slalom

LEGAL & OPEN MODEL TERMS FOR CLOUD SLA AND CONTRACTS

Cloud adopters' adoption assessment

D5.2

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1 Introduction

This document responds to the contractual deliverable D5.2 of the SLALOM Support Action, an EC-funded project (grant 644720) with the mission to develop standard technical and legal models for cloud computing contracts and SLAs.

The purpose of this document is to summarize:

- the dissemination and promotion activities performed so as to raise awareness of the SLALOM models among the cloud adopters;
- the received feedback from the cloud adopters with respect to both the legal and the technical SLALOM models during each phase of the project;
- the actions performed to address the received feedback; and
- the actions that should follow after the end of the project.

To this end, section 2 describes the strategy that was designed during the 1st phase of the SLALOM project, "Awareness", so as to reach out to as many cloud adopters as possible. Section 3 provides a short overview of the initially received feedback during the "Awareness" phase of SLALOM project while section 4 highlights how this feedback was addressed. This initial feedback mainly refers to the concerns and high level comments of the cloud adopters. Accordingly, Section 5 introduces further feedback from the cloud adopters based on the drafted SLALOM legal terms and the SLALOM technical specifications after the interaction of the project with ISO. Last but not least, Section 6 presents the needed actions to address the comments from Section 5 and the actions that will remain for post-project work, i.e., for the sustainability body. The document concludes in section 7.

Table 1 summarizes the acronyms used in this document and their definitions.

Table 1. Glossary of Acronyms

Acronym	Definition
CCC	Cloud Computing Contract
CFP	Call For Papers
CSC	Cloud Service Customer = Adopter or End-User. (CSC is term used by ISO.)
C-SIG	Cloud Select Industry Group
CSP	Cloud Service Provider
IoT	Internet of Things
JSON	JavaScript Object Notation
KPI	Key Performance Indicator
MSA	Master Service Agreement
SLA	Service Level Agreement
SLO	Service Level Objective
WP	Work Package

2 Adopter outreach strategies

The main goal of Workpackage (WP) 5 "Cloud Adopter Track" was to reach the consensus of the cloud adopters, i.e., key adopter groups such as SMEs, large business, public administrations and end-users, with respect to the SLALOM models. To this end, a plan of action had been defined in SLALOM D1.1 [1] based on the targets of each project phase (awareness, consensus and adoption) and the main messages to be delivered. This plan of action was subject to changes during the project so that the encountered problems could be resolved as most appropriate and maximize the impact of both the WP and the project as a whole. The following subsections present the strategies to meet the objectives of the WP, the encountered difficulties, the adjustments to address the challenges and the dissemination activities of the WP for each phase of the project.

2.1 Awareness Phase (M1-M8)

During the awareness phase, the WP5 members defined the plan of action for reaching out to cloud adopters. The objectives of the WP during this phase were to:

a) identify and contact cloud adopters groups explaining the challenges that the projects deals with and the advances that are expected for them so as to attract their interest;
b) build questionnaires that will target at gathering the cloud adopters' view and requirements from the model with respect to e.g., their restraints, concerns, business objectives opinions and preferences; and
c) analyze and summarize the cloud adopters' feedback so as to allow its exploitation from WP2 "Legal Track" and WP3 "Technical Track".

To this end, SLALOM partners participated in panels and speaking events (e.g., the SLALOM panel in Cloud Expo Europe 2015, the EuroCloud Forum 2015, etc.) and presented posters (e.g., [2]) in well-known conferences. Flyers and press releases were produced and disseminated through the SLALOM website, the social media and mailing lists not only to cloud adopters but to other stakeholders (e.g., cloud providers, policy makers, researchers, etc.) as well. Detailed information on the dissemination activities can be found in [3].

Moreover, the questionnaire of [4] (also available in section 12 in [5]) was designed and disseminated (both to cloud providers and cloud adopters) through the CIF (Cloud Industry Forum) mailing list, 5 (pre-) standardization mailing lists[1], affiliated project mailing lists and websites (e.g., SLA Ready), the SLALOM website, to the participants of the Cloud Expo Europe 2015 (in the CIF booth and the SLALOM event) and others (e.g., MyColleagues mailing list - a mailing list often used for CFP and issues of research interest).

[1] i) Next Generation Mobile Networks (NGMN), ii) Software-Defined Networking Research Group (SDNRG) from the Internet Research Task Force (IRTF), iii) The technical Committee on Network Operation and Management (CNOM) from the IEEE Communications society (ComSoc), iv) IEEE Technical Committee on Cognitive Networks (TCCN) from the Communications Society, and v) Technical Committee on Computer Communications (TCCC) from the Communications Society

Overall, 66 individual cloud adopters registered their interest for SLALOM and have been contacted through this email campaign for providing feedback using the SLALOM questionnaire for the first version of the SLALOM Master Service Agreement. Despite the high number of membership in the above mailing lists and their relevance to the objective of the SLALOM project, most of the respondents were not cloud adopters. The limited number of cloud adopters that responded to the questionnaire mainly focused on questions related to their restraints, concerns, business objectives, opinions and preferences.

The main comments from this questionnaire and the respective actions to be addressed are presented in Sections 3 and 4 while more detailed information can be found in [5], [6] and [7].

2.2 Consensus Phase (M8-M18)

During the consensus phase of the project the main target was to communicate the drafted models (technical and legal) to the cloud adopters' community so that the latter can provide feedback on adjustments that may be needed. University of Piraeus Research Center (UPRC), ATOS and The Institute of Communications and Computer Systems of the National Technical University of Athens (ICCS) acted as contact links among the project, and more specifically the WP2 and WP3, and the community. Based on the initial plans, this phase would last from M8 up to M13, but it was decided to be extended up to the end of the project.

Apart from the panels, the speaking engagements, the press releases and the social media campaigns (see [3] for a detailed list of the events), 2 webinars were also organized during the consensus phase; one webinar reflected the legal outcomes of the project and one webinar was oriented to technical people so as to present the SLALOM technical model. The events where SLALOM partners participated and the webinars were promoted through the mailing lists and the contacts of the awareness phase.

These cloud adopters were also contacted for receiving their feedback on the drafted SLALOM models. However, it turned out that it was very difficult to a) track (and increase) cloud adopters and b) persuade them provide feedback on the drafted SLA legal terms and technical specifications. Therefore, the feedback response was limited, mostly related to cloud adopters' restraints, concerns, business objectives, opinions and preference; and not to concrete comments with respect to the drafted SLALOM legal terms and/or SLALOM technical specifications. In order to increase the number of involved cloud adopters, the consortium searched within past or ongoing cloud- and SLA-related projects for SMEs that may have dealt with cloud SLAs in the past. Three more SME associations (UEAPME, PIN SME, EuroCloud) and 12 SMEs were contacted through this extended email campaign.

Realizing that a consensus phase cannot actually end (there are always new comments to be addressed and new inputs to be considered), the SLALOM consortium decided to expand the duration of the consensus phase up to the end of the project. As a result, during M13 up to M18, there were ongoing activities related to both the consensus and the adoption phases (this applies to all tracks of the project). During these months, SLALOM consortium expanded more the list of organizations that were asked for feedback through an email campaign to 37 national ICT trade associations [8] which were asked to disseminate the SLALOM request for feedback to their members (so as to contact more

potential cloud adopters at once). P2P meetings were also pursuit with cloud adopters that had provided their feedback during the awareness phase or participated in SLALOM events and had expressed their interest for further comments. These meetings aimed at ensuring that the provided comments had been properly addressed to meet cloud adopters' expectations and identifying if there were new ones that needed to be addressed. Unfortunately, only 1 out of 5 cloud adopters responded to the follow up actions.

Finally, the questionnaire in [9] was also promoted among the aforementioned mailing lists and contacts to facilitate the provision of their feedback and minimize the required time.

2.3 Adoption Phase (M13-M18)

The main target of this phase was to disseminate the SLALOM outcomes as widely as possible and to ensure its adoption from the cloud stakeholders. To achieve this, SLALOM partners presented not only the legal and technical models of SLALOM per se but also examples of how the SLALOM outcomes can be applied to different cases in multiple events (e.g., Legal workshop in Milano, Cloud Expo Europe 2016, Netfutures 2016, MUSA workshop, etc. – see [10]). This approach allowed a better but less time-consuming understanding of the outcomes from the stakeholders and a potentially higher engagement from their side. Moreover, in order to increase the audience that had access to such information, the SLALOM has organized 2 more webinar towards the same direction.

Both the participation of SLALOM to the above events and the webinars were also promoted to the mailing lists and the contacts of cloud adopters mentioned in the awareness and consensus phase. Last but not least, following the end of the SLALOM project, the above mentioned stakeholders will also be contacted so as to inform them about both the final SLALOM legal and technical reference models and the links of the recorded webinars.

3 Initial inputs and position paper (Phase I "Awareness")

This section summarizes the initial feedback that was received from the cloud adopters that responded in the SLALOM questionnaire [4] (awareness phase of SLALOM). It should be noted here that at that point, the consortium had drafted the structure of the proposed SLA and identified the need to comply with the ISO specifications but had not drafted the proposed legal terms or the SLALOM technical specifications. Therefore, the questionnaire aimed at understanding the main concerns of the cloud adopters and how they feel about the cloud SLAs, the cloud computing services and the approach that the project tended to use. The results of questionnaire [4] are summarized hereafter for allowing the reader to have a complete view of the cloud adopters' track and the document to be free-standing but are not detailed. For further information, the reader should consult D4.1_5.1 report [5].

The overall assessment of the cloud adopters was that the proposed approach, i.e., the idea of SLALOM consortium to align the MSA with the ISO specifications, was useful and that they will exploit the outcomes. However, they questioned how far one can go so as to reach consensus with Cloud Service Providers; what is acceptable by the provider and how they can deal with the "take it or leave it" approach if the provider has a dominant position on its market. Their feedback reveals the following main messages:

a) **Standardization vs. simplicity:** Cloud adopters do not consider contractual and SLA-related issues as "show-stoppers" but they consider the standardization of cloud SLAs important (some of them more, some of them less) as long as they are kept simple. Their importance is mostly related to the limitation of the time and the cost required by SMEs with limited (if any) legal staff or external legal support to revise the contracts based on their needs. The need for standardization accepted in EU level refers to i) the categorization of the terms/metrics to those that ***need to*** be included and those that ***could be*** included (see e.g., "How can I be sure that all the parts of a CCC [Cloud Computing Contract] are covered?" questions); ii) the applicable laws that regulate the contract (e.g., jurisdiction issues, court's interpretation, etc.); and iii) the common definitions. On the other hand, there is repeated emphasis on the need to keep things simple for all parties to agree to and review as a partnership; and that too many metrics are unrealistic and impractical. Therefore, a solution that includes an exhaustive list of metrics is not enough.
b) The two **main concerns of cloud adopters** are regulatory compliance in terms of personal data protection and data location; and security. **Personal data protection and data location** aspects (among others) referred to the changing nature of contract provisions with no ability to foresee/ negotiate privacy & data protection provisions; the location where the data are stored and the authorization/accessibility to the data (esp. in subcontracting and 3rd parties involvement); and the need for alignment of the cloud contracts with future regulation/directive on data protection (security by design). **Security concerns** mainly focused on the need for a set of standard "minimum" security controls and on the request for cloud providers to be legally subject to notify cloud adopters in the cases of breaches or security incidents so that the latter to protect themselves against them. Concerns have also been raised with respect to the

difficulty of comparing CSPs. Both CSPs and adopters mentioned that comparing like for like was complex due to the lack of common definitions (e.g., "how are uptime and availability calculated?"). Others complained that there was no standard to compare to. Other cloud adopters' concerns include: Availability; Vendor lock-in; Feasibility; Performance; Storage; Redundancy; Threat deterrents; Accessibility; and Direct audit possibility.

c) Cloud adopters also suggested that there should be more and **broader examples** organized e.g., per sector/industry and that **automation** should be supported. They highlighted their preference to **end-to-end measurements** in terms of user experience and that there are issues with respect to **resolution of incidents and communication** that need to be dealt. Last but not least, there were cloud adopters that referenced **subcontracting and 3rd parties** (being used by the main contractor) aspects, mainly related to i) the who and where the subcontractors are; ii) how subcontracting can be managed so as to ensure standardisation of obligation in this context (suggesting Cloud Security Alliance Control Matrix that addresses this topic); and iii) the need to support designing (co-operative processes) processes between customer and supplier and third parties.

d) The twelve (12) most important ISO components for the cloud adopters are:
   i. Information security component
   ii. Data management component [/cloud service customer data component]
   iii. Service reliability component [/Network redundancy]
   iv. Service reliability component [/cloud service provider disaster recovery plan]
   v. Availability Component
   vi. SLA definitions component
   vii. Protection of personally identifiable information component
   viii. Service reliability component – disaster recovery component
   ix. Data management component
   x. Data management component – data deletion component
   xi. Governance component [/regulation adherence]
   xii. Service reliability component [/retention period for backup data]

e) The most important metrics for the cloud adopters are:
   i. Cloud service performance component [/cloud service throughput]
   ii. Availability component [/total downtime]
   iii. Service reliability component [/Recovery time objective]
   iv. Service reliability component [/Maximum time to service recovery (MTTSR)]
   v. Service reliability component [/Recovery point objective (RPO)]
   vi. Service reliability component [/Time to Service recovery (TTSR)]
   vii. Cloud service performance component [/response time observation]
   viii. Availability component [/Downtime]
   ix. Service reliability component [/number of service failures]
   x. Cloud service performance component [/cloud service bandwidth]

4 Actions addressing the initial feedback (Phase I "Awareness")

This section presents how the received feedback during the awareness phase has influenced the work of SLALOM and how comments or suggestions have been addressed from the technical and the legal viewpoint. More detailed information is provided in [7] and [12] for the SLALOM legal and technical models respectively.

4.1 From the technical point of view

4.1.1 Standardization vs. simplicity

SLALOM models are not provided (at least yet) as a standardized framework, but as suggested models that can be used either "as is" or partially by both the cloud providers and the cloud adopters. To this end, the project has reached out to as many stakeholders as possible to get a consensus from all parties and has collaborated with the standardization efforts by ISO. In particular, SLALOM partners have exploited the feedback received to provide suggestions to the JTC1 SC38 WG3, which is the body producing the 19086 family of standards on cloud computing SLAs, both in terms of the model that will describe each metric and the definition of the metric to be used per SLO. SLALOM work extends up to suggesting not only the metrics to be used but the procedure of measuring them as well. In order to be practical, and acknowledging that it is very difficult to work on all possible SLO and metrics, the work focused on the metrics that scored as most important taking into account the feedback from all stakeholders (see section 7.1 of [11]). These are: a) Availability (Accessibility) Metric, b) Availability (Functionality) Metric, c) Response Time (Transactional) Metric, d) Response Time (Incident) Metric, e) Incident Resolution Time Metric, and f) Performance of Virtual Cores Metric. The description of these metrics can be found in [12].

4.1.2 Difficulty of comparing CSPs

Difficulty of comparing CSPs consists of the different metrics that may be used for each SLO and the different processes for measuring the metric. For example, when the measurement procedure starts and the interval/frequency between the measurements is differentiated. In order to address this challenge, SLALOM technical specifications include not only the suggestion of metrics for some of the most discussed SLOs but also the proposal on how they should be measured [12]. Based on the SLALOM research, both through the received feedback but also through the literature and past cloud/SLA projects, it was clear that even SLAs that use the same metrics for the same SLOs, they may have different approach of measuring the respective KPI. This is a barrier for comparing the cloud SLAs to each other.

Although SLALOM does not force the application of its models, the more stakeholders exploit them, the more close to common definitions and comparison of cloud SLAs (in the values of the metrics and not the procedural information) we get.

4.1.3 Broader examples and automation

In order to allow automation in cloud SLA lifecycle, SLALOM has identified the need for describing the terms in a machine-readable format. This will allow the incorporation of the SLA terms in the automated mechanisms of the SLA lifecycle that have already or are being proposed by cloud/SLA research projects, see e.g., [13].

The proposed format from SLALOM was JSON and the examples of [12] also include machine-readable SLAs so as to allow the interested stakeholders to adopt them. Moreover, efforts have been made through conferences and webinars (e.g., Netfutures 2016, MUSA workshop, etc. – see [10] for detailed information about SLALOM dissemination activities) to explain how these examples can be expanded or adjusted to the business cases of the interested parties.

4.1.4 End-to-end measurements

Cloud adopters have positioned themselves in favour of end-to-end measurements, but cloud providers hesitate to take responsibility on including in the measurement procedures time periods when failures or delays are beyond their control. For example, starting the measurement of the transactional response time when the cloud adopter initiates the stimulus on his device, instead of when the request from the cloud adopter arrives at the cloud service provider's endpoint, includes the network transit time, which may be outside the control of the cloud service provider.

SLALOM proposes an almost end-to-end approach. In particular, in [12] it has been proposed not to include the network transit time in the case of transactional response time. However, when subcontracting and 3rd parties are used by the main contractor, the time or the performance delivered by the subcontractors should not be excluded from the measurements. Subcontractors or 3rd parties usually get involved from the cloud provider’s side, therefore contracts between them should clearly state and legally bind them with respect to their performance. These terms should be taken into account when the cloud provider (main contractor) designs the cloud SLA with his cloud adopter.

4.1.5 Resolution of incidents and communication

Providers usually avoid committing to the resolution time due to the diversity of the nature of errors, e.g., an error may simply need a server reboot (~5 mins) or the replacement of a hard disk (including setting up its functionality and recovering its files/data). On the other hand, cloud adopters need to know when an incident will be resolved and be informed at each step of the resolution procedure. To address this suggestion, SLALOM partners have proposed in [12] the “Incident Resolution Time” metric.

4.1.6 Most important ISO components/metrics

The responses of the cloud adopters were exploited to prioritize the ISO components and metrics that are the most interesting to them. This approach is also in accordance to the identified need of keeping the models simple and realistic without being exhaustive in the metrics. This prioritization can be found in section 3. However, given the need for common understanding and consensus among the stakeholders, the prioritization list that was exploited when scheduling the work in SLALOM for the

definition of the technical specification and the respective examples of metrics, was based on the feedback of all stakeholders (see section 7.1 of [11] or Figure 1). The currently available SLALOM examples are related to: a) Availability (Accessibility) Metric, b) Availability (Functionality) Metric, c) Response Time (Transactional) Metric, d) Response Time (Incident) Metric, e) Incident Resolution Time Metric, and f) Performance of Virtual Cores Metric.

4.2 From the legal point of view

4.2.1 Standardization vs. simplicity

From the legal point of view, SLALOM's response to this need is to base its terms on existing best practice, complemented by additional terms identified through the literature search and the questionnaire. Complete cloud SLA legal terms (structured in 22 sections and aspects) that combine the concerns of all stakeholders are suggested through [7] and can be used either "as is" or partially by the interested parties. In order to provide these terms, EU regulation and local laws of Italy, Greece, UK, Germany and France have been taken into account. Although the terms included in [7] are contractual terms, effort was put to state them as simple as possible for non-legal persons as well. Last but not least, acknowledging the fact case laws are preferred in some countries, D2.3 [15] has been provided by the SLALOM consortium to cover jurisdiction issues.

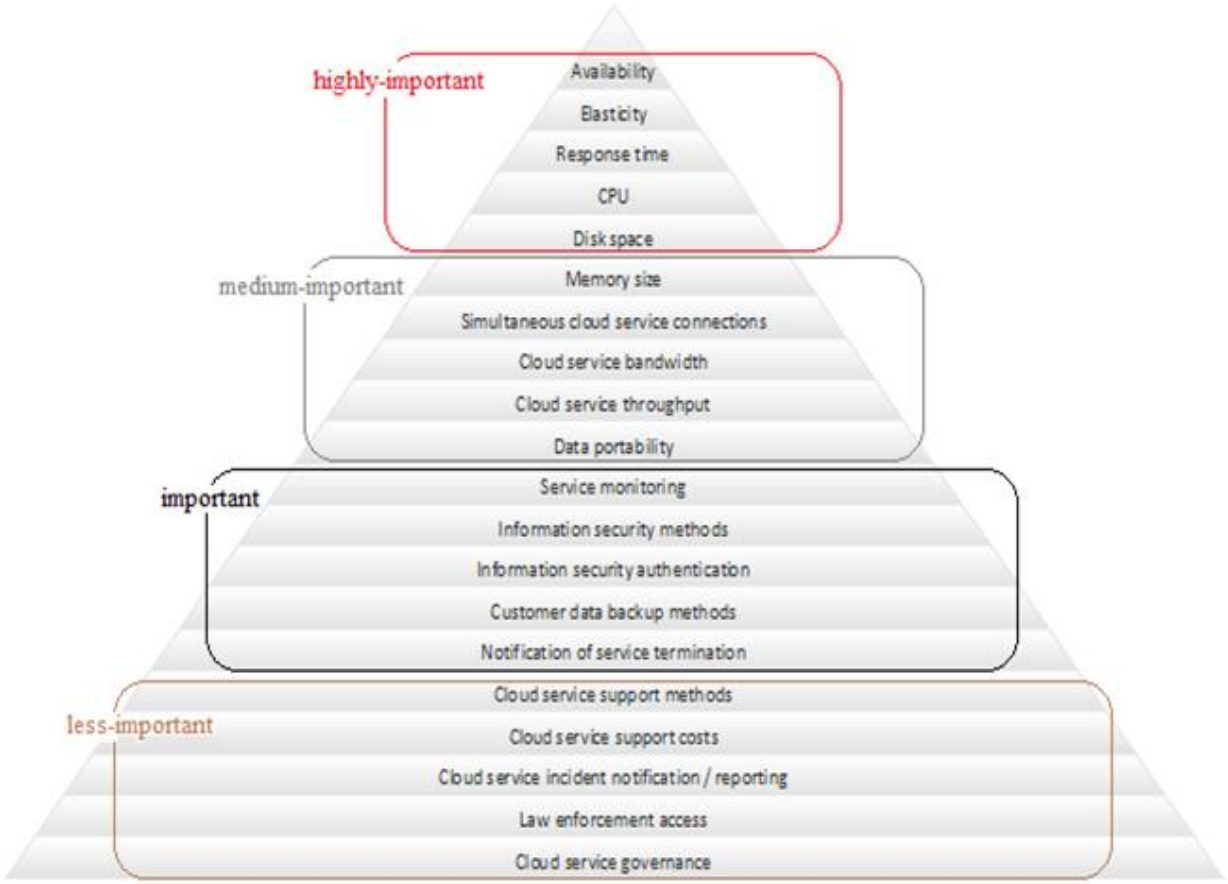

Figure 1. Prioritization of cloud metrics based on the feedback of all cloud SLA stakeholders during the awareness phase

4.2.2 Personal data protection and data location

Personal data in [7] is defined as follows "any information relating to an identified or identifiable natural person (as defined under Directive 95/46/EC, as replaced from time to time, also known as Personal Identifiable Information under other legislations). This includes information that can be linked, directly or indirectly, to a natural person; an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or using all means which can reasonably be used by the Data Controller or a Third Party to identify a natural person (e.g. one or more factors specific to his physical, physiological, mental, economic, cultural or social identity)".

SLALOM legal terms sets out guidelines with respect to personal data and how they should be treated in the following cases: a) consequences of termination and expiration, b) confidentiality obligations, c) subcontracting and d) data protection. Data location aspects are also discussed within "Data protection" proposed clause. Finally, the ownership of the data is set within the "Intellectual Property" section of the SLALOM proposed MSA.

4.2.3 Security concerns

Security aspects such as the obligations of the cloud adopter with respect to security and the termination of the services from the provider if cloud adopters exploits the services for illegal actions are spread throughout the whole MSA. Most particularly, security issues are discussed under sections 4 “variation of the services”, 5 “obligations of the adopter”, 8 “Intellectual Property”, 9 “Terms and termination”, 11 “confidentiality obligations”, 12 “warranties and liability”, 15 “Suspension of services”, 17 “Data protection” and 21 “Disputes”.

However, the main aspect requested by the cloud adopters refers to the minimum security kit that the provider should apply. To this end, an attachment, namely “Attachment 6 to the Agreement: Security Policy”, has been proposed by SLALOM to complement the MSA. This proposed attachment concerns the responsibilities of the provider in relation to security measures to be implemented. Security measures must be outlined in the document and must be aligned at least with suitable set of physical, technical and organizational measures as set out by the applicable Data Protection Laws and Regulations but the exact definition of these measures is need to be defined in common consensus among the involved parties.

4.2.4 Resolution of incidents and communication

Communication issues are dealt as described in section 19 “Notices – Parties’ team leaders” of the proposed MSA. In particular, the section describes the process by which communications are exchanged between the parties. The section will also set out the names of the persons responsible for managing the contract. The section does not raise any particular legal issues, however, in case of a dispute between the parties concerning the performance of any obligations of the agreement, it allows to prove if a specific communication has be sent to the right person. On the other hand, this section does not provide information with respect to the timeplan for resolving incidents. Such information needs to be detailed in “Attachment 2 to the Agreement: Service Level Agreement – Service Credits” of the SLALOM MSA when necessary.

4.2.5 Subcontracting and 3rd parties

One of the sections of SLALOM MSA, in particular section 16 “subcontracting”, refers explicitly to subcontracting and 3rd parties issues. Based on SLALOM proposal, the provider, under the clause of section 19, will have the right to subcontract the services, provided that he keeps the adopter informed as to the identity of the third parties who will be performing the sub-contracted services. Moreover, if the services offered under the CSA include personal data, the clause of section 19 will also make a quick reference to the data protection obligations set out under “Attachment 5 to the Agreement: Data Processing Attachment” of the MSA, which includes more restrictive obligations according to the Cloud Select Industry Group (C-SIG) on Code of Conduct (12 February 2014).

5 Cloud Adopters' feedback (Phase II - III "Consensus and Adoption")

Mrs. Mary Barlow, Head of the Strategic Project Management Office at EMBL-EBI (UK), and Mrs. Menna Raafat, Technical Business Officer - Systems infrastructure at EMBL-EBI (UK) agreed to give to the SLALOM consortium their views with respect to the first draft of the SLALOM legal terms [14]. Mrs. Barlow's former position was ICT manager while currently holds the role of procurement manager for EMBL-EBI data centre (vs. cloud services).

EMBL-EBI had adopted Amazon services in the past but had to just accept the terms, with no negotiation capability. EMBL-EBI has now moved to in-house/private cloud infrastructure which is managed internally. Moreover, they are now carrying out cloud procurement (additional to internal cloud).

Overall, SLALOM legal terms were interesting and informative. Mrs. Barlow will exploit them as a checklist – "double" tick on important items for EMBL-EBI so as to revise the SLA contracts of the company. On the other hand, the terms were considered to be more focused on European law, rather than UK case law. When Mrs. Barlow was informed of D2.3 [15], which has a specific section for UK case law, she found that such a document would be helpful for her organization.

The following aspects were discussed and suggested as "food for thought" by Mrs. Barlow and Mrs. Raafat:

a) When referring to cloud procurement, then the procurer need to focus only on the limited mandatory contractual terms (e.g., availability, security and cooling level between racks for data storage service). Then the score for winning the tender is on the basis of "meet", "exceed" or "underperform" the criteria (having the option to explain if "underperform" the contractual term). The remaining terms/metrics (e.g., response time) can be provided as an ANNEX (in contractual terms) and service credits, i.e., in the range of x to y.
b) Metrics with respect to the frequency, the severity, the time occurred, etc. of a repeated failure could be added.
c) In long-term contracts, terms for adjusting the prices of the services could be included to protect all stakeholders from e.g., falling prices. In EMBL-EBI long-term contracts, there is a benchmarking clause according to which if there was a big gap in the prices, a 3rd party can be invited from any of the parties to benchmark and re-evaluate the price of the service.
d) Service failures due to disasters were also discussed. "Force Majeure" clause was one of the clauses that had already attracted the interest of Mrs. Barlow. However, there were also suggestions that can be taken into account. These involve the specification of how quickly expandable is the provided service and the need for a priori discussions among the parties with respect to the solution the adopter would prefer after a disaster.

Last, but certainly not least, Mrs. Barlow considers that it is possible for EMBL-EBI to exploit SLALOM legal terms – under consultation with EMBL-EBI legal team while Mrs. Raafat expressed her interest in knowing more about the SLALOM technical specifications and considering if they fit in their business cases.

6 Ongoing actions (Phase II - III "Consensus and Adoption")

Most of the comments provided during the "awareness" phase have been addressed, however there are still actions that can be complemented. Moreover, looking at the feedback provided by EMBL-EBI, although the feedback was based on the first draft of the SLALOM legal terms [14], the final SLALOM legal terms [7] had already been published, i.e., the received comments have not yet been addressed.

In particular, the remaining actions refer to

a) Broadening the list of the SLA metrics that have been described using the SLALOM technical model and the respective JSON examples so as to increase the sustainability of the model and enhance the ability to compare SLAs that come from different CSPs. Currently ongoing actions target Internet of Things (IoT) metrics.
b) Further analysing the applicable Data Protection Laws and Regulations so as to identify the minimum suitable set of physical, technical and organizational measures so as to ensure security. This information, when available, could be included in "Attachment 6 to the Agreement: Security Policy" so as to guide the discussion among the parties of the contract.
c) Listing (per cloud service type) the incidents that may occur when offering cloud services and proposing a categorization based on their severity so as to provide a template for the "resolution time" metric.
d) Including repeated failure aspects within the SLALOM models (technical and legal one).
e) Considering the inclusion of clauses that protect both cloud providers and cloud adopters from big changes e.g., in prices during long-term contracts - similar to benchmarking clause applied by EMBL-EBI.
f) Expanding "Force majeure" clause of the MSA to also include information with respect to how quickly expandable is the provided service and the preferred (by the cloud adopter) solution after a disaster.

Some of these actions may be tackled (depending on the SLALOM partners' individual interests) during the sustainability period of SLALOM (and confirmed by the SLALOM sustainability body) while others can be considered from cloud/ SLA stakeholders and/or research projects.

Finally, following the end of the SLALOM project, the stakeholders mentioned in section 2 will also be informed about both the final SLALOM legal and technical reference models while questionnaire [9] will remain "live" during the sustainability phase of the project for those stakeholders that would like to provide their feedback even after the end of the project. Such a feedback will be communicated to and discussed by the members of the SLALOM sustainability body for defining future actions.

7 Conclusions

This report summarizes the actions performed within WP5, i.e., “Cloud adopter track”, and focusses on the followed outreach strategy; the feedback received from cloud adopters; the actions performed for addressing the received comments and suggestions; and the remaining actions/comments to be dealt in the future.

WP5 main objective based on the Grand Agreement (GA) of the project was to ensure that the cloud adopters (of all types) reach consensus on and appreciation of the SLALOM reference models (from both the technical and the legal one). Therefore, the WP involved all the activities that SLALOM should make in order to retrieve the required feedback from the cloud adopters and to ensure their representation in the SLALOM models and the consensus discussions about them. Thus, it was responsible for outreach to these adopters. This was further split in the following sub-objectives:

- Gathering of the initial position of cloud adopters as input to the legal terms;
- Identification of the cloud adopters’ role in the SLA lifecycle;
- Dissemination and communication to the cloud adopters; and
- Iterative interactions with the cloud adopters until a consensus is reached.

During the project lifetime, WP5 partners have indeed a) gathered the initial position of cloud adopters through questionnaire [4]; b) designed their outreach strategy (awareness phase) and identified the cloud adopters to be contacted; c) disseminated through invited talks, webinars, sessions, posters, press releases, etc., the SLALOM models; and d) outreached numerous (potential) cloud adopters asking for their feedback through mailing campaigns and peer-to-peer communication but cloud adopters have not been very active in providing their feedback. To address this issue and increase the feedback from the cloud adopters, the outreach strategy was revised during the “consensus” phase of the project so as to include further contacts. Moreover, the consensus phase has been extended so as to provide to these added contacts the required time for studying the drafted models. However, the feedback from cloud adopters remained limited.

In particular, WP5 partners have contacted 37 ICT trade associations, 8 mailing lists from research and (pre-)standardization organizations, 10 SMEs/SME-related organizations that have participated in cloud/SLA projects in the past and followed-up 5 individuals that expressed their interest during sessions where SLALOM outcomes were presented. From the interactions with cloud adopters during the events where SLALOM models were presented, the consortium attracted the interest of cloud adopters and their willingness to exploit the proposed models, but it turned out to be difficult to engage them into reading the proposed models and providing specific comments into the SLALOM legal terms and technical specifications.

Eventually, in order to better represent the cloud adopters perspective and better support a fair and balanced contract proposition, the cloud adopters’ feedback was complemented by literature sources (e.g., research outcomes).

8 REFERENCES

[1] SLALOM deliverable D1.1, "Stakeholder analysis and initial communication plan"

[2] A. Bantouna, L. Kanellos, P. Demestichas, D. Field, O. Barreto, D. Kyriazis, E. Protonotarios, T. Varvarigou, D. Stella, G. Rinaldi, B. Beyer, D. Bicket, "SLALOM: Removing the barriers for the cloud SLA adoption", Poster in EUCNC 2015(29/6-02/07/2015, Paris) - Poster session 02

[3] SLALOM deliverable D1.2, "Outreach Year 1 report and plan for the adoption phase"

[4] SLALOM Online questionnaire, "SLALOM: Ready to Use Cloud SLA", available at http://bit.ly/28JFmPh [last accessed: June 2016]

[5] SLALOM deliverable D4.1_5.1, "Initial Position Paper Reflecting Cloud Service Provider and Cloud Adopter Requirements", available at http://bit.ly/SLALOMD4-1D5-1 [last accessed: June 2016]

[6] SLALOM deliverable D3.1, "Initial position paper (technical)", available at http://bit.ly/SLALOMD3-1 [last accessed: June 2016]

[7] SLALOM deliverable D2.2, "Final Legal Terms for adoption", available at http://bit.ly/28JOVO8 [last accessed: June 2016]

[8] Digital Europe website, "National Trade Association Members", available at http://www.digitaleurope.org/AboutUs/NationalTradeAssociationsMembers.aspx [last accessed: June 2016]

[9] SLALOM Online questionnaire, "SLALOM: Project Deliverables Assessment", available at http://goo.gl/forms/Wl3wCRb3855dm2p42 [last accessed: June 2016]

[10] SLALOM deliverable D1.4, "Final report and dissemination results"

[11] SLALOM deliverable D3.2, "SLA specification and reference model - a", available at http://bit.ly/28TWrDW [last accessed: June 2016]

[12] SLALOM report, "Cloud SLA Metrics Based on the SLALOM Specification and Reference Model", available at http://bit.ly/28WewDN [last accessed: June 2016]

[13] SLALOM deliverable D3.5, "Guidance on including SLALOM in research", available at http://bit.ly/28WiYlX [last accessed: June 2016]

[14] SLALOM deliverable D2.1, "First draft of the terms for discussion in the consensus groups", available at http://bit.ly/291ZPB1 [last accessed: June 2016]

[15] SLALOM deliverable D2.3, "Report on Jurisprudence and case law", available at http://bit.ly/28WIljt [last accessed: June 2016]