Welcome to the World of Standards

ETSI
World Class Standards

Cloud Standards Coordination – Phase 2
We are we ?

The CSC phase 2 team

ILNAS World Standards Day, 14.10.2015

Luxembourg

Rationale for CSC phase 2

CSC Phase 1:
Are standards supporting EC Cloud Strategy ?

- ○ **EC Cloud Strategy (09/2012)**
    - • "Faster adoption of cloud computing throughout all sectors of the economy to boost productivity, growth and jobs".

- ○ **Some potential roadblocks identified by EC**
    - • Fragmentation of the digital single market
    - • Contractual issues
        - • SLA; Data ownership & portability; Security; …
    - • A jungle of standards

- ○ **The Cloud Standards Coordination**
    - • "Promote trusted and reliable cloud offerings by tasking ETSI to coordinate with stakeholders in a transparent and open way to identify by 2013 a detailed map of the necessary standards (inter alia for security, interoperability, data portability and reversibility)"

Main conclusions

Cloud Standards Coordination

Final Report

November 2013

VERSION 1.0

http://csc.etsi.org

CSC phase 2 – September 2015

NO
Jungle of
Standards

Enough
Standards
to start with

Despite new
standards
coming, some
gaps
identified

Foster
collaboration
to ensure no
fragmentation
happens

CSC Phase 2 and STF 486

CSC Phase 2 Priority Areas

User
Needs

Security

Standards
Maturity

Open
Source &
Standards

CSC phase 2 – September 2015

Cloud Standards Coordination – Phase 2

○ **Build on the findings of CSC Phase 1**

  • Closing the loop with other projects of EC cloud strategy

○ **Focusing on the user needs and viewpoint**

  • Testing them against users' feedback

  • Digging further into users' needs–specify/qualify concerns

○ **Addressing the main issues outlined at the end of CSC Phase 1**

  • Users priorities

  • Interoperability, Conformance (with Security as main concern)

  • Standards and Open Source

  • Status of Cloud Computing Standardization, snapshot 2

  • Socialization, Liaisons and Dissemination

CSC phase 2 – September 2015

Making it happen

- ○ **CSC Phase 2 Definition**
  - ETSI proposed a study item in June 2014 for EC funding
  - The proposal was accepted by the EC in October 2014
- ○ **The Specialist Task Force (STF)**
  - CSC Phase 2 is managed in ETSI as an STF
  - A Collective Letter has been issued on November 3rd, 2014
    - CL14_3144 Call for Experts on Cloud Standards Coordination Phase-2
    - Describing the details of the proposed action
    - Calling for the recruitment of (up to) 6 experts
  - Candidacies collected up to early December
  - Selection of experts by NTECH in December
  - The STF has officially started in January 2015
    - The STF 486 is attached to and supervised by TC NTECH in ETSI

CSC Phase 2 and STF 486

○ **The work in the STF 486 is organized in 4 Work Packages**

- corresponding to 4 ETSI Work Items and
- 4 Tasks in the Letter of Engagement (upon 6)

○ **Work Packages**

- WP1 = WI 1 = Task 1   User Needs
- WP2 = WI 2 = Task 5   Standards and Open Source
- WP3 = WI 3 = Task 4   Interoperability, Conformance: Security
- WP4 = WI 4 = Task 2   Cloud Computing Standards: snapshot 2

○ **All these WPs contribute to the others tasks of the LoE.**

- Task 3   Socialization, Liaisons and Dissemination
- Task 6   Reports and results presentation workshop

Who and when

○ **Participants**

- Emmanuel Darmois   CommLedge (leader)
- Bernd Becker   EuroCloud
- Anders Kingstedt   Softarc AB
- Olivier Le Grand   Orange
- Peter Schmitting   FSCOM
- Wolfgang Ziegler   z-rands

○ **Timeline**

- Official STF Start Date: January 19th 2015
- Actual STF Start Date: February 1st 2015
- Planned End of Work: December 3rd 2015
- Official STF End :   December 30th 2015 (new contract)

CSC phase 2 – September 2015

Status of Work

The STF output at a glance

- **Work Package Deliverables**
  - All (draft) reports available for comments until September 18th
  - Public review of the comments on October 1-2 in Brussels
  - Final reports will be submitted for NTECH approval October 6th
  - Expected final distribution of reports to public in October
- **Dissemination activities**
  - All available information available on CSC website: http://csc.etsi.org
  - Future opportunities to present the CSC Phase 2 results
    - NIST Cloud Computing Workshop VIII   Jul. '15
    - ISC Cloud 2015   Paper accepted to the conference   Sep. '15
    - CloudWatch   Sep. '15
    - EuroCloud Conference   Oct. '15
    - ICT 2015   Networking event dedicated to CSC Phase 2   Oct. '15
- **Final Presentation Workshop   December 2nd 2015**
  - Will be held in Brussels at EC premises

Cloud Computing User Needs

○ **Objectives**
- To collect and analyze (via a survey) the feedback from the users
  - To understand the needs of the CC users community
  - To identify their highest priority (existing or new) use cases
  - To ensure that their priorities are taken into account in standardization.
- To further refine the Phase 1 report conclusions.

○ **Deliverable: a WP report**

○ **Status**
- Survey on-line on March 30th: http://csc.etsi.org/phase2/survey.html
  - 324 answers collected for the report
  - The survey is still open for answers (to improve accuracy)
- Draft report distributed (version 1.0) for public comments on June 24th
  - Deadline for comments: September 25th
- To be reviewed in the public Review Workshop on October 1st

CC Standards and Open Source Software

- ○ **Objectives**
  - Address the relationship of CC Standards with Open Source.
    - Understand how they can benefit from each other.
  - Make an inventory of the on-going Open Source projects that have an established relationship with standards organizations active in CC.
  - Analyse their potential contribution to standards.
- ○ **Deliverable: a WP report**
- ○ **Status**
  - Draft report distributed (version 1.0) for public comments on July 28th
    - Deadline for comments: September 25th
  - To be reviewed in the public Review Workshop on October 2nd

Cloud Computing Standards and Security

- **Objectives**
  - To address some CC Standards issues related to security, e.g.
    - Proof of conformance (seen as a moving target).
    - Data Protection & Privacy
  - To provide users with recommendation regarding the interplay between standards, conformance and regulation.

- **Deliverable: a WP report**

- **Status**
  - Draft report distributed (version 1.0) for public comments on July 30th
    - Deadline for comments: September 25th
  - To be reviewed in the public Review Workshop on October 1st

Cloud Computing Standards: Snapshot 2

- ○ **Objectives**
  - To review CSC/1 segmentation of CC Service Life-cycle by activities
    - To take into account the results of WP1 on the Users priorities.
  - To provides a list of available standards
  - To evaluate the areas of overall greater maturity of standards.
- ○ **Deliverables:**
  - a WP report
  - a presentation workshop on December 2nd
- ○ **Status**
  - Draft report distributed (version 1.0) for public comments on August 7th
    - Deadline for comments: September 25th
  - To be reviewed in the public Review Workshop on October 2nd

General Findings

- **Benefits and challenges**
  - Most positive factors
    - Reduction of CAPEX, improved business agility, faster time to market
  - Main challenges
    - Compatibility with in-house systems, security, privacy/integrity
- **Adoption and scope**
  - A majority of the respondents (58%) have already started to adopt CC
  - None (0%) of the respondents are not planning to adopt CC
- **Cloud Deployment Models and Cloud Service Categories**
  - Private Cloud dominates followed by Hybrid Cloud and Public Cloud
- **Standards top priorities**
  - Interoperability, security, service level agreements, portability and APIs
- **Cloud computing certification standards**
  - Certification schemes: a positive way (75%) to increase confidence in CS Providers

Trends and patterns

- **Security and Data Privacy are seen as major concerns**
  - This is not a new finding, but the fact that it is still very much present is a clear indication on the perceived challenge ahead for security standards and Cloud certification in particular.
- **Interoperability is another area that is ranked high**
  - This concern is most likely linked to the issue of vendor lock-in and the lack of portability standards for cross-Cloud scenarios
- **Transition to Cloud Computing**
  - High perception from the respondents that it should be carefully planned and organized, in particular in areas pertinent to data (classification, storage, etc.), processes and security.
- **Role of standards**
  - It is seen as important and there is already a high level of awareness , to a smaller extent even in terms of knowledge on the existing set of standards.
  - Benefit from standards related to Cloud Computing is seen as more critical than Open Source: this finding is however subject to further analysis.

CSC phase 2 – September 2015
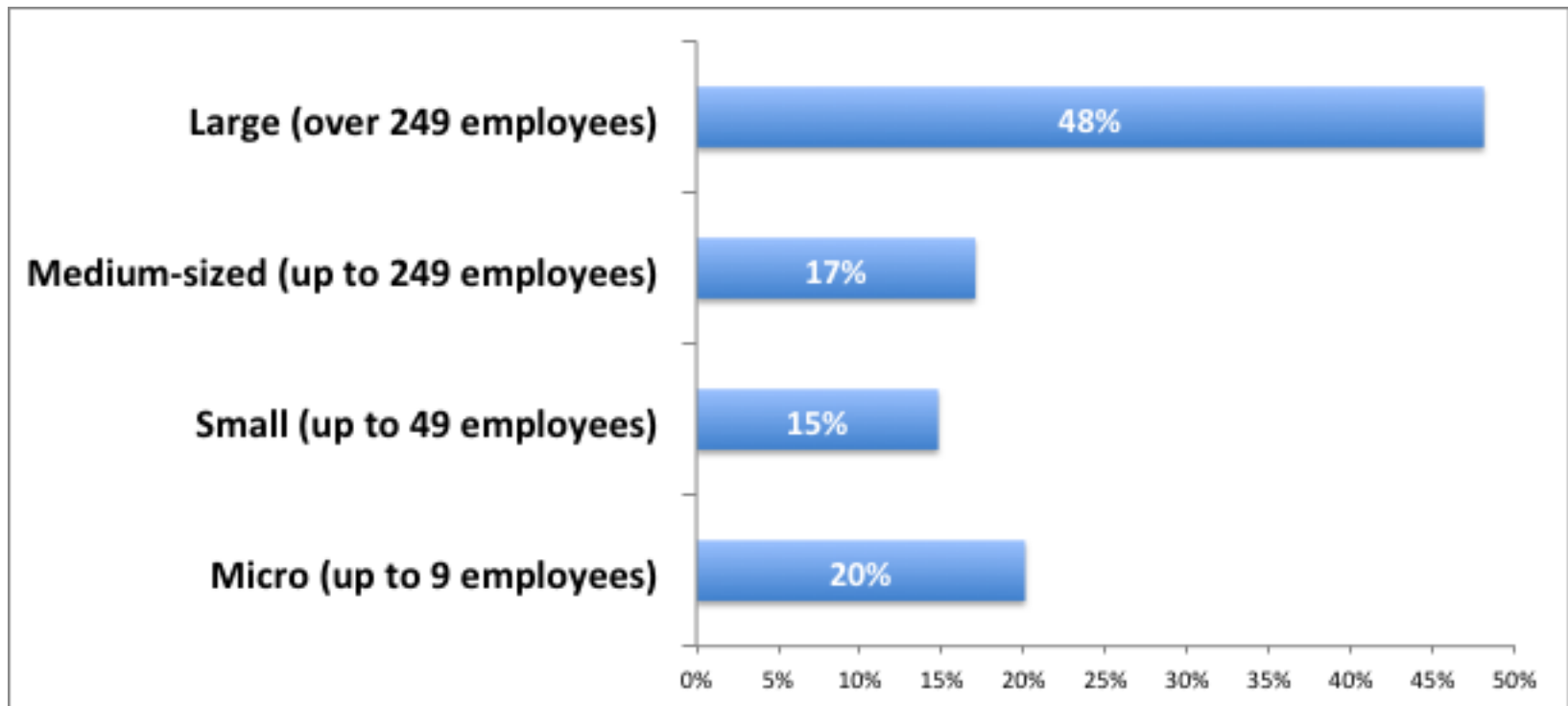
Size of your organization?

Maturity of your organization: how critical are the following challenges?

CSC phase 2 – September 2015
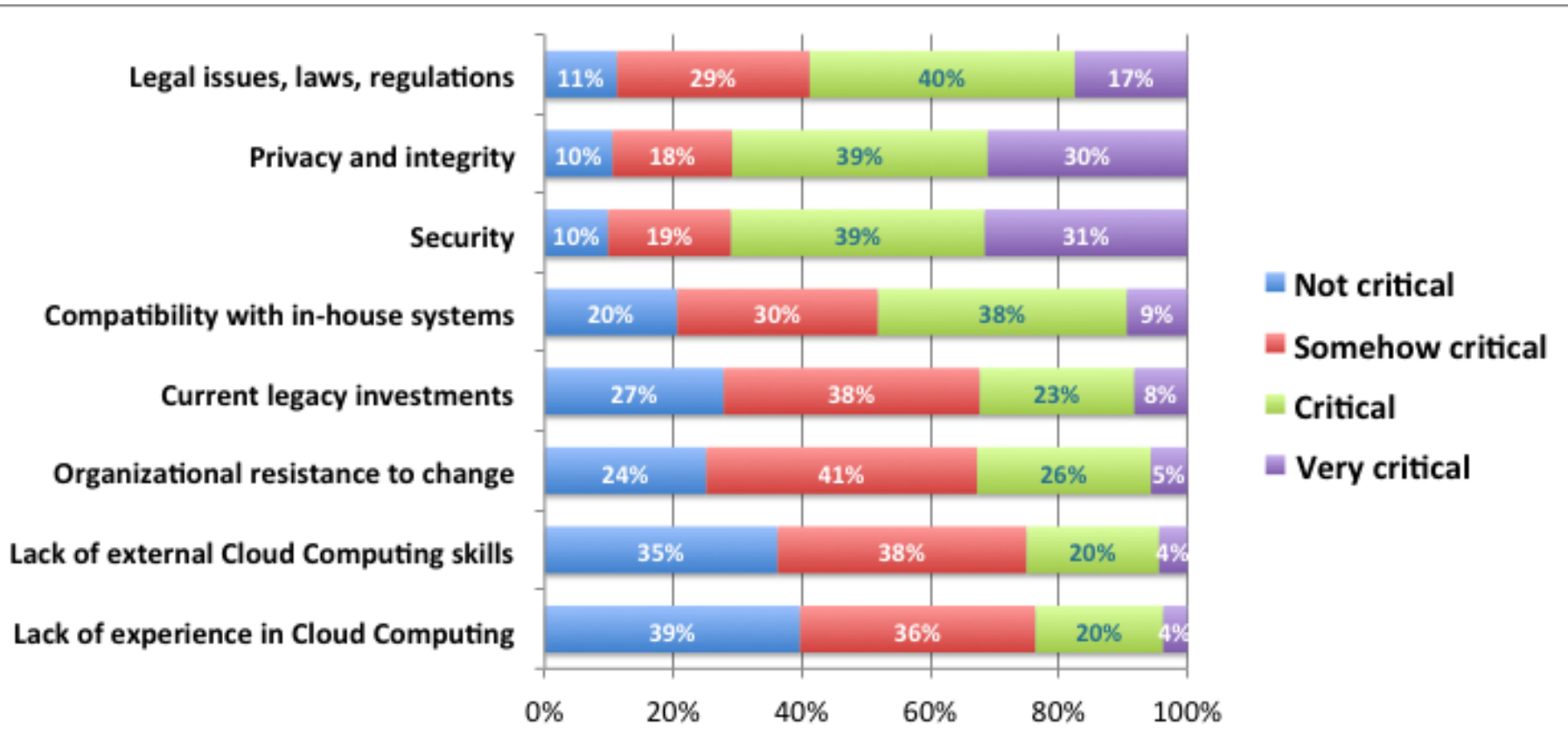
Maturity of Cloud Computing: how critical are the following issues for your organization?

CSC phase 2 – September 2015
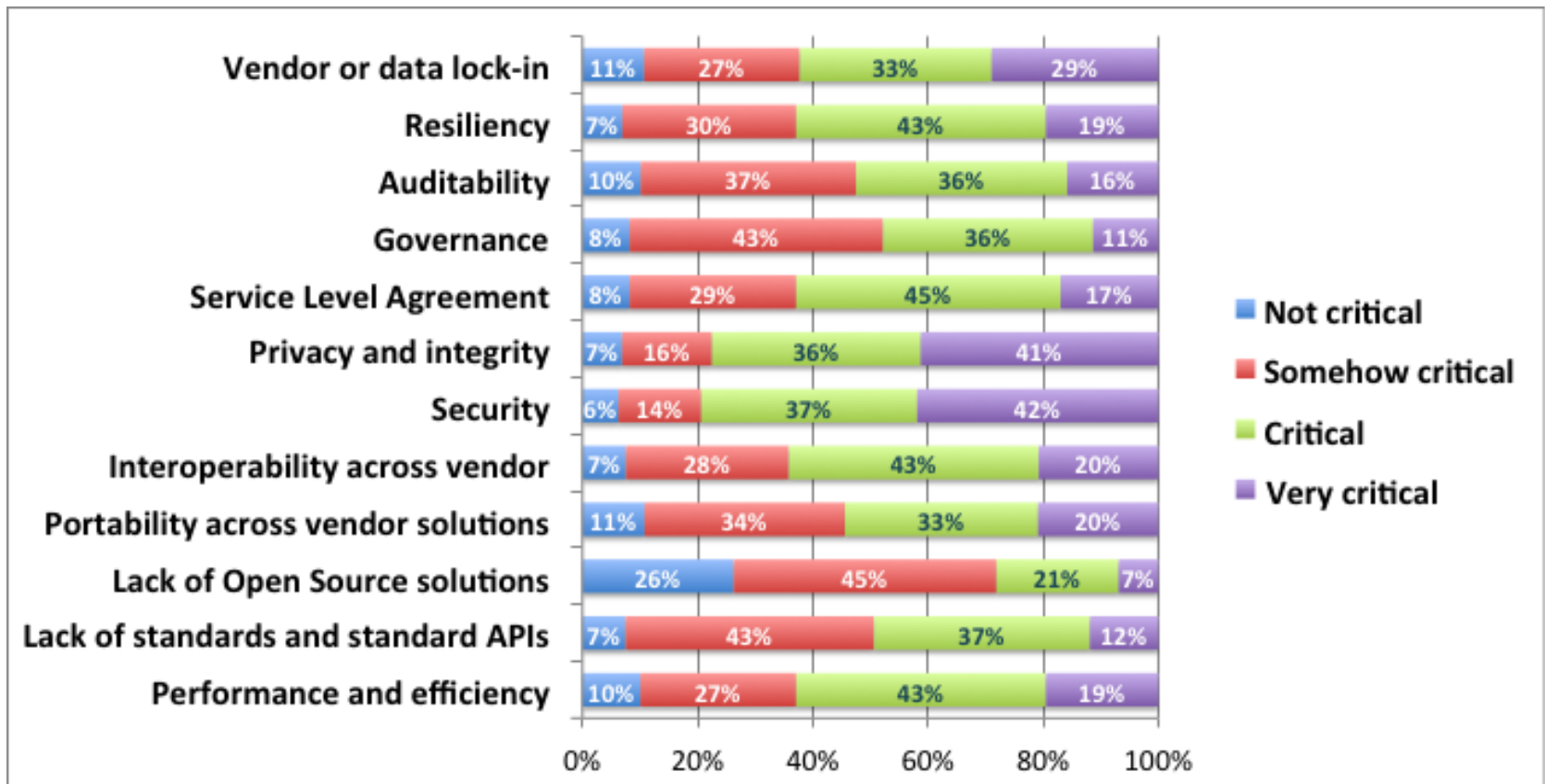
Stage of Cloud Computing Adoption

CSC phase 2 – September 2015
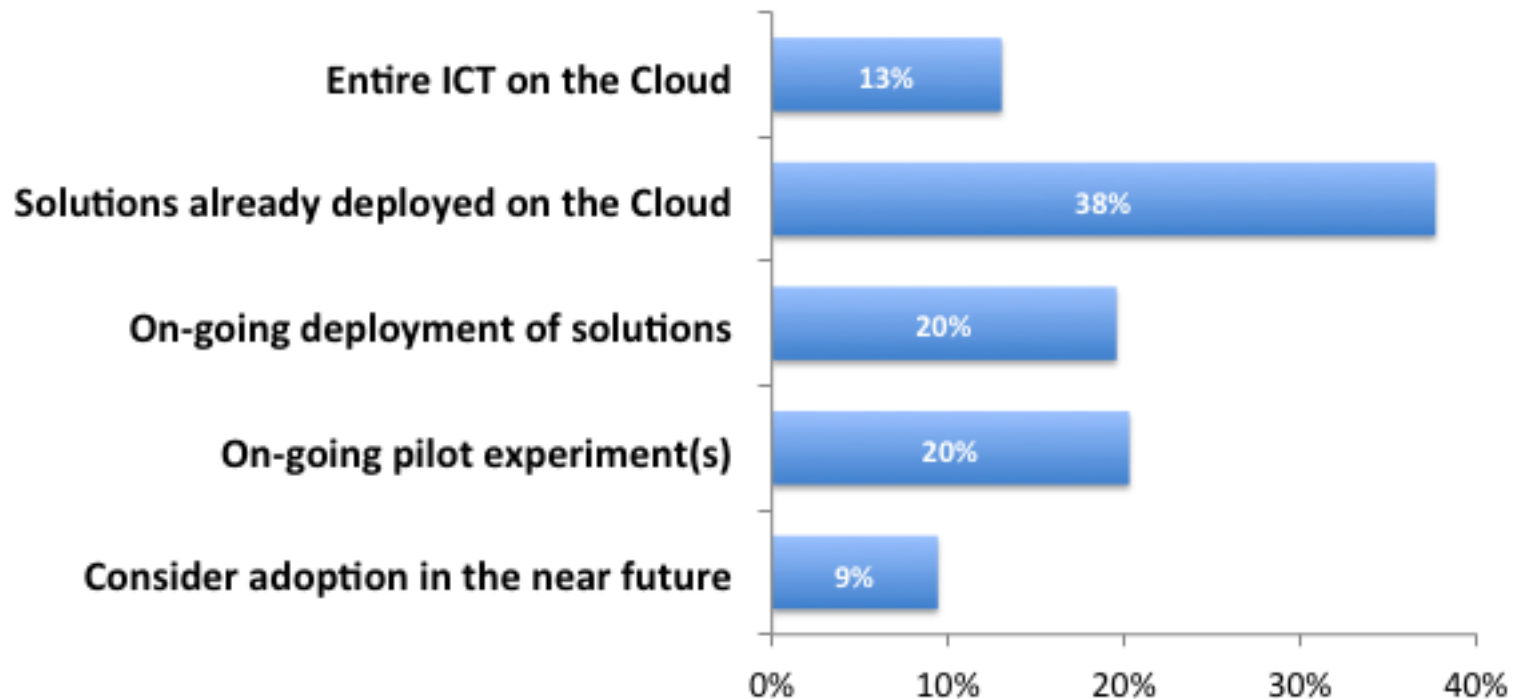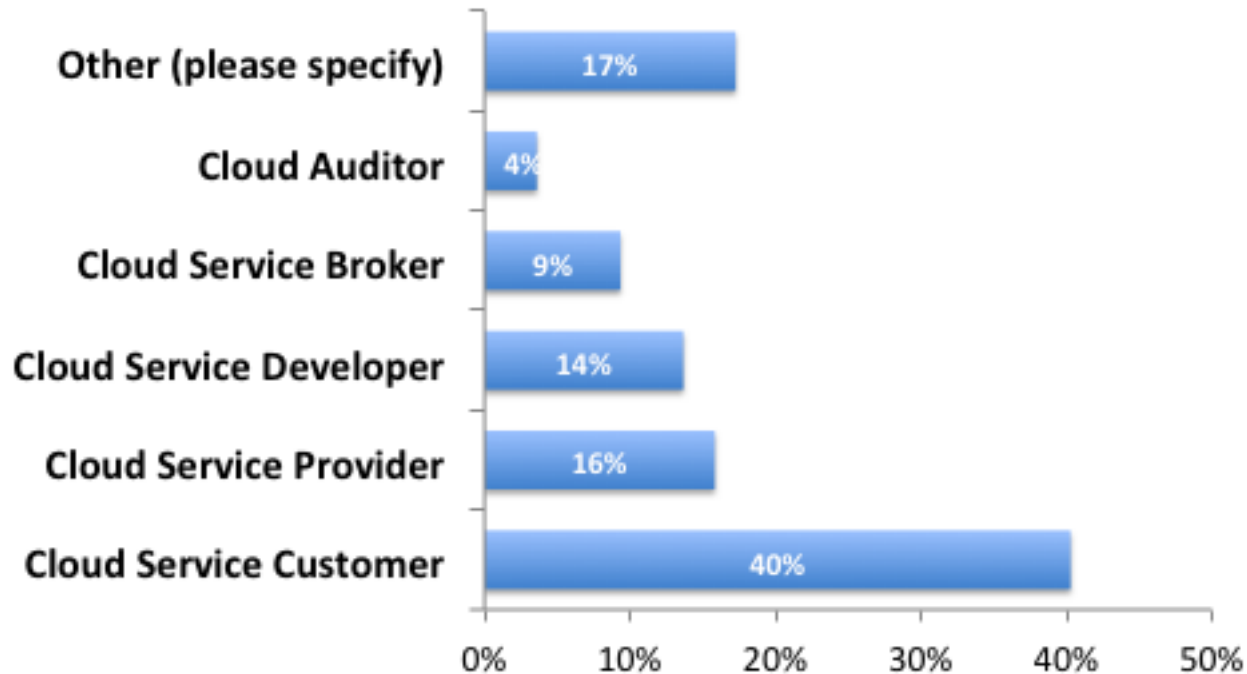
Level of your resources and support to Cloud Computing

CSC phase 2 – September 2015
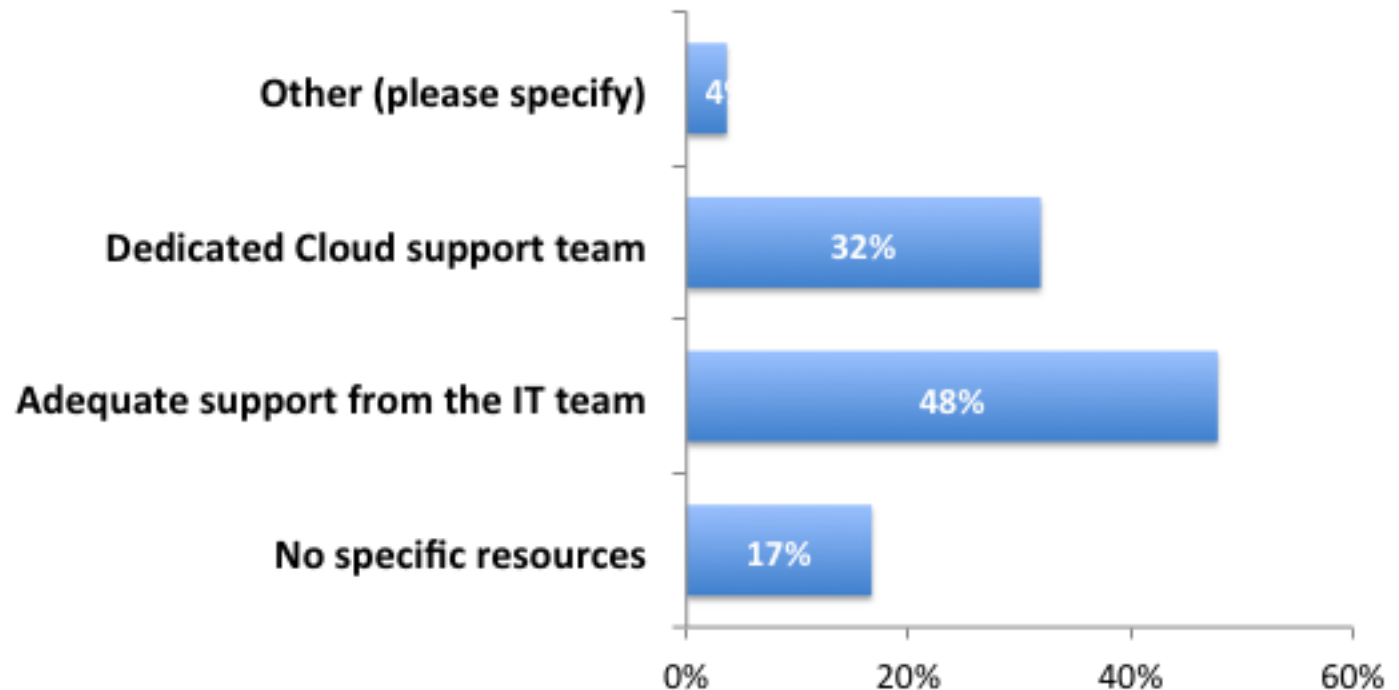
Data Classification in your organization

CSC phase 2 – September 2015
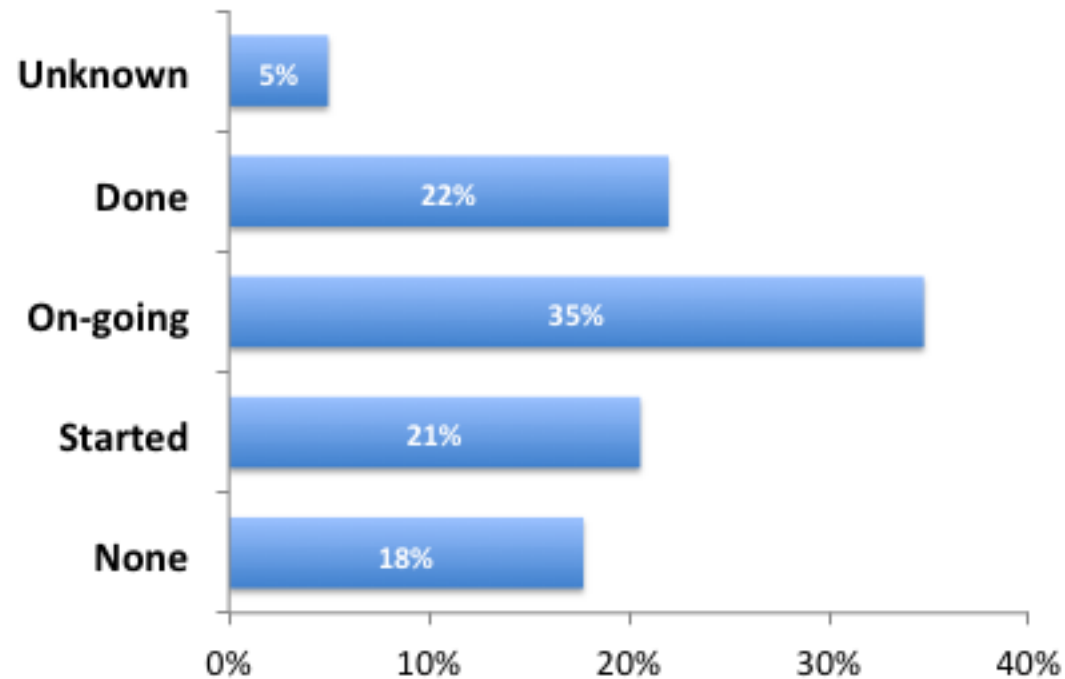
Data Security in your organization

CSC phase 2 – September 2015
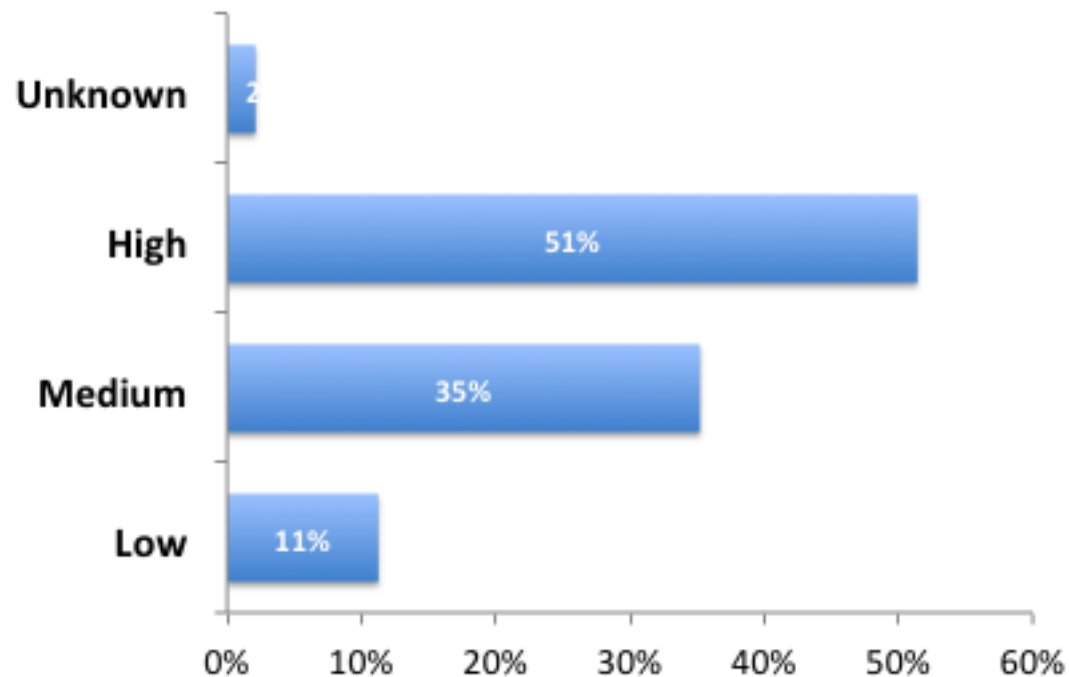
Which Cloud deployment model seems best fit to your needs?

CSC phase 2 – September 2015
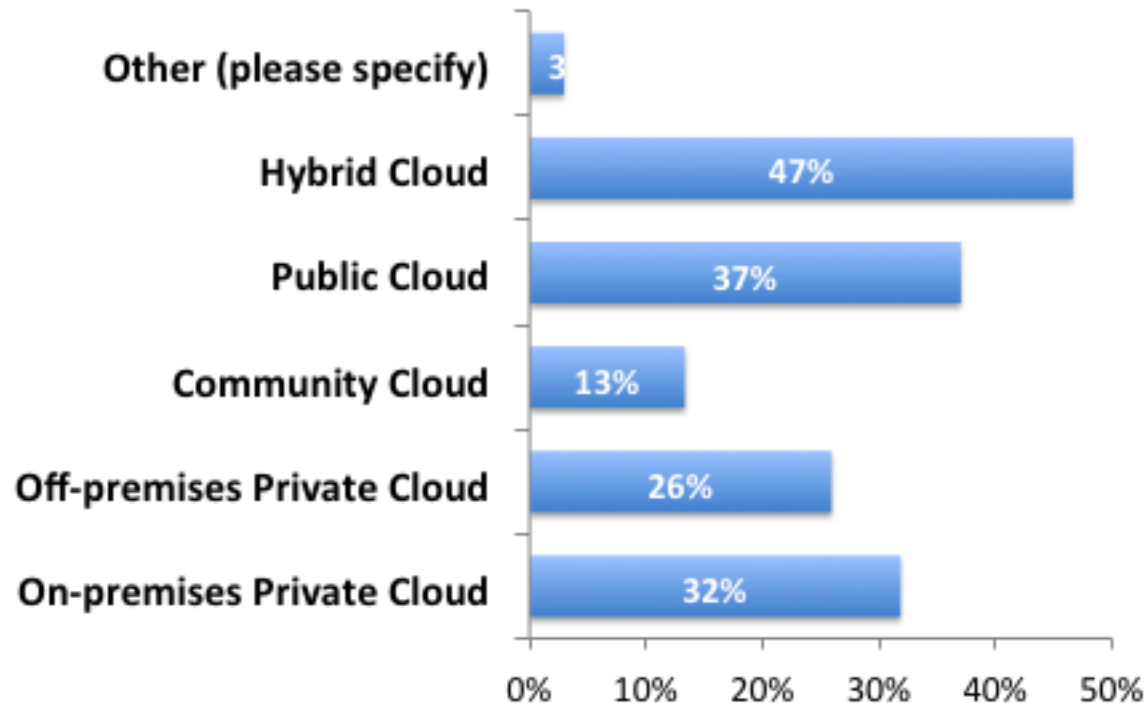
Which impact can Cloud Computing Standards have on your organization's concerns?

CSC phase 2 – September 2015
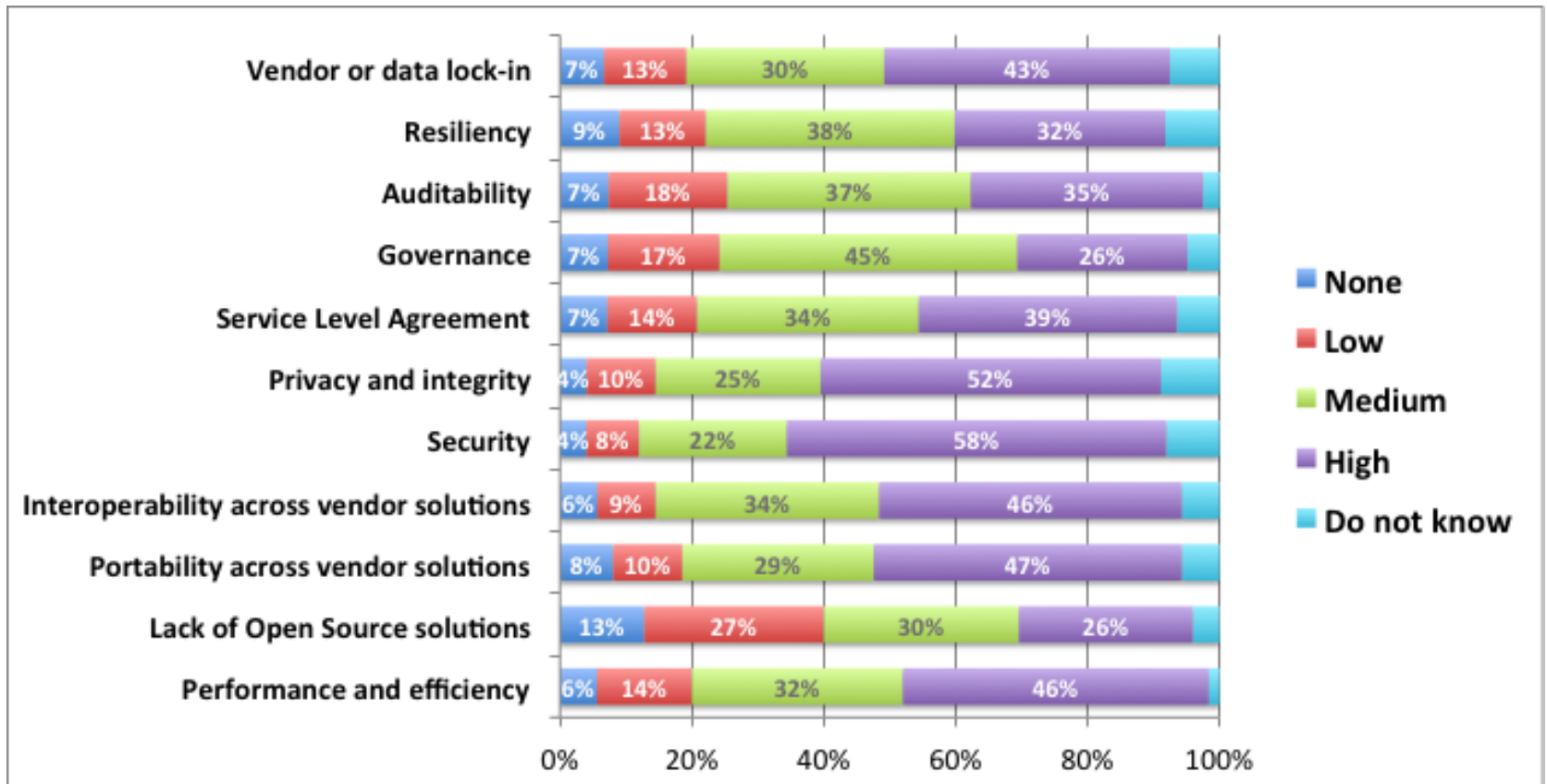
To which degree are Cloud Computing Standards considered or used in your organization?
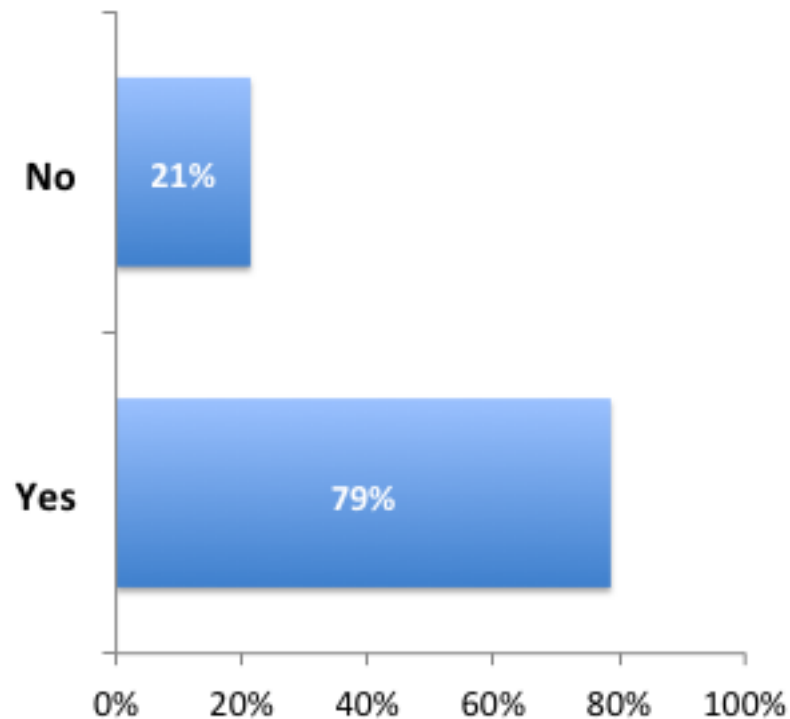
CSC phase 2 – September 2015
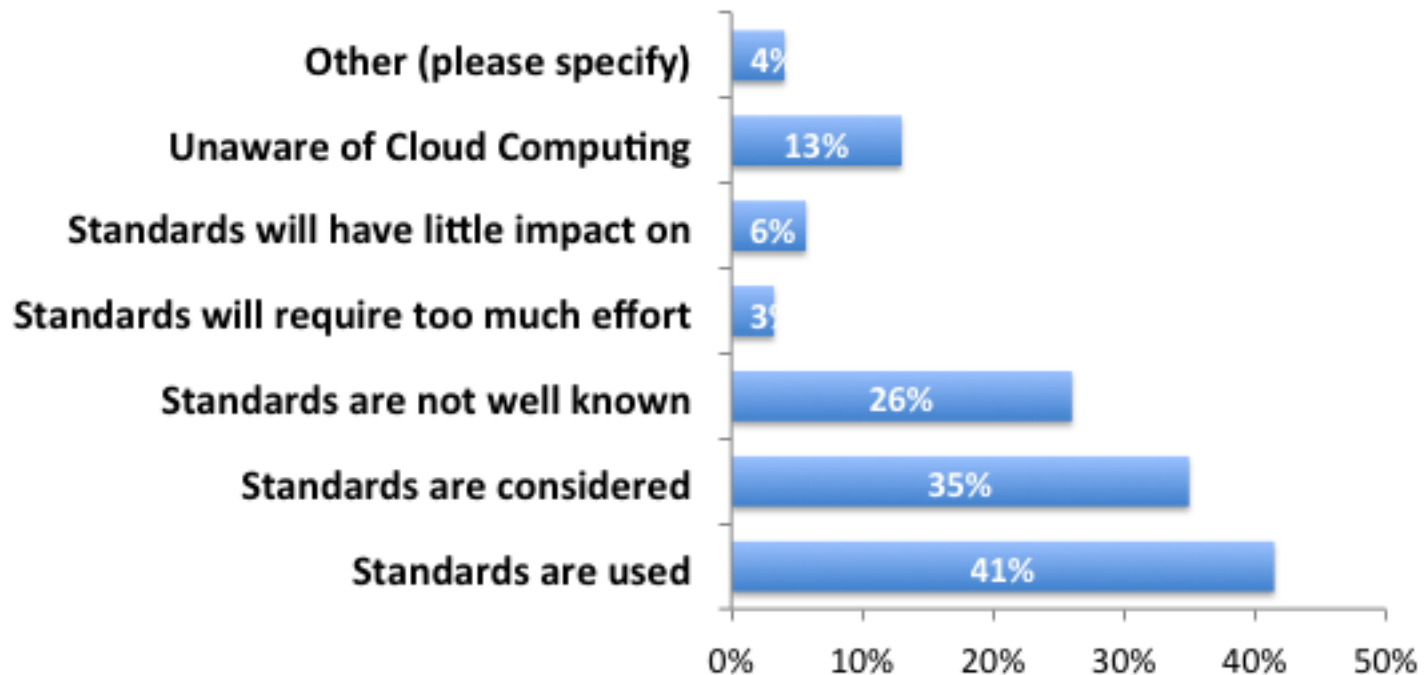
Your organization's adoption and use of CC standards: Data protection

ISO/IEC 27018: Code of practice for protection of personally identifiable information (PII) in public clouds acting as PII processors

45%   30%   20% 5%

- No knowledge
- Under evaluation
- Well known
- Used & referenced

0%   20%   40%   60%   80%   100%

CSC phase 2 – September 2015
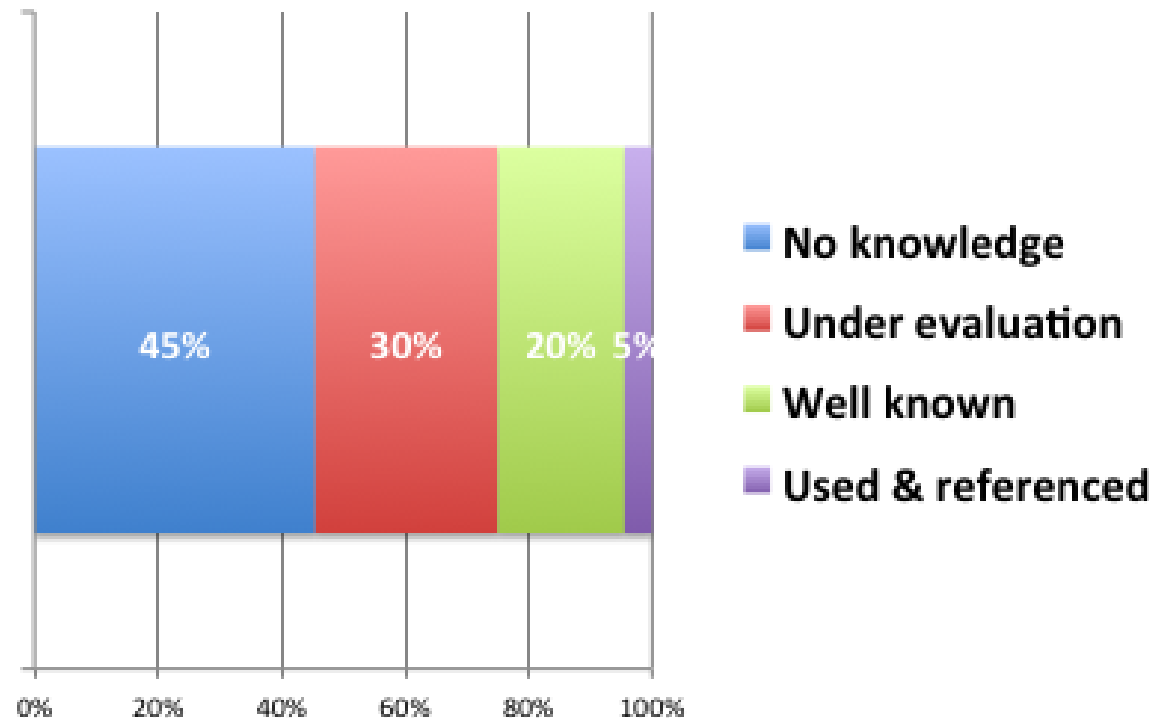
Would you consider Cloud Certification as a possibility to improve confidence in Cloud?

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Please rank the following Cloud Certification areas according their importance

CSC phase 2 – September 2015
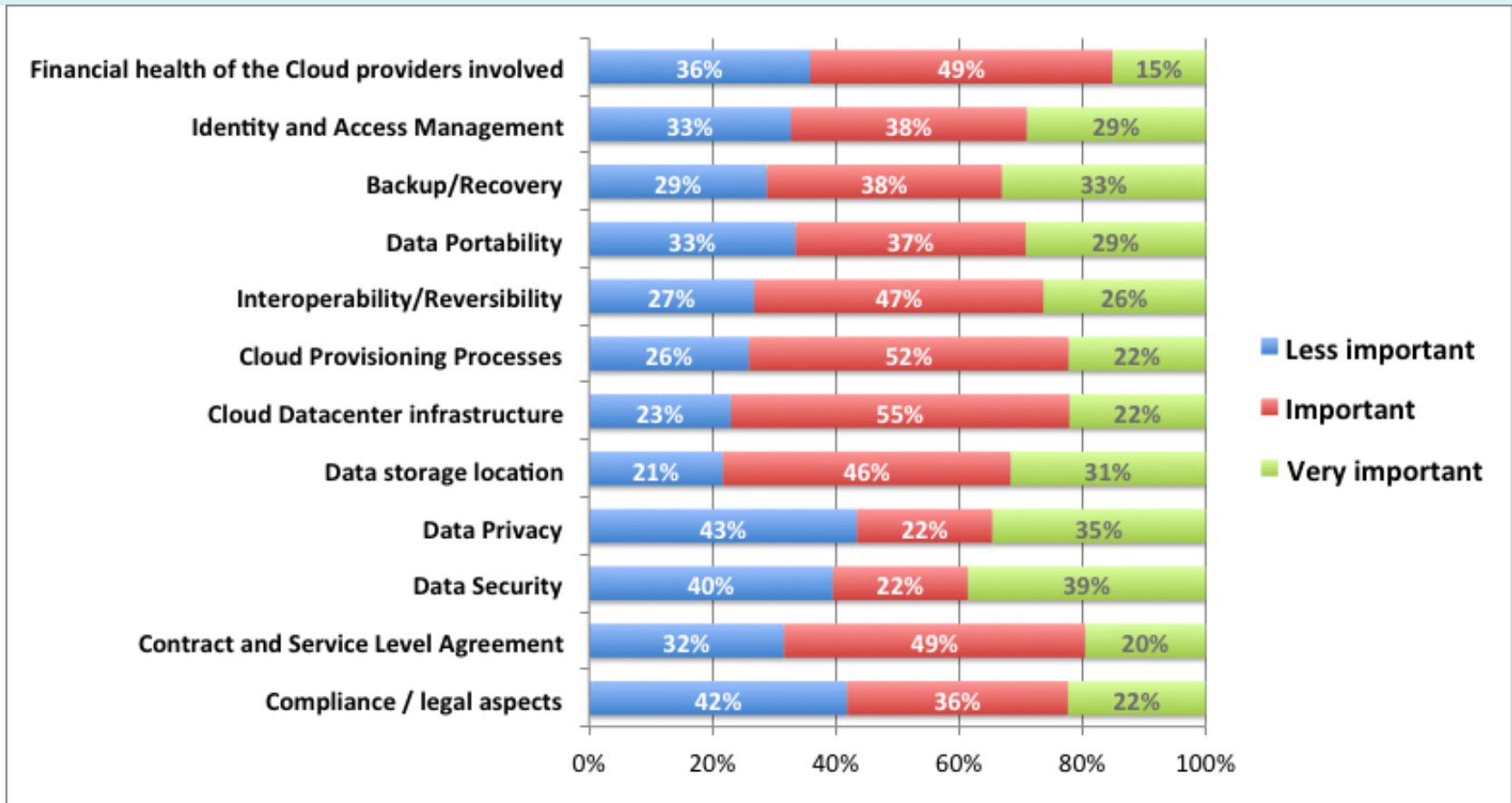
Which of the following Cloud Certification Schemes listed in CCSL are you are aware of?

Scheme	Percentage
AICPA Service Organization Control (SOC) 3	10%
AICPA Service Organization Control (SOC) 2	14%
AICPA Service Organization Control (SOC) 1	12%
Leet Security Rating Guide	9%
Payment Card Industry Data Security Standard	29%
ISO/IEC 27001 Certification	70%
Eurocloud Star Audit Certification	28%
Eurocloud Self Assessment	24%
CSA Self Assessment – OCF Level 1	26%
CSA Certification – OCF Level 2	27%
CSA Attestation – OCF Level 2	22%
Certified Cloud Service TÜV Rheinland	20%

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○ **Users**
- Different: expectations, issues, resources, skills, perception
- Common: must-have, must-adapt, must-prepare, must-adopt

○ **Adoption**
- Most organizations (incl. SMEs) have started the adaptation work
- Security and Privacy & Data integrity are recurrent concerns
- What to do with the legacy IT?

○ **Standards**
- Much support expected from standards & certification
- More awareness & marketing of existing standards needed
- More coverage: SLA, Security, Privacy & Integrity, Interop
  - Well, well, well, looks a bit like status at the end of 2013

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A view of the WP2 report

WP2 Report
Standards and Open Source

○ **Main objectives**

- Understand the relationship between Open Source (OS) and standards and vice-versa via the identification of a number of interaction scenarios between Standard Setting Organizations and OSS (not specific to Cloud Computing), some of them already visible and some only emerging.

- Clarify how these scenarios apply to Cloud Computing.

- Collect information upon the perceived strategies and visible actions of the SSOs regarding Open Source, and how they match the above scenarios;

- Collect information upon the perceived strategies and interactions of the Open Source projects towards standardization, especially when the interaction scenario involves one or more of the SSOs relevant in Cloud Computing;

- Propose initial recommendations to foster positive interaction, to suggest areas for collaboration between both communities on ways to support this interaction (e.g. technical frameworks, interoperability, intellectual property).

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○ **Main content**

CSC phase 2 – September 2015

○ **Current set of recommendations**
  - Collaboration
    - Encourage collaboration between OSS communities and SSOs working on similar or closely related topics, e.g. NFV and OPNFV, possibly through joint events like workshops, plugtests;
    - Encourage the creation of "joint projects" between the SSOs where the standards are developed and Open Source communities in order to push for close relationship, interaction, exchange and cooperation;
  - Roadmaps
    - Make sure that collaboration between SSOs and OSS organizations address the known Cloud Computing (standards) gaps, e.g. in Service Level Agreement, Security, Privacy and Integrity;
    - Encourage Open Source initiatives to standardize their specifications that are important for interoperability (e.g. APIs: Data Model, Protocol, Format).
  - Organization
    - Facilitate the implementation of Open Source solutions based on Standards (developed or under development in a SSO);
    - Ensure that pre-standardization activities (e.g. those emanating from research projects) can be sustained over a longer period in order to allow for a smooth transition of results within Cloud Computing standardization.
  - Marketing, dissemination, promotion
    - Encourage SSOs for early and increased effort in the dissemination of plans for/work on new Cloud related specifications towards the OSS communities in the Cloud area;
    - Engage industrial users of Cloud OSS;

A look at the WP3 report

WP3 Report
Interoperability and Security

- **The main objectives are to**
  - Identify and present high-level user scenarios that together provide a sufficient base for presentation of role and importance of and relationship between interoperability and security;
  - Identify and present the core concepts covered by the user scenarios;
  - Present related existing standards;
  - Provide conclusions based on the analysis presented before.

WP3 Report
Interoperability and Security

○ **Main content**

- 5 High-level user scenarios for interoperability and security

  - 5.1   Introduction
  - 5.2   Presentation of scenarios

- 6 Core concepts

  - 6.1   List of core concepts
  - 6.2   Relationship between core concepts

- 7 Standards, certifications and frameworks for Interoperability and Security

  - 7.1   General information security standards
  - 7.2   Specific information security standards
  - 7.3   Certifications
  - 7.4   Other relevant standards, frameworks and legislation

- 8 Conclusions and recommendations

A snapshot of the WP4 report

○ **Main objectives**

- Provide an updated list of identified Cloud Computing standards (and an updated list of the organizations that develop them);

- Analyze the progress of coverage of the Cloud Service life-cycle (as done in phase 1);

- Analyze the main customers' and users' concerns and how standards help their resolution;

- Identify areas of maturation and areas where standards have to progress in the future;

- Provide conclusions based on the analysis.

○ **Main content**

- 5 Evolution of the Cloud Computing standards landscape
  - 5.1   Customers and Users view on Cloud Computing Standards and Certification
  - 5.2   Cloud Computing Standardization and Certification
  - 5.3   Cloud Computing Standards and the Cloud Service life-cycle
- 6 Users concerns: how standards can help
  - 6.1   Comparison of user concerns: how standards can help
  - 6.2   How standards are in support of users' concerns
  - 6.3   Summary
- 7 Conclusions and Recommendations
- Annex A: Cloud Computing Standards Landscape
  - A.1   Presentation of results
  - A.2   SSOs and Standards list
- Annex B: Standards in the CC Service life-cycle

○ **List of standards**

- There are 114 documents from 16 organizations, 94 with the status "Published", 14 with the status "Draft" and 6 with the status "In progress". This is to be compared with the list of CSC phase 1 that included 65 documents from 17 organizations, 50 with the status "Published" and 15 with the status "Draft".

○ **Preliminary remarks**

- The number of SSOs involved is slightly lower than CSC phase 1;

- The overall number of standards is higher than in CSC phase 1, in particular for the "Published" ones. This is showing that the coverage of the standards is larger than during CSC phase 1 (as anticipated);

- This is clearly indicating that some consolidation of the standardization landscape has taken place since CSC phase 1.

  - This is both because of a reduced number of actors and of a greater importance of Standards versus White Papers and Reports (which were playing a greater role in CSC phase 1).

○ **Recommendations**

- Encourage the development of marketing and dissemination material of Cloud Computing standards (across all concerned SSOs);

- Encourage the large SDOs/SSOs to strengthen collaboration and cooperation, … thus supporting the EC's objective to make the Cloud available and secure for the EU member states' citizens, public sector and private sector alike;

- Encourage SSOs and Open Source organizations to more systematically provide formally documented support to Cloud Computing standards;

- Regularly organize "progress report" events to advertise the progress made … towards the Cloud Service Customers (e.g. SMEs, industries) thus supporting the EC's objective to make the Cloud available and secure for the EU member states' citizens, public sector and private sector alike.

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Thank you!