D1.1.5

Extended Requirements Report Stakeholder Analysis & Forum

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Abstract:	This document provides an overview of the Stakeholder feedback process within TClouds.
Keywords:	Cloud Computing, Stakeholder Questionnaire Feedback and Interviews, Sustainability, Privacy, Security

Editor

Roland Burger (INNOVA)

Contributors

Elmar Husmann (IBM)

Cristina Fregonese (INNOVA)

Disclaimer

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Executive Summary

This document presents the results of a second round of the Stakeholder forum survey with a complementary set of questions following the recommendations of the review meeting. This second round of the survey covers again over 60 interdisciplinary stakeholders which have been polled with an online survey. The questions have been developed together with the TClouds A2 partners and focus on the business and exploitation potential of TClouds key technological innovations.

Whereas the first round of the survey had investigated general business requirements towards cloud computing, this second round explored if TClouds technologies could motivate cloud users to adopt cloud computing in more privacy and security sensitive application areas. In addition, we have investigated the general issue of costs vs. security and privacy protection for the TClouds technologies that had been raised in the first round of the survey. Also, we have investigated the acceptance of different exploitation routes for the TClouds technologies, like high secure cloud services, add on cloud security products or Open Source.

Further to the survey, we are presenting the results of three events that were organized by the TClouds Wp1 in 2013. These have covered different business communities and exploitation potentials of the TClouds technologies.

The events include a cloud privacy and trust panel organized at the Conference for Computers, Privacy and Data Protection 2013 (CPDP), a workshop at Oxford University (consistent of a technical event and a TClouds presentation at the Oxford Entrepreneurs MeetUp) as well as a workshop at Cambridge University (including the participation of the Cambridge Idea Accelerator, the Spring Board StartUp Incubator and the Venture Capital Firm Amadeus Capital Partners represented by its founder Hermann Hauser).

The results of these dissemination/outreach events are overall a strong recognition of TClouds solutions within the target stakeholder groups and a continued sustainability and engagement beyond the project duration.

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Chapter 1 Introduction

1.1 TClouds – Trustworthy Clouds

TClouds aims to develop trustworthy Internet-scale cloud services, providing computing, network, and storage resources over the Internet. Existing cloud computing services are today generally not trusted for running critical infrastructure, which may range from business-critical tasks of large companies to mission-critical tasks for the society as a whole. The latter includes water, electricity, fuel, and food supply chains. TClouds focuses on power grids and electricity management and on patient-centric health-care systems as its main applications.

The TClouds project identifies and addresses legal implications and business opportunities of using infrastructure clouds, assesses security, privacy, and resilience aspects of cloud computing and contributes to building a regulatory framework enabling resilient and privacy-enhanced cloud infrastructure.

The main body of work in TClouds defines an architecture and prototype systems for securing infrastructure clouds, by providing security enhancements that can be deployed on top of commodity infrastructure clouds (as a cloud-of-clouds) and by assessing the resilience, privacy, and security extensions of existing clouds.

Furthermore, TClouds provides resilient middleware for adaptive security using a cloud-of-clouds, which is not dependent on any single cloud provider. This feature of the TClouds platform will provide tolerance and adaptability to mitigate security incidents and unstable operating conditions for a range of applications running on a cloud-of-clouds.

In the year 3 of the project, the TClouds technical innovations have reached a level of maturity that allows discussing them with a wider community of cloud experts, business users, entrepreneurs and also venture capitalists.

Following recommendations from the Y2 review, we have conducted a second round of the TClouds stakeholder survey with specific questions related to the key technological innovations of TClouds. We have also conducted a series of stakeholder events.

This version 2 of the D1.1.5 deliverable provides the outcomes of these activities whereas the outcomes of the first round of the stakeholder survey (with more general questions about cloud computing privacy and security) were already provided in the version 1 and are not repeated here again.

1.2 Activity 1 – Legal and Business Foundations for Cross-Border Computing

The Scope of Activity 1 is to identify requirements and boundaries for cloud computing. The Activity aims at providing a guidance framework to address both legal requirements and business interests in cross-border infrastructure clouds.

Based on the expertise and input from users and stakeholders, the activity researches relevant interests, drivers and obstacles for the use of cloud computing services for privacy-sensitive and business-critical applications – with a focus on the implication of cross-border cloud deployment.

This is supported in WP1.2 by an analysis of the European legal framework for data protection and data security that identifies the regulatory foundation for cloud computing and leads to an investigation of its privacy impact.

The Activity A1 overall addresses the business impact of cloud computing as well as the accompanying privacy and security concerns. Requirements derived from this tense relationship of business benefit and regulatory boundaries will be mapped to organisational, contractual and technical measures and enablers.

1.3 Work Package 1.1 – Requirements and Roadmap

WP1.1 applies a road mapping approach in order to identify users' requirements towards cloud infrastructure, to help structuring the development of the TClouds technologies, and to determine success indicators of the project in terms of addressing actual requirements and market needs in cloud computing. A core element of WP1.1 has been in this context the set-up of a TClouds online stakeholder community of European experts and cloud providers on the one hand and cloud users – in particular SMEs – on the other hand. The interviewing of these experts has taken place in two rounds (2012 and 2013) via an online questionnaire. Results are documented in D1.1.5 V1 and V2 (extended requirements report) as well as will be further integrated in a TClouds white paper. WP1.1 is closely integrated into the detailed analysis of the TClouds activity A1 that investigates requirements towards cloud computing from a user- and general community- (Wp1.1), legal- (WP1.2) and business- (WP1.3) perspective as well as – as a cross cutting activity – in detail for the two TClouds application domains (some results in D1.1.4).

As part of the WP1.1 activities, the following stakeholder events have been conducted

- a cloud privacy and trust panel organized at the Conference for Computers, Privacy and Data Protection 2013 (CPDP) in the main conference plenary stream
- a workshop at Oxford University (comprised of a technical event and a TClouds presentation at the Oxford Entrepreneurs MeetUp)
- a workshop at Cambridge University (including the participation of the Cambridge Idea Accelerator, the Spring Board StartUp Incubator and the Venture Capital Firm Amadeus Capital Partners represented by its founder Hermann Hauser).

1.4 Deliverable 1.1.5 Extended Requirements Report - Stakeholder Analysis & Forum

For this extended requirements report we have created a refreshed Stakeholder forum of over 60 interdisciplinary stakeholders including three different communities:

- a high level technical group of cloud experts and providers
- representatives of SMEs / SME networks as cloud user council
- experts on information security and cyber protection (including CYSPA the Alliance for the protection of European Cyber Space and the European Organization for Security)

These experts answered an online survey in two rounds (2012 and 2013) to identify key requirements and concerns of (SME) cloud customers. The second round of the survey as documented here, has been specifically developed with input from all TClouds technical partners and explores the TClouds technical innovations. It investigates in detail how these

innovations are perceived by the stakeholders from the perspective of contributing to cloud security and privacy as well as business exploitation potential.

This deliverable provides the second set of results and an analysis of the responses. Together with the CPDP (Computers, Privacy & Data Protection) Conference series and the two outreach events in Oxford and Cambridge a significant effort was undertaken to reach out to Open Source researchers and start up entrepreneurs, for disseminating and discussing TClouds technology innovations. In particular, WP1.1 has achieved to move well beyond a community of researchers towards companies, entrepreneurs and venture capital.

This was done successfully in order to extend and further validate the results, by enlarging the feedback group and outreach considerably, thus gaining valuable insights from real-world stakeholder feedbacks.

1.4.1 Structure

This document focuses on the results of the online stakeholder questionnaires. These will be presented graphically comprehensively in Chapter 3. Chapter 4 will include a first analysis of these results and lead to further conclusions and findings.

Chapters 6 and 7 will give a transparent overview of the stakeholder target list and the used questionnaire.

Chapter 8 focuses on textual feedback of selected experts in different fields to provide more in-depth results.

The final four chapters (9 to 12) give an overview of events and cooperations.

1.4.2 Target Audience

The target audience of this work are mainly decision makers in industry, especially tailored for SMEs. To better reach out to this community a condensed TClouds business white paper is in preparation that will be presented in summer 2013 and at the final project review. As all research done for the TClouds project, this deliverable is also targeted at the cloud research and technical innovation community.

We further target the TClouds technical partners (A2) as the stakeholder process has revealed a number of interesting concerns and suggestions with regard to the exploitation of the TClouds technical innovations and the extent to which they meet current cloud market requirements.

1.4.3 Deviation from Work Plan

While originally planned as a work package that would mainly precede the TClouds A2 and A3 developments, WP1.1 has become redefined in Y2 into an activity that runs in parallel to the TClouds development to produce a better understanding of first general cloud security and privacy requirements in the currently evolving cloud market space (first round of the stakeholder consultation) and secondly more precise market feedback and requirements related to TClouds key technological innovation areas.

The originally responsible partner UMM left the TClouds project, INNOVA joined the project to work in particular on the Interviews and the TClouds stakeholder community. These changes are documented in detail in Amendment 1 to the GA.

1.4.4 Relation to other Deliverables

D1.1.5 is a second extension of D1.1.1 Draft Scenario and Requirements Report. It is intended to not only state requirements to shape and evaluate A2 and A3 progress but also an accompanying activity to produce a better understanding of general cloud security and privacy concerns in the cloud market space.

The first version of D1.1.5 (V1) has been extended by this second version (V2). While V1 presented results of the first round of the stakeholder consultation D1.1.5 V2 presents the results of the second round of the consultation and the related events.

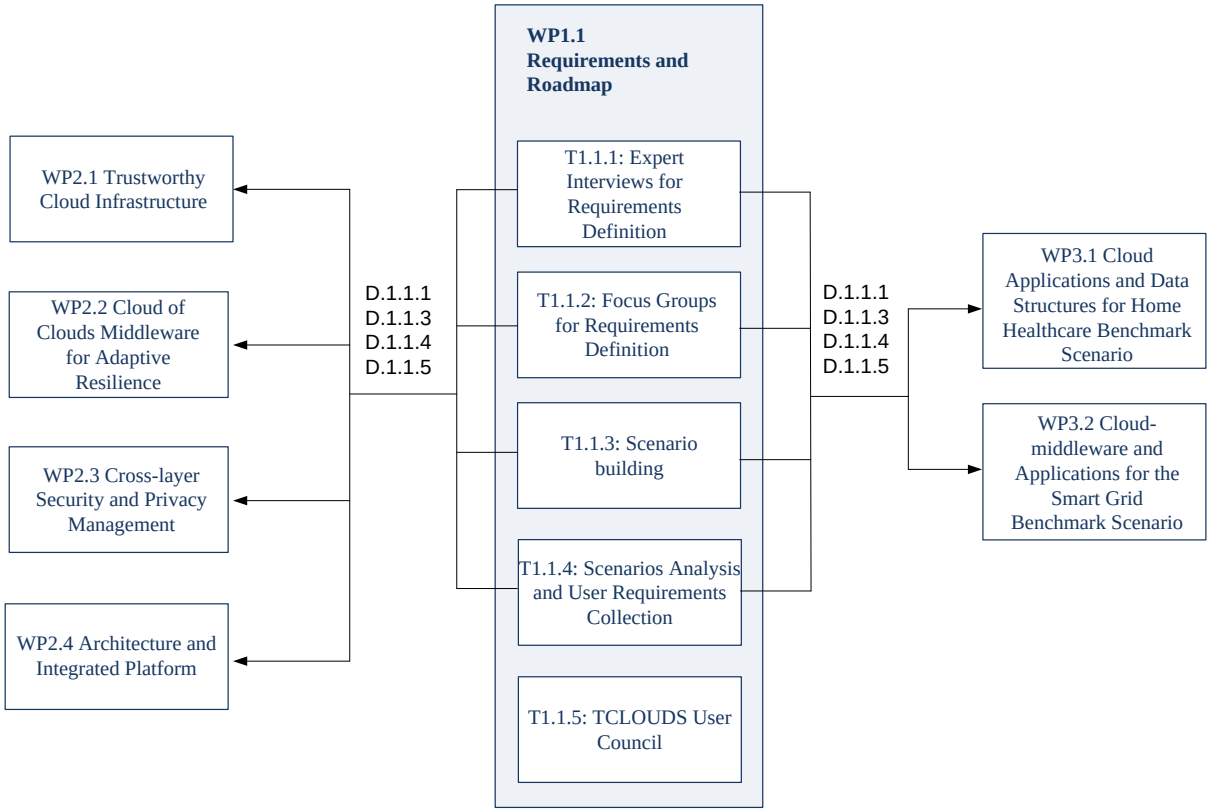

Figure 1: Relation to other Deliverables

Chapter 2 Background and Purpose

Following the recommendations from the 2nd review meeting in Brussels, a second round of the Survey has been undertaken. The stakeholder interviews of this second round treat key technical innovations of TClouds as crystallized out jointly with the A2 partners. These stakeholder interviews are intended to extend the TClouds technology exploitation, to investigate their business relevance and to match them to business requirements. The interviews constitute also a research result of their own, in particular when combined with the results from the first round of the survey.

The input from the interviews has also fed into the stakeholder events that have been organized at the CPDP conference in Brussels, at Oxford University, and at Cambridge University.

The overall focus of the interviews is based on the following factors, which refer to Standridge et al. (2011); the results of the focus group and expert talks in the two application scenario of TClouds; and the results of the business requirements analysis in WP1.3:

1. Technological demand, including the level of customization and integration required to provide enterprises with TClouds powered highly secure and privacy protective cloud-based software and services
2. The extent to which security, privacy, and auditability issues may be resolved in public clouds, and across different verticals with TClouds technologies
3. User empowerment, i.e. the degree to which consumers succeed in actively shaping TClouds technologies according to their privacy and security policies and demands
4. Business readiness: The acceptance of different forms of exploiting TClouds technologies in services or products
5. Training and skills requirements of cloud computing and how they are met at business level in order to flank technological with organisational security and privacy protection measures
6. Cloud ecosystem dynamics, i.e. the importance of support for open standards and cloud data portability.

Chapter 3 Results from 2013 online Feedback

In collaboration with TClouds partner ULD, a strong privacy protection was put in place for the 2013 survey. It included switching from a commercial survey provider (Surveymonkey.com) that could not guarantee sufficient privacy compliance, to a fully compliant Open Source package (Limesurvey.org) hosted on a server in Hamburg, Germany, that adheres completely to the EU Data Protection standards. This meant a complete rewrite of the question structure and online survey. However we think it was worth the efforts, in that it guarantees European Data Protection standards.

Furthermore we decided not to log the IP addresses of the participants. Below is the full text of the disclaimer, all participants agreed to this text.

*Privacy Agreement: * The content of this survey has been developed by the TClouds project and the execution is coordinated by INNOVA SpA, a consortium partner of TClouds. INNOVA SpA is the responsible data controller for this survey. If you have questions or complaints, please contact us at info@innova-eu.net * We ask for your consent to process the survey data for scientific publication of the aggregated answers. In the survey, we will ask for your name, affiliation, country of origin, and email address since this information is important to evaluate and validate our results. These will not be used for marketing or any other secondary purposes. We will collect your answers to the survey linked with this personal information. We will not collect your IP address or install cookies on your device. * We will publish your name in the findings report, if you agree to do so. You can also choose to have your name not being published. * Your personal answers to the survey will be kept confidential and are only available to INNOVA SpA. In the publication, your name will not be linked with the specific answers you gave in the survey. We will only publish condensed results from this survey and not your individual opinions. The results will get published on http://www.tclouds-project.eu/ * INNOVA SpA has selected the Open Source tool LimeSurvey and the German hosting organization LimeService to host this online survey. * LimeSurvey is well known for being used in privacy sensitive applications. For the full data protection statement of the survey hosting organization, please see here. * All personally identifiable survey data collected by INNOVA SpA will be deleted shortly after the end of the TClouds project end of October 2013. PLEASE ACKNOWLEDGE THAT YOU HAVE READ OUR PRIVACY POLICY BY MARKING YES:*

3.1 The Online Questionnaire No.1 has given the following results:

Field summary for 1pp

I agree to be listed in the results report as participant in this survey.

Answer	Count	Percentage
Yes (Y)	**46**	**76.67%**
No (N)	14	23.33%
No answer	0	0.00%
Not displayed	0	0.00%

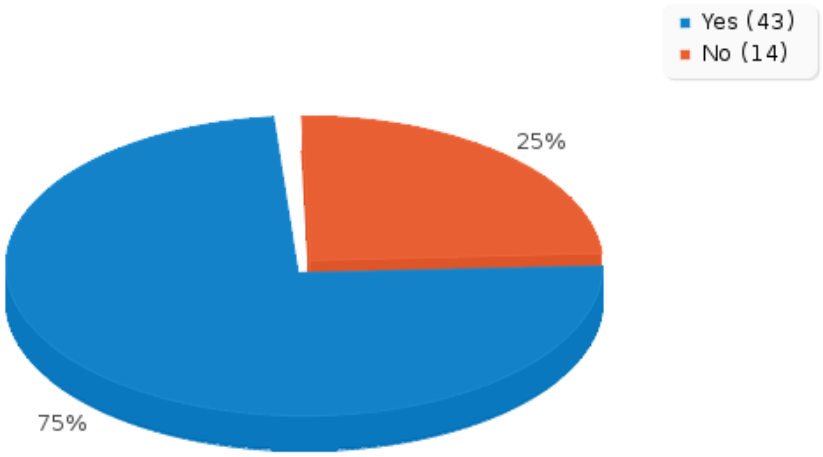

Figure 2: TClouds Stakeholder online questionnaire Response summary

3.2 Country

Austria	3	5.00%
Belgium	3	5.00%
Brazil	1	1.67%
Canada	2	3.33%
China	1	1.67%
Estonia	1	1.67%
Finland	1	1.67%
Germany	17	28.33%
Greece	1	1.67%
India	1	1.67%
Ireland	2	3.33%
Israel	1	1.67%
Italy	8	13.33%
Netherlands	5	8.33%
Pakistan	1	1.67%
Portugal	1	1.67%
Spain	3	5.00%
Tonga	1	1.67%
United Kingdom	7	11.67%

Figure 3: TClouds Stakeholder Country provenance details

3.3 Field summary for Business Classification

Answer	*Count*	*Percentage*
Small and Medium Enterprise (A1)	18	30.00%
Large Corporation (A2)	16	26.67%
NGOs/Civil Society/Not for profit/ Financial Sector/Venture Capital (A3)	2	3.33%
Social Enterprise/University/Research (A4)	20	33.33%
Private (A5)	1	1.67%
Other	3	5.00%

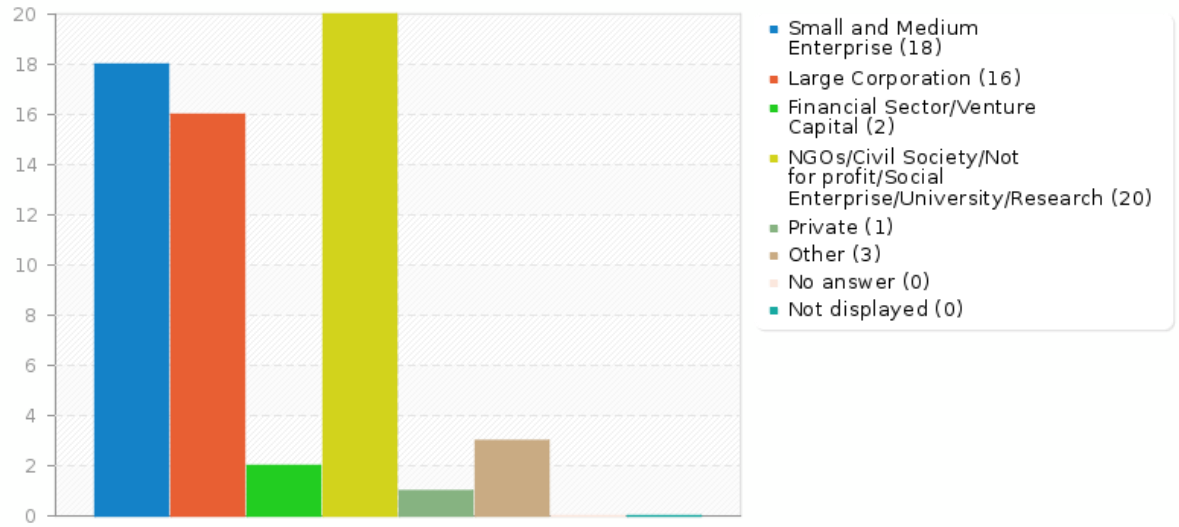

Figure 4: TClouds Stakeholder online questionnaire Business classification chart

3.4 Background/Technology

Answer	Count	Percentage
Moderate knowledge on technical issues (A1)	4	6.67%
Know the concept but not how it works technically (A2)	9	15.00%
Know the technical issues (A3)	26	43.33%
Expert (A4)	19	31.67%
Other*	2	3.33%

*Evangelist, Various

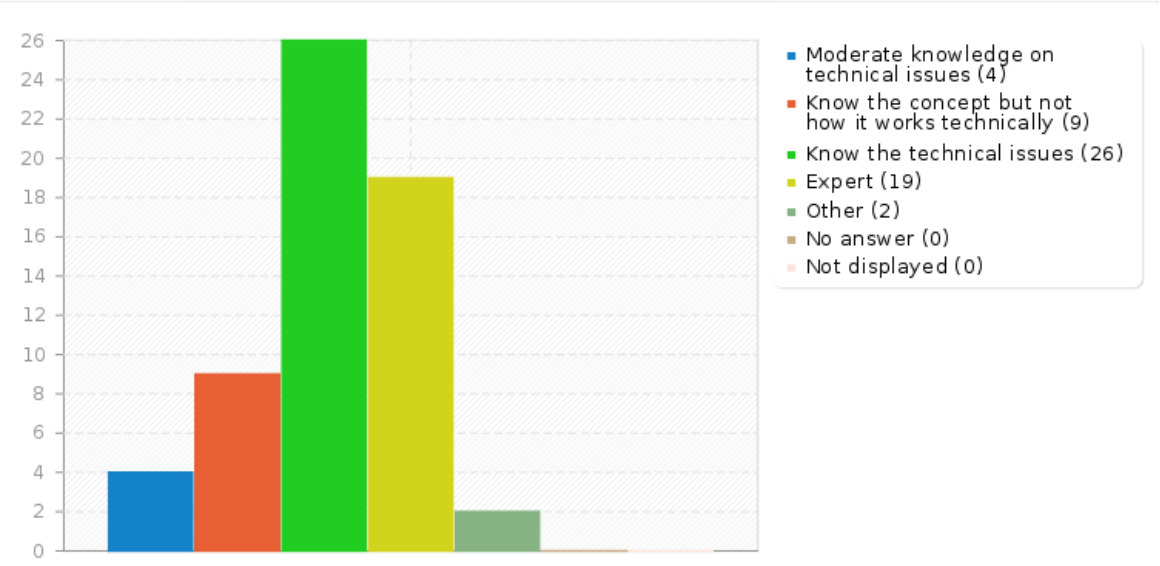

Figure 5: TClouds Stakeholder online questionnaire Personal background Technological

3.5 Field summary for Background/Technology

Answer	Count	Percentage
Moderate knowledge on technical issues (A1)	4	6.67%
Know the concept but not how it works technically (A2)	9	15.00%
Know the technical issues (A3)	26	43.33%
Expert (A4)	19	31.67%
Other	2	3.33%

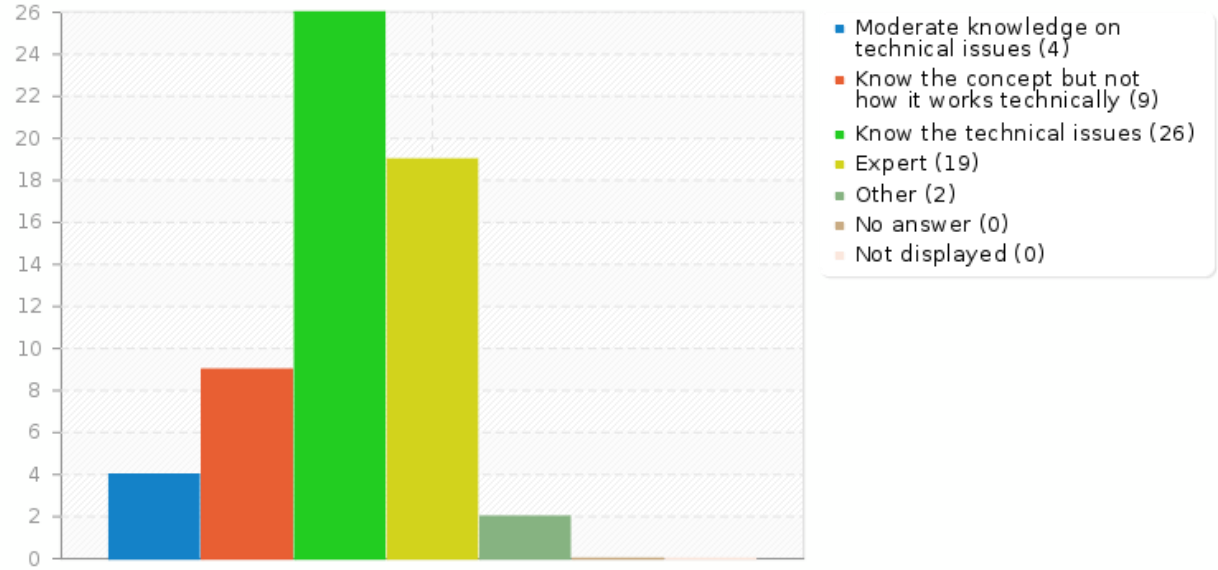

Figure 6: TClouds Stakeholder online questionnaire Personal background chart

3.6 What is the size of your organization in terms of the number of employees?

Answer	Count	Percentage
1-10 (A1)	13	21.67%
11-30 (A2)	2	3.33%
31-50 (A3)	5	8.33%
51-above (A4)	35	58.33%
No answer	5	8.33%
Not displayed	0	0.00%

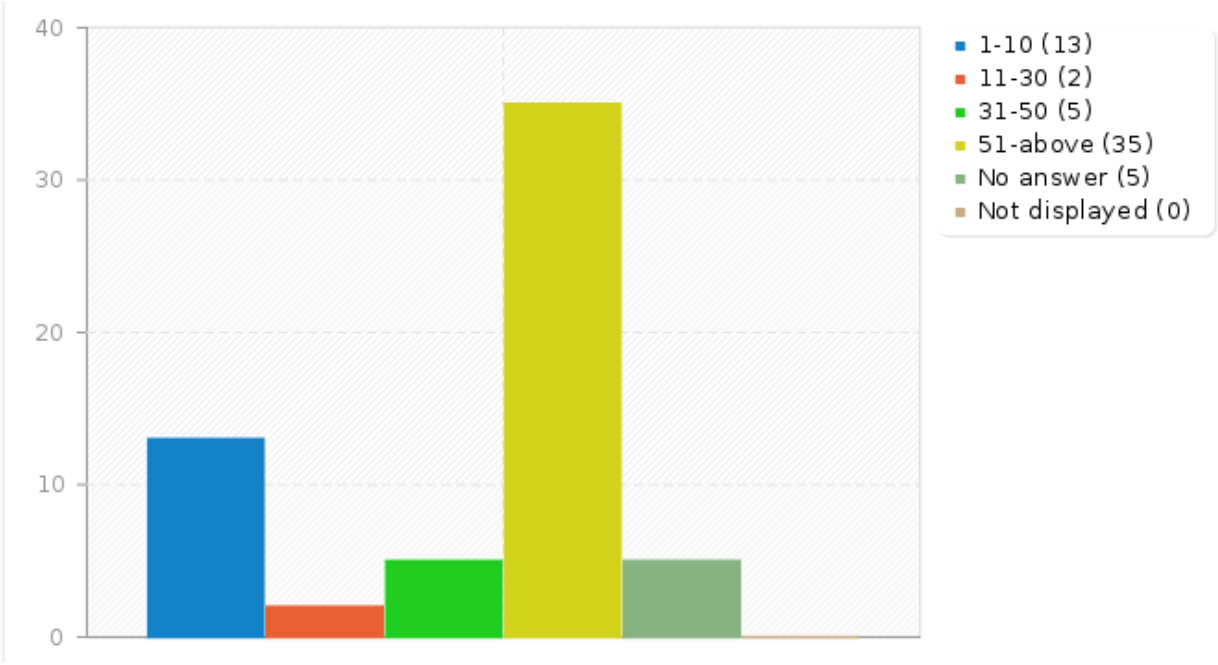

Figure 7: TClouds Stakeholder Size of organization chart

3.7 What industry sector does your company/organization belong to?

Answer	Count	Percentage
Retail/ Wholesale (A1)	1	1.67%
Manufacturing (A2)	3	5.00%
Industry (A3)	10	16.67%
Professional Services (A4)	16	26.67%
Finance/Banking (A5)	0	0.00%
Venture Capital (A6)	1	1.67%
Other*	29	48.33%

*Education, Applied Research,, Consulting and Development, Policy, Food production and gastronomy, Telco

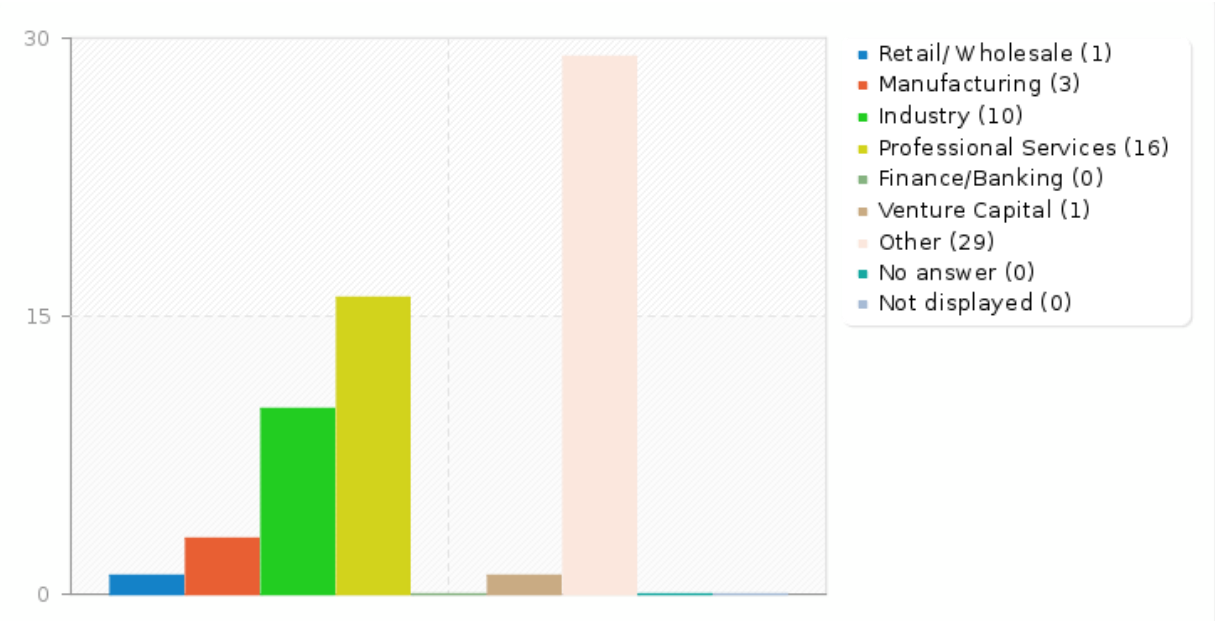

Figure 8: TClouds Stakeholder Industry sector

3.8 Are you currently using cloud computing?

Answer	Count	Percentage
Yes (Y)	47	78.33%
No (N)	13	21.67%
No answer	0	0.00%
Not displayed	0	0.00%

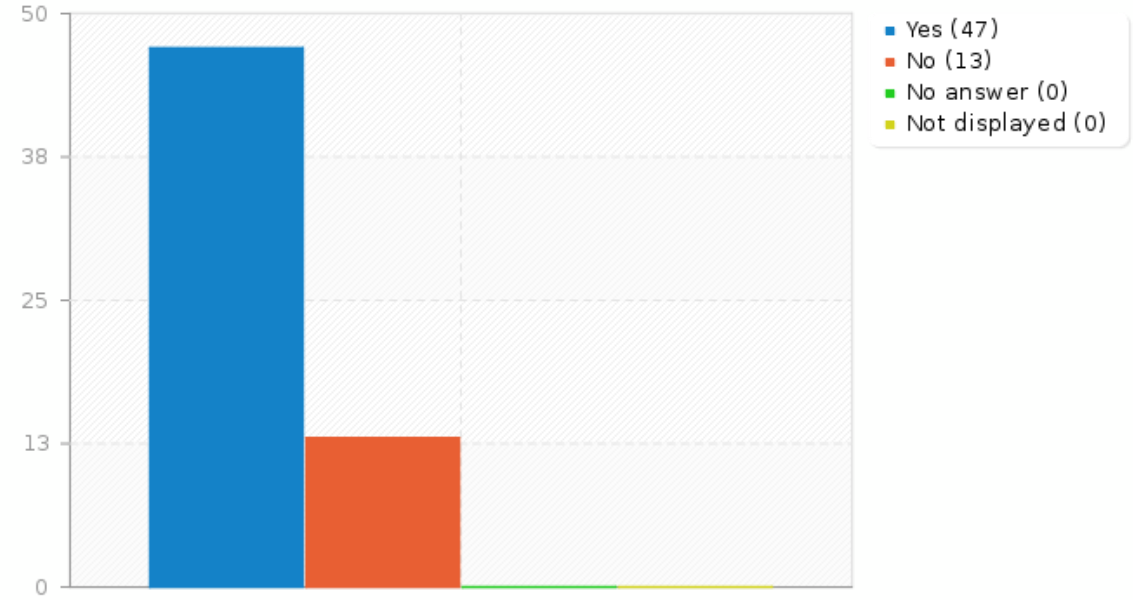

Figure 9: TClouds Stakeholder Are you using cloud computing

3.9 For which application domains would you consider a Trusted Infrastructure Cloud? [Critical infrastructure]

This section introduced Part II with a detailed information section with links to the topic[1].

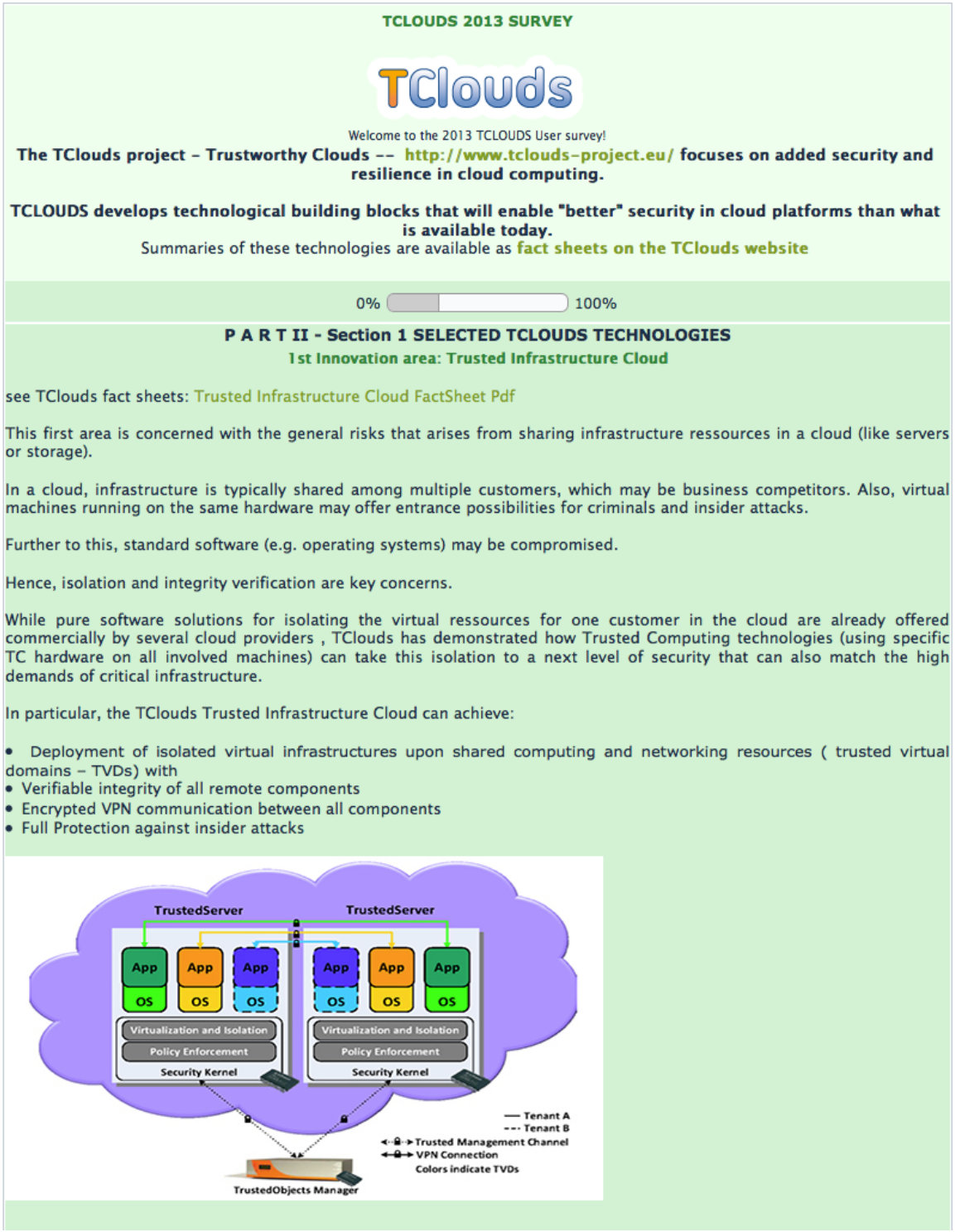

Figure 10: TClouds Introduction to Part II of the Survey

[1] Link to the TClouds fact sheets: http://www.tclouds-project.eu/index.php/about-tc/factsheets

Answer	Count	Percentage
not relevant (1)	9	15.00%
somewhat relevant (4)	10	16.67%
relevant (2)	22	36.67%
highly relevant (3)	19	31.67%
No answer	0	0.00%

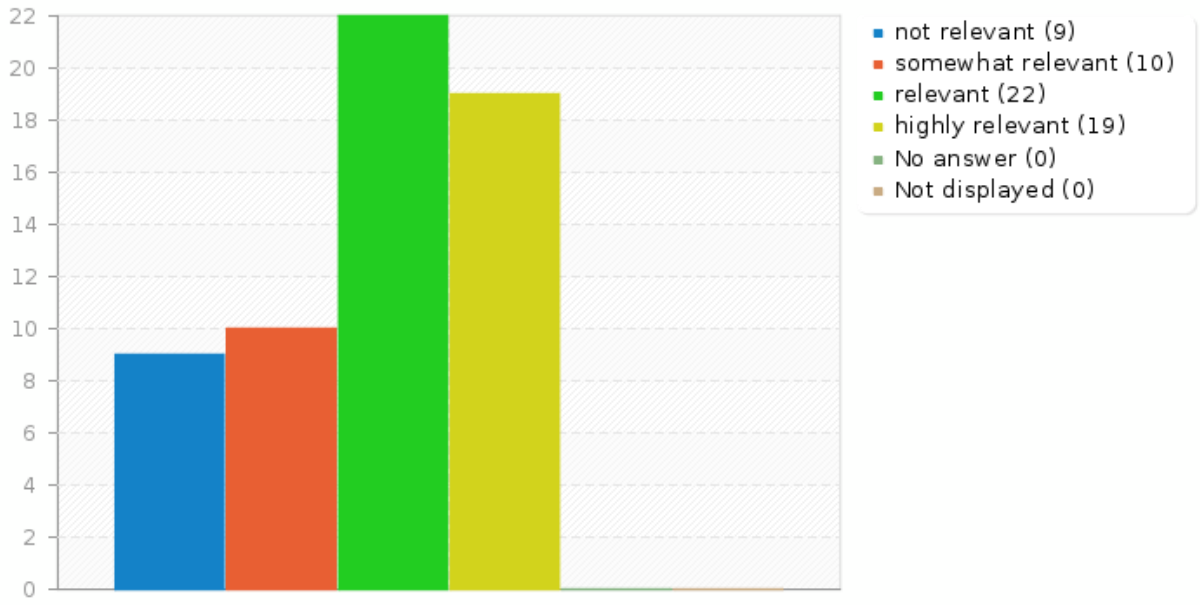

Figure 11: TClouds Application domains – critical infrastructure

3.10 For which application domains would you consider a Trusted Infrastructure Cloud? [Business critical workloads]

Answer	Count	Percentage
not relevant (1)	1	1.67%
somewhat relevant (4)	9	15.00%
relevant (2)	27	45.00%
highly relevant (3)	23	38.33%
No answer	0	0.00%

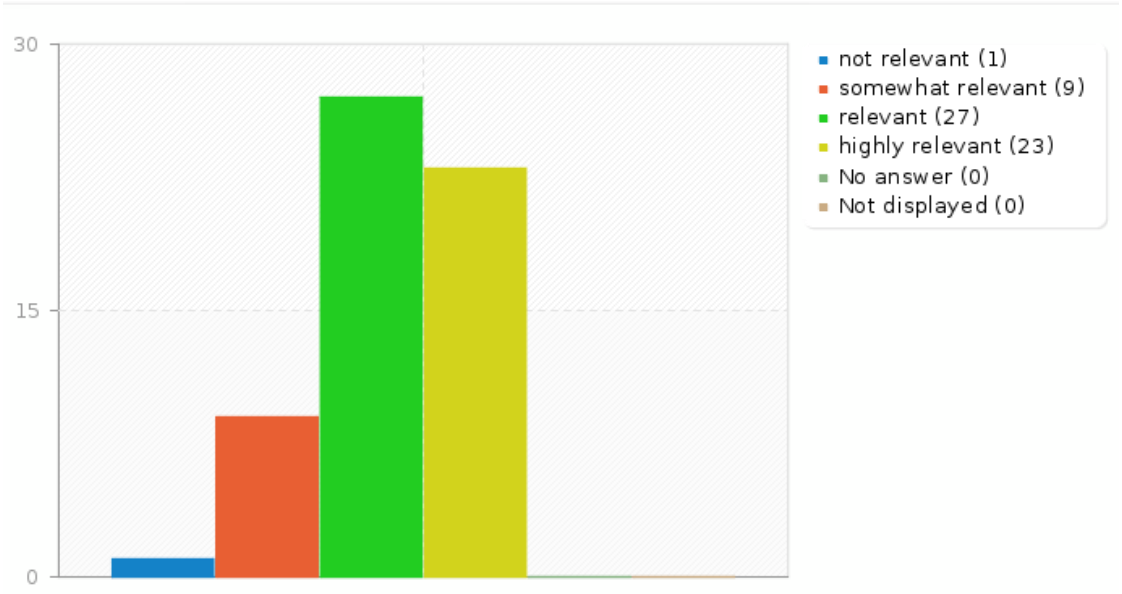

Figure 12: TClouds application domains [Business critical workloads]

3.11 For which application domains would you consider a Trusted Infrastructure Cloud? [Privacy sensitive data or computation]

Answer	Count	Percentage
not relevant (1)	7	11.67%
somewhat relevant (4)	10	16.67%
relevant (2)	18	30.00%
highly relevant (3)	25	41.67%
No answer	0	0.00%

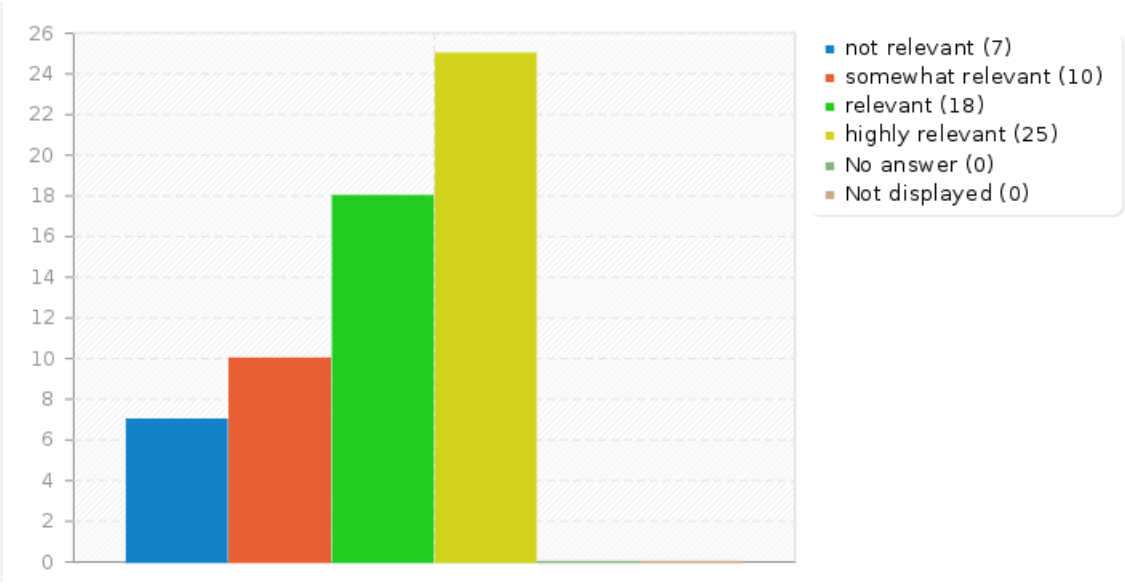

Figure 13: TClouds application domains [Privacy sensitive data or computation]

3.12 For which application domains would you consider a Trusted Infrastructure Cloud? [Location sensitive data or computation]

Answer	Count	Percentage
not relevant (1)	3	5.00%
somewhat relevant (4)	17	28.33%
relevant (2)	26	43.33%
highly relevant (3)	14	23.33%
No answer	0	0.00%

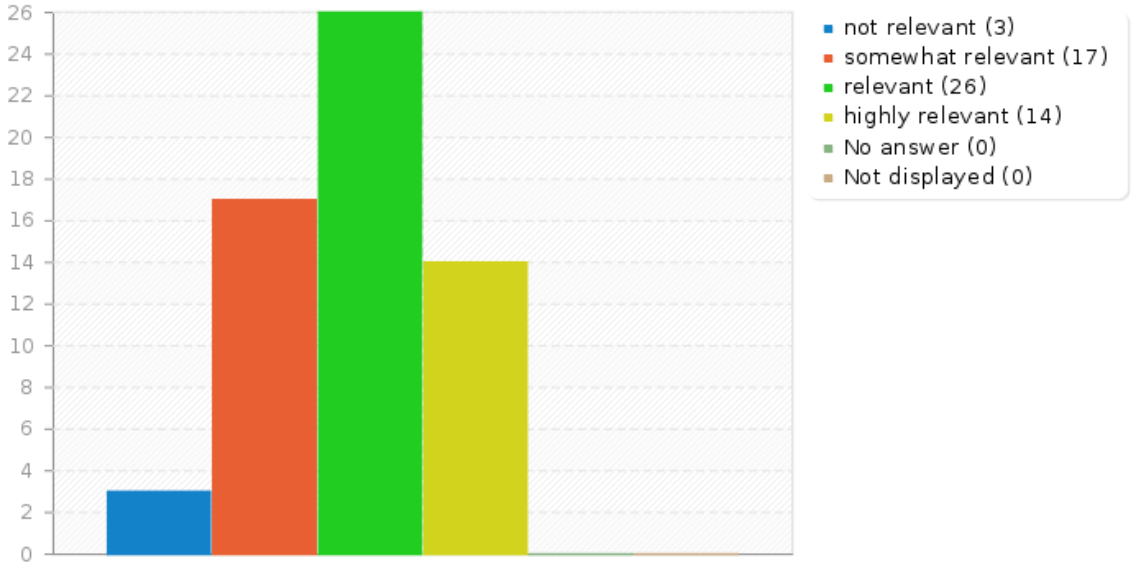

Figure 14: TClouds application domains [Location sensitive data or computation]

3.13 For which application domains would you consider a Trusted Infrastructure Cloud? [All workloads]

Answer	Count	Percentage
not relevant (1)	6	10.00%
somewhat relevant (4)	28	46.67%
relevant (2)	19	31.67%
highly relevant (3)	7	11.67%
No answer	0	0.00%

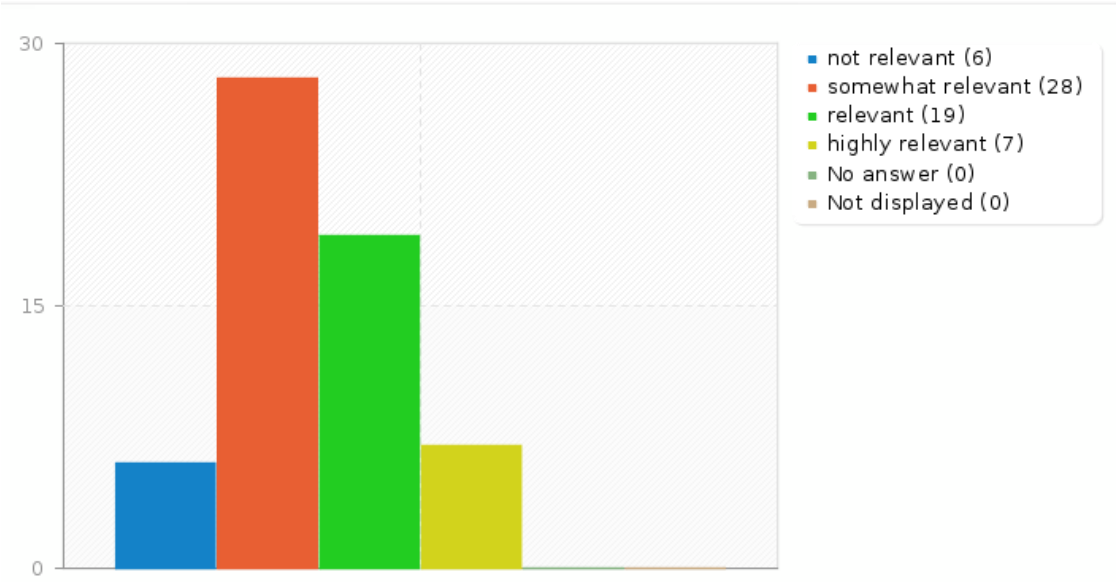

Figure 15: TClouds application domains would you consider a Trusted Infrastructure Cloud [All workloads]

3.14 Do you have general concerns about the use of Trusted Computing technology in Cloud computing? [Openness & Flexibility]

Answer	Count	Percentage
not relevant (1)	2	3.33%
somewhat relevant (4)	12	20.00%
relevant (2)	29	48.33%
highly relevant (3)	17	28.33%
No answer	0	0.00%

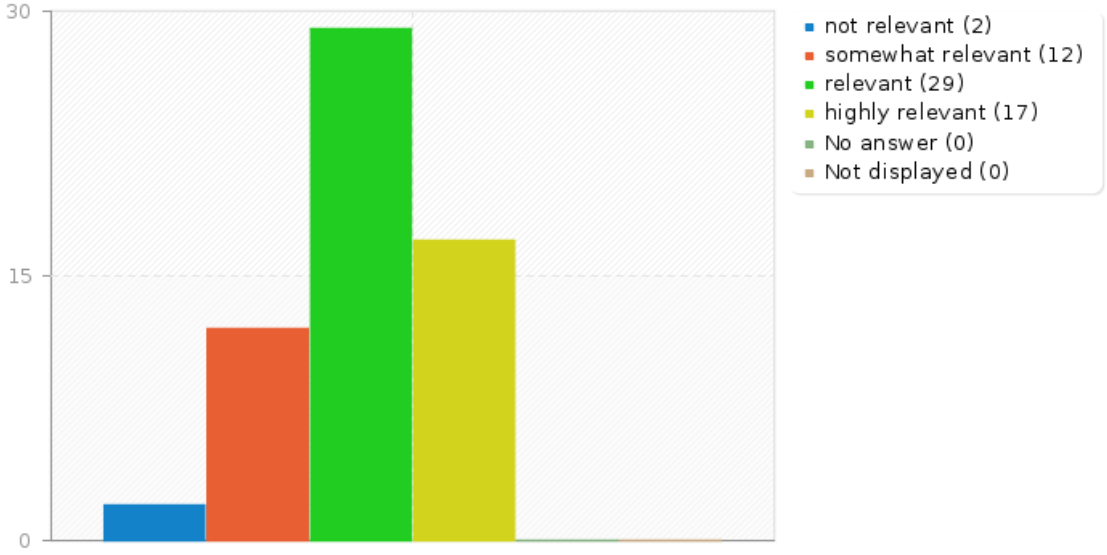

Figure 16: TClouds concerns [Openness & Flexibility]

3.15 Do you have general concerns about the use of Trusted Computing technology in Cloud computing? [Price]

Answer	Count	Percentage
not relevant (1)	3	5.00%
somewhat relevant (4)	13	21.67%
relevant (2)	25	41.67%
highly relevant (3)	19	31.67%
No answer	0	0.00%

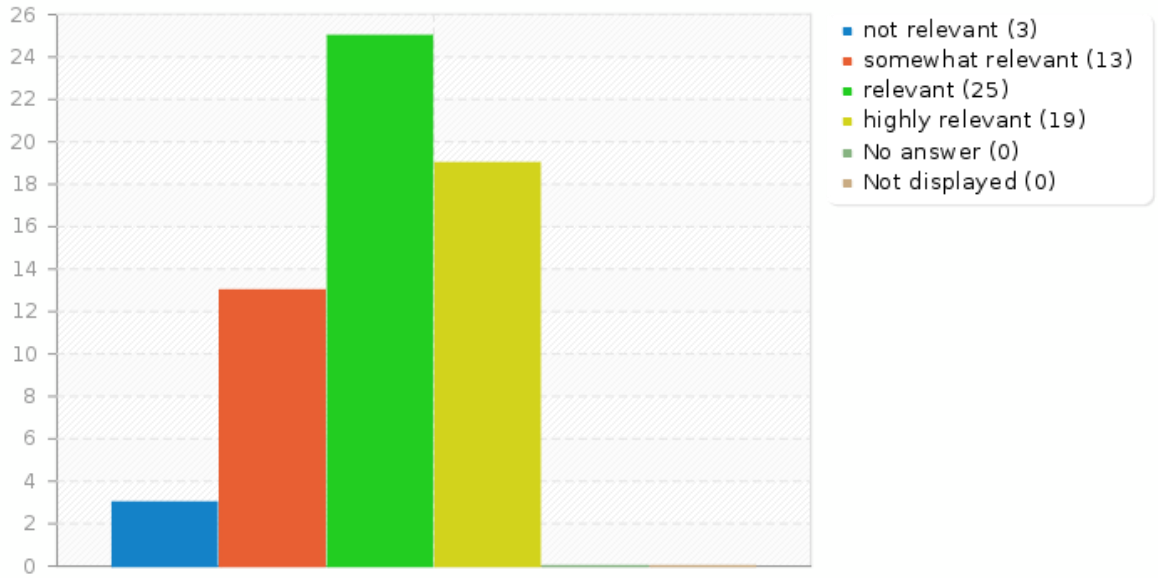

Figure 17: TClouds concerns [Price]

3.16 Do you have general concerns about the use of Trusted Computing technology in Cloud computing? [Vendor lock-in]

Answer	Count	Percentage
not relevant (1)	1	1.67%
somewhat relevant (4)	8	13.33%
relevant (2)	27	45.00%
highly relevant (3)	24	40.00%
No answer	0	0.00%

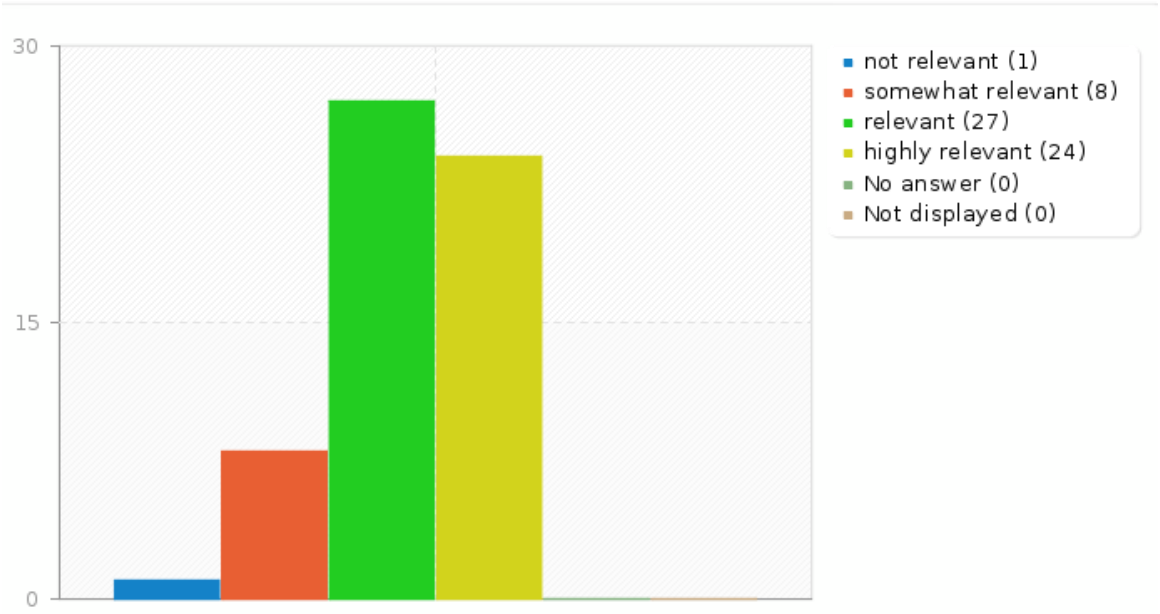

Figure 18: TClouds Stakeholder concerns [Vendor lock-in]

3.17 Do you have general concerns about the use of Trusted Computing technology in Cloud computing? [Added management complexity]

Answer	Count	Percentage
not relevant (1)	0	0.00%
somewhat relevant (4)	21	35.00%
relevant (2)	24	40.00%
highly relevant (3)	15	25.00%
No answer	0	0.00%

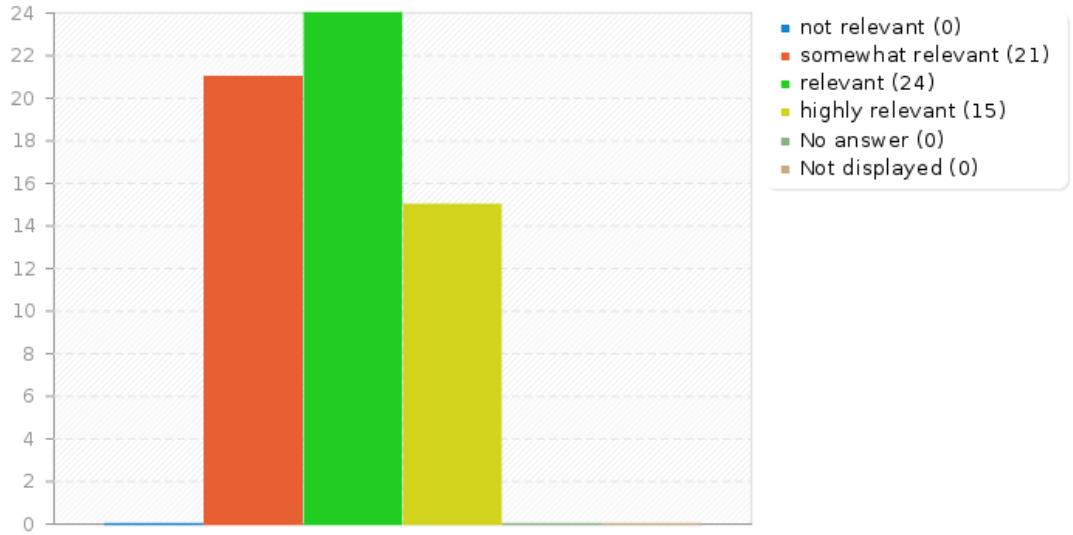

Figure 19: TClouds Stakeholder concerns [Added management complexity]

3.18 How interesting would the following commercial options be to you? [A family of software and hardware products to build Trusted Infrastructure Clouds]

Answer	Count	Percentage
not relevant (1)	10	16.67%
somewhat relevant (4)	15	25.00%
relevant (2)	30	50.00%
highly relevant (3)	5	8.33%
No answer	0	0.00%

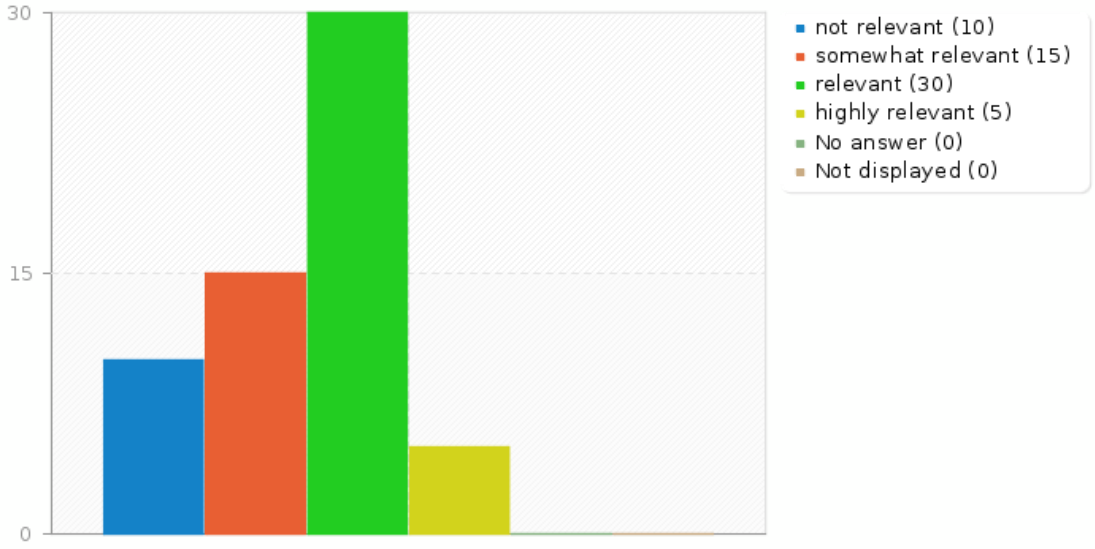

Figure 20: TClouds Stakeholder commercial options

3.19 How interesting would the following commercial options be to you? [A premium Trusted Infrastructure Cloud service for specific applications]

Answer	Count	Percentage
not relevant (1)	6	10.00%
somewhat relevant (4)	19	31.67%
relevant (2)	30	50.00%
highly relevant (3)	5	8.33%
No answer	0	0.00%

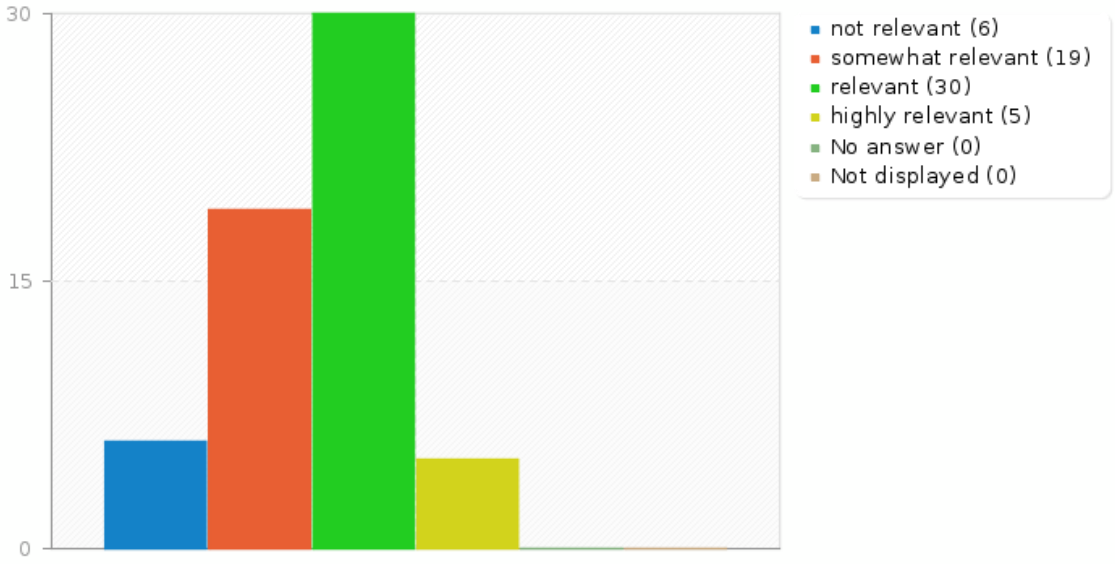

Figure 21: TClouds Stakeholder commercial options premium

3.20 How interesting would the following commercial options be to you? [The general upgrading of all cloud services with Trusted Infrastructure elements]

Answer	Count	Percentage
not relevant (1)	5	8.33%
somewhat relevant (4)	21	35.00%
relevant (2)	24	40.00%
highly relevant (3)	10	16.67%
No answer	0	0.00%

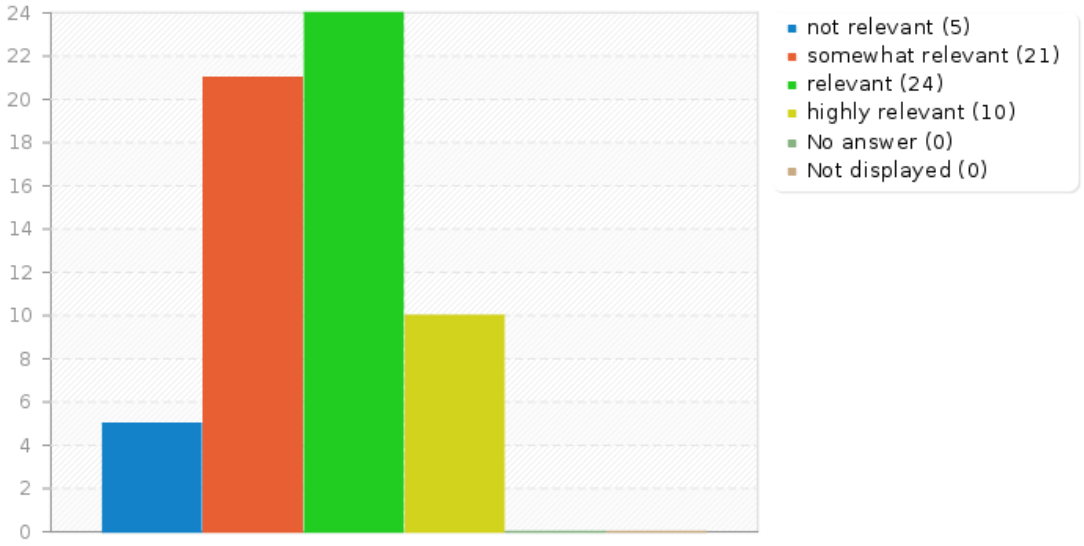

Figure 22: TClouds Stakeholder general upgrading

3.21 Would you see security hardening mechanisms for Cloud Platform Software rather as...? [... an important integral part of all cloud platforms in the future]

Section on the 2nd Innovation area: Security hardened Cloud Platform Software:

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TCLOUDS develops technological building blocks that will enable "better" security in cloud platforms than what is available today.

Summaries of these technologies are available as **fact sheets on the TClouds website**

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Part II - Section 2 2nd Innovation area: Security hardened Cloud Platform Software

The 2nd area is concerned with the **security risks of the software layer that manages a cloud**. OpenStack is a leading open source framework for cloud computing that is also supported by many commercial vendors. OpenStack components can be used to build compute and storage clouds and also includes several management components.

TClouds has analyzed OpenStack for security shortcomings and has found a number of possible security weaknesses. An example for this is the handling of high value cryptographic credentials (keys) in the cloud. This is a typical problem if the cloud shall be used to host a customer service that itself deploys e.g. secured communication with its end users. In that case, the actual keys become accessible for insiders or attackers via the virtual machine(s) that runs the service in the cloud.

TClouds has suggested a number of add-ons to OpenStack, e.g. a service that provides a trustworthy handling of crypto credentials by a specific service. They exploit features of Trusted Computing technologies. The same approach was applied to other areas to create mechanisms for trustworthy logs, access control or remote attestation. In all cases, this significantly reduces attack possibilities that exploit cloud administrative mechanisms and insider access – while giving more control to the cloud customer.

see TClouds fact sheets:
Access Control as a Service FactSheet Pdf
Cryptography as a Service FactSheet Pdf
Remote Attestation Service FactSheet Pdf
Secure Logging FactSheet Pdf
Ontology based Reasoner FactSheet Pdf

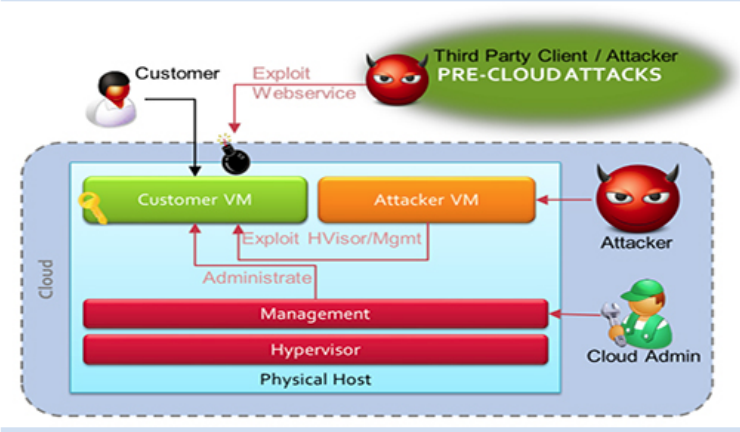


Figure 23: TClouds Section Introduction on 2nd Innovation area

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	6	10.00%
relevant (A2)	24	40.00%
highly relevant (A3)	29	48.33%
No answer	0	0.00%

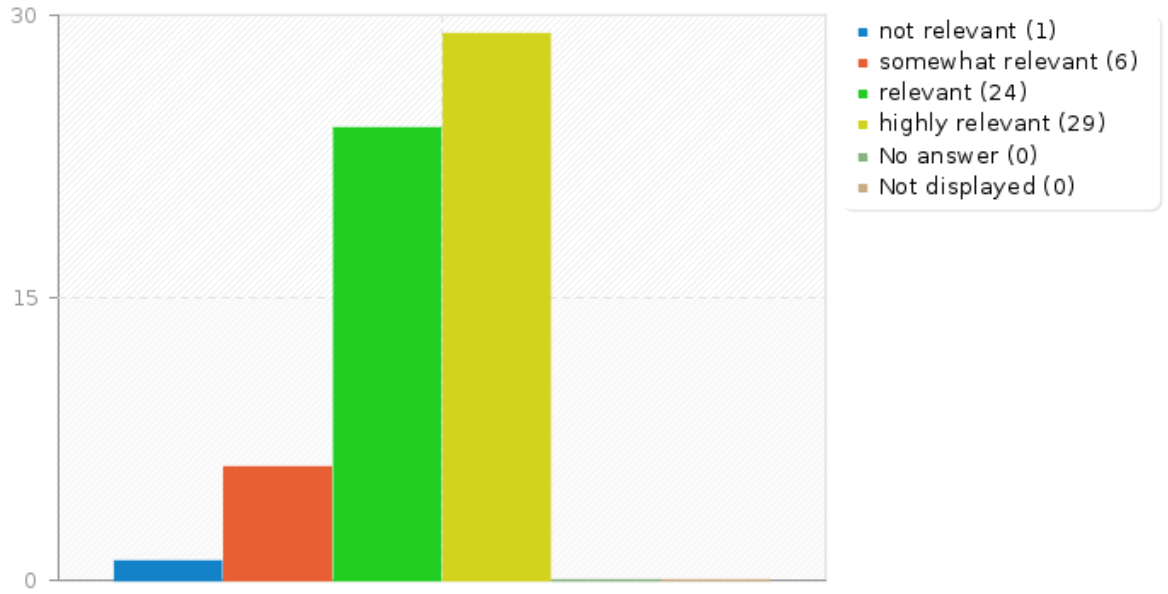


Figure 24: TClouds Stakeholder cloud platforms future

3.22 Would you see security hardening mechanisms for Cloud Platform Software rather as...? [... leading to specific cloud platforms for high security solutions]

Answer	Count	Percentage
not relevant (A1)	2	3.33%
somewhat relevant (A4)	12	20.00%
relevant (A2)	24	40.00%
highly relevant (A3)	22	36.67%
No answer	0	0.00%

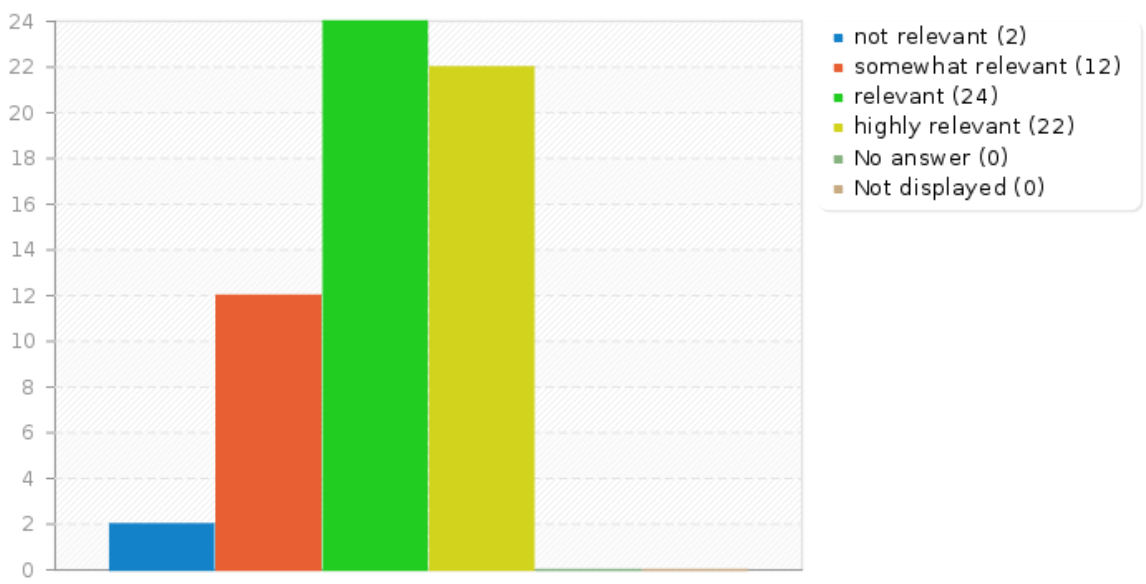


Figure 25: TClouds Stakeholder high security solutions

3.23 Would you see security hardening mechanisms for Cloud Platform Software rather as...? [... leading to a range of add-on security tools or services]

Answer	Count	Percentage
not relevant (A1)	4	6.67%
somewhat relevant (A4)	11	18.33%
relevant (A2)	30	50.00%
highly relevant (A3)	15	25.00%
No answer	0	0.00%

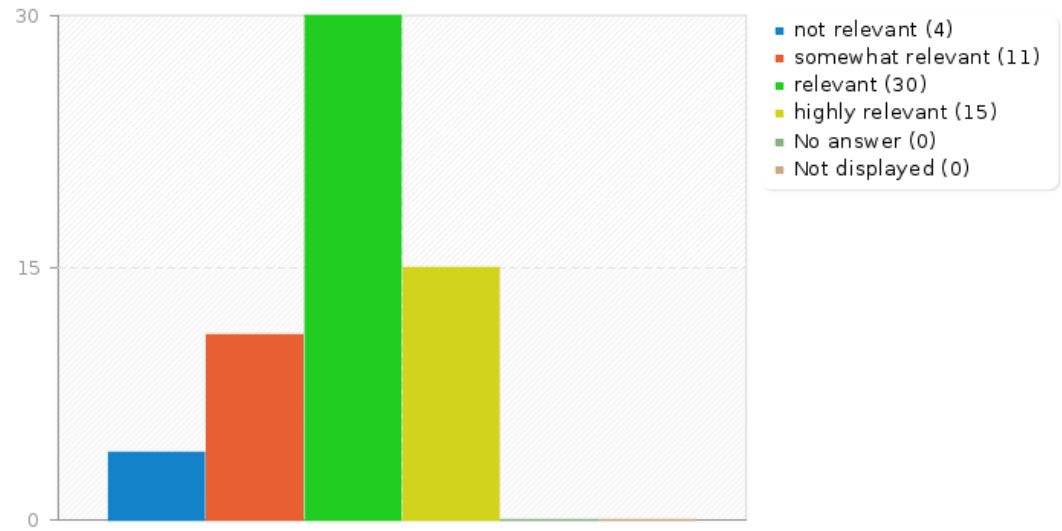


Figure 26: TClouds Stakeholder add on security tools

3.24 How concerned are you about the following cloud platform risks? [Cloud specific attacks by insiders (e.g. administrators of the cloud provider)]

Answer	Count	Percentage
not relevant (A1)	3	5.00%
somewhat relevant (A4)	12	20.00%
relevant (A2)	24	40.00%
highly relevant (A3)	21	35.00%
No answer	0	0.00%

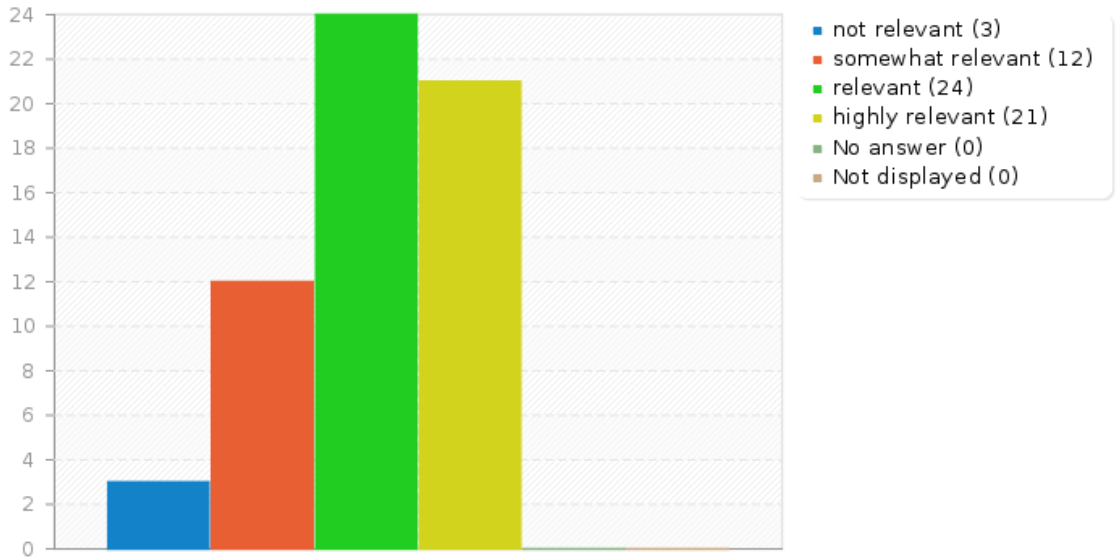


Figure 27: TClouds Stakeholder add on security tools

3.25 How concerned are you about the following cloud platform risks? [Cloud specific attacks by externals]

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	6	10.00%
relevant (A2)	21	35.00%
highly relevant (A3)	32	53.33%
No answer	0	0.00%

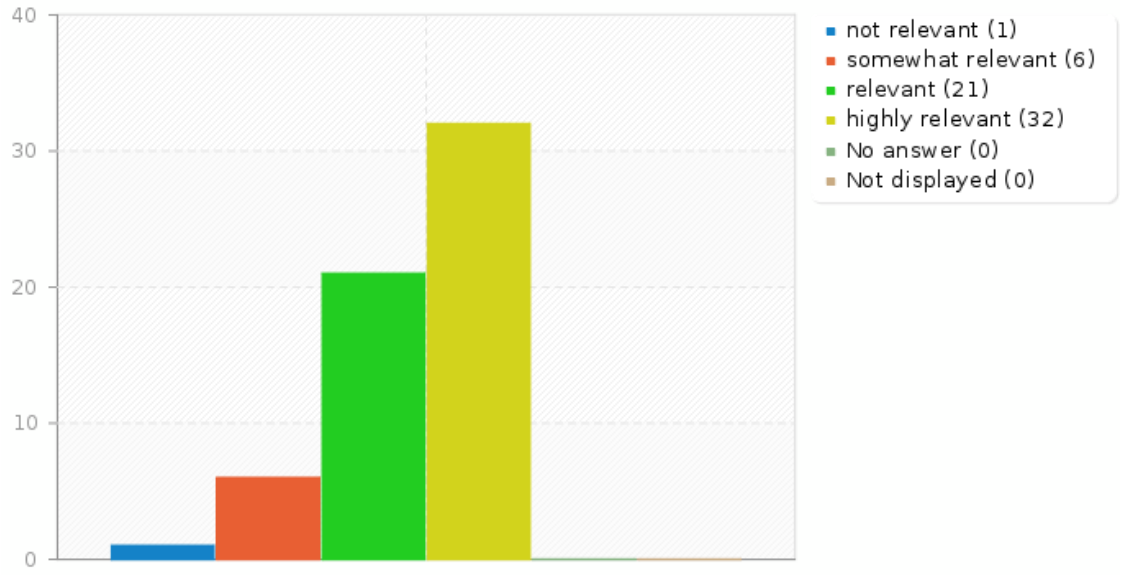


Figure 28: TClouds Stakeholder cloud specific attacks

3.26 How concerned are you about the following cloud platform risks? [Non-cloud specific attacks that exist for traditional platforms]

Answer	Count	Percentage
not relevant (A1)	4	6.67%
somewhat relevant (A4)	12	20.00%
relevant (A2)	26	43.33%
highly relevant (A3)	18	30.00%
No answer	0	0.00%

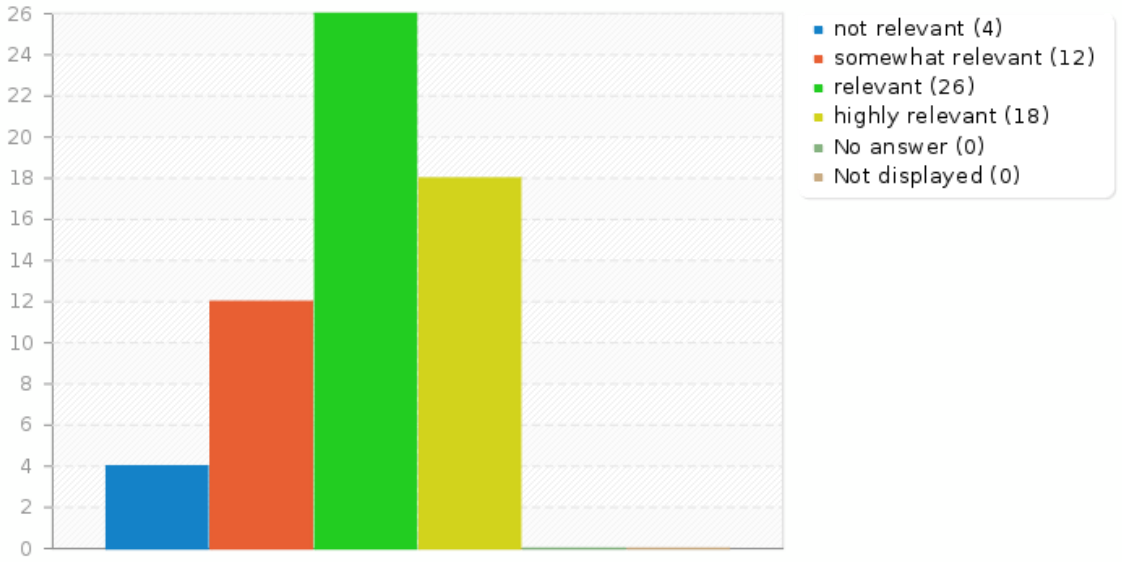


Figure 29: TClouds Stakeholder non cloud specific attacks

3.27 How concerned are you about the following cloud platform risks? [Accidental leakage of data or credentials]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	11	18.33%
relevant (A2)	19	31.67%
highly relevant (A3)	30	50.00%
No answer	0	0.00%

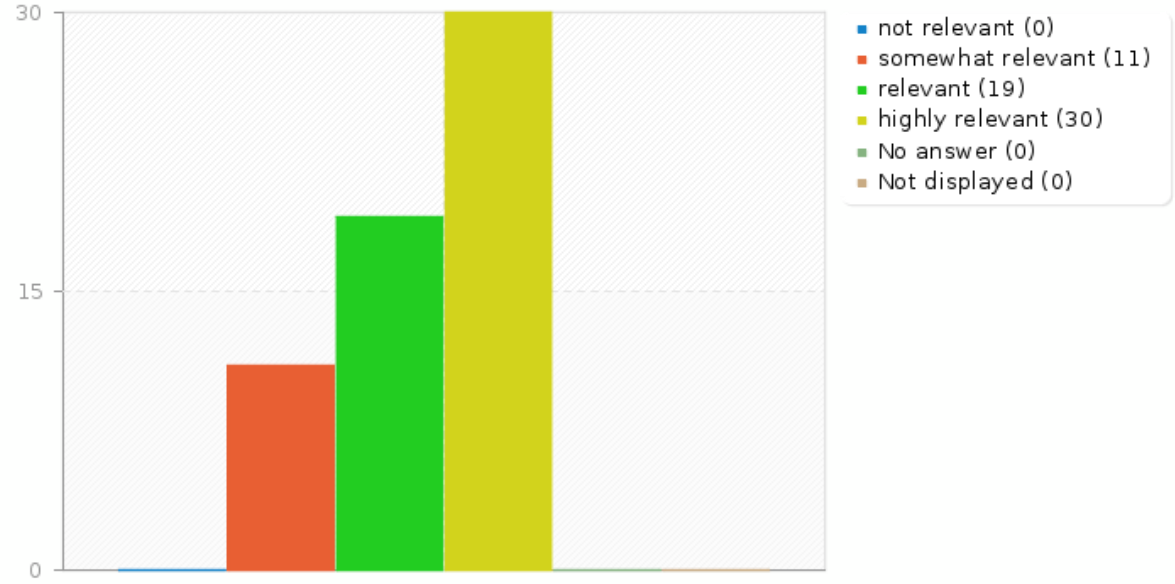
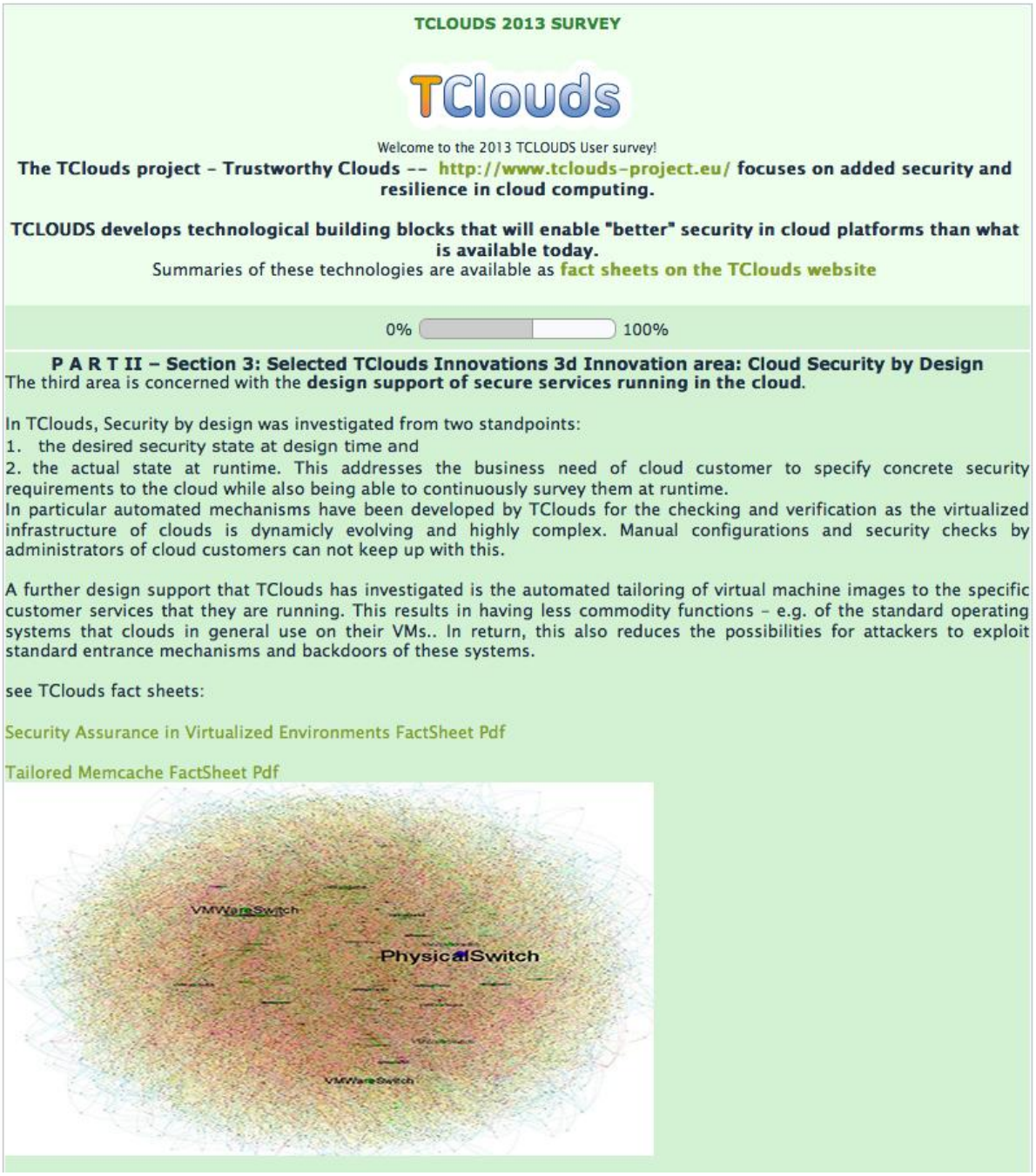


Figure 30: TClouds Stakeholder accidental leakage

3.28 As a cloud customer, would you...? [like to be in full control of security policies]

Section on the 3rd Innovation area: Cloud Security by Design:



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P A R T II – Section 3: Selected TClouds Innovations 3d Innovation area: Cloud Security by Design

The third area is concerned with the **design support of secure services running in the cloud**.

In TClouds, Security by design was investigated from two standpoints:

1. the desired security state at design time and
2. the actual state at runtime. This addresses the business need of cloud customer to specify concrete security requirements to the cloud while also being able to continuously survey them at runtime.

In particular automated mechanisms have been developed by TClouds for the checking and verification as the virtualized infrastructure of clouds is dynamicly evolving and highly complex. Manual configurations and security checks by administrators of cloud customers can not keep up with this.

A further design support that TClouds has investigated is the automated tailoring of virtual machine images to the specific customer services that they are running. This results in having less commodity functions - e.g. of the standard operating systems that clouds in general use on their VMs.. In return, this also reduces the possibilities for attackers to exploit standard entrance mechanisms and backdoors of these systems.

see TClouds fact sheets:

Security Assurance in Virtualized Environments FactSheet Pdf

Tailored Memcache FactSheet Pdf

Figure 31: TClouds Section Introduction on 3rd Innovation area

Answer	Count	Percentage
not relevant (A1)	4	6.67%
somewhat relevant (A4)	14	23.33%
relevant (A2)	24	40.00%
highly relevant (A3)	18	30.00%
No answer	0	0.00%

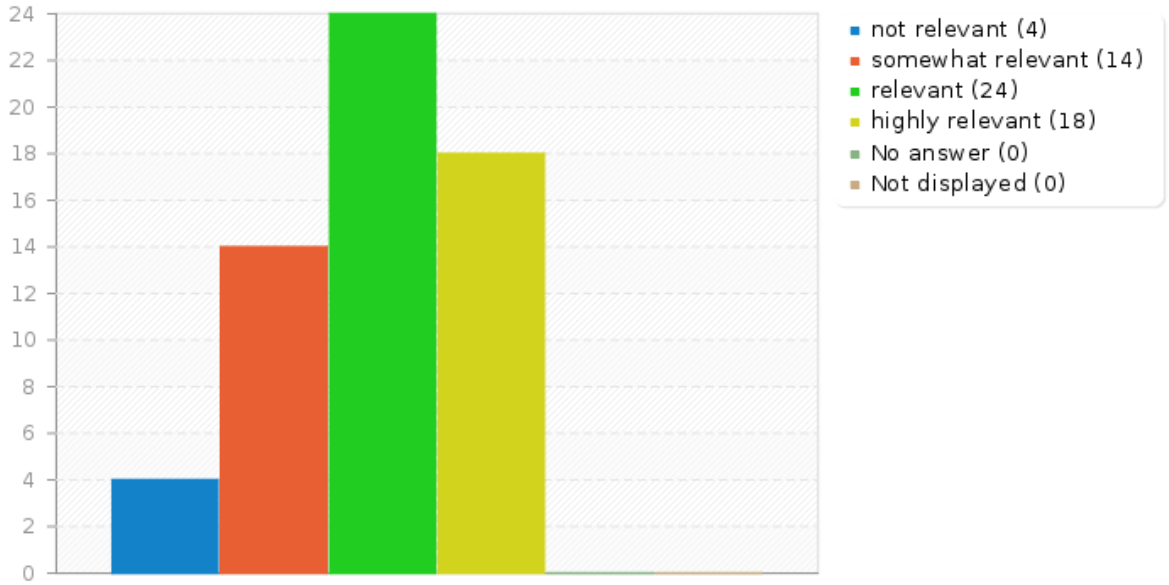


Figure 32: TClouds Stakeholder full control

3.29 As a cloud customer, would you...? [prefer mechanisms in place to monitor security state yourself]

Answer	Count	Percentage
not relevant (A1)	3	5.00%
somewhat relevant (A4)	18	30.00%
relevant (A2)	24	40.00%
highly relevant (A3)	15	25.00%
No answer	0	0.00%

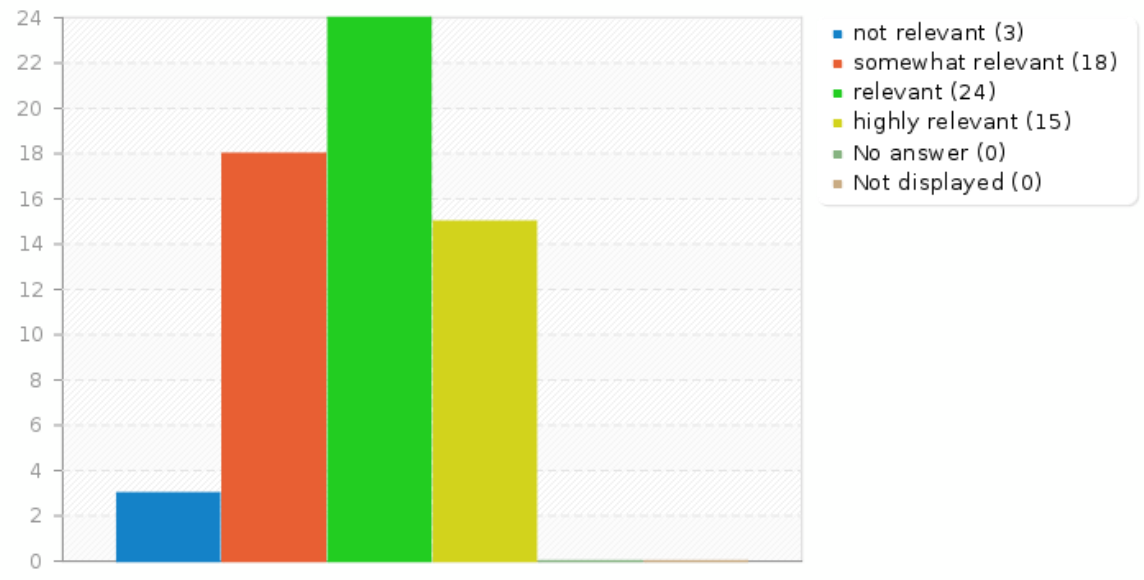


Figure 33: TClouds Stakeholder monitor yourself

3.30 As a cloud customer, would you...? [prefer that security policy options are predefined by the cloud provider]

Answer	Count	Percentage
not relevant (A1)	3	5.00%
somewhat relevant (A4)	18	30.00%
relevant (A2)	26	43.33%
highly relevant (A3)	13	21.67%
No answer	0	0.00%

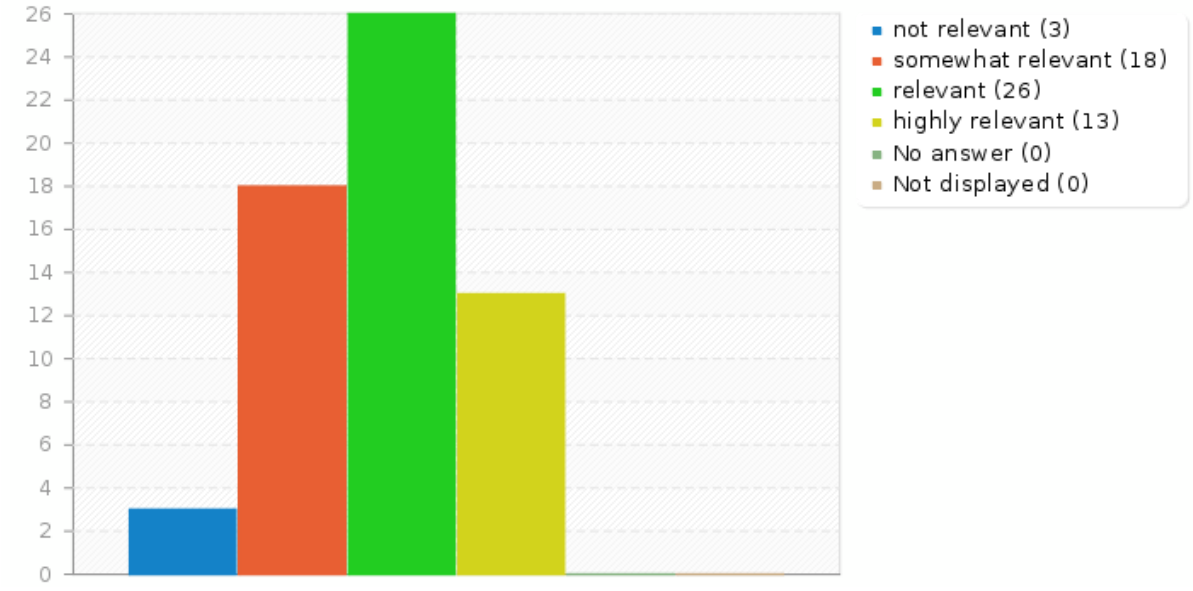


Figure 34: TClouds Stakeholder security options predefined

3.31 As a cloud customer, would you...? [prefer that the cloud provider takes over monitoring of the security state]

Answer	Count	Percentage
not relevant (A1)	8	13.33%
somewhat relevant (A4)	21	35.00%
relevant (A2)	17	28.33%
highly relevant (A3)	14	23.33%
No answer	0	0.00%

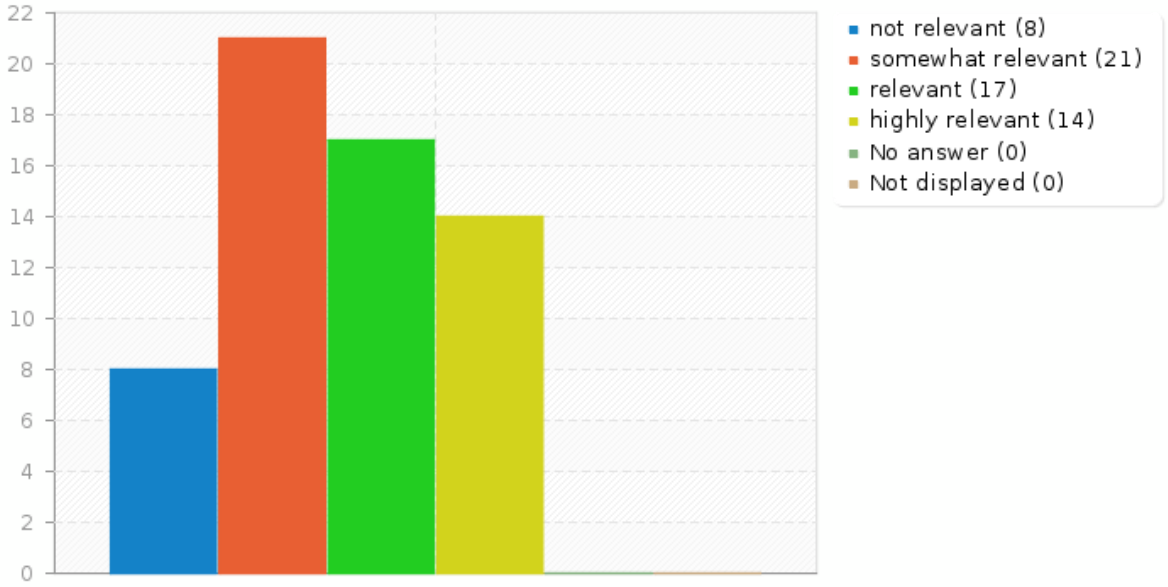


Figure 35: TClouds Stakeholder cloud provider monitors

3.32 As a cloud customer, would you...? [prefer third party auditing, monitoring and certification of provider security]

Answer	Count	Percentage
not relevant (A1)	5	8.33%
somewhat relevant (A4)	14	23.33%
relevant (A2)	21	35.00%
highly relevant (A3)	20	33.33%
No answer	0	0.00%

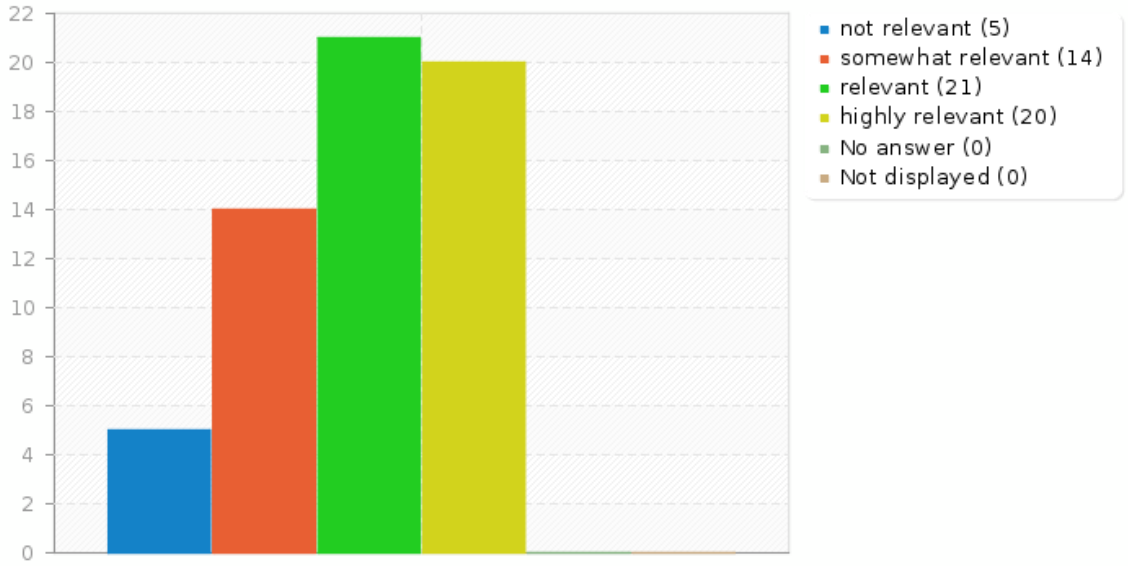


Figure 36: TClouds Stakeholder cloud third party auditing

3.33 How concerned are you about the following risks of working with a single cloud provider? [Corruption of data or computation (e.g. due to an attack)]

Section on the 4th Innovation area: Secure and resilient Cloud-of-Cloud:

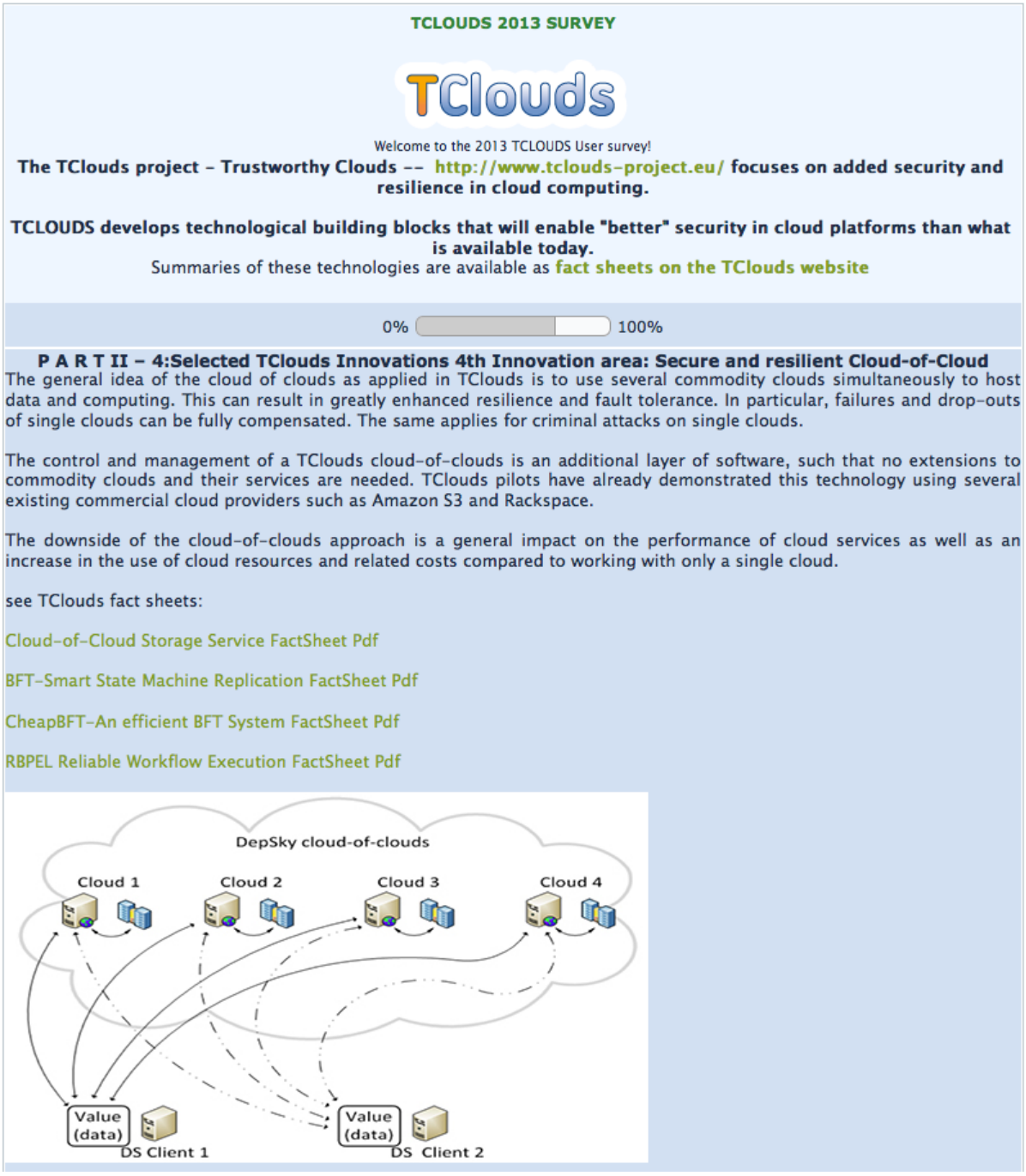


Figure 37: TClouds Section Introduction on 4th Innovation area

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	14	23.33%
relevant (A2)	22	36.67%
highly relevant (A3)	24	40.00%
No answer	0	0.00%

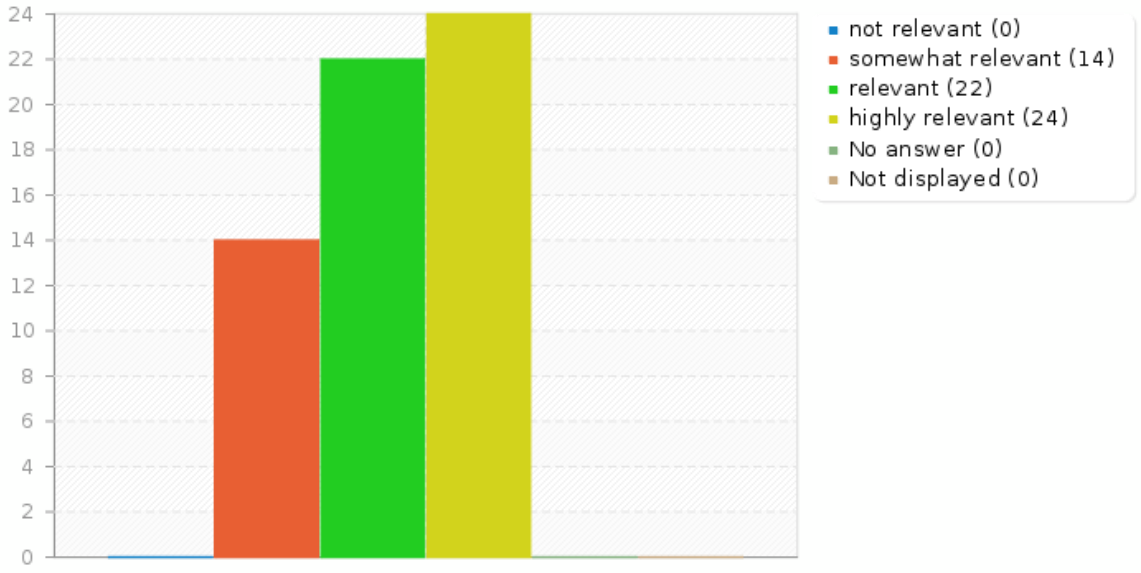


Figure 38: TClouds Stakeholder risks corruption of data

3.34 How concerned are you about the following risks of working with a single cloud provider? [Interruption of the service]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	9	15.00%
relevant (A2)	22	36.67%
highly relevant (A3)	29	48.33%
No answer	0	0.00%

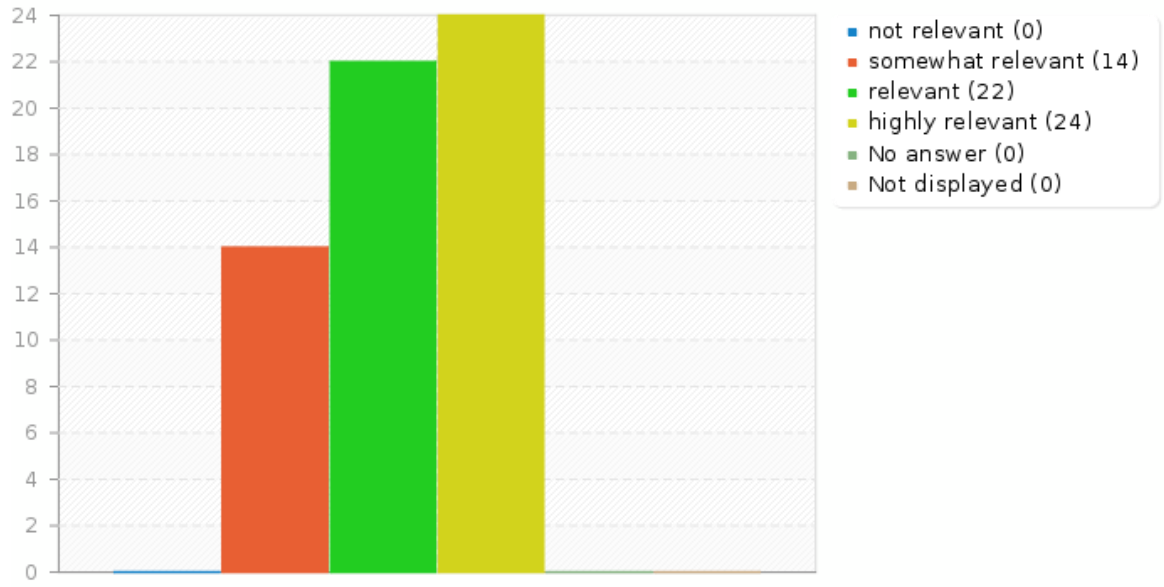


Figure 39: TClouds Stakeholder risks interruption of service

3.35 How concerned are you about the following risks of working with a single cloud provider? [Loss of data]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	13	21.67%
relevant (A2)	18	30.00%
highly relevant (A3)	29	48.33%
No answer	0	0.00%

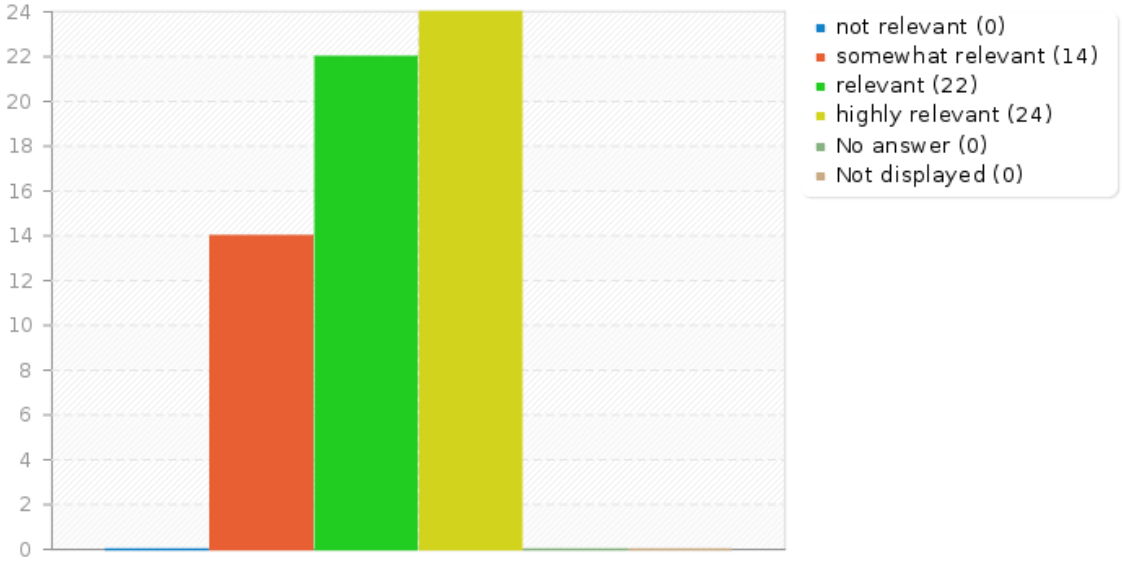


Figure 40: TClouds Stakeholder risks loss of data

3.36 How concerned are you about the following risks of working with a single cloud provider? [Impossibility to recover or restore after disaster]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	12	20.00%
relevant (A2)	15	25.00%
highly relevant (A3)	33	55.00%
No answer	0	0.00%

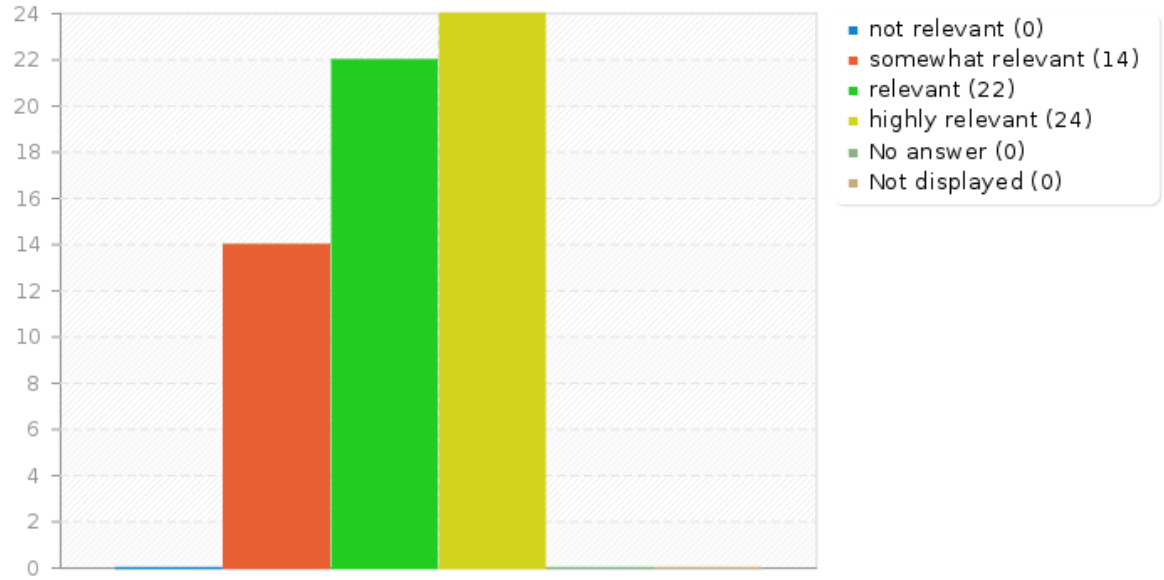


Figure 41: TClouds Stakeholder recover data

3.37 How concerned are you about the following risks of working with a single cloud provider? [Breach of confidentiality]

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	8	13.33%
relevant (A2)	25	41.67%
highly relevant (A3)	26	43.33%
No answer	0	0.00%

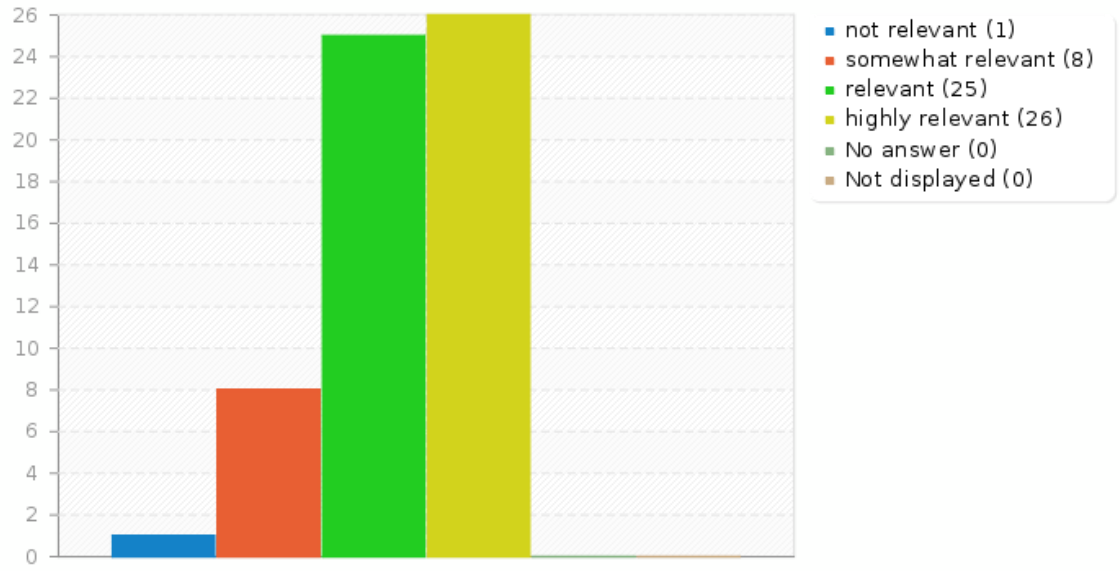


Figure 42: TClouds Stakeholder breach of confidentiality

3.38 How interesting would the following commercial options be to you? [A family of software products to manage a cloud of clouds]

Answer	Count	Percentage
not relevant (A1)	6	10.00%
somewhat relevant (A4)	21	35.00%
relevant (A2)	27	45.00%
highly relevant (A3)	6	10.00%
No answer	0	0.00%

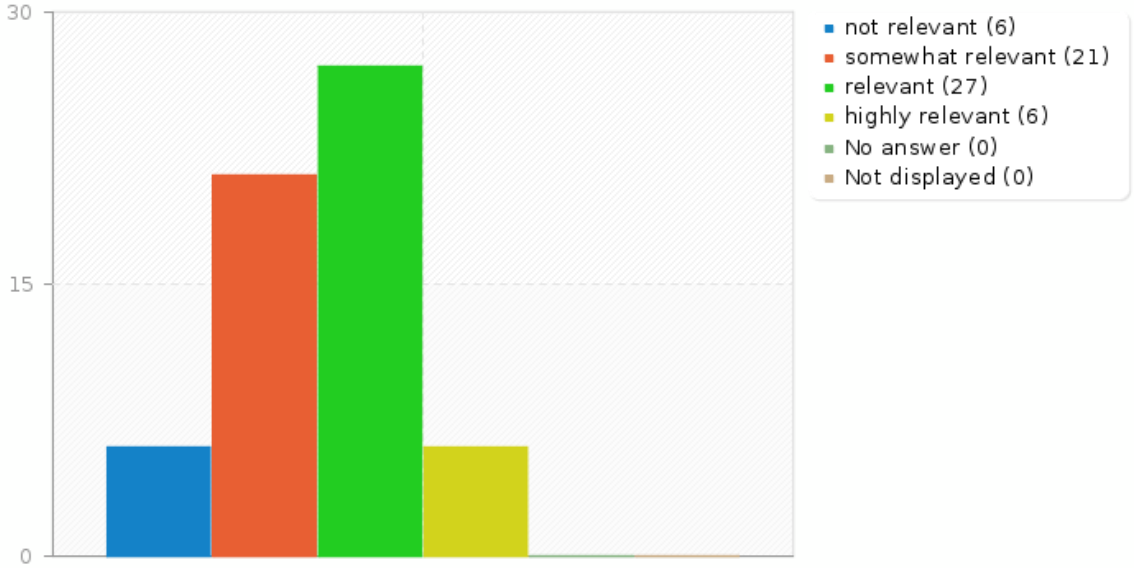


Figure 43: TClouds Stakeholder software to manage cloud of clouds

3.39 How interesting would the following commercial options be to you? [A high resilient cloud service built on a cloud of clouds]

Answer	Count	Percentage
not relevant (A1)	5	8.33%
somewhat relevant (A4)	14	23.33%
relevant (A2)	22	36.67%
highly relevant (A3)	19	31.67%
No answer	0	0.00%

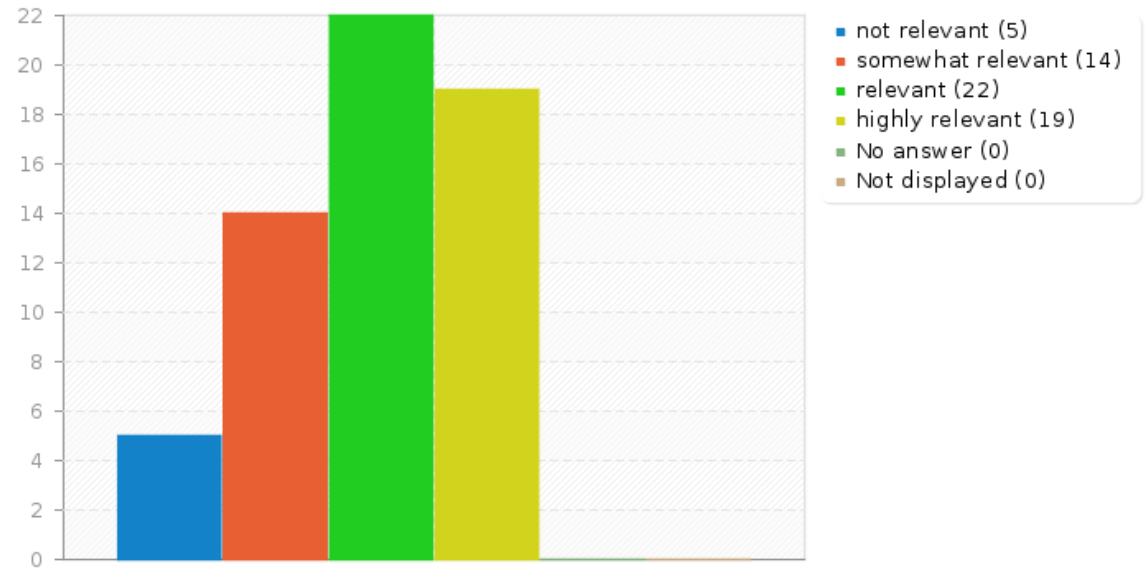


Figure 44: TClouds Stakeholder high resilient cloud service

3.40 How important would you rate the following inhibitors of cloud of clouds solutions? [Performance restrictions (in particular for upload)]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	16	26.67%
relevant (A2)	30	50.00%
highly relevant (A3)	14	23.33%
No answer	0	0.00%

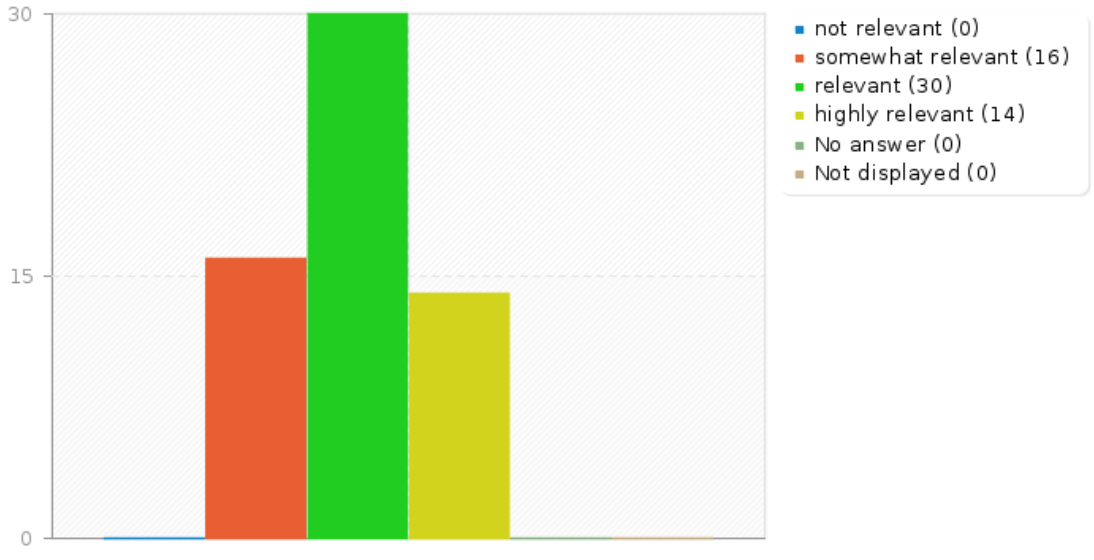


Figure 45: TClouds Stakeholder Performance restrictions upload

3.41 How important would you rate the following inhibitors of cloud of clouds solutions? [Price (with N redundant clouds and tolerating F faulty ones, typically from F+1 to N times the cost of the single-cloud solution)]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	9	15.00%
relevant (A2)	27	45.00%
highly relevant (A3)	24	40.00%
No answer	0	0.00%

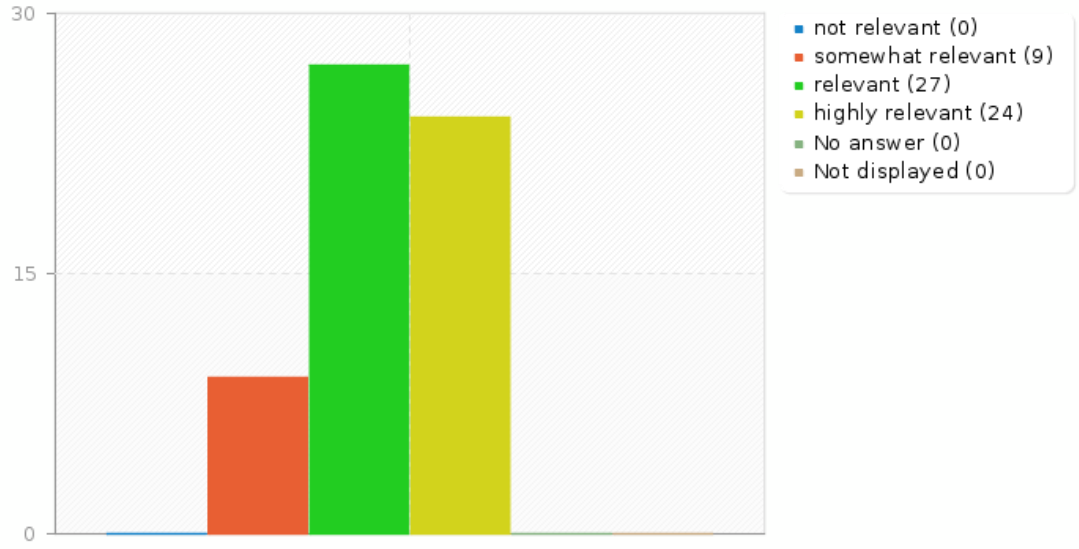


Figure 46: TClouds Stakeholder price importance

3.42 How important are the following criteria for you when selecting cloud services or products? [Support of open standards]

Final Section on general aspects of TClouds Innovations:

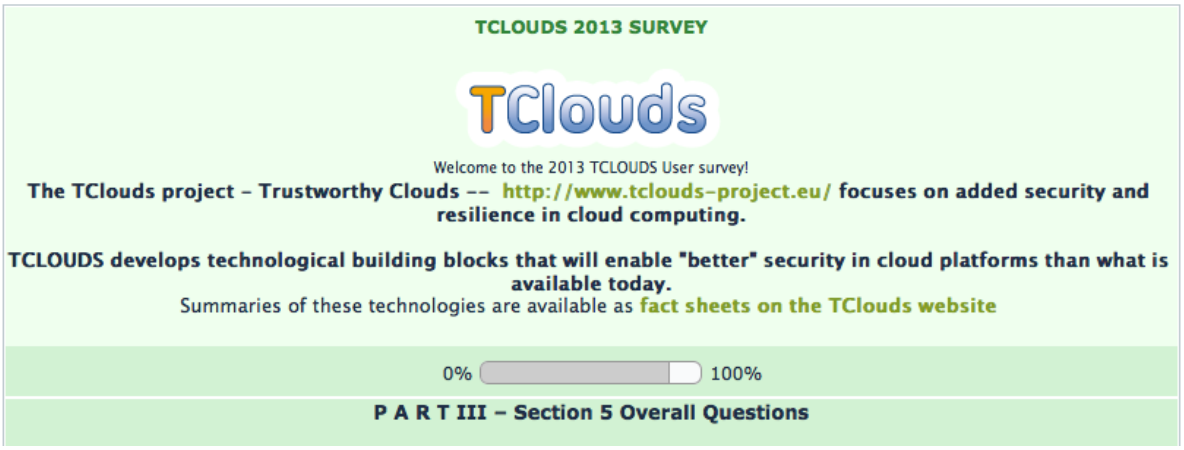


Figure 47: TClouds Final Section Introduction

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	14	23.33%
relevant (A2)	18	30.00%
highly relevant (A3)	27	45.00%
No answer	0	0.00%

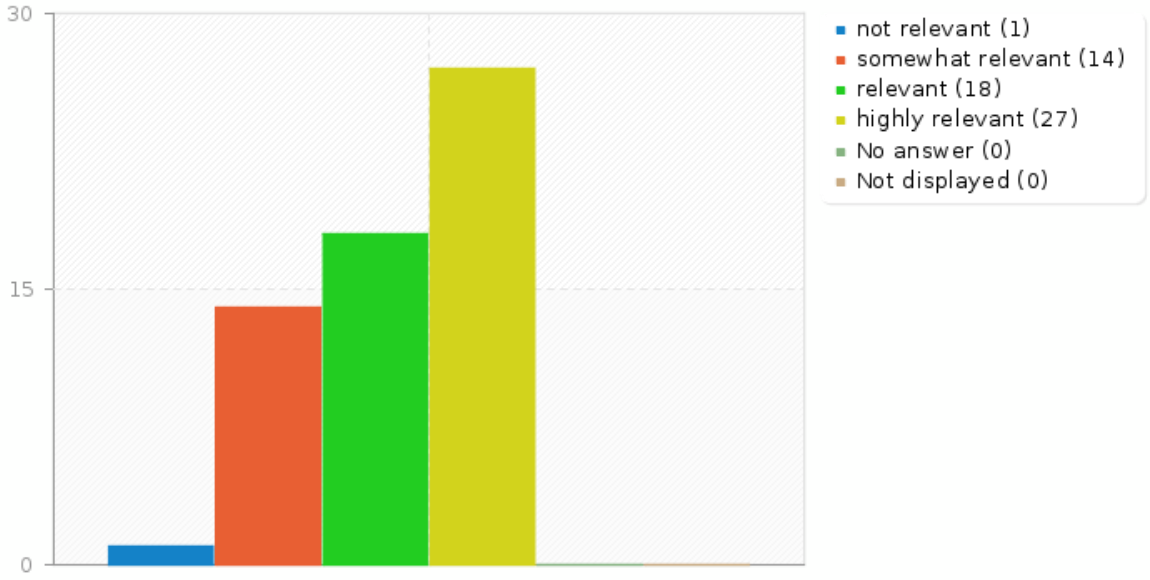


Figure 48: TClouds Stakeholder open standards

3.43 How important are the following criteria for you when selecting cloud services or products? [Support of de-facto industry standards from other vendors (e.g. Amazon)]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	16	26.67%
relevant (A2)	30	50.00%
highly relevant (A3)	14	23.33%
No answer	0	0.00%

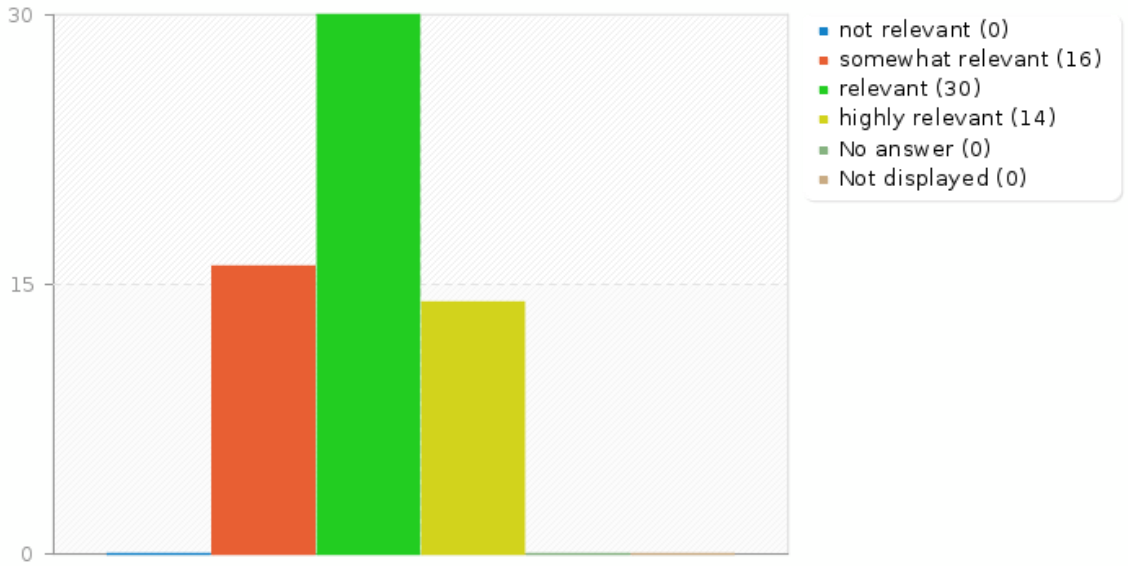


Figure 49: TClouds Stakeholder industry standards

3.44 How important are the following criteria for you when selecting cloud services or products? [Data portability support]

Answer	Count	Percentage
not relevant (A1)	0	0.00%
somewhat relevant (A4)	1	1.67%
relevant (A2)	21	35.00%
highly relevant (A3)	38	63.33%
No answer	0	0.00%

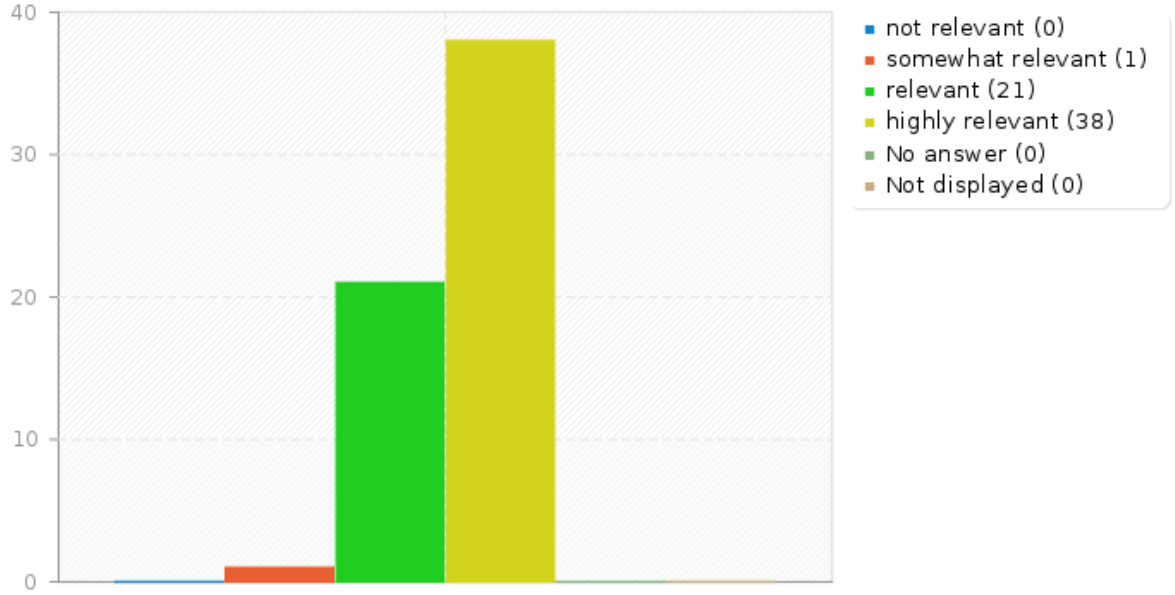


Figure 50: TClouds Stakeholder data portability

3.45 How important are the following criteria for you when selecting cloud services or products? [Availability of components as Open Source]

Answer	Count	Percentage
not relevant (A1)	6	10.00%
somewhat relevant (A4)	19	31.67%
relevant (A2)	18	30.00%
highly relevant (A3)	17	28.33%
No answer	0	0.00%

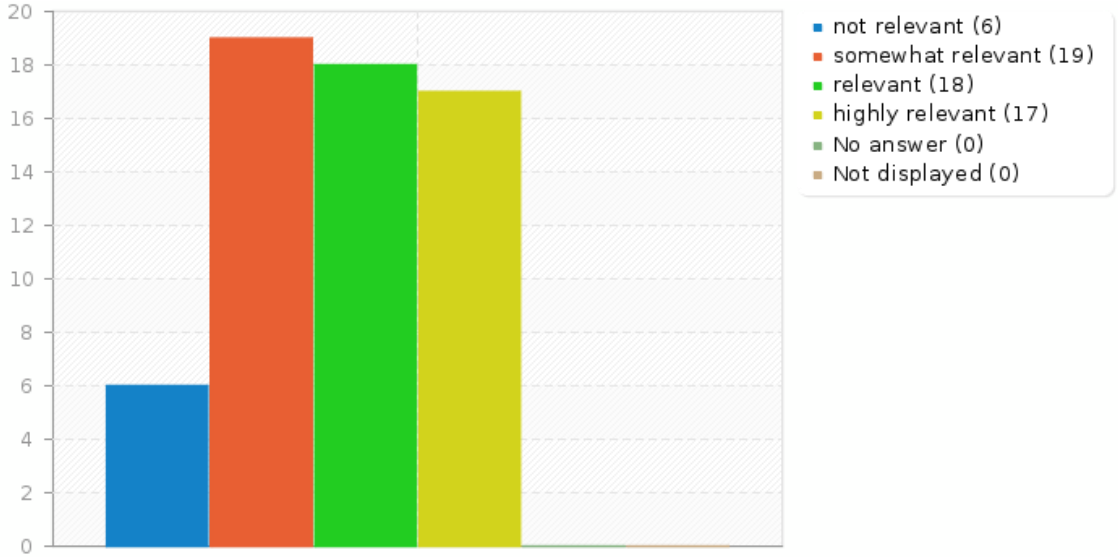


Figure 51: TClouds Stakeholder components as open source

3.46 How important are the following criteria for you when selecting cloud services or products? [Flexibility of different security levels]

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	10	16.67%
relevant (A2)	32	53.33%
highly relevant (A3)	17	28.33%
No answer	0	0.00%

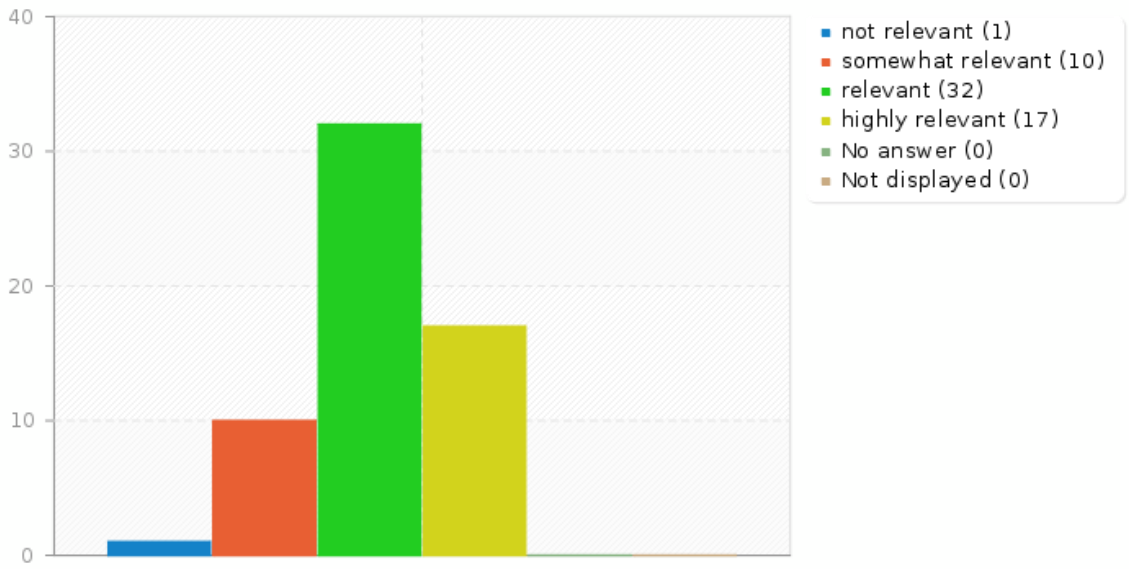


Figure 52: TClouds Stakeholder flexibility of security levels

3.47 Could the commercial adoption of TClouds technologies ...? [Increase general trust in cloud computing]

Answer	Count	Percentage
not relevant (A1)	3	5.00%
somewhat relevant (A4)	9	15.00%
relevant (A2)	33	55.00%
highly relevant (A3)	15	25.00%
No answer	0	0.00%

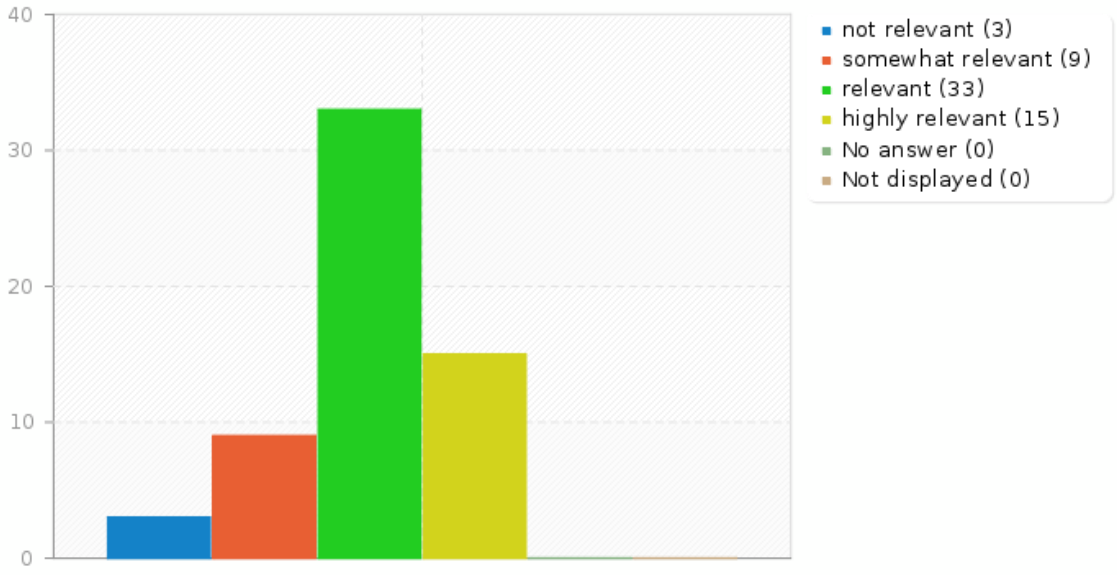


Figure 53: TClouds Stakeholder commercial TClouds increase trust

3.48 Could the commercial adoption of TClouds technologies ...? [Open cloud computing to more security sensitive application domains]

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	13	21.67%
relevant (A2)	30	50.00%
highly relevant (A3)	16	26.67%
No answer	0	0.00%

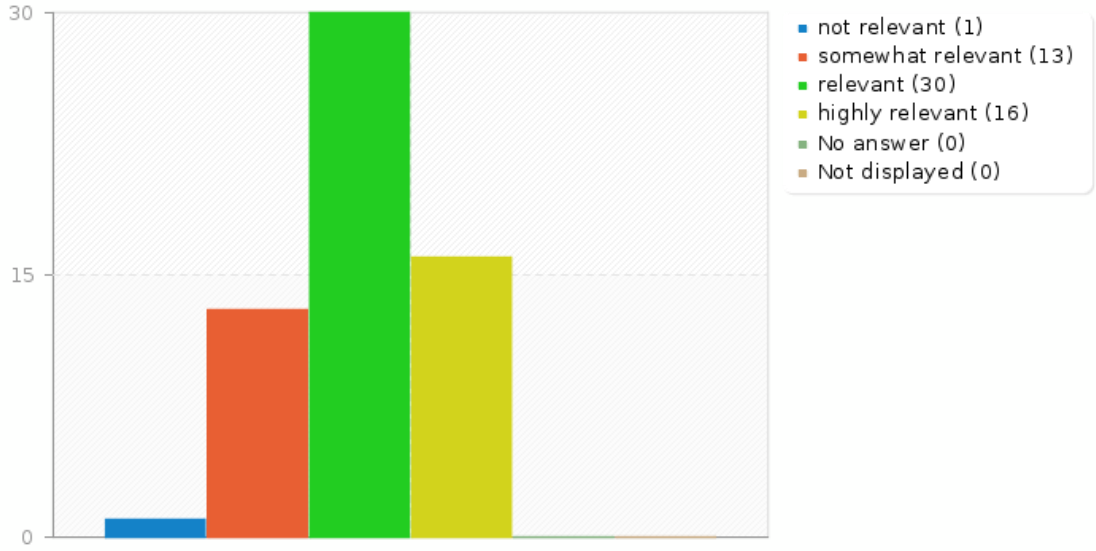


Figure 54: TClouds Stakeholder commercial open cloud computing

3.49 Could the commercial adoption of TClouds technologies ...? [Improve regulatory compliance of clouds]

Answer	Count	Percentage
not relevant (A1)	1	1.67%
somewhat relevant (A4)	22	36.67%
relevant (A2)	28	46.67%
highly relevant (A3)	9	15.00%
No answer	0	0.00%

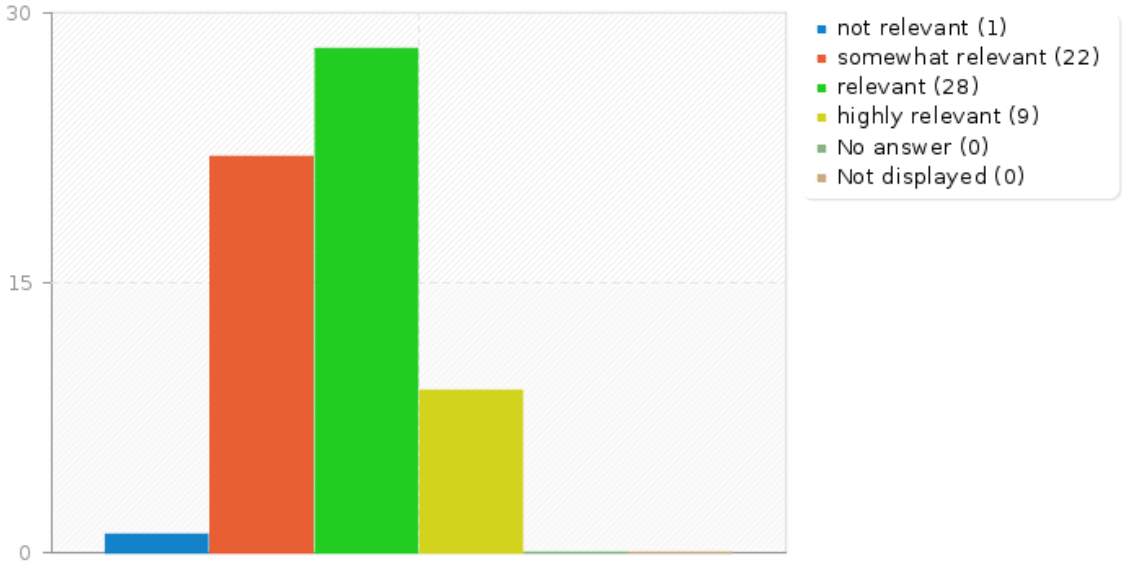


Figure 55: TClouds Stakeholder commercial open cloud computing

3.50 Could the commercial adoption of TClouds technologies ...? [Lead to specific high-security services or products for clouds]

Answer	Count	Percentage
not relevant (A1)	2	3.33%
somewhat relevant (A4)	14	23.33%
relevant (A2)	29	48.33%
highly relevant (A3)	15	25.00%
No answer	0	0.00%

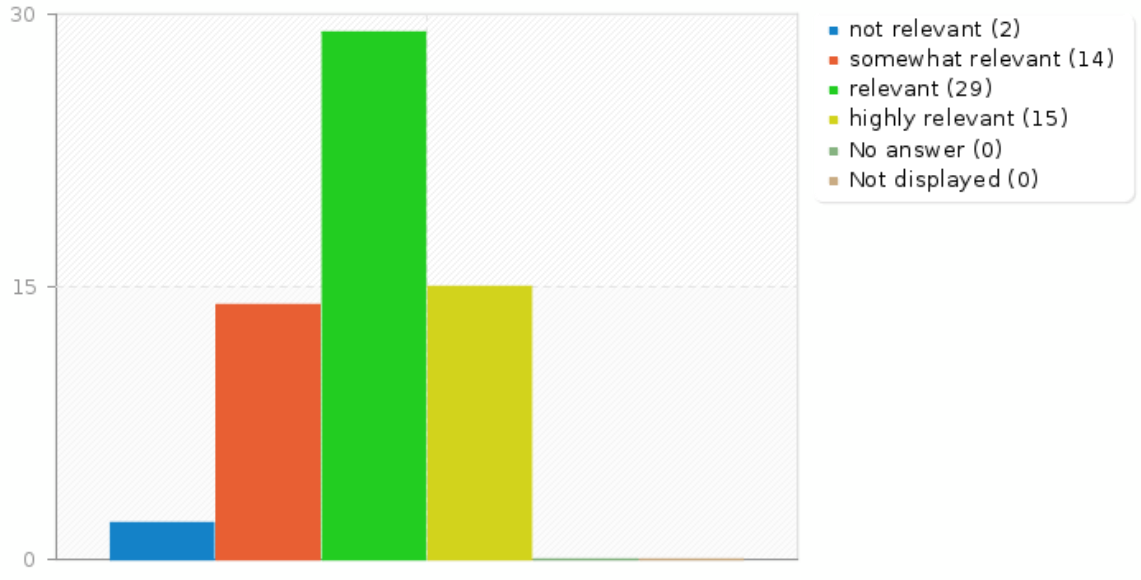


Figure 56: TClouds Stakeholder commercial high security services

Chapter 4 Analysis of Feedback and Results

The results from the stakeholder consultation provide a good overall support for the business relevance of the TClouds technical innovation. Also, the survey has revealed a profound range of concerns about the security and data privacy risks associated with state-of-the-art cloud services. Despite this, 78% percent of the TClouds stakeholders already use cloud computing.

The following **security risks raised high concerns among our stakeholders** (% indicates the percentage of replies that indicated either “relevant” or “highly relevant”):

1) Cloud specific attacks by externals (88%)
2) Accidential leakage of data and credentials (82%)
3) Insider attacks (e.g. by cloud administrators) (82%)
4) Insufficient protection against more general IT security risks and attacks (75%)

Also, the **TClouds stakeholders expressed concerns about the dependencies** when working with a single cloud provider. The most relevant concerns in that context were:

1) Breach of confidentiality (85%)
2) Interruption of the service (85%)
3) Impossibility to restore data or computation after a disruption (85%)
4) Loss of data (78%)

While third party auditing and security policies defined by the provider were reported to be important, the TClouds stakeholders attributed great importance to user control as well. The least importance was attributed to monitoring mechanisms that are entirely in the hand of the cloud provider.

The **rank of preferences** were as follows:

1) Full user control of security policies (70%)
2) Third party auditing, monitoring and certification (68%)
3) Mechanisms in place to self monitor security state (65%)
4) Security policy options pre defined by the cloud provider (65%)
5) Provider takes over security monitoring (52%)

TClouds stakeholders were also confronted with 4 concrete technical innovation areas from the TClouds project.

Area 1: There was a strong support for the interest in a **Trusted Infrastructure Cloud**. Most relevant application domains in that context were seen as:

1) Business Critical Workloads (83%)
2) Privacy sensitive data or computation (71%)
3) Critical Infrastructure (68%)
4) Location sensitive data or computation (67%)

While a much smaller group saw a need for using trusted infrastructure clouds more general for all workloads (43%). So the stakeholders expressed that the TClouds Trusted Infrastructure Cloud would at best be reserved for specific critical application cases.

In this innovation area almost equal support was expressed for the exploitation routes of a specific family of software & hardware products (58%), a premium trusted cloud service (58%) and general upgrading of clouds with TC elements (57%).

At the same time, vendor lock-in risks (85%), openness and flexibility concerns (77%), added management complexity (75%) and price (73%) where seen as inhibitors for the use of trusted computing technologies in cloud computing.

Area 2: The second investigated area was **Security Hardening Mechanisms for Cloud Platform Software.** This was explained at the example of mechanisms that TClouds has introduced to the Open Stack platform.

TClouds stakeholders very strongly supported this area (88% overall) as relevant (40%) or even highly relevant (48%). With most seeing this as an integral part of all cloud platforms of the future. At the same time, TClouds stakeholders saw an emerging market of specific cloud platforms for high security solutions (78%) and add-on cloud security tools and services (75%).

Area 3: The third investigated area was **Mechanisms to Self Monitor and Screen Cloud Security State by the User.** As stated previously, this also received a strong support of 65% of the TClouds stakeholders. The same holds also for **Mechanisms to Express and Control Cloud Security Policies by the User.** This received an even slightly higher support of 70%.

Area 4: TClouds stakeholders were then introduced to the fourth innovation area, **Highly Resilient Cloud Service Built on a Cloud of Clouds.** 68% of TClouds stakeholder expressed support for this. However, cost increase (85%) and performance restrictions (73%) were regarded as roadblocks to this technology.

In terms of the overall requirements on trustworthy cloud services –realized from TClouds technologies – the following factors were seen as important:

1) Data portability support (98%) - with 63% as “highly relevant”
2) Support of open standards (75%)
3) Support of de-facto standards (e.g. Amazon APIs) (73%)
4) Availability of components as open source (58%)

In particular, the TClouds stakeholders have expressed strong support for openness, standardized services, and data portability.

In the two rounds of the survey as well as in the supporting stakeholder events, a number of cross cutting themes emerged and were debated:

1) *Price vs. privacy*

   While the importance of privacy has been widely supported, the stakeholder community has also supported that cloud computing is closely linked to business cost reduction cases. Therefore there is always a tradeoff between the privacy and security level that can be provided and the acceptable costs.

2) *Differentiated levels of cloud security*

   In particular, stakeholders are supporting the need for differentiated cloud services that offer different levels of security and privacy protection. In this context, there was a strong support for the kind of high security infrastructure clouds that could be built with TClouds technologies, for intended deployment in high-end secure cloud services.

3) *Support for privacy and security enhancing services*

   While the cloud provider might offer differentiated services, there is a further strong support for specific add-on products and security services that offer targeted solutions for cloud security and privacy.

4) *User control vs. comfort*

   While user control of cloud security and privacy has received strong support / e.g. with TClouds technologies like remote security scanning, there was also an expression of the need for comfort. This support for comfort can be achieved by creating the kind of packaged solutions that have been mentioned previously as well as guarantees on the side of the cloud provider.

5) *Open standards vs. de facto standards*

   While it was supported by the stakeholders that cloud providers and TClouds technologies have to support de facto standards such as the Amazon EC2 and S3 APIs, there was also a surprisingly strong support for open standards. This runs despite the fact that currently in cloud computing open standards are much less pervasive in commercial solutions.

6) *Some concerns about the use of Trusted Computing hardware*

   While the TClouds technical innovations that use Trusted Computing hardware have received general support and interest by stakeholders, there were also considerable concerns expressed regarding the dependency on such hardware for these TClouds solutions. This relates to issues of openness, the creation of single points of failure as well as cost implications.

7) *Support for open-source components*

   While not being as highly supported as open standards in cloud computing, it was also supported by the stakeholders that key TClouds technical components to enhance privacy and security should be available as open source. In particular, the enhancement of Open Stack was positively commented in this context. This is already planned under WP4.1.

Finally, the TClouds events in Oxford and Cambridge offered the possibility to discuss in detail with the entrepreneurial community of one of Europe's and globally leading high tech cluster regions. This included discussions with students, start-up entrepreneurs as well as serial entrepreneur and venture capitalist Hermann Hauser, who has a personal track record

of creating highly successful companies in the IT world, including ARM processors and Acorn computers.

This debate is unusual for European ICT research projects and turned out to be inspiring for both sides. Interestingly, there was very little doubt about the general business relevance of the TClouds technical innovations. Rather it was concluded that TClouds was deailing with some key issues in current cloud computing that might however fit into the current models of cloud services, software and hardware products.

A general hot issue in the debate was for what application areas cloud computing would be acceptable, how this will develop in future and how the application domains of cloud computing could be further extended with the help of TClouds technologies. In that context, Mr. Hauser and others pointed to the observation that the cloud market seems to diverge into a highly cost sensitive mass market (with many services either for free or at strikingly low costs) and a high-end market with a wider range of user control, security and privacy protection. It was also debated that the price differences between services on both ends can be significant and are often not directly reflected in the differences of hardware, software and operations costs. So mostly they reflect a different type of business model.

Mr. Hauser pointed out that he generally believes in the prospects of bringing more security and privacy protection to mass cloud services. This could be presented to consumers as alternative services in a similar form as mobile apps existing in “for free” (e.g. cross financed by advertising) and “for cost” versions with acceptable – limited – add on costs.

In general, he noted that as a VC and investor he was however looking primarily for an interesting entrepreneurial team (1st priority) with a convincing interesting business concept, rather than purely for innovative technologies. It was also debated that it is a general challenge for ICT research projects to nurture such entrepreneurial teams and business opportunities – as they are typically not directly generated from a research community.

A significant support was also expressed in this context for the open source exploitation of TClouds technologies. Here, it was debated that TClouds should certainly seek to integrate its technologies into larger open source projects such as OpenStack and also the XEN hypervisor. Two key contributors to the XEN project were participating to the TClouds Cambridge event. This will be further taken-up by WP 4.1.

Chapter 5 Stakeholders Target List 2013

The original Stakeholder group that was formed for the TClouds stakeholder feedback gathering and Forum bootstrap process was composed of 50 members. The updated target list for the 2013 survey included the original target list plus a number of new additions for a total of 128 target contacts, of whom 60 responded. Those 60 form an inter-disciplinary group of stakeholders ideally suited to respond to the TClouds questions posed.

ID	Name	Affiliation	Email	Description
1	**Afonso Ferreira**	EC/COST	Afonso.ferreira@ec.europa.eu	Dr Ferreira is Scientific Officer at DG CONNECT and has been Directeur de Recherche with the French CNRS and working with the French INRIA. He has over twenty years of experience in the area of Communication Networks, High Performance Computing, and Algorithms, having published more than 100 papers in the forefront of scientific research. He has been member of more than 60 Technical Program Committees for international events and is currently an editorial board member for three international scientific journals. Dr Ferreira has also been member of Technical Committees of IEEE and IFIP and was at the origin of eight European projects from FP3 through FP6. Dr Ferreira has a strong experience with Science and Research management, gained through six years working at the COST Office in Brussels. COST is an intergovernmental initiative for European Cooperation in Science and Technology spanning 36 countries.
2	**Amelia Andersdottor**	European Parliament	amelia.andersdotter@piratpartiet.se	Amelia Andersdotter (born 30 August 1987, Enköping) is a Swedish politician and Member of the European Parliament (MEP), elected on the Piratpartiet list in the 2009 election.
3	**NOT LISTED**	Cambridge University		NOT LISTED

ID	Name	Affiliation	Email	Description
4	**Ashok Jhunjhunwala**	IIT Madras	ashok@tenet.res.in	
5	**Chris Marsden**	Essex University	cmars@sussex.ac.uk	
6	**Mathias Schunter**	Intel	matthias.schunter@intel.com	Chief Technologist, Intel Collaborative Research Institute for Secure Computing (ICRI-SC)
7	**NOT LISTED**			NOT LISTED
8	**Abdullah Tahir**	CASED	abdullah.tahir@trust.cased.de	Research Assistant at CASED
9	**Wiebke Kronz**	CASED	wiebke.kronz@trust.cased.de	Research Assistant, Intel Collaborative Research Institute
10	**Heikki Huomo**		heikkihuomo@gmail.com	Director of the Center for Internet Excellence, University of Oulu, Finland. CIE Director Heikki Huomo has been chosen for the member of ISTAG, EU's Information and Communication Technologies Advisory Group. ISTAG advises the European Commission on the overall strategy for ICT Research and Innovation.
11	**Markus Tauber**	AIT Austria	markus.tauber@ait.ac.at	Dr. Markus G. Tauber Future Networks and Services Safety & Security Department AIT Austrian Institute of Technology GmbH
12	**Alexander Kasper**	Sirrix	a.kasper@sirrix.com	Researcher
13	**NOT LISTED**	Fraunhofer Institute for Secure Information Technology		NOT LISTED
14	**Stephan Heuser**	Fraunhofer Institute for Secure Information Technology	stephan.heuser@sit.fraunhofer.de	Resercher, FIT
15	**Li Jun**	CCID	lijun@ccidconsulting.com	SME. CEO, CCID Consulting Co. Ltd. China Center for Information

ID	Name	Affiliation	Email	Description
				Industry Development (CCID), MIIT. Deputy Secretary-General of China Federation of Informatization Promotion
16	**Pouyan Sepehrdad**	Pouyan Sepehrdad, Intel CRI-SC, Darmstadt, Germany	pou.sepehrdad@gmail.com	Researcher, Intel
17	**NOT LISTED**	SME		NOT LISTED
18	**Thomas Gehrke**	Siemens AG, Braunschweig	gehrke.thomas@siemens.com	Manager
19	**Filipe Campos**	Efacec	fcampos@efacec.com	Researcher
20	**Reinhold Grellmann**	Philips	reinhold.grellmann@philips.com	Researcher
21	**Toineke Theeuwes**	IBM	toineke_theeuwes@nl.ibm.com	Researcher
22	**NOT LISTED**	SME		NOT LISTED
23	**Ricardo Jimenez-Peris**	Distributed Systems Lab	rjimenez@fi.upm.es	Director Universidad atPolitecnica de Madrid (UPM)
24	**David Wortley**	SGI	DWortley@cad.coventry.ac.uk	David Wortley is Director of the Serious Games Institute (SGI) at Coventry University. He is responsible for the development of the Institute as a global thought leader on the application of immersive technologies which include video games, virtual worlds and social networking to serious social and economic issues such as education, simulation, health, commerce and climate change. Working with academics, regional development agencies and leading computer games companies, David aims to make the SGI a focal point for games based learning, simulation and immersive 3D virtual environments and an engine for innovation and social and economic regeneration. David is a Fellow of the Royal

ID	Name	Affiliation	Email	Description
				Society of Arts (FRSA) with a career which has embraced the converging and emerging technologies of telecommunications (Post Office Telecommunications), computing (IBM), digital media and community informatics (Mass Mitec) and the creative industries (De Montfort University). He is a serial entrepreneur and innovator with a passion for applying technology to social and economic development.
25	**Eliot Salant**	IBM Haifa Research Labs	salant@il.ibm.com	Eliot Salant from IBM Haifa. He is the project coordinator of VISION Cloud
26	**Daniel Schaubacher**	EBBF	daniel.schaubacher@skynet.be	Dr. Schaubacher is a management consultant and currently works as a representative of the European Baha'i Business Forum at the European institutions – a network of business people from over 50 countries which specialises in business ethics, corporate social responsibility and value-oriented leadership. In his professional career he has dealt with marketing, economic analysis and trade promotion, and has held positions at Nestlé, Lémania/Omega Watch (now the Swatch Group), Bobst Machines and the U.S. Department of Commerce. Swiss-born Schaubacher is president of People to People Belgium and board member of the Brussels section of the Club of Rome. In December 2007 he received the "De Pluim" Prize from the King Baudouin Foundation for his contribution "to peace and business ethics." Daniel Schaubacher has been a Member of the Committee for a Democratic UN since 2005.
27	**Angelos Bilas,**	FORTH and Univ. of Crete, Greece	bilas@ics.forth.gr	University Researcher
28	**Peter Garlock**	IBM	peter_garlock@at.ibm.co	IBM Director Marketing, Austria

ID	Name	Affiliation	Email	Description
			m	
29	**NOT LISTED**	Italy, SME		NOT LISTED
30	**Rodrigo Diaz Rodriguez**	UPM Madrid	rodrigo.diaz@atosresearch.eu	Researcher
31	**Simone Feriti**	Ecenter	simone@ecenter.it	SME
32	**Raul Weiler**	Prof. Em.	raoul.weiler@telenet.be	Raoul Weiler is President of the EU-Chapter of The Club of Rome. He spent several years as a post doctoral fellow at the University of North Carolina at Chapel Hill and the Catholic University of America in Washington, DC in the U.S. and at the Centre de la Recherche Scientifique in Paris, France. Weiler's career includes applied research, engineering and manager of information technology of a German multinational chemical company. During his professional activities, he was elected president of the Royal Flemish Engineers Association (K VIV), counting 11.000 academic engineers. He was long time active founder-president of different technological working groups and president of several international symposia, conferences and the World Congress on Filtration.Weiler has lectured at different universities and taught at the University of Leuven about the relationship between technology and society for last- year students in engineering and doctoral student. Weiler has actively participated in the World Summit on the Information Society (WSIS) in Geneva and Tunis, with a variety of initiatives centered around ICT and Education, and is a former member of the Advisory Board of the Wikimedia foundation.
33	**Peeter Laud**	Cybernetica AS	peeter@cyber.ee	Researcher at Cybernetica Institute of Information Security
34	**Kees Wouters**	Philips	kees.c.b.a.wouters@philips.com	Ir. C.B.A. (Kees) Wouters PMP System Architect, Philips Research

ID	Name	Affiliation	Email	Description
35	**Oliver Dehning**	Antispam Europe	dehning@antispameurope.com	Oliver Dehning CEO, antispameurope GmbH
36	**NOT LISTED**	Germany; Research		NOT LISTED
37	**Giovanni Tumarello**	Sindice Ltd	g.tummarello@gmail.com	CEO, SME Semantic Web index
38	**Aleardo Furlani**	Innova SpA	furlani@innova-eu.net	CEO SME
39	**NOT LISTED**	Germany		NOT LISTED
40	**Christoph Busold**	Intel	christoph.busold@trust.cased.de	Researcher
41	**Jess Williamsnon**	Springboard/Tech Stars London	jess@springboard.co.uk	Venture Accelerator Start Up
42	**NOT LISTED**	Research		NOT LISTED
43	**Tapio Rissanen**	RegioPKI	tapio.rissanen@regiopki.com	Having worked for many years as a project officer on several important information technology programmes for the European Commission, Tapio is an expert in project design, development and implementation in the field of local and regional development, enhancing public service delivery in the area of government, health, education and training as well as business development for SME's and eCommerce. He is an experienced trainer in all aspects of European integration and has run many successful courses on how to access and use EC funding for new Member States.
44	**Ian Brown**	Oxford Internet institute	ian.brown@oii.ox.ac.uk	PhD, Researcher Oxford Internet Institute
45	**Daniela Mendes**	Ambassador at JADE	daniela.boechat@jadenet.org	European Confederation of Junior Enterprise
46	**Bernhard Peischl**	Softnet Austria	bernhard.peischl@soft-net.at	SME, Peischl Softnet Austria 8010 Graz
47	**Jonathan Cave**	RAND Europe	j.a.k.cave@warwick.ac.uk	Jonathan Cave Senior Research Fellow, RAND Europe Senior

ID	Name	Affiliation	Email	Description
				Tutor in Economics, University of
48	**NOT LISTED**			NOT LISTED
49	**NOT LISTED**			NOT LISTED
50	**Leopold Obermeier**	Austria	leopold.obermeier@eurocloud.at	SME
51	**Armine Saidi**	WiCastr	armine@wicastr.com	SME
52	**Marcel Waldvogel**	Konstanz University	waldvogel@uni-konstanz.de	Researcher
53	**David Esteves**	Canada	david@wicastr.com	SME
54	**Raffaele di Fiore**	Italy	r.difiore@reply.it	SME CEO
55	**Pedro Luis Chas Alonso**	DIT UPM Spain	pedrochas@dit.upm.es	Researcher
56	**Marta Chinnii**	ENEA Italy	marta.chinnici@enea.it	Researcher
57	**Milan Petkovic**	Philips	milan.petkovic@philips.com	Researcher
58	**ULD1**	Privacy block	These names have been hidden, since no consent for publication was given.	Politician/Parlamentarian
59	**ULD2**	Privacy block	These names have been hidden, since no consent for publication was given.	CTO of SME
60	**ULD3**	Privacy block	These names have been hidden, since no consent for publication was given.	Researcher

Table 1: Listing of 2013 edition Stakeholder group (60 members)

Chapter 6 LimeSurvey Questionnaire

The second survey was executed using a fully Open source platform based on LIMEQUERY.

Methodology used:

The methodology applied for getting the feedback from our Core stakeholder group was to again

-contact via email

-If possible get telephonic appointment for background information on TClouds and interviews

-Send online link for questionnaire OR –do interview by phone and fill in data.

As of the time of writing of the present report (April 2013) the live link for the survey is still active:

http://tclouds.limequery.com/index.php/922986/lang-en

Below are the screenshots of the online form, developed via Limesurvey Open Source platform:

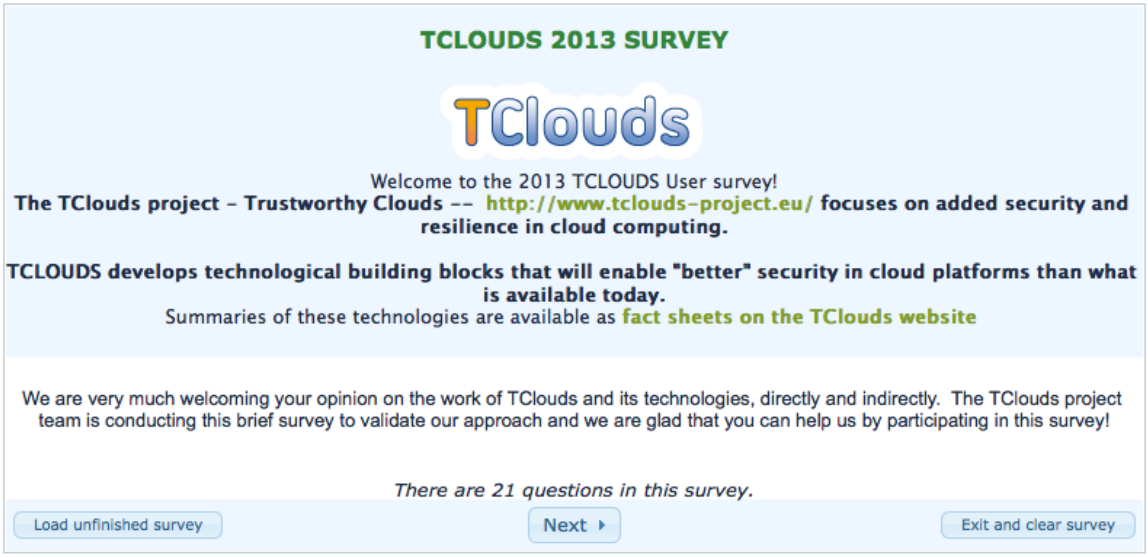


Figure 57: TClouds survey start page

TCLOUDS 2013 SURVEY

TClouds

Welcome to the 2013 TCLOUDS User survey!

The TClouds project - Trustworthy Clouds -- http://www.tclouds-project.eu/ focuses on added security and resilience in cloud computing.

TCLOUDS develops technological building blocks that will enable "better" security in cloud platforms than what is available today.
Summaries of these technologies are available as **fact sheets on the TClouds website**

0% 100%

Introduction

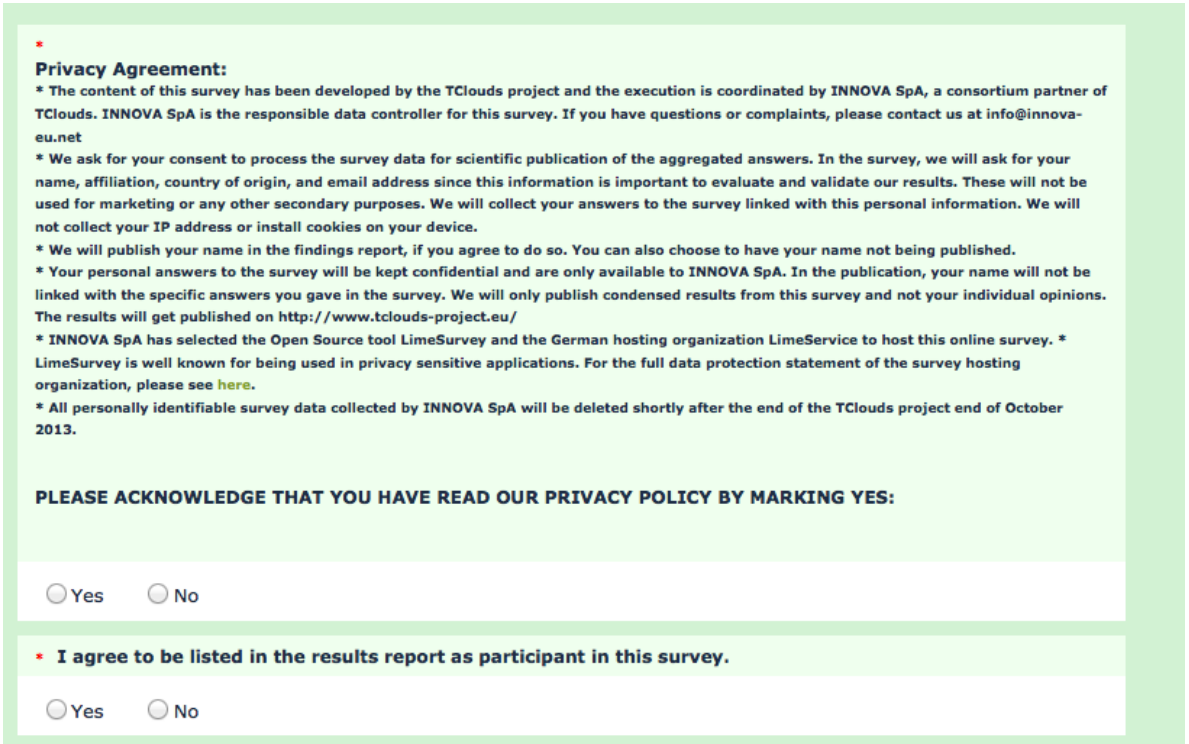
Welcome to the 2nd round of a survey by the large scale European project TClouds on Trustworthy Cloud Computing. This survey is targeted at a range of selected experts from small to larger sized firms, governments organizations, law firms , cloud customers and cloud technology specialists. You have been personally selected and invited to contribute to this survey. The TClouds project thanks for your kind support. Results of this survey will be made available publicly and to the European Commission by the end of 2013. In this survey, we introduce you to 4 key innovation areas of the project and ask for your judgement on their market potential and how well they are meeting cloud requirements as you see them. We estimate max 10 minutes to complete this survey.

Background

State-of-the-art cloud computing enables seamless access to services and global availability of information, compute capacity and data, but inherent risks severely limit the application of this technology. Protecting data and services in the cloud is important to governments, organizations and enterprises across many industries. The current cloud computing model raises a lot of concerns regarding resilience and privacy that currently hinder a wider adoption - in particular for critical infrastructure such as e.g in the healthcare or energy sector. The TClouds project has investigated innovative technologies that could in the future significantly improve cloud privacy protection, resilience and security.

Figure 58: TClouds survey Introduction page

Also with partner ULD a complete Privacy agreement was defined and put in place, that each user had to agree on in order to participate:



*

Privacy Agreement:

*** The content of this survey has been developed by the TClouds project and the execution is coordinated by INNOVA SpA, a consortium partner of TClouds. INNOVA SpA is the responsible data controller for this survey. If you have questions or complaints, please contact us at info@innova-eu.net**

*** We ask for your consent to process the survey data for scientific publication of the aggregated answers. In the survey, we will ask for your name, affiliation, country of origin, and email address since this information is important to evaluate and validate our results. These will not be used for marketing or any other secondary purposes. We will collect your answers to the survey linked with this personal information. We will not collect your IP address or install cookies on your device.**

*** We will publish your name in the findings report, if you agree to do so. You can also choose to have your name not being published.**

*** Your personal answers to the survey will be kept confidential and are only available to INNOVA SpA. In the publication, your name will not be linked with the specific answers you gave in the survey. We will only publish condensed results from this survey and not your individual opinions. The results will get published on http://www.tclouds-project.eu/**

*** INNOVA SpA has selected the Open Source tool LimeSurvey and the German hosting organization LimeService to host this online survey. * LimeSurvey is well known for being used in privacy sensitive applications. For the full data protection statement of the survey hosting organization, please see here.**

*** All personally identifiable survey data collected by INNOVA SpA will be deleted shortly after the end of the TClouds project end of October 2013.**

PLEASE ACKNOWLEDGE THAT YOU HAVE READ OUR PRIVACY POLICY BY MARKING YES:

○ Yes ○ No

* **I agree to be listed in the results report as participant in this survey.**

○ Yes ○ No

Figure 59: TClouds survey Privacy Agreement page

Chapter 7 CPDP Conference

We had succeeded in partnering with one of the most prestigious conferences regarding Trust and Privacy in ICT.

The total stakeholder network of CPDP is **a community of 3500 professionals** in the field of Computing and Trust and Privacy. (www.cpdpconferences.com).

The 2013 edition of CPDP took place from January 22-25, 2013 in Brussels.

Figure 60: CPDP 2013 Conference announcement

CPDP is a non profit platform originally founded in 2007 by research groups from the Vrije Universiteit Brussel, the Université de Namur and Tilburg University. From the start CPDP wanted to be more than just an academic platform. The mission is to gather all relevant stakeholders in an atmosphere of indepence and mutual respect. The platform was joined by the Institut National de Recherche en Informatique et en Automatique and the Fraunhofer Institut für System und Innovationsforschung. Today, under the CPDP umbrella, panels are organised by a multitude of institutes and research groups: the Zentrum Technik und Gesellschaft der TU Berlin, the Vrije Universiteit Amsterdam, the Fundamental Rights Agency, and others.

7.1 TClouds panel on CPDP 2013 on Friday 25 January

The PANEL before the TClouds session addressed privacy issues, but mainly from the surveillance perspective: "The panel [THE CLOUD LOOPHOLE (AND HOW TO CLOSE IT) will discussed technical and political developments in large-scale network surveillance, the evolution of the concepts underlying the legal structures envisaged for Cloud transfers, and the real impact on privacy rights and sovereignty over European data."

The TClouds panel addressed other issues, and specifically to have a debate on InterClouds / cloud-of-clouds.

Panel title: Cloud, Trust & Privacy: towards the InterCloud

The state-of-the-art cloud computing enables seamless access to services and global availability of information, but inherent risks severely limit the application of this technology. The benefits of increased storage at reduced cost allow information to be made available. However, the current cloud computing model comes with perceived risks concerning resilience and privacy. There are three fundamental trends in ICT whose risks mutually reinforce each other: (i) the push towards an Internet of Services - most services are provided on the web as a platform; (ii) cost pressures drive a migration of ICT into so-called Infrastructure clouds; (iii) growing importance of ICT as the critical “nervous system” for

socially relevant “smart” infrastructures – such as healthcare, energy, environmental monitoring, or mobility.

Protecting data and services in the cloud is important to governments, organisations and enterprises across all industries, including healthcare, energy utilities, and banking. Thus, the perceived security and dependability risks of cloud computing are limiting its application.

The TClouds project targets cloud computing security and minimization of the widespread concerns about the security of personal data by putting its focus on privacy protection in cross-border infrastructures and on ensuring resilience against failures and attacks.

Venue/Hour: Friday January 25, 2013 starting at 10.30 am

Contact: Roland A. Burger (chair) & Marit Hansen (moderator)

Host: Organized by the TClouds Project (www.tclouds-project.eu)

7.2 Composition of panelists

The panel composition was aimed at creating a well-balanced and mixed array of panelists. It included Parlamentarians/Politicians, NGO representatives, Industry representatives, SME representatives, scientific representatives.

The panel focused on the intersections between Cloud computing (and especially the new paradigm of Cloud of Clouds) and Trust and Privacy.

- **Aleardo Furlani**, Member of the Board, International Association of SMEs (insme.org)
- **Birgitta Jónsdóttir**, Member of the Parliament, Iceland; Spokeswoman Icelandic Modern Media Initiative
- **Chris Hopfensperger**, Business Software Alliance
- **Guo Liang**, Director of the China Internet Project and Associate Professor at the Chinese Academy of Social Sciences (CASS)
- **Eva Salzmann**, Europe Data Privacy Officer & Counsel, IBM

PANEL MODERATOR: **Marit Hansen**, ULD

Figure 61: TClouds CPDP 2013 Session on Friday 25 January

7.3 Results from the Panel

The audience was comprised mostly of non-technical people. There was however large interest shown regarding the core TClouds technologies and the fact that technical open source solutions from TClouds are available.

Several questions from the audience supported this, and asked for more information, including web address etc.

Another major issue raised, was that from the point of view of SMEs, the sensitivity to pricing is tantamount. Price is considered to be an important factor for adoption of trusted cloud services for SMEs. The need for trusted cloud services was clearly noted, but pricing remains the overall decision factor.

Furthermore, the Panel organizers have just been asked, if they would be willing to organize a follow-up panel in Brussels during CPDP 2014.

7.4 Fundamental Trends introduced

The state-of-the-art cloud computing enables seamless access to services and global availability of information, but inherent risks severely limit the application of this technology. The benefits of increased storage at reduced cost allow information to be made readily available. However, the current cloud computing model comes with perceived risks concerning resilience and privacy. There are three fundamental trends in ICT whose risks mutually reinforce each other:

- the push towards an Internet of Services - most services are provided on the web as a platform;
- cost pressures drive a migration of ICT into so-called Infrastructure clouds;
- growing importance of ICT as the critical "nervous system" for socially relevant “smart” infrastructures – such as healthcare, energy, environmental monitoring, or mobility.

Protecting data and services in the cloud is important to governments, organizations and enterprises across all industries, including healthcare, energy utilities, and banking. Thus, the perceived security and dependability risks of cloud computing are limiting its application.

7.5 Statements from the panelists

- **Aleardo Furlani**, Member of the Board, International Association of SMEs (insme.org): *Absolute need to focus on price sensitivity for SMEs. While clearly underlining the need for solutions a la’ TClouds, still the bottomline is the price sensitivity. Huge market potential for innovative secure Cloud services that target SMEs at a competitive price.*
- **Birgitta Jónsdóttir**, Member of the Parliament, Iceland; Spokeswoman Icelandic Modern Media Initiative: *Need to respect privacy, Iceland with its Media Initiative is targeting this new market opportunity, combining as well Green Energy/Renewable Energy for Data Centers in Iceland*.
- **Chris Hopfensperger**, Business Software Alliance: *Need for standards, interoperability is key. No need for walled gardens, open standards and market decides.*
- **Guo Liang**, Director of the China Internet Project and Associate Professor at the Chinese Academy of Social Sciences (CASS): *China as well is a huge market, many SMEs present and starting up. Key will be specific adapted offerings for Chinese SMEs, tailoring to their specific needs. Big market, state does not control everything, is also technically not possible.*
- **Eva Salzmann**, Europe Data Privacy Officer & Counsel, IBM: *Clear market opportunity, confirming fully the view of Mr Furlani on SME needs and markets and need to offer tailored and price competitive services.*

Chapter 8 Oxford University events

The Oxford Outreach was composed of two events in Oxford, one on February 26 at Kellog College, the other one at the MeetUp of the Oxford Entrepreneurs in the evening of the same day.

8.1 Technical workshop of TClouds at Kellogg College

The technical workshop on February 26, in the afternoon, was hosted at Kellogg College.

It was comprised of a keynote speech and four technical presentation modules by TClouds representatives and a discussion session with participants. The list of TClouds innovations was pinned down to 4 representative areas, in order to give a representative view on TClouds without overwhelming the audience. Pointers were given to the full set of TClouds Primers available for download from the TClouds website, so that interested users could always get the full picture. Around 10 technical people from Oxford attended, with a registration of 15.

8.1.1 Relation with the interviews

All registered participants (also those who did not show up) received the link to the online TClouds Survey.

8.1.2 Program

Intro: Jonathan Sage, IBM EMEA lead on cyber security and cloud computing policy

State of play - Cloud Computing between regulation and market innovation

- Overview on the large-scale EU Project TClouds, Christian Cachin, IBM Research Zurich
- Trusted Infrastructure Cloud - Christian Stüble, Sirrix AG, Germany
- Trustworthy Open Stack - Imad Abbadi, Oxford University, UK
- Security of Cloud Storage - Christian Cachin, IBM Research Zurich, Switzerland
- Cloud-of-clouds in practice - Alysson Bessani, University of Lisbon, Portugal

Moderated Discussion

NextCloudVentures - potentials in trustworthy cloud computing

Roland Burger (Innova), Elmar Husmann (IBM Innovation Management)

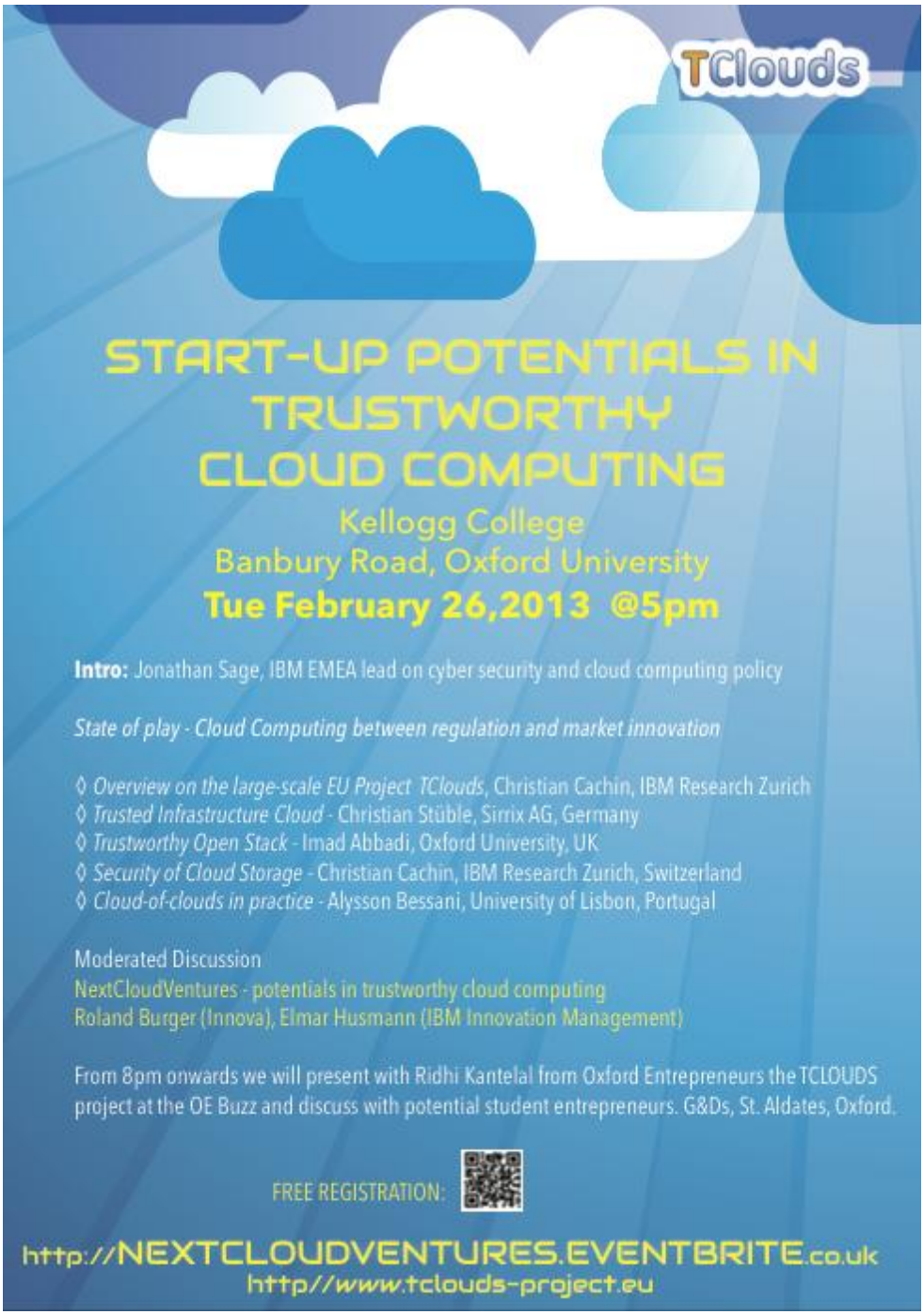


Figure 62: TClouds Flyer for workshop Oxford

Figure 63: TClouds workshop Oxford

8.1.3 Introduction by Jonathan Sage, IBM

Figure 64: TClouds workshop Oxford: Jonathan Sage presentation

8.2 Presentation to the Oxford Entrepreneurship Society at MeetUp

Launched in February 2002, Oxford Entrepreneurs is the largest student society at Oxford University and has now become the largest free business and entrepreneurship society in Europe with over 7,000 members. The network includes undergraduates, graduates, MBA students, active alumni, and external members. Oxford Entrepreneurship's mission is to encourage and support student entrepreneurship by providing inspiration, education, networking and the chance to learn the skills needed to succeed in business.

A monthly MeetUp gathers in an informal session different members of the Oxford network, in order to discuss start-up opportunities and ideas. TClouds project and technological components have been presented from 7pm to 10pm at the meeting of February 26.

A total of 15 participants (total number, some entered before some exited before) attended, and showed strong interest in TClouds technologies and components, asking specifically for the website address and TClouds Primer flyers.

8.2.1 Relation with Interviews

The full TClouds information was sent out to the Oxford Entrepreneurs mailing list. The audience was diverse, technologists (CS Students) and Business (Economics students) were mixed.

Figure 65: TClouds informal presentation at weekly meeting of the Oxford Entreprenurship society

Further opportunities for future collaboration emerged as a way to dissemination of TClouds Results, as shown in the following sections:

8.3 Future Events by invitation

The dissemination efforts had also the side effect to introduce a "sustainability" element, in that TClouds partners have been invited to follow-up events, both at Oxford and at Cambridge.

8.3.1 Oxford Inspires event 2014

Via the Oxford Entrepreneurs a TClouds inspired presentation has been invited for the next edition of Oxford Inspires.

Oxford Inspires is an important entrepreneurial conference organized by Oxford Entrepreneurs.. Taking place at the Oxford University Saïd Business School Oxford Inspires provides an opportunity for 300 thoughtful and engaged individuals to attend a variety of speaker events, masterclasses and breakout sessions. Successful entrepreneurs will contribute to the program, offering the opportunity to engage with and contribute to the next generation of entrepreneurs and business leaders. Among the dozens of speakers confirmed so are: Simon Woodroffe (Founder of Yo! Sushi), David Tisch (Founder of TechStars NYC) and Nick D'Aloisio (Founder of Summly and the youngest UK individual to receive VC funding).

8.3.2 Said Business School

The Said Business School Seed Fund is investing in startups led by Oxford students and alumni (Oxford Entrepreneur Society). A number of applications will then be funded. Eligible ventures must have an Oxford student or alumni as a member of the founding team. Also, for entrepreneurs who have ideas but are not yet ready for investment from the Seed Fund, they are encouraged to apply for the Lean LaunchPad business model development programme.

Specific interest has been confirmed by Prof. Mark Ventresca from the Business School towards TClouds in general, and specific application such as secure cloud storage in specific. Also an invitation to present further has been issued.

Chapter 9 Cambridge University Entrepreneurs

In collaboration with the Cambridge Unviersity Entrepreneurs an event was organized at Cambridge Trinity College. This event and TClouds have furthermore then been disseminated via the Cambridge Accelerator/Incubator programme and the TechStars London start-up scene.

9.1 Cambridge Workshop at Trinity College Cambridge on April 16

The workshop in Cambridge took place on April 16, 2013 at Trinity College.

Figure 66: TClouds Cambridge Venture round event

The Cambridge meeting was focused on presenting the TClouds architecture and technology building blocks and engage in a dialogue with Open Source programmers, experts and Venture Capital financiers, and SME representatives and a representative of the Cambridge ideaAccelerator and TechStars London startup scene.

9.1.1 Results of this session:

- Liaison with one of Europe's most important start-up accelerator programs and startup scene.
- Dissemination of TClouds technology within the Cambridge University network, the Cambridge Accelerator, the London Tech-Stars start-up scene.
- The target stakeholder groups of start-ups/venture-capitalists/programmers, has been fully reached and TClouds Primers etc disseminated.
- TClouds survey has been announced and distributed within Cambridge University, Cambridge University Entrepreneurs and Tech Stars London.
- Further engagement produced towards sustainability of the project: invitation to Rustat Conference in September 2013 and next Tech Stars events (to be defined).

Prominent guest was the renowned Venture Capitalist Hermann Hauser from Amadeus Capital partners.

Figure 67: TClouds Cambridge Venture round: moment of discussion. Hermann Hauser, Jon Crowcroft

Figure 68: TClouds Cambridge Venture round: Roland Burger, Hermann Hauser, Jon Crowcroft, Elmar Husmann

Figure 69: TClouds Cambridge Venture round Moment of discussion with Hermann Hauser and entrepreneurs

Hermann Hauser has also provided a short video message/insight for potential entrepreneurs in trusted cloud services, from a Venture Capital point of view, indicating success criteria. This video is available on the TClouds portal.

Figure 70: TClouds Cambridge Venture round Video Address to Cloud entrepreneurs

Key take away:

Hermann Hauser underlined the importance of a top-team, the importance of a very good technical idea and solution and the need to focus on the market, also with perseverance, showing as an example the case of Cambridge Silicon Radio success in Bluetooth technologies.

A continuous update feedback on trusted and secure Cloud technologies was seen as fruitful for future exchange.

9.2 TechStars London

TechStars is the #1 startup accelerator in the world. Jess Williamson, is both Program Manager at IdeaAccelerator, the business incubator of Cambridge University, and also Program Manager of London TechStars.

The TClouds project and Survey has been prominently announced on the Twitter feed of Tech Stars London by Jess Williamson.

A further partnership was envisioned, to regularly send updates on TClouds news towards Tech Stars and IdeaAccelerator/Cambridge for further dissemination.

TechStars is a mentorship-driven startup accelerator founded by David Cohen, Brad Feld, David Brown, and Jared Polis that holds 13 week programs for startups in Boulder, New York City, Boston, Seattle, and San Antonio and recently London. Fewer than 1% of the companies that apply to TechStars are accepted. Of the 114 companies that have completed the TechStars program, 92% are active and profitable.TechStars mentors include Foursquare CEO Dennis Crowley, tumblr CEO David Karp, HubSpot co-founder and CTO Dharmesh Shah, and Fred Wilson of Union Square Ventures.

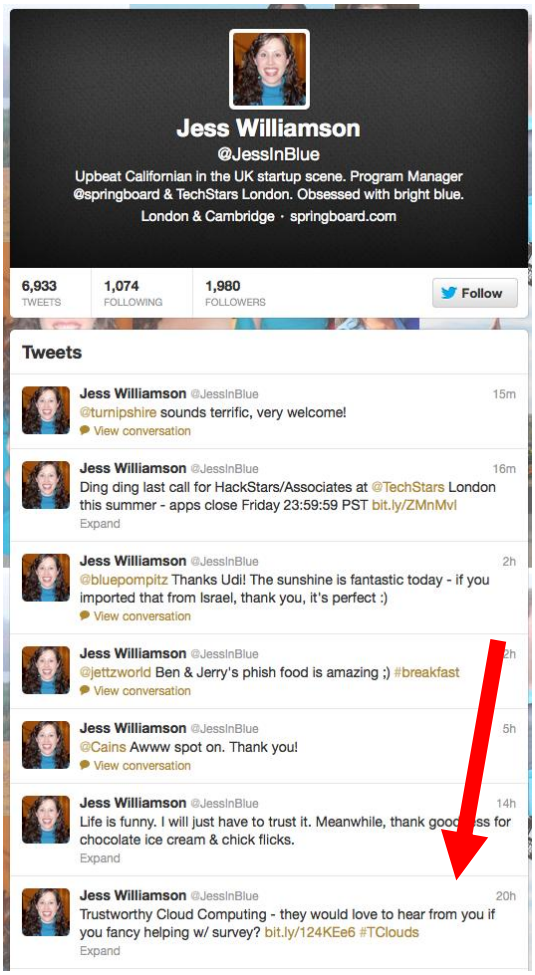


Figure 71: TClouds Cambridge event featured in Twitter feed of springboard and TechStars London

9.3 Cambridge Rustat Conference Sep. 30, 2013

Following the Cambridge event, we have been approached by Prof Crowcroft and invited to the 2013 edition of the Rustat Conference[2] in Cambridge, to be held on September 30, 2013 to present TClouds technologies.

The Rustat Conferences is an initiative of Jesus College, Cambridge and provides an opportunity for decision-makers from the frontlines of politics, business, finance, the media, and education to discuss the vital issues of the day with leading academic experts.

In 2012-13 the Rustat Conferences addressed topics including: Health Innovation: A Cambridge Success Story, The Future of Research-Intensive Universities, Managing Organisational Change, Transition and Turbulence in the Economic Crisis, and The Geopolitics of Oil and Energy. The latest conference in April 2013 addressed The Decriminalisation of Drugs Debate.

The next conference will take place on 30 September 2013 and will address: Cyber Finance: Risks, Resilience & the Reshaping of World Finance, part of the Rustat Cyber Security series.

[2] www.rustat.org

Rustat Conferences is named after Tobias Rustat (d.1694), an important benefactor of Jesus College, and best remembered for creating the first fund for the purchase of books for the Cambridge University Library.

Since its foundation in 2009, in addition to the conferences listed above, the Rustat Conferences has hosted meetings on the following topics:

- Cyber security: An Assessment of the Threat
- Economic Crisis
- The Future of Democracy
- Infrastructure & The Future of Society: Energy, Water, and Cities
- Manufacturing in the UK