**Wh﻿﻿﻿﻿at do you see as the benefits and potential problems of using Cloud architecture?**

**Cloud Computing AWS**

Julie Bort (Business Insider, 14th Mar 2016) reported online that *'Amazon's cloud computing powerhouse Amazon Web Services (AWS) has transformed the tech world in just ten years' and that* '... *everybody in tech knows what cloud computing is, and AWS is the undisputed leader.*'

[Online]. Available at <http://www.businessinsider.com> (Accessed 24th November 2019).

Bort further reported AWS cloud offers clients over 165 fully featured services; boasting agility, elasticity, cost saving, deploying globally in minutes.

Jordan Novet (CNBC, 22nd April 2019) reported *'In 2018, AWS delivered $25.66 billion in revenue, or 11 percent of Amazon's total annual revenue, and nearly 59 percent of Amazon's operating income.'*

[Online]. Available at <https://www.cnbc.com/2019/04/22/apple-spends-more-than-30-million-on-amazon-web-services-a-month.html> (Accessed 24th November 2019).

**Advantages and Disadvantages of Cloud Computing**

* Advantages in blue
* Disadvantages in red
* Hosted web technologies with greater capabilities, regularly maintained and updated centrally
* Availability of services across platforms
* Scalability of services across devices

Companies become more globally interconnected, potential of business growth
* Flexibility of working hours and working from home

Data accessibility from anywhere\*
* \*Network connection dependency; must always have network provider to connect to the internet in order to send and retrieve files from to the cloud
* Reliability of internet connection, bandwidth and speed for consistency

Network outages for example due to storms, disasters and other issues concerning physical components of a network; functionality of business in the event of prolonged outages?
* Business losses may be incurred in the event of down-time, data loss with no backup, disaster recovery plans
* Terms and conditions apply; relative so read carefully

**What’s the real cost to a business?**

* Migration from in-house data centres with fixed cost rates to cloud services with on-demand pay-as-you-go utility rates;
* Most small to medium businesses save money on IT expenditure; lower cost of in-house web technologies, hardware and storage, by using pay-as-you-go cost efficient on-demand utility service
* Businesses gain not having data centres with large capital expenditure, but changing to cloud services, brings about significant changes to expenditure in other areas
* Businesses need to plan, budget and forecast cloud consumption, poor cloud financial management costs money
* Some businesses have difficulties managing cloud computing use and budget; and so may incur unexpected charges such as for data transfer costs (over basic monthly allowance)

**Deciding upon which cloud host provider to trust?**

* Is your business being supplied the right type of cloud service and plan, in order to optimise expenditure and meet business requirements;
* Does your cloud host provider efficiently help and support business decisions in selecting services and finalising agreements that will maximise business profit, by offering only required resources and no more, for example level of storage options
* Loss of centralised control, lack of infrastructure visibility, trusting your provider to be standard-compliant, meet regulations, ensure governance, revise licence agreements, protect your data through privacy and security

**Usability of services:**

* Ease-of-use having reliable and consistent 24/7 Support available, increases a clients level of service usability
* Poor customer service; are all of your the cloud providers staff adequately or more than adequately trained to the IT skills levels, that are needed in order to consistently support a client’s needs
* Fixing technical issues will need to be carried out by cloud provider opposed to in-house
* Cost of host migration: inflexibility of some cloud applications, when migrating from one cloud host provider to another; do applications and data formats allow easy transfer of information into other systems, like custom developed in-house software
* Cloud based software applications SaaS, do they include all the features of the in-house software licence and suit your needs; desktop software is cheaper in the long run with a one-time fee
* Cloud computing for small businesses; not suitable for performance intensive applications; like graphic design that require high-performance desktop computers

**Security concerns; is your information safe?**

Some cloud security issues; Cloud hacking cases, cyber attacks, leakage of your sensitive data, data breach, malicious insiders, account hijacking, disgruntled employees and carelessness use with username and password security credentials

Gartner says about cloud security, ‘*security concerns have become counterproductive, distracting CIO’s and CISO’s from establishing organisational, security and governance processes that prevent cloud security and compliance mistakes’*, pointing out that cloud service providers have *‘huge market incentives to place higher priority on security than the typical end user organisations’*, but that they are not entirely responsible for their customers security.

Gartner predicts ‘*that through 2020, 95 percent of cloud service failures will be the customer’s fault’*, and so therefore organisations need to take a strategic approach to cloud security themselves.

Gartner [Online]. Available at [www.gartner.com](http://www.gartner.com) (Accessed 24th November 2019).

I believe security and privacy are two particular concerns which need to be carefully addressed from within each business; alongside having IT specialists who are able to address many areas such as keeping up to date with governance issues, standard-compliance, listening for announcements from host providers and immediately carrying out any suggested changes.

**Businesses need to maximise opportunities for productivity and profitability, and be sure the benefits of cloud computing services outweigh the challenges**

Understanding migration from in-house to cloud services, changes in IT infrastructure; have you organised a migration strategy or an approach to ensure the stability of your company whilst you change over; qualified IT specialists and management service tools in place to carry out fine tuning and financial optimisation; monitoring performance and resource utilisation, to identify unused resources quickly; continuously optimise cloud spending by map spending data, know where every penny goes, to proactively detect and solve issues before they turn into costly problems.

**Interesting Articles Considering Where is your Cloud Data Now?**

Business Telegraph online reported the headline *'Apple sued for not disclosing that 'iCloud storage' relies on third-party cloud services'*, a pair of customers who entrusted Apple with their personal data, have filed class action complaints against them for failing to disclose its iCloud storage practices with third party vendors. Complaint *'charges Apple is guilty of breach of contract, false advertising and violating California’s Unfair Competition Law'*;

Business Telegraph [Online]. Available at <http://www.businesstelegraph.co.uk> (Accessed 24th November 2019).

Jordan Novet (CNBC, 22nd April 2019) reported online that *'Apple spends more than $30 million a month on Amazon Web Services.*’ Apple's cloud expenditure as one of the biggest AWS customer’s, reflects it's determination to deliver fast and reliable online services like iCloud, *'even if it must depend on a rival like Amazon to do so.'*

CNBC [Online]. Available at <https://www.cnbc.com/2019/04/22/apple-spends-more-than-30-million-on-amazon-web-services-a-month.html> (Accssed 24th November 2019).

**Are you, or the organisation that you work for, using Cloud services?**

As a disabled student at the Open University, I have no experience working for any organisation using Cloud services, however I have a Netflix account, and I also use Google Apps. When it comes to Microsoft Office I refuse to pay a monthly subscription fee for Microsoft office 365 on my tablet, when I have paid for the Microsoft Office 2007 and 2010 Software Application on disk, each of these include three Licences, I am able to use this software on my laptop and desktop computer, but I am unable to use it on my tablet. I prefer the cheaper non-subscription software, since this software still functions well in 2019.

Further thoughts:

Cloud offers a vast array of cloud management service tools online which I have no personal experience of using, if I were to be a small business wishing to build a website, then I believe it’s important to gain some knowledge of the additional services a cloud provider may or may not offer, to minimise legal mitigation against my business; for example:

* Understanding and deciding upon the various types cloud computing services, private, public, hybrid, keep some in-house, multi cloud, mix and matching
* Extra Data backup (in-house)

Cloud management tools, automation and orchestration platforms; automate tasks to request, change or deploy standardised cloud services, and orchestrate execution of tasks across a range of platforms.
* Virtualization Management Tools, traditional management systems may not be able to address unique virtualization performance problems.
* Security responsibility, insecure APIs use penetration testing, patch and system updates to quickly uncover weaknesses
* IoT Security Foundation

[Online]. Available at <https://www.iotsecurityfoundation.org> (Accessed 24th November 20119).

* Adopting a Cloud-native enterprise security application: Repair, Repave and Rotate
* [Online]. Available at <http://www.pivotal.io/cloud-native-security> (Accessed 24th November 20119).
* Better understand Open Source Licensing Obligations, if left unmanaged can introduce legal and compliance issues:

OWASP (2019) 'Free for Open Source Application Security Tools' [Online]. Available at <http://www.owasp.org> (Accessed 24th November 20119). 'OWASP's mission is to help the world improve the security of its Software': lists automated vulnerability detection tools:
Application Security Testing
Static-AST, Dynamic-AST, Interactive-AST,
* Client based monitoring tools, performance visibility,
Governance tools, perform integrity monitoring and log inspection for locating changes or finding threats,
Network perimeter tools, secure network and provide the client with network visibility.