Cloud computing and its impact on the internal audit function

October 8, 2020
Introduction

Dirk Vanderbist
Senior Manager
Digital Enablement - Cloud & Architecture
dvanderbist@kpmg.com

Thomas Vormezeele
Senior Manager
Digital Risk Management & Assurance
tvormezeele@kpmg.com
Who joined us at our “round table”?

We have participants today from:

Beaulieu International Group  
Belchim Crop Protection NV  
Besix Group  
bpost  
CM  
Consulting  
Daikin Europe NV  
De Lijn  
DKV Belgium  
Domo Chemicals  
Dover Corporation  
Emmaüs  
Etex  
Euroclear SA  
Federales Interne Audit  
FIA  
Fluvius  
Isabel  
Jan De Nul Group  
KBC  
Kinopolis Group NV  
Materialise  
NTT Belgium NV/SA  
NV Bekart SA  
RSZ  
Samsonite  
SD Worx  
Stanley Black & Decker  
SWIFT  
UCB  
UGent  
UZA  
Vandemoortele  
VDAB  
ZNA
Virtual Round Table Guidelines

We do want to make it interactive, but also want to ensure good sound quality for everybody.

- Please mute your microphone during the presentation
- We have a Q&A sessions at the end of the seminar
- If any questions during the webinar feel free to let us know per chat – we may still have time left at the end to respond on these; the remaining responses will be communicated together with the slide deck which will be communicated afterwards

In case you have issues with the sound or can’t see the presentation, let us know through the chat function.

We will share the slides with you afterwards.
Agenda

- Introduction
- What is Cloud?
- Why Cloud?
- Cloud Key Risks & Considerations
- IA Role in cloud computing
- Challenges in Auditing Cloud Computing
- Conclusion
What is Cloud Computing?

a) A central system to schedule and plan business processes that can be easily modified on the fly.
b) An IT operating model that uses a mainframe computer put in an external data center provisioned by a service provider.
c) The B2C connection used by a company to interact with its clients.
d) CPU’s available on demand and accessible via a computer network.
e) None of the above.
Defining Cloud Computing

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction. (Source NIST)

Myth: Can only be accessed through the internet!
Myth: Does only focus on technology!
Myth: Replaces all local IT components!
Myth: Removes the need for Business – IT alignment!
Cloud Service Models

Cloud Drivers:

- Centralization – Decentralization Pendulum
- Abstraction Levels - Virtualization Paradigm

Business Architecture

Information Architecture

Application Architecture

Technology Architecture

BPaaS
Business Process as a Service

INaaS
Information as a Service

SaaS
Software as a Service

PaaS
Platform as a Service

IaaS
Infrastructure as a Service

Traditional IT

Infrastructure (as a Service)

Platform (as a Service)

Software (as a Service)

Application Abstraction

Infrastructure / Technology Abstraction
Cloud Service Access

Deployment model:

- **Private Cloud**
  Exclusive use for a single organization comprising multiple clients (business units)

- **Community Cloud**
  Exclusive use for a specific community of consumers that have shared concerns

- **Public Cloud**
  Open for use by the general public

- **Hybrid Cloud**
  A combination of 2 or more distinct cloud infrastructures that remain unique entities by mixing different deployment models.

- **Multi-Cloud**
  A combination of 2 or more cloud infrastructures that remain unique entities, and have often the same deployment model

Involved Parties:

- Service Consumer
- Service Broker
- Service Provider
- Service Creator
Cloud Service Resources

Service Categories:

- **Compute:**
  - Processing power to turn inputs into outputs.
  - Massive parallel processing capabilities.

- **Storage:**
  - Storing, finding and retrieving data.
  - Handling structured data as well as unstructured data.

- **Network:**
  - Communication between on-premises, the internet and the cloud.
  - Guaranteed speed and data volumes across the internet.

- **Application:**
  - Supporting service to operate business applications.
  - E.g. Access control, segregation of duties, business continuity, consumption billing
Cloud Service Characteristics

Service Characteristics:
• Ubiquitous access
  • Consume services from anywhere
• On-demand self-service
  • Consume services when you want
• Pooling and Virtualization
  • Pool resources for optimal usage
• Rapid Elasticity
  • Share pooled resources for optimal costs
• Measured Service
  • Pay for what you consume, when you consume it
INaaS, SaaS and BPaaS belong to the 2nd generation cloud models?

a) That is correct.
b) INaaS and SaaS are 2nd generation models but BPaaS is a 1st generation cloud model.
c) None of these are 2nd generations cloud models

d) Only INaaS and BPaaS are 2nd generation cloud models.

e) 2nd generation cloud models do not exist yet.
Why Cloud Computing?

Increased Speed

Increased Flexibility

Reduced Costs

Reduced Risks

Business – ICT Alignment
Why Cloud Computing?

- Globally accessible resources:
  - Global reach of cloud providers allow accessing cloud resources from everywhere.

- Virtually unlimited resources:
  - Unrestricted growth is possible without worrying about long term finance and investment plans. Same for resource reduction.

- Fast spin-up time:
  - Infrastructure is made available at a fraction of the time it would take in traditional models. This removes hurdles and allows for innovation dependent on ad-hoc infrastructure.

- Elasticity - On-Demand Scaling and Auto-Scaling
  - Changing infrastructure capacity does not require up-front planning and long set-up times anymore. Scaling can be triggered manually or can be autonomous event-based.

ICT Target:
- Support for Agile and DevOps Methodologies
- Support for Innovation and Frequent Changes
Why Cloud Computing?

- **Lower infrastructure costs:**
  - Cloud allows for new IT infrastructure price and cost models that lead to a CAPEX to OPEX paradigm switch reducing capital needs for IT.
  - Scaling allows for capacity and performance on demand balancing the sunk-cost of idle capacity and the opportunity cost of missing capacity.
  - Economies of scale at the level of the cloud service provider reduces the costs for individual service consumers (e.g. multi-tenant model).

- **Lower operation costs:**
  - The costs of redundant equipment to guarantee availability, failover and business continuity is spread across all cloud service consumers of a cloud service provider and not borne by a sole customer (e.g. spare parts CAPEX)
  - Part of the operations and management of infrastructure is taken over by the cloud provider reducing the need to rely on in-house resources and knowledge.

- **Reduced security risks**
  - Cloud makes it possible to delegate part of the responsibility and controls to the cloud service provider. For customizations and deployed artifacts, the service consumers is still responsible.
  - Out of box cloud services are compliant with industry accepted standard inclusive security risks and controls.
  - Specific and specialized infrastructure related competencies are provided by the cloud service provider and do not have to be developed by the cloud service consumer.

- **Reduced the operational risks**
  - Cloud contains out of the box self healing capabilities to guarantee published SLA’s.
  - Cloud contains fixed and enforced version update schemas to reduce the changes of vulnerabilities and technical debt.
Why Cloud Computing?

Reduced Costs

Reduced Risks

ICT Target:
- Reduce IT Operating Costs and Control Budgets
- Reduce IT Risks and Control Vulnerabilities

CAPEX vs. OPEX

Missing vs. Idle Capacity

© 2020 KPMG Advisory, a Belgian CVBA and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. Printed in Belgium.
Voting!

Cloud computing …

a) Reduces ICT CAPEX and OPEX costs
b) Shifts ICT CAPEX to OPEX costs
c) Optimizes ICT OPEX costs
d) Increases CAPEX and OPEX costs
e) Answer b and C
Key Cloud Risks and Considerations

**BENEFITS**
- Increased Flexibility
- Reduced Costs
- Increased Speed
- Reduced Risks

**RISKS**
- Financial
- Data Security and Regulatory
- Technology
- Operational
- Vendor

**RISK APPETITE**
Key Cloud Risks and Considerations (cont’d)

It is essential to consider Cloud risk holistically across people, process and technology
While cloud computing provides many benefits, at the same time, it introduces major risks on several crucial fronts that need to be governed and managed by user organizations.

Be aware of Cloud risks: quality should not be compromised by performance!
Key Cloud Risks and Considerations (cont’d)

As managing the risks of Cloud becomes an increasing priority for organisations, the following areas need particular attention:
What should the role of internal audit be in your organization’s move to the Cloud?

1. Proactively identify risks to be mitigated in order to optimize the benefits of the outsourcing relationship
2. Internal Audit does not get involved with the move until it is time to audit
3. Advise on the costs savings that would be realized by a reduction of audits
4. Being a proactive trusted advisor/partner
The 3 lines of defense concept helps organizations clearly identify the roles and responsibilities of the business units, risk management department and internal audit in risk activities.

Internal Audit = “trusted advisor” role as the organization takes on new risks
- Proactively offer a balance of consultative and assurance services
- Educate and engage with the Board/Audit Committee
A proactive approach internal audit could take when intention is to move towards the Cloud:

- Business Case?
- Current state vs. Cloud

- Responsibilities?
- Where is data located physically?

- Verification of vendor invoices
- Monitoring of contractual requirements?

- Service Level Agreements
- Management of incidents
Challenges in Auditing Cloud Computing

Defining the scope

Dependence on third party

Access to Skills & Expertise

Access to Data

Internal Audit Challenges
Voting!

When Software As A Service (SAAS) is used internal audit can fully rely on the provider’s assurance report.

1. Agree
2. Don’t agree
Conclusion

• Cloud computing provides a lot of benefits
• While some risks are reduced other (specific) risks are introduced
• These risks are more than an IT problem and are a threat to the business
• Internal audit may play an important role in providing assurance, educate senior management and ensure regulatory compliance
• While the vendor’s assurance reports can be used internal audit should ensure all risks are covered by the report
Questions and discussion
Thank you for joining us at this IA roundtable.

Hope to see you again at our next editions. Invites will be sent shortly.

If you have suggestions for topics for our next IA roundtables. Do not hesitate to type them in the chatbox.