination and operations in migration of domain from fi-ware.org to fiware.org.
  - Migration from old CICA to new CICA infrastructure of the core services (Jira, Backlog, FIWARE Catalogue, Forge, Chef Server, Nagios (federation monitoring), Keystone, Bosun - Policy Manager, Wirecloud, Mashup, Data Portal, Cloud Portal, Account Portal, Help&Info Portal).
  - Awareness of certificates and installation of certificates.
  - DNS maintenance.

- Synchronisation of Glance images to all the FIWARE Lab nodes.
- Support to GE(r)i owners in the usage of FIWARE Lab and FIWARE Testbed.
- Check and support of GE(r)i recipes and support GE(r)i owners in the creation of recipes.
- Update in FIWARE Lab new GE recipes versions and blueprints.
- Check and support of GE(r)i owners in the creation of new GE(r)i images.
- Check scripts of installation and verification of the new created images based on base images.
- Generate of GE images based on the scripts provided by the users.
- Configure a Nagios instance in order to monitor all the FIWARE Catalogue instances.
- Monitor all the GE(r)is in order to detect any anomalous behaviour and give automatic feedback to the GE(r)i owner.

Deviation and proposed corrective action:

- No deviation in this reporting period.

- **06-E-IIS**

Contribution and results:

- Since E-IIS actually led this task during Y1 and coordinated all the related activities, it was asked to change the Task Leader in the DOW from TID to E-IIS, this will be formalized in the upcoming amended DoW.
- With respect to the Help Desk activities - starting since M8 - E-IIS coordinated all the activities about FIWARE Lab and Jira tickets created for issues concerning the Nodes. E-IIS controlled that all incoming tickets to Jira were addressed to the proper FIWARE team that could solve the issue, and pushed the ticket owners for prompt answers and solutions. Suggestions were given in order to improve the help desk process of Jira.
- For what concerns the Community Account Upgrade process that started at M10, E-II led and managed the Community Account approval process (for FIWARE Lab users not part of any Accelerator projects)and was responsible of filtering and judging all incoming requests, accepting trusted only.
- Since the beginning (M8) E-IIS has been providing 1st Level Help Desk support, being member and leader of Help Desk Lev1 team. E-IIS has been responsible for organizing shifts based on 8x5 working hours schedule, for providing support to end-users and for coordinating all the activities with the others Help Desk channels.
- All the activities within this WP have been carried out together with and with XIFI partners and considering a progressive handover between XIFI and FI-Core.

Deviation and proposed corrective action:

- No deviation in this reporting period

- **02-Orange** [Partner to fill this in]

Contribution and results:

- ...
- …

- …
- ...
- ...

Deviation and proposed corrective action:

- ...[Do not delete this section. If it is the case, you can write "No deviation in this reporting period"]
- …
- …
- ...
- ...

- **03-TI**

Contribution and results:

- The Level 1 to Level 3 support for data center services in the Trento formally started later in the period under evaluation. Moreover, this activity overlapped with XIFI project completion where the support was regularly provided, resulting in FI-Core resources unused during the period in subject.

Deviation and proposed corrective action:

- With the end of XIFI project in September 2015 (i.e. M13 of FI-Core) the contribution to the Task will be fully operative (i.e. since M14).

- **25-Red.es**

Contribution and results:

- Support and operations in machines where are running the core services.
- Support of the migration from old CICA to new CICA infrastructure of the core services.
- Redundancy of the infrastructure that improves the stability of the Spain/Spain2 nodes.
- Improvement of the server resources by increasing the physical ram memory.
- Improvement of the electrical facilities in fiware racks.

Deviation and proposed corrective action:

- No deviation in this reporting period.

- **26-ILB**

Contribution and results:

- Supporting users on deployment of instances based on Fiware GEs

Deviation and proposed corrective action:

- During this period, we couldn't provide monitoring support to the FIWARE GEs instances as Monitoring functions were not provided by the federation.

- **27-TNNET**

Contribution and results:

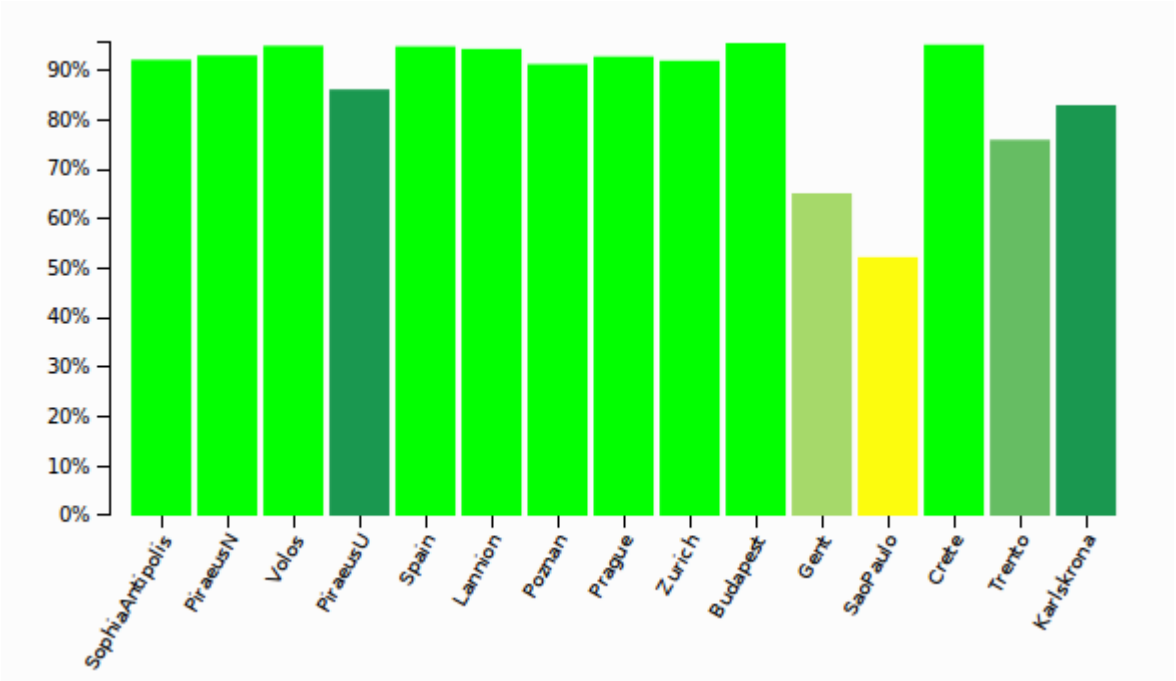
- In the last six months every ticket has been elaborated and closed in a short time : 127 total ticket counting FLUA ticket (FIWARE LAB Upgrade Account) and HELP ticket.
- When major critical events (fiber optic cut) happened, users were supported and informed about the situation; users were promptly informed when all the infrastructure were available again.

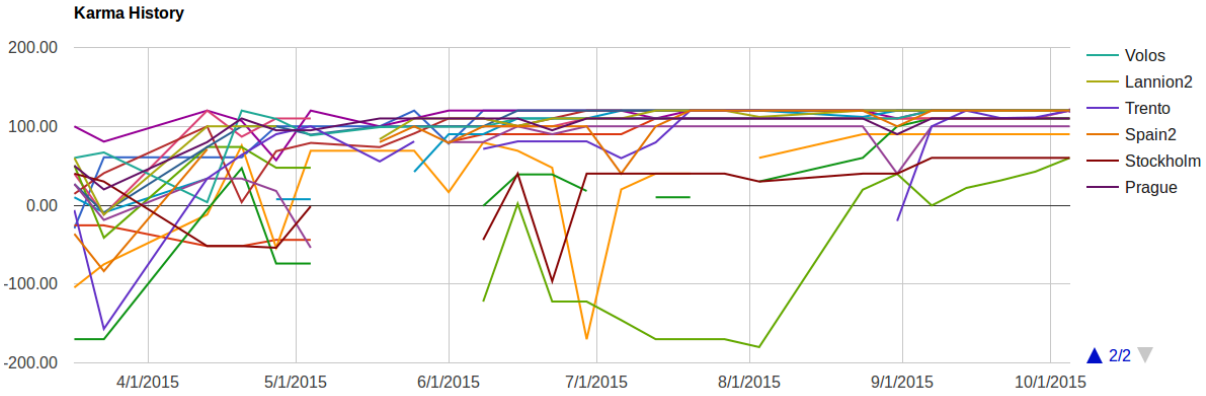
Deviation and proposed corrective action:

- No deviation in this reporting period

2. Significant results

- The definition and implementation of the two “Trial” and “Community” account types among new policies for the management of the user account, helped to reach the goal of freeing resources and avoiding inappropriate use of FIWARE Lab. Basically, all resources that were allocated to users who didn't accept the new user account management policies were to be freed and made available for other users.
- The computing capacity of Spain nodes is actually increased: a new Spain2 node was set-up with additional 500 available cores.
- The control and limitation over concurrent Trial Users reduced the risk of instability of the FIWARE Lab environment.
- The upgrade of OpenStack and Idm/Keystone brought to the upgraded nodes relevant improvements in terms of performance and user account management.
- The performance of the several nodes in the FIWARE Lab federation has been weekly assessed. Those nodes that were badly performing (e.g.: showing instability or low response to user's’ requests) were quarantined and their users (Community Users) were asked to migrate to one of the more stable nodes.
- In collaboration with FI-Core WP21, new monitoring tools - such as Health Check and Infographic - were created or enhanced in order to control, check, prevent and avoid issues on monitored nodes.
- Support was improved by introducing a new JIRA Help Desk management feature by reinforcing the Help Desk Level 1 team (from Monday to Friday 08:00-17:00).
- The Deliverable D.22.1.1 - FIWARE Lab coordination operation and support report was submitted on time (due at M13 and delivered on October the 2nd).
- During this reporting period the performance and reliability of the nodes improved according to the Karma scores evaluating procedure. All the nodes kept the monitored parameters within acceptable ranges, hence the improved performance of FIWARE Lab. In September 2015, all nodes founded under FI-Core (and most of XIFI nodes) had a Karma score higher than 100 points, thus showing a very good performance and availability (detailed values are available within Deliverable 22.1.1) as well as very good performance within the Fi-Health status tool (data from August 2015):





The high number of tickets handled during this reporting period can help in understanding the huge work done and good results made by the Help Desk team made up by the FI-Core and XIFI projects for FIWARE Lab users. All tickets are categorized in specific chapters and subchannels, according to their nature and recipients:

Chapter “Lab” includes issues related to internal and external FIWARE Lab users who want general information about using FIWARE, or technical help about GEs, as well as about accessing FIWARE LAB or using assigned resources.

Chapter “Account Upgrade” includes all those issues reported by external and internal users (not involved in Accelerator Projects) who needs to have active resources for almost 9 months. In order to obtain a Community Account, All users have to provide valid and evident feedback, such as demo or proof of concept about their project idea. Below some concrete numbers:

- FIWARE Lab tickets handled by Help Desk Team and nodes owners for FIWARE Lab issues:

    - Until M7 (WP2.2 not started yet) 884 tickets were opened and 770 solved with a percentage of 87%.
    - At M13: 1579 tickets were opened and 1544 solved with a percentage of 97,8%.
- FIWARE Lab tickets handled by the Help Desk Team and the GEis owners to ensure support about GEis issues:
    - Until M7: 425 tickets were opened and 336 solved with a percentage of 79%.
    - At M13: 839 tickets were opened and 983 solved with a percentage of 85,3 %.
- FIWARE Lab tickets for Community Account Upgrade requests (nor part of any Accelerator project):
    - From M10 to M13: 167 tickets were opened and 141 solved with a percentage of 84.4%
- FIWARE Lab tickets for Community Account Upgrade requests handled by nodes (including request from Accelerator Programme):
    - From M10 to M13: 326 tickets were opened and 312 solved with a percentage of 96%.
- FIWARE GEs:
    - Currently 40 GEis are available to FIWARE Lab users and can be installed through a manual installation, and 30 GEis are available and can be installed by means of built-in images and Blueprint templates.
- FIWARE Lab at M13:
    - More than 4000 users joined FIWARE Lab.
    - Around 800 users have actually an active Community Account.
    - More than 3000 cores
    - 9000 GB of RAM
    - 400 TB of disk space
    - 5600 public IPs
    - 1500 VMs
    - 19 nodes (PiraeusN, Prague, Budapest, Zurich, Trento, Karlskrona, PiraeusU, Lannion, SophiaAntipolis, Berlin, Volos, Gent, Stockholm, Poznan, Spain-1/2, Mexico, Crete, Waterford, San Paolo)

3. Deviations from Annex I and impact on other tasks, available resources and planning (if applicable)

What could be reported as a slight deviation from the plan with respect to the previous DoW is the critical issues related to the FIWARE Lab resources that occurred at the beginning of 2015 and brought to set-up a dedicated task force to solve the problem. This critical situation was one of the main reasons that forced to spend a huge amount of effort within this WP already during Y1 of the FI-Core project, that's why it was agreed for anticipating the start of WP22, moving it from M13 to M8 (change implemented with the new amended DoW).

4. Reasoning for failing to achieve critical objectives and/or not being on schedule (if applicable)

Objectives of this Chapter were achieved.

5. Use of resources

Please refer to section **YYY** where all the details are consolidated and broken down by partner and chapter.

< For the partners editing this doc: this will contain a reference to the section where we will consolidate the inputs that you have provided on

https://docs.google.com/document/d/1MiWVD9b4zoo6TgSDtArjV5Fpi8MXUI23wX17tlWQKOM >

6. Corrective actions proposed (if applicable)

As stated in the previous paragraphs, in order to address the issues related to the availability and usage of FIWARE Lab that arose at the beginning of 2015 a dedicated Task Force (together with the XIFI project) was set up, which held regular daily meetings to agree on efficient solutions that were applied and successfully led to a good level of usage of the FIWARE Lab.