

Architecture for ECA Migration to Azure

Technical Document

For ECA

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Table of Contents

[1.0 Document Control 4](#_Toc479673897)

[1.1 Authority 4](#_Toc479673898)

[1.2 Identity 4](#_Toc479673899)

[1.3 History 4](#_Toc479673900)

[1.4 Distribution List 4](#_Toc479673901)

[1.5 Principal Contact 4](#_Toc479673902)

[2.0 Document Conventions 6](#_Toc479673903)

[2.1 Glossary of Terms 6](#_Toc479673904)

[3.0 Introduction 7](#_Toc479673905)

[4.0 Business or Organisation Impacts 8](#_Toc479673906)

[4.1 Finance 8](#_Toc479673907)

[5.0 Guidance 9](#_Toc479673908)

[5.1 Guiding Principles 9](#_Toc479673909)

[5.2 Requirements 9](#_Toc479673910)

[5.3 Constraints 9](#_Toc479673911)

[5.4 On-going Projects 10](#_Toc479673912)

[6.0 Services 11](#_Toc479673913)

[6.1 TheFA.com 11](#_Toc479673914)

[6.1.1 Policy and SLA 11](#_Toc479673915)

[6.1.2 Connectivity 11](#_Toc479673916)

[6.1.3 Current Systems 12](#_Toc479673917)

[6.1.4 Sitecore Versions 13](#_Toc479673918)

[6.1.5 Session State 13](#_Toc479673919)

[6.1.6 System Performance 13](#_Toc479673920)

[6.1.7 Databases 13](#_Toc479673921)

[6.1.8 Media Assets Storage 13](#_Toc479673922)

[6.1.9 Search 14](#_Toc479673923)

[6.1.10 IIS Configurations 14](#_Toc479673924)

[6.1.11 Deployment 14](#_Toc479673925)

[7.0 Azure Technology 15](#_Toc479673926)

[7.1.1 Accounts 15](#_Toc479673927)

[7.1.2 VM 15](#_Toc479673928)

[7.1.3 VM Scale Sets 15](#_Toc479673929)

[7.1.4 Web Apps 15](#_Toc479673930)

[7.1.5 Traffic Manager 15](#_Toc479673931)

[7.1.6 Application Gateway 16](#_Toc479673932)

[7.1.7 CDN 16](#_Toc479673933)

[7.1.8 Application Insights 16](#_Toc479673934)

[7.1.9 SQL Azure 16](#_Toc479673935)

[7.1.10 SQL Azure Elastic Pool 17](#_Toc479673936)

[7.1.11 Backup 17](#_Toc479673937)

[7.1.12 Redis Cache 17](#_Toc479673938)

[7.1.13 Azure Search 17](#_Toc479673939)

[7.1.14 MongoDB 17](#_Toc479673940)

[7.1.15 RBAC/AAD 17](#_Toc479673941)

[7.1.16 Azure Environments 17](#_Toc479673942)

[7.1.17 IaaS Web Application Session State 18](#_Toc479673943)

[8.0 Azure Options 19](#_Toc479673944)

[8.1 Requirements Flow 19](#_Toc479673945)

[8.1.1 Web Applications 19](#_Toc479673946)

[8.1.2 Databases 19](#_Toc479673947)

[8.2 Options 20](#_Toc479673948)

[8.2.1 Solution 1 -VM Option 20](#_Toc479673949)

[8.2.2 Solution 2- Basic PaaS Option 21](#_Toc479673950)

[8.2.3 Solution 3- Azure Marketplace Sitecore 22](#_Toc479673951)

[9.0 Conclusion 23](#_Toc479673952)

[10.0 Discounted Solutions 24](#_Toc479673953)

[10.1.1 On Premise Upgrade 24](#_Toc479673954)

[10.1.2 Deploy from the Gallery 24](#_Toc479673955)

[11.0 Sitecore Compatibility Table 25](#_Toc479673956)

[11.1 Sitecore Azure History 27](#_Toc479673957)

# Document Control

## Authority

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## Identity

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|  |  |  |  |
|  |  |  |  |

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# Document Conventions

Each section in the document will contain a table such as the following, explaining why we made our recommendations. This is followed by general information about the subject to ensure you understood our thinking.

|  |  |
| --- | --- |
|  | Design Decision  This symbol indicates a design decision has been made and what it is. The following text will also provide the rationale regarding that decision. |

|  |  |
| --- | --- |
|  | Design Decision TBC  This symbol indicates a design decision has yet to be confirmed |

|  |  |
| --- | --- |
|  | Important Information Follows  This symbol indicates that important information will follow and special note should be taken. This might be a pre-requisite that is required for the design component. |

|  |  |
| --- | --- |
|  | **Ultima Recommendation**  Ultima recommends that you use X technology to fulfil this requirement |
| **Why we made this recommendation for your environment**  We made this decision based on your requirement for X. This is fulfilled by this in the following way… |
|  | **Why we discounted other solutions**  Alternative solution X was discounted because… |
|  | **Alternatives we didn’t discount**  Although not a direct recommendation, the following solutions would also meet your requirements. Our overall recommendation considers the whole environment for the most efficient solution. Some of these may meet this specific need better but be worse overall.  Solution 1 – This solution would meet needs better here but is less efficient overall…  Solution 2 – This solution would also meet this need but not others in the environment and so would be a point solution |

## Glossary of Terms

We may use the following terms in this document and will not explain them each time so have included them here for your reference.

|  |  |  |  |
| --- | --- | --- | --- |
| Term | Description | Term | Description |
| PaaS | Platform as a Service | IaaS | Infrastructure as a Service |
| SaaS | Software as a Service | HA | Highly Available |
| Scale Up | Increase the size of nodes to increase scale | Scale Out | Add nodes to increase scale |
| IoT | Internet of Things | VM | Virtual Machine |

# Introduction

The FA.com and around 70 other smaller sites are currently hosted in one datacentre owned and run by the FA. With Disaster Recovery provided by a second Datacentre. The business wants to enable a personalisation feature on the FA.com. It is likely to require more capacity than is currently available on the existing hosting platform. The preferred solution is to leverage the highly scalable and availability nature of the cloud. Although the Microsoft Azure cloud is being considered in this document other cloud providers such as Amazon AWS support very similar concepts.

# Business or Organisation Impacts

## Finance

A move to Azure will initiate a change from a CapEx model to one of OpEx. The OpEx model of the cloud demands that a monthly, quarterly or yearly bill is paid based on the usage throughout that period. If the bill goes unpaid then the service stops and worst case data and servers are removed from the service. From another perspective, however, generally usage is based on how busy your business is and so the more you have used, the more revenue will have been generated to cover those costs.

# Guidance

During the guiding principles workshop, we discussed various aspects of the project in order to guide Ultima while investigating and making recommendations. These are detailed here and have been used throughout the document to guide our advice.

## Guiding Principles

In the following table, assign a percentage to each of the three priorities. These must add up to 100% and will be core to making decisions throughout the process.

|  |  |  |
| --- | --- | --- |
| Low Cost | Rich Features | High Performance |
| 20% | 20% | 60% |

The following list of guiding principles and requirements have been identified for this engagement:

* Performance of cloud based solutions must meet or exceed on premises solutions
* Web migration to IaaS is preferred over PaaS as IaaS allows more control which the developers have indicated a preference
* SQL to PaaS is preferred over IaaS to leverage the DR features of SQL Azure
* Processes must fit with development team methodologies and products
* Reduced management is desirable
* Security is key since The FA is a high-profile organisation
* There are no known compliance requirements

## Requirements

The following known requirements were captured. These are things which are planned but may not currently be a part of the solution.

* Must be a scalable solution to meet performance objectives. Manual scaling is considered acceptable
* The migration deadline is end of April 2017; therefore, implementation effort must be considered.
* IIS Shared config to be removed
* Caching of static files
* Significant time has been invested into Octopus Deploy with a preference for a solution to continue to utilise it.
* Preference for hosting of MongoDb on Linux instead of current Windows hosting
* Hosting on West Europe and North Europe Azure data centres for solution, DR and lower cost
* Many Smaller VM’s dedicated to sites is preferred over bigger VM’s hosting everything
* Videos to continue to be hosted on YouTube

## Constraints

The following is a list of constraints which may affect the solution going forward:

* Sitecore 8.1 only supports versions of MS SQL Server databases and does not support SQL Azure
* Unknown FA specific configuration of Sitecore SQL server and/or databases as part of current implementation
* Current web applications use of an ASP.NET Machine key encryption setting that is configured in IIS machine.config
* Unknown custom configurations to IIS performed as part of current implementation may not be fully supported in Azure
* Unknown configuration changes to Sitecore web applications as part of current implementation not be fully supported in Azure
* Images in SiteCore are dynamically cropped.
* Current difficulties upgrading from Sitecore 8.1 to 8.2
* Google Search is currently used
* Disk sizes in Azure are up to 1TB in size

## On-going Projects

This is a list of projects that are either in progress or planned but out of scope.

|  |  |  |
| --- | --- | --- |
| Project Name | Description | Current Status |
| Counties and other sites upgrade | Sitecore 6.6 to 8.1 upgrade | Ongoing |
| FA.com, CWA.com | Sitecore 8.1 to 8.2 upgrade | Ongoing with difficulties |

# Services

This section details the services within the scope of this engagement. For The FA, a single service has been chosen and the details captured during site meetings.

|  |  |
| --- | --- |
| Service Name | Description |
| TheFA.com | This is the primary web site for The FA and gives information about the company and services. |

## TheFA.com

### Policy and SLA

|  |  |
| --- | --- |
| Service Priority | This service is required by the business but there will be no major and immediate impact if the service is unavailable. The service must be online within a short timeframe.  No planned downtime is acceptable within the operating hours of this service. Unplanned downtime must be minimised.  Recovery would be required following a service affecting disaster such as building loss. |
| Availability | 24x7 |
| Backup retention | There was no specific backup retention known for this service, and so initially a 30-day rolling backup will be used. |
| Archive requirements | No specific archiving requirements were known at the time of the workshop. Long term retention may be required for this site for legal purposes to ensure that content on a given day can be shown when required. It is believed that the database itself holds this information, however, and so further archives will not be kept. |
| Disaster Recovery | Required. |
| Compliance requirements | None |

### Connectivity

This section details the present topology of the service; including users, sites, servers and links.

|  |  |
| --- | --- |
| Role | Description of interaction |
| Public | Public access is required to the web site. |
| Company Users | The communications team access a different web interface to add and manage content. |
| Developers | Least privilege access is required by developers to update code. |
| Administrators | Access is currently required by administrators for managing the server estate. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Site | Purpose and description of site | Service servers at site | Service users at site | Service bandwidth |
| Wembley | Hosts servers for service | 10 Web, 2 SQL | N/A | 1Gb |
| St Georges Park | Hosts replicated servers for service | 10 Web, 2 SQL | N/A | 1Gb |
| Wembley | Houses administrators | N/A | N/A | N/A |

|  |  |
| --- | --- |
| Site | Link type and bandwidth |
| Wembley | 500Mb |
| St Georges Park | 500Mb |

### Current Systems

This section details the current make-up of the service in terms of servers, hardware and software.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Server Name | Type | CPU | Memory | Operating System | Description including software and role |
| wemhc-web1 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web2 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web3 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web4 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web5 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web6 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web7 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web8 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web9 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web10 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web11 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web12 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemhc-web13 | VM | 4 | 12 | Windows Server | IIS Web Server |
| wemgensql1 | Physical | 32 | 128 | Windows Server | SQL Server |
| Wemgensql2 | Physical | 32 | 128 | Windows Server | SQL Server |
| Wemgensql3 | Physical | 32 | 128 | Windows Server | SQL Server |

|  |  |
| --- | --- |
| Other Equipment (switches, load balancers, firewalls etc.) Name | Description of role in service |
| SteelApp | Load Balancer |
| Checkpoint | Firewall |

### Sitecore Versions

The current version of Sitecore at theFA.com is version 8.1 and for Counties and other sites it is 6.6

### Session State

Session state is managed by the load balancer using sticky sessions with browser session cookie

### System Performance

50.0 users per server = 5 second response time

200 users per server = 25 second response time

### Databases

|  |  |  |
| --- | --- | --- |
| Database | Type | Usage |
| Core | SQL | The Core database contains all Sitecore settings, as well as the tables containing the .Net membership provider (i.e. users/roles contained in the Sitecore repository) |
| Web | SQL | The Web database contains the latest published version, and the content that is driving the live web site. Therefore, it is a subset of the master database, optimised for size and speed. When content is published, or goes through the publishing task of a workflow, the latest content version is copied from the master to web database. |
| Master | SQL | The Master database is the authoring database - it contains all versions of any content or assets. |
| Analytics | MongoDB | The collection database is the primary storage for all analytics information and the registry of contacts and engagement automation states. |

### Media Assets Storage

Storing media assets in the Sitecore Web database is the default option. <setting name="Media.UploadAsFiles" value="false">   
Changing the value to true can store assets in the local file system. <setting name="Media.FileFolder" value="/App\_Data/MediaFiles">

|  |  |
| --- | --- |
|  | Important Information Follows  TheFa.com Sitecore VMs have disks bigger than 1TB, so a simple upload is not possible and a rebuild may be required. |

|  |  |
| --- | --- |
|  | Important Information Follows  The current Sitecore Web database stores the media content and currently is around 100GB in size. This includes static files: CSS, JavaScript and image content but not video. Videos are stored in YouTube. Migrating the Sitecore Web database may have challenges due to the amount of accumulated content. Archiving some content, especially old images, maybe required first to reduce the amount of data being migrated. |

|  |  |
| --- | --- |
|  | Important Information Follows  Reading from the database is expensive in terms of performance and therefore caching of such static files in the front end is very important. The load balancer caches the static files. In moving to Azure it is crucial to have a mechanism that meets or exceeds the performance of the current caching mechanism. |

Images in the Sitecore Web database can be dynamically cropped per the browser client

### Search

Google Search is used in the site, further info required.

### IIS Configurations

#### Configuration of IIS Machine keys for encryption is currently made through machine.config.

### Deployment

#### Octopus Deploy

The FA have invested in the use of Octopus Deploy and where possible would like to maximise on that investment. Octopus Deploy currently supports deployment to Azure Web Apps and to web applications within an Azure VM. Octopus Deploy uses the same method of deployment to Azure Web Apps using WebDeploy as used by MS Visual Studio. The new OctoPack is available that can help integrating the build/deploy process.

# Azure Technology

### Accounts

|  |  |
| --- | --- |
|  | Important Information Follows  The FA currently has an EA agreement, accounts and subscriptions. A separate subscription for theFA.com is recommended for isolated billing. Within this subscription different Resource Groups should be created for each region. Also, it is usual for Dev and Test to be in separate Resource Groups and App Plans to Prod and PreProd. |

### VM

Azure Virtual machines can host an instance of MS Windows (or flavours of Linux) onto which additional applications such as IIS and SQL Server can be installed. A VM can be manually scaled up or down (increased or decreased in size). Other VMs can be pre-provisioned in advance and turned on or off either manually or using an Automation Account with a scheduled Runbook PowerShell script.

|  |  |
| --- | --- |
|  | Important Information Follows  To meet SLAs of 99.95% uptime there must be a minimum of 2 VMs as a load balanced pair in an availability set to meet the fault and update domain requirements. |

### VM Scale Sets

VM Scale Sets can be considered. They are made up of multiple identical VMs that the service infrastructure can auto scale per CPU level.

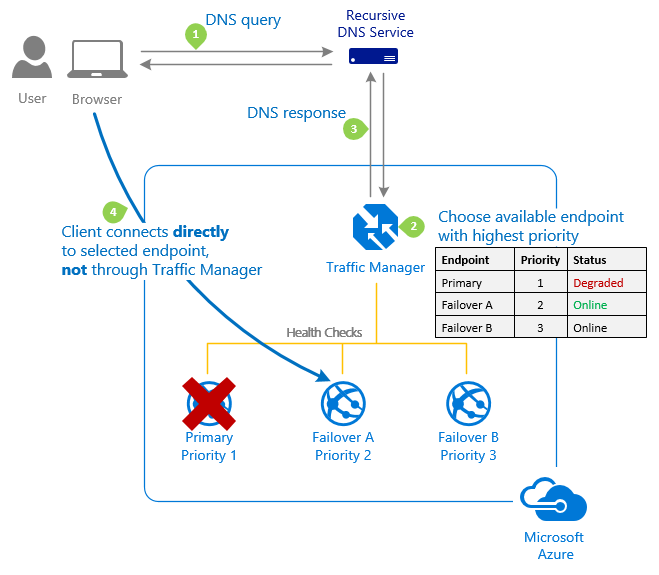
### Web Apps

Web Apps provide a PaaS option in Azure. Single instance Web Apps meet the SLA by virtue of the Site Control Manager extension that can spin up another instance upon failure. Web Apps can be configured for custom domain, auto-scaling, auto backup and IP address whitelisting. Azure Web Apps by default have ARR headers turned on maintaining session state by directing requests back to the same server. An improved approach is to delegate session state management to a third-party store which means any Web App can service a request. In Azure Web Apps, this can be Redis Cache.

### Traffic Manager

Traffic Manager is a DNS based technology that supports load balancing and failover between application instances across multiple Azure datacentres and on premise implementations. If a failover application is additionally provisioned in a separate location, then Traffic Manager can provide DNS services to route the traffic according by configuration and availability.

Deployment of the application to more than one regional datacentre can support disaster recovery. Azure Traffic Manager set in Priority mode (Failover) can be used to direct browser traffic to the chosen primary European regional datacentre. Upon detection of non-availability, it will redirect traffic to the failover secondary European datacentre. The default time to live (TTL) of Traffic Manager profile may mean users not being re-directed to the failover for up to five minutes. The TTL can be decreased but it is a trade off against the frequency of DNS queries being made by the client resolver.



### Application Gateway

Azure Application Gateway is a dedicated service, offering various layer 7 load balancing capabilities. it is comprised of multiple worker instances for scalability and high availability. It allows customers to optimize web farm productivity by offloading CPU intensive SSL termination to the application gateway. It also provides other layer 7 routing capabilities including round robin distribution of incoming traffic, cookie-based session affinity, URL path-based routing, and the ability to host multiple websites behind a single Application Gateway. It provides a rich set of diagnostics and logging capabilities for better manageability. SSL certificates are hosted here.

### CDN

Azure CDN can be used as a replacement for load balancer caching. This PaaS service caches static files in Edge Servers located geographically across the globe, including London. The CDN will forward traffic to the datacentre using Traffic Manager as the DNS resolver. A custom domain will be required on the CDN, e.g. a CNAME DNS record: theFA.com --> theFA.azureedge.net

|  |  |
| --- | --- |
|  | Important Information Follows  A CDN will need to implemented to meet or exceed the current on premise caching capabilities. Azure CDN can be implemented regardless of what web server is used. |

### Application Insights

Azure Application Insights monitors applications to help you detect and diagnose performance issues and exceptions. It works for the Web Apps feature of Azure App Service. Free to use.

### SQL Azure

SQL Azure delivers predictable performance at multiple service levels, dynamic scalability with no downtime, built-in business continuity, and data protection, all with near-zero administration. It additionally provides Geo-Replication supporting writable primary database and failover readable secondary databases. Performance can be configured from Basic through Standard, Premium to PremiumRS and changed without downtime. Scaling units are measured in DTUs. Full database backups occur weekly, differentials every few hours and logs every ten minutes. For standard tier, backups are retained for 35 days.

### SQL Azure Elastic Pool

SQL Database elastic pools are a simple, cost-effective solution for managing and scaling multiple databases that have varying and unpredictable usage demands. The databases in an elastic pool are on a single Azure SQL Database server and share a set number of resources at a set price. Cost savings can be made if the FA organisation is running many databases.

### Backup

In Standard Mode Tier, Azure Web Apps support backup to Blob Store by default.

For IaaS virtual machines, web applications should be configured to use Azure backup to the Azure Backup vault.

### Redis Cache

Redis Cache can be integrated into Azure Web Apps for both session state and general data caching

### Azure Search

Azure search can be integrated with Azure Web Apps content and SQL content

### MongoDB

MongoDB is still supported for Analytics in Sitecore. A MongoDB IaaS option is available from the Azure Marketplace. Also MLab is a MongoDB SaaS service that could be considered to simplify the cloud migration.

### RBAC/AAD

Role Based Access Control (RBAC) will need to be setup for an Azure migration. This grants administrators, developers and other personnel access to the Azure components typically through the Azure Portal through AD group membership that is linked to an Azure role.

### Azure Environments

If Azure VMs are used, then duplication of environments (Dev, Test Prod) can be setup for each component of the application. Each web application can be hosted on smaller VMs as opposed to fewer larger VMs with shared resources.

The Dev and Test environments can use a lower tier or lower performance level App Plan for cost savings.

Azure Web Apps provide multiple environment support from deployment slots. In the Standard Mode tier, up to 5 deployment slots per Web App are available. These are individual deployment targets, each with a public URL.

|  |  |
| --- | --- |
|  | Important Information Follows  Load testing must not be performed in any non-production applications hosted in the production App Plan as this will reduce resources available to Prod as throttling is applied when reaching the limits of the tier/performance level of the app plan. |

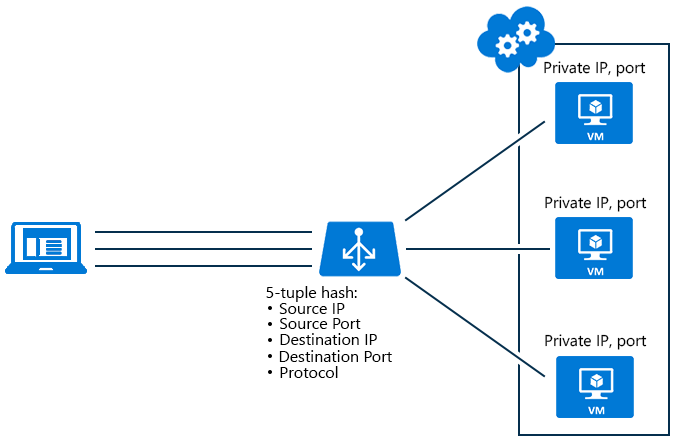
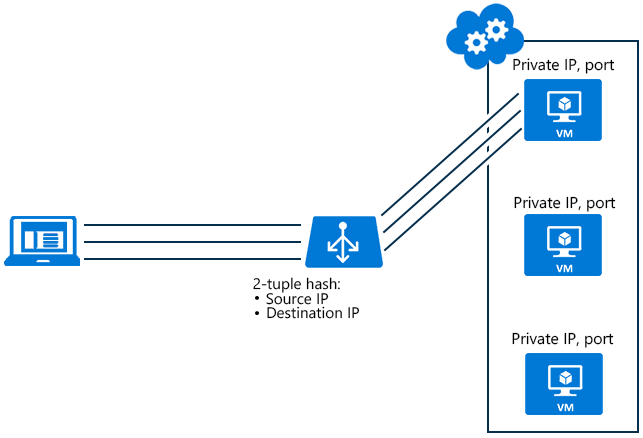
### IaaS Web Application Session State

If Azure VMs are used for the web applications, then ASP.NET Session state support must be provided for connected users.

Both the Azure Application Gateway and the Azure Load Balancer provide session state support. The Azure Load Balancer has two modes.

#### Azure Load Balancer in Hash-based distribution mode

The default distribution algorithm is a 5-tuple (source IP, source port, destination IP, destination port, protocol type) hash to map traffic to available servers. It provides stickiness only within a transport session. Packets in the same session will be directed to the same datacentre IP (DIP) instance behind the load balanced endpoint. When the client starts a new session from the same source IP, the source port changes and causes the traffic to go to a different DIP endpoint.

#### Azure Load Balancer in Source IP affinity mode

This mode is also known as session affinity or client IP affinity. The Azure Load Balancer can be configured to use a 2-tuple (Source IP, Destination IP) or 3-tuple (Source IP, Destination IP, Protocol) to map traffic to the available servers. By using Source IP affinity, connections initiated from the same client computer goes to the same DIP endpoint. When a load-balanced set changes (by removing, or adding a virtual machine), the distribution of client requests is recomputed. You cannot depend on new connections from existing clients ending up at the same server. Additionally, using source IP affinity distribution mode may cause an unequal distribution of traffic. Clients running behind proxies may be seen as one unique client application.

# Azure Options

The best approach for theFA.com is to pick the best cloud features of both Azure PaaS and IaaS as per the requirements and known constraints.

|  |  |
| --- | --- |
|  | Important Information Follows  Some custom configurations of IIS preclude migration to Azure Web Apps. For example, this includes increasing the number of concurrent connections. |

Configuration of IIS Machine keys (currently used in theFA.com) does seem to be achievable in Azure Web Apps through the application web.config file, although this has not been reported through Microsoft.

## Requirements Flow

|  |  |
| --- | --- |
|  | Important Information Follows  The Sitecore software company requires version 8.2 update 1 or higher to support Azure Web Apps and SQL Azure. Earlier versions do support the Azure Web Roles PaaS option but these are now deprecated by Microsoft.  Microsoft supplies a data migration tool that reports the suitability of migration of a database to SQL Azure. The FA may still choose to migrate to SQL Azure without Sitecore support. |

### Web Applications



### Databases



## **Options**

The following options specify two datacentres to support the DR requirement. The secondary datacentre will only ever receive traffic upon failover. Failover to the secondary is automatic, with the secondary database being read only The secondary database can be made the primary. MongoDB will require installation into either Windows or Linux VMs or a SaaS option. VMs are placed in availability sets. Each VM will need to be carefully managed and backed up.

A user enters the site URL into her browser. DNS will then redirect the request to the nearest CDN server, which for the UK will be a London CDN server. The request is then directed to the priority North Europe regional data centre via Traffic Manager DNS.

### Solution 1 -VM Option



The Application Gateway forwards browser requests to VMs hosting the websites. SQL Server is hosted in a VM. As an alternative SQL Azure can be used. If the user enters the same URL in her browser, then the process is repeated except that the CDN server can return cached items and the user is directed to the same web server maintaining session state. Manual scaling of VMs is required unless Scale Sets are used. All VM components must be manually patched along with configuration of a backup solution.

### Solution 2- Basic PaaS Option



In this option the web applications are hosted in Azure Web Apps and the databases are hosted in SQL Azure. SQL Geo-Replication is configured.

|  |  |
| --- | --- |
|  | Important Information Follows  This is a recommended option but requires a Sitecore upgrade to version 8.2 update 2 or above. No patching is required. It supports manual and auto scaling, session state, automated backup, high availability, simplicity and potential lower cost. This also keeps the deployment as close as possible to the current FA deployment whilst retaining the benefits. |
|  | It is unclear as to what search technology can be used for the above option |

### Solution 3- Azure Marketplace Sitecore



This option became available from the Azure MarketPlace in January 2017. It is yet an unproven technology and is not yet recommended.

# Conclusion

In terms of availability, scalability and performance Azure Web Apps have the edge over web applications hosted in IIS in a VM, as VMs do not easily scale and cannot cope with sudden large increases in demand. Web Apps are much easier to manage. Web Apps have less compatibility than VMs as not all IIS options can be configured. Web Apps are less complex. Deployment to Web Apps is straightforward through WebDeploy.

SQL Azure provides higher availability and scalability as the performance settings (DTU) can be increased to meet demand.

SQL Azure is not as compatible as SQL Server as it has specific database requirements such as a primary key on each table.

All the models describe share the same levels of Azure security.

MongoDB will need to be configured either through Azure VMs or MongoDB SaaS, for all options.

|  |  |
| --- | --- |
|  | Design Decision  Favouring individual PaaS components over VMs is recommended if all requirements can be met and an upgrade is achieved as required by the Sitecore Software Company. Moving to PaaS components technically may not require an upgrade. Hence option 2 is the recommended option. The main requirements of improved scalability and personalisation are easily met in Azure Web Apps and SQL Azure.  If VMs are deemed necessary, then they can certainly meet the requirements. A lift and shift of the on premise VMs may not be possible as they have disks bigger than 1TB and different apps are sharing the same SQL server instance and so a manual installation may be required. Operational manual scaling up or down may be required. In the long term, VMs will take much more maintenance, including patching and backup.  Azure VM Scale Sets can auto-scale in and out but only according to CPU and not by schedule and are not a simple straightforward option. Scale Sets may not be a particularly good fit for Sitecore as each set requires identical servers and a requirement preference is smaller individual machines each performing separate roles. A proof of concept could be performed to confirm suitability. |

# Discounted Solutions

### On Premise Upgrade

This is an option where more memory could possibly be added to the current servers or more servers added for peak demand. This is a waste of resources and does not meet the requirements in not being able to scale on demand.

### Deploy from the Gallery

This option runs an Azure ARM template that performs a full installation using the very latest PaaS technologies. It is as yet unproven in production environments but does offer future promise of improvements by leveraging some of the newer Azure technologies.

# Sitecore Compatibility Table

This table shows the Sitecore CMS and Sitecore XP compatibility with different browsers, operating systems, .NET frameworks and database servers:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CMS 6.0** | **CMS 6.1** | **CMS 6.2** | **CMS 6.3** | **CMS 6.4** | **CMS 6.5** | **CMS 6.6** | **CMS 7.0** | **CMS 7.1** | **CMS 7.2** | **XP 7.5** | **XP 8.0** | **XP 8.1** | **XP 8.2** |
|  |
| Microsoft Edge | - | - | - | - | - | - | - | - | - | ✓ | - | ✓ | ✓ | ✓ |
| Internet Explorer 11 | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Internet Explorer 10 | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| Internet Explorer 9 | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - |
| Internet Explorer 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - |
| Internet Explorer 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Internet Explorer 6 | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - | - | - | - |
| Mozilla Firefox | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Google Chrome | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Apple Safari | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  |
| Windows Server 2016 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Windows Server  2012 R2 | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Windows Server 2012 | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Windows Server  2008 R2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Windows Server 2008 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| Windows Server 2003 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| Windows 10 | - | - | - | - | - | - | - | - | - | ✓ | - | ✓ | ✓ | ✓ |
| Windows 8.1 | - | - | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ |
| Windows 8 | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Windows 7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| Windows Vista | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| Windows XP  (32-bit only) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
|  |
| .NET 4.6.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | ✓ |
| .NET 4.6 | - | - | - | - | - | - | - | - | - | ✓ | - | ✓ | ✓ | ✓ |
| .NET 4.5.2 | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| .NET 4.0 | - | - | - | - | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| .NET 3.5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
|  |
| ASP.NET MVC 5.2 | - | - | - | - | - | - | - | - | - | - | - | - | ✓ | ✓ |
| ASP.NET MVC 5.1 | - | - | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | - | - |
| ASP.NET MVC 4 | - | - | - | - | - | - | - | - | ✓ | - | - | - | - | - |
| ASP.NET MVC 3 | - | - | - | - | - | - | ✓ | ✓ | - | - | - | - | - | - |
|  |
| MS Azure SQL | - | - | - | - | - | - | - | - | - | - | - | - | - | ✓ |
| MS SQL 2016 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MS SQL 2014 | - | - | - | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ |
| MS SQL 2012 | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MS SQL 2008 R2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| MS SQL 2008 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - |
| MS SQL 2005 | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | - | - | - | - | - |
| MongoDB 3.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | ✓ |
| MongoDB 3.0 | - | - | - | - | - | - | - | - | - | - | - | ✓ | ✓ | ✓ |
| MongoDB 2.6 | - | - | - | - | - | - | - | - | - | - | ✓ | ✓ | ✓ | ✓ |

**Legend:** “-” – not supported; “✓” – supported.

## Sitecore Azure History

Sitecore as a product has provided an early Azure adoption. This has included PaaS support for Azure Web roles and Worker Roles.

Microsoft is now actively discouraging adoption of these roles in favour of either the Web Apps PaaS option or usage of virtual machines.

Sitecore Experience Platform 8.0 rev. 160115 (8.0 Update-7) or higher. This version supports Azure Web Apps but has limitations in that it cannot scale out (additional instances) due to a shared WWWRoot directory and persistence to the local file system for logging using Log4Net. MongoDB 2.6.1. MS SQL Server supports the core, master, web, reporting and session databases.

Sitecore Experience Platform 8.2. This version has much greater support for Azure PaaS. It includes Web Apps auto scaling both up and out, Redis Cache for session state (replacing SQL Server or MongoDB), SQL Azure for storage, Application Insites for logging and monitoring and Azure Search. It also supports full lifecycle continuous deployment solution with Git, TFS, GitHub, and Visual Studio Team Services. It however does not natively support xDB for Analysis and continues to rely on MongoDB either in a VM or one of the SaaS suppliers of MongoDb. There does not seem to be a mention of Azure CDN support.   
This version and higher can be deployed either from the Azure Portal Marketplace (North Europe (Ireland)

West Europe (Netherlands) or a by downloading the ARM templates and WebDeploy packages from Sitecore.