



WHITEPAPER

Cellular Networks Reshaping Retail Business Models

Solutions and strategies to connect
self-service, kiosks and vending

Self-service innovation is sweeping through the retail industry



Advances in technology are empowering businesses to provide products and services when, where and how consumers expect them. Connected retail is driving new forms of vending, with kiosks, e-lockers, pick-up and self-service solutions that all need to be connected to the Internet.

We no longer go into a retail outlet and buy lottery tickets, visit a hardware store to have a key made or stop at the post office to pick up a package. Instead, we increasingly rely on self-service devices such as kiosks, automated retail vending machines and 24-hour pickup lockers to accomplish those tasks.

After going through several lockdowns where we simply couldn't do those things, many of us changed our daily habits and buying patterns. As restaurants and brick-and-mortar stores closed,

food trucks and pop-up shops became a common sight on farmers' markets, parking lots and local parks.

Although many of these business models have existed for years, a desire on the part of consumers for contact-free transactions has accelerated their adoption. If there's one thing that these up-and-coming ways of doing business have in common, it's that they all rely on network connectivity. Commerce today depends on the ability to process payment cards and to remotely monitor and troubleshoot unattended devices.

But being dependent on an outside network for connectivity can be a problem. If a fleet of automated key-making machines, e-lockers or digital signs are relying on a retail store's Wi-Fi, ensuring the devices get back online in the

event of a network outage is likely last on the list of priorities.

For small retail stores or pop-up vendors, piggybacking the operations on a public Wi-Fi connection is not an option, but the cost of installing a fixedline cable is cost-prohibitive. Secure and reliable internet is a must because all these business process payments, receive orders or integrate with cloud-based applications. Relying on a third party for network security can be a

Instead, leveraging a cellular network for connectivity can be a better option. Managed cellular networking solutions allow self-service vending and connected retail to stand on their own.

Solutions for today’s business needs

Retail will continue to see consolidation and integration with cloud platforms. Chances are good that the way business is conducted going forward will bear little resemblance to how things were done only a few years ago. It’s hard to point to one cause since the shift toward remote work, advancements in mobile technology, and changing consumer preferences all play into it.

A Mobindustry report on retail technology predicts that the

global retail digital transformation market will reach \$388.51 billion by 2026, with smart retail reaching \$68.8 billion.¹ Similarly, Data Bridge Market Research estimates that the global retail automation market will reach \$34.5 million by 2030, up from \$16.5 million in 2022.²

Whether you’re looking at self-service checkout systems, POS solutions, or vending machines – automated retail is here to stay. New product pickup

methods such as automated lockers allow customers to pick up purchases or return items at their convenience simply by entering a code on the locker’s keypad. The 2019 Kiosk Marketplace Census Report named automated lockers as one of the self-service solutions offering the best opportunities for growth going forward, and a desire for contactless transactions will likely add fuel to that fire.

Self-Service Connected Retail is empowering businesses to provide products and services when, where and how consumers expect them. Covering self-service, kiosk and vending solutions that can be applied in a wide range of settings including:

- ▲ Airports & Other Mass Transit Hubs
- ▲ Arenas & Stadiums
- ▲ Banks & Credit Unions
- ▲ Cannabis Dispensaries
- ▲ Casinos
- ▲ Colleges & Universities
- ▲ EV Charging
- ▲ Family Entertainment Centers
- ▲ Food Truck & Food Vending
- ▲ Government Services
- ▲ Hospitals & Other Healthcare Facilities
- ▲ Hotels & Resorts
- ▲ Museums & Other Attractions
- ▲ Office Buildings
- ▲ Restaurants
- ▲ Retailers
- ▲ Theaters
- ▲ Theme Parks
- ▲ Other Public Places

With solutions including:

- ▲ ATMs
- ▲ Automated Merchandising
- ▲ Bulk Vending
- ▲ Coffee & Beverage Service
- ▲ Endless Aisle
- ▲ Micro Markets
- ▲ Music & Games
- ▲ Payments
- ▲ Self Check-in
- ▲ Self Checkout
- ▲ Self Ordering
- ▲ Supply Dispensing
- ▲ Ticketing
- ▲ Wayfinding
- ▲ And more...

Ghost kitchens on the rise

The global ghost kitchen market is already valued at \$70.37 billion, and it's expected to more than double in size by 2030.³ On the other side of the equation, we've also changed our behavior. A study by Tillster found that, if more than 5 people stand in line in front of a cash register, 75% prefer a self-service kiosk.⁴

Retail automation does have a positive impact on revenue as well. When placing orders through a kiosk solution, 61% of customers spend more money than those at the cash register.⁵ Through all these factors, self ordering kiosks lead to an average revenue increase of 7%.⁶

With these verticals and others relying on connectivity to conduct operations, many are turning to cellular networks as their technological foundation.

How do cellular networks work?

Cellular networks operate in much the same way as traditional hardwired networks; except, of course, without the wires.

A cellular wide-area network (WAN) connects to the Internet via a cellular router, which can

then generate a wireless local area network (WLAN) via Wi-Fi to connect to devices such as point-of-sale terminals, laptops, digital signage networks and Internet-of-things devices. With cellular service continually improving, cellular networks offer data speeds comparable to wired connections.

What makes cellular connectivity the better choice for ghost kitchens and mobile retail?

Cellular networks offer a host of advantages over other forms of connectivity. Thanks to near universal coverage, 4G LTE covers areas where other forms of connectivity aren't available, and 5G is slowly but surely rolling out as well. That's a particular advantage when it comes to devices such as self-service kiosks or automated retail devices that may be placed in remote locations. Also, unlike cable, cellular usually has multiple options with the three leading carriers providing service nationwide.

Cellular managed service providers incorporate encryption into their services, as well as implement Private WLAN Wi-Fi networks that are available only to the specific devices operating the business, thus delivering a



much more secure network than traditional Wi-Fi.

Cellular is reliable, with users reporting uptimes exceeding 99.99%. And if one provider has an outage, there are multiple carriers servicing the same area. When considering cellular as a primary network, one may consider equipment that has dual SIM capabilities that provide access to two cellular networks with auto-failover for even more reliability. Even those who use a wired network as their primary connectivity may find it advantageous to maintain a cellular network as a failover.

For many operators, though, creating and managing a cellular based network can be a mystery. Working with a managed network service provider can simplify the task.

Flexibility of a managed network service provider

It's certainly possible for an operator to set up a cellular network on their own for a few locations with a single cellular carrier. That said, when the number of locations begins to grow and the need for different carriers is dependent on network availability, it requires more and more of your IT department's time. They typically have more important details on which to focus. Leveraging a managed network service provider can eliminate the headaches of going it alone while providing a single source for hardware, multiple carriers, and network engineering experience.

Ventus, a US-based managed service provider with over 20 years of experience, provides carrier-agnostic cellular wireless networking services via a PCI-DSS (Payment Card Industry) compliant data transport private network. With end-to-end management including integration services, data encryption, network engineering, 24x7x365 technical support and monitoring systems all on a single invoice.

The advantages of working with a managed network services provider such as Ventus include:

- ▲ Cellular network services across all carriers, as well as Dedicated Internet Access, Broadband and MPLS when needed
- ▲ All software and firmware updates managed by Ventus
- ▲ Dual SIMs with auto failover
- ▲ Plug 'n play hardware for ease of deployment
- ▲ Dedicated Project Manager for deployments
- ▲ 24x7x365 technical support center handling all service provider relationships, including ticketing
- ▲ Power alerts supported by built-in lithium ion batteries to differentiate between power and network outages, reducing truck rolls
- ▲ Access to Ventus Genesis web-based monitoring platform for real-time reporting
- ▲ Genesis mobile phone app to support installations
- ▲ Managing all activations, moves, adds and changes
- ▲ Single invoicing for consolidated billing
- ▲ Shipping to regional facility or direct deployment location
- ▲ Network engineering services for custom network solutions
- ▲ Maximum uptime while reducing management of vendors, IT and payments
- ▲ Flexibility for multiple solutions driven by different needs across an operation's footprint

Data transport features include:

- ▲ Multiple carrier and fixed line options
- ▲ Data plans for all usage levels, including cross-carrier and cross-plan sharing
- ▲ Dual SIM with no additional data plan needed for second SIM

In addition to providing a managed network, Ventus also designs and manufactures its own routers that help provide peak performance in network operations. Ventus introduced a new line of enterprise M2M

kind VRB842 which combines routers including the first-of-its-kind a dual SIM router that provides remote power reboot for 2 independent devices and the Ventus VXI300 dual SIM router with download speeds

exceeding 600 Mbps and upload speeds topping 150 Mbps that can also act as a 3x3 dual-band Wi-Fi access point. Ventus hardware comes pre-configured for plug 'nplay deployments to ensure that deadlines are met.



Adapting to the new norm

From pop-up shops to small retail to food trucks, from unattended retail devices to self-service kiosks, the new way of doing business is only as good as the network on

which it's built. Setting up a network can be a complicated task, and even a temporary outage can bring operations to a halt. Many businesses don't have the luxury of

in-house IT staff. For those businesses, leaving network management to a proven expert can be one of the best decisions they make.

Ventus router options

All models offer Genesis centralized web-based monitoring, custom alerts and Dual SIMs for network flexibility.



V2000X4 M2M 4-port router

- ▲ 4G LTE-A, Cat-3 module
- ▲ 1 WAN/LAN port and 3 LAN ports
- ▲ Power alerts



VRBB42: Combining cellular connectivity with remote power reboot

- ▲ 4G LTE-A, Cat-3 module
- ▲ Remote reboot functionality for 2 devices
- ▲ 1 WAN/LAN port and 1 LAN port
- ▲ Power alerts

About Ventus

Ventus provides Managed Connectivity with two main offerings; Managed Connectivity-as-a-Service (CaaS) and Network-as-a-Service (NaaS) solutions that simplify the complexity of enterprise Cellular WAN connectivity. Ventus builds, hosts, deploys and maintains secure, disruption-free WAN networks supported 24x7x365 by dedicated engineering, client, and support teams.

With over a 200,00 kiosks, ATMs, and locations under management, Ventus is the clear choice for building a streamlined and consolidated self-service channel. Trust our in-depth expertise in network integration and management, technical and carrier support, and multi-channel solutions to meet any network need.