Cloud as Enabler for Startups

Rudresh Raval, Harsh Sachala, Krishna Sahani, Aditya Vaishya

22 March 2021

1 Abstract

Cloud computing's efficient systems and processes create the chance to drive innovation in businesses and support the optimization of operational flexibility and minimization of in explicit costs that are critical enablers for attaining long-term business stability. The aim of this study is to research the explanations behind the adoption of cloud computing and its implementation process in startup firms also on verify the benefits and drawbacks deriving from the adoption of this tool and the way it could increase entrepreneurial activities. A common user within the society is availing all its benefits on the mobiles and desktops. Besides the individual use, different sorts of cloud services also are available for businesses and start-ups on a pay and use basis. Organizations, especially startups, don't got to incur funds on the infrastructure, platform, software and other resources, and that they may choose the services on the idea requirement and simply increment or decrements the extent of services at any time. Due to availability of various cloud services, the promoter may pay more attention to other parts of his business. The success of start-ups isn't only related to self reliance but also with the utilization opportunities they supply to others.

2 Introduction

Cloud computing has totally revolutionized the knowledge & Communication Technology (ICT) market, and it's been considered an appropriate tool for solving common problems associated with ICT Cloud Computing is one among the foremost discussed and propitious IT innovations of the present technological market. According to Greenwood et al. (2011), it constitutes a fundamental shift within the way businesses are given computing resources. Cloud computing affects the way services are invented, developed, deployed, scaled, updated, maintained, and paid for" . Importantly, start-ups have a serious role in technological innovation, job creation, and thus, having an efficient yet cost-effective tool is important for them to grow faster and gain competitive advantage. Following the proliferation of cloud computing and therefore the increasing number of cloud services implementation in start-ups, more research during this area is

necessitated to reveal the puzzle of how it actually enables start-ups' competitive advantage in terms of usage, scalability, and price efficiency. With the arrival of this technology, the value of delivery, content storage, application hosting, and computation has been significantly reduced. In this thesis, three sorts of cloud technologies are examined: Software as a Service (SaaS); Infrastructure as a Service (IaaS); and Platform as a service (PaaS) . A business model may be a formal document that essentially outlines how an organisation plans to supply income.

3 Literature Review

1. *Cloud Computing - A business perspective*: As this research paper is relatively old (from 2010), it offers a great retrospective viewpoint on how cloud computing was thought of way before major services like AWS, Google Cloud, Azure and others emerged. It starts off with some introduction and definition of cloud computing and then some negative opinion of cloud computing by CEO of Oracle, Larry Elison as he describes cloud computing as "a product of hype" and also argues that these concepts have been in existence for a long time before 2010. It continues with core advantages of cloud, that we all know now have turned out to be true in a practical sense, like reduced expenditure for small businesses, possibility of "pay as you go" models (which AWS offers),easy scalability of services and finally cloud computing's positive impact on startups which then turned out to be major companies (like Facebook, YouTube etc). It then goes on to discuss crux points of cloud computing like virtualization, multitenancy, etc. And finally gives a list of corporations involved in cloud technology and categorizes them, it is amazing to think that back in 2010, Companies like Amazon, Salesforce and Capgemini were categorized as "innovators", especially considering the immense popularity of AWS in today's time. As we go through the article, it also contains SWOT analysis of cloud computing, which offers more insight on the same. Additionally, the "stakeholders" of cloud technology are categorized as consumers, providers, enablers (they explore a bit more on the startup dynamic) and then finally conclude with recommendations to businesses as to how to proceed further and the same for researchers. All in all, this research paper, although old, explores in brief why cloud computing could serve as an enabler for startups and is an excellent introductory paper for anyone who wants to get into cloud computing for business use.

2. *Analyzing cloud-based startups: Case study in Italy*: This research paper is from 2017, and it tries to verify all the advantages and disadvantages of cloud computing that were theorized by looking at its effects on startups in Italy. It primarily focuses on a technological startup in italy and relies on previous research frameworks to see how adoption of cloud computing in SME can then be transposed to startups. The paper throughout its en-

tirety references various other research papers which might turn out to be confusing for some people but the references are very clear and any point referenced is only stated and not explained very deeply unless required. There is however clear justification for the theoretical framework postulated by the paper. In the end of the paper, there is clear analysis for a real-life games startup in Italy with stats given for a better understanding, quotes from various real-life cloud experts and users give the concept of cloud more legitimacy which this paper successfully does.

3. *Understanding How Cloud Computing Enables Business Model Innovation in Start-Up Companies*: This is actually a whole PhD thesis on the topic mentioned above and is very detailed and long . It starts off with introducing cloud computing, literature reviews of previous important research papers and then finally goes onto the research methodology which encompasses data collection, survey methods etc. Finally it gets into case studies of 5 startups and provides all the findings produced from the case studies. It makes clear that there is a strong relationship between BMI (Business Model Innovation) and Cloud Computing and provides clear statistical evidence on why Cloud Computing is practically beneficial for startups. In the end it provides future recommendations for cloud computing for both researchers and businesses. This is by far the most comprehensive paper on why cloud computing is an enabler for startups as it not only reinforces the idea by referring to other researchers' work but also provides solid evidence by the numbers obtained from the case studies.

4. *Emerging Role of Cloud Computing Services in Startups*: This paper is a part of a journal article, and is very short. To summarize it, focuses on the more specific aspects of cloud computing in startups in India. This is the differentiating factor for this paper as it goes into reasonable specifications as to how startups in India have been helped by cloud computing, many big companies like Zomato in their initial stage leveraged the benefits of cloud computing to minimize operational costs. Another appreciable aspect of this paper is that it describes the use of cloud computing throughout the phases of a startup, which can be very useful for people who are interested in starting their own ventures. It also briefly mentioned Government of India's initiative for startup and like all papers mentioned before, goes into the advantages of cloud computing and some more fundamentals like IaaS and PaaS.

4 Methodology

We have introduced the term 'enablers' to explain those organizations and institutions which will sell their products and services that facilitate the delivery, adoption and use of cloud computing. For corporate customers, enablers are expected to create (and optionally maintain) the infrastructure for a hybrid system, whereby a number of the IS services are transferred to the cloud, while the

remainder of it's maintained in house. These enablers also will include specialized software firms which will provide monitoring software, platform migration software, etc. for giant enterprises, it's also important to implement a corporation wide consistent IS policy across the various cloud computing services which could show great promise but probably not have implemented similar policy management tools. Big Firms like Amazon, Microsoft and Google provide such important services. Since many of the cloud computing service providers currently lack the core competencies of interacting with customers and actual implementation, we foresee an increasingly important role for the enablers within the cloud computing environment. To better analyze why startup firms prefer to adopt cloud technologies upon their birth, a gaggle of researchers conducted a case study of cloud adoption by a technological startup firm. The startups chosen for the research was selected from the population of new cloud-based technology startups . This selection followed certain criteria. First, the firm should have the attributes of scalability and rapid climb . Finally, the founders of the target firm should be new entrepreneurs so as to raised analyze the difficulties in creating a replacement business and to specialise in how cloud technologies allow the entrepreneurs to beat these. Once the standards were established, we opted for a firm that seemed to have enough information to facilitate theoretical inference. Following the approach so as to raised understand the explanations behind the adoption of cloud computing during a startup, we considered as main sources for our analysis the interviews with the three founders of the startup. We then interviewed the cloud provider consultants (as external actors) who assisted the implementation and structure definition process. Finally, to make sure a more complete analysis, we also interviewed some employees as end users of the instrument. the selection of the themes interviewed allowed us to raised analyze the ICT design process using cloud technologies. In some cases, it had been possible to interview representatives of the cloud provider to verify the effective exchange of data among the varied actors involved within the process. additionally , the analysis takes under consideration both endogenous and exogenous variables, as we considered both internal and external sources of data. The cloud computing environment may provide support not only during the launch of the service but also during the operation, the promoter is liberal to increase or decrease the hired service with none time delay as per the necessity of the organization. There are many concerns that the users have in regards to the adoption of cloud computing. They include availability, confidentiality, support and management. Of these, compliance is usually relevant to only the enterprise. All of the concerns are an equivalent ones that the users have always had even with on-premises computers and software. To an honest extent, the users become newly aware of the concerns, because their data, applications, and computing resources will not be under their control.

4.1 Availability

The Amazon S3 suffered two outages in 2008 (2 hours in February and eight hours in August). Google Gmail was unavailable for two hours twice in August.

Citrix's GoToMeeting and GoToWebinar were out for a short time . RIM's BlackBerry service was out for 18 hours. These outages received wide coverage by the bloggers and CLOUD COMPUTING: Despite the concerns raised by these outages, the supply of cloud services, in my view, has been rather high (more than 99%), and should actually be no worse than on-premises availability. it's impossible to supply 100% availability, unless a high availability architecture is adopted and both the platform and applications are fully tested. Enterprise users should seek service level agreements (SLAs) which will motivate the vendors to make sure desired levels of availability.

4.2 Security and Privacy

The integrity of private information has become a serious issue not just for cloud computing but also for on-premises computing. it's nearly impossible to ensure 100% security and privacy protection against all possible sources of violation, including the inevitable software bugs, the growing sophistication of the hackers, inadequate procedures, human malfeasance, and human errors. Cloud computing vendors must adopt the foremost sophisticated and up-to-date tools and procedures, and strive to supply better security and privacy than is out there for on-premises computing.

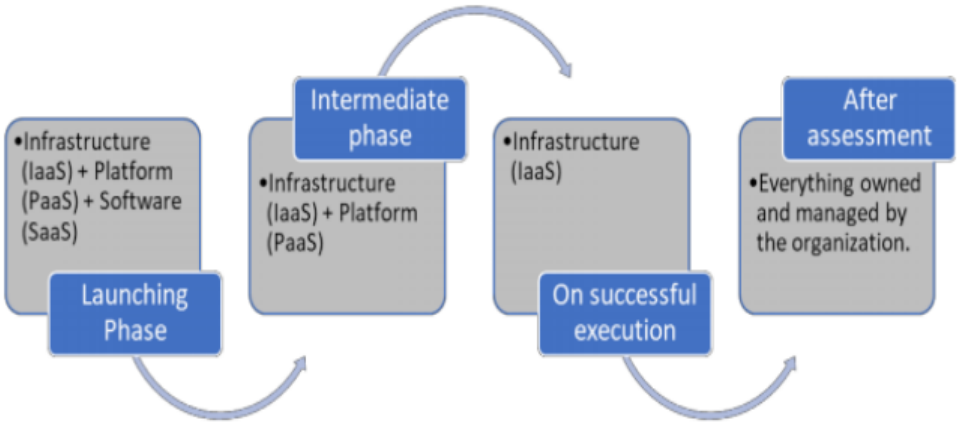
4.3 Support

Both enterprise users and end users require support for problem resolution. this is often the case for both cloud computing and on-premises computing. Today's free SaaS cloud users are left just about on their own. Enterprise users buy support. Cloud computing vendors must hire and train adequate support staff to supply better support than what the users are familiar with with on-premises computing. In fact, cloud services should be designed for easier usability than on-premises computing within the first place.

4.4 Compliance

Enterprise users must maintain business legal documents and assure their integrity so as to suits various laws, like Sarbane-Oxley (SOX) and insurance portability and accounting act (HIPAA). Cloud computing vendors need to adopt technologies to make sure that their enterprise users' data satisfy their compliance requirements. Again, this doesn't seem to possess received much press as a serious concern yet.

Fig. 1 Adoptability of Cloud Services during various Phases of Startups



5 Results and Conclusion

As we have explained throughout the paper we can say that cloud computing has numerous benefits. The choice this technology provides to Small and Medium sized Enterprise (SME) fits perfectly with their needs, as it provides flexibility, availability, accessibility and data security. It is indeed an unstoppable, positive development. Cloud computing is here to stay and has become the new standard in doing business for large enterprises, SMEs and start-ups as it provides on-demand services and redefines industry standards. As every technology has its own drawbacks cloud computing too has its own drawbacks there can be several issues which can arise from cloud implementation such as loss of governance, loss of sensitive information, and increase in risk control and all the typical risks related to outsourcing and sharing. In addition, what should be highlighted in terms of startup firms is that the main perceived disadvantage is the isolation from cloud providers. The rationality behind this perception can be found in how cloud computing works: because this technology only works when connected to the Internet, a cloud-based startup requires a network in order to send files to the cloud and retrieve them. It also needs a network to be able to use the virtual machines even if it has opted for an IaaS. If it loses a network connection because of a storm or an outage, it may experience some downtime. Hence, it will always be connected to the risk of isolation from the Internet and from the provider, which, in turn, would create the impossibility to operate. But it can be seen that the benefits of Cloud Computing outweigh its negative aspects. By making use of cloud computing a company can increase its productivity hence increasing its profits and also this can be done with fewer number of employees by working remotely. Cloud computing will continue to increase its popularity as it allows companies to adjust as per their budget and business needs. It minimizes the risk and investment needed to a large extent, as

it provides this flexibility the companies can focus on the growth aspect of their business and deliver high quality service to their customers. With such benefits it will enhance the service which company will provide and in turn boost the startup culture to initiate and grow their business and in turn develop more employment opportunities.

References

[1] L. Ferri, M. Maffei, G. Mangia and A. Tomo, "Analyzing Cloud-based Startups: Evidance from a Case Study in Italy," International Business Research, vol. 10, no. 5, pp. 73-85, 2017.

[2] A. Aljabre, "Cloud Computing for Increased Business Value," Internation Journal of Business and Social Science, vol. 3, no. 1, pp. 234-239, 2012.

[3] P. Hofmann, "The Limits of Public Clouds for Business Applications," December 2010. [Online].
Available: https://www.researchgate.net/publication/266647306.

[4] A. Schouten, "Cloud Computing: Cloud Computing as an Enabler of New Business Models and Start-ups—Aligning On-demand SME Needs Through Cloud Computing," ISACA Journal, vol. 6, 2015.

[5] W. Kim, "Cloud Computing: Today and Tomorrow," JOURNAL OF OBJECT TECHNOLOGY, vol. 8, no. 1, pp. 65-72, 2009.

[6] A. K. Gupta, "Emerging Role of Cloud Computing Services in Startups," University News, vol. 58, no. 15, pp. 16-20, 2020.

[7] "Cloud computing — The business perspective," Decision Support Systems, 2010.