



Azure Custom Application Development

G-Cloud Service Definition

Table of Contents

1	Introduction	3
2	General Service Description.....	3
2.1	Business Value	3
3	Who Should Use the Service?	4
4	What is Included?	4
4.1	Development.....	4
4.2	Deliverables and Outcomes	5
4.3	Setup or Migration Service.....	5
4.4	Planning Services	5
4.5	Ongoing Support.....	5
4.6	Quality Assurance and Testing	6
4.6.1	Unit Testing	6
4.6.2	Regression Testing.....	6
4.6.3	Security Testing	6
4.6.4	Integration Testing	6
4.6.5	System Testing	6
4.6.6	Acceptance Testing	6
5	User Support.....	6
6	Training.....	7
7	Pre-Requisites, Dependencies and Obligations	7
8	Exclusions.....	7
9	Supported Versions	7
10	Conditions of Use	7
11	Commercial Arrangements.....	7

1 Introduction

Cognizant MBG is a born on the cloud systems integrator and as such have extensive experience in leveraging the Azure Platform Services (PaaS) cloud service model for the deployment and development of cloud-native applications using this modern architecture.

This document provides structure and detail of an Application Development engagement with the customer, covering consultancy and advisory services through architecture and design to actual development, release management and support of application on the Microsoft PaaS platform.

Cognizant MBG's Custom Application Development service, one of a suite of services available within the GO Digital Operating Model.

2 General Service Description

We have extensive experience in developing and deploying large scale workloads to Microsoft Azure and can engage anywhere along your systems development life cycle (SDLC) where Cognizant MBG can add value.

The GO Digital Operating Model is founded on modern cloud principles including automated deployment, automated scale, stateful and stateless deployments, defence in depth, inherited operational controls, configuration consistency as well as optimizing for continuous change. Cognizant MBG applies these principles with templates, blueprints, polices, and DevOps methods such as Continuous Integration/Continuous Delivery (CI/CD) pipelines.

Cognizant MBG's Custom Application Development service is designed to provide an organisation with the vehicle to rapidly consume Microsoft's public cloud services, to realise new ideas and maximise value-creation opportunities for their customers.

2.1 Business Value

The benefits to customer employing the Cognizant MBG's Custom Application Development service are as follows:

- Benefit from the tried and tested GO methodology augmented with modern tooling, wealth of cloud development skills including our DevOps processes
- Increase business agility:
 - Introduce new DevOps ways of working into existing agile development teams
 - Introduce and discover how Azure PaaS services can significantly reduce time to value for software development
 - Delivery, architectural, and design services to enable your teams to pivot quickly in the digital world
 - Provide an end-to-end delivery mechanism to enable heads of business change to quickly engage new capabilities to deliver value
- Improve time to value by accelerating:
 - Application and feature development time
 - Application transformation delivered in reduced time frames employing existing application knowledge augmented with detailed telemetry, automated testing
 - Ability to "Fail Fast", "Try Ideas", and realise "Quick Wins" through agile processes
 - Opportunities to consider alternative and innovative technologies
- Reduce IT costs and improve ROI:
 - Applications designed to run on the cloud are performance optimised, auto-scale capacity, improve workload execution time, and are typically more cost-efficient.
 - Leverage Microsoft Azure as a platform to drive business change and IT transformation with informed transformation decisions.
 - Opportunities to consider business locations, field working, edge computing
 - Opportunities to solve technology scaling as well as business scaling

- Reduce risk and security posture:
 - Negate many of the project risks and security challenges customers face when incorporating public cloud services into application services
 - Custom developed applications using Microsoft PaaS services provide platform resilience and sever dependencies on legacy Datacentres
 - Opportunities to reduce or remove existing operational challenges with legacy applications
 - Security by design and defence in depth from inception

3 Who Should Use the Service?

This service is targeted at the business stakeholders who are responsible for change. CIO/CSO, head of change, Line of business managers and development managers can benefit from this engagement.

4 What is Included?

This section describes the approach and outcomes of Cognizant MBG's Custom Application Development Service.

4.1 Development

Cognizant MBG have extensive experience delivering quality bespoke software to a demanding schedule. In addition to the practices defined by our scrum-based Software Development Lifecycle (SDLC), we also implement the following practices on all bespoke development projects:

- We follow endorsed coding standards from Microsoft and other vendors wherever possible. This maximises developer familiarity as new resources are attached to the project and minimises training time. We will of course also comply with any project-specific coding standards that are already in place
- We also follow all appropriate secure development practices, including using Microsoft's secure development guidelines and Open Web Application Security Project (OWASP) secure development guidelines where appropriate
- Naming standards for Azure resources will be agreed in the initial phases of the project and followed throughout, providing a standardised view across all subscriptions and environments. We have found this step to be critical and massively improves maintenance and management of Azure resources
- All new features are developed in independent branches in the source repository and peer reviewed prior to being merged with the main code line. We use automated tools for adherence to coding standards and best practices, and supplement this with manual review for general code quality, compliance with all security practices and flexibility of the design, such as appropriate use of configuration and OO principles
- Wherever practicable all code should be accompanied by unit tests
- Short, regular check-ins to source control are preferred, even if only part of a feature is implemented. This increases the regularity of unit testing, as unit tests are automatically run for the entire service on each checking. This also minimises any merge operations that may be necessary mitigating the risk of long, complex, and fragile merge operations
- We develop additional automated deployment tools where necessary. Where the deployment tools supported inherently by Azure DevOps are insufficient, we may leverage custom tooling. Cognizant MBG place a heavy emphasis on automated tools to provide robust, repeatable processes – be it testing, deployment, or creating new environments
- We treat supplier code as an extension to our own and follow the same procedures – if they need to directly integrate with existing code they will develop in branches which are peer reviewed prior to merging with the main branch to minimise risk and complexity
- We focus on building platforms using small composable services rather than monolithic applications. We also emphasise working with configuration rather than code changes. This often allows for customised variants of a project to be delivered by integrating services through a high-level workflow, and defining behaviours through (centralised) configuration

Cognizant MBGs approach to building applications in Azure follows the Agile methodology. We assemble a team of Solution Architects, Development, DevOps, Platform and Programme Management individuals. The team is augmented with the customer business and product owners to help shape and prioritise deliverables on an application backlog. An initial sprint planning workshop will be held with the customer with sizing and cadence agreements between both parties for ongoing management.

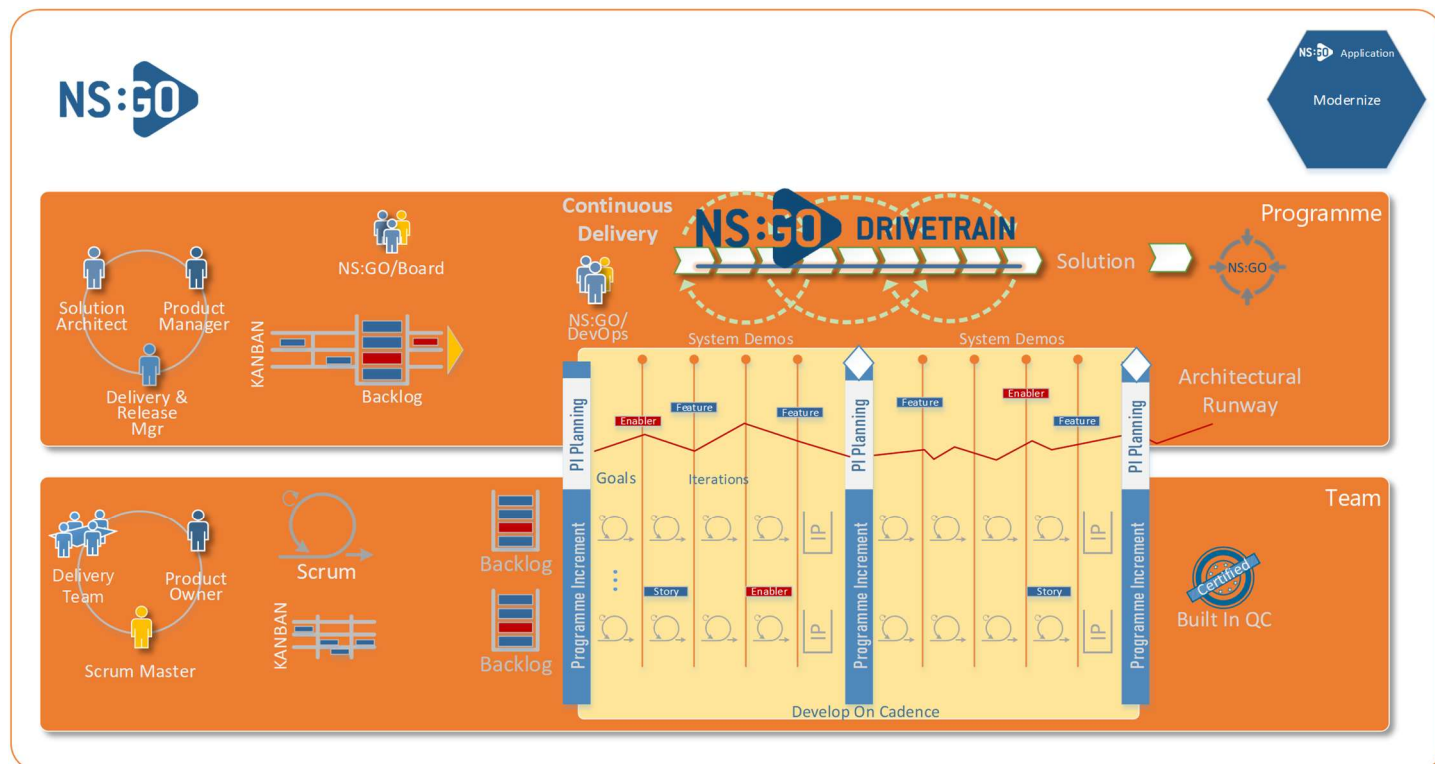


Figure 1 - Cognizant MBG Scalable Drivetrain Development Process

4.2 Deliverables and Outcomes

The following deliverables are typically produced for Custom Application Development engagements:

- A defined set of requirements for the custom application to be developed
- Production ready software components deployed to Azure PaaS platforms, ready to consume, and based on defined customer requirements
- Source-code, user-manuals, and other documentation for the developed software

The specific deliverables for the engagement will be detailed in the Statement of Work document.

4.3 Setup or Migration Service

The initial design of the Azure environment and the migration of any data relevant to the successful delivery of a production ready application deployment will be covered in this engagement.

4.4 Planning Services

There is a significant amount planning required early on in an engagement of this nature. We provide a broad range of skills in the team assembled for this purpose on the engagement from project managers, business analysts, through architects, SCRUM masters and developers.

4.5 Ongoing Support

Ongoing monitoring, support and management for the applications developed during this engagement can be purchased separately.

4.6 Quality Assurance and Testing

Cognizant MBG's European and North American business units are certified to the ISO27001 standard and have been successfully audited by Microsoft against a stringent set of requirements needed to qualify as an Azure Expert MSP. These certifications provide assurance to customers that Cognizant MBG systematically applies best practice approaches and is within the most elite tier of highly skilled Managed Service Providers.

Cognizant MBG handles quality by following a process consisting of six main stages of testing: unit testing, regression testing, security testing, integration testing, system testing and user acceptance testing.

4.6.1 Unit Testing

The main aim of this phase of testing is to determine whether the application functions as designed. In this phase, a unit can refer to a function, individual program or even a procedure. Unit testing is performed continuously using integrated tools wherever possible, typically following a test-driven design paradigm. In addition to local developer testing, all unit tests are executed for all code check-ins.

4.6.2 Regression Testing

Like unit testing, Cognizant MBG consider this a continuous testing process throughout the software cycle, rather than a formal phase run at a defined stage.

4.6.3 Security Testing

As with regression and unit testing this a continuous testing process through the software development cycle. Security is at the heart of all our development practices and we subject all code to automated external review by our specialist security testing partner when it is checked in. Our partner supplements the reviews with regular penetration and security testing of deployed assets using a range of approaches including automated test scripts, off-the-shelf packages, and manual probing.

4.6.4 Integration Testing

Integration testing allows individuals the opportunity to combine units within a program and test them as a whole and is designed to find interface defects between the services, modules, and functions. In a project of this complexity and with a focus on micro-services this stage may repeated as several levels of abstractions: integration testing modules or functions with a service, then funnelling through to integration testing of a process composed of those services, which may feed into a large process and so on.

The specific methodology used for integration testing will depend greatly on the unit being tested.

4.6.5 System Testing

System testing is the first level in which the complete application is tested as a whole. The goal at this level is to evaluate whether the system has complied with all the outlined requirements and to see that it meets quality standards. System testing is ideally undertaken by independent testers who have not played a role in developing the application, either a separate internal team, external testers, or customer resource.

4.6.6 Acceptance Testing

The final level, acceptance testing (or user acceptance testing), is conducted to determine whether the system is ready for release. During the software development life cycle, requirements changes can sometimes be misinterpreted in a fashion that does not meet the intended needs of the users. This, by definition, will be carried out largely by the customer with Cognizant MBG providing whatever support they may require.

5 User Support

There is no user support included in this service. This can be purchased separately if required.

6 Training

While we go through the engagement and implement the solution we will work with your in-house team and will upskill them on the use of the environment and solution components.

7 Pre-Requisites, Dependencies and Obligations

To make the most of the engagement it is important that the customer's key technical and business resources are available for the workshops. Customer attendees / representatives should have access to information about the current estate which will be needed during the workshops, for example:

- Details on potential use cases
- Details of API's to related systems
- Knowledge of current system architecture
- Details of current Software Development Lifecycle (SDLC) tools and practices.

8 Exclusions

Should the customer require Cognizant MBG to complete any mandatory training or work with auditors, this work will require a scoped project. Azure running costs are the responsibility of the customer, but Cognizant MBG will ensure customers are aware of predicted costs and where managed service is provided, Cognizant MBG will provide cost reporting and advice.

9 Supported Versions

Cognizant MBG will execute any transformation using the latest stable versions of the Microsoft Azure ecosystem unless there is a reasonable design decision mandating and N-1 release of an OS or SQL version. Dependencies built on preview software versions is not recommended as Microsoft reserves the right to change or remove the feature.

10 Conditions of Use

This engagement is designed to take ideas through to production and can be used in conjunction with our Azure Application Development Rapid Prototyping Workshop if testing ideas and prototypes are required as a pre-requisite.

11 Commercial Arrangements

All pricing and effort for subsequent work will be provided as a best estimate based upon the knowledge we gather from the initial workshops and discovery sessions. Incorrect or missing information may generate additional configuration and development work necessitating further commercial conversations.

Estimates will be based on number of sprints, sprint sizes and agreed delivery velocity.

About Cognizant

Cognizant (Nasdaq-100: CTSH) engineers modern businesses. We help our clients modernize technology, reimagine processes and transform experiences so they can stay ahead in our fast changing world. Together, we're improving everyday life. See how at www.cognizant.com or [@Cognizant](https://twitter.com/Cognizant).

UK Headquarters

Cognizant Worldwide Limited

1 Kingdom Street

Paddington Central

London W2 6BD England

Phone: +44 207 297 7600

Contact: gcloud@cognizant.com

© Copyright 2022, Cognizant. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the express written permission from Cognizant. The information contained herein is subject

to change without notice. All other trademarks mentioned herein are the property of their respective owners.

