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5G and Payments

Velocity vs. Vulnerability

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5G and Payments - Velocity vs Vulnerability: Can Payment Systems & Infrastructure Keep Up?

5G promises to extend network reach and density (the number of connected devices) while improving the speed and connectivity of individual connections. Are legacy payment systems and infrastructure equipped to handle the coming rush of payments and data volume?

At a Glance

- **The number of connected devices that can make payments will dramatically increase with 5G.**
- **Better connectivity and fast speeds will allow for access to new and more types of data to be analyzed for authentication in real-time.**
- **Most legacy national payment systems work on a net deferred settlement basis and will be a bottleneck to maximizing the real-time automated transactional opportunities enabled by 5G.**

The increased speed and connection density enabled by 5G will offer consumers and businesses the ability to access and process data in real-time. This will have far reaching impacts on personal financial management, retail and B2B commerce, and internal business processes.

Additionally, 5G will dramatically increase the number of connected devices that can make automated, rule-based transactions.

This increased velocity of transactions and volume of data will put significant strains on existing national payments infrastructure.

A faster more interconnected system also increases vulnerabilities to fraud, requiring enhanced authentication and security protocols.

The ability of regulators and financial institutions to upgrade payment systems to handle this increased payment velocity, while simultaneously protecting against new threats will be key to realizing the promise of 5G. If these open networks cannot do so, more nimble closed loop networks will have the upper hand.

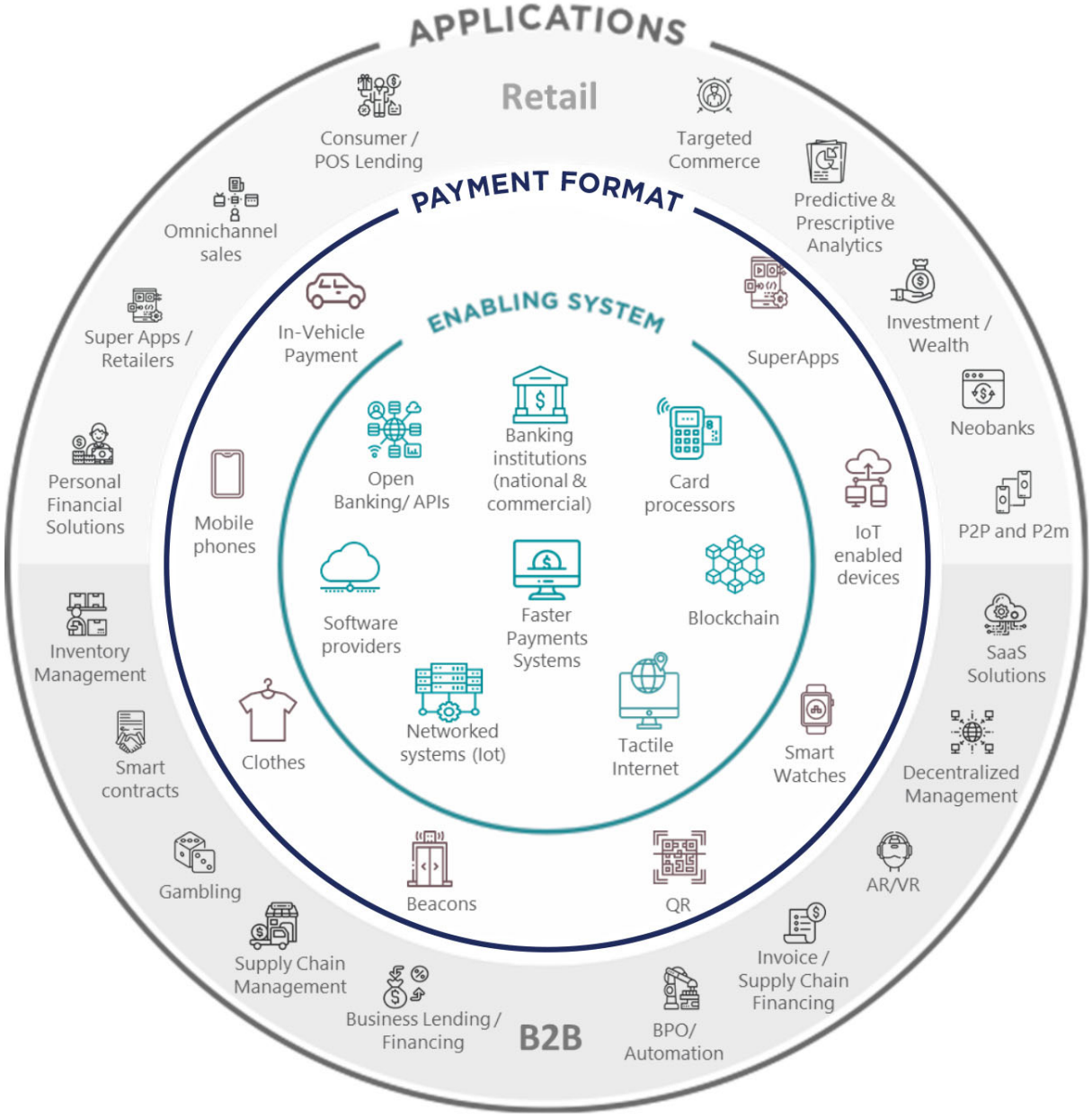
5G Will Increase the Velocity of Payments

	4G	5G
Latency	10 ms	1 ms
Data Traffic	7.2 Exabytes /Month	50 Exabyte /Month (2021)
Peak Data Rates	1 Gb/s	20 Gb/s
Available Spectrum	3 Ghz	30 Ghz
Connection Density	100 Thousand Connections Km^2	1 Million Connections Km^2

5G in Action

The adoption of 4G was a game changer for the development of personalized mobile solutions and apps. The improvements in speed and data capabilities allowed for growth of the sharing economy, supporting real-time two-sided marketplaces as well as better banking apps and personal financial management solutions. Recent research indicates that the number of connect devices will grow 130% in the next 4 years to 83 billion devices – resulting in a potentially exponential increase in payments velocity and volume.

Just as many of the solutions that consumers and businesses rely on daily (Uber, Go-Jek, Venmo, Rappi, Robinhood, Klarna, etc.) would not have been possible, or would have been quite limited with 2G and 3G protocols, 5G will allow for a number of new services and applications that will impact commerce and payments, most of which we cannot conceive of today.



While there are no 'killer apps' for consumers waiting in the wings for 5G, it will undoubtedly increase connection speed and quality, improving the user experience around existing applications and leading to the creation of new transactional apps. It will support the Internet of Things by driving seamless payments with connected devices and enabling smarter supply chains and automated rule-based transactions.

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Who Benefits from 5G?

Contactless Payments 5G will also support the use of contactless payments and unmanned and cashless stores by enabling smart in-store devices to connect with consumer devices more efficiently and reliably.

Micropayments 5G will support the ability of smart devices to make micropayments (i.e. your smart fridge buying milk) by processing data more efficiently.

Extended Payment Acceptance 5G will allow for extending payment acceptance by allowing more micro and small merchants to process payments via their connected devices without the need for traditional POS solutions and acquiring relationships.

Warehouse Automation 5G will allow businesses to increase automation within their warehouse through deployment of beacons and other smart devices.

Stadium Goers Increased connection density and bandwidth will allow for improved in-stadium gambling by allowing stadium goers to process data and make betting decisions in real-time along with a better, more reliable connection.

Smart Cities 5G will support the growth of Smart Cities through contactless payments on public transit and other innovations.

Global Trade & Smart Ports 5G will support automating the complicated and paperwork intensive process of import and export protocols at shipping ports. Using digitized trade data and equipping individual shipping containers with smart tags that allow for their progress through the port ecosystem to be tracked in real-time, one can trigger escrowed funds to be released automatically at certain milestones and for import/export data to be appended to those payments instructions between constituents to satisfy regulatory requirements..

Increased Connectivity = Increased Vulnerability

5G will increase consumer and business connectivity by increasing the number of connected devices, while simultaneously increasing the number of points of vulnerability.

Maintaining proper security across all devices becomes increasingly important as access to a single point can expose a whole network – as was the case of the Las Vegas Casino that was hacked via an unsecured smart thermostat.

Strong security and authentication protocols become increasingly important.

At the same time, better connectivity and faster speeds allow for access to new and more types of data to be analyzed for authentication in real-time.

Evolving Security Protocols

- Biometrics
- Seamless/ PIN-less
- PCI - Compliance
- AI/Machine Learning
- Behavioral/ Location based insights
- Multi-modal Authentication
- Tokenization

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National Payment Systems Will Be Tested

National Payment System Challenges

While the 5G standard is set to increase the velocity of payments, the sheer number of devices making automated intelligent payments decisions and their need for real-time access to funds and data will put pressure on existing national payment systems. It is not clear that national payment systems, many of which still settle daily, or less frequently, and have low data payloads, are best equipped to enable the benefits of this 5G evolution – in fact, they risk becoming bottlenecks that force solution providers to look to more nimble closed loop solutions.

While an increasing number of devices will be enabled to make payments and to receive, process and act on information more quickly, national payments systems themselves need to support the settlement of funds and flow of data associated with those transactions to truly realize those benefits. Further, these benefits need to be extended systemwide and not just restricted to certain institutions or segments of the population.

The Role of Central Banks, Regulators and Infrastructure Providers

Globally, central banks and regulators are increasingly looking to upgrade their payments infrastructure to enable faster payments and heavier data payloads. However, currently, many countries lack these systems while other countries, like the UK, Brazil and Japan, which have domestic faster payments systems, face challenges and are in need of upgrades to extend working hours, expand their reach and handle already growing transaction volumes. Beyond central banks and clearinghouses, the payments infrastructure used by financial institutions also needs to support the significant growth in the velocity of payments and the flow of data that are needed by 5G connected devices and the solutions/networks they comprise.

To realize the benefits of 5G and enable the new business processes and capabilities that consumers and businesses will want, regulators, infrastructure providers and financial institutions need to consider how to enable payments to work at the speed of 5G. As these institutions (public and private) consider upgrades to their payments infrastructure, either improving existing systems or developing new ones entirely, they would do well to consider how an increase in connected devices alongside the adoption of 5G will increase the volume and velocity of payments they process, as well as the demands they will face for additional payments-related data and enhanced security protocols. If these providers cannot meet these needs, businesses and consumers will look to alternatives systems, like closed loop ecosystems within superapps and digital wallets, as well as ERPs and intelligent businesses networks, that can move payments and payment related data at the speed commensurate to 5G.

What is Faster Payments?

Faster Payments (also called Real-Time Payments, Immediate Payments, Instant Payments, etc.) is emerging as a new and transformative payment system.

Today's faster payments systems largely share the following characteristics:

24x7x365

Purely electronic payment infrastructure

24x7x365 service availability

Final

The originator and receiver of the transfer have immediate confirmation

Based on a 'good funds' model

Certain

Fund Transfers are irrevocable

Typically a 'push' transaction

Instant

Recipient has instant availability of the funds

Innovations

- Richer data standard (ISO 20022) to improve efficiency and innovation
- Support alternative identifiers (e.g. addressing schemes) for authentication.

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Impact of 5G Adoption

The adoption of 5G will increase both the velocity and volume of payments by increasing the number of connected devices, including those that can make automated intelligent payments decisions.

At the same time, it will also increase the amount of, and demand for, seamlessly integrated payments related data.

This will affect consumers, businesses, payment infrastructure providers and regulators, creating numerous potential new applications and services but will also stress systems and create new vulnerabilities.

In an increasingly connected world, with more automated processes and solutions, new technologies will have more far-reaching impacts on consumers and businesses than previously imagined. Businesses need to understand the potential opportunities and challenges presented by 5G for both themselves and their industries.

At a minimum, businesses will need to consider how to optimize their 4G oriented solutions to take advantage of the increased possibilities unlocked by 5G. Ideally, they will begin to prepare for new threats and opportunities enabled by 5G, most of which we cannot conceive of today.

There will likely be a potentially exponential increase in payments velocity and volume as 5G comes online globally. Central banks, regulators, financial institutions and payment infrastructure providers must be ready to handle this increased volume and velocity of payments in a secure and dependable manner.

Reflections on 5G…. Is Your Business Ready?

- How will the explosion of connected smart devices enabled with automated intelligent transaction protocols interact with your business' and industry's portfolio of products and solutions?
- How will your internal finance protocols need to change to handle the growth in payments transactions? Do you need to rebuild your AP and AR business processes to manage this growth and benefit from new automation and efficiency opportunities across your supply chain?
- What security and authentication protocols will you need to integrate into your portfolio of products and solutions to ensure you are not the weak link in this interconnected environment?
- How will financial institutions and payments infrastructure providers enhance their systems to accommodate the need for greater data payload capabilities to be integrated into their real-time payments solutions?
- Regulators need to be proactive in developing guidance on standardized protocols for connectivity/interfaces, authentication and fraud, and data rails (e.g., ISO 20022). How do they optimally balance being supportive of the impending growth of interconnected devices and their inherent transactional opportunities while protected their constituents from bad actors and unintended consequences?

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KoreFusion's Experience

Over the past 18 months KoreFusion has led over 50 global engagements related to commercial payments and real time payments, and has worked with leading corporates, payment networks, clearinghouses, regulators and ERPs/intelligent business platforms worldwide to address their emerging challenges around payments and financial technology from both a strategy and M&A perspective.

For more insights from the KoreFusion team, and to discuss how these trends impact your business, please contact us.

KoreFusion uniquely combines strategy consulting and M&A advisory services exclusively for the international fintech, payments, and financial services industries. With six international locations, our experts balance global best practices with local priorities and expertise.

Our areas of expertise

- Faster / Real-Time Payments
- Push & Account-to-Account Payments
- B2B & Commercial Payments
- P2P & P2M Payments
- Credit, Debit, Prepaid & Commercial Cards
- Merchant Acquiring & Payment Processing
- Money Transfer & Remittances
- Supply Chain Digitization & Finance
- Consumer & Commercial Lending
- POS & Omnichannel Solutions
- Mobile & Emerging Payments
- e-Wallets & Closed Loop Ecosystems
- Cobrand & Loyalty