PRESERVE. DIFFERENTIATE. INNOVATE

An Organization spends time and efforts over the years to build its IT Applications and surrounding Infrastructure as per its own needs. The Industry keeps coming up with new buzzwords every 4-5 years and then everyone is under pressure to do something in that area whether or not it gives any upside to Organization's short-term or long-term KPIs. Whether one needs to upgrade, or build a new application to install a new product, everything takes time to stabilize and also for its users to become efficient in using it. And this all, while knowing that fact that IT is still not necessity in many Organizations even now. But at the same time, there are certain products, technologies or methodologies which bring in tangible or non-tangible benefits to the organization.

Gartner came out with a pace-layered architecture a few years back which is great if Organizations start looking at it deeply. It talks about:

a) **System of Records:** for legacy or applications where not much modifications are going on, but they still play crucial role in Operations,

b) **System of Differentiation:** these are your Organization specific processes, customized and/or bespoke applications for your operational efficiency. This layer uses System of Records for traditional/stable/static data or processes, and

c) **System of Innovation:** this is for any new technology that you want to adopt provided you see it improving your Organization's KPI. Multiple LDAP authentication support

This architecture is valid irrespective of where each of these layers is deployed either on cloud or on premise or both. If it is on premise, then there are a smaller number of operational variables that you would have to deal with, particularly security related and API/Web Service related. But there are technologies available now to deal with those aspects as well.

In a born for cloud architecture, your legacy applications can reside on premise or you can shift them to various VMs running with your cloud service provider (CSP). All of them are Single-Sign-On enabled and use other Identity related stuff like Roles, Policies, Segregation of Duties, Provisioning etc. SAML tokens allow you to carry the Identity across on premise or cloud. These applications will have their own UI and/or Web Services to integrate with Layer of Differentiation. In this case, you would be using only the infrastructure of your CSP.

If you have any customized COTS Application, then you may want to look at the equivalent cloud version or take the customized COTS onto the CSP Infrastructure. Generally, Middleware Architect would always recommend to keep all COTS customizations in a layer outside the Application either using a SOA/BPM tool or Rapid Application Development tool aided by Web Services. This helps even when you upgrade from one version to another version of the COTS Application. In case of moving to a cloud version of the COTS, largely the same customizations would work.

After this, you build the Differentiation Layer. This is where you would use any of the BPM Cloud Service Provider to create and deploy processes which differentiate you from your competition. You can add a new strategic bespoke or COTS application as well but ensure that customizations are going into the BPM layer. All COTS Applications are now Services/Connection Points enabled. In fact, the World of Connectors has changed drastically since the early days (in 2000-01) when Integration Servers were coming up in the market. Now you have very discrete end-points available to connect different applications. Some of the Middleware Vendors have done a great job in facilitating this. This layer still gets the security and identity coverage from your on premise or cloud-based Identity Provider. You can add Cloud Access Security Broker (CASB) in between for auditing, monitoring and further encryption purposes.

Innovation Layer should be focused on agility, future directions, business priority etc. For agility, you can build a Unified Portal which can again reside anywhere and is protected by SSO. Your users would just need the URL of this Portal and do SSO and then all layers would be accessible to them based on their role, current status of data inside various applications and current transitional state of processes they are participating. This could actually be part of Layer of Differentiation. Single Page Architecture or Progressive Web Architecture based Web/Mobile Application also fall under this Innovation Layer giving you a better performance and ease of source code maintenance. If you have data science experts or business experts who have critical operational knowledge, then use either Big Data-based or Rule-based AI modules to capture and apply that knowledge to your operations. Process Governance would play a critical role at this layer to keep improving your processes and combined with AI/ML, you can make them (or larger part of) autonomous. In case your business is dependent upon Social Clouds, you may need Connectors and Semantic Analysis tool and integrate them with your process governance part. Data Lake is another emergent system if you are dealing with structured and unstructured data together.

Unified Portal enabled with SSO removes all the hurdles for the users. It would give them access to any of these layers based on their Identity. It would help users in accessing right information at the right time either process based or even based.