

Retail Business Operations Transformation by 5G

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Abstract: Increased customer expectations, new technology advancements, and the rise of ecommerce are few trends changing retail business operations. Technical improvements from 5G, the fifth generation of cellular network technology, include faster data speeds, reduced latency and improved network slicing. 5G networks to be mainly used for Internet of Things (IoT) communications at retail stores. Retail operations benefit from 5G data capabilities to drive inventory, customer centric predictive analytics and Store replenishment.

Keywords: Modern Retail Store operations, 5G

1. Introduction

5G will bring enhancements to existing retail store functionalities and make them more efficient. Companies in retail started transitioning to an omnichannel strategy. **omni-channel** is defined as a multi-channel unified sales approach that provides the customer with an integrated customer experience. The customer can be shopping online from a desktop or mobile device, or by telephone, or in a bricks and mortar store and the experience would be seamless. Customers can order online and wait at the parking lot for goods to be delivered. 5G enabled IOT devices allow store representatives to bring goods from stores and deliver it to customers outside the store premises. IOT tracking via 5G splicing allow the goods to be tracked safely and securely.

A lot of retail stores went through a major change. Stores that are Agile have a greater chance of reacting and capturing the benefits of 5G.

Implementing and getting the most out of an investment in 5G requires closer collaboration between Retail business users and the Information technology department in the organization.

Existing infrastructure may not be able to handle increase in data. Huge amount of data collected on 5G IOT devices needs additional security. AI based data analytics need to be implemented to provide input on targeted sales and Intelligent dashboards.

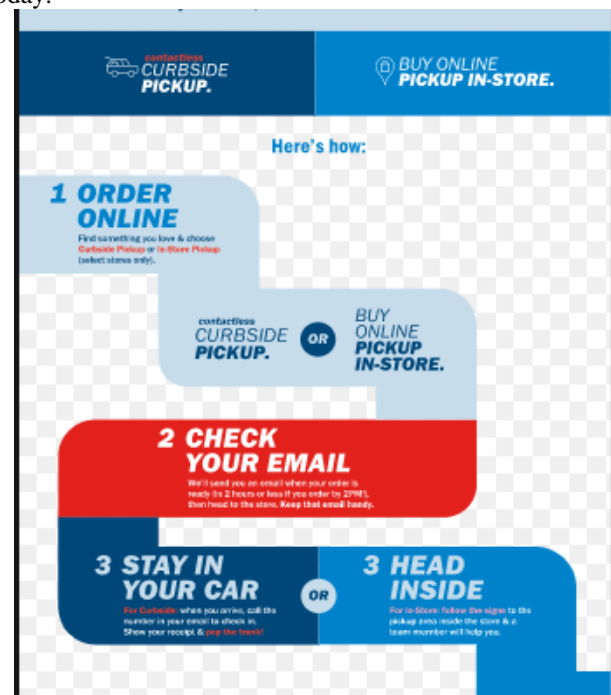
The 5G enabled Iot products can be tracked across shelves and parking lots with millimeter precision. Retailers need to embrace this technology to address customer growing expectations of shopping styles, like App based Shelf tracking, consolidated Shopping list across multi channels, Self-replenishing shelves, Dashboard that allow reorganization of shelves and products to mimic customer preferred purchase pattern, curb side pickup, Order online pick up in store and same day delivery from nearest store.

5G Technology powers In-store communications to help customers finish their shopping lists but also provide customer specific promotions and relevant product information. IOT based billing can eliminate checkout lines.

Key 5G Capabilities for Retail Operations

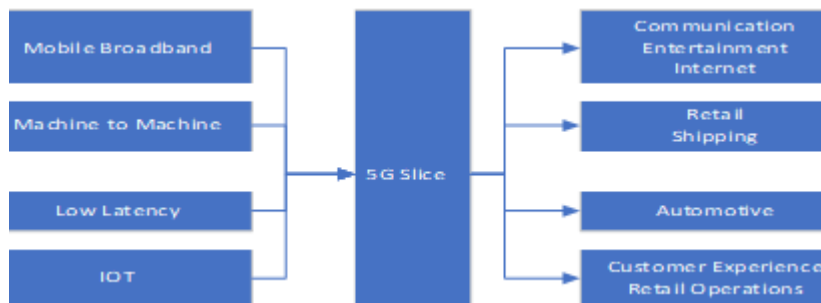
Tracking

Retail operations like Shelf replenishment and Curbside pickup that require a high degree of synchronization will see significant improvements with 5G. Consider IOT enabled goods tracking during sales rep picking from shelf, loading the cart, leaving the store and delivering to customer at the curbside. Higher visibility on the movement of products from outside the store and seamless transition between with in and outside store will change how we operate these stores today.



Product monitoring

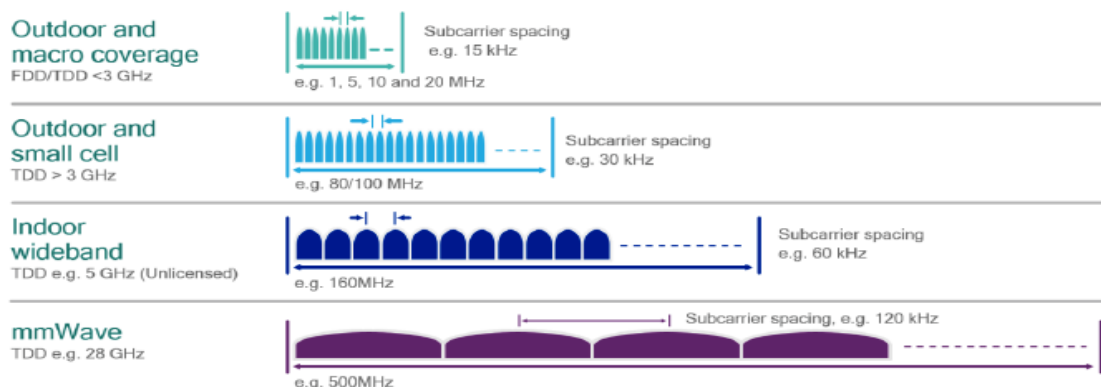
Network slicing capability allows 5G bandwidth to be divided among devices that don't require the entire capacity. 5G can connect in a highly dense environment. 5G enabled sensors will allow for tracking smaller items. Each network slice is an isolated end-to-end network tailored to fulfill diverse requirements requested by an application. 5G allows monitoring at the individual scannable product level. This allows gathering real-time information of the product like ingredients, reviews and so on.



Indoor and exterior connectivity

5G networks can blend indoor and outdoor operations and networks. For example, sales rep can have uninterrupted connectivity from the time of picking the order and

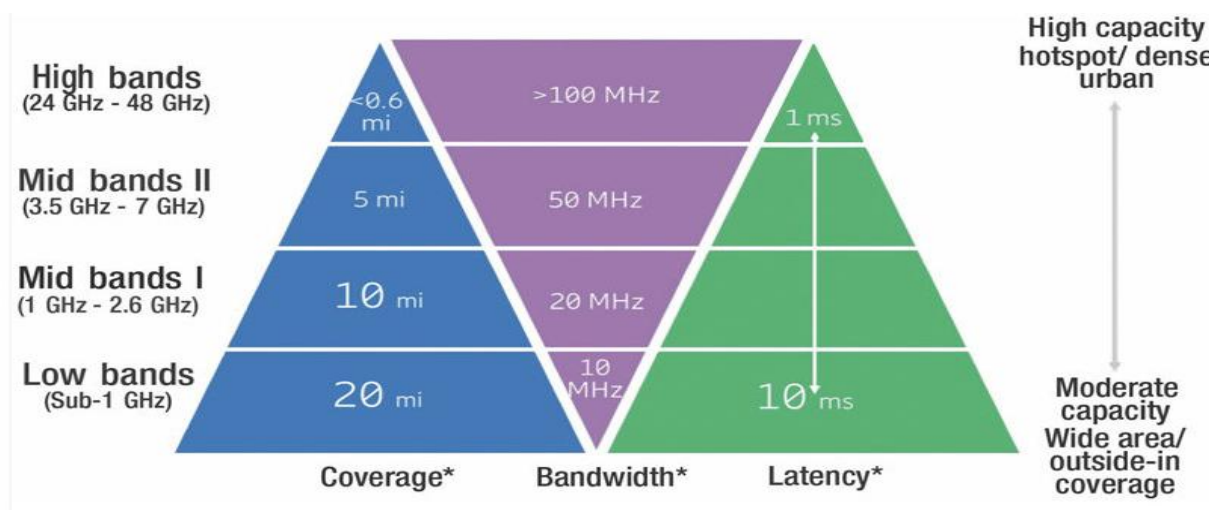
delivering to the customer who is waiting outside of the store. Any last-minute changes made by the customer are immediately updated on 5G enabled device sales rep uses.



Real-time data

5G's reduced latency means there's little lag time between when a sensor detects an event and when it's recognized by the system. For the store operations, reduced latency can

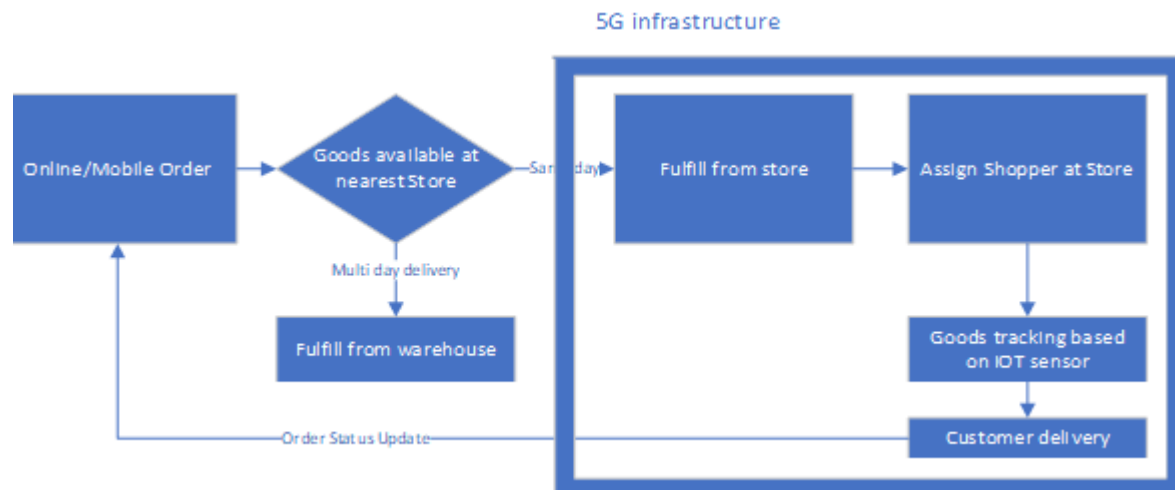
enable quick replenishment of shelves. Processing power will be able to move closer to the work, making sensors and mobile devices more capable.



Same Day Delivery

Traditional supply chain networks are often not built for same-day delivery with excellent service. 5G's low latency

provides flexibility for the retail organizations to utilize retail store shoppers to fulfill the orders. 5G's IOT tracking capability provides secure delivery of good with tracking enabled at loading the vehicle and delivering it to customer.



2. Conclusion

The explosion of 5G data will bring new challenges because of how much and how frequently data can be collected. After all, information may be available about every item in the store. New safeguards and controls need to be in place to make sure data is protected. Early investment in 5G network can make the Retail stores ready for changing customer expectations and shopping habits. Stores that delay investments in 5G may be left behind.

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