Cloud Computing – strategies and cases from fifteen industrial firms

Victor Chang
School of Electronics and Computer Science, University of Southampton,
Southampton SO17 1BJ. United Kingdom
vic1e09@ecs.soton.ac.uk

Abstract

This paper presents a summary of how industry responds to opportunities and challenges offered by Cloud Computing. Research methods include surveys, case studies, interviews and the Hexagon Model provided by or obtained from fourteen organisations, which include KPMG Netherlands, Oracle EMEA, Information Week, Kuppinger Cole, CA, Daimler, Ping Identity, eBay, IBM, Microsoft, BT, Wolfram, VMware, Commonwealth Bank Australia and SAP. The outcome provides interesting perspectives for e-Research community and fits into our Cloud Computing Business Framework (CCBF).

1. Introduction and Surveys

Cloud Computing provides added value for organisations; saving costs in operations, resources and staff – as well as new business opportunities for service-oriented models. In order to understand the impacts and opportunities for industry, qualitative research methods such as surveys and interviews are used, and such research data is either provided by organisations or taken during interviews.

1.1 KPMG Netherlands

KPMG conducted surveys with 120 CIOs in the Netherlands by May 2010 [1]. There are three sets of outcomes worth to be discussed. Firstly, they explored which IT areas should be used for clouds, and found that the highest percentage, 37%, was chosen for "Application hosting" and "Email". See Figure 1. Secondly, they asked the biggest challenge for cloud computing, where the highest percentage was security with 74% of CIOs agreed.

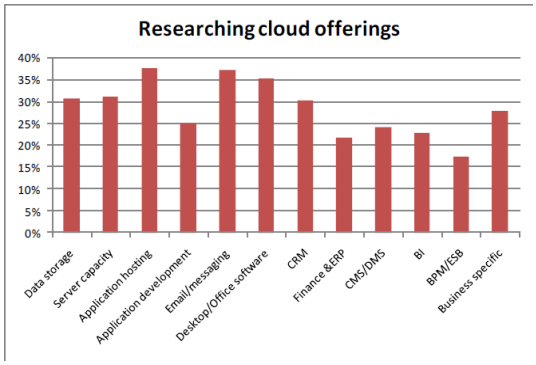

Figure 1: KPMG Netherlands' surveys on cloud offerings [1]

Thirdly, they asked CIOs their plans for cloud computing, in which 45% of them already used, and 13% and 19% of them would use in 12 months or more than 12 months of period, which shows a healthy sign in Dutch IT industry.

1.2 Oracle EMEA (Europe, Middle East and Africa)

Oracle EMEA conducted surveys in September 2009 to understand why their clients prefer Private Clouds to Public Clouds. The highest percent is 30%, which stands for "Greater control over security and compliance" [2]. Oracle is also a contractor with the NHS in providing database platform, services and integrations.

1.3 InformationWeek Survey

Information Week surveyed 250 business and IT professionals on why organisations adopt SaaS and which applications would be used for SaaS. "Ease of deployment and management" and "Customer Service" score the highest for both areas [3]. See Figure 3.

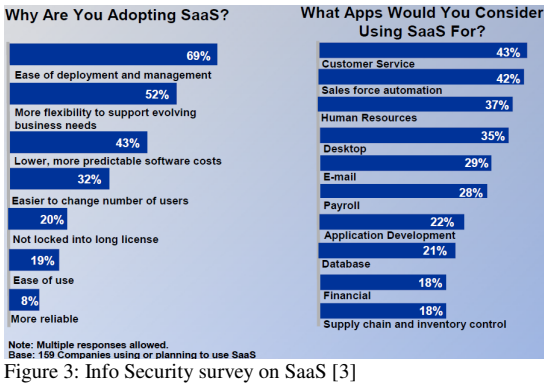

Figure 3: Info Security survey on SaaS [3]

2. Case studies

In this section, organisations using clouds are presented as case studies.

2.1 Kuppinger Cole: 6x 3 Matrix Cloud Strategy

Kuppinger Cole is a leading IT consultancy firm which presents their 6 x 3 matrix for their 2010/2011 strategy, where they identify six success IT factors on red in Figure 4, with identity and access management (IAM) and pluggable authentication modules are their focus [4]. It sums up important IT focus against those six elements.

Cloud	Privacy	Enter-prise GRC	Conver-gence	Optimi-zation	Infor-mation Security
The Hybrid Cloud Strategy	Privacy as part of Information Governance	Organiza-tional Development	Context-based Authenti-cation	IAM and Access Governance Integration	From Technology to Information Security
Service Management Evolution	National eID Card Integration	Enterprise GRC Architecture	Versatile Authenti-cation Platforms	PAM Implemen-tation	(Re-)evaluate Information Rights Management
Cloud Risk & Governance Roadmap	Minimal Disclosure for Customer Trust	IT GRC Technology Enablement	E-SSO, PAM, and more integration	Flexible IAM Architectures	Strategy instead of DLP point solutions

Figure 4: 6 x 3 Matrix by Kuppinger Cole [4]

2.2 Daimler

Daimler is a car manufacturer deploying ERP and cloud computing for their businesses. Their private cloud serves for 270,000 employees and 30,000 contractors in 3,000 locations. They focus on security and identity management. See Figure 5 and 6 respectively [5].

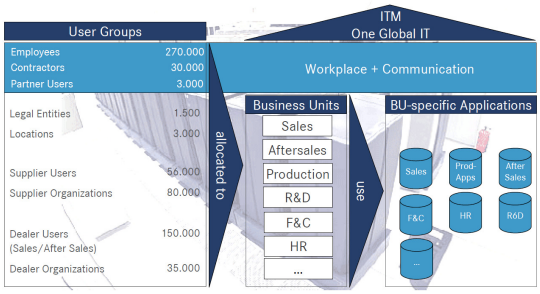

Figure 5: Daimler's Private Cloud strategy [5]

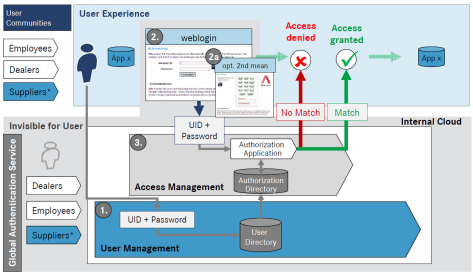

Figure 6: Daimler's cloud implementation and security [5]

2.3 CA

CA is a leading firm in backup and security where they use cloud for cost-saving including: (i) US $6.5 million for labour costs; (ii) US $2.4 millions of operational costs in 5 years and (iii) closure of 19 server sites. In addition, they provide cloud security services [6].

2.4 Ping Identity: their security framework

Ping Identity is a security firm focusing on cloud security, where they propose their framework and extent it with federation with single sign-on and automated provisioning. See Figure 7 for details [7].

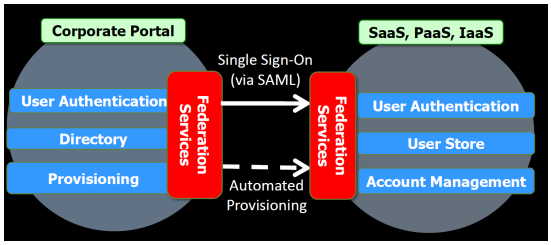

Figure 7: Ping Identity and their cloud security framework [7]

2.5 eBay

eBay forms a partnership with The Cloud Security Alliance to focus on the followings: (a) Identity and access management; (b) encryption and cloud based key management; (c) Architecture and standards development and (d) Data protection, in which they abide EU law [8].

2.6 IBM

IBM provides six types of cloud services: (i) Development and Test; (ii) Collaboration; (iii) Information Workloads; (iv) Desktop Workloads; (v) Infrastructure Services and (vi) Business Services. CloudBurst is their software product aiming for IaaS and PaaS [9]. Discussions for future collaboratoon have been positive with IBM US.

2.7 Microsoft

Apart from Microsoft Azure as a PaaS, Microsoft introduces cloud-based Office 2010 where documentation can be edited, stored and shared in the public clouds. There are discussions for future collaboration.

2.8 BT

BT is the contractor for a London subsidiary within the Ministry of Defence to provide private cloud services and infrastructures. BT adopts One-Stop Resources and Services business model [10], and has plans to move onto Entertainment and Social Networking business model to integrate with existing entertainment and social network services. In addition, BT has £1 billion of investment in broadband and plan upgrades in infrastructure will boost its future cloud business strategies.

2.9 Wolfram

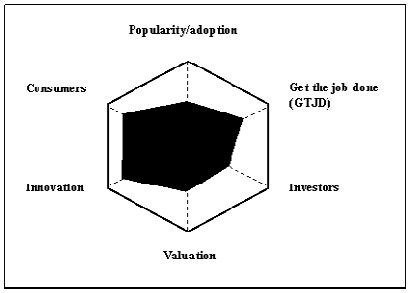

Figure 8: The Hexagon Model for Wolfram

Wolfram is a computational service and educational provider, where Mathematica is their key SaaS product. Their strategy is to port Mathematica onto Apple mobile platforms, so that it can be seamlessly used on Apple iPad and iPhone, where they aim to improve popularity and valuation presented in the Hexagon Model [10], Figure 8.

2.10 VMware

VMware is a leading virtualisation firm and an EMC company providing private cloud platforms and services. Since 2007, their users grow in number and confidence level due to the increased adoption of virtualisation and key products like VMware VSphere, where an anonymous NHS entity and an anonymous University have worked closely together. Referring to Figure 9, VMware still has rooms for developments in six areas.

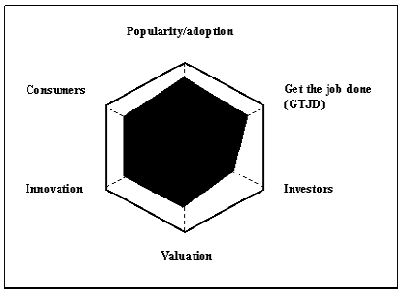

Figure 9: The Hexagon Model for VMware

2.11 Commonwealth Bank, Australia

Risk analysis is a core business and becomes increasingly important after global financial crisis and tighter regulation. There are plans to work with the University of Southampton for modelling and simulations in the Clouds, which fits into future development for Financial Cloud Framework (FCF), which is part of CCBF.

2.12 SAP

SAP aims to focus on Small/Medium Enterprises (SME) in cloud strategies with two cases presented here. The first case is Paggio, an Italian motor firm using SAP-HR, and 5 SAP/R3 instances where the largest instance has 13,000 SAP roles and more than 140,000 user/role assignments. They use IAM particularly workflow in the virtualised environments to improve their security and service [11].

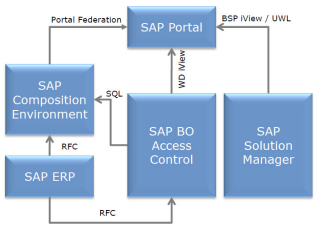

Figure 10: SAP IGRC Solution Architecture by Bearpoint [11]

The second example is Bearpoint, which builds a system called iGRC to consolidate SAP's single sign-on such as SAP Business Object Access Control and SAP ERP. Their iGRC system components include key SAP products and allow data exchange between different SAP components. Their SAP IGRC Solution Architecture is presented in Figure 10 below [12].

3. Conclusion and Future Work

Cloud computing indeed provides business values, opportunities and challenges where security is a concern that distant some CIOs into clouds. Even so, some firms have presented their solutions and cases to improve security and SaaS. More updates and ten more cases will be available with existing and new organisations in terms of their cloud business models, strategies, focus and best practices. More in-depth data from collaborating organisations will be obtained and computed for our CCBF, which is targeted to achieve the followings: (i) establish links between qualitative and quantitative cloud business frameworks; (ii) provide strcutured framework to review cloud business performance and (iii) offer portability from desktops to clouds, and later on between different clouds offered by different vendors. The CCBF can accommodate different frameworks that deal with different respects of technical solutions and business models.

4. References

[1] Hermans J, "Trust in the Cloud", Risk and Compliance, keynote, Munich Cloud 2010.

[2] Aisien J, "Oracle: Extending the Principles of Service-Oriented Security to Cloud Computing", keynote, Muncih Cloud 2010.

[3] Information Week Survey, http://bmighty.informationweek.com/

[4] Kuppinger Cole, Munich Cloud 2010, opening keynote.

[5] Mandal B "Identity Management and Cloud Computing in the Automotive Industry", Munich Cloud 2010.

[6] Dunn T, "Identity Management : Cloud and Virtualisation", keynote, Munich Cloud 2010.

[7] Ping Identity http://www.pingidentity.com/

[8] Lynch L et al, "Good Cloud, Bad Cloud", Munich Cloud 2010.

[9] IBM Cloud http://www.ibm.com/ibm/cloud/smart_business/

[10] Chang V, Wills G, De Roure, D, "A Review of Cloud Business Models and Sustainability". IEEE Cloud 2010, the 3rd International Conference on Cloud Computing, 5-10 July, 2010, Miami, Florida, USA

[11] Mastropietro L, "Managed IAM Service Project at Piaggio", Munich Cloud 2010.

[12] Ficher M, "Compliant Access Management at BearingPoint with SAP BusinessObjects Access Control", Munich Cloud 2010.