**Challenge Name:** Develop microservices using .NET platform

| Service Unit: | Modern Applications |

**Key challenge statement:**

Develop microservices using .NET platform and address usual concerns for a microservices architecture such as:

- Containerization, auto scaling of containers
- Service discovery, circuit breaker, open API enablement
- Security, authentication and authorization
- Configuration externalization, test automation – unit and integration

First describe the architecture covering above mentioned concerns, then create an open API which is exposing an CRUD functionality via API for a sample entity provided.

**Background of the challenge:**

There are many benefits that customers can avail with the use of a microservices architecture. Customers who has been using the .NET platforms, also want to use the microservices in their architecture. Specifically, with the increased use and penetration of Azure platform in many customer enterprises. Customers are looking for .NET based microservices solutions which enable them to use the Azure platform to its full extent. This challenge solution would serve as the base for HCL Advantage-Code framework for enabling the .NET capabilities. This challenge solution would also help build a POV for the .NET based microservices.

**Scalability of the challenge**

This challenge can further be scaled to cover following aspects:

- Configuration and deployment of .NET API into a public cloud, private cloud or PAAS platform. What all options are available?
- How to enable the CI, CD and release management for microservices and API’s?
- How to achieve the eventual consistence scenarios using .NET and surrounded tech stack?
- How to develop various microservices patterns like Aggregator, PROXY, CQRS using .NET stack?

**Which major business vertical does this challenge impact/pertain to?**

This challenge is a technology solution which covers all the verticals, however there is a high demand from FS.

**Potential business which could be opened if the challenge is solved:**

This challenge would help to enhance Advantage-Code framework solution to generate codes and deployments in .NET based architectures.

**Nearest solution or player with development in this space?**

None at this point of time.
Why this challenge is critical for HCL:

This challenge if solved would provide the base for defining the reference architecture for the .NET based microservices. The sample implementation would further be enhanced to make it enterprise ready deployable code.

Expected solution’s guidelines

Apart from the usual guidelines for the contest, following are the additional guidelines specific to this challenge. The solution:

- Should be based on .NET & related framework
- Should address the microservices concerns defined in the challenge statement
- Should be based on the latest tech stack versions and any framework used should be of enterprise grade
- Should be documentation properly to help others understand the code and other aspects of it