WHICH PUBLIC CLOUD OFFERING IS RIGHT FOR YOU?

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INTRODUCTION

The first steps have been taken. Your company meticulously evaluated public cloud providers and their offerings, and you've decided to soon join the 33% of enterprise businesses (Forrester's Global Business Technographics Infrastructure Survey, 2015 and 2016) that have adopted the public cloud as part of their strategic plan.

Deciding to take the plunge is a wise choice in a digital market where cloud adoption is pervasive, but what is the next step? How do you develop a cloud strategy and choose the right implementation amidst a myriad of options and providers?

In this whitepaper, the fundamental offerings of the public cloud are explored and evaluated based on a number of criteria, including: portfolio objective, technical requirements, existing investments, funding approach, and security and regulatory compliance. At the conclusion, your organization will have the knowledge to develop a strategy to choose the cloud implementation that best suits your business needs.

OVERVIEW OF CLOUD OFFERINGS

Start by understanding your choices. For the flagship public cloud providers, application services are provided in the following paradigms: Software as a Service (SaaS), Infrastructure as a Service (IaaS) and Platform as a Service (PaaS). If you need a rudimentary understanding of these offerings, refer to the whitepaper, Cloud 101: Let's Remove the Complexity.

Regardless which model you choose, the business agility and management cost benefits are the allure of any cloud-computing model. Businesses

Learn the Facts Before You Decide

Hindsight is 20-20 in every decision. Gain hindsight perspective now by exploring which public cloud implementations are most suitable for which scenarios.

Learn and explore the criteria you should be evaluating as you decide between Paas, Saas or IaaS so that you can move forward with a strategy to make a wise choice:

- ▶ Portfolio objective
- ▶ Technical requirements
- ▶ Existing investments
- ▶ Funding Approach
- ▶ Security and regulatory compliance

that do not embrace the cloud will place themselves at a disadvantage as they compete with others who have gained the agility to innovate and respond to market opportunities through the cloud.

Software as a Service (SaaS)

SaaS products are managed entirely by a third-party cloud provider.

These are typically subscription-based services that trade flexibility for reduction in planning and cost. Examples of SaaS products are Microsoft Office 365, Salesforce CRM, Workday and Google G Suite.

Infrastructure as a Service (IaaS)
IaaS may be fairly equated to traditional virtual machine hosting in your company's on-premises datacenter or remote hosting facility.

With IaaS, you move your virtual machines from your data center to the cloud. IaaS virtual machines may be provided at unlimited scale, but still require your IT teams to manage the underlying patching and support of the infrastructure.

IaaS is a key element of many companies' hybrid cloud strategies. Example workloads of IaaS include application hosting, backend processing and traditional enterprise software.

Platform as a Service (PaaS)
PaaS includes many services and products that allow organizations to build and run applications without the cost and complexity of maintaining the supporting infrastructure. Examples of PaaS products include Amazon Elastic Beanstalk and Microsoft Azure Web App.

Sources vary about whether SaaS or IaaS are the most prevalent public cloud models, but research generally agrees that IaaS is the fastest-growing market segment. Gartner estimates that IaaS will grow to $34.6 billion in 2017, a 36.8 percent increase over 2016.

The point is not that one model is preferred over the other, but rather to recognize that in a customer-obsessed world with such rapid growth of cloud adoption, it's critical to pursue some kind of cloud strategy if you want to remain competitive and provide value to your customers.

CHOOSE THE RIGHT IMPLEMENTATION
By breaking down the current-state and goal-state applications portfolio, your company can better understand how to effectively leverage the public cloud.

To assist in developing your cloud plan, you can decompose your strategy into four factors: portfolio objectives, technical requirements, security and regulatory compliance, and funding strategy.

Portfolio Objectives
All enterprises possess multiple software applications that fulfill a broad range of business objectives. These applications are typically in variable states of value to your business and have differing degrees of currency with modern patterns and frameworks.

Enterprise applications are generally organized into three categories: invest, contain and replace (see Figure 2).

Portfolio Investments
Enterprises have mission-critical applications that serve the core line of business. These applications are rooted in a company's value offering and are typically enhanced to accommodate a changing business marketplace, respond to competition and deliver value to customers.

Best choice: PaaS
As these applications are differentiators, these are the most likely candidates for a high degree of investment in cash and staff. PaaS is the best choice to fulfill this kind of role because it offers the greatest flexibility to accommodate custom business behavior.

Portfolio Containment
From accounting to timekeeping, recruitment to accounts payable,

SEPARATION OF RESPONSIBILITIES

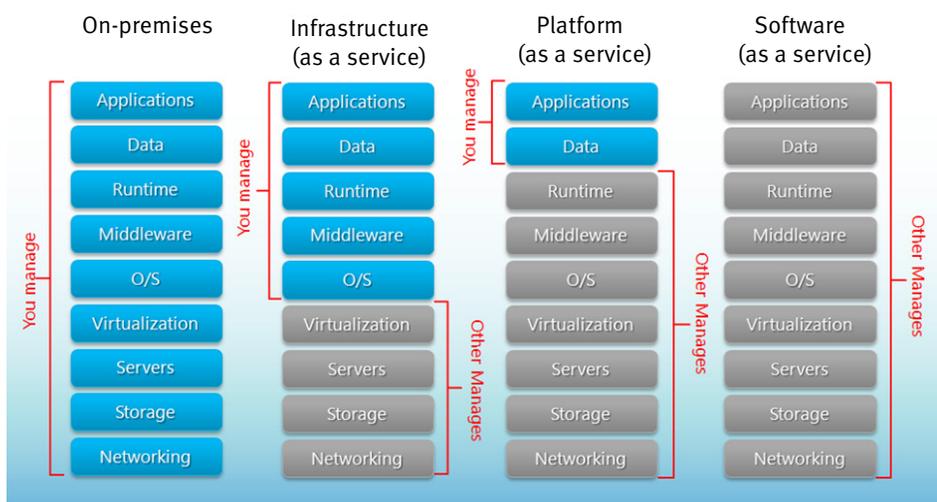| On-premises	Infrastructure (as a service)	Platform (as a service)	Software (as a service)
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking

Figure 1. This diagram depicts the tasks your company is responsible for and which are passed on to the cloud provider in different implementations. *Source: Microsoft Technet Full of I.T. WebLog*

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most enterprises have a variety of applications that serve a narrow business need. These needs are frequently unchanging, and these applications have served the company well and do not require major project teams to support them.

Best choice: IaaS
The business is not served by major investments in these *contain* applications. The goal state is to "keep the lights on" without major time and cash outlays. IaaS provides a simplified migration story and allows you to continue to support these applications without overhauling the core implementation and architecture.

Portfolio Replacements
Every organization has applications that no longer serve the original business need. Whether the root is antiquated technology (with high support costs), obsolescence due to a changing business and regulatory environment, the need to service a new requirement, or simply that the business has outgrown the app, businesses often have a portfolio of applications in need of replacement.

Best choice: SaaS
For those situations, there are a variety of subscription-based SaaS offerings that will meet the needs of your business. These applications are fully supported by full-time engineering staff, and your business can benefit from the continuous update path provided by third-party SaaS vendors.

Technical Requirements
For applications under your company's control, there is a varying degree of technical functionality that may lend favor to one cloud offering versus another. Assuming a company would favor a PaaS offering versus an IaaS
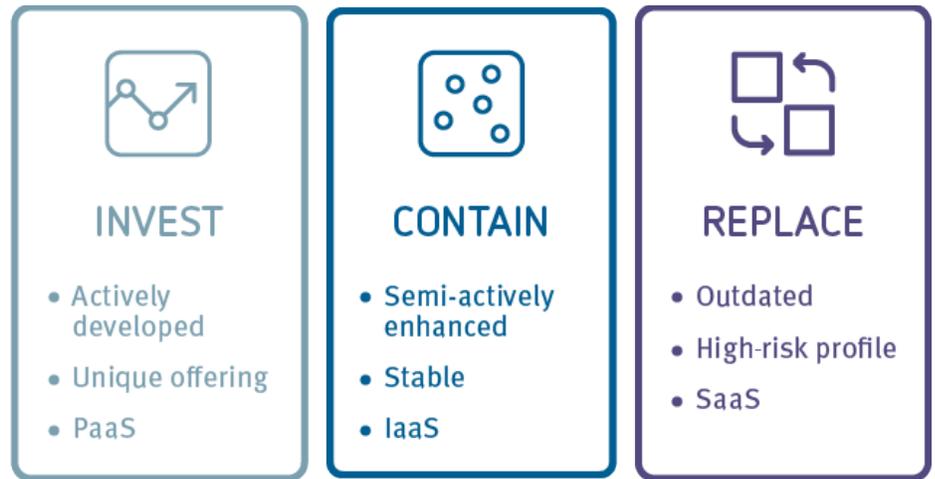

INVEST
- Actively developed
- Unique offering
- PaaS

CONTAIN
- Semi-actively enhanced
- Stable
- IaaS

REPLACE
- Outdated
- High-risk profile
- SaaS

Figure 2. Portfolio objectives are generatlly organized into these three categories. Each category serves different purposes, and with each there is a preferred cloud implementation that best fits those purposes.

offering, there are a number of technical requirements that would require consideration when you contemplate a migration. Technical requirements that may require reengineering for a PaaS migration include:

- ▶ Server installed software (ActiveX, Win32, VAS, etc.)
- ▶ Local/SAN file access (local processing, file drops, etc.) – Many of the PaaS offerings abstract away all local resources to better accommodate the public cloud environment
- ▶ Web applications that favor server-based session state versus database/cookie- based state
- ▶ Non-traditional application and environment solutions (e.g. SQLite, nginx, etc.)
- ▶ High I/O loads
- ▶ Vertical scale architectures/server state management – One large virtual machine is typically more expensive than many less expensive ones

If these items are not a factor, then a PaaS migration may be the right choice. However, the more of these items that

become applicable, the higher the re-platforming cost and lower the overall value. In that case, it would be smarter to use a traditional IaaS offering.

Leveraging Existing Investments
While your organization may desire a true cloud hosting approach, sometimes your existing datacenter investments will better serve your application needs.

For example, applications that have a high restructuring costs are perhaps better suited to remain contained in your existing datacenter.

Security and Regulatory Compliance
Security is paramount to all modern applications, and few industries are exempt from regulatory compliance. While each organization is different, the approaches to cloud deployment have consistent themes.

PaaS
Platform as a service offerings ostensibly offer the easiest value for custom and convertible cloud solutions, but these may sometime break specific regulatory requirements.

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For example, there may be issues with holdoffs (physical server identification), multi-tenancy and own-IP proprietary requirements. While many highly regulated companies go the PaaS route, personally identifiable data and
other customer and employee data may reside in IaaS holdoffs or in local datacenters operating in a hybrid model.

IaaS
As much of the current regulatory components are targeted towards on-premises hosting models, IaaS provides the most linear comparison to meet these needs.

SaaS
SaaS offerings, as public cloud entities themselves, will provide regulatory disclosures to customers. These typically offer very little change flexibility per customer but are available to review on demand.

The two largest cloud providers also provide trust information for all service offerings across the cloud (Amazon and Microsoft).

Funding Strategy
Cloud investments represent a substantial investment, but each offering lends itself to variable approaches to funding. Ensure that this funding strategy falls within the realm of capability for your organization.

SaaS
Saas applications are traditionally offered exclusively as a subscription based services, favoring operational expenses versus capital budgets.

IaaS
IaaS virtual machines are offered as an operational expense. However, by supporting a datacenter analogue, product licensing costs may be frontloaded from a capital perspective, favoring those organizations that are cash-heavy.

PaaS
PaaS offerings are also offered in a pay-as-you-go fashion, but for organizations seeking to reduce on-going revenue expenses, PaaS offerings the easiest path for efficient server usages.

SUMMARY
The public cloud offers a variety of different offerings for PaaS, IaaS and SaaS solutions. As you examine the four main factors above and prioritize how they fit into your organizational goals, you should have a clearer picture of which cloud implementation is best suited for your needs.

While most companies elect to take an incremental approach to cloud migrations, drawing a cloud strategy and evaluating your implementation choices allows companies to get the greatest value out of there cloud investments.

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