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Building Resilience & Transforming the Future of Banking PSUs with Cloud

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EVENT REPORT

Mahesh Nath, Partner, E&Y

One of the most important questions that people are finding it difficult to answer both in public and private sector organizations is-can you reliably quantify the cost of an hour of your downtime? If you face the downtime, how fast can you bring it up? Or, if something bad happens can someone bring it back? Can someone measure the loss of data?

The first resilience in this regard was done by the none other than Covid-19 pandemic. The first test of resilience was responded by some of the organizations when shifted their onsite office to digital workplace and most of the organization successfully implemented the model. Having done that, to prove resiliency, some people are still struggling to prove that. Some people have got their answers and some people are still struggling with the situation. And, this is around the explosion of data. The pandemic has pushed a lot of organizations to move online and we have seen a surge in the digital payments. If you see the volume of digital payments has exploded many folds especially on the UPI platform and also on NEFT, RTGS platforms. And, this is an area where many organizations have seen minor, medium to major glitches with respect to the increasing consumer demands.

I, myself have faced served timeouts. And, why this is happening because a lot of people are rushing to the digital payments ecosystems and the organizations are still trying to find out an answer on how do they make their infrastructure most elastic by elastic I mean, how do they increase their efficiency, increase the availability of their infrastructure on demand, rather than locking a lot of capital on onpremise applications. So, these are some of the interesting conversations that are going on. And, obviously, when you do that, the other questions around security and concerns around that are also being discussed. And, there is a lot of openness that we are seen from an industry perspective whether it's a public sector bank or a private sector bank in terms of the openness to start testing and trying out atleast with a smaller set of applications when moving to cloud and seeing success with a targeted migration frame and strategy. A lot of banks have started with baby steps. Why baby steps because till now people have the habit of touching and seeing their infrastructure and controlling them with their own set of people but now with the new set of efficiencies that people are trying to achieve with cloud, they are slowly seeing how can progressively start improving. So, this is an important phase and a very interesting era to be in to see how do people get there.

Butchi Babu Burra, Senior Domain Expert, Institute for Development & Research in Banking Technology (IDRBT)

We have been talking about digital transformation for quite sometime and Microsoft has always been a part of it. I remember, somewhere is 1987 I was using windows and now I am using its cloud and have its subscription. Digital transformation has been happening and there is nothing new. The only significant part is, how organizations can catch up with others to find out if they lag behind and understand that what kind of technologies are important because everybody has customer centric solutions but we have to see how agile they are. My address today, because of my exposure to Public Sector Banks or BFSI institutions, would be centric to financial institutions. When you start a product, it goes through a long chain of processes, starting from identifying the product, approving it and procuring it. Procuring, in particular, takes a lot of clearances and a time consuming process. Even the finalizing the vendor takes an year. Everybody is adopting whatever technology is coming their way, in the name of keeping pace with their competitors but whether they are having an infrastructure to support it

and therefore, are they getting all the benefits of the technology is questionable. There are several available technologies like Artificial Intelligence, Machine Learning, RPA and everybody is trying these, some are successful and some are toeing around. I spoke to a lot of bankers when they come to IRDBT and take their feedback on why do they think they should or should not deploy cloud. Why do I think cloud is important? In my view, any owner of an asset would like to have hardware, software, everything on platter in order to build a product. Over the period, thanks to virtualization, people have developed some level of capacity but that too is hardware centric and some software support in terms of corporate liscences.

A few years ago, as an incharge of data center, I was just craving to go to cloud because change is bound to happen. If someone says that it is very difficult, I want to ask them, has he really tried cloud or interacted with someone who is using it.

Even a simple oracle migration takes 12-13 attempts. There are hiccups in every migration. But it is important to consider that there are long outages faced by the biggest banks. There are banks that went down for a complete day and compensated that by working on another day.

Earlier, people used to say that regulator does not want it. I went through entire RBI website to find out any statement which discourages migration to cloud and I did not find anything. No regulator discourages adoption of technology. The regulator is coming up with guidelines on how to use technology safety keeping the convenience of the customer in mind because data integrity is very important and we have to manage that. If you see, TRAI has moved to cloud. So, there will be some initial hiccups.

BFSI sector has done many migrations, was it all smooth? Did you not face any hiccups or bottlenecks? There were problems but we came over. You have to use it to understand the challenges as well as the benefits.

I was very curious and wanted to try cloud to find about its usage, benefits and pricing models. Am I afraid of the cost? Am I afraid of the availability of the software or something? At IDRBT, we called all the big cloud solution providers and shared out queries with them. They came up with solutions. They said that migration is your problem and we have handled it for big banks. If migration is a concern, think of a bank merger, was it easy? Did the banks did not comeout successfully. The government saw some kind of synergy in it and therefore the banks did it.

Cloud migration is not going to be that tedious. Here my suggestion is don't go for private cloud. Because it does not let you enjoy the real benefits of cloud. I was amazed seeing the technology. I checked with AWS, Microsoft. I was amazed to see the kind of services available. It is more like a shopee. In the process of exploring it you will get to know the benefits that you can get but you are not availing. If somebody talk about security, tell me something, if I am in India within a limited area of operations definitely my security would be restricted to what the regulator says, some of them would be compliance point of view. If a cloud solution provider is offering you the services, he has to see the security because it is about his prestige and source of bread and butter. And they will give you the best kind of security and keeping the framework in mind despite being from different country sometimes.

Some people complain that we cannot see the servers of we shift to cloud. My question is, you have your captive Data Center and the on premise servers, are you able to see what is happening inside the servers.
If you are using cloud , you are paying for what you use for the time you desire. You don't have to buy it for five years.
Think about the multinational companies who have shifted to cloud. Are they not surviving?
If you are worried about the regulator, let me tell you that they only want you to deploy it in secured manner, that's it. I was amazed to see the services.
The Reserve Bank of India has come up with a cloud adoption policy which does not differentiate between a big bank or urban cooperative bank because the regulators wants everyone to adopt technology with the same pace. It includes a vision till 2023 on adoption of cloud.
The only thing, you have to be careful is, if you are adopting cloud and doing it in a big way and your data is moving out of the country, just inform the regulator about it.
MeiTy has its own cloud for the government organization with relevant guidelines. So, if the government is not interested in cloud, how are they already on it.

Rajesh Ram, General Manager & Chief Information Officer, Bank of India

Today we are in 2021 and we are already a decade old in cloud. In bank we first brought the cloud infrastructure, offcourse the private cloud way back in 2010 and slowly within few years all the applications were migrated to it. The benefits of cloud deployment were so immense. There was an ease of shifting the applications to cloud and this increased the ease of managing the applications immensely. After the deployment of cloud, the stakeholders found the ease of rolling out the applications and managing them has grown immensely.

When we had standalone systems, we faced a lot of challenges. We used to have regular downtines due to various reasons. Each of the systems did not receive same amount of care which is required. So, what we did, we launched our own private cloud and we put in a lot of efforts and skill sets to manage it. With an apprehension that large number of applications are going to run through the cloud infrastructure, so special attention was paid and since the technology was developing at that point in the country.

We received wonderful support from our partners and they were also very keen and enthusiastic to be a part of the journey with the Bank of India and within a few years all the applications were migrated to cloud.

In 2018, we realized that the cloud infrastructure has become quite big and managing it requires certain amount of automation and that is when we brought in orchestral tools and automation tools where the entire allocation of the resources was automated and easy to operate. There was a lot of change in physically managing the systems. But all throughout we never faced any challenges with new people taking over the project. Each time a new person was handed over the project, he could comfortably navigate the system. And as it was on auto pilot mode lot of functions were running automatically. At one point of time, we found that the demand suddenly increased by many folds in the last few years due to demonetisation and also during pandemic induced lockdown where the demand for processing and the storage capacity inflated and that is the time we realised that cloud came to our rescue. All the applications as you know, UPI is a success story in India context brought in NPCI and the amount of transaction it was handling at the time when it was launched way back in 2015-2016, has increased today by more than 15-16 times. Lot of initiatives that have been launched in the recent past like PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) launched to empower Street Vendors, where a street vendor is carrying a QR Code as an ID and transactions are carried out using smartphones. Each of the transaction which is getting generated through all these channels are landing into our system and the entire system is being hosted by the cloud. We never faced the capacity issue, we enjoyed being on cloud and infact we were so happy with the infrastructure that we gave it a new name. We named our private cloud as Meghtara. As our logo is a star we named the cloud on the basis of that. Meghtara has been a success story till date.

Lot of users are very positive about the IT department of the bank and they were happy that they do/n't have to do the procuring of the infrastructure before launching a product. Now lot of sandboxing, POCs we can do without any fuss. Based on the benefits that we have enjoyed we have proposed the idea of community cloud. Because the type of infrastructure we have developed we can always go for it. IRDBT has a community cloud and the banking industry come together and use it. But there is a lot of room to discuss weather we should go for a public cloud. Offcourse, the RBI has no where said or stopped us from doing that it is the apprehension which is pulling us back. Now, time has come that we set the inhibitions and apprehensions and few of us have already started moving. Young college passouts and Fintech companies are hiring cloud and using it extensively for launching applications and also for their research work. I think as far as big data and data warehousing is concerned is one area where going for community cloud can be possible. Because it needs humongous amount of space and the private cloud that we have may not be able to suffice it. Time has come to start taking baby steps and experiencing the cloud.

Pradip Nadkarni, Vice President, Enterprise Archietect, Head-Cloud Solution, RBL Bank

At RBL, we have been experimenting with cloud for two years now. We have been gone through a process of establishing a cloud and also attempt to migrate certain applications there. One of the biggest advantages that we have seen with cloud is it is a single pane of glass where you can do everything weather it is about infrastructure, servicing monitoring so, you don't have to look at multiple consoles and windows. The learning cycle, the operational efficiency kick in very soon. There are lot of operational opportunities so you don't have to take the steps that you generally perform in terms of a data centre. Cloud helps you by automating a lot of work and reducing the turnaround time.

One of the important aspects of today's digital era is the time to market. The lower turnaround time is the better it is. It is better to get into the market first and the most important philosophy that we follow in digital market is to fail fast so that you pick up and start improving at a more frequent basis. Cloud provides us that opportunity because you don't spend time because it is available on demand and on tap and you can spend time in leveling up your products and making them available to the customers. While I am saying this, the other aspects of availability, scalability and resilience is building up. Think about a plan and build a capacity around them. This affectively helps us in overall product management and bringing the turnaround time down by couple of hours as infrastructure is available and you could just take your code and test it. It makes life simpler and faster. There are different monitoring capabilities also available so you can just do all kind of monitoring, audit trails that are available within cloud.

Past services are something that we have really gotten an advantage of such as the newer age technologies. A lot of it is available in the past format such as AI, ML and even in the application world around container, so we did not have to think about managing those platforms because they are taken care by the cloud provider. What we were focused on is to get the containers right. There are also some of the services where you don't have to worry about the infrastructure because that is also taken care by the cloud solution provider. So, that really helped us in the experimentation of our digital journey.

So, we started our cloud journey two years ago thinking about the blue print that we should create. The most important attributes were to look at the definition of cloud, segregating the concerns, different kinds of subscription-accounts that you want to create and what is the governance that we want toset around them, an important aspect to think about because of the single pane of glass there are possibilities to things going wrong and mismanagement

to happen, it is very important to set the permission boundaries when we define the cloud infrastructure. So, all of these configuration exists and it is just a matter of putting them at the right place. Defining security guardians is the next important step that we followed. There are a lot of recommendations that are available, CIS has specifically come down with a set of recommendations on how do you harden your cloud infrastructure on both the account subscription level and infrastructure and service level. So, that helped us lot. There are tools where you can aggregate your logs, there are connecters for shock integration and to overall defining the security architecture. You can actually implement micro segmentation of cloud which is available and there is a default and without having to spend a lot on the infrastructure. So, that is in one of the advantage that we have seen in our cloud journey. Further, encryption is available at different level at disc or even at the data you store on cloud, that is available as native service for most of the cloud solution providers. From a turnaround perspective the golden image has helped us significantly. So, you don't have to hardening your infrastructure or patching your infrastructure very often, you create a golden image and then you then propagate it across the systems. That actually reduces a lot of pains and overheads in the implementation and the infrastructure set up.

On the architecture side there are certain aspects that are available implicitly on cloud, resilience for example. There are certain services that are highly resilient and these are the services that are SLS which are published on most of the cloud providers. So, you can definitely know what is the availability and durability of services. You can plan your architectures accordingly. Every cloud provider has different ways of scalability of data centres defined in terms of regions, availability zones and domains. It is matter of putting your application in the right context insuring that they are highly available weather you want to do an active active or active passive. It is possible both ways on cloud. Scalablity is given so you do have to think about elastic volumes or sudden spike through auto scaling feature is it available with all cloud providers so, you don't have to think about your five years volume and then size accordingly. You just have to think about what is required now and leave to auto scaling to take care of the future. In that way you can control cost by depending upon what your current volumes are trickle it up as the volumes grow. Like I said earlier, the automation plays a very important role. We had a lot of automation on cloud and that helped us significantly to trim the turnaround times in the application as well as the infrastructure side. Along with this there are very important used cases around the Artificial Intelligence for example sentiment analysis, transcription, facial recognition etc. which are there on the cloud and it is matter of enabling them. You don't have to think about implementing these algorithms.

It is only a matter of subscribing to the best suited platforms for us and then start training your data. IN the last two years we have also attempted migration which was pretty seamless and it has not disrupted businesses.

Deepak Sarda, General Manager-IT, Indian Bank

Our amalgamation has completed and there are challenges but we are enjoying and overcoming them. We are facing challenges on the daily basis because the data of the merged banks has become one now and it might have changed and become grown multiple times. Application does not make a difference but how the data is coming makes a lot of difference and decides how the application is going to run. We have merged successfully and we are slowly stabilizing our operations.

During these challenging times, we extensively used Microsoft Team for conducting our meetings and I would like to thank Microsoft for that. Earlier, nothing moved in public sector banks without moving the registers but now all that barrier has gone.

We started our cloud journey around two years ago where we migrated our mail boxes to cloud. When we took over Allahabad Bank, the first step was to onboard all the employees on the particular cloud platform. The biggest advantage of cloud was we did not have to go for procurement process which takes another two three months and if somebody complains another couple of months gets added. The biggest benefit of cloud is it is very agile and flexible however unless we have direction from government of India to migrate financial applications on cloud or migrate applications which are of higher importance, bank would not be able to do that. Emails also carry confidential documents however, for that there are some relaxation and advantage anyway is there. Securities can be built in with on-premise area authentication and then it goes to cloud. So, we can say that it is safe with on-premise authentication. We are going to have a cloud policy during this year and as per ease guidelines, we need to have a lot of migrations on cloud. We already have started software testing on cloud and software testing can be done and there is not fear of any leakage. So, my experience on cloud is excellent and we hardly had any downtime unless there is a link issue with respect to the bank and the response is also good and whenever the services are needed they are available on premises on demand. We are also proposing to go for some non critical applications on cloud. It has been observed that competitors of Microsoft are also offering complimentary services for six months so that they can move in and after that people can start migrating to cloud. Going forward, in next six months, definitely, the non-critical applications are going to be on cloud. Some of the cases have happened where it had to come from cloud to on premises where one of the vendors who is a major player in HRM solutions had to come to on-premises keeping the demand of Public Sector Banks in mind. So, still there is confusion on how to go about it. It is upto the government to lead the way.

All the banks are equipped with a lot of technical expertise and a lot of technology-based innovations are happening. Capability wise banks does not have a issue in migrating to cloud, compliance is the only major concern because data is important however, data localization is happening and a lot of companies are storing their data in the country now. I see a lot of opportunities and I believe that the moment some direction or regulation is issued we will be able to proceed.

Saroj R Nayak, General Manager-IT, UCO Bank

Our bank was in the process of migrating from pinnacle 7 to pinnacle 10 for e banking application and that process is going to be completed by July. If we talk about application refresh, the business requirement is the key diving force in any technology or application refresh. The first aspect to consider is the sustainability of the application and then robustness, scalability and offcourse return on investment.

In fact the growing capability of cloud particularly in Public Sector Banks in India with the help of MeiTy where they have mentioned important guidelines with respect to the safety of public cloud space, the deployment of cloud is one of the important areas of discussion. However, UCO Bank being a PSU is not moving its critical application to the cloud and so far the non critical application like our email, door step banking, e-learning portal, that we have already hosted in Microsoft cloud and we are very much happy with performance. So far the deployment of cloud is concerned, no restriction from the regulator has been made and this is our own apprehension, one is data security and second is uptime. But I still feel that there are certain issues that is to be addressed such as data misses, data loss, integration through API etc. But so far UCO Bank is concerned, we are very much open in deployment of cloud and we have developed our private cloud where we have hosted around 26 developed applications.

Suryanarayana, Chief Information Security Officer, Central Bank of India

Security is a very important point of concern when it comes to cloud adoption, for any IT adoption for that matter. Even in inhouse data center also banks are having several security concerns and it is important it is important to be taken care of as customers' data should be protected.

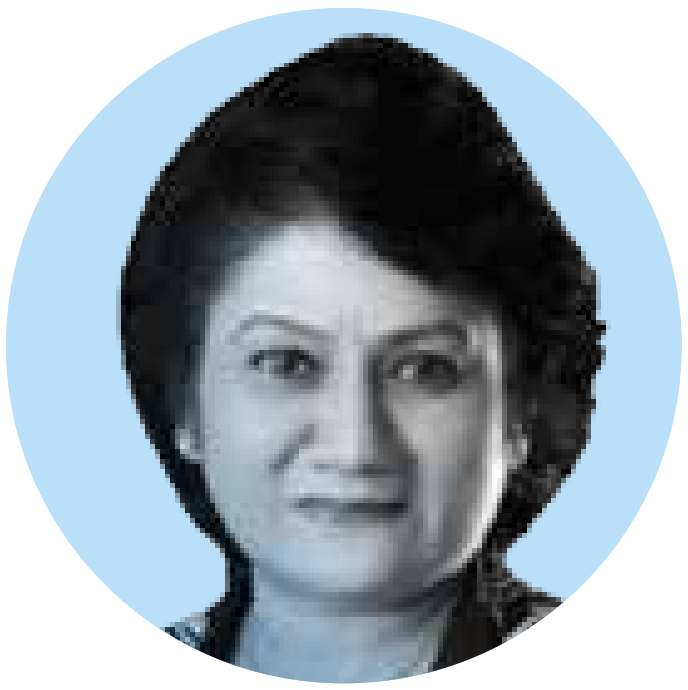
As far as cloud deployment is concerned, the benefits we are availing from data centre, we can avail the same and even better benefits from cloud and the running of applications would also be convenient. There is no as such security concern for cloud.

However, from our internal survey, we found out some of the challenges that is not just application to my bank but would also be relevant to other bank CISOs. I won't name them as problems that cannot be addressed; it can be easily addressed by any service provider. But I would like to talk about them. Concerns that were observed are pertaining to data privacy and it is very significant because of the recent regulations. With the lack of visibility of the cloud data, how the cloud service provider or even bank can ensure data privacy. Secondly, data localization is an important aspect and even government underlining the same. Data localization is a challenge that most of the cloud service providers have already addressed by opening up their services in the country itself and this won't be a major problem in the coming days. Then, lack of visibility is also a concern because if something is within our premises some physical visibility is there, in cloud adoption even though all security measures are available there is some lack of visibility. But in future there is no option other than going to cloud only. However, most of the banks are not adopting cloud because of the security issues.

Banks have already invested in most of the functions in their existing infrastructure and they have to see the return on investment and after that only they will be able to think about migrating to cloud in a better way.

For new organisations, there is no past investment of traditional practice, so, they can immediately and conveniently migrate to cloud. Public sector banks are already using cloud for non-critical applications and in future they can migrate to cloud for critical ones also without any problem and that is my observation.

Dr Rohini Srivathsa, National Technology Officer, Microsoft India



While people are understanding the need, upsides of going to the cloud weather it is from the perspective of cost efficiency, the economics of it that you are not buying your hardware for five years, you are buying pay as you go therefore you are releasing your cash flow, you are being efficient from a capital usage perspective. The we heard about the need for agility and scale for a time to market perspective and clearly we heard about innovation. I think, these are all really important points and I think we as a community need to reflect on these somewhat deeply. I would say that from a perspective of the issue that I heard around security privacy etc. let me share a few thoughts here.

The country's maturity from a digital path is I think at a very interesting juncture and as a community we really need to think at a very different level. Look at the numbers, we now have a more than a billon people with a digital identity. We have more than 2 billion UPI transactions that have happened in December, the highest data usage in the world. We are becoming a country that is really evolving as a data rich and digital first country. That means that the Public Sector Banks which are the foundation of our banking system need to really evolve and when are hear about the challenges which are absolutely correct and we have to go to each one of them so, let me try to address them. The regulator is not telling us not to use public cloud, it is rather taking about security, privacy, compliance and all the right things. The regulator is also doing the right thing by talking to us about some of the new things such account aggregator, using consent layer for changing the way the banking sector is moving. The regulator is helping us move forward into the Digital India journey. Therefore, the question from the perspective of what is exactly that we are trying to address, now if you look at the security area, as a public cloud provider, we are looking at a trillion security signals from our global footprint that nobody else can have visibility into to understand the security threats that are evolving before they hot any of the mainstream or any of the security expert areas.

We have provided governments security threat intelligence because the footprint we have is of that order of magnitude and therefore we bring that into the way we think about security as a holistic aspect. That's our bread and butter and that how we think about our business.

And, to be able to say that what we are doing in security is why we go through the entire set of compliances, across industry compliances, government specific compliances across the world. Therefore, we cannot find anybody else who can go through all the compliances and say that we are on top of the issue.
Now lets come to privacy, when GDPR was coming out , we as an orgainsation took a viewpoint on why GDPR was applicable for the European Union. We took it as a challenge and made sure that our customers anywhere can become GDPR compliant because we saw that the world is moving in a direction where privacy is going to be a key issue and we know that our PDP bill is the partliament and it is very soon going to come out sometime soon but we have been ahead of the curve from the perspective of looking at it from the privacy and compliance with the regulator. So, when PDP comeout we are already on the road. So, GDPR has given us a lot of understanding on how Public sector oraginsation across the world are looking at privacy.
Our commitment to compliance is a singular part of our trust narrative. When we look at trust, it is about privacy, security, compliance and transparency, which means that we are transparent about what are the regulations, industry standards that we are complaint to and we published it regularly. It is there and it is central part of our trust narrative. When you talk about data privacy, you peel the onion and think what is it about. Where is your PII data? Wh0 has access to it? Where is it stored and what is its lifecycle? That is all part of data governance. We have tools and we have entire suite for thinking about how to start our compliance from data discovery, data classification, on premise, multicloud across your saas sources , your data assets, Your relationships, semantic search about your data discovery to understand what is your data life cycle. So, we have to get over the emotional aspect of saying that if I have on premise services then I have some amount of hardware control.

Manishi Chatterjee, General Manager-IT, IDBI Bank

Who can deny that cloud is going to be a significant part of the banking industry but it again depends upon the organisation's priority? If you ask me that the current cloud status, then I must say that we have our cloud policy in place but the only thing, we started our cloud journey with some non-core areas presently. But my policy is in place and going ahead whether we should go for public, private or hybrid cloud depends on my priority, risk appetite and direction from top management.

Going ahead, at this movement, we are on the on-prem cloud with all my VM service in place but since I am also going for the micro services architecture for API consumption the cloud readiness is very much on priority. Today with the monolithic application it is ok that we will consume these API and at the backend and will have the ESB which will consume the API services for the other customers too i.e. external part. But if I want to leverage tomorrow with the containerization kind of concept then I have to go for a hybrid cloud of scenario because I know the limitations is there in my present architecture and challenges do come with monolithic applications. Since, my journey has just started and when time will come that we can go with proper direction from the Top without any hindrances. I won't say that without cloud my show is stopping as I am constantly improving my present architecture and developing it further by automation. However, cloud is yet to take the leap that we are thinking.