Microsoft Azure - Starter Kits for Partners

Introduction to Starter Kits

Application Server Scenario

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Contents

[Overview 4](#_Toc429039623)

[The Application Server Problem 4](#_Toc429039624)

[The Proposed Solution 5](#_Toc429039625)

[Application Patterns that mostly benefit from Azure 6](#_Toc429039626)

[The On and Off Pattern 6](#_Toc429039627)

[The Growing Fast Pattern 7](#_Toc429039628)

[The Predictable Bursting Pattern 7](#_Toc429039629)

[The Unpredictable Bursting Pattern 7](#_Toc429039630)

[The Value of Microsoft Azure for Application Servers 8](#_Toc429039631)

[Partner Needs 9](#_Toc429039632)

[Introduction to Starter Kits 9](#_Toc429039633)

[Starter Kits - Partner Benefits 9](#_Toc429039634)

# Overview

In this document, we will cover the challenges our customers are facing with Application Server scenarios, and how Microsoft Azure can solve this problem.

We also cover what application patterns will mostly benefit for moving to the Cloud.

Finally, we introduce the concept of a “Starter Kit”, essentially demonstrate how to leverage this concept of a packaged offering to accelerate the Partner sales and deployment cycle.

# The Application Server Problem

Today most organizations significantly over estimate or underestimate the amount of resources they need to run their applications. This leads to a higher cost for the infrastructure and the delivery of the overall applications.

Whether you are a developer and a CEO – at the same time - in a one-person startup getting your mobile app out the door, or a multi-national enterprise with 100,000 employees, you need to ensure you can always provision enough capacity for your application during peak periods.

**Modern Applications** have put increasing demands on **scalability** and **flexibility**.

* Are you lacking **auto scale capabilities** that result on the symptoms below?
  + You have periods where you have **insufficient infrastructure** capacity and customers get a bad experience
  + Periods where you have **excess** **infrastructure** capacity. Capital laying idle, opex wasted powering and cooling servers
* Is your customer facing **Data center capacity** to run LOB Applications?
* Are you facing High LOB infrastructure costs?
* Do you need to respond quickly to changing business needs?
* Are you **upgrading** a line of **business application to Windows Server 2012** and need to stress test your stack top to bottom?
* Do you have customer support teams that need to **re-produce errors reported by internal and external** clients in order to resolve app problems?
* Does your **sales team need to demo an app running at scale** on Suse Enterprise Linux in front of a customer?
* **Do you depend on expensive skills?**

# The Proposed Solution

You can count on Microsoft Azure Infrastructure Services to quickly standup the infrastructure for your application on the Cloud. **You pay for what you use and no more**.

**Are you lacking auto scale capabilities that result on the symptoms below?**

One of the key benefits that the Microsoft Azure technology platform delivers is the ability to rapidly scale your application in the cloud in response to changes in demand.

**Scalability is a key feature of Azure:** When you deploy an application to Microsoft Azure, you deploy roles: web roles for the externally facing portions of your application and worker roles to handle back-end processing. When you run your application in Microsoft Azure, your roles run as role instances (you can think of role instances as virtual machines). You can specify how many role instances you want for each of your roles; the more instances you have, the more computing power you have available for that role.

**Is your customer facing Data center capacity to run LOB Applications?**

One of the core benefits of the Microsoft Azure Platform is it’s ability to utilize the dynamic environment of the cloud to increase data infrastructure capacity, while reducing operational costs. The value of this benefit is it allows an organization to extend data center services out into the cloud environment, utilizing the scalable computing and storage resources that it offers.

**Are you facing High LOB infrastructure costs?**

With Azure IaaS features, you pay for what you use and no more – you can turn off Virtual Machines as the peak decreases to save money**.**

From an operational cost model, this comparison will not only allow the customer to see the value of the cloud, but also the operational cost savings of moving to a cloud environment using the Microsoft Azure Platform. Microsoft Azure Platform’s payment model provides a framework which allows BDMs to see the costs associated with their IT infrastructure, straight down to an specific application’s usage. (Which will determine COGS for most application/servers) It provides the ability to see which applications will benefit the most from the cloud environment as well, allowing them to make more detailed decisions on how to best use cloud for their organization.

**Do you need to respond quickly to changing business needs?**

As organizations move applications into the cloud, the application architecture will help to decide how best cloud services can be used to support it. An entire application and supporting data may be moved into the cloud, depending on it’s sensitivity, individual process of an application may be moved into the cloud while leaving the secure data back on premises or an extension of services to augment an existing on-premises line of business application to the cloud.

**Do you depend on expensive skills?**

Azure provides a familiar development framework, based on .NET and supportive of other popular programming languages, allowing for developers to easily be able to create new applications.

**Are you upgrading a line of business application to Windows Server 2012 and need to stress test your stack top to bottom?**

You can grow or shrink your sandbox and application load in real-time in Virtual Machines. You get to stress your application load and infrastructure capacity in order to mitigate issues before they begin. When you are done, move to on-premises or simply connect to on-premises via a virtual network.

## Application Patterns that mostly benefit from Azure

* Services with micro seasonality trends
* Peaks due to periodic increased demand
* IT complexity and wasted capacity

***Usage***

**Compute**

**Time**

***Average***

**Inactivity**

**Period**

“On and Off “

* On & off workloads (e.g. batch job)
* Over provisioned capacity is wasted
* Time to market can be cumbersome

**Compute**

**Time**

“Unpredictable Bursting“

***Average Usage***

* Unexpected/unplanned peak in demand
* Sudden spike impacts performance
* Can’t over provision for extreme cases

***Average Usage***

**Compute**

**Time**

“Growing Fast“

* Successful services needs to grow/scale
* Keeping up w/ growth is big IT challenge
* Cannot provision hardware fast enough

**Compute**

**Time**

“Predictable Bursting“

### The On and Off Pattern

Some applications, such as batch jobs, run at scheduled times. Typically, the application remains dormant as units of work accumulate. After a period of inactivity, the application begins, processes the pending work, and then returns to its inactive state. In Microsoft Azure, this type of application requires a recurrent process that deploys the package and then deletes it. (You cannot simply suspend the application because you would still be charged for it.) In other words, there is no application for a scaling engine to manage during the periods of inactivity. The On and Off pattern is better suited to a special scheduling engine than to a scaling engine. (Scheduling engines are outside the scope of this article.)

### The Growing Fast Pattern

Applications that "go viral" through communication over the Internet, and applications that interact with social networks can grow very quickly very fast. Clearly, these applications need more and more instances to sustain their growth. The difficulty is how to predict the rate of growth. Statistical samples from domain data may indicate the rate but, realistically, it is not always feasible to manually monitor the application. A scaling engine can automatically monitor the load and increase the instance counts as the application reaches different thresholds over time.

### The Predictable Bursting Pattern

Applications that have predictably variant loads often provide services that correlate to specific calendar events. With recurrent events, the interval might recur within a day or after an entire year. The load level determines the number of instances. An application that experiences low demand at night and high demand in the day can alternate between a few Microsoft Azure Role instances and many. For example, a scaling engine could configure this application for two instances at night and four instances during the day.

Another example of an application that demonstrates the Predictable Bursting pattern is one that provides services during annual holidays. In this case, the application’s usage peaks during that holiday.

### The Unpredictable Bursting Pattern

In many scenarios, the load cannot be predicted. This may be due to a lack of data, poor sample data, or because the application provides services to an unpredictable domain. Whatever the reason, unpredictable surges in demand cause many infrastructural woes. Applications that demonstrate the Unpredictable Bursting pattern rely on Microsoft Azure's Infrastructure As A Service (IAAS) feature, which can create new instances within minutes at any given time. A scaling engine is more important here than with other variance patterns. It solves two problems. It is not feasible to manually monitor the system, so a solution that reacts automatically to the load change is required. In addition, a scaling engine means that the response is timely and occurs before the application is overloaded and complaints have piled up in someone's inbox

# The Value of Microsoft Azure for Application Servers

**TIME**

Actual Load

Capacity on Demand

Lower Capex

No capital laying idle

No screaming customers

Knob goes up...

And...

down

**IT CAPACITY**

Load Forecast

* Reduces waste of over capacity
* Ensures you can always provision enough capacity for peak periods
* Can reduce capacity if demand decreases
* Move existing applications to Microsoft Azure VMs, without code changes
* Expose On-Premises Apps using Microsoft Azure: Application Extension refers to the ability for our customers to run applications both on premise and in the cloud.
* Lowers capex through not having to pay for hardware
* Extend On-Premises Apps with new App Services
* Provide seamless connectivity with on-premises data and applications
* Single pane of glass for management with System Center
* Common identity services with Active Directory

We have seen over 40% growth in our all up enterprise cloud businesses with strong contribution from both hosting service providers, private cloud solutions and our own public cloud services.  Microsoft Azure alone is outgrowing the overall cloud market by >150 points.

By 2016, 45% of IT budgets will be devoted to cloud initiatives with 15% of that devoted to public cloud. (Source: IDC).

# Partner Needs

Partners want to make profitable businesses by deploying and selling Microsoft Azure.

They also want to sell and deploy App Server Scenarios, but do not have the experience or understanding to say what is possible or know possible ways to sell the value of it or set it up.

At the same time, Partners and Customers have expressed a need to have more capacity that is flexible in their businesses for running VMs for various purposes. They want to spend less time managing hardware and IT and more time selling and deploying.

# Introduction to Starter Kits

This concept is a set of deliverables, packaged as an offering that are named as a starter kit. Starter kits are designed to show a partner a specific scenario in Azure that could be possible for them to build and equip them in the technical sales cycle. Each kit will include:

1. A Description of the partner benefit for using and participating in the kit.
2. An assessment questionnaire and guidance that Partners could use with a customer.
3. An Architecture Topology presentation for a recommended way to implement the specified scenario.
4. A cost estimator (based on retail pricing) for implementing the recommended scenario on Azure.
5. A Statement of Work template for implementing the recommended scenario that a partner could use.
6. Hands on Labs a Partner can self-study to build technical skill implementing the recommended scenario.

# Starter Kits - Partner Benefits

1. Reduce time in creating a proposal for a customer through a sale and deployment template
2. Reduce the learning curve cost by focusing on a proven scenario
3. Help assess and determine the technical requirements for migrating existing Applications to the Cloud
4. Sell, estimate cost and deploy working solutions to your customer.
5. Get tools and templates to use when discussing an Application Server deployment with your customers.
6. Receive a recommended set of topology diagrams for implementing an Application Server scenario on Azure.
7. Receive guidance for self-study for learning the recommended Application Server scenario at a technology level.