EIGHT

Opportunities for Enterprise Modernization

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Widely regarded as the default way to run enterprise applications in recent times, cloud solutions are increasingly gaining traction across all industries today. And it isn't surprising to see reports predicting the cloud market to become a US $107 billion business, by 2017*(IDC, 2014).*

Interestingly, enterprise CIOs are inclined towards adopting sophisticated cloud solutions that solve 'specific' enterprise challenges, instead of subscribing to giant cloud solution blobs that offer a lot, but solve only a little. Gauging the currently heavy cloud market through an enterprise perspective, Microsoft Azure continues to make inroads within enterprise customers and is heads-on with top market players like AWS, Google, Rackspace and IBM.

Microsoft Azure

Modernizing legacy systems is one of the major challenges enterprises face, as it requires balancing system downtime, without interrupting vital operational processes. This aside, portability and compatibility are two other challenges to be addressed while upgrading legacy systems to a new platform. But most enterprises end up facing major platform portability/compatibility issues as platform features evolve rapidly and require constant upgrades.

Focusing on enterprises, Azure has positioned its offerings to modernize legacy applications and support futuristic applications (like IoT, connected devices, sensor-based apps etc.) by leveraging cloud capabilities to a new high. But while modernizing applications, most enterprises face significant technology barriers. *Top 8 opportunities to resolve these barriers are discussed below, from Microsoft Azure's frame of reference.*

ONE

Augment Infrastructure Modernization

Administering and maintaining an expanding IT infrastructure is one of the biggest challenges for enterprises. To add to the challenge, managing modern IT systems through legacy infrastructures is not only cumbersome, but also expensive. Azure's wide range of cloud solutions, with highly scalable Public, Private and Hybrid cloud, come with good performance capabilities to manage enterprise IT infrastructure.

Public Cloud: CIOs don't have to worry if enterprise infrastructures can keep pace with innovation and competition, as Azure's public cloud provides incredible agility by shrinking time-to-market, and minimizing infrastructure management costs at the same time. For the better of it, Microsoft Azure supports both Microsoft and most non-Microsoft platforms including a wide range of Linux distributions (except RedHat Linux).

Private/Hybrid Cloud: For enterprises skeptical about moving data to the cloud, Azure offers private and hybrid cloud solutions like:

Azure ExpressRoute – A solution that connects enterprise datacenters with Azure through dedicated lines, without using the public internet.

Azure Stack – With this, enterprises can use the exact same framework as Azure, to manage any private datacenter. *Azure Stack* converts private/public cloud to assimilate Azure features and capabilities, while retaining security features exclusive to private cloud. With Azure Stack, enterprises may move to a private, public or hybrid cloud, with an identical Azure experience (akin to a Private Azure cloud), with zero friction. This makes Microsoft Azure, the best proof-of-concept for Azure Stack, which runs out of Microsoft datacenters. (*Microsoft Azure Pack* is an older variant, still being supported by Microsoft, which is similar but not identical to the Azure platform).

For Hybrid cloud scenarios/solutions, enterprises can leverage secure VPN connections between Azure and on-premises networks, BizTalk services, API Management services, Service Bus etc.

Azure app-based business solutions can connect to any on-premise resource that uses static TCP ports such as SQL Server, Oracle, MySQL, HTTP Web APIs, and most custom Web Services.

TWO

Endure Platform Agnostics

With ‘legacy’ Windows Azure having metamorphosed to an ‘open’ Microsoft Azure, enterprises are now free to choose a suitable platform that yields optimal business value, without having to lock themselves into the Microsoft world.

As a progressing cloud solution, Microsoft Azure supports all major technology platforms and Operating Systems like *Windows, most of the Linux flavors, SQL Server, Oracle, MongoDB, Cassandra, DocumentDB,* significant *IBM Platforms, SAP, Salesforce, BizTalk, Microsoft Dynamics, Chef, Puppet, Hadoop* and more.

Azure SDK spans various programming languages that not only target the *.NET platform*, but also draws parallels with popular languages like *JAVA, PHP, Ruby, NodeJS, Python* etc., giving the developer community a free hand to integrate.

THREE

Modernize Applications (PaaS)

Conventionally, enterprises buy, provision and maintain their IT infrastructure on their own, and also cater to application requirements such as scalability, monitoring, backup and recovery. Microsoft Azure provides platform services which automate the above processes, while enabling enterprises to concentrate only on their core business needs.

Azure Platform Services address business and enterprise scenarios like BYOD (Bring Your Own Device), cross-platform mobile apps (running on multiple form factors), on-premises service connectivity, application health monitoring, data & storage, search, data analytics, live video streaming, IoT (Internet of Things), access & identity management and more. *Azure Web Apps, Remote Apps, Media Services, Mobile Services, CDN, AppInsights, SQL Azure, HDInsights, Machine Learning, Stream Analytics, and Service Bus* etc. address the above scenarios making Microsoft Azure a comprehensive and effective *Platform as a Service (PaaS)* solution.

The new *Microsoft Azure Service Fabric* provides flexibility to build and deploy micro-services based applications which abstract cross-cutting concerns like reliability, scalability and self-healing in the underlying infrastructure, allowing developers to focus on core business logic. This allows developers to build low-latency, highly-scalable, data-intensive and complex applications by choosing an appropriate architecture (for both stateful and stateless services).

FOUR

Leverage Platform Integration

As new platforms evolve every day, enterprises face different integration challenges while developing applications, and are obliged to spend money to fix these challenges. Microsoft Azure provides out-of-the-box integration capabilities to access data, using *Azure Logic Apps* and *API Apps* to a variety of SaaS and PaaS applications.

Azure has built-in connectors that make it easy to build logic workflows across *Office 365, SAP, Oracle, DB2, Informix, MQ, SalesForce, Dynamics, OneDrive, Box, DropBox, Twilio, Twitter, Facebook, Marketo,* and more. To integrate with on-premise applications or any third party SaaS applications, Microsoft Azure has added a new feature to *Azure Active Directory* called *Self-Service SAML 2.0* which enables pre-integrated support for thousands of applications including *Amazon AWS, Amazon.com, VMWare AirWatch, American Express, Citrix, Google Apps, Cisco WebEx, Comcast, AT&T, WordPress, UPS, and Intuit etc*.

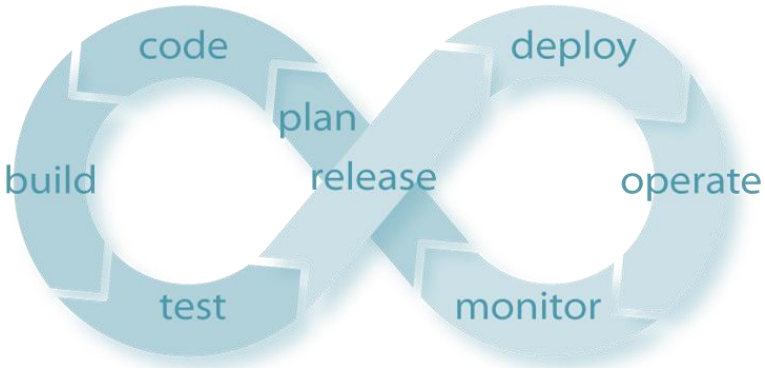
FIVE

Automate DevOps

To help enterprises mitigate DevOps concerns like deployment complexities, release management issues (CI/CD scenarios) and application monitoring, Microsoft Azure offers services like, deployment from *Azure Portal* and deployment using *Visual Studio* or through PowerShell scripting.

With Azure, the application's health, uptime and availability can be monitored using *MetricsHub, Azure Portal Service Dashboard* and third-party services like *AzureWatch,* or by enabling text/voice message notification using *Azure Service Management API*. Azure also integrates with open-source configuration management tools like *Puppet* and *Chef* to deploy cloud recipes.

To enable the broad ecosystem of Dockerized Linux applications to run within Azure's cloud, Microsoft Azure integrates with *Docker hub* and supports Docker containers on Linux VMs. Azure also integrates with *Kubernetes* that manages containerized applications across multiple hosts to deploy, maintain and scale-up applications effectively. Recently, Microsoft announced support for Docker-like containers on *Windows Server 2016* and *Microsoft Nano server* that are optimized to run Windows containers on the cloud.



SIX

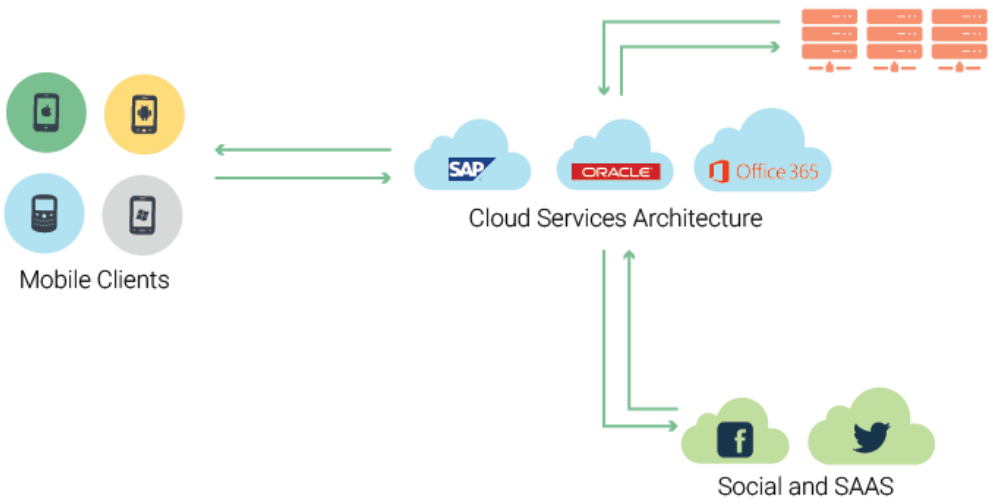
Simplify Mobile Integration

While developing mobile applications, enterprises conventionally develop a separate codebase, push notification services, social media integration, geo-spatial queries, offline sync and analytics to target each mobile platform, be it for Windows, iOS and/or Android.

But modern enterprises are leveraging *Microsoft Azure's App Services, Mobile Apps and Mobile Engagement Services* to build advanced mobile apps that easily integrate with on-premise or cloud-deployed services. This can be achieved by using Azure Mobile Backend-as-a-Service (mBaaS) which provides turnkey ways to address push notification services, social media integration, geo-spatial queries, offline sync and analytics.

As part of the mBaaS, Azure provides built-in connectors to various popular SaaS and PaaS applications like SAP, Oracle, Office 365 and many more. With *Azure Mobile Engagement Services*, enterprises can now build intuitive and predictive mobile dashboards to understand usage behavior, user segmentation-based experiences and much more, with minimal coding.

Azure's Xamarin-based mobile apps reuse UI code that target Android, iOS and Windows platforms, giving a native look and feel, with no extra code, thereby optimizing RoI.



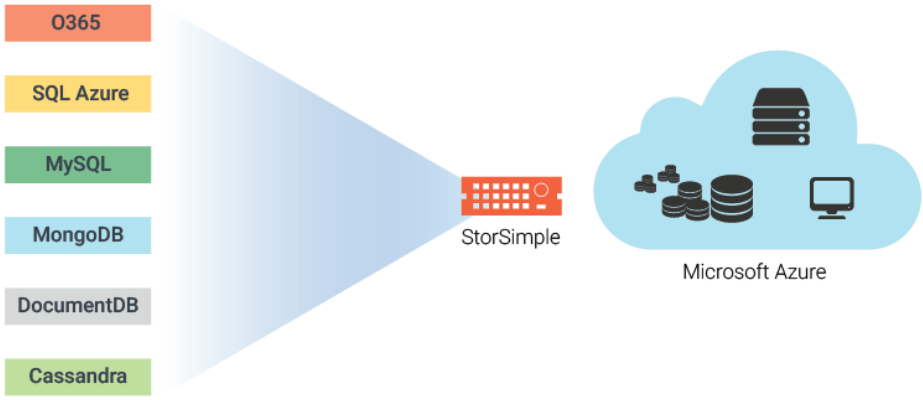
SEVEN

Scale-up Storage & Data

Today's enterprise and business solutions have to consume and process ever growing Tier-1 (Transactional Data, Corporate Email etc.) and Tier-2 (Document Management, SharePoint, Archiving, VM Storage etc.) data.

Azure provides services to consume such data effectively with optimal RoI. While Azure's *StorSimple* kind of services (scheduled for General Availability soon) have the capability to handle hybrid Tier-2 data intensive scenarios. Microsoft Azure also addresses Tier-1 requirements with *O365, SQL Azure, MySQL, MongoDB, DocumentDB and Cassandra* database options, with varied sizing and pricing choices while addressing scalability requirements, popularly referred to as could elasticity.

The *Azure Search* RESTful API offers data search in real time, with a very low-latency period. Azure also offers convenient consumption-based payment models that cuts-off expenses for unconsumed storage space.



EIGHT

Strengthen Analytics (Plain vs. Live vs. Predictive)

Traditionally, enterprises embraced *Reactive Analytics* using data warehousing techniques for their analytics requirements. This approach made enterprises react to incidents by formulating strategies after the occurrence, which is old-fashioned. As technology matured, enterprises realized that if they could be informed of occurrences as and when they happen, in real-time, they could handle situations better. Modern technology helps enterprises achieve this feat, by predicting incidents much before they occur. Azure's *PDW (Parallel Data warehouse), Machine Learning* and *HDInsights* offer services for enterprises to mine Big Data and address related scenarios, efficiently.

Azure's *Machine Learning Services* are exposed as APIs for dynamic consumption, to predict business and enterprise outcomes related to various scenarios like IoT (Azure IoT Suite) etc. without additional hardware or software. Azure ML also provides predefined templates and workflows to launch predictive applications much faster than legacy methods.

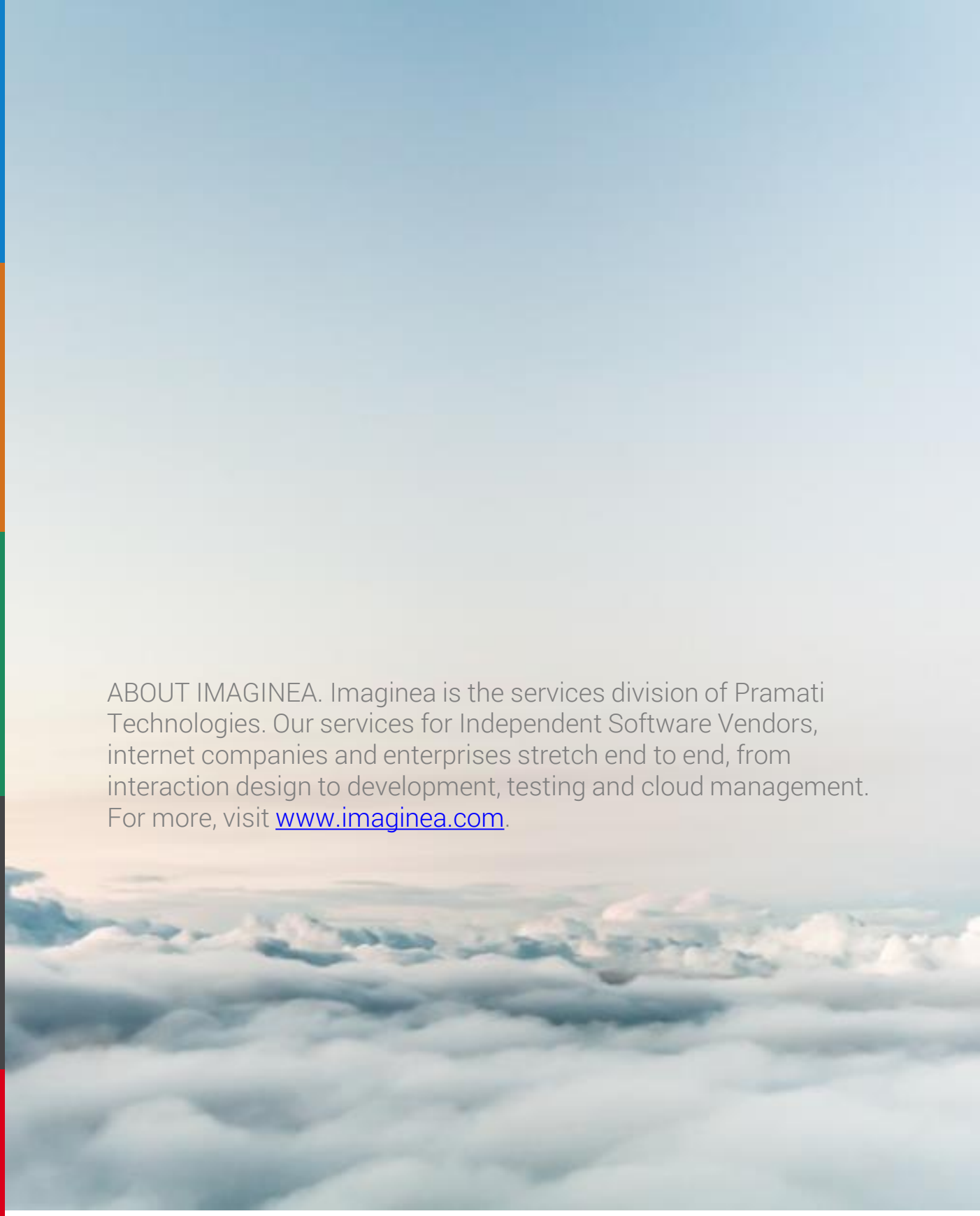
Azure *HDInsight Service* deploys and provisions Apache Hadoop clusters in Azure cloud, providing a software framework designed to manage, analyze and report on big data using *MapReduce* and related ecosystems like *Pig, Sqoop and Hive*.

For private cloud Analytics scenarios, Microsoft SQL Server Parallel Data Warehouse (PDW) is a Massively Parallel Processing (MPP) data warehouse technology, which is easier to setup when compared to buying commodity hardware & software, and configuring them in-house. This technology is well-tuned for big data processing as well. HDInsight and SQL Server PDW together form the *Microsoft Analytics Platform System (APS*) – a turnkey big data analytics appliance.

Microsoft *Azure IoT Suite* is an integrated offering that takes advantage of all the relevant Azure capabilities to connect devices and other assets to capture the diverse data they generate. Azure IoT Suite integrates and orchestrates the flow of the gathered data. With IoT suite, enterprises can now monitor their assets to improve efficiencies, drive operational performance, enable innovation, and leverage advanced data analytics to transform the company with new business models and revenue streams.

Competing with today's fast-paced IT landscape, enterprises are increasingly looking for problem solving cloud solutions, which require minimal structure changes. Microsoft Azure has proven advantageous to enterprises, due to its enterprise-specific problem solving approach that requires very little/no resource amendments.

Consumption-based pricing is certainly a winning aspect of Azure, so are the many flexible & futuristic app modernizing features, Azure has to offer. With Azure capabilities, enterprises can scale-up and modernize their applications, with more assurance and less qualms.



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