Enhancing Interactive Teller Machines with 5G and Digi Cellular Routers

The value of Interactive Teller Machines (ITMs) became obvious in 2020. That is when COVID-19 limited access to public spaces.

As bank and credit union lobbies closed, there was a surge in self-service customer traffic. While drive-up windows, cylinders and pneumatic drawers were important, banks that had ITMs set up in these same areas were uniquely positioned for success — providing superior customer satisfaction with anytime access and shorter wait times.

Today the business case for ITMs is driven by the latest improvements in customer service automation along with the need to maintain high availability and competitive advantage. Once a convenience for customers, ITMs have now created the new standard for intuitive, efficient and personalized service. Gone are the days when a human teller could recognize each customer's name and anticipate their needs. Connectivity solutions perform best when supported by 5G — today's fast, affordable, most reliable and most secure network technology.

Because 5G enhances speed, security and throughput and is continually improving, its potential is constantly expanding. This white paper updates how 5G wireless technology, delivered via the **Digi EX50 5G cellular router solution**, significantly enhances the performance, reliability, and capabilities of ITMs compared to traditional network connections.

What Is 5G?

What are the advantages of 5G technology, and how can 5G be used? When we consider the importance of 5G and the many benefits it offers, the list is extensive. Most importantly in business and commerce, 5G makes new innovations poosible that enhance security, improve efficiency, enable real-time data collection and reporting and raise customer satisfaction with faster, more personalized customer service.

5G stands for fifth-generation mobile network technology. It is the successor to 4G (LTE) and is designed to provide faster speeds, lower latency, greater capacity and more reliable connections for mobile devices and connected systems.

5G is a dynamic technology so it's important to keep an eye on what's ahead. For instance, 5G networks will become AI-driven, self-healing with predictive fault detection — potentially reducing fault detection time by up to 90%, which improves business continuity across branch and ITM locations. Early adopters of 5G demonstrate technological leadership, attracting younger, tech-savvy customers who embrace digital services, and AI-powered customer engagement tools. According to Accenture research, companies that invest in 5G will grow revenue 2.5 times faster in the next three years.

5G Market Trends in Banking

GSMA Intelligence, a leading source of global mobile industry insights, forecasts and research, predicts 5G will play a vital role in accelerating digital transformation in the banking sector. Here are key findings from its recent publication "5G and the Banking Industry: Driving Transformation".

Faster digitalization: 5G facilitates quicker and more efficient processing of complex tasks in real time, improving the performance of banking websites and apps.

Enhanced mobile banking and customer experience: 5G's faster data transfer speeds improve mobile banking experiences, allowing customers to access their accounts and perform transactions seamlessly. This also paves the way for new banking channels, more personalized services and immersive experiences through technologies like augmented reality (AR) and virtual reality (VR).

Real-time fraud detection and security: 5G's low latency and high speed enable faster anomaly detection and proactive fraud prevention by accelerating the 3D Secure (3DS) authentication process and supporting multi-layered biometric security procedures. This enhances data protection for sensitive financial information during transactions.

Hyper-personalization: The ability to analyze vast amounts of customer data in real time, empowered by 5G, allows banks to better understand customer needs and preferences. This enables tailored product recommendations, personalized financial advice and customized offerings.

Financial inclusion: 5G-powered pop-up branches or mobile banking units can bring financial services to remote and rural areas, leveraging high-speed connectivity and technologies like VR to deliver engaging and accessible services.

High-fequency trading and financial market analysis: The low-latency capabilities of 5G are particularly beneficial for high-frequency trading, allowing for faster and more efficient transactions in the stock market. 5G also enables real-time market analysis and in sights, helping investors make informed decisions quickly.

IoT-driven banking services: The integration of 5G and the Internet of Things (IoT) allows for the development of smart insurance policies and IoT-driven banking services, enabling personalized offerings and seamless experiences through connected devices like smartwatches and home assistants.

Secure blockchain transactions: 5G's capabilities for secure and efficient data transfer facilitate the adoption of smart contracts and blockchain applications in finance, strengthening the security and integrity of transactions.

Key Advantages of Digi EX50 and 5G for ITMs

The challenges of wired connections and older cellular technology like 3G include performance and reliability issues, as well as lower bandwidth, higher latency and network instability. Here's how the Digi enterprise EX50 router solution, powered by multi-carrier 5G SIMs and fully integrated with remote management capabilities and security, overcomes today's challenges and supports future services and applications.

Lower Latency

- Digi EX50 leverages 5G connectivity to reduce network latency, providing near-instantaneous response times
- Better speed enhances the customer experience during live video sessions, making conversations feel more natural and less robotic

Higher Bandwidth and Speed

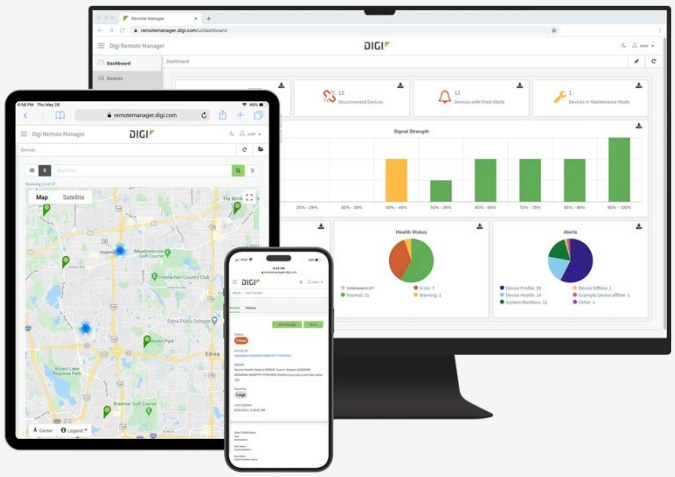
- Digi EX50 accelerates data rates using 5G sub-6 GHz technology
- Higher performance with 5G enables high-definition video calls, fast transaction processing, and real-time data synchronization without performance degradation

Digi Remote Manager: Centralized visibility and direction at your command

Manage
Control all your Digi EX50 devices from one place

Extensibility
Bi-directional APIs allow you to integrate your existing network controls into **Digi Remote Manager®** (Digi RM)

Edge Computing
Enhance network performance with scripting and containers



Key Advantages of Digi EX50 and 5G for ITMs (continued)

Support for Edge Computing

- With USB, Ethernet, and serial interfaces, the Digi EX50 cellular solution can support edge devices and local processing
- Digi's cellular routers use 5G to enable AI applications such as facial recognition, voice analytics, and behavior analysis at the edge

Enhanced Security for PCI Compliance

- The integrated stateful firewall of Digi EX50 enables packet inspection and uses encryption and authentication via IPsec VPN, SSL, SSH, SFTP and/or X.509 certificates
- It stores log events via syslog and provides event alerts via SNMP, email, and SMS
- Digi EX50 supports network slicing for isolated, secure financial transaction networks

Greater Deployment Flexibility

- The compact and ruggedized EX50 enables deployment in remote, temporary, or underserved areas
- 5G helps eliminate the need for physical infrastructure like fiber or cable, reducing deployment costs and timelines

Increased Resiliency and Uptime with SureLink®

- The **Digi SureLink®** service provides robust failover capabilities and recovery methods made possible with continuous link monitoring
- Digi EX50 ensures uninterrupted service for ITMs, especially where landline infrastructure is unreliable
- Additionally, Digi EX50 provides 4G LTE and 3G fallback when 5G becomes unavailable or is not deployed yet

Remote Management and Maintenance with Digi Remote Manager

- Digi RM provides centralized, secure remote access for firmware updates, diagnostics, and configuration
- Digi RM automates tasks to reduce the need for on-site technician visits, lowering operational expense

Comparative Summary: 5G vs. 4G for ITMs

Feature	4G LTE	Digi EX50 with 5G	Benefit for ITMs
Latency	50–100 ms	~10ms	Real-time video and teller interaction
Bandwidth	~100 Mbps	Up to 1.4 Gbps	HD video, AI, real-time data
Uplink/Downlink Symmetry	Limited uplink	Faster and getting better with service improvement	Smooth two-way video and data transfer
Edge Computing	Limited	Supported via interfaces	Enables AI/ML, fraud detection locally
Network Slicing	Not available	Available	Enhanced security, SLA-level reliability
Deployment Flexibility	Moderate	High with compact rugged form	Fast deployment, no dependency on wired lines
Failover Capability	Manual or slow	SureLink automatic failover	Zero downtime for mission-critical services

Primary Use Cases

- Urban and rural branch ITMs requiring resilient backup primary WAN
- Event-based or temporary banking kiosks
- ATM/ITM networks with advanced fraud monitoring and AI-driven analytics
- Credit unions looking to reduce overhead via centralized remote tellers

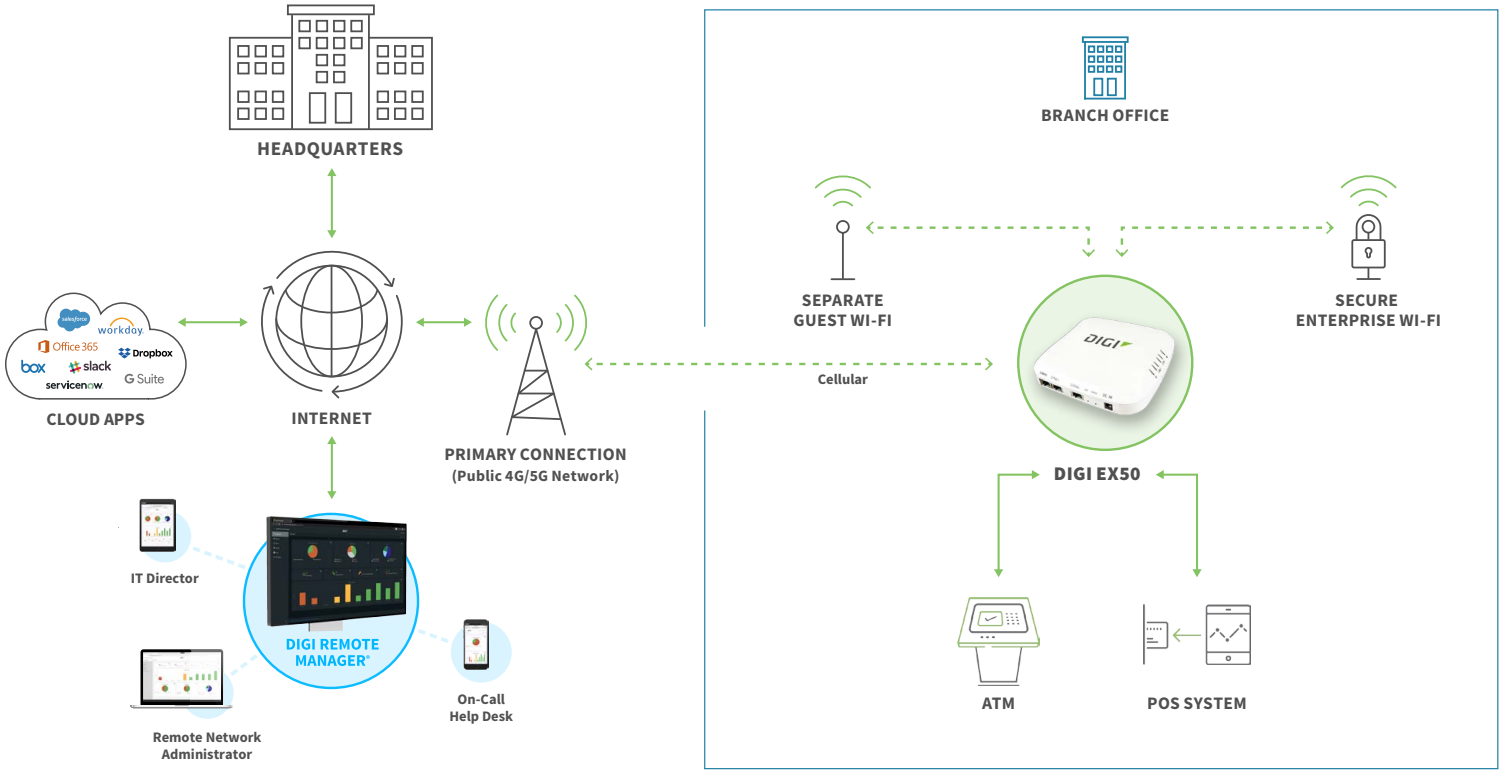


Figure 1: Typical ITM deployment with Digi EX50 and Digi Remote Manager®

Conclusion

5G is a pivotal technology, shaping the future of banking, driving innovation, enhancing efficiency and delivering exceptional customer experiences. 5G's speed and low latency enable smoother mobile banking, support advanced customer service tools like AI-powered chatbots and unlock immersive experiences through technologies like augmented reality (AR) and virtual reality (VR).

In addition, 5G network services advance the evolution to more robust security measures and faster fraud detection, protecting customer data and financial transactions. With enhanced connectivity, particularly in remote areas, 5G can expand access to banking services for underserved populations.

By leveraging the speed, security, and flexibility of 5G and the Digi EX50 cellular router solution, banks and credit unions can future-proof their ITM deployments, provide superior user experiences and reduce operational costs.

Are you ready to learn more about how 5G is powering digital transformation in finance? Let Digi help!

Contact a Product Expert: sales@ventusgns.com

Appendix

Sources:
GSMA Intelligence. "5G and the Banking Industry: Driving Transformation." 2023.
IDC. "Banking IT Modernization and Connectivity Trends." 2024.
IEEE Spectrum. "Latency and Throughput in Next-Gen Wireless Networks." 2022.

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