Application of Microservice Architecture on B2B Applications

(IBM Watson Customer Engagement)

by

Vipin Dhonkaria
(Roll No. 2015274)

Supervisor(s):

External
Atul A. Gohad
(IBM ISL, Bangalore)

Internal
Dr. Manish Kumar Bajpai
(PDPM IIITDM Jabalpur)

Computer Science and Engineering

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING JABALPUR

(15th June 2018 – 28th June 2018)

Introduction

The International Business Machines Corporation (IBM) is an American multinational technology company headquartered in Armonk, New York, United States, with operations in over 170 countries. IBM manufactures and markets computer hardware, middleware and software hosting and consulting services in areas ranging from mainframe computers to nanotechnology.

IBM has a large and diverse portfolio of products and services. As of 2016, these commerce, data and analytics, Internet of Things (IoT), IT infrastructure, mobile, and security. IBM aims to bring Businesses closer and smarter than ever with the help of their state of the art enterprise software product called B2B Sterling Integrator.

IBM B2B Integrator helps companies integrate complex B2B (Business to Business) / EDI (Electronic Data Exchange) processes with their partner communities. It provides a single, flexible B2B platform that supports most communication protocols, helps secure your B2B network and data and achieve high availability operations. The offering enables companies to reduce costs by consolidating on a single B2B platform and helps automate B2B processes across enterprises while providing governance and visibility over those processes.

IBM Sterling B2B Integrator

It is a B2B integration software to help synchronize your extended the business partner communities. Today's empowered customers expect more from the companies they do business with.

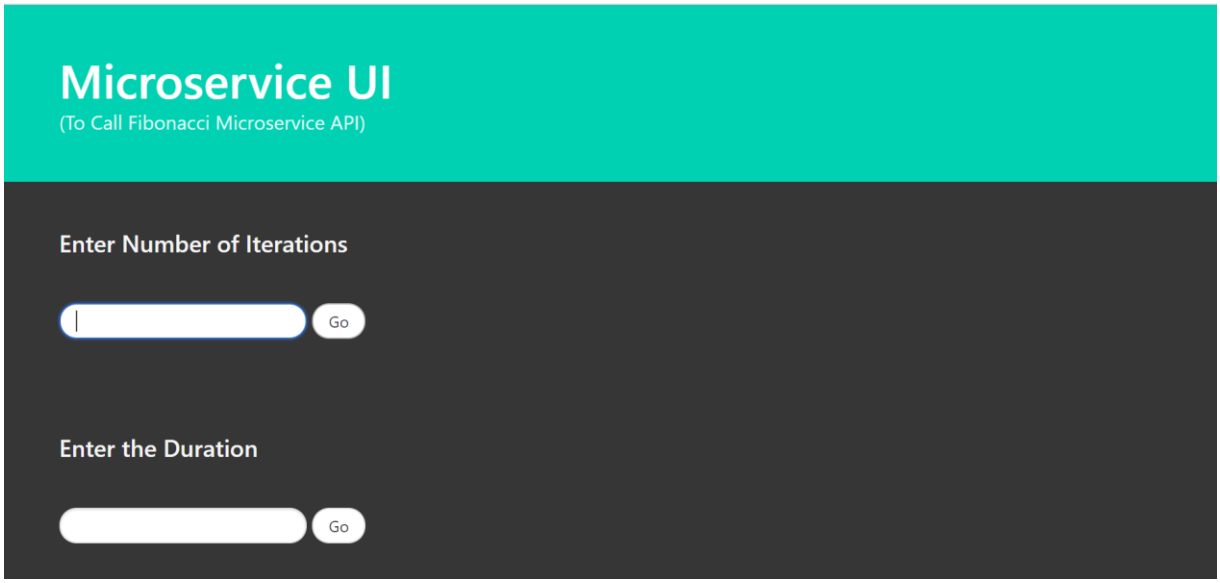
IBM Sterling B2B Integrator software helps companies execute a smarter commerce strategy by synchronizing virtually every part of the value chain. It addresses complex integration challenges, enabling you to connect your systems to those of your business partners.

- IBM Sterling B2B Integrator is a transaction engine and set of components designed to run processes you define and manage according to your business needs.
- It supports high-volume electronic message exchange, complex routing, translation, and flexible interaction with multiple internal systems and external business partners.
- Has robust security infrastructure, visual management tools for easy configuration of and visibility into work flows, system and trading partner activities.
- Integrates applications, processes, data and people, both within and outside.

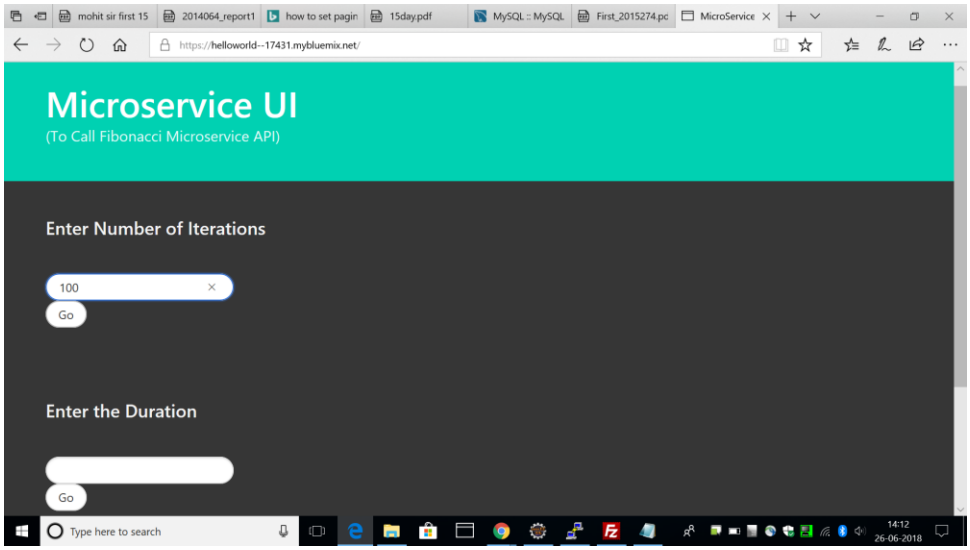
Report on the Present Investigation/Progress

(Progress during this 15-days period)

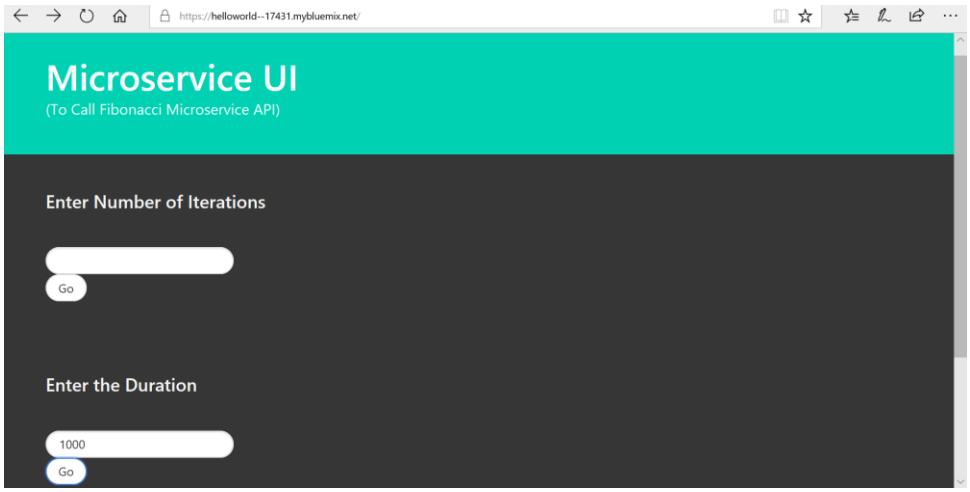
I have created one Dynamic Web Project on eclipse workspace and created an interface to call the microservice API. I have selected IBM Bluemix as a server over which this application is deployed. When I am creating the server IBM Bluemix takes my credentials and create the web application into my account. From this application I made a call to Fibonacci service API and display the output in json format.
So this make our work easy, simultaneously we can make changes on both the applications and deploy it on server and run it.

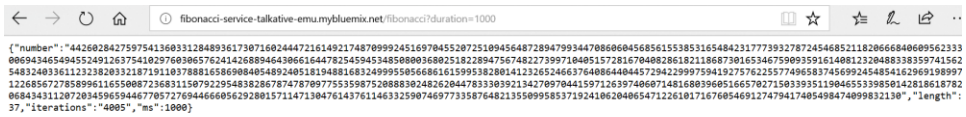


Entering the number of iterations will print the fibonacci series that number of times.



Entering the amount of duration will execute the fibonacci series for that amount of milliseconds.





Link of Deployed Application: http://helloworld--17431.mybluemix.net/

Results and Discussions

After deploying one application on IBM Bluemix server and make a call to microservice API using it, makes very clear that it is the best practise to decompose a large monolithic application to microservices.
We can make changes on multiple of services and can deploy them simultaneously.

Advantages of microservices Architecture:

- Frequent Releases can be handled easily.
- Enables continuous integration and delivery of software components.
- Better fault isolation; if one microservice fails, the others will continue to work and the entire system will continue to function rather than crashing down.
- Codes can be written in many languages and frameworks. Each microservice can be written in a different manner irrespective of other microservices.
- Each microservice has its own database eliminating the discrepancies of updating a common database from several simultaneous calls.

Conclusions

Microservice Architecture has some disadvantages too. It is very complex to design and an expensive process because it uses more resources. If we don't want to further expand your application then don't go for it but if you need frequent releases and want to maintain each module independently, then it is an amazing alternative to consider.

My target for the next 15 days is to build a war file and deploy it on IBM server. The war file is generated from java application and deploy it on IBM B2B sterling Integrator server.