

# Microservices Architecture Training

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## In-class Project

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## Business Domain – Retail& Payment

For big retail players all over the world, ecommerce players are becoming more aware of the fast-Minimum Viable product to launch their virtual store. To keep the store with utmost care they have the following feature are available

- keeping track of popular emerging products,
- forecasting sales and future demand via predictive simulation,
- optimizing placements of products and offers through heat-mapping of customers,
- identifying customers who would likely be interested in certain products depending on their past purchases,
- finding the most suitable way to handle the Customers via targeted marketing strategies and then coming up with what to sell next

A strong wallet is important to personalize the commerce store

## Business Context

The retail industry is witnessing a paradigm shift. Rapidly evolving technologies, changing customer expectations, and emerging digital firms are driving widespread disruption. Clearly, from a plethora of new products, markets, and customer segments to the burgeoning expansion of sales and marketing channels (like mobile and social commerce), retail is at a tipping point. Customers are now demanding rich shopping experiences that are personalized, hyper-connected, and engaging. Additionally, several forces are revolutionizing the landscape: the explosion of data and connected devices, software defined infrastructure, cloud enabled as-a-service and experience, and outcome-driven digital platforms. This makes it imperative for retailers to showcase agility in tech adoption and business process optimization.

21 CE organizations are recognized by five key tenets: experience-centricity, outcome-based,

agile and lean-focused, service-oriented, and ecosystem-driven.

However certain challenges remain. These include lack of business models, siloed applications, and the inability to deploy new technologies. These impede the delivery of a seamless, Omni channel shopping experience. To overcome these obstacles and future-proof businesses, a robust and end-to-end strategy is the need of the hour.

RCon Inc., a consulting firm helps secure enterprise competitiveness, propelling success in the digital age. They enable retailers to boldly navigate the new digital age by transitioning from 'traditional efficiency-oriented solutions to business outcome-oriented conversations'. Their collaborative model helps carve a successful path to enterprise modernization. RCon Inc. has been given an assignment by a large retail company to analyse their historical data.

To keep these changing trends of the retail and in particular ecommerce with wallet we need to build applications that are robust, scalable, having micro services architecture and using cloud model

## Data Volume

- 100 Million Customers
- 100 Million Customer Demographic Data
- 100 Million Household Demographic Data
- 100 Million Cards
- 10 million merchants
- 500 Million Orders
- 500 Million Transactions
- 500 Million Payments
- 500 Million Invoices

*Overall Data Size – **500 GB***

## Phase 1

Develop an ecommerce portal with simple functionalities on product categories mainly an electronic store focusing on the electronic items – mobile phones, Laptops, Tablets, home automation products and cameras

The store will have the minimum features below

### Order level data

- FSN ID: The unique identification of each SKU
- Order Date: Date on which the order was placed
- Order ID: The unique identification number of each order
- Order item ID: Suppose you order 2 different products under the same order, it generates 2 different order Item IDs under the same order ID; orders are tracked by the Order Item ID.
- GMV: Gross Merchandise Value or Revenue
- Units: Number of units of the specific product sold
- Order payment type: How the order was paid – prepaid or cash on delivery
- SLA: Number of days it typically takes to deliver the product
- Cust id: Unique identification of a customer
- Product MRP: Maximum retail price of the product
- Product procurement SLA: Time typically taken to procure the product

## Phase 2

Create a wallet to attach to the ecommerce store. The payments can happen through two modes  
- Fiat currency and also cryptocurrency like bitcoin.

Below are the wireframes for the application. We will be using the microservices of doing this application



WireFrames.zip

## Toolset

The application will be developed using IBM Bluemix services. The link to the portal will be below

<https://console.bluemix.net/devops/try-toolchains>

We will try to use the basic CI/CD pipeline to create the application with certain security parameters like OAuth

As a part of the final layer we will add circuit breaker as an enabler to have the management of the spike in sales and so it will lead to the payment spikes as well

## Conclusion

We are demonstrating the ability to create a monolithic webapplication – with ecommerce store as an example and transforming to an microservices application with wallet integration