Azure Migration

Proposal

For Electrical Contractors Association

Commercial in Confidence

**Version –** 1.2

**Issue -** Released

**Author -** Nigel Wardle

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# Document Control

## Authority

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## Identity

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## Client Distribution List

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# Executive Summary

## Introduction

Ultima Business Solutions Ltd (Ultima) would like to thank Electrical Contractors Association (ECA) for providing us with the opportunity to prepare this proposition for an Azure migration. Our proven record of accomplishment in the supply of such services, coupled with our extensive management experience, means that we are confident that we can assist you with the definition and implementation of this solution. Ultima can directly deliver the solution discussed in this document, and we believe that our ability to provide flexible and complementary skills, combined with our track record makes us the ideal technology partner for the delivery of cost effective services to your business. This document details:

* Our understanding of your requirements
* Ultima’s solution options and approach to delivering the solution
* The investment required to realise those deliverables

## Requirement Summary

The section below provides a high level, baselined version of the requirement as provided by the Client.

Electrical Contractors Association (ECA) have traditionally been a ‘working hours’ organisation. Due to recent technical and operational issues encountered, consideration of a resilient cloud adoption with 24/7 management has been accelerated. ECA host several internally and externally facing line of business websites and applications with shared SQL backends. ECA are particularly interested in re-working these sites and applications to utilise Azure’s PaaS offerings. Applications that cannot take a PaaS transformation approach are being considered for an IaaS migration or extension to the cloud.

### Critical Success Factors

Ultima has identified the following statements and guiding principles as being critical to the successful delivery of this project, shaping the way in which we have developed our response. Our proposition builds upon these central tenets, enabling your business to realise its technical, operational and strategic goals.

* To demonstrate resilience and scalability and so be better able to pursue new business opportunities
* Urgent desire to improve availability and reduce outages
* Restructure of resources
* Re-architecting websites and applications to fit a PaaS solution is preferred
* Utilising IaaS VMs for workloads that cannot be migrated to PaaS is considered
* Reliable connectivity to the Azure environment is required as some sites used internally have a high impact if offline
* 24/7 managed service of Azure environment

## Scope

### In Scope

The following section highlights the activities that Ultima will be responsible for in order to successfully deliver the solution or service. As the scope will have a direct impact on the effort required and the subsequent deliverables, the Client should ratify the list below together with any project boundaries, prior to any contractual award. Activities not listed here are assumed to be out of scope.

* Discovery and Assessment
  + Review requirements for Azure platform
  + Discovery of each website and application in scope for migration
  + Discover dependencies and integration with other sites, databases or applications
  + Mapping of Azure services
  + Discovery of workloads for IaaS migration
* Design and Planning
  + Define architecture based on requirements
  + Mapping of requirements to Azure services for PaaS and IaaS workloads
  + Connectivity requirement
  + Create architecture documentation and recommendations based on website and application requirements
  + Identify any Azure components that may add value
  + Outline steps required to migrate services
  + Design PaaS environment based on chosen architecture
  + Design any IaaS environments based on chosen workloads for migration
* Build & Test
  + Provision DEV, UAT, PROD Azure environments
  + Establish connectivity to Azure
* Implementation
  + Aid and guidance in migrating to Azure PaaS components for the chosen PaaS architecture and design
  + Migrate chosen IaaS workloads to Azure
  + Set up backup services

### Out of Scope

The following section highlights the key activities and deliverables that are out of scope for Ultima as part of this engagement. This may include those that are being delivered by the Client or by association, their partners, vendors or third-party resolver groups.

* Governance of programming activities
* Development, coding and application deployment
* Services that do not meet requirements or pre-requisites for migration
* Network hardware configuration, cabling & routing
* Services deemed out of scope following discovery workshops.

## The Current Environment

What follows is a brief description of your existing environment; also known as the Current Operating Model (COM), as well as an overview of the technologies that make up the service and a summary of how it is configured and maintained. Together with the requirement, the COM provides a baseline from which assumptions and design decisions have been made.

All IT infrastructure at ECA is currently held on-premise except for a siloed application already running in Azure. The main IT estate is held at ECA’s Sevenoaks site with additional sites in London, Swanley and 10 small branch offices. All sites are connected by MPLS. VMWare 6.0 is used as a virtualisation platform where there are approximately 62 virtual machines running.

### Private Internal Applications

#### ECA Connect

A Microsoft ASP.NET MVC website. Users are currently authenticated using on-premise Active Directory (AD) Windows login. Connectivity to MS SQL Server is through an AD trusted login mapped to SQL Roles. There is currently tight coupling between the trusted login and local auditing. User generated files are stored in the local web server file system or network accessible locations. Current specification: 2012R2, 6GB, 2 cores, 50Gb Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Highly possible to be reduced to S2 Standard. See additional documentation for pricing.

#### ECS Card Manager/Rules Engine

This website uses a combination of Silverlight and/or MVC and uses AD authentication. Extensive dependency on roles for access. Use of local file system. A Reliance on SSRS. Supports scan of files to local storage and OCR. Watchdog Windows Service processes files. This is an essential application as 60,000 cards were printed over the previous year. Card processing is carried out at the Swanley site which is also used as a BCP site. Current specification: 2012R2, 6GB, 2 cores, 50Gb Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Could be reduced to S2 Standard. See additional documentation for pricing.

#### Financial services

Silverlight application for Direct Debit. WCF RIA. Current specification: 2012R2, 6GB, 2 cores, 50Gb Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Could be reduced to S2 Standard. See additional documentation for pricing.

#### SSRS

SQL Server Reporting Services (SSRS) is not currently supported as a PaaS option in Azure. SSRS therefore must be hosted in an Azure VM pair. SSRS can connect to SQL Azure databases. Microsoft states that for the SLA, a VM must be deployed as a pair in an availability set. There is a lot of flexibility in choosing a VM pair size. The D4S\_V3 Standard VM can be considered: 4 vCPUs, 8GB RAM, 8 Data disks, 8000 Max IOPS, 32 GB Local SSD, Premium disk support, Load balancing. If this is found to be overprovisioned, then dropping down to D2SV3 Standard can be considered.

#### Watchdog – Windows Services

These services include movement of local or network-based files, execution of data transfer to/from MS SQL Server and connections to MS Exchange Server.

### Public External Applications

#### eca.co.uk

This website is hosted using Kentico CMS version 9.0. It has a SQL Server back end and local file storage. Current specification: 2012R2, 4GB, 2 cores, 40Gb Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Could be reduced to S2 Standard. See additional documentation for pricing.

#### ecscard.org.uk

This website is hosted using the Kentico CMS version 9.0. It has a SQL Server back end and local file storage. Current specification: 2008R2, 2 cores, 6GB RAM, 180GB Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Could be reduced to S2 Standard. See additional documentation for pricing.

#### ecsexams.org

This website is hosted using the Kentico CMS version 9.0. This application uses SQL Server back end and local file storage. Current specification: 2008R2, 2 cores, 6GB RAM, 180GB Data drive. Azure equivalent: App Service Plan S3 Standard (4 Core, 7GB RAM) set for auto-scale. Could be reduced to S2 Standard. See additional documentation for pricing.

#### ecis

This website is out of scope

### File archive

Requirement to copy Azure based data files to archive storage. This will most likely require custom code as part of the Watchdog.

## Solution Overview

The proposed solution is based on our understanding of your requirements and the information provided on infrastructure or services currently in use within your organisation. It is subject to change and will be confirmed as an output of the design phase.

### Azure Web Apps

Almost all the applications discovered are Microsoft based web applications using underlying technologies of either ASP.NET MVC or Silverlight running under IIS on-premise. Migration of web applications to Microsoft Azure Platform as a Service (PaaS) is the preferred option. Azure Web Apps is the recommended destination for migration but comes with limitations, in that Azure Active Directory (AAD) is the preferred authentication identity provider and storage of user file data should be external to the Web App. Azure Web Apps can be configured at run time to execute in various performance tiers, including free mode.

Porting current on-premise web applications to Azure Web Apps will require re-engineering of applications that have dependencies on AD to support AAD authentication and a granular level of user authorisation. Azure Web Apps support Azure AD Groups for authorisation or application roles. <https://github.com/Azure-Samples/active-directory-dotnet-webapp-groupclaims>

Data files storage should either be ported to Azure Storage Blob Store, with application users having indirect access, or possibly to a SQL Azure database. All data hosted in Blob Store is encrypted by default. <https://code.msdn.microsoft.com/How-to-store-the-in-SQL-6c6a46b5>

The current Kentico CMS is running version 9.0. Version 11.0 provides better support for media files. Any custom extensions supporting file uploads to Blob Store are likely require additional coding. Kentico CMS can be migrated on-premise to version 11.0 but will likely still need be re-configured, moving from local file storage to Blob store. There is an Azure Marketplace option for installation of Kentico v11.0 on Azure.

Each Web App needs to be deployed into an App Service Plan. The plan can be scaled to suit the needs of the application. It is expected that there will be DEV, UAT and Prod/Pre-Prod environments in the primary Azure region. For the Prod/Pre-Prod environment the App Plan can be set to Standard Mode supporting auto scale, auto backup etc. The other environments can be configured with separate App Service Plans configured to start in Free mode. Environments can be configured in both North Europe and West Europe regions, with traffic being directed using Azure Traffic Manager. DEV and UAT are only provisioned in the primary region.

It is important to understand that an Azure App Plan relates to a traditional Web Farm. A single Azure App Plan can be shared by multiple Azure Web Apps. It is possible to make savings by internal and external Prod Web Apps sharing the same App Plan due to internal Web Apps being busy during the working day and external Web Apps being busy over evenings and weekends. Prod Web App Auto-Scale can level out any unexpected transitory or overlap resource demands as necessary. Azure Web Apps can be configured to use AAD authentication and are likely require re-engineering to extract the incoming Service Principle for user or group level authorisation.

Azure Web Apps execute with a public IP address but can be secured at the application layer (IP whitelisting etc). The higher specification and costlier Premium App Plan option: ‘App Service Environment’ ASE, hosts applications in an Azure Virtual Network.

### Express Route

ASE allows you to deploy your application with private connectivity over a Site to Site VPN or ExpressRoute circuit. ExpressRoute provides a faster and more reliable connection that does not travel over the public internet. ExpressRoute would be deployed to connect ECA’s MPLS network to Azure\*. \*An assumption has been made that the MPLS provider supports ExpressRoute connectivity. At this stage there does not appear to be a requirement for an Azure Site Recovery (ASR) option.

### WatchDog

The Watchdog application(s) can deployed to an Azure VM pair but it is debatable as to the benefits. Microsoft states that to maintain an SLA, a VM must be deployed as a pair in an availability set. Watchdog access to Azure SQL databases is supported but access to local files, and possibly MS Exchange, will most likely require re-engineering. Hence the code within the Watchdog will most likely need to be ported and hosted elsewhere. Hosting could be in an Azure Web-Job, or a Web App. Web App or Web-Jobs can use resources of current App Plans or could have a dedicated App Plan. WatchDog interfaces in a Web App can be exposed via a WebAPI. Azure Scheduler is an option to trigger WebAPI code from a CRON.

### SQL Azure

Each SQL Server database can be migrated to a SQL Azure Database. SQL Azure Server does not currently support trusted AD authentication but only SQL logins. The performance level of each individual SQL Azure database can be adjusted to match demand in units of DTU’s. SQL Azure database has built in backup functionality. SQL Azure supports replication to secondary read only databases in other Azure regions.

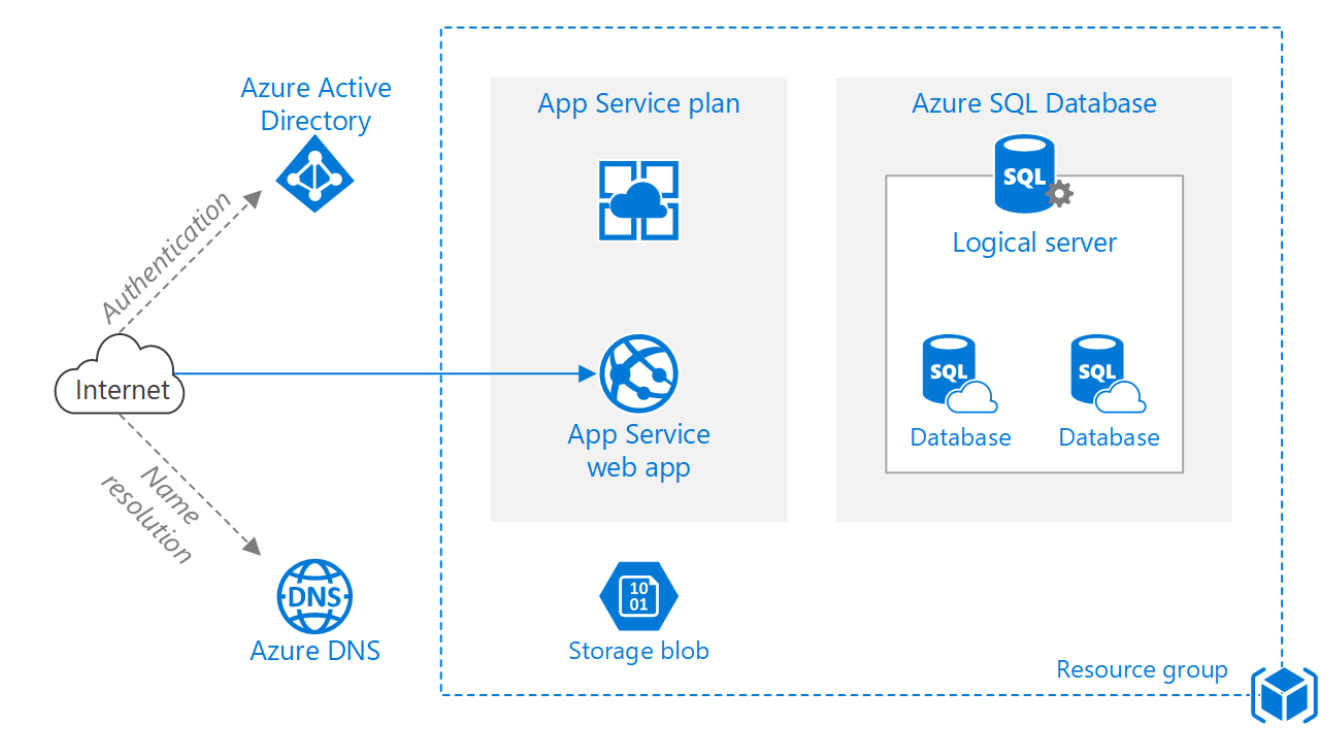
### SSRS

SSRS can be hosted in a VM. It is the customer’s responsibility to install and configure on VM.

### Azure AD

ECA having an Azure tenancy can use or provision a new Azure AD directory. The directory should be synchronised with on-premise AD using AD Connect. This can then support AD authentication for users connecting to Web Apps and ECA staff managing Azure through Role Based Access Control (RBAC). It is the customers responsibility to perform any on-premise AD fixes/configuration before connectivity to AAD can be made.

### Concepts



### Key Benefits

By adopting this solution, the Client can expect the following business benefits to be delivered.

|  |  |  |
| --- | --- | --- |
| # | Business Benefit | Potential Impact |
| 1 | Hosted managed service | Reduction in maintenance and support costs |
| 2 | PaaS built in high availability | Less complexity in achieving high availability |
| 3 | Highly scalable | Easily scale up or down to match ongoing requirement |
| 4 | PaaS Security | OS patching and network security risks reduced |
| 5 | Disaster Recovery | With IaaS workloads, ASR can be used to replicate to a secondary region for disaster recovery |

### Conclusion

ECA are keen to migrate workloads to PaaS wherever possible. Workloads will most likely need to be re-architected by ECA to utilise PaaS offerings. Ultima will provide Azure architecture and deployment options based on best practice. It will be the customers responsibility to select an option before a design will be completed. Workloads that do not fit the PaaS model or have limitations that prevent them from being migrated to PaaS can be identified for IaaS migration. Re-engineering may still be required. A datacentre extension into Azure using ExpressRoute for speed, reliability and security is recommended.

Both PaaS and IaaS migrations have several pre-requisites and supported models that should be considered before migration.

SQL databases should be checked for compatibility for use with Azure SQL using the following tool:

<https://www.microsoft.com/en-us/download/details.aspx?id=53595>

Azure SQL database performance is measured in ‘DTUs’. The DTU calculator can be run on existing SQL servers to determine the level of performance required in Azure. This will measure processor, disk i/o and database to provide a CSV which can be uploaded for calculation to determine the best fit. The calculator can be found:

<http://dtucalculator.azurewebsites.net/>

To use VMware for ASR, only certain versions and configurations are supported. For example, vCenter 5.5, 6.0 and 6.5 are supported. Guest OS versions of Windows Server 2008 R2 and above are supported. For a full list of requirements, the following links can be referenced:

<https://docs.microsoft.com/en-us/azure/site-recovery/site-recovery-support-matrix-to-azure>

<https://docs.microsoft.com/en-us/azure/site-recovery/tutorial-prepare-on-premises-vmware>

**Important. It is the role of ECA to perform any re-engineering of applications if required that will be ported to PaaS. Ultima can provide support on deployment of binaries and application code to Azure – most likely on a time and materials basis.**

## Implementation Approach

Ultima has broken down the approach to the delivery of this engagement into several stages which are laid out below. The proposed engagement is based on our understanding of your requirement and the information provided on the planned application and services. It is subject to change and will be confirmed as part of discovery and due diligence.

Initially, the business needs to determine the overall architecture for the new solution and which components of Azure will be required. This phase will also produce budgetary pricing information and scaling information to allow for planning activities to take place.

* Stage 1 - Project Initiation
* Stage 2 - Discovery and Assessment
* Stage 3 - Planning and Design
* Stage 4 - Build and Test
* Stage 5 - Pilot
* Stage 6 - Service Introduction
* Stage 7 - Deployment
* Stage 8 – Closure.

# Management and Support Services

Ultima has over 19 years’ experience in delivering proactive Managed and Service Desk Services. Our qualified on-site staff are able to provide 24x7x365 technical support across a range of technologies such as Microsoft, Check Point, Citrix, VMware and Cisco from our purpose built, ISO27001 accredited, Technical Support Centre (TSC) based in Reading.

Ultima propose delivering a remote management service to support and maintain the environment. Ultima protects business operations by utilising enterprise class systems, to ensure we proactively identify potential issues before they evolve into problems. In addition, the service includes the proactive management of hardware and technologies in scope, in order to eliminate uncontrolled change, promote standardisation and adopt best practice around aspects such as configuration management and patch management.



## End-to-End Service Management

* Own – In addition to working seamlessly within our own teams, Ultima will work closely with third parties and dedicated resolver groups to ensure that we are able to maintain a well-managed IT estate on your behalf
* Diagnose - We use the information gathered by NetIQ coupled with the extensive skills and capabilities of our highly qualified support consultants to identify the root cause of a problem
* Resolve – Our tried and tested troubleshooting methodologies combined with experience enable us to reach resolutions within the quickest possible timescales
* Report – Our Service Management reporting is designed to demonstrate effective management, performance, capacity and recommendations relating to your infrastructure. This provides you with the visibility of trends to make strategic and planning decisions

## A Layered Management Approach

The following table describes the activities that ECA will benefit from as part of continuing to take a monitoring and managed service with Ultima.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | Key Activity | VMs / Hosts | Operating  System | Supported Apps |
| Proactive | Service Monitoring |  |  |  |
| Proactive | Report / Recommend |  |  |  |
| Proactive | Config Documentation |  |  |  |
| Proactive | Data Backup Monitoring |  |  |  |
| Incident/Problem | Raise Incident |  |  |  |
| Incident/Problem | Management to 3rd line |  |  |  |
| Incident/Problem | Root Cause Analysis |  |  |  |
| Incident/Problem | Ownership of Problem |  |  |  |
| Incident/Problem | Escalation to Vendor |  |  |  |
| Incident/Problem | 3rd Party Incident Mgmt. |  |  |  |
| Incident/Problem | Apply Problem Fix |  |  |  |
| Change | Configuration Changes |  |  |  |
| Change | System Maintenance |  |  |  |
| Change (On Site) | Firmware Updates | T&M | T&M | T&M |
| Change | Critical Patch Updates |  |  |  |
| Change | Functionality Patching |  |  |  |
| Change | Service Packs | T&M | T&M | T&M |
| Change | Version / HW Upgrades | T&M | T&M | T&M |
| Change | Solution Expansion/Design | T&M | T&M | T&M |

# Service Management

## Managed Service Response Targets

The following matrix highlights Ultima’s commitment to escalating and responding to Managed Service incidents and alerts. These targets are set to ensure appropriate response time in order to meet the availability SLA and to ensure quality of service to ECAenterprise. These targets are not related to Charges Discount.

|  |  |
| --- | --- |
| Priority | Ultima |
| 1 | 15 Minutes |
| 2 | 4 Hours |
| 3 | 8 Hours |

## Service Level Agreements

This section details the target measurements to assess performance of the managed service. Service measurements are based on the availability of each managed component.

|  |  |
| --- | --- |
| Service Measurement | Target |
| Service / Device Availability - Standalone Infrastructure | 99% |
| Service / Device Availability - Resilient Infrastructure | 99.9% |

## Managed Service Reporting

The following reporting capabilities and key measurements, SLAs and KPIs are provided, ordered by the type of service taken.

| Service Area | Report Name | Measurement | Target |
| --- | --- | --- | --- |
| Availability | Device / Application Availability - Standalone | SLA | 99% |
| Availability | Device / Application Availability - Resilient | SLA | 99.9% |
| Availability | Concerns and Recommendations | Strategic Planning | Pass / Fail |
| Capacity | Memory, CPU, Disk Capacity - Per Application | Capacity Planning | None |
| Capacity | Review and Recommend | Capacity Planning | Pass / Fail |
| Incident | Incident Metrics | Information Only | None |
| Change | Change Metrics | Information Only | None |
| Service Management | Service management summary | Strategic Planning | None |

## Impact and Urgency Matrix

The SLAs will be agreed during contract award, transition and take-on. Any subsequent changes during the term of the contract should be requested via your Account Director and Service Delivery Manager. Changes are reviewed based on the service impact, included or chargeable or the change is unachievable. In each instance, a formal response is provided. The following matrix is Ultima’s standard priority level descriptions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Impact** | | |
|  |  | High | Medium | Low |
| Urgency | High | **P1**  Site down or service not  functioning. Affects entire  business and across either  peak or critical period. | **P2**  Performance of the service is degraded. Issue affects multiple  but not all users across  normal or critical periods. | **P3**  Minimal impact seen on live  service or operations. Incident  affects a small number of users across a quiet period. |
| Significant | **P2** Site down or service not working. Affects building, department or significant number of users. Occurs during normal period. | **P3**  Performance is degraded affecting  a small number of users during a quiet period, or single user issue  that is business impacting | **P4**  (N/A Service Desk Only) |
| Low / Planned | **P3**  Site down or service not  working. The incident affects  a small number of end users,  across a quiet period | **P4**  (N/A Service Desk Only) | **P5**  (N/A Service Desk Only) |

# Service Transition

An inadequately defined and poorly managed take-on process can lead to a sporadic service being delivered. In addition to the impact that service outages and SLA breaches can have, caused often as a result of operability, supportability and maintainability issues that were not properly addressed before go-live, it may result in diminished or negative ROI, together with a loss of business, enterprise and user confidence in IT's ability to deliver services successfully.

Ultima believe that the key to a successful Managed Service take-on project is a precise interpretation of your requirement, together with a comprehensive understanding of the environment under consideration and the adoption of a structured methodology. Each engagement is delivered by a team of experienced Project and Service Delivery Managers, all of whom understand how to successfully transition complex and interdependent services into managed support, in an efficient and effective manner.

Based on the principles of PRINCE2 and ITILv3, our transition process is designed to be robust, comprehensive and non-destructive, whist remaining easy to follow and implement. The logical and intuitive stage-based approach outlined below, contains the activities needed to successfully transition the existing environment into managed support, alongside a series of gates to prevent the omission of key steps which if not picked up would adversely affect our ability to manage your environment.

The majority of the below stages will only require updating as Ultima already manage the current enterprise environment.

|  |  |  |
| --- | --- | --- |
| 01 - Service Initiation and Review | 02 - Establish Connectivity | 03 - Technical Familiarisation |
| * Initial kick off meeting * Create service take-on plan * Agree service scope / SLAs * Create outsourcing agreement | * Complete VPN form * Establish site to site connections * Relevant admin accounts provided | * Capture technical details * Devices discovered / agents * Identify support contracts * Define patching / backup schedule |
| 04 - Knowledge Transfer | 05 - Monitoring | 06 - Escalation |
| * Health check environment * Present remedial action * Document environment overview * Update Ultima knowledgebase | * Discover in WhatsUpGold * Install NetIQ agents * Start monitoring jobs * Thresholds management * Create automated reports * Activate live monitoring | * Define resolver and approval groups * Create Enterprise ‘Group’ * Add devices to Enterprise group * Agree escalation process * Internal acceptance and sign off * Finalise operational documentation |
| 07 - Service Management | 08 - Service Launch |  |
| * Add device details to E-Support * Add device details to Pivotal * Configure reporting * Finalise Service Schedule | * Service readiness review * Signoff * Go live |  |

# Support Tools

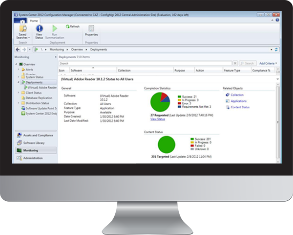
Ultima use a combination of enterprise class monitoring and management tools to deliver its Managed Services. Once installed and configured to industry standard metrics, we conduct a process of baselining and tuning in order to set alerting thresholds to values appropriate to your environment. This allows us to streamline alerts by filtering out false positives in accordance with environmental usage patterns and allows us to act proactively and report on all alerts.

We are able to monitor devices such as switches, routers and gateways, by using Simple Network Management Protocol (SNMP) to poll Management Information Bases (MIBs), helping to create a comprehensive picture of your platform environment. This information is used to pinpoint performance issues and component failures quickly and accurately that may be contributing to problems elsewhere.

## NetIQ

NetIQ AppManager provides access to 70 modules and more than 2,000 knowledge scripts, delivering detailed intelligence across a wide range of applications and services, as well as key server and network infrastructure. In addition to the monitoring capabilities, the suite provides workload management, troubleshooting and diagnostics, capacity planning and comprehensive reporting.

## ITSM Tool

Through our ITSM Tool, Ultima maintain a history of all logged incidents, both closed and current which can be queried through our web-based portal. Support staff are able to query the database to recall information around known faults and the actions taken to resolve them. This functionality is primarily used to troubleshoot new problems by referring to older, completed entries in the system where a resolution has been found and the fix implemented. This knowledge base of information helps Ultima adhere to SLAs and KPIs around the managed service contract.

Our ITSM tool provides interfaces optimized according to the specific needs of people performing different functions within your organization and enables us to deliver a wide range of support for different devices and access from different locations. It is highly configurable, enabling tailored solutions to meet your specific requirements, process workflows and automate tasks and activities. Ultima are able to manage IT services delivered from the cloud, on-premises, or a combination of both.

# Investment Summary

## Professional Services

The following table outlines the estimated professional services required to deliver to the requirements described herein and will be confirmed once due diligence had been completed. The acronyms can be found in the rate card section of this document. Please note the estimation of effort is subject to change following discovery and design workshops.

|  |  |  |  |
| --- | --- | --- | --- |
| Description | STC | PM | Total |
| Day Rate | £1,000.00 | £800.00 |  |
| Stage 1 - Project Initiation | 1.0 | 1.0 | £1,800.00 |
| Stage 2 - Discovery and Assessment   * Review requirements for Azure platform * Discovery of each website and application in scope for migration * Discover dependencies and integration with other sites, databases or applications * Mapping of Azure services * Discovery of workloads for IaaS migration | 4.0 | - | £4,000.00 |
| Stage 3 - Planning and Design   * Define architecture based on requirements * Mapping of requirements to Azure services for PaaS and optional IaaS workloads * Connectivity requirement * Create architecture documentation and recommendations based on website and application requirements * Identify any Azure components that may add value * Outline steps required to migrate services * Design PaaS/IaaS environment based on chosen architecture. * 1 x day for onsite measurement of DTU for SQL Azure   Outputs: PaaS architecture document. PaaS design document and optional IaaS design document. | 11.0 | 2.5 | £13,000.00 |

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| --- | --- | --- | --- |
| Stage 4   * Build and Test Azure Environments: Provision the PaaS Azure environments in two regions. Including: Resource Groups, App Service Plans, Storage, SQL Azure, Traffic Manager. * AD to AAD configuration – (depends on number of forests) * Provision of VMs (not member of AD Domain) | 5.0  5.0  1 | 2.0 | £12,600.00 |
| Stage 5 – Pilot  Support ECA in deploying a single web application | 1.0 | 0.5 | £1,400.00 |
| Stage 6 - Service Introduction | 1.0 | - | £1000.00 |
| Stage 7 – Deployment   * Aid and guidance in deploying binaries, html files etc to Azure PaaS and optional IaaS components * Configure PaaS backup   \* Depending on customer requirements | 15.0 \* | 3.0 | £17,400.00 |
| Stage 8 - Closure | 1.0 | 1.0 | £1,800.00 |
| Total Days | 45 | **10.0** |  |
| Total Cost | | | £51,000.00 – £53,000.00 |

## Terms and Conditions

Ultima’s full terms and conditions can be obtained by emailing [terms@ultimabusiness.com](mailto:terms@ultimabusiness.com). A summary of the main points have been included for reference below.

* Pricing Terms - Ultima is able to work on both a time and materials or a fixed price basis. The mechanism by which we quote and subsequently enter into a commercial agreement comes down in part to the level of detail available in order to determine the full project costs. This proposal has been created on a time and materials basis.
* VAT - There costs described herein exclude Value Added Tax at the prevailing rate
* Payment Terms - Ultima can either invoice at the end of each calendar month for services performed during that period or as part of a milestone payment agreement. This proposal is based on;
  + Invoicing professional services at the end of each month
  + Invoicing hardware and software upon delivery
* Expenses - Ultima normally operates an open book expenses policy. Expenses are collated and produced on a monthly basis and presented at the financial review meetings. The charging mechanism used is based upon a purchase order or blanket order from the customer, invoiced monthly. The exact expense costs will be passed on at that point.
* Confidentiality - This document contains proprietary information which is confidential between Ultima and the Client. It shall not be reproduced in any form or by any mechanical or electronic means, nor its contents disclosed to a third party without the written consent of Ultima. The Client may use this document for the purpose of evaluating Ultima’s proposal only.
* Offer Terms - This document does not constitute an offer capable of acceptance by the Client and is subject to agreement of a formal contract. No contractual relationship shall arise until a formal contract has been signed by both parties. Any final agreement is conditional upon due diligence undertaken by Ultima or our business partners, the result of which may impact upon the content of this proposal, including the structure, solution, terms and financial arrangements.
* Cancellation Policy - In the event that the Client wishes to postpone or cancel the delivery of agreed services, it is required to inform Ultima of this in writing. Ultima shall use reasonable endeavours to reassign allocated resources, however if such reassignment is not possible and the Client has not provided at least ten working days’ notice, then the Client shall be liable to pay a cancellation charge, including any costs relating to cancelling pre-booked travel arrangements.
* Rates - Ultima’s standard working hours and the rate uplifts for out of hours work are listed below. It should be assumed that uplifts apply where out of hours work is required, even if not explicitly stated or included within the investment summary.
  + Standard Day - Monday to Friday, from 09:00 to 17:30, excluding UK public holidays - Normal Day Rate
  + Weeknights - Monday to Friday, from 17:30 to 00:00, excluding UK public holidays - Normal Day Rate x 1.5
  + Weeknights - Monday to Friday, from 00:00 to 09:00, excluding UK public holidays - Normal Day Rate x 2.0
  + Weekends - 17:30 Friday to 09:00 Monday excluding UK Public Holidays - Normal Day Rate x 2.0
  + Public holidays are excluded
* Validity - This proposal is valid for 30 days from the submission date.
* E&OE - To the best of our knowledge, the information provided herein is correct at the time of submission. Ultima should not be held accountable, should errors or omissions be found.