UMOBILE QUARTERLY REPORT

Action full title:*Universal, mobile-centric and opportunistic communications architecture*
Action acronym: *UMOBILE*
Grant Agreement number: *645124*
Period covered: *M22 – M24 (November 2016-January 2017)*

A) UMOBILE achievements of the last reporting period:

WP1:

- 5th consortium physical meeting (18/01/17-19/1/17) in Lisbon coordination-agenda and minutes preparation
- 17/11/16 Technical teleconference meeting - agenda and minutes preparation
- 24/11/16 Technical teleconference meeting - agenda and minutes preparation
- 15/12/16 Technical teleconference - agenda and minutes preparation
- March review preparation
- Mailing lists maintenance
- Project Amendment was accepted on 17/1/17

WP2:

- Contributions to D2.3 System and network requirement specification

WP3:

- Validation of the service migration over UMOBILE testbed.
- Preparation and submission of the revised version of D3.1
- Preparation and submission of the revised version of D3.3
- Implementation of the NDN-Opp framework to support the UMOBILE operation in opportunistic networks, based on wi-fi direct.
- Implementation of the Now@ application to support direct exchange of data based on interests. Now@ aims to operate on top of NDN-Opp.
- Initial specification of the NDN-Opp framework, to be submitted as IETF informative draft (ICRNG research group).
- Specification of the contextual manager module interfaces for routing and application.
- Specification of the end-user UMOBILE service

WP4:

- Specification and implementation of the contextual manager module.
- Evaluation of resources consumed in a raspberry Pi and the response time of the service. The finding results will instruct the rules in decision engine.
- Preparation of a first draft for the deliverable D4.4
- Submission of a paper describing thenovel congestion control framework of Task 4.1:“In-Network Resource Pooling Protocol” (INRPP), to the ACM SIGCOMM 2017 conference.
- Preparation of deliverable D4.3.

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WP5:

- Service migration platform was integrated with KEBAPP and NDN-DTN.
- Configuration of UMOBILE Lab for testing NDN-DTN with service migration.
- UMOBILE Lab configuration for the proof of concept.
- Preparation and submission of deliverables D5.1 and D5.3.
- Work on the integration of NREP with the contextual manager module.

WP6:

- Submission of NDN-Opp extended abstract to the NDNComm 2017 workshop.
- Initial contacts with UCLA in order to disseminate NDN-Opp within the NDN community.
- A paper was presented in the ACM SIGCOMM AINTEC 2016.
- Submission of a paper named "On the Feasibility of a User-Operated MobileContent Distribution Network" to the IEEE WoWMoM 2017 conference.
- Acceptance of the paper named "Efficient content delivery through fountain coding in opportunistic information-centric networks" in the Computer Communications journal.
- Dissemination of the project's results in several occasions with the most notable being the keynote speech at the "Future Internet for Development" (FI4D) workshop at the CCNC conference.
- Organization of two workshops alongside prestigious conferences. Both proposals got accepted. Details of each of them follows:
    - Information-Centric Fog Computing (ICFC) together with IFIP Networking 2017, 12-16 June, Stockholm, Sweden. Website: http://networking.ifip.org/2017/index.php/workshops/workshop-on-information-centric-fog-computing-icfc
    - Mobile Edge Communications (MECOMM) workshop together with ACM Sigcomm 2017, 21-25 August, Los Angeles, USA. Website: http://conferences.sigcomm.org/sigcomm/2017/workshop-mecomm.html
- Integration of requirements derived from UMOBILE into the Senception product line PerSense ™.

B) UMOBILE actions planned for the next 3 months:

WP1:

- Organisation of regular monthly teleconferences
- Consortium coordination
- Maintenance of the project's mailing list

WP2:

- Finalization of the system and network requirements report as well as system and network deployability contributing to D2.3 and D2.4, respectively.
- Proposal of experiments to collect traces in different locations worldwide, with the purpose of characterizing affinity networks and human mobility (based on Wi-Fi direct, with tool PerSense Mobile Light).

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WP3:

- Integration of service migration and NDN-DTN.
- Continuation of work on the solutions proposed for the UMOBILE arch (KEBAPP, OOCD, NREP, INRPP) and the integration of all of them into a single architecture with the solutions presented by other partners.
- Work on the deployment of KEBAPP into Raspberry Pi
- Integration of KEBAPP with the UCAM service migration platform.
- Specification and implementation of NDN-Opp.
- Analysis of alternative solutions to implement push-communication model in NDN-Opp.
- Analysis of alternative solutions for routing in NDN-Opp.
- Release of NDN-Opp v1.0.
- Implementation of the Now@ application based on NDN-Opp v1.0.
- Adaptation of the Oi! application to operate on top of NDN-Opp.
- Implementation of the contextual manager interface for the routing module (routing metrics interface).
- Contribution to the networking definition and integration of the contextual manager.
- Specify and start the implementation of the UMOBILE end-user service.

WP4:

- Work on QoS at service level while focusing on decision engine.This work will be contributed to D4.4.
- Start of the operations related to the data collection.
- Full specification of the contextual manager (internal and external interfaces) (4.2) and start the implementation.
- Conclude Deliverable 4.3 (4.3).

WP5:

- Validation of the service migration platform while considering the QoS.
- Validation of the integrated platform of service migration, KEBAPP and DTN-NDN
- Preparation of demo running in the lab for the project review meeting.

WP6:

- Increase the activity of website and social networks (also with pay per click ads).
- Select magazines to popularize the UMOBILE activities.
- Start the activities related to the UMOBILE Workshop organization.
- Participation in the NDNComm 2017 workshop and NDN hackathon.
- Submission of IETF informative draft to ICNRG about NDN-Opp.
- Exploitation of NDN-Opp within the NDN community.
- Submission of scientific study concerning roaming behavior with poles worldwide.
- Potential contributions to Internet drafts: GAIA, ANIMA.
- Monitoring of potential contributions to Wi-Fi Alliance.

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C) Problem/risk arose during this period, or any risk foreseen on the future and decisions taken to handle them:

The Project Coordinating organization changed.

D) Resources used <u>during the period</u> in a project level:
(Double-click on the following table to edit cells in Excel)

WP	No of pms	Personnel Cost	Travel	Equipment	Other	Subcontracting	Subtotal	Indirect costs	Total costs
1	1.44								
2	2.96								
3	9.73								
4	5.41								
5	12.69								
6	2.53					0			
	34.76	**149929.98**	**8861.06**	**141.99**	**1808**	**0**	**160741.03**	**40185.26**	**200926.29**

E) Short description for other direct costs:

Project meeting in Lisbon, project results dissemination (CCNC conference)
Equipment: Smartphone Alcatel 5051D (Android) , experimentation and validation, WP4 (4.2); WP5 and WP6
Other costs:Layout design, tools and preparation of the exploitation plan (WP6)

F) Deviation from Annex 2 and/or paragraph 2.3.5 including subcontracting:

UCL: plus 0,3 personmonths to WP1. Justified since UCL was involved in the project amendment as a temporary Coordinator.

G) Evaluation of the implementation of the project workplan: Gantt chart control, milestones and indicators:

The Project is implemented according to the plan. Specifically:

Period Milestones: MS1, MS3, MS11 and MS12 are accomplished according to the plan. The next milestones are scheduled for Month 30.

Period Deliverables: almost all deliverables are submitted according to the grant agreement timetable. D4.1 was submitted on M18 (UMOBILE Coordinator asked permission on the behalf of the consortium to submit "D4.1 Flowlet Congestion -Initial Report" on month 18, as described in page 22 of the grant agreement instead of Month 12 included in the deliverables tables). The change has been accepted. D3.1 and D3.3 were submitted again following reviewers comments. D4.3 was also submitted on early March instead of January 2017.

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The table below summarizes the UMOBILE activities for the period November 2016-January 2017:

M..	Project Month	Meeting	Deliverable	Milestone	Report	Additional events
M22	November 2016	teleconference: 17/11/16, 24/11/16	-	-	-	
M23	December 2016	teleconference: 15/12/16	-	-	-	
M24	Jan-17	Physical meeting 17/1/17-18/1/17	D5.1 Validation methodology and evaluation report D5.3 Proof of Concept	-	-	ACM SIGCOMM AINTEC 2016, CCNC conference

An updated gantt chart follows:

40.40% of total budget has been consumed for the activities described above (40.56% of the personnel costs, 39.02% of the other direct costs, 40.42% of the indirect costs), as presented in the following graph:

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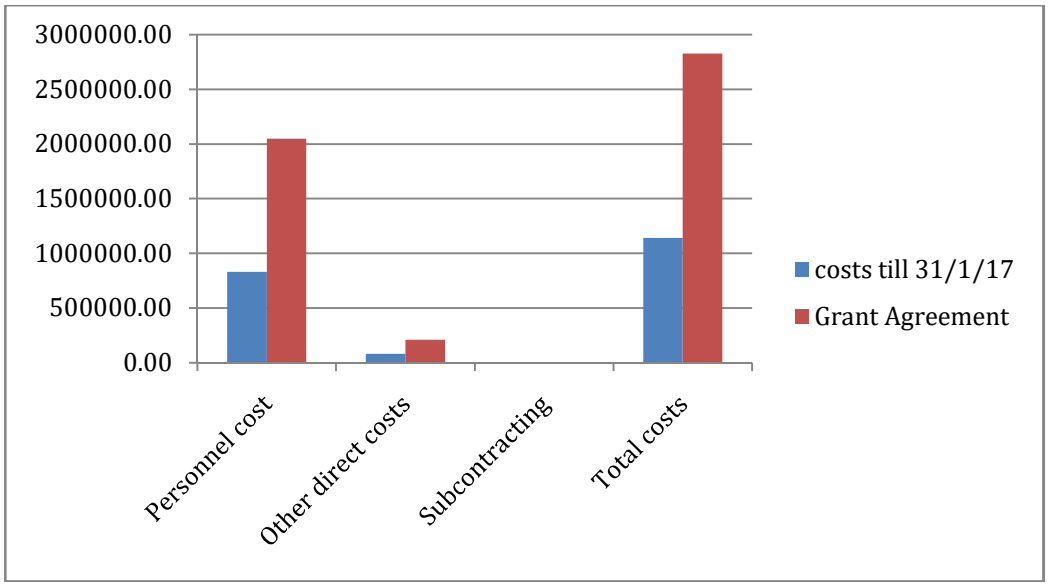
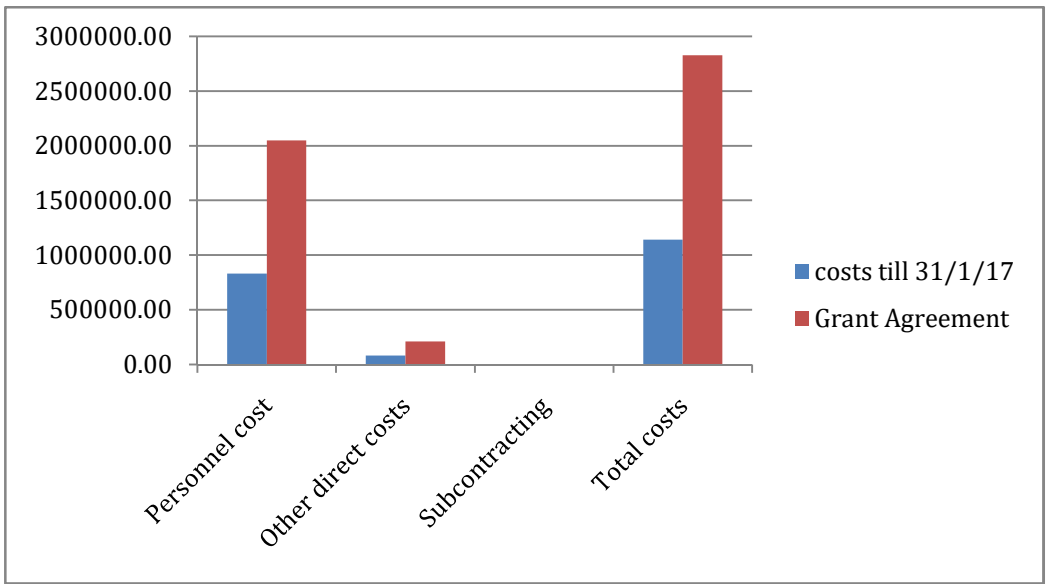


This graph does not include the terminated partner expenses, so resources consumption is actually more than 40.38%.

48.47% of the personmonths have been consumed for the activities described above:



Personmonths of the terminated partner are not included.

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This report was written by Athena R.C. on the behalf of the UMOBILE consortium

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