



LOW Power Heterogeneous Architecture
for NExt Generation of SmaRt Infrastructure and Platforms
in Industrial and Societal Applications

Meeting minutes 2



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EXECUTIVE SUMMARY

This deliverable reports the meetings and the phone call of the OPERA project consortium for the period between M11 and M20. The consortium put a specific attention to the organization of events and discussions for specific topics, and for general discussions. Several meetings have been organized in addition to the ones originally defined, in order to improve and accelerate the progresses on specific topics and to monitor strictly any deviation from the plan.

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1 GENERAL ASSEMBLY MEETINGS

1.1 EDINBURGH F2F SEPTEMBER 2016

During the F2F in Edinburgh held in September 2016, the consortium discussed the progress of the project, evaluated the actions to be taken, respect to the development of the use cases and the power measures, among all the other actions required for the WPs, and prepared the activities for the incoming first review of the project. This meeting has not been presented in the first deliverable devoted to meetings and calls, the D1.5 because it was not consolidated at the time of release of the deliverable (end of September 2016).

The WP1 activities have bene presented, in particular regarding the expenses and effort allocated.

The deliverable list has been reviewed by the consortium.

The progress on the three use cases definition has bene presented.

1.1.1 Truck Use case

- First activities was on equipment choices for OPERA (hardware to be substitute)
- Decided technology for energy measurements
- Decided to use open source software MICMAC (developed by IGN) software was selected.
- Decided to move some part (Picture analysis on FPGA) so open source code and make porting of some parts.
- Show the new general architecture and test use case evaluation with selected photos.
- Time of elaboration is the major improvement, first validation on laboratory

ACTIONS: check if it's possible to move also network functionality on moonshot

1.1.2 Traffic monitoring Use case

- Use case scenario presentation. Issues are collect and analyze data. First analysis was on the video processing functionalities:
 1. traffic congestion,
 2. cycle,
 3. wrong way
 4. counting, (approximation)- touristic cycle counting
 5. Video-surveillance

The description of the use case summarized after the discussions has been:

- congestion plus wrong way: smart vision and send alarm to Road management center
- Cycle detection and counting: alarm message for cycle in tunnel and give advertisement at the entry of the tunnel. Counting cycle for statistics to send to Road management center.
- Presentation of first functional requirements
 - Lightness, compactness of the global installation including the energy harvesting and storage system (related to the expected energy efficiency)
 - Video detection and cycle counting requirements (no detection rate, false detection rate, accuracy)
 - Video specification of video stream used to dispel doubt
 - Environmental constraints
- First proposal in term of test sites

1.1.3 Virtual Desktop use case

- Requirements analysis for defining technology host applications
- Citrix platform for use case validation, targeted with moonshot and power 8.
- Openstack as main platform with migration applications between power 8 and moonshot.
- Strategy concerning measurements
- as strategical behavior an intermediate step will be setup

1.1.4 Technological design next generation server

- Progress on bring FPGA devices into HPE small form factor data center and acceleration on heterogeneous architecture.
- Design card and porting of MICMAC application to Moonshot, involvement of MIMAC community
- Integrate and test accelerator with IBM platform and mixing moonshot with Power 8.
- 6.1: technical analysis and specification of FPGS/SoC architecture.
- 6.2: implementation of FPGA/SoC design and OpenCL support package.
- 6.3: testing key elements and card evaluation and for wp4 integrate a support package for energy monitoring.
- 6.4: design new chassis m510 16 core 128g 70W full load, new firmware for OPERA for be reactive to energy monitoring. New moonshot chassis useful for truck. 2 cartridge on small and 4 on traditional. Integration on heat 55 degree Celsius. NO FAN AC DC power supplies.
- Investigation for porting of Micmac functions on FPGA
- May be we can use the moonshot on the Truck (baby solution) and traditional existing solution on the truck.

1.1.5 Energy efficiency

- Analysis target for OPERA improvements
- Actually NO EXISTING METRICS for heterogeneous systems, analysis of SPEC power benchmark.
- Issue target, industry improvement is ONLY 2 fold NON 4 according KOOMWEY LAW
- According to EC annex 6 on resources efficiency indicators and targets. RACER criteria.
- Definition of:
 - truck metrics,
 - orthomap,
 - Traffic management camera METRICS, compare energy efficiency OPERA camera compare to existing wireless camera configuration
 - VDI metrics

1.1.6 Technological design on Ultra Low Power systems

- Presentation of the ORLANDO FPGA emulator for using CNN algorithm.
- Promising technology
- Discussion around power 100 mW is the Use case target. OPERA need to target a compromise between High resolution and power consumption.

ACTION: define consumption for each component and make a choice. Define the total consumption for ULP System. Battery + Smart vision + processor + communication + solar panel

The formal review of each work package has been conducted, in preparation to the first review.

1.2 TURIN MARCH 2017

In March 16th and 17th 2017 an additional F2F has been organized, in order to monitor more strictly the progress of the activities and improve the collaboration between the partners.

In the Wp1 context the effort tables and potential deviations have been presented and discussed by involved partners. The list of deliverables to be reviewed and to be submitted has been properly discussed, and the status presented.

The actions taken in order to answer to the recommendations received from the first review have been analysed and the corrections defined.

A particular focus has been expressed on the lesson learned activity that should be conducted during all the project, and collected in specific deliverables.

The meeting has been splitted in thematic sessions that are more focused on specific aspects of the project.

Several new meetings have been planned in order to focus on specific topics that will involve all the partners. A preliminary Gantt of the meetings has been presented and discussed.

The two main actions planned in terms of dissemination have been presented:

- ISC invited workshop
- CSW HiPEAC workshop we would like to organize

The consortium decided also to create a brochure for the project, maybe one from the industrial viewpoint and another one for the scientific aspects.

Nallatech provided some updates on the next generation server and FPGA acceleration:

- The main idea is to have a very heterogeneous system in a box combining X86, ARM, FPGAs
- The FPGA can act both as a bridge between moonshot and firestone, and as a per se accelerator
- The FPGA combines ARM cores w/ reconfig. logic, 40Gbit/s interface w/ optical link capabilities
- The FPGA can be programmed w/ OpenCL
- The FPGA used in the project can integrate also the CAPI mechanism used by the IBM firestone.

The models used to evaluate the energy efficiency of the OPERA systems have been presented.

The basis for starting the development is the RACER model. He also presented a set of energy parameters that we should consider to evaluate the efficiency. One important aspect is the definition of energy efficiency in terms of "work done per energy unit" where energy unit can be measured in Joule.

One important point on the VDI use case has been highlighted: what OPERA wants to innovate is not moving the standard computer (fat clients) w/ thin clients (this is something that already is ongoing), on the contrary we want to innovate in the server infrastructure. To this end, OPERA introduces a more scalable (hyper-converged solution) solution server that is capable of increasing the number of user managed by a single server, thus reducing a lot the energy required to run virtual desktops (for the current number of users) or, in other words, it will possibly increase the number of virtual instances managed within the same datacentre (DC). It is also important to note that in the "computation" we need to put boundaries in the system we want to monitor: only server infrastructure (maybe with networking system accelerated by dedicated acceleration boards --- e.g., FPGA with NVF and SDN functions), thus keeping out distributed storage system of the datacentre.

For the traffic monitoring use case the necessity of taking into account for computing the energy efficiency, also the energy consumed in the remote control room (traffic management center) has been highlighted. In this way the full impact of the OPERA solution of the power saving can be correctly evaluated.

CSI introduced the VDI use case: we can use for the demonstration purposes to access through a VPN the moonshot system available in the CSI datacentre. CSI also presented the baseline system with its related power consumption and the expected power consumption (greatly reduced) that we expect from using moonshot system(s). The power target is calculated considering a base of users equals to (around) 200 users.

STM introduced and briefly provides some main features of the Orlando platform in terms of architectural design.

In Orlando system, the video analytics is based on the implementation of an architecture used to accelerate a neural network. STM explained that the Orlando SoC has a larger set of DSP cores plus ARM Cortex M4, where the DSP cores can accelerate the NNet (specifically the CNN) operations: e.g., they implement the MAC operations ($16 \text{ cores} * 2 \text{ MAC ops} * 2 \text{ instructions/op} = 75 \text{ Gflops}$).

Several details for the installation of the traffic monitoring devices in the real life scenario has been discussed. Several issues weren't considered from the beginning, so some fixes were needed in the mechanical adaptation of the container.

The integration of the local processing node and the moonshot based server has been discussed and analysed.

HPE presented a demo of the moonshot new version and tool used to manage it. Current tool is based on the RedFish standard. The system has some bash scripts that can extract some metric (cpu load, memory, etc.) every 5 seconds (this is the minimum granularity with the current firmware version). Finer granularity can be extracted if a special firmware will be available. Each cartridge has a power management that comes from RedFish centralized system, since it integrates a dedicated on board BCM. Each cartridge is paired 1:1 with a PCIe acceleration card (FPGA). But since the FPGA card has optical links, one cartridge can access directly to the PCIe paired card and then to a second one using the optical link.

1.3 GRENOBLE JUNE 2017

The general assembly meeting planned in the original description of Action has been organized in Grenoble the 14th and 15th of June 2017, hosted by HPE.

1.3.1 WP1

In the context of WP1 the management actions taken after the first review have been evaluated, in order to check the last issues before the review. The main topics considered have been related to:

- 1) Status for effort and budget of each partner
- 2) Focus on underspending of some partners and reasons
- 3) Check of the final official finance statements status
- 4) Lesson learned about the guidelines for deliverables internal review
- 5) Deliverables status review

The presentation of WP1 has been reviewed in order to prepare the second official review.

1.3.2 WP2

The main focus on WP2 has been about the results of the redefinition of the baseline for the project and the discussion about the collection of the lesson learned from the use cases, already running.

A specific discussion has been held in order to review the recommendations received from the first official review and to evaluate the adoption of them in the project.

1.3.3 WP8

The activities for the organization of the Hipeac participation and the workshops has been presented.

The final brochures, from the industrial and academic perspectives, have been presented to the whole consortium.

1.3.4 WP7

1.3.4.1 *Traffic monitoring UC*

The estimation of the power consumption of the various elements has been adjusted based on the first measures of real power consumption in the various scenarios.

The methods and tools for the power metering of the traffic monitoring device has been discussed.

The partners decided to postpone the wrong way detection to the second stage of validation.

The issues related to the first installation site has been discussed and some corrective actions for the second site proposed.

1.3.4.2 *Track UC*

The results of measures have been presented. Some indications about the applications used for the testing has been highlighted, in order to compare properly the baseline with the actual implementation.

1.3.5 WP6

The status of WP6 and the presentation for the review has been discussed.

1.3.6 WP4

The WP4 status and the adoption of recommendations have been presented.

The preliminary measurements of power consumption and efficiency evaluation in the three use cases have been analysed.

A specific meeting for WP4 should be organized in order to harmonize the contribution of all the partners and the WPs in the WP4 context that should be considered the central activity for the next part of the project. The metering of a heterogeneous system as in the traffic monitoring use case has been discussed.

2 TECHNICAL SPECIFIC MEETINGS

2.1 CRETEIL OCTOBER 2016

Neavia and STM organized a training session for the integration of the software developed by the Neavia in the SecSoC ST platform. During the meeting several considerations about the progress of the activities with respect to the computing continuum and the evolution of the hardware platform have been discussed.

2.2 GRENOBLE NOVEMBER 2016

In November 2016 a technical meeting has been organized in Grenoble, hosted by Departement de L'Isere, between all the partners involved in the WP3 activities. The main actions and discussions are listed in the following paragraphs.

At the beginning the Department de L'Isere internal structure has been presented, in order to identify contributors and stakeholders of the OPERA activity.

The selected use cases for the video surveillance have been described and the boundaries have been provided.

The Department covered area in terms of roads, traffic and management have been described.

The first testing site is 15 km North of Grenoble in Lyon direction, in the most crowded way of the region.

In this site we will have wired connection to power grid and communication infrastructure as support for the first stage of testing.

On open question is the possibility to have a high rate connection to the sensor node for debugging and Firmware Over The Air (FOTA) updates during debugging on site (NEAVIA). The need of ISERE is to have a high bandwidth connection for high resolution streaming.

The proposed solution of a 3G modem has been debated in detail. The Pros are:

- The availability of the signal in any place (not only first site)

The cons are:

- The 3G module is not suitable for a low power device. It should be removed from the final prototype
- The implementation of a software module for the use of this device can take some time, and it is preferable to find out another solution

For the actions it has been decided to anticipate by a month the plan. The installation should be performed within M17 (April 2017) and the next two months will be devoted to testing and debugging in real life scenario. The activity should be completed for June 2017 (M19). Delaying in July can be dangerous, since the availability of all the key partners all the time is not guaranteed.

The architecture first design has been defined.

One node will represent the processing element (node A). One other node will provide only the reconfigurable Antenna receiver (node B).

The two nodes are connected together only with the reconfigurable antennas.

The Node A will be connected to a mini PC running a Linux distribution the SecSoC toolchain and a VNC server for the remote debugging. This device will be connected to the ISERE network and will be accessible only to ISERE and NEAVIA

The second node will be built with a Wi-Fi module, the antenna, a Nucleo base board, and an Ethernet expansion. Through the Ethernet port the node will be connected to a 3G Router in order to send the received data from node A and validate the entire solution.

The installation on the 2 poles of the ISERE testing site will be responsibility of TESEO. The needed authorizations would be checked by ISERE. The open question is the final weight and size of the nodes to check if they can be mounted on the existing poles.

ISERE requested for the possibility to activate from the control center a given camera to retrieve the current video. The main difficulty here is the possibility to have the receiver always working. It could consume too much power and disrupt the ULP system functionality. Some power consumption figures will be provided by ISMB.

Another possibility is to regularly switch on the receiver and check any incoming message. This solution implies a possible long latency and needs that the transmitter continuously transmit the request until is received.

The power grid access should be guaranteed to the sensor node for debugging purposes. The full autonomy is not guaranteed with the first prototype.

A direct connection of the SecSoC is needed also for the installation. For TESEO is required a video streaming from the camera during the installation in order to properly place the camera on top of the pole oriented in the correct way.

Several action point have been defined:

ISMB: provide numbers for different versions of solar panels and provide a description of compatible batteries for different solar panels.

ST: provide the Nucleo system with Ethernet and connection to a commercial 3G router

ST, ISMB, ALL: evaluate the data size required for the 3G router (the data transferred by the antenna is the same)

ISERE: Buy the SIM card needed for the data transfer when the data rate estimation is available

ISMB: provide some rough measures of power consumption of the actual communication module (receiving and transmitting modes)

TESEO: with the input of other partners provide an estimation of weight and size of the final box (with solar panel and antenna orientable).

ISERE: provide some video streams of the actual cameras in the test location

ISERE: evaluate the possibility to host a Moonshot chassis in the control center for testing and evaluation

ST: since the USB connection to the SecSoC board can require a 20mt cable, too long for a USB connection, explore the alternative of a UART cable or USB extenders.

ST: Define how to have a real time video stream from the camera for the installation (through a cable presumably).

ST/NEAVIA: organize a follow up for the definition of software integration plan

ST/ISERE: consolidate the plan of actions from now to the integration.

2.3 PARIS DECEMBER 2016

Related to the activities of task 6.4, a meeting has been organized at IGN Paris for the discussions about the MICMAC porting.

The main topics of the meeting were:

- Presentation of OPERA project with a focus on WP6, Task 6.4 (HPE)
- Presentation of MICMAC software objectives (IGN)
- Discussion about part of the code that would make sense on the Accelerator
- Demonstration of MICMAC software
- Discussions of the next steps

MICMAC processing is shared among 3 steps:

1.

Tie points. Sparse matching - only in part of images where there is lot of contrast.

Open Source projects for OpenCL SIFT implementation exist and could be reused and imported in MICMAC.

We need to estimate the overall computing time spent on this phase and the integration effort.

http://courses.csail.mit.edu/18.337/2010/projects/reports/Kayombya_report.pdf

2.

Recover from each images orientation and calibration (Lens correction).

OPERA won't be touching the codes here. We will only follow IGN recommendations on the best options to pick

3.

Dense matching (50 to 90% of full processing time)

This is where OPERA should focus first.

Output and temporary files represent more than 10 time the size of the input files.

MICMAC source management moved from Mercurial to Git:

<https://github.com/micmacIGN/micmac>

OPERA members working on the porting will clone the complete project and start working on a branch.

Current implementations for accelerator is CUDA 6.5 & 7 and OpenCL 1.2.

coreMS option kills GPU code as today (OPERA shouldn't need it).

There is a US Patent on the algorithm (which is not an issue in France)

2.3.1 MICMAC IGN

Size of the data set for 1 French territory (such as Iserre) represents 5 to 10 thousand images (resolution of 10k x 15k) around 300MB per picture.

In its image process, IGN is moving to JPG2000 to save space and to avoid having to compute the pyramid of picture such as necessary on TIFF

Every year IGN computes 30 French territory (each territory is rendered every 3 years)

1 to 2 weeks to process a single French territory on the current platform (10 computers with 4 to 6 core; CPU only)

IGN would be interested to try the result of OPERA porting to FPGA.

We proposed to give a remote access to a full EL4000 (64 cores and 4 FPGA) to validate the port on their very large data set.

There are security concerns about sending data out (for French territories with Military installations)

2.3.2 Next steps

- Install MICMAC on server to get familiar with the product
- Create VPN accounts for remote access to HPE and Nallatech
- Get feedback + cluster of images + command line from CSI
- Get HPE up to speed on FPGA OpenCL through Altera Course
- MICMAC pre-assessment benchmark on m510 CPU only
- Quality and performances comparison PhotoScan vs Micmac
- Quality indexing tool
- Blender check compatibility with ply files

2.4 GRENOBLE MARCH 2017

A meeting between Nallatech and HPE has been organized in March in Grenoble.

The main topics considered were:

- Get data payload example for Mike Garrett at HPE Grenoble.
- Verify if SMBUS is supported by Nallatech card
- Verify the frequency of the power measurements.

2.5 GRENOBLE 5TH OF APRIL

A meeting between TESEO and ISERE has been organized in April in Grenoble to prepare the installation in the field of the first prototype

Validation of mechanical plan to install OPERA system high up on a stack (no energy harvesting system, supplied by electrical grid) / legal authorization with recommendation by the external consulting engineers

Preparation of the installation: visit of the site (electrical box, mechanical infrastructure)

2.6 GRENOBLE 10TH OF MAY

A meeting between TESEO, NEAVIA and ISERE for the first installation step of the OPERA prototype

Installation and test of the 3G communication channel for development

Electrical installation in node A and node B

Mechanical installation in node A / Identification and clarification of required improvement of the mechanical fixing and the position adjustment

2.7 GRENOBLE 29-30TH OF MAY

A meeting between TESEO, NEAVIA and ISERE for the achievement installation step of the OPERA prototype

Mechanical installation of camera box (node A) and the receiving antenna box (node B)

Adjustment of position of the camera box and of the video sensor to adjust the optical view

Improvement of the electrical installation of the node A (separation between electrical circuit protection of OPERA system and operating ISERE system)

Putting into operation of the OPERA system

3 PHONE CALLS

In this chapter, the phone calls minutes are presented. Not all the calls are presented, but only the main relevant topics discussed. For each work package in any case the OPERA consortium had regular bi-weekly calls for each work package.

3.1 WP2

3.1.1 2016-11-23

Presentation of the purpose of the bi-weekly meetings and the current status of the WP2, stressing the need for corrective action for the submitted deliverables (D2.1, D2.3 and D2.5).

Specific discussion points:

ISMB will send a planning for new intermediate deliverable

Deliverable D2.1:

Action: integrate section 2 with a subsection dedicated to the state of the art regarding server platform, ULP devices, energy efficiency, and software integration;

Action: create 2 subsections specifically targeting: (i) the presentation of the baseline from where we start, and (ii) the progress beyond state of the art and baseline architecture;

use cases (applications):

- a section describing the application context and the link with the OPERA project;
- a section presenting the baseline and some references for the specific state of the art;
- a section highlighting the proposed solutions (we can highlight the main motivations for adopting specific solutions, e.g., the moonshot chassis in the truck/vdi) and advances;

Deliverable D2.5:

Reviewed and discussed the structure of the deliverable

3.1.2 2016-12-07

Presented the current status of the deliverables related to WP2, according to the reviewers comments and recommendations:

D2.1: presented the modified structures. Frank suggested to stress more the motivations for the use cases selection (i.e., why we chose those use cases => we need to specify how these 3 use cases allow us to demonstrate the flexibility, heterogeneity of the OPERA platform)

D2.3: presented the modified structure. No specific comment on that part.

D2.5: presented the new organization of the sections. No specific comment on that part.

ISMB updates the partners regarding task T2.4 (Lesson Learned), specifically ISMB started to analyze which type of information is needed for the tracking lesson learned from each partner, experience and any specific issue addressed during the first project development cycle.

With CSI, ISMB is planning to update the online platform with new requirements coming from WP7/WP5 activities related to the setup of the testbed (3 nodes, installation of specific components of OpenStack).

Next planned actions:

- Update and finalize the deliverables: start asking for the next audio meeting specific contributions from partners.

- Periodically ask to the partners for providing any update in terms of requirements/constraints.

3.1.3 2016-12-21

Update of the WP2 activities from each partner involved in.:

- CERTIOS: illustrated the main issues highlighted by reviewers in D2.5, and suggested to stress more energy-efficiency and low power aspects. IBM team (Netherlands) have been met to present the OPERA project; a positive feedback has been received. CERTIOS suggested to keep track of specific groups/institutions OPERA partners met. Finally, CERTIOS presented its intention to investigate also the OpenRISC project.
- ISMB: summarized the content of a meeting with a CSI expert on OASIS TOSCA.
- TESEO: illustrated the strategy for improving D2.3.
- CSI: updated the partners on its activities.

3.1.4 2017-01-18

ISMB starts presenting the purpose and organization of the deliverable D2.9 which is related to activities carried out in task T2.4 (Lesson learned and track changes):

- Information to collect is heterogeneous (different aspects of the project are touched - e.g., software, hardware, etc).
- All the WP leaders must be involved in the collection activity:
 - A brief description of the purpose of the WP;
 - Main deviation and changes to the initial requirements and constraints;
 - Main issues encountered in carrying out the WP activity (this requires in turn to involve all the task leaders);
 - Need to classifying information collected and organize it in a structured form (also taking into account the validation cycle to have a historical tracking of the changes);

Interviews and small excel forms can be used to collect information from different WPs.

CERTIOS presented a preliminary organization of the D2.5 content based on the comments and suggestions of the reviewers.

3.1.5 2017-02-01

ISMB updated the partners regarding activity on T2.4 and deliverable D2.9 (Lesson Learned and Track Changes):

- Description of the idea of creating a small working group (project and technical coordinators, WP2/T2.4 leader and Use cases leaders)
- Description of the preliminary structure of the D2.9:
 - Introduction;
 - Deliverable and project context description;
 - Overall lesson learned:
 - Project objectives
 - Success and best practice
 - Overcoming and potential solutions
 - Use Cases:
 - For each use case prepare a table with the task involved and the main impact of each task in use case;
 - Work packages:

- describe each WP and related task in terms of objectives and successful story or overcoming encountered (a small table);
 - Summary and conclusion;
- description of the spreadsheet we intend to use to collect information specific for WPs and Tasks;

Update from CERTIOS on deliverable D2.5 status

Update from TESEO on deliverable D2.3 status

3.1.6 2017-03-01

Update on the Task T2.4: description of the two documents used to collect information on the “Lesson Learned”.

D2.9 is intended as a snapshot of the project status, but also a collection of experiences from each partner (shortcomings, successful facts w/ a description and a possible solution in case of shortcomings)

Working group: involved partners agree on the idea on managing activities w/ a small restricted working group:

F2F will reserve (T.B.C.) a short slot to discuss on the organization aspects;

3.1.7 2017-03-29

Update on Task 2.4: after the F2F hosted in Turin (March 16-17, 2017), the working group composed by ISMB, CSI and ST decided to restrict the “lesson learned” only to technical aspects.

WP3, WP4, WP5 and WP6 provide inputs in terms of achieved objectives in a use case perspective (WP7). Such inputs will be collected through spreadsheets (Lesson Learned Logs)

WP7 provides the baseline in terms of expected objectives in a use case perspective.

Lesson Learned deliverable (D2.9, etc.) will collect the differences between expected results (WP7) and achieved ones (WP3, WP4, WP5, WP6). It will analyze such differences to update requirements/constraints that will be used as input for technical WPs.

D2.5: there are still some missing contributions, but the deliverable should be ready by the end of the month (March, 2017) in order to start the first internal review;

D2.3: there are still some missing contributions, but the deliverable should be ready in the next weeks in order to start the first internal review.

3.1.8 2017-04-12

Update on Task 2.4: ISMB plans to start collecting information on Lesson Learned from technical work packages (WP3, WP4, Wp5 and WP6) very soon.

ISMB gave updates regarding status of deliverables for WP2. New deliverables are expected to be delivered in M21, but we need to start working on them in time. Regarding this point, D2.9 (Task T2.4 -- Lesson Learned) will start collecting information very soon, and will finalize after the completion of the first validation cycle, in order to analyse results and provide inputs for the next iterations.

Similarly, for the deliverable on Innovation Potential: it is required to start in time to ensure its completion by M21.

D2.5: Deliverable has been delivered to coordinator and technical coordinator for internal evaluation.

3.1.9 2017-05-10

Activities regarding 'Lesson Learned' has been started:

- Spreadsheet sent to the leaders of technical WPs: WP3, WP4, WP5 and WP6. The spreadsheet is a convenient way of collecting information from technical WPs regarding expected results and outcomes w.r.t. actual ones.
- Partners involved in the collecting action for Lesson Learned positively are active.

CERTIOS has been involved in writing of a book chapter concerning the energy efficiency aspects.

3.2 WP3

In the WP3 discussions two main topics have been discussed. The first one is the progress on the development of hardware and software components, and on their integration. The other aspect, that is strictly connected to the WP7 activities, is related to the installation on the testing site, that involves also integration aspect.

3.2.1 2017-01-31

3.2.1.1 *Software integration*

NEAVIA presented the software structure on the SecSoC. The actual status is the adaptation of the software structure developed by Neavia to align it to the SecSoC system, given the hardware resources restrictions, to have the same functionalities.

3.2.1.2 *Hardware integration*

USB connection between SecSoC and PC seems the best solution, the issue is the distance. If 8 meters are not too much, there are on the market 10 meters cables with internal repeaters.

Between SecSoC and Nucleo we will use the SPI interface.

The solar panel integration requires some components:

solar panel -> battery manager -> battery -> voltage regulator

The manager will retrieve the power from the panel and recharge the battery. It also checks the charge level of the battery.

When the requirements for the solar panels will be finally defined we will setup a list of components to be acquired.

3.2.1.3 *Action Points*

ST to provide TESEO about details for SPI connection between SecSoC and Nucleo communication module

ST to provide a new version of D3.1 for integration

ST to check with ISERE about the length of the pole

3.2.2 2017-02-15

3.2.2.1 *Software Integration*

ISERE said that video data storage could be interesting for certain use cases (as to view video stream before the alarm about unusual event as wrong way vehicles): ISERE said it has not to be strictly required for the first experimentation but it could be interesting for possible improvement for further innovation cycles (anticipation of requirement of additional hardware resources?) ST replied that this is

feasible only externally to the SecSoC, since the amount of memory embedded in the SoC is limited to 1 MB. Another thing is that this means shooting 100% of the time, so dramatically changing the duty cycle and the power consumption.

Software development by NEAVIA is ongoing, email sent to ST with questions about the SecSoC.

Regarding the SPI connection, ST is preparing a board and will send the code to TESEO soon.

3.2.2.2 Hardware Integration

ISERE sent additional functional requirements for sizing the energy supply system and asks if it is enough. WP7 needs to know size of battery and characteristics of solar panel after document sent by ISERE (in particular to define the installation conditions).

NEAVIA needs information regarding heating system to embed with the camera. TESEO said a film could be used to prevent condensation on the camera. TESEO will send more information/links about that.

3.2.2.3 Action Points

ST to provide TESEO about details for SPI connection between SecSoC and Nucleo communication module

All partners: provide ST with information to be integrated in the new version of D3.1

ST to provide a new version of D3.1 for integration

3.2.3 2017-03-28

ISERE showed the scheme of the installation that will be done in Isere and timing.

Details about the discussion on the physical installation:

The mini PC will be an x86 PC and not an ARM device like described in recent emails from NEAVIA, so there should be no problems in running the SecSoC toolchain on it.

TESEO said there are hardware problems in connecting the SPI from the SecSoC to the Nucleo board, since the voltage on the SecSoC is 1.8 V and on the Nucleo board it's 3.3 V. ST sent information on how to solve this problem.

There has been some discussion about the weight of the devices to be installed on the top of the pole, which is now 13 Kg. By the end of next week it will be known (after mechanical calculations performed by mechanical engineers of an engineering consultancy) if this is too heavy. TESEO said, in order to reduce the weight at the top of the pole, solar panel and battery could be put at the base of the pole. Jean-Christophe explained the reasons why this seems to be not possible: 1) the pole is composed of two parts, the part at the bottom is fixed, the other part can be tilted, and the presence of devices at the base of the pole can hamper this movement; 2) the cable between the two sets of devices (top and bottom) cannot be put into the pole (the pole cannot be pierced) and contributes to the increase of the total weight up to about 17 Kg; 3) the devices at the base of the pole could be exposed to vandalism or robbery. Nevertheless Jean-Christophe proposed Roberto to have a meeting in Grenoble, go to the site and discuss about this solution.

Details about the discussion on the timing:

Installation has been moved from 7th to 12th of April.

Installation of Moonshot in the road management center of LD38 is planned 7th of April by HPE and ISERE. Ethernet switches has to be provided by ISERE and a firewall has to be configured by ISERE: data are still expected from ISMB and NEAVIA about data flow

3.2.4 2017-06-06

Presentation of the status of installation of the OPERA prototype in Grenoble test site.

Pole 1

- Camera box installed: video sensor + SecSoC + Nucleo board + Reconfigurable antenna
- Electrical installation achieved: electrical supply of camera box + 3G communication channel
- Position of camera adjusted: first view collected

Pole 2

- Reconfigurable antenna installed: Nucleo board+ Reconfigurable antenna
- Installation of Raspberry: connected to the LD38 router

Moonshot server

- Installed and hosted by ISERE
- Communication with NEAVIA OK

Review of problem to be solved

- SPI interface: data flow between SecSoC and NUCLEO has to be stopped - ST/NEAVIA/TESEO have to investigate
- Interruption of the 3G communication 31/05/17
 - Basic check do by ISERE on site 01/06/17
 - Intervention of NEAVIA planned 07-08/05
- No communication between site 2 and moonshot server
 - Raspberry in defect – no ping: Raspberry not configured
 - ISMB will configure next week with the support of NEAVIA & ISERE
 - Piece of software need to be installed on Moonshot server: ISMB sent a link

3.2.5 2017-06-21

NEAVIA explained the preliminary results regarding the Use Case on traffic congestion. Main points about this subject:

- Results were obtained in good weather conditions.
- Results seem sufficiently accurate with some overestimation (false positives) due to the fact that the camera points very far away, and cars when they are very far from the camera seem closer (one w.r.t. the other) than they actually are.
- There is a tree on the right of the scene which hides a portion of the scene. Regarding this, ISERE said that they will try to understand whether some branches of the tree could be cut.

The two problems above could be partially solved by increasing the angle between the camera and the pole, i.e. pointing the camera a little bit lower. This should reduce also the problem of the tree, because this problem appears to be more important at the top of the scene, which should disappear if the camera points lower.

NEAVIA said the implementation is 100% in the SecSoC, except for what regards the reconfigurable antenna, that is not currently used because of problems with the SPI connection. ISMB and NEAVIA will try to solve these problems as soon as possible.

There is also a problem related to vibrations, which can be important due to the position of the camera. The current implementation copes with small vibrations, trying to compensate their effects, instead the current solution for strong vibrations is to discard some frames.

ST asked to estimate the number of alarms that are sent in a typical day, in order to evaluate the duty cycle and the power consumption.

3.3 WP4

3.3.1 2016-10-27

The call started with a discussion on the improvement of Deliverable 4.1. In order to get this going, we've discussed that the document should reflect the element of Energy management in heterogeneous environments and the innovation that OPERA brings to this field.

Deliverable 4.1 will be enhanced to contain 3 (horizontal) Domains:

- Technology, specific per partner
- energy management, more general
- Use cases, how effectively we reduce the E use.

These Domains will be elaborated through vertical detailing of (for each use case):

- baseline
- state of the art
- requirements based on functionality currently missing in the state of the art
- OPERA solution directions to fulfill these requirements.

Action points: Certios will create a new document structure and individually ask the Opera partners for input in each of the areas.

3.3.2 2016-11-17

Task leaders report

Progress Report WP4 T0+12

T4.1/D4.1, Certios participants prefer a F2F over an online meeting.

It is clear that WP4 D4.1 needs a total reworking, and be build from the bottom up. Emphasis discussed are:

- Baseline EE, power consumption, power management (Strategy power management, platforms used)
- Methodology
- Model (link to use cases)
- Metrics & Algorithms (link to use cases)
- Innovation - Value: new metrics, new algorithms, new methodology, new methods
- Demonstrations in Use cases

Task 4.4 (IBM): Goes very well. IBM is waiting for equipment to arrive. Next week IBM will send the planning how to measure the energy savings (copper/Ethernet vs. optical, show differences, savings). It will be a description what needs to be done and the relation with the use cases. ISMB: need to show improvement compared to SOA; explain, demonstrate, references, scientific), to validate the choices made. Compare to baseline!

3.3.3 2016-12-02

New WP 4.1 document index was discussed with Idan in order to see whether were activities of Certios and Technion need to be aligned.

The New Index for D4.1 is ready for review.

3.3.4 2016-12-12

New WP 4.1 document index

Presented the changes of the D4.1. We have gone back to the

- Criteria -- Most of it covered
- Methods -- Make stronger.

Methods: work for every partner. Will be allocated amongst the partners.

Model: representation of reality.

Look at Energy efficiency. The first part of the model is about what energy exactly is.

Will we only look at:

- Energy used (use fase) and/or at the embedded energy?
- Will we just look at the components or at the system?
- Type of workload

This might be different for different Use Cases: Think of the UC's:

1) Traffic camera: we look at Harvesting of energy (solar panels). We should also look at the embedded energy (e.g. concrete needed to build traffic control camera). Embedded energy will be impressive. Less interesting for VDI and truck.

2) VDI: we probably should include the desktops. Truck and traffic camera: less impressive to look at the embedded energy state; it is mainly use state.

3) True or simulated workloads? In order to indicate what we want to reach, we need more than the 200 users.

IBM suggests that scale down system shouldn't be a problem. For research purposes also small numbers will be okay. This is agreed in the meeting.

A comment raised by IBM states that the methodology is clear, the models are not.

The first answer is, from CERTIOS, that there are 3 issues, each have 2 choices, so we can make several models. We will probably use different models for different use cases.

The conclusion is that it makes sense to use different models for different UC's. Models are great. Talk about how to apply it. How much energy one can use/supply, maximum/minimum. Energy involved in cement and see the ratio's. For example, if we would need a huge amount of concrete, it may not be an energy efficient solution.

If the innovation doesn't change things from the existing to the new situation, don't take it into the model.

The concrete influence needs to be mentioned, based on other research, name it even if we are not focussing on it.

What can be done without OPERA:

- More efficient power supply
- more modern server

What does OPERA

- heterogeneity

3.3.5 2016-12-22

Intermediate goals WP4 planning overview 2016.

D4.2 and D4.3 will have intermediate deliverables in M18. D4.2 on harvesting techniques (Flavio Renga, ISMB), D4.3 will be a white paper (Nallatech). The naming and numbering will be the same as the original M36 deliverables.

ISMB explains the status of the harvesting of energy. ISMB and Certios will discuss further based on the document and plan that ISMB will compile and have sent before 15th of January 2017. ISERE is referring to the different circumstances and location of the sites. Dependent on proximity of connections. Makes the energy efficiency algorithm challenging.

WP 4.1 document progress

Status explained by CERTIOS: now we have changed the document structure according to the comments by the experts/reviewers. After completion of the content table of the document, we will ask contributors to put text in, add or remove. We will directly assign participants to contribute. ISMB want to make sure that the objectives as discussed will be in there.

We need to fix the structure for D4.1. It should be directly correspond with the comments of the experts. This new structure should be to be shared by January 15th, 2017. After today, we will working on the fit of the structure and align this with the proposal and reviewers.

Report Task leaders

T4.2. Everything is going fine. TECHNION is working on the deliverables.

3.3.6 2017-01-05

Presentation of the traffic monitoring use case by ISERE, with a focus on Baseline, energy model and measuring Energy Efficiency.

Comparing different Models for measuring energy: component based (more abstract, applicable everywhere) or based on embodied energy (depending on site --> sizing of solar panel will differ).

A critical question is raised by ISMB: is the use case representing other equipment in other regions? Hard to compare because other French regions also use other independent systems. ISERE can only assume for France, not for other regions/countries.

3.3.7 2017-01-19

After accepting last meeting's minutes, a presentation on Use Case 2 was used; how to involve energy efficiency aspects better.

Discussion how to improve the input for D4.1.

A request to Technion and IBM to review D4.1 models, and discussing deadlines upcoming.

3.3.8 2017-02-02

WP4.1 deadline.

Task leaders

Certios: Deliverable 4.1 is shaping up and nearing completion for formal review. One of the concerns voiced by Joel Nider after his preliminary review is that the document scope is too broad at the moment. The document looks like it is describing implementation where measurement only is expected.

IBM: Currently active in resolving overlap issues in D4.4 and WP6 deliverables, both on the optical interconnect. Note: Joel will be away 13-2-17 to 17-2-17 on business and will not be as responsive to Email as usual.

Nallatech: Currently waiting for HPE information to be able to start working on the redfish implementation on the FPGA card. The information is expected soon so there is no delay expected at this point.

Technion: Idan was experiencing audio difficulties, reporting will be completed through Email.

3.3.9 2017-02-16

An online meeting between Certios and Technion. In here the review of Chapter 5 of D4.1 has been discussed as well as the deadlines for the review.

3.3.10 2017-03-30

Report Task leaders

All tasks are progressing in line with the planning.

IBM: Need to have discussion and plan the power consumption measurement on FPGA card. CERTIOS asks Nallatech to confirm whether this can be done from Redfish; yes, it can deliver reporting functions. All of Nallatech's cards have reporting capabilities via API. IBM asks whether this could be enough for the deliverable? It is assumed it is.

There is an overlap of 4.7 and WP6. There is a need to define what should be in WP4 and what in WP6 = Action, tackle next week (CERTIOS).

TECHNION: Everything goes well. D4.2 needs to analyse 3 EE methods. 2 will be an extension of what TECH has done with energy harvesting, the 3rd one is under discussion with ISMB.

NALL: Last week NALL was in a meeting with HPE and IBM in Grenoble (HPE). Plan to go forward with Redfish ILO. Complex but will be okay.

Progress report T0+15 is due soon. Before the end of next week everyone will contribute to the content of the WP4 content report so it can be handed in soon. Be aware that only progress up to Feb 28th needs to be reported.

D4.5 and D4.6 Table Of Content (planning 1-4-2017) status:

- D4.5 TOC has already been discussed with Flavio (ISMB) and the TOC is about to be finished.
- D4.6 TOC needs to be made. NALLATECH agrees to discuss things to be done offline with CERTIOS.

3.3.11 2017-04-13

Due to Easter breaks, this meeting was only attended by Certios and IBM. Even though, an essential discussion was held about the WP4 progress report, and whether it should keep all of the historical data - or just brief summaries of it, in order to prevent the document from growing too fast and too big. This useful discussion was concluded, and the outcome was communicated to the other partners.

3.3.12 2017-04-27

This general meeting has been used to discuss the deliverables in progress of WP4 and accentuate the upcoming deadlines, respecting the time for the internal reviews.

3.3.13 2017-05-15

Deliverables in Progress

D4.5 and D4.6 are 2 intermediate deliverables that need to be delivered by the end of May. In order to review it properly, each reviewer has 5 days for the review/improving of the deliverable. For both deliverables not all contributions have been made yet, and this is a risk. It is not clear whether the quality will be sufficient and for repair activities, time is getting limited. Next Wednesday (May17th 2017) we will have another call with at least the responsible people of the deliverable, and preferably all who are possibly able to contribute, to make sure that all contributions are received and to check the quality of the contributions.

3.3.14 2017-05-17

Deliverables D4.5 (TECH) and D4.6 (NALL) in Progress

3.3.15 2017-05-25

Deliverables D4.5 (TECH) and D4.6 (NALL) in Progress

Nallatech's deliverable 4.6 has been reviewed and is ready for submission

Technion's deliverable 4.5 has been reviewed and is currently being revised to incorporate comments

Certios has read both deliverables, additional comments to 4.5 will be sent directly to TECHNION.

Actions to be taken for the incumbent F2F:

- A solid story line for the total wp4 is needed and needs presentation on the F2F meeting.
- This line includes all current deliverables WP4.1 and WP4.5 and WP4.6
- The work of TECHNION, pure research, how does this fit in?
- The redfish implementation how does this fit in.?
- How will all these separate tracks be merged to the overall OPERA objective?

3.3.16 2017-06-08

The activities for WP4 in the upcoming face to face meeting at HPE in Grenoble were discussed. The input for the presentations were agreed upon. For every Task leader, a deadline was defined for June 9th, to deliver the presentations on time, enabling some time for adjustments and presentation reviews. Next deliverables were discussed amongst the attendees, keeping the WP4 lead and participants posted on the progress.

3.3.17 2017-06-22

WP4 Progress Report M16-M18

The report will actually be a M1-M18 report. CERTIOS will prepare that and send it for completion around before the end of this week. Every TL will complete his own section.

3.3.18 2017-06-23

Camera power/energy measurements BEFORE review meeting.

1) Where to measure

Current decision is to measure total power through addition of the SecSoC board power (measured by Neavia) and antenna power (measured by ISMB)

2) What to test

Current decision is to test 3 situations,

- No moving objects
- Moving objects, but no event
- Moving objects, event

3) How to measure

- Lab test: Neavia on SecSoC
- Lab test: ISMB antenna including Nucleo
- Field test: (to be determined) entire system, by USB power meter at electrical box level

ACTION list

1) Neavia

- Confirm power line schema (picture below)
- Communicate timeframe for measurements (must be soon)

2) ISMB

- Provide measurement data on antenna including Nucleo board
- Provide information if for testing 2 reconfigurable antenna's are needed (or if one, the transmitting antenna, is enough)
- If possible provide antennas to Neavia for building the lab system

3) CERTIOS

- Research an USB power meter (logging) for the field measurement
- Set up new meeting next week (Thursday)

Options for power and energy measurements of the traffic management camera

The camera system in the lab also needs a wireless connection to a receiver (simulated TMC) the receiver does not need to be measured, ISMB will need to tell us IF the receiver also needs to be a reconfigurable antenna.

The amount of data sent for each "event" also needs to be recorded.

The measures in the field. A meter can be connected to the USB data/energy cable that runs from the camera to the electrical box at the bottom of the pole.

This situation offer little control, but does have the fully integrated system behind a single measurement point.

3.3.19 2017-06-29

Measurements report are presented, and included in the presentation for the review.

3.4 WP5

3.4.1 2016-11-15

Prepare deliverable drafts for internal review by beginning of May.

Requested to each partner the summary of the activities of the past three months.

Allocated 2 servers for the environment by CSI. Working with ISMB how to install the containers (microservices). 1 server for OpenStack, 1 server for compute node. Expects it will be completed by end of November.

ISMB: digging in OpenStack to decide how to implement the scheduling policy. Has identified which modules that need to be modified. Still some decisions pending about implementation.

Planning to have initial implementation ready for Y2 review (+ demo?) - needs help defining the database (between various architectures to make scheduling decisions)

TECHNION - can provide some initial requirements (how to collect/analyze the workload) to ISMB - working towards defining a table format for the deliverable D5.3 & D5.5

3.4.2 2016-12-01

Use LP servers to process some data coming from ULP (cameras, etc)

Will set up a specific audio meeting to discuss how to better interface WP3 and WP5

Nearly completed the testbed installation with CSI, including containers (LXC & Docker)

Installed support for Docker in DevStack

Working on TOSCA descriptor for OwnCloud

IBM: set up the objectives for each milestone in the WP5

To be decided what can be accomplished for each review period - put it in the framework for the deliverables

Make sure the objectives are aligned with the project goals specified in the GA

3.4.3 2017-01-09

IBM, TECH, ISMB - will start filling in the sections/ToC for the M18 deliverables

TECH - collected results for one benchmark (2GB GUPS, aka random access pattern) of runtime (cycles) vs virtual memory performance (cycles spent during walks):

ISMB - sent two documents about TOSCA

Starting to run experiments with CSI (OwnCloud)

3.4.4 2017-01-23

TECHNION - Replacing malloc() call to get better control over memory mapping (mmap and sbrk).

Getting into linux internals

Suggested reviewing the HotOS paper that IBM is working on.

CSI - Set up meeting with ISMB to discuss environment setup to support WP5

3.4.5 2017-02-06

IBM: working hard on patches for post-copy container migration

Started to look at skeleton from D5.1

ISMB: will provide a skeleton for D5.3/D5.4

CERTIOS suggests average power rather than peak, since it will be impossible to isolate the workload for a good measurement.

Requested contributions for the WP4 activity.

TECHNION - Finding a good model is directly connected to work on T5.5 - we don't want to get into an "offline" calculation of the model relying on built-in power measurement capabilities in the processor (x86 for starters).

3.4.6 2017-02-20

IBM: plans to deliver compiler & container infrastructure as part of D5.3

TECHNION: Selecting Parsec benchmarks for multithreaded workloads

<http://parsec.cs.princeton.edu/>

Some of the benchmarks are similar to the OPERA use cases.

D5.5 will provide real-system (x86-64) measurements of energy and power as a function of threads count.

How to manage FPGA offloading (WP3 work) in the cloud? Should use a simple interface (REST) to manage it

Traffic monitoring use case: Using ST SoC to collect data, then offload to HP Moonshot for further analysis.

Neavia is responsible for the code inside the SoC. There is an open point to discuss if we will actually offload a neural-network application to the FPGA - this is extra effort that is not currently in scope.

3.4.7 2017-03-06

ISMB and IBM have put skeletons for D5.1,D5.2,D5.3,D5.4

ISMB: F2F dedicated to Use-case validation and technology validation (not a standard F2F meeting) - all efforts towards first validation

Planning to organize a workshop @ HiPEAC CSW (November) - need partners to participate/help organize.

3.4.8 2017-05-15

D5.5 looks like it is in good shape

- TECHNION is preparing an internal review.

D5.4 looks like it is in good shape, very close to review quality, but still missing some sections

D5.3 is not ready yet - we need to focus here

- ISMB to finalize interfaces with CSI (by Friday 19.05.2017)
- IBM to add CRIU interfaces on Sunday (21.05.2017)

D5.2 is getting close, but needs more work

- IBM to finish compiler section
- ISMB to summarize “cloud management” section - reference other docs/deliverables where possible to avoid duplication

D5.1 is in decent shape - nearing review quality

- ISMB to review text (copy & paste from existing document)

We have a lot of overlap between deliverables (5.2 and 5.3 probably don't need to be separate documents, and can be chapters in other deliverables)

We can reduce effort in the future by merging D5.1 and D5.2

We can reduce effort in the future by merging D5.3 and D5.4

Must discuss an amendment at F2F

3.5 WP6

3.5.1 2016-11-23

The main topics of the call are:

1. Discussion of Project Review feedback
2. Detailed review of plans for main WP6 tasks
3. Allocation of actions and next steps

Nallatech is working on an update to D6.1 that will address in greater detail why the specific FPGA/SoC device was created rather than using existing FPGA cards on the market

The D6.1 update will also provide elaboration of the board operating temperature related to the types of applications executed in the board, e.g. the orthophoto computation for the truck use case where it is claimed that passive cooling will be sufficient

Each of the main consortium partners is working on revised, detailed plans that will be added to the M10-12 progress reports

Important updates to the task plans includes intermediate deliverables, ideally for M18, allowing the Project Officer to review progress earlier than planned. If tasks are off-track or have problems, the Project Officer can provide constructive feedback and guidance

Nallatech has now manufactured the prototype FPGA/SoC accelerator cards

- These cards are going through initial bring-up test
- The output of this particular effort will constitute D6.3

HPE confirmed that the first Moonshot Edgeline servers will be available to Nallatech next week

The combination of prototype cards and Edgeline server will allow D6.4 and D6.4 to make progress

NALLATECH and HPE will meet in January to review the MICMAC code in detail as part of T6.4

A plan for T6.5 was discussed as there are a number of options for completing this task successfully

NALLATECH will update IBM's draft plan for review and agreement early December

3.5.2 2017-01-11

Review of the status of work package and tasks.

T6.1 FPGA and Low Power Server Specification (NALLATECH)

Nothing to report.

T6.2 FPGA design implementation (NALLATECH)

BSP ongoing.

T6.3 FPGA prototype testing (NALLATECH)

Hardware debug ongoing.

T6.4 FPGA integration on Low Power Server (HPE)

HPEg visiting NALLATECH to update Edgeline server and integrated with FPGA hardware. HPE to port MICMAC, Altera to support in training.

T6.5 FPGA and low power server integration on Small Form factor data centre (IBM)

Getting good support from team inside IBM responsible for CAPI firmware.

Hardware delivery not critical for first deliverable.

HPE, Nallatech: SOC integration with Edgeline server + basic MICMAC demonstration

IBM: Test installation, fibre and loopback, etc. Probably too early for SOC.

T6.4 Delay in receiving Edgeline hardware to run x86 MICMAC.

T6.5 FPGA and low power server integration on Small Form factor data centre (IBM)

3.5.3 2017-01-12

HPE to deliver hardware/firmware updates for WP6.3.

Hardware/firmware successfully updated allow Nallatech to continue with prototype testing on Edgeline server.

Review MICMAC port for WP6.4 and BSP development (WP6.2)

Recommended OpenCL training required by HPE for MICMAC port

Requested the profile of MICMAC code with benchmark data and settings required for truck use case.

NDA signed between Nallatech and HPE, required for RedFish.

3.5.4 2017-01-25

T6.1 Minor update required to delivery.

- HPE added updates to this deliverable.

T6.2 BSP Update

- HPE to start MICMAC port on stock 385A product. Porting to SOC later.

T6.3 Prototype update.

T6.4 HP update. "Delay in receiving Edgeline hardware to run x86 MICMAC", ongoing delays.

- HPE to provide hardware to CSI/Nallatech/IBM next week. Allocate two cartridges for MICMAC bench marking.
- HPE looking to best OpenCL training for internal contributor.

T6.5 IMB update

- IBM: High level design in progress.

3.5.5 2017-02-08

Updated the status of D6.2.

Updates from partners on T6.3, T6.4 and T6.5

T6.3

- Prototype debug continuing.

T6.4

- Acceleware ltd. training to be decided soon for HPE.

WP6.5

- Making progress on CAPI FPGA design.

Actions.

Nallatech: Pass D6.2 first draft to partners for review

Nallatech: Check hardware prototype delivery date for IBM.

Nallatech: Organize meeting with HPE regarding RedFISH software interface.

3.5.6 2017-04-05

Review TOC of upcoming deliverables D6.3, D6.4 & D6.5

ISC International Workshop on OpenPOWER for HPC (IWOPH'17) deadline April 23rd

3.5.7 2017-04-19

Review TOC for D6.3-5

- IBM and HPE will submit the TOC for D6.5 and D6.4 respectively.

Review status of Deliverables D6.3, D6.4 and D6.5

- D6.3 nearly complete.
- D6.4/D6.5 starting this week.

3.6 WP7

3.6.1 2016-11-10

Call on VDI/Truck use cases. The main points discussed are:

How to setup Intermediate step / Testbed and we agree to consider technological aspects as requirements for WP2

CSI thinks to complete the setting up on November 25th

According to the original planning we have a delay, but the situation is not critical, because we can do in parallel some future activities in order to reduce the delay. In addition, the KVM technology for SaaS applications is not so interesting for Opera Project because it's not possible to move VMs between different hardware architectures, it means that if we have problems we'll face this technology in the next cycle or we can remove it from the scope of WP7.

We consider not relevant that we'll use for Intermediate step/testbed different hardware than baseline

We'll start to discuss about containers (how to cooperate to setting up SaaS applications)

For both Use Cases:

HPE and CSI will discuss the next week about the delivery of hardware to define the date and how to deliver. This is an important aspect but not critical because in this moment CSI is setting up the testbed.

HPE is willing to delivery personally the hardware in Turin.

For Truck Use Case

HPE is in contact with IGN, about the activity for porting MICMAC in FPGA. In these moment 5 people are working about it

3.6.2 2016-11-24

CSI completed the installation of Testbed

CSI's starting calls with ISMB to fill the gap about Container and the strategy about migration of them among different hardware architectures. After that we suggest to involve IBM.

CSI needs to know who wants to access to Testbed

Partners who wants to access has to complete a module (available in Opera --> WP7 --> Documents). There are the Italian and English version of the document, CSI Datacenter

Department needs to receive the Italian version signed and stamped, the English version can help you to understand which information are required (starting in paragraph 7.3).

Usually we use the document with our customer to prevent issues and troubles on both sides: firstly we want to put in evidence that we take care of your information and secondly we warn to use properly the connection and items.

If someone has some difficulties about that, please contact CSI.

- Certios will organize a call with CSI about Deliverable 2.1

3.6.3 2016-12-06

We shared to start experiments with LXC technologies, partly because LXC is integrated with CRIU and shortly (about two months) also with OpenStack.

We chose to complete tests on Intermediate Step (Testbed) and define the better technology between LXC and Docker, in order to set up the definitive solution on OPERA Infrastructure, where it's possible to set up only one technology at a time.

For Truck Use Case:

- HPE started to work with Nallatech and IGN about porting Micmac on FPGA card
- CSI will provide all information for contributing to porting

For both use cases:

- HPE and CSI will plan the hardware delivery within 2016

3.6.4 2016-12-12

The call is devoted to the implementation of the UC1, on traffic monitoring.

List of action was defined:

Main actions points

- Installation plan
 - To be delivered by TESEO
 - To be validated/amended by ISERE for installation on the public domain
 - To be validated by WP7 partners
- Test plan to evaluation video functionalities: first draft to be delivered by NEAVIA / ISERE
- Test plan to evaluate energy efficiency: first draft to be delivered by CERTIOS
- Investigation to install Moonshot server for use case coupling the ULP video device and centralized computing platform based on small form-factor server by ISERE/HPE

INSTALLATION PLAN

Delivering of draft of the installation plan for node A and node B TESEO

Analysis of legal and physical access, good compliance with the end user requirements

Validation of the technical requirements of the technological bricks

Possible hardware installation for evaluation of the energy of efficiency

TEST PLAN- PART A

Delivering of draft of the test plan-part A (video functionalities)

Compliance with the expectations and requirements of the end user, compliance with practical implementation constraints in the field

Compliance with the requirements of the different technological bricks

Compliance with the requirements of the evaluation of the energy efficiency

TEST PLAN- PART B (Energy efficiency)

Delivering of draft of the test plan-part B (Energy efficiency) from WP4

Compliance with the expectations and requirements of the end user, compliance with practical implementation constraints in the field

Compliance with the requirements of the different technological bricks

Compliance with requirements of implementation of video functionalities

PRELIMINARY TEST BENCH : MANAGED IN WP3

Delivering hardware for preliminary test bench

Preliminary test in bench for detection of congestion

Preliminary test in bench for detection of wrong way vehicle

INSTALLATION PHASE

Delivering SIM Card

Identify certified worker to do electrical installation WP7 Next call

Preparing / Delivering legal and practical access to the experimental site

Preparing / Delivering restricted access to wired network

Hardware installation node A and B

Putting into operation and basic test node A and B

Downloading of the software detection of congestion

Downloading of the software detection of wrong way vehicle

TEST PHASE

Analysis of the video functionalities “detection of congestion”

Analysis of the video functionalities “detection of wrong way vehicle”

Analysis of the energy efficiency

Redaction of the report

Presented planning should be validated.

NEAVIA tell that intermediary test on bench of the software module are required before the installation on the field. Video and micro server platform has to be available early enough to implement this tests, but it doesn't required a totally achieved hardware (in particular a totally achieved packaging is not necessarily required).

Interaction with WP4 are required to

- plan possible hardware installation in the installation plan (energy metering, etc...)
- validate that the plan test enable to evaluate the energy efficiency

WP4 will elaborate the part of the plan test concerning the evaluation of the energy efficiency

CERTIOS said we have to choose the methodology of the energy efficiency evaluation (monitoring of the energy supplied by solar panel, monitoring of the energy really consumed by the video platform, etc..)

A draft evaluation plan part about energy efficiency will be delivered at the end of January by WP4

3.6.5 2016-12-22

During the call we discuss about these points for VDI Use Case:

CSI added a new server to setting up LXC environment

CSI report the meeting with ISMB to share knowledge about TOSCA

CSI installed on the LXC Compute node OwnCloud

ISMB would like more info about the installation of OwnCloud --> CSI will organize a specific meeting

Certios needs support to describe work load --> CSI will provide support

For Truck Use Case:

ongoing there is only the activity about Micmac porting on FPGA card

For both use cases:

HPE and CSI will plan the hardware delivery in January 2017

3.6.6 2017-01-10

The call is devoted to the implementation of the UC1, on traffic monitoring.

List of action defined during the meeting 2016-12-12 was checked and updated:

Main actions points

- Installation plan
 - To be delivered by TESEO
 - To be validated/amended by ISERE for installation on the public domain
 - To be validated by WP7 partners
- Test plan to evaluation video functionalities: first draft to be delivered by NEAVIA / ISERE

- Test plan to evaluate energy efficiency: first draft to be delivered by CERTIOS

TESEO presented a first detailed planning of the hardware integration in labs. To do Installation plan need before to investigate the required size the energy harvesting and storage system

ISMB gave first evaluation of the consumption of wireless communication module. Additional data are still required to evaluate the expected energy consumption of the OPERA module and to size the energy harvesting and storage system.

ISERE reminded that a description of prototype was strictly required to prepare the practical issue concerning the installation in road public domain (in particular about a safe high up installation of the OPERA prototype on a stack in the road public domain).

Possible baseline were investigated to give input data to the WP4 for selecting the methodology of measurement of the energy efficiency

3.6.7 2017-01-19

During the call we discuss about these points for VDI Use Case:

CSI organized a f2f meeting with ISMB about configuration and installation of SaaS Applications

CSI fulfilled Certios requirements about the description of workload

CSI installed OwnCloud on Docker Containers and not on LXC

For Truck Use Case:

In the next 3 weeks HPE, Nallatech and IGN will start to work about the porting of Micmac on FPGA Card

For both use cases:

HPE and CSI will plan the hardware delivery in January 2017 or February ----> HPE and CSI agree about the delivery on January 26th

3.6.8 2017-01-24

Action points for UC1:

The call is devoted to the implementation of the UC1, on traffic monitoring.

List of action defined during the meeting 2016-01-10 was checked and updated:

Main actions points

- Installation plan
 - To be delivered by TESEO: Evaluation of energy consumption required to size the energy system (solar panels and batteries) in progress
 - To be validated/amended by ISERE for installation on the public domain
 - To be validated by WP7 partners
- Test plan to evaluation video functionalities: first draft achieved
- Test plan to evaluate energy efficiency: first draft to be delivered by CERTIOS : choice of model A validated, input data about use case delivered see WP4

Clarify functional scenario to calculate the duty cycle of embedded video platform: LD38/NEAVIA

Calculate duty cycle: WP3

Update the sizing of electrical installation for the experimentation with new duty cycle: ISMB

Prepare connection/integration of energy meter in the installation:TESEO

Investigate how to manage the heater for defreezing-nocondensing: ALL

Elaboration of installation plan

ISMB provided the first sizing of energy supply installation (ISMB clarified that these calculations were done with very pessimistic values of duty cycles): solar energy panel of 40 dm², battery 24 A.h

Département de l'Isère remark that for the moment the installation is too bulky and too expensive, and risks to be too near to the current state of the art.

As clearly indicated ISMB duty cycle have to be clarified

Département de l'Isère and NEAVIA clarified the functional scenarios (in particular about the rate of detected events par day and about the rate of transmission of alarm/data)

ST/NEAVIA/ISMB calculate the new duty cycle by using the functional scenarios

ISMB calculate the new sizing of the energy supply installation

Elaboration of the test plan – video functionalities

NEAVIA confirm it is in progress: a first draft was delivered – no particular comment

Elaboration of the test plan – part energy efficiency : interaction WP4/WP7

After discussing with WP4 it is confirmed that

- Model A (component based use phase energy) is used.
- Baseline will be current autonomous video camera (different for the current grid connected camera used by Département de l'Isère) – NEAVIA can provide this baseline. The base line has to be discussed and clarified in WP3.

Département de l'Isère (with NEAVIA) supplies the scenario to evaluate the energy efficiency during the experimentation:

Concerning the first experimentation (April-May 2016)

1) Detection of congestion

Practical observed scenario will be used

Expected scenarios are around 8 event detections per days (including the two ways, including the congestion or and the dense traffic state)

16 event transmissions per days to the road management centre (including the two ways, including the detection of the start and the end of the traffic event)

2) Wrong way vehicle

Simulated scenario will be 1 detected event / month

- Concerning the following experimentations, two additional functionalities will be tested

3) Detection of Cycle

Practical observed scenario will be used

Expected scenarios are around detection of 1000 cycle/days (including the two ways) and so 1000 transmission of an alarm to a local variable message signs (not the road management center)

4) Counting of cycle

Practical observed scenario will be used

Expected scenarios are around detection of 1000 cycle/days (including the two ways) and so 1000 transmission of an alarm to a local variable message signs (not the road management center)

Condition a communication should be clarified (distance and obstacles between reconfigurable antenna and relay mast) for comparison with a baseline.

The evaluation of energy efficiency

- Includes energy consumption related to the video signal acquisition, the video signal processing, the communication
- Excludes clearly Infra-red light (cycle were not detected and were not counted during the night)
- Would exclude the heater system: the improvement of the energy efficiency of heating system is not in the core technological scope of OPERA : it should be justified because it create a serious functional barriers for the road managers (and probably for many users of external video systems): MORE GENERALLY A GOOD COMPROMISE IS REQUIRED BETWEEN THE DEMONSTRATION IMPROVEMENT SPECIFIC TO OPERA TECHNOLOGIES AND TAKING ACCOUNT ALL PRATICAL SPECIFICATIONS FOR THE TRAFFIC MONITORING USE CASE
- Require a practical energy metering device during the experimentation
 - Metering absolutely the energy consumption from SesSOC+ reconfigurable antenna
 - Absolutely distinguishing energy consumption from the heater system
 - Discuss about distinguishing between the energy consumption of the SesSOC and the energy consumption of the reconfigurable antenna.

3.6.9 2017-02-02

1. HPE (Gallig) provided CSI with two chassis, one for each use case. Their configurations isn't the finale one, HPE and CSI'll organize another delivery

For VDI Use case:

1. CSI and ISMB defined activities about testbed

a. we don't take into account Docker because Open Stack can't control it. If the situation change in the future, we'll consider it again

b. CSI defines the recipe to split OwnCloud in microservices

c. in this moment we'll deploy microservices manually. In the future, thanks to OPERA outcomes, the deploy will be automatic

d. ISBM, with CSI support, will create the first release of TOSCA descriptor

2. CSI starts activities on HPE chassis to setting up RDS environment (2-3 weeks to complete it)

3. Testbed and HPE chassis could be accessed also by VPN, each partner could access to them

For Truck Use case:

1. The activity about Micmac porting will start at the beginning of March

2. CSI is planning activities to setting up Server Dominio and Server RADIO on the second HPE chassis. In this moment it's ready the OS

3.6.10 2017-02-16

About VDI Use Case:

1. CSI provide the recipe for OwnCloud:

https://github.com/PasLepera/heat_templates/blob/master/owncloud/owncloud_singlevm_mariadb_singlevm.yaml

2. CSI completed the setting up of RDS Environment (see details in slides) and the next week CSI'll define the planning for stress test taking into account internal constraints (resources and CSI Test Environment)

About Truck Use Case:

1. CSI completed the two virtual machines for Server Radio and Server Dominio. To complete properly the configuration about service applications, it's necessary to be on the truck, but the truck will not be available for 3/4 weeks, for this reasons the task will be concluded at the end of April

2. CSI planned the task to take measurements with Micmac installed on Macbook according to D4.1. The task will be completed at the end of April.

About both Use Cases:

3. HPE explained that the chassis have USB Ports, that could be used to connect radios

4. HPE and CSI defined the next (final) hardware delivery on March 2nd

3.6.11 2017-02-21

Action points and topic related to UC1.

1-Specifications of the installation conditions for experimentation in May

Requires the sizing of the OPERA embedded video platform

Requires the sizing of the energy supply system (solar panel and the battery)

Point to be discussed: Presentation of the sizing of the energy supply system by ISMB (calculation done with the additional data provided by ISERE, NEAVIA, then ISMB)

2-Preparation of the evaluation of the video functionalities

NEAVIA send a draft

3-Preparation of the evaluation of the energy efficiency

Methodology selected

Baseline proposed, clarification in progress

Points to be discussed:

- Discuss about baseline
- Validation of passive no-condensing solution proposed by TESEO
- Discuss about practical preparation: energy meter, electrical or electronic connections required to distinguishing energy flow, etc...

4- Practical issues

Who can realize electrical installation (workers with French electrical certification)?

3.6.12 2017-03-21

Action points and topic related to UC1:

Validation of scheme (ALL)

Integration of optical zoom (TESEO)

Installation plan (TESEO) including updated camera box and solar panel, and communication / electrical circuit plan

Connection with wired router in communication relay site (ISMB)

Definition of server hosted by ISERE (ISMB)

Definition of technical meeting on site in ISERE

3.6.13 2017-03-30

About Truck:

1- completed installation of Micmac on Macbook pro, within 2 week CSI think to complete measurements

2- description of open points to define planning * amount of Micmac functionalities and time required to do that * final chassis to complete services configuration on the Truck

3- defining power consumption for baseline (I° and II° Cycles) --- We need Certios contribution for a good and correct estimate

4- Information and constraint about Truck to host the chassis * power supply 220 W * rack deep 80 cm * RJ45 network connection

CSI and HPE will organize a specific call about point 2 and 4. Point 3 is important but not urgent, we'll discuss about it next call (13-4-2017) with CERTIOS.

About VDI:

1. CSI is close to complete the check about RDS applications environment and the next week, CSI start the set up of stress test

2. Description of the open points

1* deadlines about the ongoing activities * Tosca Descriptor * Containers Migration * Script for measurements * Measurements

If we consider the worst case (it means to have the review meeting with Officer in July) we need to complete all activities before the third week of June, to complete the report and the internal review. CSI, IBM and ISMB agree that, for the first cycle, the first two activities don't impact on measurements. About worst case schedule ISMB agrees, IBM need more time because Michael is in charge of this activity, but this week he is sick. About that we can discuss the text call (13-4-2017)

2* CSI, IBM and ISMB agree to use OPERA Infrastructure and Testbed in CSI to complete Tosca Descriptor and Containers Migration

3* CSI, IBM and ISMB agree about a live demonstrator using infrastructure in CSI premises (by VPN connection) for review meeting and a video as backup

3. Next Steps

1* CSI and ISMB meet to work about TOSCA Descriptor and to validate Testbed configuration

2* CSI replicates Testbed configuration on Moonshot

3* CSI and ISMB install Owncloud on both environment

4* CSI takes measurements

4. Report Skeleton, description of the current Report Skeleton and sharing of the link. In the coming months CSI with the support of Certios, HPE, IBM and ISMB will write it.

3.6.14 2017-03-31

Truck - use case

Information and constraint about Truck to host the chassis * power supply 220 W * rack deep 80 cm * RJ45 network connection

HPE will provide at the end of April or the beginning of May two new chassis for Truck Use Case with RJ45 network connection

VDI - use case

Description of the open points

deadlines about the ongoing activities * Tosca Descriptor * Containers Migration * Script for measurements * Measurements

HPE provides the script for take measurements for each cartridge.

3.6.15 2017-04-04

Action points and topic related to UC1.

Preparation of the installation of the prototype in Isere test site planned 12-14 April 2017

Status of delivering time clarified during the last meeting

- Delivering time of the optical accessories: OK - delivered
- Delivering time of the energy supplying equipment: solar panel, battery, battery manager : OK delivered - mechanical assembling in progress
- Delivering time of the reconfigurable antenna : First component delivered - process on line with the deadline
- Delivering time of the 3G link material: PC, 3G modem - SIM CARD - Energy supply : Delivered - Component has to be sent by TESEO and ISERE to NEAVIA
- Delivering time of the mechanical and connection material: box, support, cable : process on line with the deadline
- Delivering time of the software : Delivered
- Delivering time of the moonshot : Physical installation by HPE and LD38 planned on the 7th of April

Review of technical investigation point

- Mechanical feasibility of the system:
 - first configuration rejected (all equipment at the top of the pole)
 - second configuration studied (optical platform at the top of the pole, energy equipment at the base of the pole).

ACTION: Clarification of a technical meeting with TESEO in ISERE. Meeting TESEO+LD38 planned 5th of April in the ISERE test site.

- Status of interfacing between SecSoC and Nucleo Board:

ACTION: NEAVIA and ISMB sent additional piece of software / ST investigate and organize a technical meeting with TESEO and ISMB

- Status of interfacing between SesSOC and mini PC:

ACTION NEAVIA and ISMB have a technical phone meeting and investigates together

- Status of configuration of LD38 firewall:

ACTION: NEAVIA and ISMB sent additional data (volumetry, IP address and ftp account of NEAVIA server) then LD38 configures the firewall.

ACTION: NEAVIA provide application software for Moonshot server - phone meeting planned 7th of April during installation

3.6.16 2017-04-13

About Truck:

1. Updates description (I) shared open point with HPE thank to a specific call, accepted deadlines and requirements to host the chassis on the truck; (II) Ongoing installation of Micmac on Moonshot (without FPGA); (III) in mid-April we'll have updates about Micmac porting
2. Discussion about measurements, according to them we'll define boundaries (what elements could be considered and duration of measurements)

About VDI:

1. Updates description (I) Organized a meeting about Tosca Descriptor; (II) Ready the environment on Moonshot for Containers Migration according Joel's requirements; (III) HPE provided the script for take measurements for each cartridge
2. Open points
 - a. IBM comments about deadline for Containers Migration, the proposal is the third week of June according the worst-case (it means if we have the review meeting in July)
 - b. for accessing to Moonshot Containers Migration Environment, CSI needs a signed document in Italian language, Vittorio and I translated it in English to help you

3.6.17 2017-04-18

Action points and topic related to UC1.

Requested by TESEO to postpone the installation of prototype (hardware & software integration and test not achieved)

- ISMB ask ISERE to propose several date / ISERE propose 1st and 2nd week of May
- Installation of prototype postponed 9th-10th-11th May: agreed by WP7 partners
- ISERE said that investigation required to define the second experimentation cycle (in particular possible improvement of the weight of the system)

delivering of hardware equipment : OK

reconfigurable antenna delivering and test: OK

hardware integration : still in progress

software integration : still in progress (in particular interfacing SecSoC and Nucleo Board) :

- achievement would be expected by a couple of days (to be confirmed by ST)

3G link for development : OK

Software for detection of congestion: OK

Installation of Moonshot: OK

Validation of installation: OK from a mechanical point of view (configuration without solar panel and without battery)

Departement de l'Isère and NEAVIA will plan a technical meeting to validate and achieve the access to the NEAVIA server (probably based on ftp link)

Video data from current camera of Departement de l'Isère was received by TESEO

3.6.18 2017-05-02

Action points and topic related to UC1.

Validation of access to the site by ISERE

- Mechanical installation: validated
- Electrical installation: not validated
- Integration scheme are still expected for validation: Isere send a first document to be completely checked, amended and completed by TESEO really as soon as possible
- Differential protection miss: TESEO will add, LD38 sent back the differentia protection for the current camera
- NOT on line for installation in Isere in the 9th May: Electrical circuit plan and integration plan are strictly required

Software and hardware integration

- Software integration are still in progress, details still need to be achieved: Still on line for installation in Isere in the 9th May
- ST, ISMB and TESEO will organize a technical meeting in TESEO location by next Thursday
- Hardware installation were be tested last week by TESEO
 - Test were done successfully: no issues for the moment : Still on line for installation in Isere in the 9th May
 - Reconfigurable antenna successfully were be tested by ISMB
- First antenna were already delivered, the second reconfigurable antenna and its Nucleo board will be delivered by next Thursday by ISMB to TESEO: Still on line for installation in Isere in the 9th May

3G link for development and software for detection of congestion: OK

Moonshot Installation by HPE and hosting by LD38: OK

FTP communication with NEAVIA server:

- Script and information sent by NEAVIA
- Implementation in progress

HTTP communication with Raspberry: Information sent by Isere to ISMB for configuration of Raspberry / OK for ISMB

ISERE alert ISMB as the server on the moonshot operate to implement the script supporting HTTP communication with Raspberry

3.6.19 2017-05-11

VDI Use Case:

1. No change about the planning in terms of deadlines and activities
2. Discussion about future integration of technologies. Tosca Descriptor gives input to OpenStack (HEAT) to deploy containers (thanks to NOVA - ISMB checked that) in order to provide a specific service (f.i. OwnCloud), after the deploy CRIU can migrate containers.
3. CSI is checking if the OwnCloud recipe could be translated in TOSCA

4. Description about the current hardware configuration. Four cartridges M510 are still available.

Truck Use Case:

1. Planning will be updated according the delivery date of the chassis
2. Completed measurements about Micmac on Macbook, shortly CSI'll share a report
3. HPE is working about Micmac porting, the activity is in good standing
4. HPE and CSI will share the delivery date, probably 29th or 30th May

3.6.20 2017-05-17

Action points and topic related to UC1.

A new hardware integration is required due to the issues encountered on the test site for the orientation of the box on the pole: Status of considered solution

- Solution for integrating mechanical tuning
 - TESEO proposed to use the adjustment of screw fixing the video platform - an angular adjustment of 5-6° could be possible (horizontal)
 - NEAVIA says that more range of angular adjustment could be required to collect the need view with the OPERA camera. ISERE asks if it is possible to use commercial support designed to enable angular adjustments.
- Solution for integrating tunable optical zoom
 - TESEO says that the current optical zoom is suitable
 - NEAVIA says that the fixed mechanical zoom (x12) cannot be tested, a tunable optical zoom (at least manually) could be required
- Solution for a more stable mechanical support
 - TESEO modifies support and send a new plan this afternoon: validation is in progress.

NEAVIA and TESEO will organize together a technical phone meeting today or tomorrow to define which is required in term of mechanical adjustment, optical zoom and mechanical stability.

Modifying electrical installation is required

- Solution (electrical circuit plan) for modifying electrical installation (only separation of circuits)
- ISERE check the circuit plan sent by TESEO

A new installation planning has been defined.

3.6.21 2017-05-23

Action points and topic related to UC1.

1- Optical adjustment of the position of camera (strictly required even for basic experimentation)

- ISERE as T7.1 manager reminds that the first try of installation confirmed that a mechanical adjustment is required (any view of road could not be collected) / NEAVIA asked an angular tunable position to be sure to collect a good view for basic tests - ISERE as T7.1 responsible confirms it will be required to make "agile" experimentation
- Several discussions between TESEO/NEAVIA/ISERE are related to the possibility of view angle orientation. The actual platform could provide 10° angular tilt.

2- Optical Zoom: requirement of tunable zoom, at least manually (strictly required even for basic experimentation)

- ISERE reminds that the first try of installation didn't enable to check the zoom (view of trees) and that NEAVIA asked a mechanical tunable zoom (at least manually)
- TESEO said that it is a correct solution for a distance of 100m (distance between camera and viewed road)
- NEAVIA said that the solutions is rather required for 60m (distance between camera and viewed road)
- Taking account the constraints, second installation will be done with the zoom x12 proposed by TESEO even if there is a practical risk
- Distance should be clarified

3- Mechanical vibration: validation of proposal from TESEO

- ISERE reminds that NEAVIA, TESEO, ISERE saw that the mechanical support was not stable enough during the last installation.
- TESEO sent an updated mechanical design last week
- ISERE as road network manager validated the new mechanical design plan
- NEAVIA says that the lateral positioning could favor instability but agree to try the design with the new improvement.
- TESEO explains that the reconfigurable antenna required lateral positioning
- All partners agree to try a new installation with this new design

3.6.22 2017-05-25

Truck Use Case:

1. No changes about Planning
2. Completed measurements about Micmac on Macbook
3. Completed measurements about Micmac on Moonshot (without FPGA Card)
4. Next Step
 - 4.1 HPE provides final chassis --> DONE
 - 4.2 CSI moves chassis on Truck --> DONE
 - 4.3 CSI replicates current DOMINIO & RADIO on Moonshot --> ongoing
 - 4.4 HPE takes measurements about Micmac on Moonshot with FPGA Card --> ongoing
 - 4.5 CSI writes D7.4 --> ongoing

VDI Use Case

1. No changes about Planning
2. ongoing stress test about RDS applications
3. ongoing setting up Owncloud on Moonshot --> DONE
4. Next step
 - 4.1 Stress Test RDS applications --> ongoing
 - 4.2 Stress Test SaaS application
 - 4.3 Update about measurements --> DONE
 - 4.4 CSI writes D7.7 --> ongoing

About the last step CSI needs help from other partners, CSI will involve them.

3.7 WP8

3.7.1 2016-12-06

1. Review of the recommendations of the first review. Here the main target is to understand the recommendations of the PO after the first official review and take it in account in order to improve the quality of our work in terms of communication, exploitation and business planning
2. Discussion on the next steps of WP8. The main argument is to fix for each task next steps for respecting the timeline and enforce the innovative potential of OPERA

3.7.2 2017-03-14

F2F Meeting preparation. General review of WP8 presentation, focus on main pillars of each task.

Deliverables status. General status of the deliverables and deviation from timeline

Presentation status. Timing for exposition and structure

3.7.3 2017-03-28

Review of the deliverables. Integration of suggestions come out from the F2F meeting

Demonstrators. Started discussions about the possibility to build one portable demonstrator for each use case, the target is to have something tangible to present at meetings, conferences, workshops to be able to let people comprehend how the technologies involved really works.

Brochures. Started discussions for the realization of marketing tools such as brochures. Splitted the nature of audience target into scientific (technological aspects) and industrial (Innovation potential). One brochure for each use case.

3.7.4 2017-04-12

Update deliverable's situation. Check out the advancement of the deliverables and discussed about open points and relevant issues.

Update social media and media management. Discussed about the social media and media data and fixed the future actions to be taken in account for improving results.

Next steps. Discussion about next period and all the actions put in place for improving the quality of communication and dissemination.

3.7.5 2017-05-09

Focus on communication and dissemination actions an instance the schema of the brochure, poster, roll-up and realization of the video. Presented the first raw schema of the brochures and discussed about the realization of other marketing tools such as posters roll-up and the realization of some videos. The guidelines where always the same, 1 for each use case but 1 for each target audience.

3.7.6 2017-05-20

Video/Posters/Roll-up call. Discussed about the advancement of the brochures, posters videos. Integrated suggestions from partners.

3.7.7 2017-06-06

Started concrete actions for video realization and targeted the first official event where to present it. Discussed about the schema of the brochures and technical information to be inserted in the scientific version.

3.7.8 2017-06-20

Discussed about brochure and video development and taking into account suggestions from partners.

3.7.9 2017-07-04

Discussed about the definitive version of the Traffic monitoring use case video, about the brochure printing and the first raw version of the posters.