

# A leading technology company uses Azure PaaS to modernize applications and drive innovation.



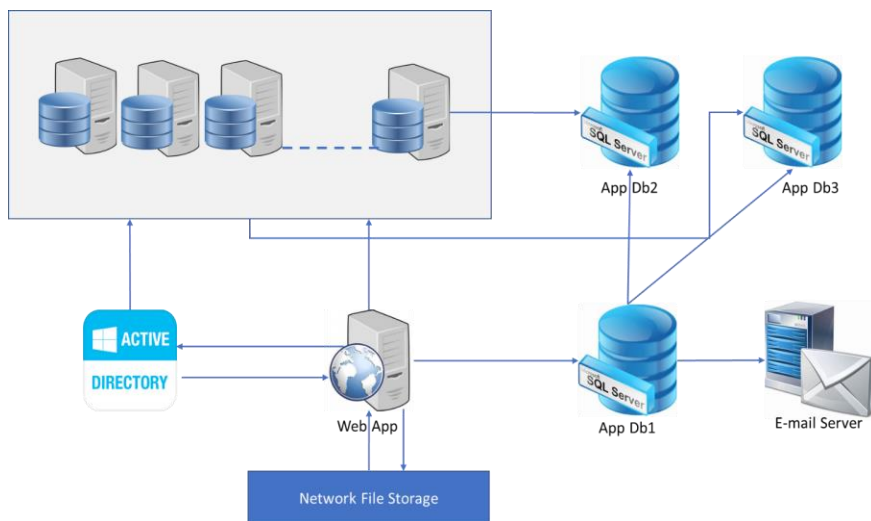
A leading technology company needed a superior technology environment to manage people, equipment, inventory, and processes. The client has an existing on-premises enterprise ASP.NET web application that they want to move to Microsoft Azure. They intend to have their software architects and developers evaluate the benefits of building services in the cloud. They want to compare the Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) options in Azure. The technology company looked to Cambay to help them with their modernization efforts to meet their global strategic technology initiatives.

Analyze	Strategize	Implement
<ul style="list-style-type: none"> <li>• Is it beneficial?</li> <li>• What can be done?</li> <li>• Business Analysis</li> <li>• Impact Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Identify alternate approaches</li> <li>• How to implement</li> <li>• Planning</li> <li>• POCs</li> </ul>	<ul style="list-style-type: none"> <li>• Migrate</li> <li>• Validate</li> </ul>

*Migration Considerations & Methodology*

## Business Challenge

The client wants to spend more time enhancing the application and minimize their focus on the infrastructure-related upgrades that take time and effort. They wish to get out of the business of needing to buy and maintain infrastructure. Currently, they do not have a way to easily scale-up or scale-out their applications when there are peaks in demand. They also want to be able to provide better SLAs that are not available today on-premises.



*On-premises Environment Architecture*

## Customer

A leading technology innovation and execution leader. They help customers reimagine technology to accelerate their business and transformation.

## Industry

Technology

## Technology

Azure PaaS



## Cambay Solution

### Front-End

Analyze if UI interface can be migrated to Azure directly in the PaaS model. Web applications and web services in non-cloud solutions can be mapped to Windows Azure web roles, while the non-web applications are on-premises. Re-engineering work may be required to modify the existing web application code to use the Windows Azure SDK. This is to ensure it runs on Azure as hosted cloud services. Also, if any third-party framework/class library that Azure does not support is used, the library may need some modifications or needs to be re-written.

In the case of the IaaS model, no code changes are required. Instead, the entire server image will be migrated to the Windows Azure virtual machine. The sections below focus on the PaaS approach as no significant changes are required in the IaaS model.

In Azure, each web role instance runs on its own VM server and is configured behind a load balancer. The ASP.Net session state is not automatically shared across an instance in the load-balanced environment. Various approaches may be taken to address this:

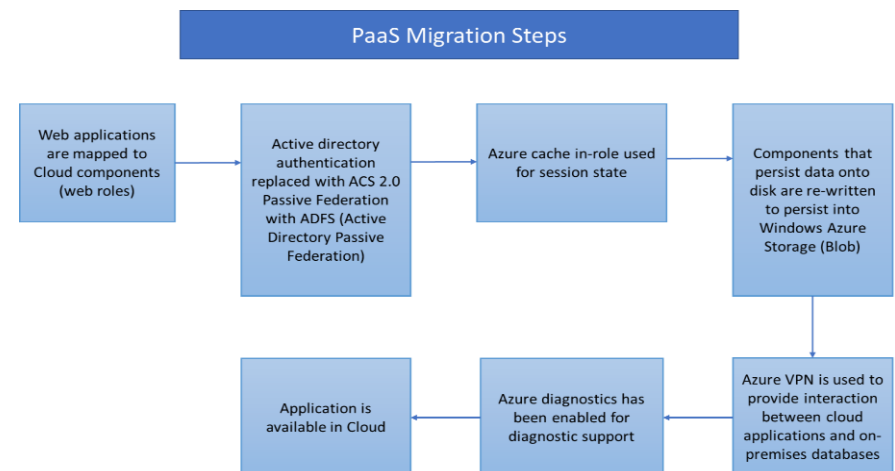
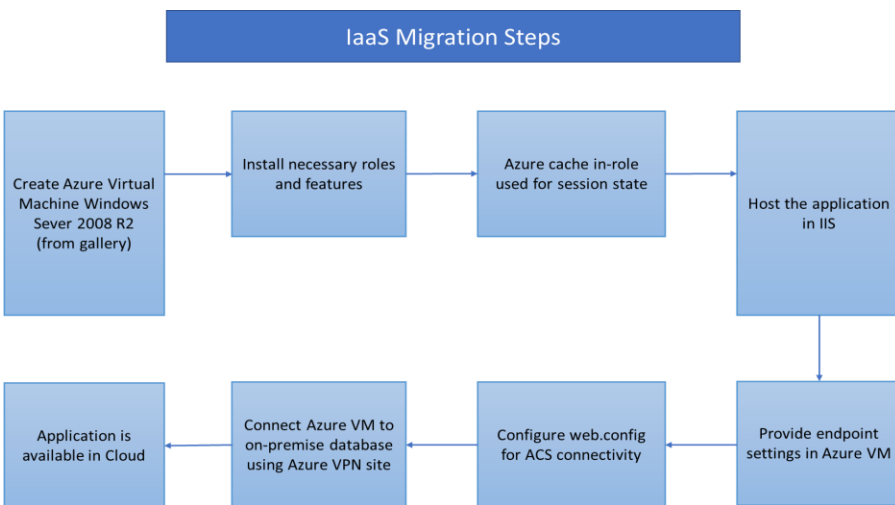
- Session state management using Inproc: maybe best performing but, may result in inconsistency if more than one instance.
- Table storage session provider - Enables developers to store session state inside table storage & requires no re-engineering.
- Azure SQL database session provider: can be used as storage for session state.
- Azure cache: gives access to a secure, dedicated cached managed by Microsoft. A cache created using the service is accessible from applications within Windows Azure, running on Azure Web sites, web, and worker roles and virtual machines.

The current architecture and deployment setup of the application:

- Built with ASP.Net 3.5 and hosted in a on-premises data center. It can be accessed from both the client's intranet and Internet. The application relies on Microsoft Active Directory (AD) services for authentication.
- Uses a standard Microsoft SQL Server database for storing application data.
- Communicates with other customer production databases to fetch employee and other related data using a linked server.
- Connects to the production databases using the service account.
- Stores images uploaded or created from the app using network file storage.
- Hosted on a single instance server.

## Cambay Approach

In the client application migration, components are migrated to the cloud in an incremental, independent fashion. It is ensured that the application works with no internal (application) / external (network) issues at each phase. The section below explains the approach for both IaaS & PaaS options:



**IaaS vs. PaaS Migration Approach**

## Middleware

Windows Azure caching remains the recommended option, despite the debates. Developers and architects could always consider a different choice if it suits a given scenario. Here are some approaches to address the business layer in such a solution:

- Authentication and authorization: can utilize Azure Active Directory (AD) Access Control (also known as Access Control Services or ACS) to authenticate users from identity providers like Microsoft, Google, Facebook, and Yahoo or can use Azure AD with integrated on-premises organization Windows Server AD.
- Interaction with other modules: web services can be converted to Azure WCF services, hosted either as a web role while Windows services can be worker roles.
- A managed wrapper can be created and deployed as part of the Azure package to handle native code while non-Microsoft dependencies need to be confirmed.
- Diagnostic support: Windows Azure diagnostics provides non-intrusive capture of diagnostic data and subsequent logs to Windows Azure storage service.
- Message queues: Azure service bus may be used for publisher and subscriber model.
- Configuration changes: If the application accesses any information from physical storage, it needs to be migrated to Azure storage / CDN / Azure SQL database. Also, static values of local disks, network addresses, and application states should be replaced to handle the scalability of applications in Azure.

## Back-End

In this case, there are three ways to maintain application data while migrating an application to Windows Azure:

1. Keep on-premises.
  2. Create SQL Server in Azure VM or
  3. Azure SQL database (PaaS). The section below describes some basic approaches:
- Analyze Data Access Layer (DAL) and see if anything such as Entity Framework (EF) or class library is being used and supported with Azure SQL database. If a framework is not compatible, then DAL layer code may need to be re-written.
  - Determine whether all the data required by the application is in a single database or requires cross-linking between databases.

- Explore the modifications required in the database schema for migration to the Azure SQL database (preferred).

Application migration strategy should also include data migration strategy as most of the applications are typically data-centric. Hence, while migrating the application from on-premises to the cloud, we need to ensure that the users do not see any discrepancy in their data.

The application can store data onto a disk, into a database, network stores, and more. Azure provides the flexibility to persist data in the same way they are stored in the on-premises application. Azure-hosted application data can be saved in the following methods.

- Data from Database to Azure SQL database / Azure storage
- Static content to Azure Storage (Blob) / XDrive
- Message queues to Azure Storage Queues / Service Bus

Thus, the strategy, consideration and methodology in this case study provides guidance to enterprises, looking to migrate their on-premises applications to the Azure cloud.

## About Cambay

Cambay Consulting is a global digital transformation firm leveraging Microsoft Azure, Dynamics 365, and Microsoft 365 to drive transformational services, innovation, and growth in the digital age. We are a Microsoft Managed Gold Partner with several Gold Certifications.

For more than 15 years, Cambay has served customers by delivering expertise, IT services, and solutions that transform organizations and provide tangible business value. W: <https://cambaycs.com/>

E: [sales@cambaycs.com](mailto:sales@cambaycs.com)

T: +1 832 699 1443

