

## INFOSYS ANALYST MEET

### CLOUD SERVICES

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**Vishnu Bhat**

Hi everybody. Cloud or cloud or cloud - I think this has been a topic that's been discussed quite a bit in the industry. About 6-7 months ago, when we would have discussions about Cloud, most of it would revolve around, is it happening, is it not happening, is it the real thing, is it hyped and so on and so forth. Today the discussions never get into that zone anymore. I think everybody knows and everybody understands that Cloud is here, the value of Cloud is immense and what we are doing about it.

In terms of our services and the way we look at Cloud, we look at in two different contexts. One is services for the Cloud. What are the services that we want to focus on for the Cloud and second is services on the Cloud. In terms of services for the Cloud, we actually have invested and built out a team of about 1,000 consultants and architects and technologists that actually help our customers to get onto Cloud. These services predominantly consist of strategies for enterprise Cloud option, Cloud-readiness analysis for our customers, understanding their landscape today and saying how do we get you from where you are today to a situation where you can adopt Cloud and leverage Cloud philosophies going forward.

Cloud architecture enablement – I think today most of our customers that we work with in Global 2000 space really have a significant amount of legacy that sits there. In terms of getting on to Cloud, a significant component of mindshare today involves how do I re-architect my enterprise landscape to be able to leverage Cloud. How do we help our customers get onto Cloud as well as re-architect and enable them?

Application data and migration services - I will spend a little bit of time on this one. Today, if you look at most of the discussions around the Cloud, this revolves around infrastructure. It's about how do I virtualize my infrastructure, how do I bring several thousands of servers that we have in the server farms, consolidate data centers and leverage and virtualize the infrastructure to leverage the scale of computing that is there and how we make it elastic in that form. But there is significant amount of effort that has to go in to leverage Cloud in its entirety. One is in terms of migration of data and actually looking at data from a Cloud perspective. How do we enable data to move from a legacy to a Cloudburst and then probably back into a legacy depending on what the needs of the enterprises are. So there is a significant amount of effort we have spent in putting in data services and data migration services. As well as from an application development standpoint, today I don't think there is too much mindshare going in the enterprise space in terms of architecting applications and developing applications for the Cloud. The discussion still revolves around infrastructure and we have a significant play there in helping our customers consolidate datacenters, virtualize their hardware, virtualize their servers and leverage Cloud. But how do we actually architect applications to leverage Cloud. So there is a significant amount of work that we are doing in architecting applications for the Cloud. Moving onto Cloud involves significant amount of governance. We anticipate that in an IT environment for any large corporation, we will have a mix of what is legacy today, a mix of what is a private Cloud which resides within the enterprise and obviously leverage a public Cloud which resides outside the enterprise. A significant degree of governance has to go into leveraging these ecosystems and orchestration of these ecosystems and how it is governed. We work with our customers in putting up a governance philosophy and putting up a governance mechanism and helping them leverage the Cloud phenomenon.

To summarize our offerings here, as I said we have a team of about 1,000 plus consultants who are focusing on these aspects of Cloud architecture. We actually also work with our customers on SaaS on-boarding and putting up a strategy for SaaS on-boarding. This would involve a third-party itself or in terms of an Infosys SaaS offering itself. How do we get our customers from their in-house setup to a SaaS base which is an external third party, it could be Salesforce.com or something similar or the Infosys owned HRO Platform as a Service.

Building of private Clouds - what we also see that most large enterprises today, the first step in the next few years will be in putting up and building up private Clouds and that's where a lot of mindshare is going in terms of how do we consolidate datacenters, how do we virtualize the datacenters, how do we put our applications on to our virtualized datacenters and set up. Private Cloud build-out takes a lot of discussion and airtime when we talk to most of our customers.

Cloud Security Consulting - we have a dedicated practice for Cloud security consulting because this is definitely one of the top mind shares of IT executives today. Is my Cloud secure, do we have enough security policies in place to make sure that when we put things up on Cloud, our data, application and information is secured. As well as the last part which is what talked about - the Infosys Cloud solutions. Kris did talk about Flypp in the morning, Shibu talked about iEngage, we also have an HRO platform (I will talk a little bit in depth, little later), in putting up our own datacenter, our own Cloud offering, our own SaaS offering leveraging the Peoplesoft software and providing BPO services on top which is what we call as the next generation Cloud + services offerings leverage BPO as well.

In terms of making sure that we bring value to our customers beyond just an element of building out private clouds, setting up a strong partner ecosystem is essential. As part of our Cloud theme, we have set up strategic partnership with most major players - Microsoft, HP, IBM, Oracle, Computer Associates, Novell, Hitachi Data Systems and Google. Just to give you an example, for Microsoft, we have almost 800 people dedicated practice now focusing on Microsoft Azure SharePoint and Mobility, The Microsoft Mobile Windows 7 that is coming out now. We believe that in terms of corporate adoption, this will be a key phenomenon. The coming together of Cloud collaboration mobility is going to be a key theme that's going to drive enterprise adoption of public Clouds to start with and a combination of private and public Clouds. We have dedicated teams that are working on specific technologies. Apart from this, we also have teaming agreements with several Cloud players out there. I think at the end, the whole ecosystem of Cloud players, large players like the Microsoft's, IBMs, HPs, Oracles and so on and so forth and also several niche players who are coming up with new IP development, new ideas that are being brought to the table, we want to create and we are creating a partner ecosystem that can be weaved together for our customers to leverage value because the value of Cloud goes beyond just infrastructure virtualization as we say.

Coming to the second part which is our solutions on the Cloud, we have this dedicated practice and set of consultants working to get our customers on to Cloud. We also are focusing on building IP on the Cloud which is our Infosys-hosted Cloud offerings. We are building what we call as the 'Procure to Pay' or 'Source to Pay' platforms, this will be hosted in our virtualized datacenters. We will be working on setting up instances and private external Cloud for our customers and also on top of it, leverage the BPO services. When a customer wants to outsource and leverage Cloud holistically, it involves software, involves hardware, involves infrastructure as well as BPO services from an end-to-end standpoint and that is seen as a significant advantage to the customers. The second one we talk about is 'Hire to Retire' platform, the HRO platform here. We have totally about 55,000-60,000 employees of our customers being supported through our Cloud offering. The flexibility it provides, as Kris was talking about, in terms of adoption of this feature of pay-as-you-go, because for example this platform allows our customers to pay per employee per month and that is variable again as they go along. So leveraging of the philosophy of Cloud, virtualized infrastructure, Cloud-based applications and business process on top of it becomes a compelling argument. As we go along, we will invest depending on where the need most is depending on the readiness of our customers, looking at the market, applicability of a certain platform and based on that, we will invest and take that forward.

We talked about HRO platform; I think I will not spend too much time here. Flypp is another similar one where we have built an app store kind of a platform for our telecom customers. This is a philosophy that allows our customers to collaboratively build and build on applications as they go

along, with their customers, with their partners and potentially end customers. This is bringing the innovation that is happening on the retail side of the world into the corporate side because as we see, there is a significant amount of innovation that is happening for the retail customers in the retail side of consumers from a Cloud perspective and bringing those philosophies into the corporate world and helping our customers leverage the strengths of collaboration, collaborative building of applications into the enterprises. This platform is giving us a base to build something similar in the future. As we start building up new IPs, we will be able to leverage this platform and constructs of this platform to take it to different sectors and implement a similar philosophy to other vertical businesses as well.

We are working on several patents that have been at work with our SETLabs into several publications and patents as well. Just point for you to read. We have had several case studies. I will just leave you to read them but just to take few examples, we worked with a retail client of ours in building out the Cloud strategy as well as starting to migrate some of their applications across into a Cloud base. We have worked with a leading telco in building out their Cloud. As I think Shibu was mentioning earlier this morning, the telcos we are seeing also are getting into significantly into Cloud space, leveraging their relationship with large enterprises. We also are working with several of our Telco customers in building out their Cloud strategy. This is for Telcos to become a Cloud services provider and we are seeing quite a bit of action there. Most of it is focused today on building out consolidated and virtualized datacenters as well as Infrastructure as a Service from a Cloud standpoint that most of our Telco clients are looking to provide to their customers.

One interesting example here is, for one of our financial services customers, this is more from a Cloud plus application standpoint, I think that's where the strength of building applications for the Cloud come in. For one of our financial services customers, we architected and re-architected their application suite to leverage the power of Cloud and this is leveraging the concepts, similar to the ones that we use in \_\_\_\_\_ for example, for high performance transaction processing. Once we re-architect the applications for Cloud on multiprocessing and leveraging the elasticity of infrastructure on the Cloud, we are able to help them bring their transaction processing speeds to very high levels. This application was able to perform about 6 million transactions in a minute and work on a data worth about 5 GBs of data in that same minute. So architecting and implementing high performance applications is a critical element again to build on top of the virtualized elastic Cloud platforms. There are a few client testimonials, I would leave it for you to read it. They are on the pen drives when Sandeep distributes them.

In the next 18 months, our focus is to establish ourselves as and to reinforce ourselves as a trusted partner in the Cloud space for our customers, expand our Cloud adoption roadmaps, deliver on Cloud migration services. We are in the process of enabling about 5000 developers in the next 6-8 months to build high performance applications on the Cloud. That's going to be an important aspect for our customers in the journey towards Cloud beyond just an element of virtualization and infrastructure and building infrastructure-based Clouds to also build applications and leverage those on a Cloud setup. Obviously, we partner with large players and we will strengthen that partnership, we will expand those partnerships, we will build new partnerships and we will also work with all the niche players that are emerging because as we see, the entry barrier for new players with new innovative ideas has really dropped and you will see more of these new niche players and new ideas coming to the table. We will work with them in taking that value to our customers and building the partner ecosystem in network to make that happen. As I said, we will also work on building specific niche IPs for the vertical. This is to build our own Cloud offerings and that will be restricted mostly towards building vertical stacks that makes sense to our customers as they are ready to adopt them and move that forward.

In terms of our view of the future, on an immediate basis Cloud consulting, messaging and collaboration, we talked about that a little bit in terms of Cloud collaboration and mobility coming together significantly. Public Cloud deployment, Cloud security, private Cloud solutions, monitoring

and management of Cloud themselves. There are lots of customers who are coming to us now to manage their Cloud from a remote perspective. SaaS and business platform offerings like the HRO we talked about, Cloud application architectures, industry vertical solutions, Cloud IP development and so on. That's really the landscape we are focusing on for the next couple of years. We will continue to invest and grow this team and also work with all the verticals from vertical specific solutions that actually make sense for verticals to build IPs on and take those applications out to the market.

I will open it up for questions.

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### **Trip Choudhary, Global Equity Research**

2 quick questions. If you think about Cloud and you think about the traditional past players and emerging players, there was a concept of co-location and the companies like Equinix was kind of popular. If you are an enterprise customer, you have 2 options, either put your datacenters in or your computers in datacenter like Equinix or probably use infrastructures as a service say from players like Amazon and put your virtual stack over there. Question number one, which way are you seeing enterprise gravitating? Second, as you mentioned that customers don't like lock-ins. Now if you look at SaaS players Salesforce.com which are Application as a Service or call it Software-as-a-Service, it provides vendor lock-in, because you own the application, you own the schema and you are pretty much locked in into that whole platform. The opposing view is if you use Google App Engine or if you use say Amazon AWS, probably the data migration is not an issue because applications are still developed by the enterprise customer. Which way are you seeing customers gravitating from the second framework also? Thank you.

### **Vishnu Bhat**

The answer to your first question, what we are seeing is that in the immediate future, the comfort of enterprises is to first move towards a private Cloud build-out set up which is either in-house within the enterprise or in working with a partner like a Rackspace or Equinix where the infrastructure is dedicated to that particular enterprise. But there still is an issue of Cloudburst, if you will, or requirements for Cloudburst and most times, we have seen that there is a degree of openness now to use an Amazon or a Verizon Cloud. You have lot of these Telco's now that you are providing the elasticity beyond your immediate private Cloud build-outs and there is an openness to use that for immediate needs of elasticity. What we are saying is for at least for next 1-2 years, a significant amount of investment will go in building private Clouds and that would either be within enterprise or hosted privately for that enterprise and opening up the pipe for a burst of activity that happens probably on a quarterly basis or a monthly basis or an as-needed basis because what we are seeing today is that the time to provision that, as Kris was talking about, for need of additional compute power has dropped to hours. It used to be couple of days before and now it has dropped to almost a few hours. Some Cloud providers are able to provision that as long as it's within the limits of the size to actually leverage the Cloudburst environment. I think that's where most of our large enterprises are headed and again that's where I think the element of managing the application portability across some of these Clouds and building application such that it leverages the philosophy of Cloud, number one. The second thing is about our ability to manage data for that because when that happens there is a significant challenge in how to get the data to the right place at the right time so that that those sets of transactions can take place. These are 2 elements that our customers are also challenged with and we are helping them to overcome that.

**Trip Choudhary**

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**Vishnu Bhat**

Yeah, I think from that standpoint what we are seeing is that from a vendor lock-in perspective, we still see a significant degree of hesitation of doing that with core applications. We are seeing a lot of movement to vendor locked-in SaaS applications for either a shared service kind of a set up or fringe applications whether it is sales or whether it is management of your HR and payroll and so on and so forth. But we are not seeing a great deal of anxiety or at least wanting to do a lot of this core applications onto a locked in. That, from a core perspective, will still continue to be in legacy or in-house form for a long time to come.

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**Jamie Friedman**

I think one of the concerns some investors have in the IT services industry is that after the move to the Cloud takes place, part of the reasons companies want to do that is for lower total cost of ownership and efficiencies going forward including maybe less use of IT services. You mentioned you have this example where you re-architected the application suite for major BCM provider to take advantage of the Cloud. Could you talk about that maybe as a potential case study and what you saw happened to your revenues with that customer before and what has happened since you completed that project?

**Vishnu Bhat**

Okay, for that specific example, what we re-architected still continues to reside in the private Cloud. It essentially is backing in the same customer's datacenter, so it did not really go out to a public Cloud setup. If you look at it from impact to IT services scenario, yes I mean there is significant amount of advantage to be had in terms of cost savings and total cost of ownership because your infrastructure drastically drops. There is a huge amount of leverage of IT assets in terms of the compute power. There is a significant degree of opportunity of building high performance applications like we talked about. But that obviously does not take away the need for building applications, they will still continue. In terms of an end state of a true multi-tenancy set of applications that service all enterprises, is a very distant future. Today, most of our enterprise customers has built out private Clouds. All new applications will be built probably on those private Clouds for the ones that have taken the first few steps. There are still lot of them still on legacy and even building of private Clouds are still not there yet. What we are seeing is that in the near future and for a long time to come, a significant amount of effort will go in moving applications onto private Clouds and leveraging the phenomena of private Clouds. As I was talking earlier on, while leveraging public Clouds for fringe applications, public Clouds will definitely be used in early days for areas which are very collaborative in nature where these applications will have to interact with a customer base, partner ecosystems, other entities that work with your enterprise, because it's better off being in the Cloud rather than having whole lot of people coming inside your \_\_\_\_\_ or secure network. That works really well. We see that most of public cloud adoption will be in that space and hence are investing quite a bit in bringing elements of Cloud collaboration and mobility together. But for a very long time to come I think until the real value of public Clouds for core applications is unlocked, lot of it will still continue to reside within the enterprises private Cloud setup. So that example I was talking about, still resides in the private Cloud setup with a customer.

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**Participant**

[Inaudible]

**Vishnu Bhat**

We continue to work with our new applications, managing those applications, maintaining those on their private Clouds, we continue to work with our partners there. From that standpoint, there is quite a bit of work still that needs to be done for enterprise applications in terms of doing that. Again in terms of true multi-tenancy applications in terms of SaaS like Salesforce.com, that took about 10 years to really come to a point where it is now. And yes, there will be fringe applications that probably will reside on Salesforce.com and so on but otherwise most enterprises do need applications that are meant for that enterprise.

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**Ashwin Shirvaikar**

I just wanted to delve a little bit into the idea of core applications versus fringe applications and what moves on to the Cloud over the next several years. Speaking with a CTO of one of your larger competitors and what they indicated was that by 2020, we might have 15%-20% of all applications on the Cloud, so it is going to give multiyear path. Do you have any procrastination about what percentage of applications move to the Cloud over time?

**Vishnu Bhat**

What we believe is that in the next 5-7 years timeframe, we will see probably about 40% to 45% of applications being on the Cloud and when we say on the Cloud, it's not external Cloud. We are talking about 'on the Cloud' and the substantial portion of that will be in the in-house or private Cloud. I think if organizations can leverage and take all about 20% of their portfolio under public Cloud because we believe that it's a phenomenon to be leveraged, we believe that we actually want our customers to leverage Cloud as much as they can and even if we get 20% of the total portfolio under public Cloud in 7 years time that's a good achievement and this is probably where it will probably be in that range.

**Participant**

Okay and I just wanted to also follow up on the future roadmap of Infosys developed applications that are resident on the Cloud, like you mentioned Flypp, you mentioned HRO offerings, maybe couple of thoughts on what comes next in terms of your roadmap?

**Vishnu Bhat**

In terms of our roadmap for applications on the Cloud, obviously we will expand on the current portfolios that we have and we will build on the current IP that we have built on architecting and building applications on the Cloud. Our roadmap is to look at specific vertical industrial needs where there is a wide space and a gap that we can address and add value to our customers and build IP in those spaces. Any other spaces we work with our partner ecosystems so that we bring it from an entirety standpoint and be the real cloud ecosystem integrator for our customers as we call it. So address the wide spaces that are existing in this vertical, specific vertical needs that are out there and also being innovation to that effect because we are seeing today a significant of innovation happening in the retail space and we work with some of our customers in that space as well. We want to bring those innovations back into the enterprise space and how we can leverage some of those innovations there.

Thanks everybody.

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