State of Technology

Briana Frank
Vice President of Product
IBM Cloud
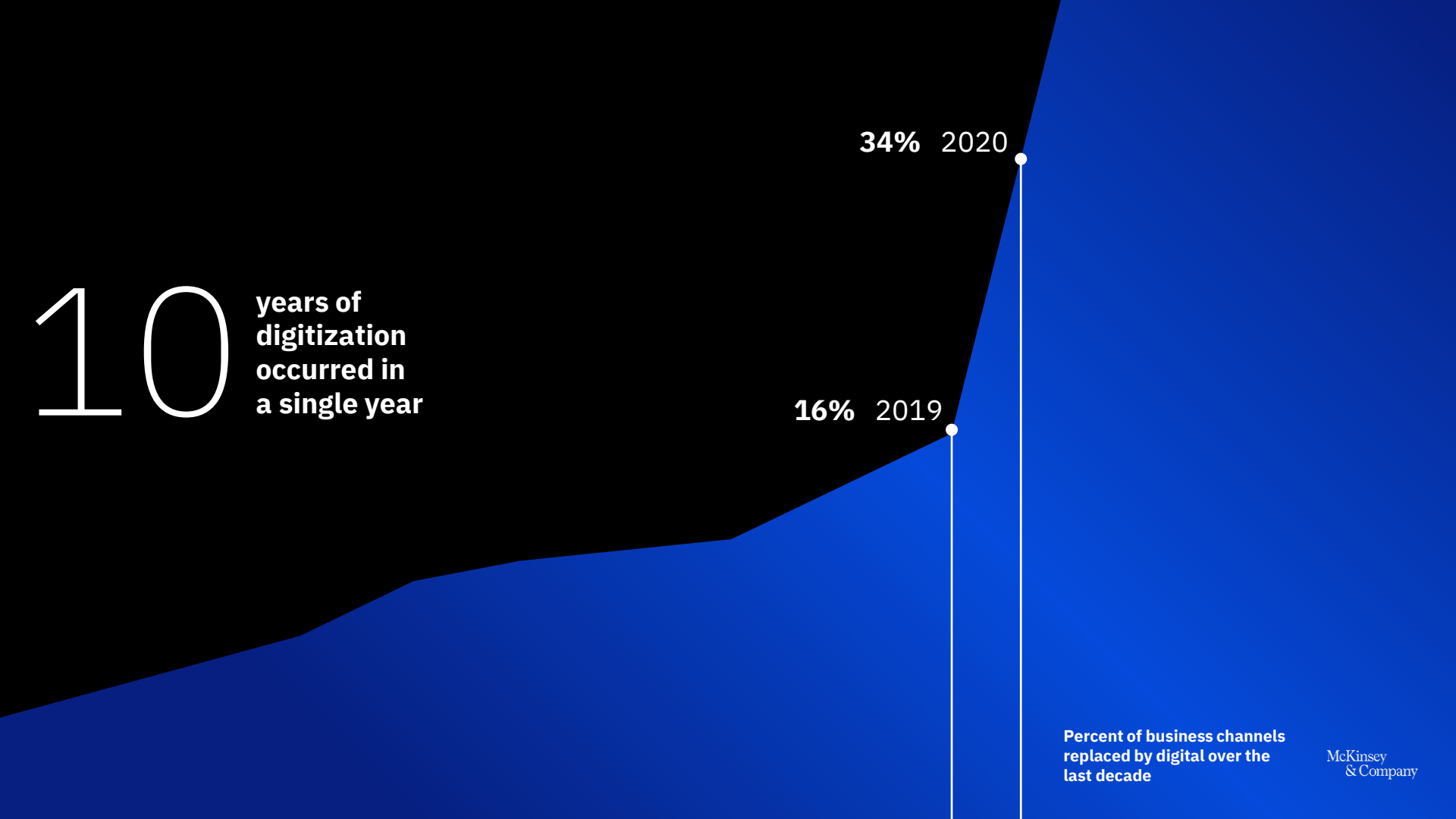
@FranklyBriana

IBM

10 years of digitization occurred in a single year
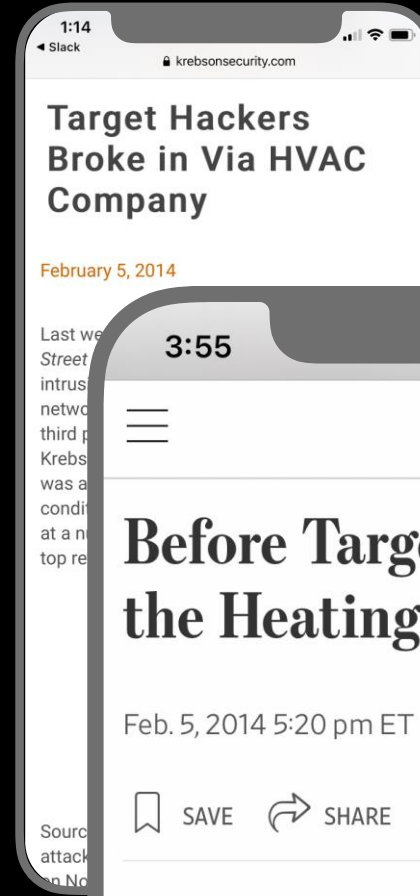
34% 2020

16% 2019

Percent of business channels replaced by digital over the last decade

McKinsey & Company

90%

of organizations are vulnerable to security breaches due to cloud misconfigurations.[1]

Target Hackers Broke in Via HVAC Company

February 5, 2014

Last we... Street... intrus... netwo... third p... Krebs... was a... condi... at a n... top re...

Sourc... attack... on No...

WSJ

Before Target, They Hacked the Heating Guy

Feb. 5, 2014 5:20 pm ET

SAVE   SHARE   TEXT

One of the biggest known corporate breaches in U.S. history has been traced to the air-conditioning repairman.

A new era of rapid change requires back-end systems and processes to change

Opportunity
for innovation

Every choice impacts management,
security and governance and can quickly become technical debt
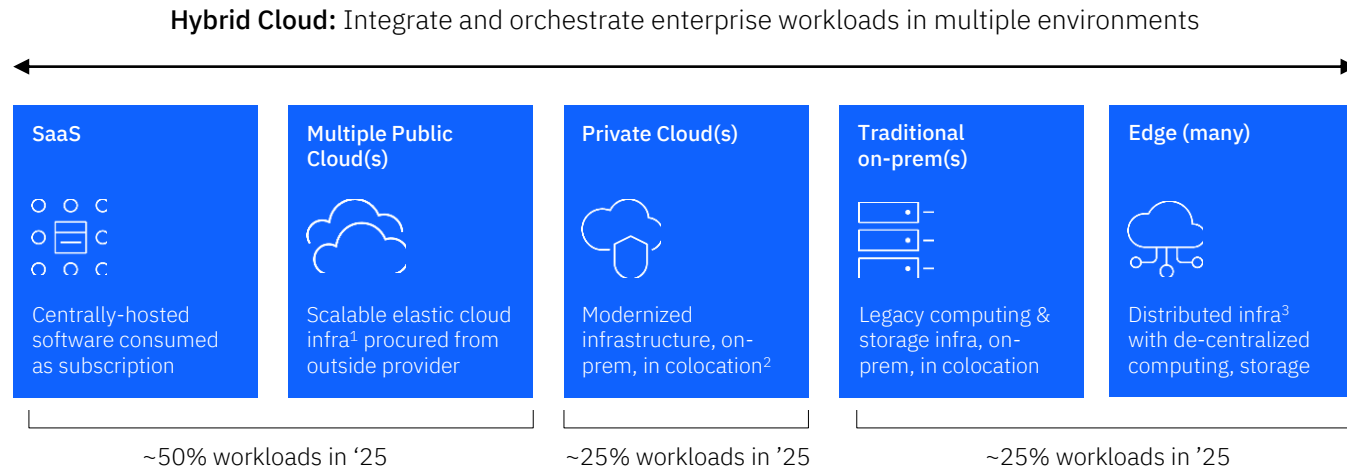

*Opportunity
for innovation*

*Obligation
to manage*

Value drivers are deprioritized when
operational budgets are over-allocated
to reporting and compliance

*Opportunity
for innovation*

*Obligation
to manage*

Enterprises drive digital innovation

... across their heterogenous environments

Hybrid Cloud: Integrate and orchestrate enterprise workloads in multiple environments

SaaS	Multiple Public Cloud(s)	Private Cloud(s)	Traditional on-prem(s)	Edge (many)
Centrally-hosted software consumed as subscription	Scalable elastic cloud infra[1] procured from outside provider	Modernized infrastructure, on-prem, in colocation[2]	Legacy computing & storage infra, on-prem, in colocation	Distributed infra[3] with de-centralized computing, storage

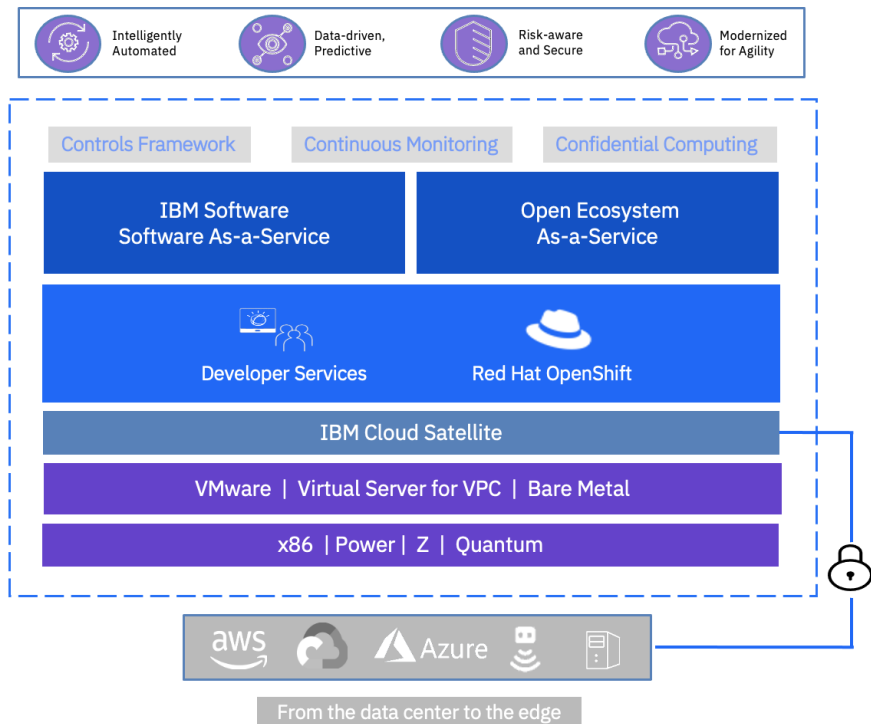~50% workloads in '25   ~25% workloads in '25   ~25% workloads in '25

Enterprise look for flexible, secure and open platforms... to operate and develop services consistently

Note: WLs= Workloads; (1) Includes IaaS, PaaS,
Virtual Private Cloud (dedicated public cloud infra);
(2) High degree of elasticity and automation; (3) incl.
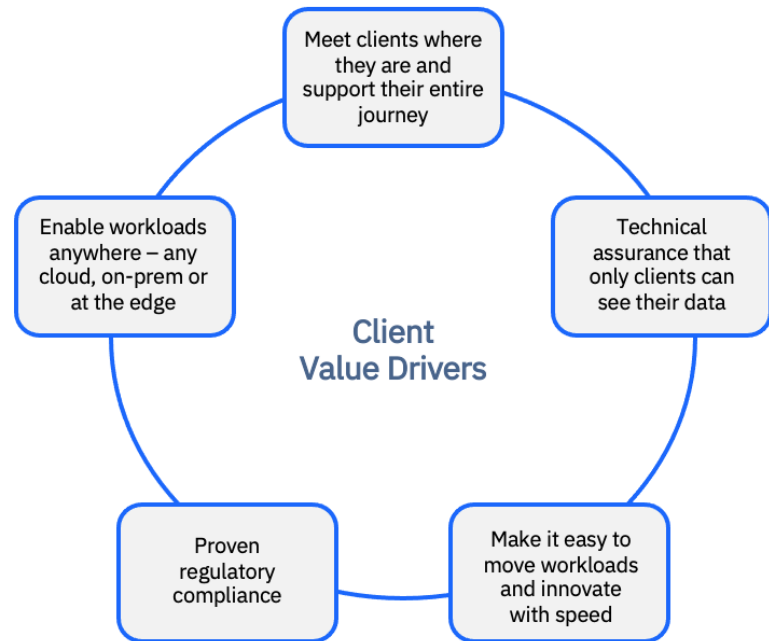IoT, robots, vehicles, branch offices servers

IBM Cloud key offerings and differentiation in the market

IBM Cloud Offerings

| Intelligently Automated | Data-driven, Predictive | Risk-aware and Secure | Modernized for Agility |

Controls Framework   **Continuous Monitoring**   **Confidential Computing**

| IBM Software Software As-a-Service | Open Ecosystem As-a-Service |

| Developer Services | Red Hat OpenShift |

IBM Cloud Satellite

VMware | Virtual Server for VPC | Bare Metal

x86 | Power | Z | Quantum

aws   Azure

From the data center to the edge

Market Differentiators

Meet clients where they are and support their entire journey

Enable workloads anywhere – any cloud, on-prem or at the edge

Technical assurance that only clients can see their data

Client
Value Drivers

Proven regulatory compliance

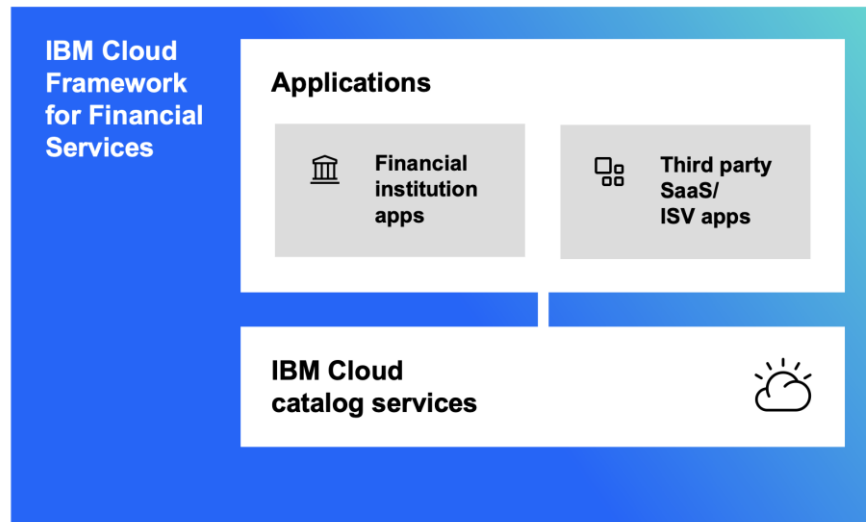Make it easy to move workloads and innovate with speed

10

IBM Cloud for Financial Services
A new controls framework co-created with industry.

IBM Cloud Framework for Financial Services:

– Pre-configured controls

– Designed to lower the cost and complexity of staying compliant

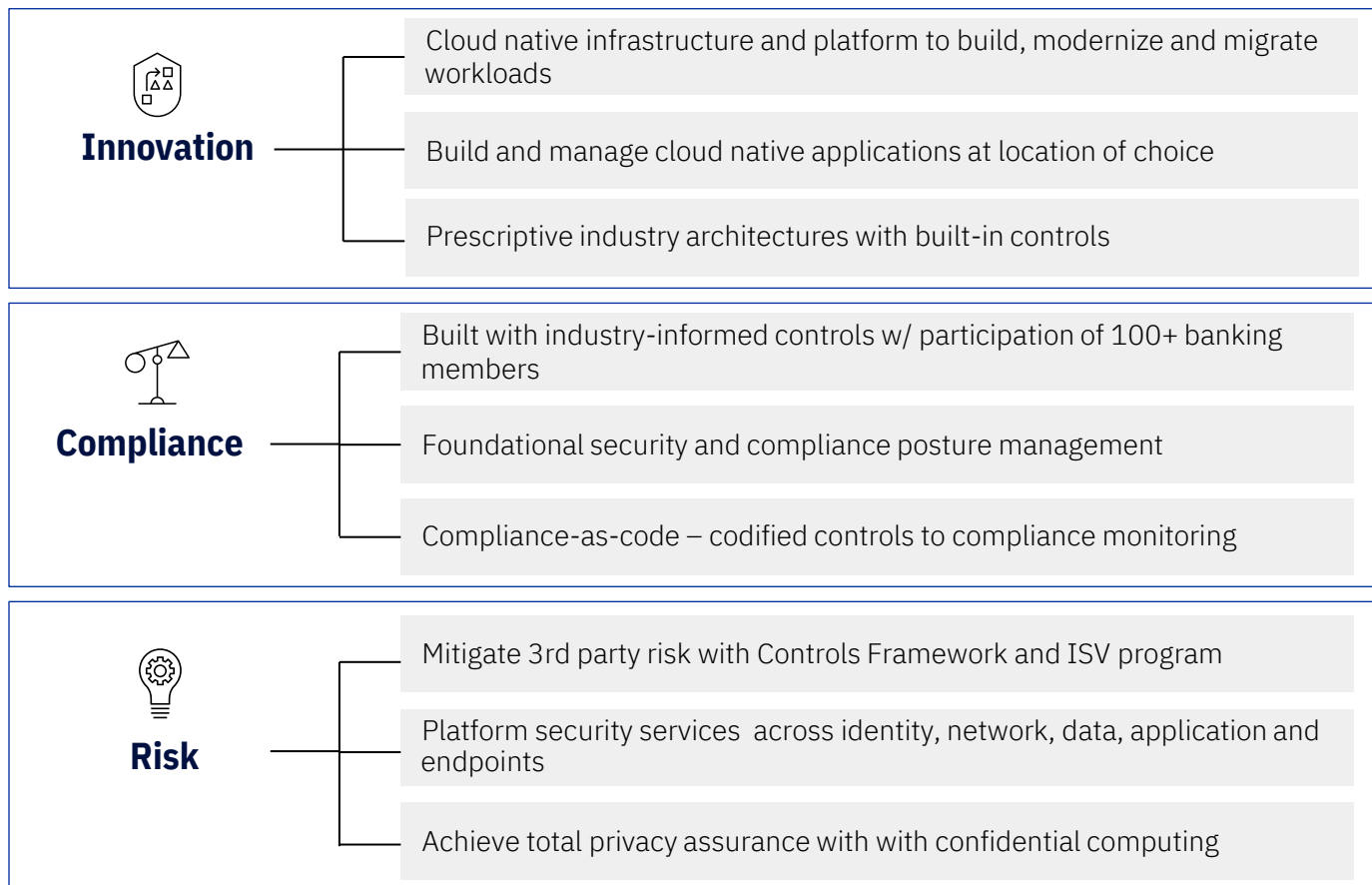– Framework provides security and compliance structure for the entire ecosystem

IBM Cloud for Financial Services™

IBM Cloud Framework for Financial Services

Applications

🏛 Financial institution apps

⊞ Third party SaaS/ ISV apps

IBM Cloud catalog services

The framework provides a common set of risk-centric controls, adhered to by the entire ecosystem.

– **Simplify risk management** by automating pre-configured controls.

– **Keep controls current** and aligned to global regulatory bodies and advice from FI CTO, CSO, Risk Councils.

– **Make it simpler, easier and faster to prove compliance** for financial institutions and digital supply chain partners.

– **Perform real-time monitoring** across multiple cloud environments.

The IBM approach

Innovation
- Cloud native infrastructure and platform to build, modernize and migrate workloads
- Build and manage cloud native applications at location of choice
- Prescriptive industry architectures with built-in controls

Compliance
- Built with industry-informed controls w/ participation of 100+ banking members
- Foundational security and compliance posture management
- Compliance-as-code – codified controls to compliance monitoring

Risk
- Mitigate 3rd party risk with Controls Framework and ISV program
- Platform security services across identity, network, data, application and endpoints
- Achieve total privacy assurance with with confidential computing

Protecting patient privacy while maximizing speed with University of Mainz Medical

Business Challenge:
Privacy is an essential component of healthcare. Often, healthcare providers must sacrifice speed or accessibility in favor of keeping patients' information confidential. But when Germany's University of Mainz Medical Center faced the COVID-19 pandemic, the organization found a way to maximize both speed and privacy: an IBM hybrid cloud environment featuring IBM Cloud Satellite technology.

Solution components:
- IBM Cloud Satellite™
- Red Hat® OpenShift® Kubernetes Service on IBM Cloud®

Outcome:
- Four critical applications in less than five months with *no compromise* on security or performance

"We have the best of both worlds at our disposal: the combination of the IBM hybrid cloud technology together with IBM Cloud Satellite technology allows us to use data-sensitive information in one environment, but also use anonymized data in a very agile and quick set-up environment."

Dr. Christian Elsner
Chief Technology Officer,
University of Mainz Medical Center

Automotive Manufacturing

Quality assurance with visual inspection at the edge

Challenge

A US-based automobile manufacturer must maximize plant production by reducing errors in the visual inspection machine learning model.

- Catch manufacturing defects with IBM Maximo Visual Inspection, operating off a machine learning model at the edge

- Model needs continual training in the cloud to improve accuracy

- Deploy updated model back to production line across 25 plants

Solution	Results
IBM Cloud Satellite™	Reduce rework, inspection, and maintenance costs caused by machine learning errors
IBM Research	
IBM Maximo Visual Inspection	Improve consistency in deployment across plants with a single operations experience

IBM Cloud Satellite offers:

Cloud services and software anywhere the client needs them: on-premises, at the edge, and on other clouds

A single console to manage all locations while allowing for local data processing at the edge

Cloud consumption model: pay for what you use

Trusted for production workloads: tiered SLA for a Satellite location, including 99.9% on client's own infrastructure

Banking

How does Home Lending Pal make the mortgage process safe and accessible to everyone?

Read the full story

Home Lending Pal helps people purchase their first homes. The platform uses IBM Watson Studio and IBM Watson Assistant technologies to show prospective homeowners how soon they'll be ready to purchase, how much they can afford, and more, all in an IBM Cloud environment protected by IBM Cloud Hyper Protect DBaaS and blockchain technology. And by keeping demographic information out of the equation, the solution helps make home ownership possible to anyone who qualifies, regardless of race, gender or sexual orientation.

More than 800 people have used Home Lending Pal to become homeowners.

IBM Cloud Hyper Protect Services checks all of the boxes as far as consumer privacy and data protection. It gives us that extra layer of protection that says, 'Hey, we've done our due diligence. We're using a tried-and-true solution that is virtually ironclad.' Even internal resources would have issues trying to hack into our system.

Cheron Bruce
Chief Technology Officer, Home Lending Pal

Solution components:

IBM Cloud®
IBM Cloud Hyper Protect DBaaS
IBM Watson® Studio

IBM

What's Next?

A new era of rapid change

... as digital transformation accelerates, extends to mission-critical processes and turns to reinvention

Heterogenous environments become the norm to manage

- 76% users utilizing two+ public clouds[1]
- 70% workloads not on public clouds[2]
- 20B internet-connected devices by '24

Data explosion triggers urgency for AI at scale

- 2-3x growth in total data by '25[3]
- Chief Data Officer role growing fast[4]
- Top AI needs for decision making and automated business operations[5]

Digital automation is essential to keep competitive operations

- 83% Enterprise agree that intelligent automation can improve business results[6]
- 56% manufacturers[6] run AI-driven autonomous decisions
- Worker shortages foster imperative for automation

Security challenges are heightened: 40% increase in number of malicious security breaches in 2020[7]

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