MONEY ON THE MOVE

An overview by Iron Mountain Data Centers (IMDC) of the current challenges, drivers and opportunities for financial services firms

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DATA CENTERS

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SOLUTION SNAPSHOT

This IMDC solution overview sets out the key drivers and challenges influencing infrastructure strategies for financial services and fintech businesses, with a particular focus on the role of colocation.

THE HIGH STREET IN THE CLOUD

From banking and capital markets to insurance and investment, the $20 trillion financial services sector has undergone a technology-driven explosion in recent years. The cloud, ubiquitous connectivity, Covid-19 and the growing dominance of mobile devices have driven unprecedented growth in the number, sophistication, accessibility and uptake of new tools and services. These tools have allowed new cloud-native fintech firms to disrupt the market, as well as enabling existing companies to add to their portfolios with an increased range of services.

Challenger neobanks are tempting customers away from high street firms with user-friendly low/no-fee integrated mobile interfaces. Real-time data orchestration is radically transforming insurance and other services and creating new sources of added value. Crypto currencies are transforming the world of payments and exchange. Mobile-based trading platforms are opening up the stock market to hundreds of thousands of next-gen investors who now account for over 20% of all trades. Loans and mortgages are next in line.

And the risks run both ways. Challenger banks and specialist fintech apps are vulnerable. Not all will succeed in the market and many need backstopping and support from established financial partners. Technology is supercharging change in financial services more than in any other sector. New ideas become new products in months rather than years. Old habits and outdated platforms are quickly exposed as inefficient and costly burdens.

Platforms matter more in this environment. Because technology is the main driver, the digital infrastructure that supports it is critical. Legacy real estate, data centers and systems act as a drag on innovation, leading to missed market opportunities and lowering profits. For established institutions the task is similar to changing the wheels while on the move. Clearly cloud-native services are the answer, but which clouds are the best bet, and how do you reach them securely? And what is the best way to connect existing back-office platforms to the new customer-facing front end?

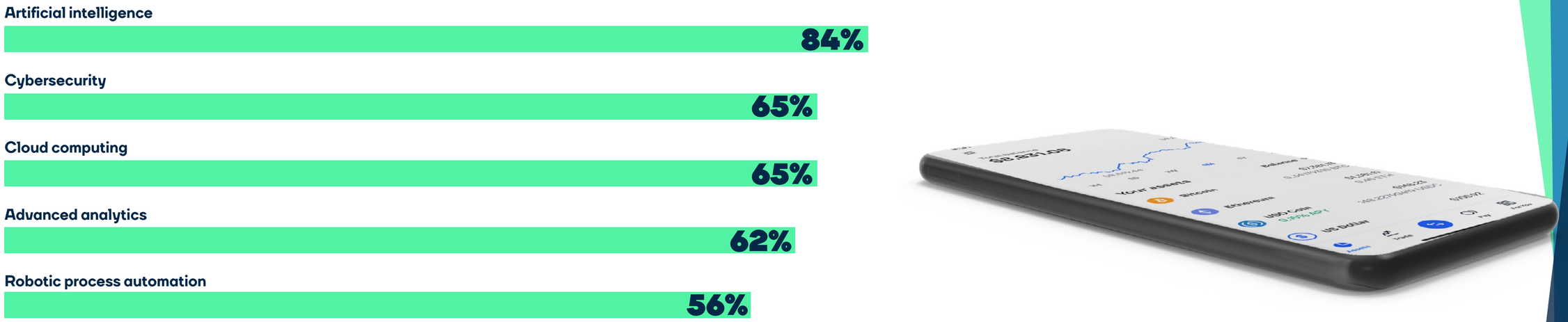
There is also the burning question of environmental impact. Whatever platform you choose needs to reflect your core values as well as those of an increasingly concerned and well-informed customer and investor base. Will the platforms you choose help you to decarbonize your operations, or will they undermine your right to operate in the face of the current crisis?

This publication draws on IMDC's expertise as well as a range of other industry sources to assess infrastructure needs for financial services firms. How can a financial services business establish an ICT infrastructure that is as secure, reliable and ethical as possible at the same time as thriving in this fast-changing cloud-driven market? And how can you ensure that this new architecture will serve you well - not just today, but for years to come?

TOP 10 TECHNOLOGY DRIVERS

Banks need new approaches to realize the full potential of their technology investments

Percentage of responders whose firms faced challenges adopting these these technologies



Source: The Deloitte Center for Financial Services Global Outlook Survey 2021

1 SECURITY

According to the FBI Cyber Crime cost business almost $7 billion in 2021, an increase of 65% on the previous year. Not only are financial businesses most exposed, they also have to show the way to (and underwrite) other parts of the digital economy. Threats continue to grow, with spear phishing, DDoS ransomware, massive data theft, ATM 'jackpotting' and mobile malware, while IoT and the Edge are increasing the size of the threat landscape.

2 AUTOMATION

The Covid pandemic has spotlighted the need for efficient and reliable remote infrastructure operation. This applies across all information management processes from scanning and document storage to equipment lifecycle management and remote operation/Smart Hands for migrations, maintenance and interconnections in the data center.

3 PARTNERSHIPS

Partnerships, strategic investments and acquisitions are driving innovation. Not just between financial institutions and fintechs, but also across a wide range of support service providers; security, content partners, market and risk data and news all add value to the mix. Cross-sector partnerships (points, loyalty cards, cashback, healthcare) constantly uncover new pockets of value. New cloud-based financial services cross many more industry lines than pure digital plays like Airbnb in hospitality and Uber in transport.

4 CLOUD CONTROL

Cloud is where all the latest technologies converge and where new services are developed and delivered. And not just one cloud. Service providers will need to develop applications that run across multiple cloud environments natively. Companies will also want to use different clouds to develop specific application components. Using the strengths of each cloud, companies can optimize application development for the best possible user experience.

5 AI+ML

Cloud-driven Artificial Intelligence and Machine Learning are already mainstream in the industry, but they will grow more important and drive competitive advantage, making firms more intelligent about their customers' needs, interacting with and triggering customer transactions. Because AI can efficiently process much larger amounts of information, self-learn, and accumulate knowledge at a record high speed, technological solutions based on it will provide improved interaction between users and their financial services.

6 SUSTAINABILITY

Trust is at the heart of the traditional banking model and environmental responsibility is now a critical factor in building and retaining consumer trust. Public cloud businesses like Google, Amazon and Microsoft have made great strides in decarbonizing their operations, as have many colocation providers. If they have not acted already, financial firms need to catch up fast to ensure continued consumer trust.

7 PLATFORM INTEGRATION

In the current M&A-rich phase, technology due diligence is a critical part of successful integration. Core system compatibility, connectivity contracts and technologies, supplier ecosystems, data center footprint, security and governance standards are an increasingly important factor in post-merger synergy

8 BOTS & OMNICHANNEL

AI-driven bots are handling an increasing proportion of customer enquiries. These will operate across more and more channels. Many firms are building their ability to seamlessly switch between different communication channels (mail, SMS, chat, messengers, voice) and form a single seamless thread for a client.

9 DIGITAL ASSETS

While the sector is currently depressed. Nearly $3 trillion in stablecoins such as Tether and USDC were transacted in the first half of 2021. Central banks are increasingly interested in CBDCs and stablecoins. Generation, storage and applications for distributed blockchain-based currencies will continue to grow and evolve, transforming financial markets.

10 GAMIFICATION/THE METAVERSE

Financial services are becoming more feature-rich, personalized and interactive, adding game-style features to engage and support customers.
At the same time, some firms are focusing on the metaverse, renting virtual real estate to replace high street bricks and mortar and allowing customers to meet virtually and communicate with staff, as well as invest and transact.

INFRASTRUCTURE CONSIDERATIONS

HYBRID FLEXIBILITY

Hybrid financial institutions are succeeding in the market as they can offer the best of both worlds; increased efficiency and innovative services with reliable systems and backstops. This approach — and the benefits it brings – applies equally to infrastructure.

For larger institutions with existing systems the first step to a pure cloud play is migration of the legacy equipment and systems you still need to a modern, cloud-and-partner-rich third-party facility. In other words, a hybrid infrastructure model.

Considering the sensitive and highly regulated nature of financial data, moving away from owned infrastructure will not happen overnight.

A colocated hybrid design in which workloads can be moved to and from the cloud will offer the access management and security that firms are used to while increasing scalability and access to the cloud and new partners and service providers.

There are other dividends. As well as converting Capex to Opex, new colocation customers typically reduce their total cost of ownership by more than 30% when compared to previous in-house solutions.

Colocation also boosts automation. By moving to a full-service colocation model which offers cross connects, builds and installs, smart hands and migration management via a web interface, FSIs can become more location independent, freeing up time for R&D, additional expansion and customer-facing work.

SECURITY & STANDARDS

Money moves around in a fast-evolving (and expanding) threat landscape. There has been a high-speed shift from perimeter security to a multi-point cloud-driven Zero Trust model where users are authenticated, authorized, and continuously validated. Your organisation's framework needs to be supported by all professional points of contact — suppliers, cloud service providers, networks and data center infrastructure providers.

Compliance is also complex. There are a multitude of international and national regulations, making practical security and compliance a major and complex concern. GDPR (UK & EU), SOX, BSA, GLBA, FINRA and the OSFI all need to be satisfied to ensure secure, compliant international online operation.

At the infrastructure level, data center uptime, resilience, DR and physical security need to meet the most exacting standards to support financial products. Tier 3 facilities with redundant and resilient infrastructure and failproof configuration are non-negotiable. Comprehensive physical and data security layers should guard your vital assets. In some cases extreme security is required: for maximum physical security underground facilities offer even greater protection from intrusion and natural disasters.

The Payment Card Industry Security Standard (PCI DSS) is a key certification for colocation providers, covering storage, processing, and transmission of Card Holder Data. However, as the division between finance and other industries is blurred, a wider range of industry-specific operational and security standards will be useful. A broad checklist of multi-sector third party certifications is a good indicator of reliability. Look for ISO 27001, SSAE18 SOC 2 (Type II)/SOC 3*, and ISO -50001. Region-specific certifications are also key for multi-region businesses; in North America, NIST SP 800-53*, FISMA HIGH, FedRAMP and HIPAA (Type I); OSPAR in Asia; ISO 450001 and 9001 in EMEA.

COLLABORATIVE ECOSYSTEMS

New partnerships between financial service firms, fintechs and other partners come to life with minimal latency via cross-connects in the Meet-Me Rooms of carrier-neutral cloud-rich data centers.

Connectivity, add-on specialist service and security layers and cloud connects make these new plays easy and cost-effective to replicate nationally or internationally. New app functionality can be bolted on almost instantly via a third party partner and an API.

Colocation needs the cloud and the cloud needs colocation. The emerging generation of specialist cloud management and simplification layers, multi-cloud and cybersecurity overlays all require physical points of low-latency contact with cloud hosts. For their part, larger cloud providers need both dedicated facilities for ‘heavy lifting’ and shared spaces or collaboration zones with ready-made ecosystems for partner and customer interconnection.

Directly connecting to partners and providers within the same data center eliminates latency and increases efficiency, cutting a huge amount off network costs and accelerating connections to new services. Global interconnections and direct cloud connections support data transit and core flows. Given sufficient proximity to exchanges (or colocation with them) the data center can become a high-performance trading room floor as well as a gateway point for distributed digital assets. A range of network, SDN, and internet exchange services also help keep traffic resilience high and costs competitive.

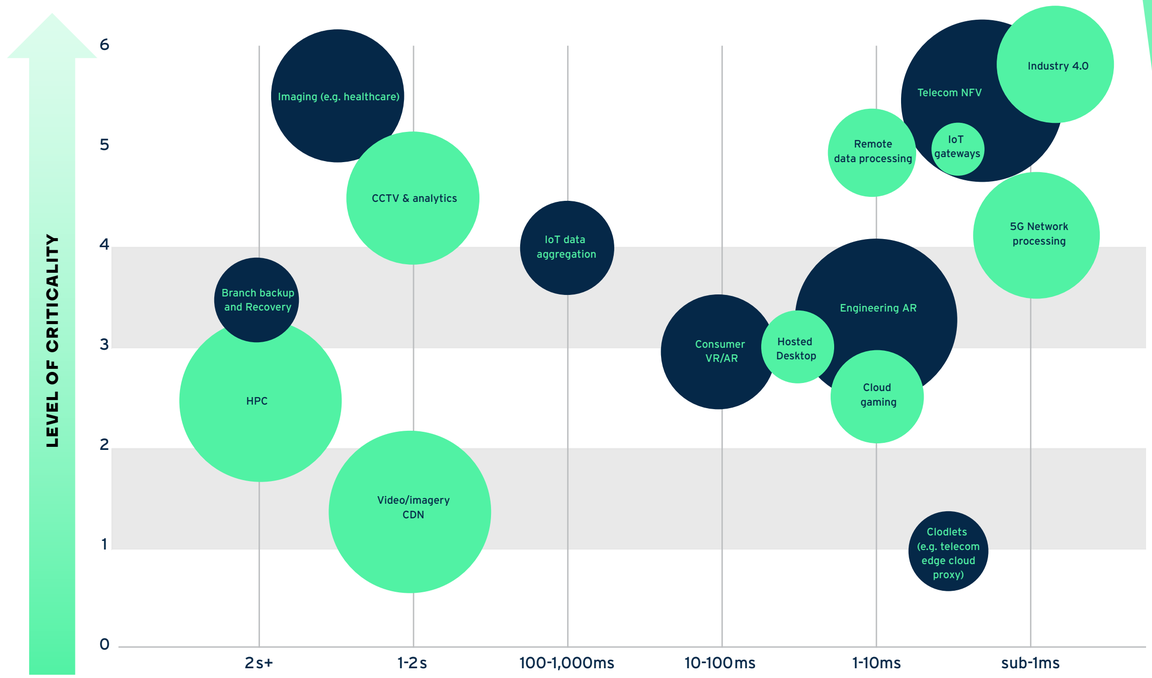
EDGE ACCESS

The edge of Internet infrastructure is a moving target that is of increasing importance to new and next generation financial services apps that require ultra-low-latency. To customers that are further out or in need of increasingly low levels of latency, firms are deploying smaller increments of cloud infrastructure in close proximity with 5G connectivity. These deployments can be as small as a few dozen racks and will live in edge colocation data centers, NSP aggregation points and other strategically placed locations.

Provider capability in location-sourcing, capacity and power planning must be up to providing timely space and operational support for core and partner servers and connections. For edge developments, expertise on the ground and access to space are critical in working with utilities, regulators, logistics, contractors and staff.

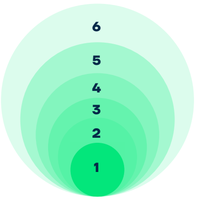
BUILDING THE EDGE

Edge facilities are mushrooming and you will need space there at some point. There are a variety of edge build propositions. For instance, in addition to 20 core data centers in North America, EMEA and APAC, Iron Mountain has, over the past 70 years, built a portfolio of 1400+ facilities worldwide. 695 of these facilities are located close to city centers or airports in the sub-5ms zone – the Metro Edge. Spread across 50 countries, they provide a valuable source of potential Network Edge and Metro Edge PoPs for local zones. IMDC is rolling out a proprietary highly secure (US government Sensitive Compartmented Information Facility or SCIF) and customizable modular edge solution.



SCORE VALUE	VOLUME / DAY/ SITE	CRITICALITY (AVAILABILITY OF DATA OR SITE)
6	100 TB+ (10 Gbps+)	0 downtime/extreme business risks
5	10-100 TB (1-10 Gbps)	few seconds/high risks
4	1 TB-10 TB (0.1-1 Gbps)	few minutes / moderate risks
3	100-1,000 GB (10-100 Mbps)	few hours / low risks
2	10-100 GB (1-10 Mbps)	few days / little risk
1	10 GB (1 Mbps)	irrelevant / no risk

KEY FOR VOLUME/DAY/SITE



EFFICIENT, CARBON-FREE OPERATIONS

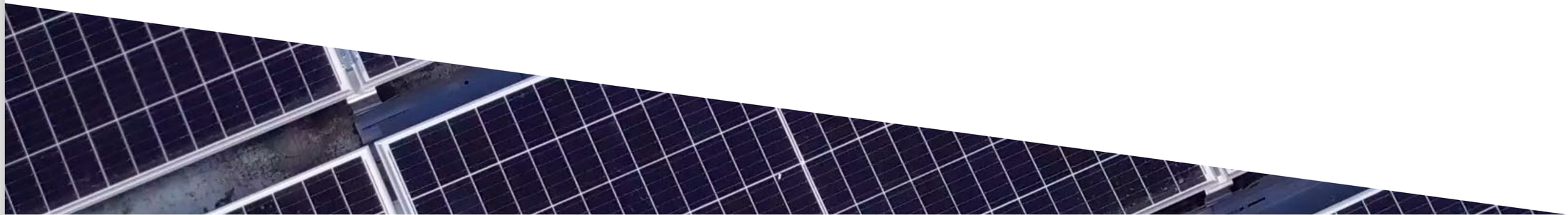
Trust is at the heart of the relationship between a financial services provider and its customers. Shared values ensure that relationships can stand the test of time.

As data levels rise, sustainability has become critical to long-term value and should be integralto standards. Efficient Power Usage Effectiveness (PUE) is the benchmark on which sustainability levels can be improved. Look for ISO 50001 Energy Management and ISO 14001 Environmental Management certifications which ensure year-on-year improvements in PUE. Insist that PUE figures are published annually.

Embodied impact should also be minimized during building, using voluntary certifications such as the BREEAM low-impact build standard. Also bear the impact of ICT equipment in mind when planning. For both efficiency and impact reduction, check that IT asset lifecycle optimization and recycling, remarketing and secure disposal are available.

Energy should be sourced or offset with renewable generation. Demand 100% renewables, any provider that cares about sustainability should be able to offer this by now. And go a step further if possible. Look for a carbon credit scheme like IMDC Green Power Pass which passes on credit for renewables which you can then share with customers.

Push harder for longer-term benefits. Full decarbonization is the ultimate goal and this should be built into your plans. If the site is suitable, demand renewable generation as close as possible to the point of use. To supplement on-site generation, it should also soon be possible to match site by site electricity use with local clean power generation every hour of every day to achieve 24/7 clean power. This ambitious new approach, pioneered by Google, will in time replace the current year-by-year renewable Power Purchase Agreement model. IMDC is currently the only data center provider to have committed to this total decarbonization model.



CONCLUSION

AGILE FINANCIAL ARCHITECTURE

Whether you are a fintech at the forefront of new cloud-native service development or an established institution looking to transform and partner, you will need infrastructure which protects your core while connecting you to anything, anywhere.

A hybrid colocation model split between core infrastructure and ecosystems and multiple clouds and NSPs will deliver guaranteed security and standards, automated migration and smart hands, and protect existing and new services from latency issues through ease and speed of physical and virtual cross-connection to an active ecosystem. You will also need to add edge reach at some point in the future for higher-bandwidth next-gen services.

From a cost perspective colocation also converts Capex to Opex, reduces TCO via competitive ecosystems and direct cloud connections, future-proofs infrastructure by handing off investment in space power and connectivity and frees up cash for core and speculative business development.

As your processing infrastructure will account for an increasing portion of your energy and embodied material impact, you should also apply the strictest ESG principles when selecting a provider.

Transformation provides a platform for overcoming the challenges of the past and rebuilding with a lighter footprint and a more ethical stance; rethinking the workplace, partnering in new ways, increasing efficiency, minimizing negative and impact and capturing a new generation of customers.

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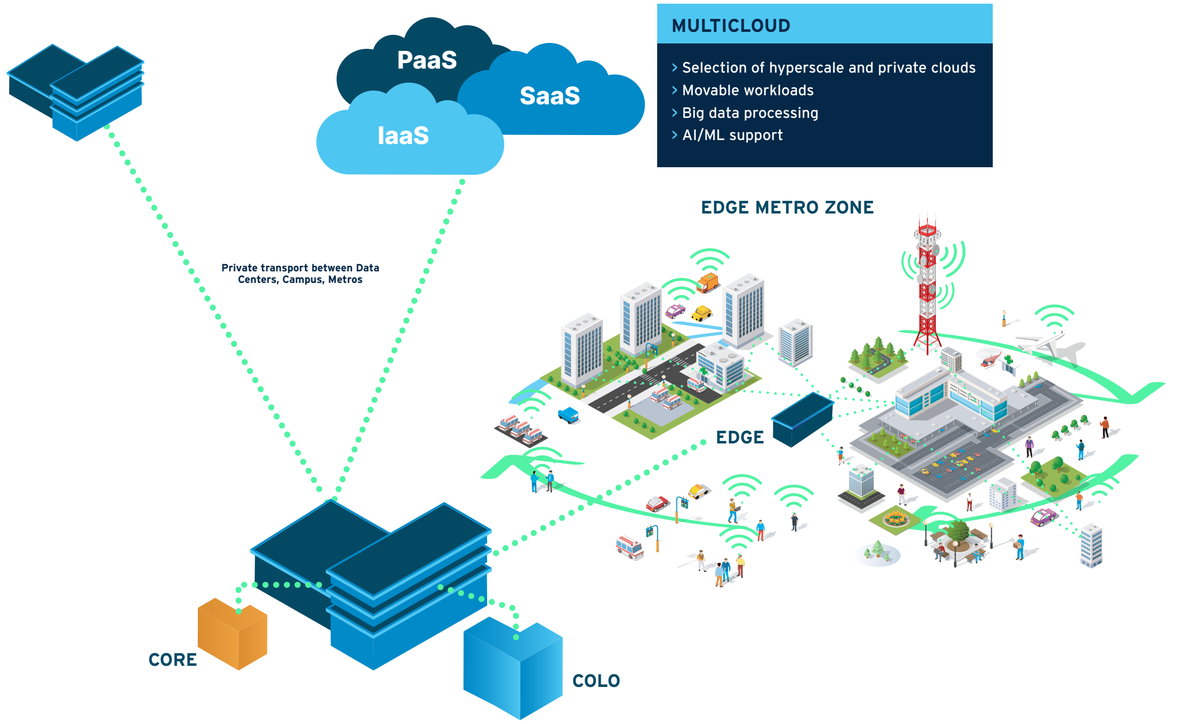
AGILE ARCHITECTURE

A hybrid cloud-and-carrier-neutral colocation model will give financial services firms and fintechs a low-impact flexible space for developing and testing new services, with the agility to move workloads quickly in and out of clouds and reach new customers with low-latency edge services.

FEATURES WILL INCLUDE

- Hybrid cloud hosting
- Range of on-site network services
- Rich partner ecosystems
- Seamless edge access
- Replicable architecture for market expansion
- AI/ML access for big data services
- Redundant direct connects to multiple clouds
- Global FSI security and operations standards
- Incremental PUE improvements
- 24/7 renewable power



MULTICLOUD

- Selection of hyperscale and private clouds
- Movable workloads
- Big data processing
- AI/ML support

CORE DATA CENTER

- Legacy apps
- Archives
- Segregated data
- Core control hub

COLO ECOSYSTEM

- Fintech APIs
- Cloud connects
- AI/ML Uplinks
- Blockchain gateway
- API Interconnects
- Security layers
- Cross-sector DevOps
- NSPs/Carriers
- Virtual network services
- Internet Exchanges

EDGE FACILITIES

- 5G MVNOs
- Cloud local zones
- AR/VR
- IoT
- Ultra-low-latency apps

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GET IN TOUCH

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ABOUT
Iron Mountain Data Centers operates a global colocation platform that enables customers to build tailored, sustainable, carrier and cloud-neutral data solutions. As a proud part of Iron Mountain Inc., a world leader in the secure management of data and assets trusted by 95% of the Fortune 1000, we are uniquely positioned to protect, connect and activate high-value customer data. We lead the data center industry in highly regulated compliance, environmental sustainability, physical security and business continuity. We collaborate with our 2,000+ customers in order to build and support their long-term digital transformations within our 3.5M SF global footprint spanning 3 continents. For more information, visit www.ironmountain.com/data-centers

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