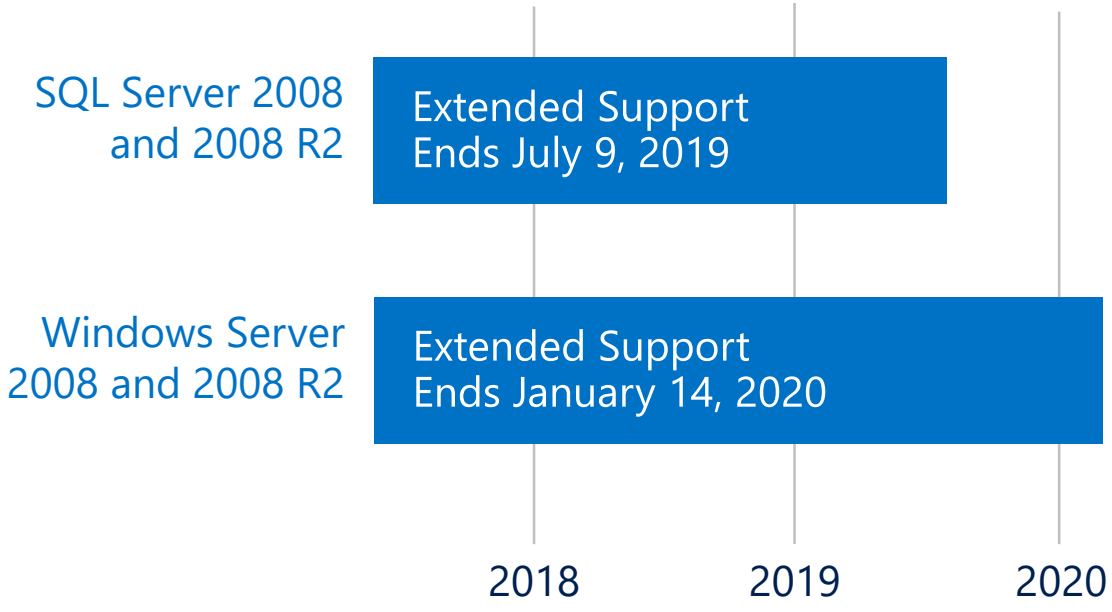
Migrating SQL Databases to Azure

http://aka.ms/sqleos



Microsoft

Why Migrate to Azure and what are the options?

Rehost on 2008 R2

- Security and compliance
  - Continued Security updates
- Cost avoidance
  - Custom Support Agreement costs 75% license
  - Opportunity to right size and consolidate
- Holding tank
  - Apps to be retired/replaced/ upgraded can get extra 3 years security updates moving to Azure

Rehost on SQL 2017 or SQL MI

- Latest Security Features
  - Row Level Security, Dynamic Data Masking
  - Always Encrypted
- Mission critical Availability
  - AlwaysOn AGs for HA/DR solution
- Performance
  - Column Store, In-Memory OLTP
  - Query Store, Adaptive Tuning

- Leverage Azure Eco System
  - Just in time Access
  - Azure Security Center
  - Tier storage for cost savings
  - Efficient and resilient long term backups
  - Increase resiliency
  - Take advantage of WORM storage for compliance
  - Stepping stone to PaaS

What's New in SQL Server 2017 Since SQL Server 2008 & 2008 R2

OLTP Performance

Hybrid Transactional and Analytical Processing with real-time insights using In-Memory OLTP and Clustered Columnstore

In-Memory Data Warehouse with Clustered Columnstore Indexes

Unparalleled scalability with Windows Server 2016, with 24TB memory and Windows Server 2016 max cores

Automatic failover between three synchronous replicas. Up to eight secondary replicas

Buffer Pool Extension to SSDs

Adaptive Query Processing

Resource Governor with CPU, Memory and IO Governance

Delayed Durability of Memory-Optimized Tables

Query optimization enhancements

Query Store

Local DB runtime (Express)

Data-tier application component project FileTable build on FILESTREAM

Remote Blob Storage with SharePoint 2016

Statistical Semantic Search

Contained Database Authentication

Automatic Plan Correction

Programmability Enhancements

JSON support

Spatial features, Full Globe and arcs

Support for Temporal Tables

Graph data support

Enterprise Information Management (EIM)

Enhanced Integration Services

Data Quality Services

Master Data Services

Master Data Services Add-in for Excel

Security

Always Encrypted

Dynamic Data Masking

Row-Level Security

Auditing

CC certification at EAL2 level for SQL Server 2016

Backup encryption support

Enhanced separation of duties

Default schema for groups

Data Warehousing & Big Data

Operational analytics

Enhanced In-Memory DW with Clustered Columnstore

Big Data integration with Hadoop and Azure Blob Storage

Big Data Queries with T-SQL

Enhanced database caching

Business Intelligence

Enhanced connectors, new transformations, object-level security, ragged hierarchies**

Mobile BI

Enterprise-grade Analysis Services

In-Memory analytics with Analysis Services Tabular Model

Enhanced multidimensional models

Modernized Reports and Dashboard with support for Mobile BI

Create mobile reports using the SQL Server Mobile Report Publisher

Consume with Power BI mobile apps

HA for StreamInsight, complex event processing

Import PowerPivot models into Analysis Services

Advanced tabular mode

Direct Query

Enhanced productivity and performance

Power View

Configurable reporting alerts

Reporting as SharePoint Shared Service

Advanced Analytics

Machine Learning Services with built-in support for Python and R

Operationalize Machine Learning algorithms with In-Database Machine Learning support

RRE APIs with full parallelism and no memory limits for scale/performance

Built-in In-memory Advanced Analytics

Advanced data mining

Hybrid Cloud

Disaster Recovery environment in Azure VMs using Always On Availability groups

Stretch database

Hybrid scenarios with SSIS

Enhanced backup to Azure

Easy migration to the cloud

Secure backups to Azure with managed backups

Platform

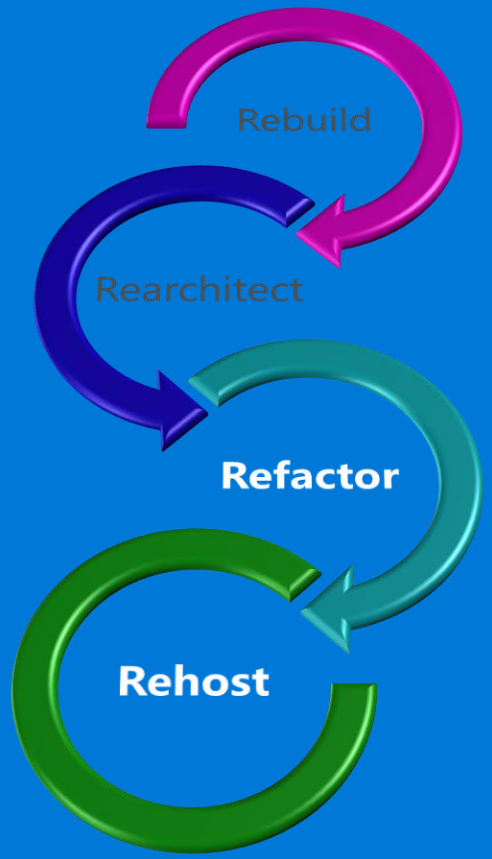
Support for Linux (RHEL, Suse, Ubuntu)

Support for Docker containers and Kubernetes

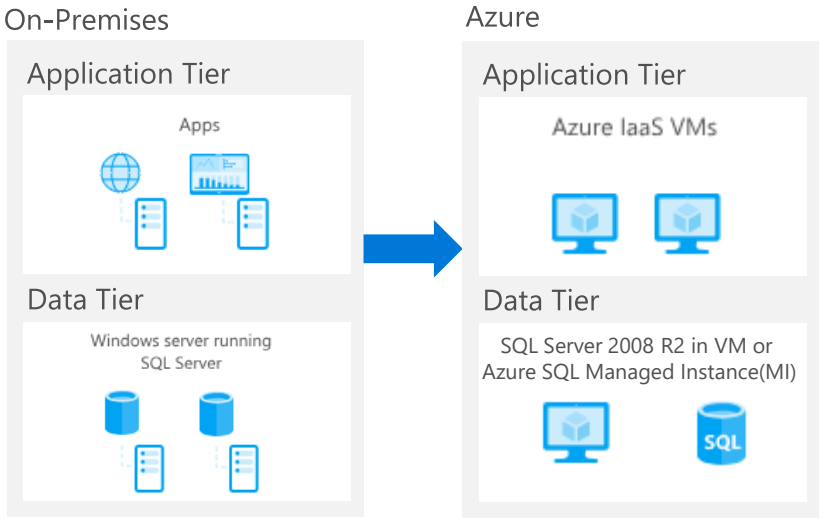
High Availability & Disaster Recovery

Enhanced Always On Availability Groups with easy GUI-based Wizard

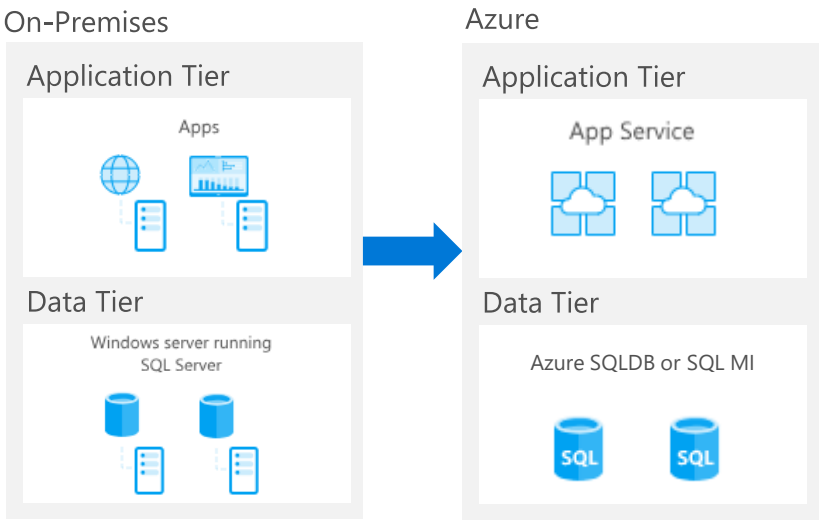
SCENARIOS FOR MIGRATION



Rehost: Azure VM for IIS and SQL 2008R2 VM or SQLDB

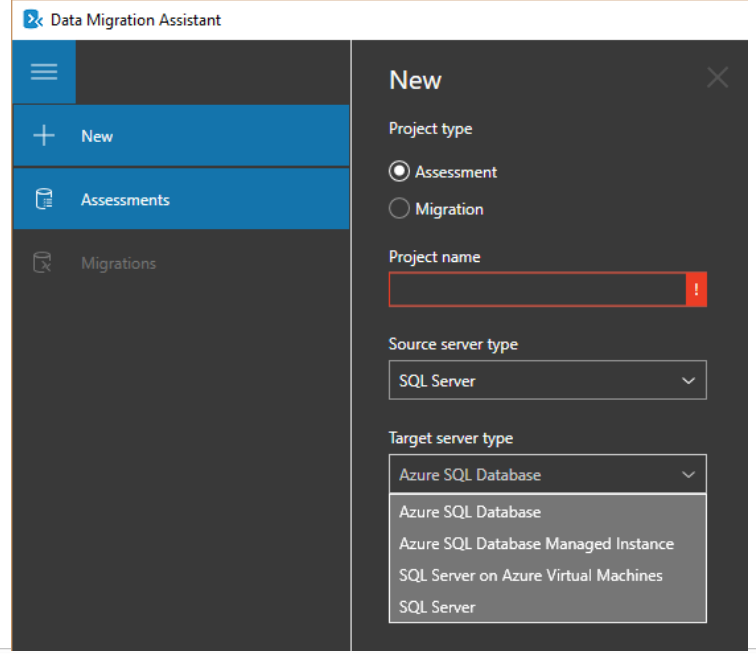


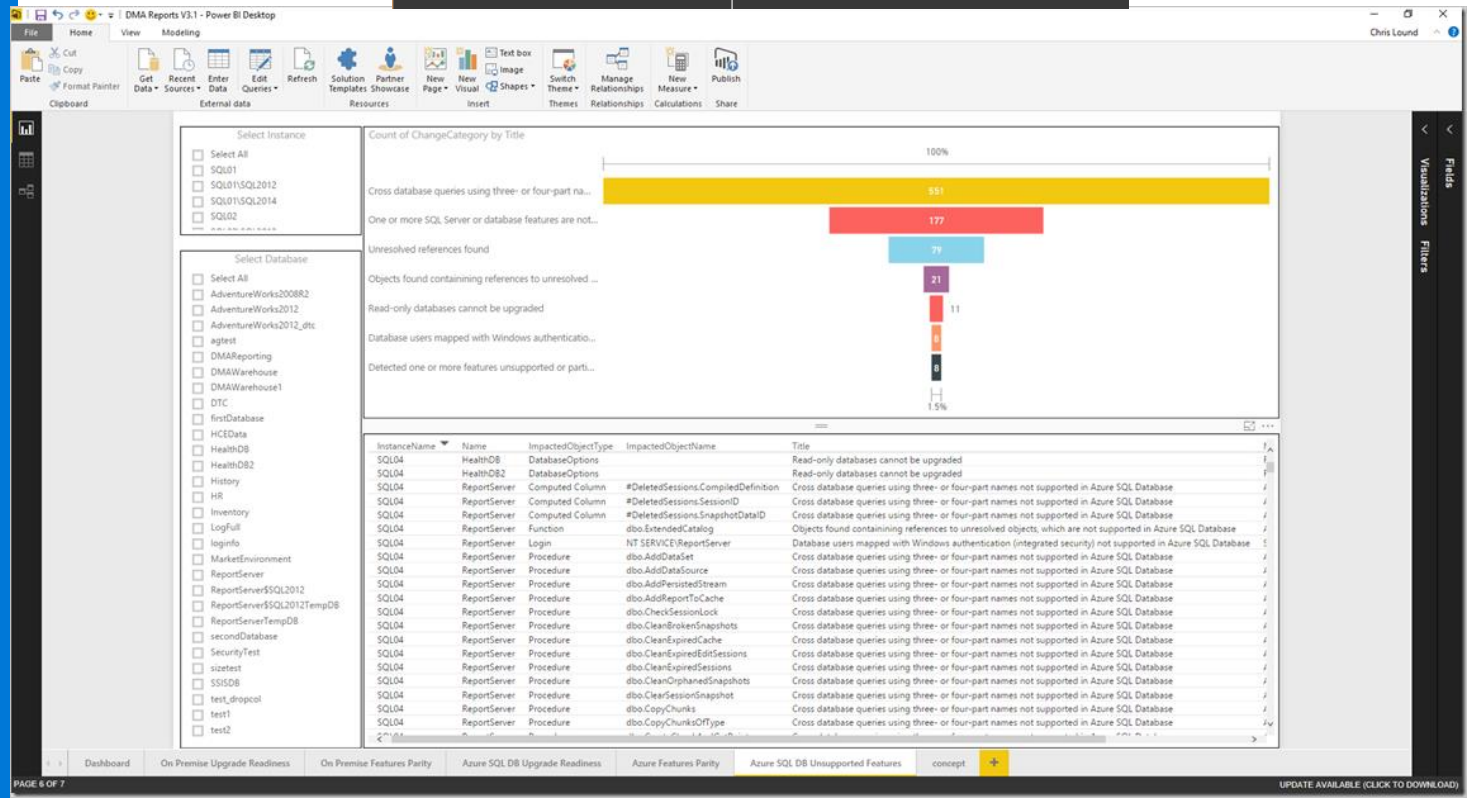
Refactor: App Service and Azure SQLDB



GETTING STARTED

Leverage Database Migration Assistant

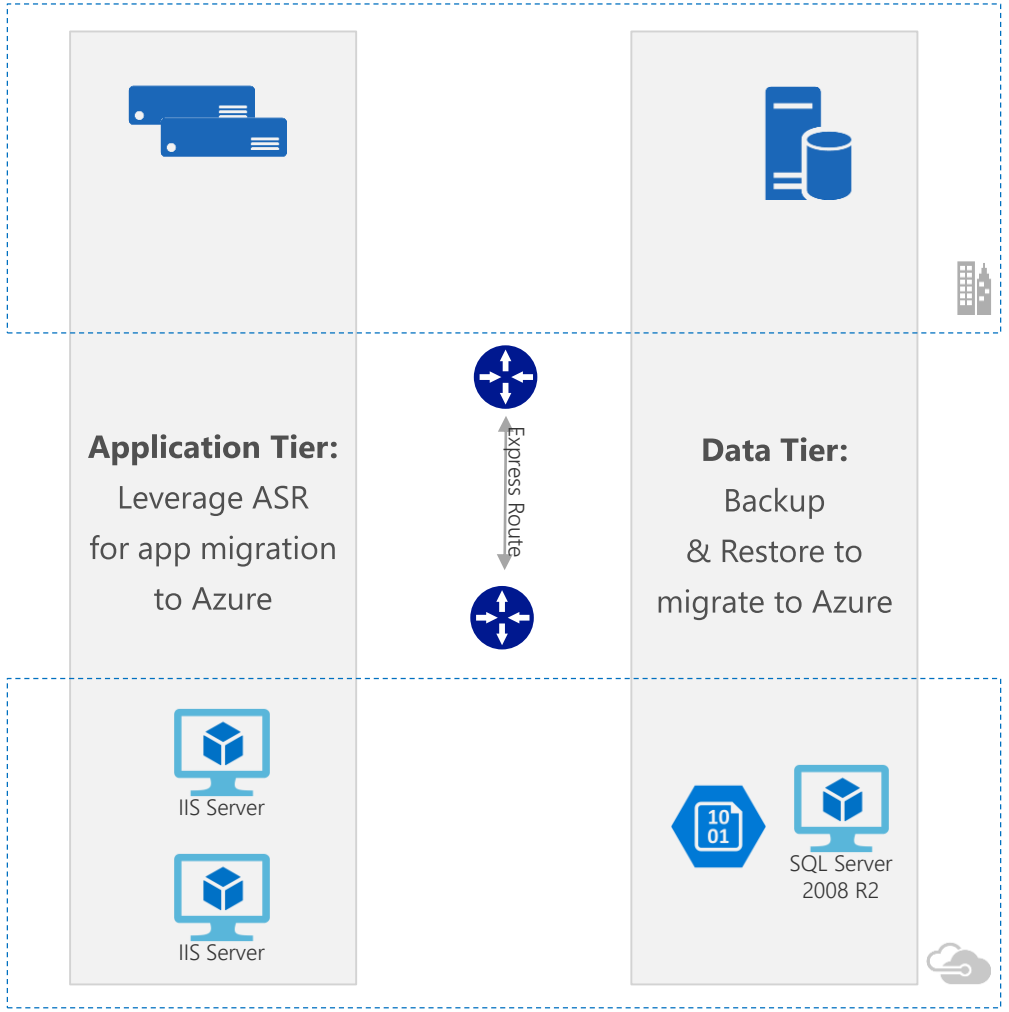




REHOST: TWO TIER WEB APP

Contoso Finance runs on Windows 2008/ SQL 2008 on-premises. They purchased the ISV application, which requires an upgrade in order to support newer versions of SQL.

They have decided to REHOST the application in Azure to continue to get security and stay current as they evaluate other ISV solutions to meet their growing business needs.

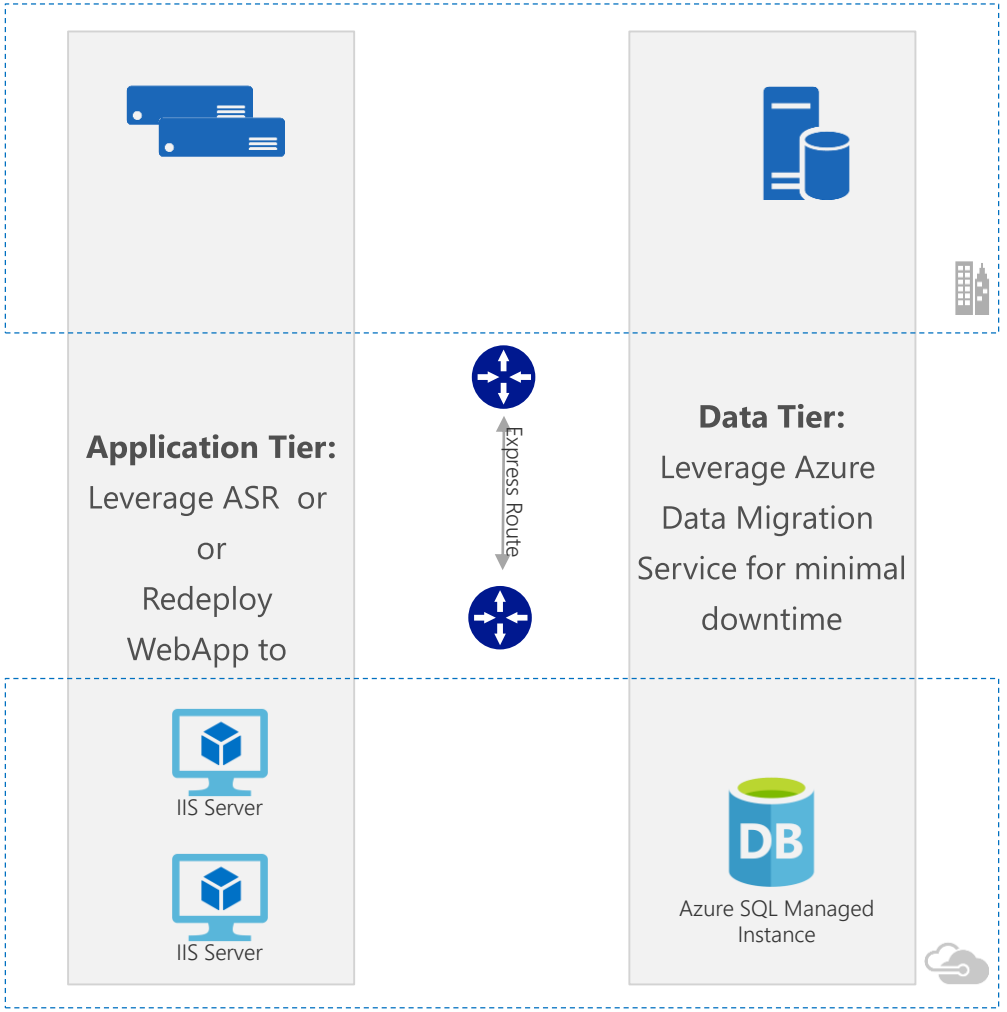


REHOST: TWO TIER WEB APP

Contoso Finance runs on Windows 2008/ SQL 2008 on-premises. The application was built in-house and is in dire needs of a UI/UX refresh.

They have decided to REHOST the application in Azure to continue to get security and stay current on the IIS servers, however after running the Data Migration Assistant which showed no compatibility issues, have decided to move the data tier to SQL Managed Instance. Previously they considered going to Azure SQLDB, however since their application depended on CLR, SQL Agent and had multiple DBs, would have needed significant work to become compatible

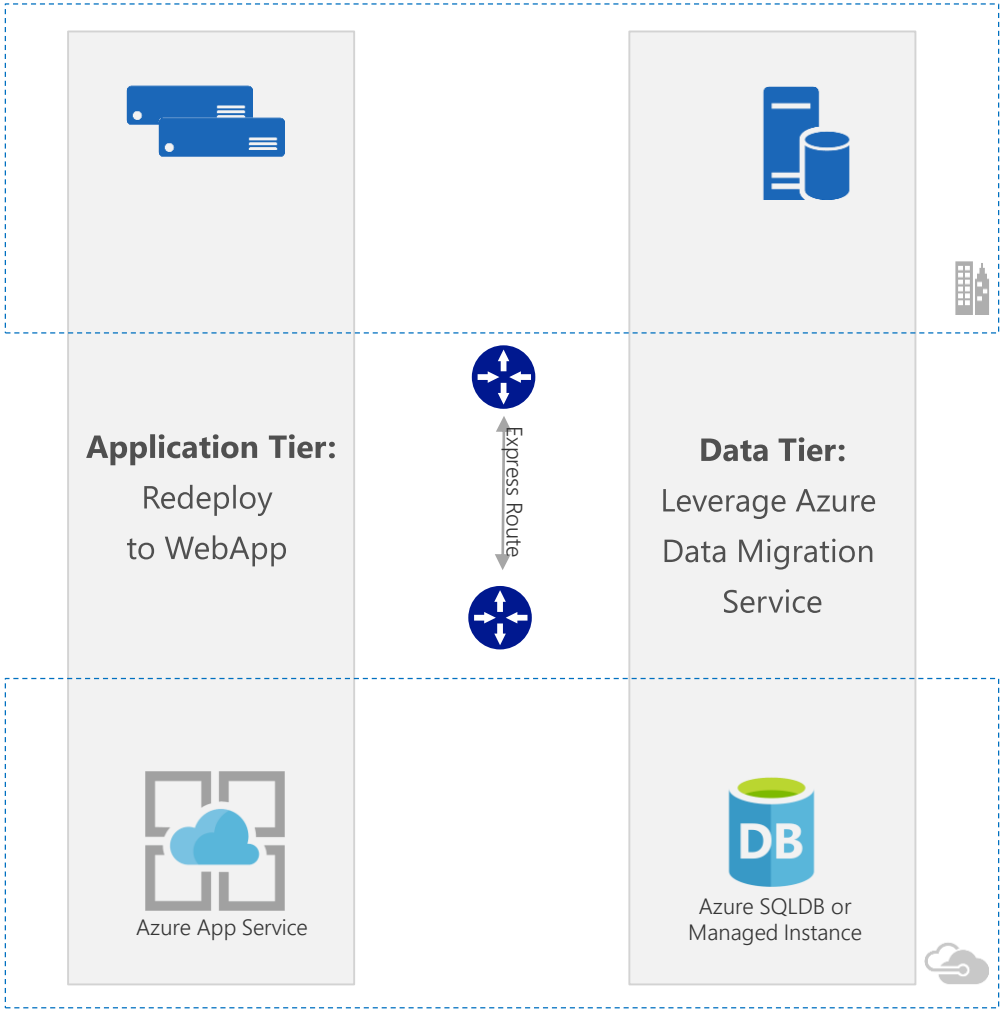
Once migrated they will begin a subsequent project to modernize the application tier and bring in new capabilities such as a mobile application and richer UX.



REFACTOR: TWO TIER WEB APP

Contoso Finance runs on Windows 2008/ SQL 2008 on-premises. The application was built in-house and is running into performance and scalability issues

They have decided to REFACTOR the application in Azure to a fully PaaS environment to be able to scale elastically as traffic increases/decreases to the site.



LAB :

SQL EOL Lab :https://aka.ms/alsqleol

Azure SQL DB Lab (Optional): https://aka.ms/azuresqllab

Resources :

Azure SQL DB(Singleton ,Elastic , MI) : https://aka.ms/sqlpaas

Migration Guide : https://aka.ms/sqlmgrn

SQL 2008 EOL : https://aka.ms/eol2008

Azure and AWS price Comparison: https://aka.ms/azurevsawsprice