IBM Lab comes to You

API Management and Gateways: What's New and Trends

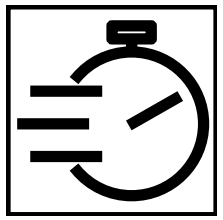
Murali Sitaraman,
Senior Technical Specialist
IBM Integration

APIs are a key enabler of digital transformation and integration

API Management remains essential to digital transformation

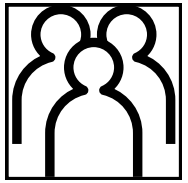
70% of CIOs are expected to be delivering "agile connectivity" via APIs and architectures that interconnect digital solutions from cloud vendors, system developers, start-ups, and others.

Source: IDC FutureScape: Worldwide CIO Agenda 2019 Predictions

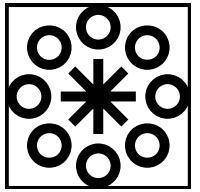


Speed application development and ongoing app evolution via reusable APIs

Securely expose data and business applications on-premise and across clouds



Expand brand reach by publishing APIs to tap into a broad developer community



Enable digital business through new channels for partners and monetizing data

Today: Delivering productivity benefits across organizations

API Providers

API Consumers

API DEVELOPER

Build consistently high-quality APIs faster

API PRODUCT MANAGER

Build trust with API Consumers by SLA compliance

API OPERATIONS

Streamline ops across a hybrid cloud landscape

APP DEVELOPER

Easier access to data to build new digital experiences

IBM API Connect

IBM API Connect powers digital applications by unlocking business data and assets as APIs

Create

Develop new APIs rapidly with the intuitive API Editor, thereby unlocking data, applications and services by using open standards

Manage

Package, publish, promote and reuse APIs across environments with full lifecycle control throughout

Secure

Easily apply built-in and extensible policies to secure, control and mediate the delivery of APIs with scalable enterprise-grade gateways

Socialize

Empower API consumers with integrated portals to discover, test, & consume APIs building your digital brand and community

Available with choice and flexibility

IBM Cloud Pak for Integration

Consume API Management integration capabilities in a unified integration platform, on OpenShift anywhere

IBM API Connect Software

Deploy on-prem or any cloud, bring your own OpenShift, other K8s platforms or VMware

IBM API Connect SaaS

Consume as a service with multiple options for isolation and availability

IBM API Connect is consistently recognized as a market leader

IBM Ranking: Leader

Source: The Forrester Wave: API Management Solutions, Q3 2022

IBM Ranking: Leader 7th time in a row.

Source: Gartner Magic Quadrant: Full Lifecycle API Management, 2022

IBM is the only vendor to score in the top 3 for each of the critical capabilities:

–Multiexperience Architecture

–Integration using APIs

–Internal API management

–Productizing APIs

–Distirbuted API management

Source: Gartner Critical Capabilities for Full Life Cycle API Management

Six Key Differentiators that IBM Clients Value

1	Key **productivity** features for the full compliment of personas – with specific leadership in API testing & use of AI	*20% to 35% improvement in time-to-market for internal and external development projects**
2	Leading **architecture** for hybrid/multi-cloud deployment across any API management vendor	*Hybrid IT operations and multinational business gain >500% ROI over 3-yr period**
3	Native support for **Kubernetes** across distributions and clouds with market leading investments	*Achieve benefits of flexibility, scale and resiliency with consistent deployment across clouds and on-premise without cloud vendor lock-in*
4	Strongest API Gateway **security** supporting corporate governance objectives	*Secure API endpoint and critical business data at runtime*
5	Support for the most diverse set of endpoints going beyond REST	*Bring the benefits of Full-lifecycle API Mgmt to other teams in your enterprise*
6	Market leading API, Integration, Messaging, High-Speed Transfer, and Security in a single **integration platform**	*Enable higher productivity across the entire integration solution space*

* = IBM internal Business Value Assessment work from various client engagements and Total Economic Impact of an API Management solution, Forrester Study commissioned by IBM in 2017

Heineken: “World’s best-connected brewer”

Connects **thousands** of business-critical apps across 350 brands

Handles **100%** of Heineken’s bank payments

View full case study

Business problem

Heineken’s applications were connected to each other individually, which led to slow response times for changes, and challenges to manage and monitor.

Solution

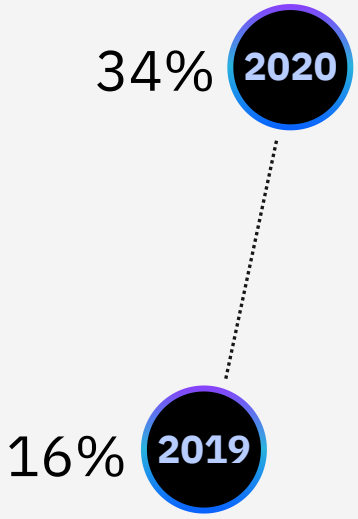
Heineken teamed with IBM to implement a set of integration capabilities, including **IBM API Connect**, to enable all of Heineken’s operating companies to communicate efficiently, regardless of where the data resides.

Trends and Directions

Recent inflections

The great digital shift

10 years of digitization in under **one** year

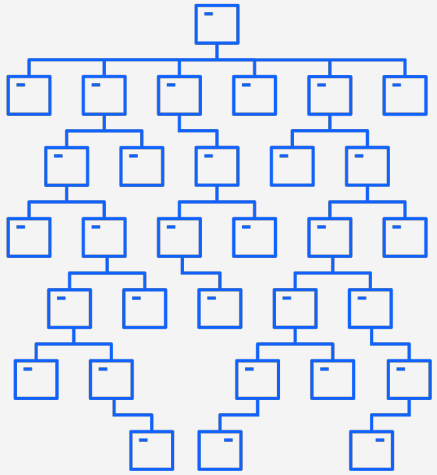


% of business channels replaced by digital

McKinsey & Company

Growing complexity

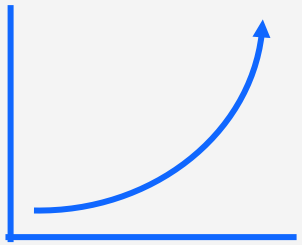
80% of organizations estimate they have up to 1000 applications in their portfolio today.*



*IDC, Worldwide Application Services, 2021, Doc # US47588016, April 2021

Intensifying threats

Attacks on web applications increased to make up 39% of all breaches in 2021.



*Verizon 2021 Data Breach Investigations Report

By 2022, API abuses will be the most-frequent attack vector for web apps

- Gartner 2022 Predictions for APIs report, references successful prediction from 2017.

Where is API Management headed?

Expanding the value of the API Management model to **discover the unmanaged**, **work with events** and more

AI-powered tooling and behavioral analysis is driving productivity and **advanced API Security**

Cloud native architecture and microservices are driving evolution at unprecedented speed

Tomorrow: Evolution of Personas

SOFTWARE DEVELOPER

Build and consume APIs with multiple languages & devices

- API provider and the consumer
- Embrace multiple technologies (events, REST, GraphQL, etc)
- DevOps integration, CLI experience, etc

API SecOps

Supports developers building reliable, secure APIs

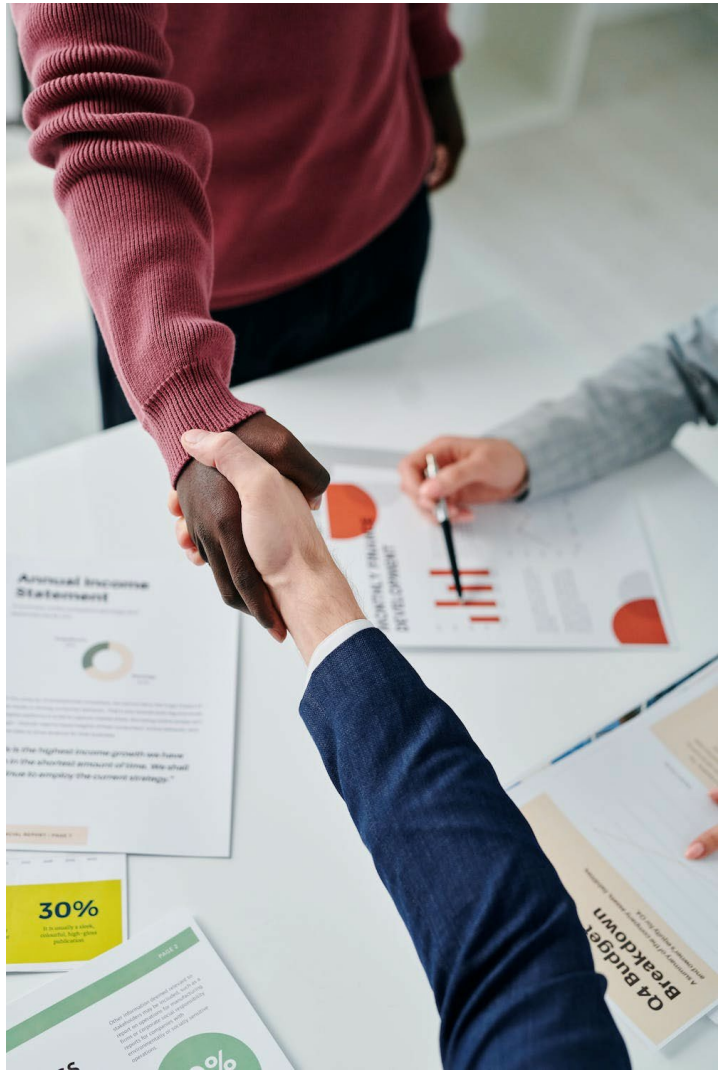
- API security focal or SME
- Collaborates with enterprise CISO
- Helps define and enforce security and governance policies across hybrid clouds

What is being announced?

API Security Provider Brings Increased Security Confidence to IBM Customers

New OEM relationship

Noname Security, the leading provider of complete and proactive API security today announced its partnership with IBM® (NYSE: IBM) to provide advanced API security for an organization's entire API landscape. The collaboration will enable customers to proactively secure their environment from API security vulnerabilities misconfigurations, and design flaws and increase security confidence with posture management, API discovery and behavioral threat detection with artificial intelligence (AI).



Build APIs consumers love

StepZen + IBM API Connect

Create

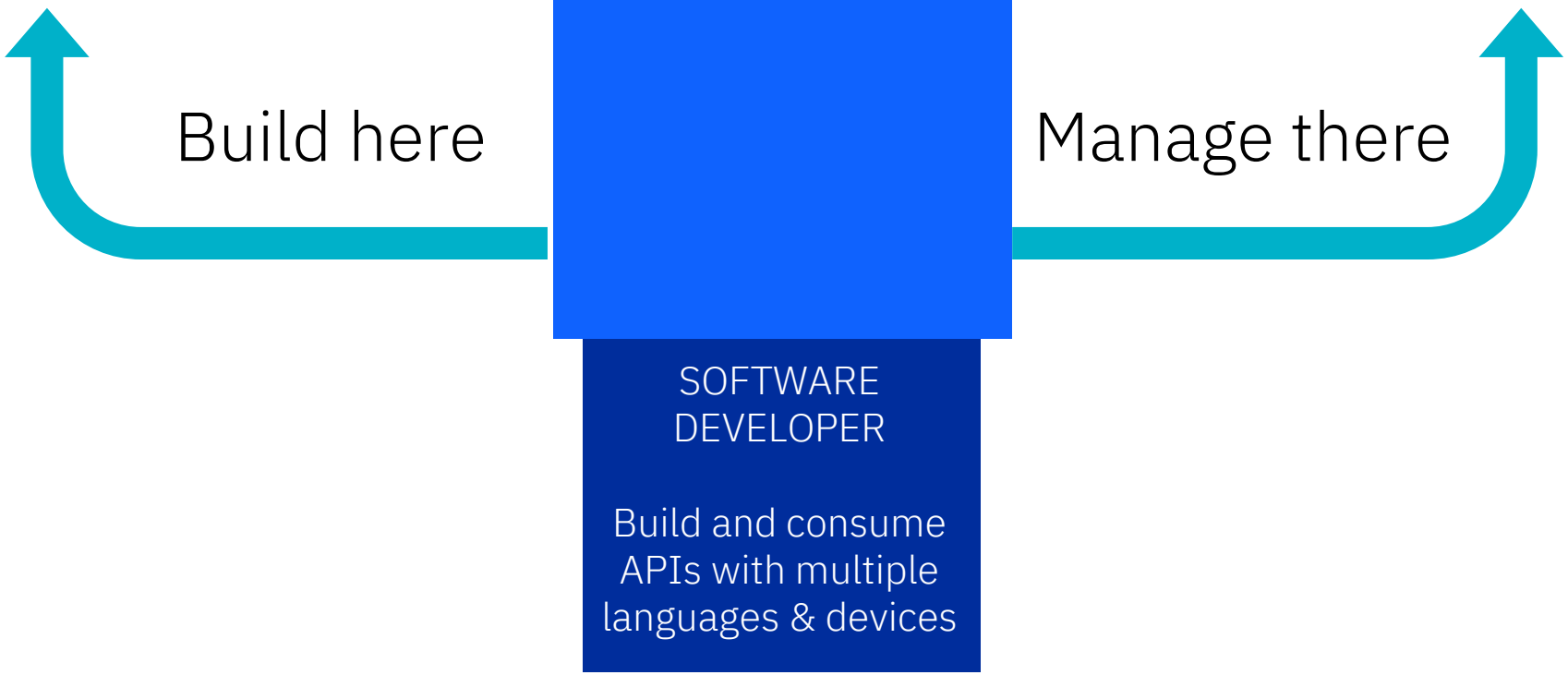
Build APIs your consumers will love: declaratively build GraphQL APIs.

Manage, Secure & Socialize

Package, publish, promote and socialize. Control and mediate delivery with API Gateway.

StepZen

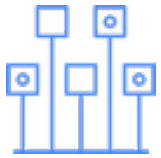
IBM API Connect



Manage APIs in a hybrid world...

Hybrid cloud API Management

Why are hybrid-cloud API scenarios permeating the industry?



What are the different hybrid-cloud API management patterns?

Why is API portability a critical factor in delivering successful hybrid-cloud projects?

Patterns of hybrid-cloud API management

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A

Single deployment

Typical starting point, often on-premises. Easy to manage and maintain given the limited scope.

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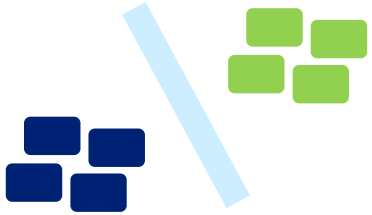
Multiple deployments

Different (unrelated) APIs running elsewhere, often in a public cloud provider as part of a digital transformation project or similar.



Patterns of hybrid-cloud API management

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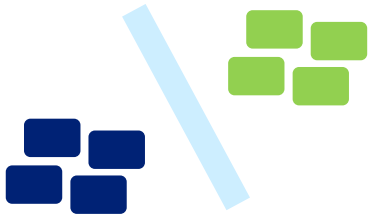
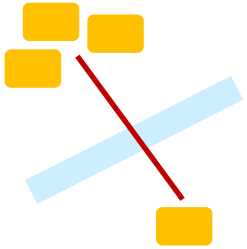


C

Hybrid deployment

Separating the components of your API management provider, often a centrally managed control plane with runtime gateway close to your application endpoints.



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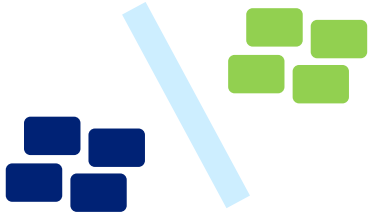

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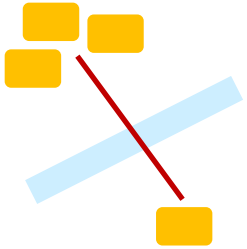
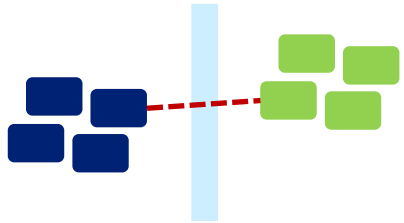


D

Hybrid runtimes

Synchronized or replicated instances in multiple locations to provide extra capacity, “burst” style scenarios, or HA/DR capability.



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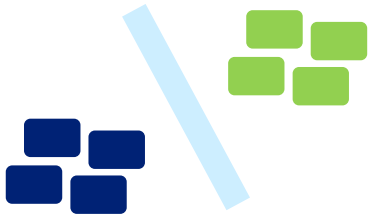

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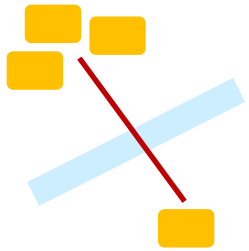

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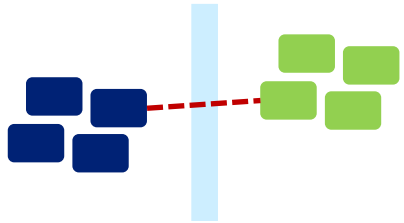
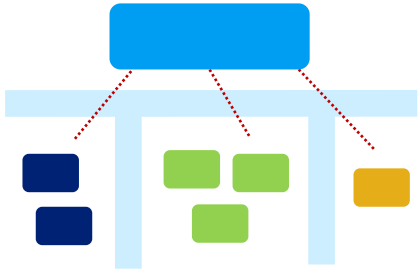


E

Hybrid management

With the increasing number of instances in different locations and providers it becomes important to manage those efficiently across your estate.



Technical considerations for hybrid-cloud API management

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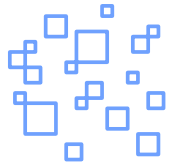
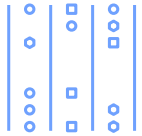


Flexibility of deployment topologies

Technical considerations for hybrid-cloud API management

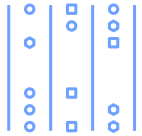


Automation

Flexibility of deployment topologies

Technical considerations for hybrid-cloud API management

Security



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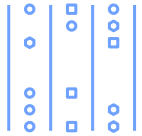

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Operational simplicity

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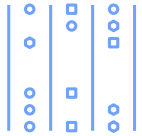

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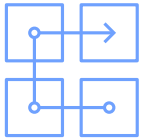


Runtime state replication

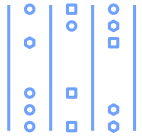
Flexibility of deployment topologies

Operational simplicity

Technical considerations for hybrid-cloud API management

API portability

Security



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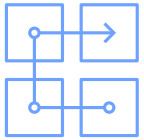

Runtime state replication

Flexibility of deployment topologies

Operational simplicity

API portability
for hybrid cloud deployments

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Achieving portability of APIs (a UK banking case study)

Multiple hosting providers for on-premises and cloud built up over time

Regulatory requirements to avoid lock-in to any individual hosting provider

Exposing the same logical API from each location for resilience

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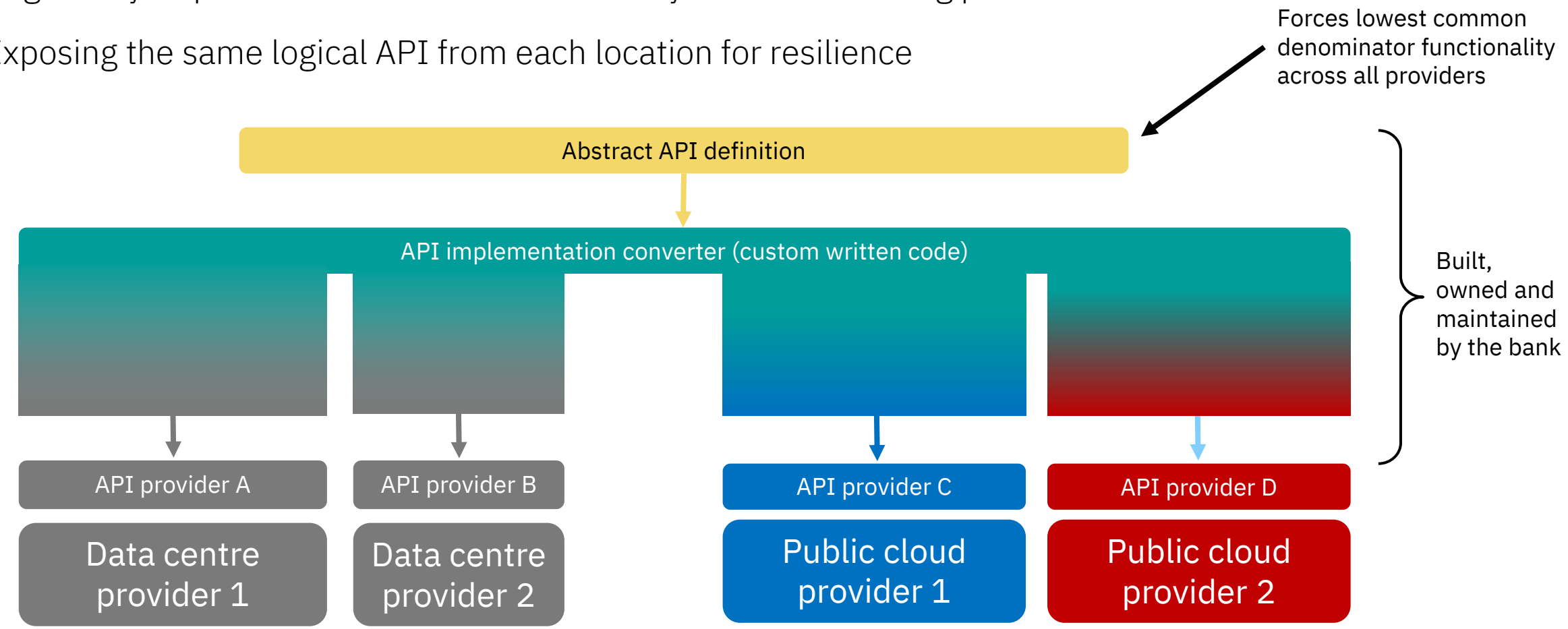

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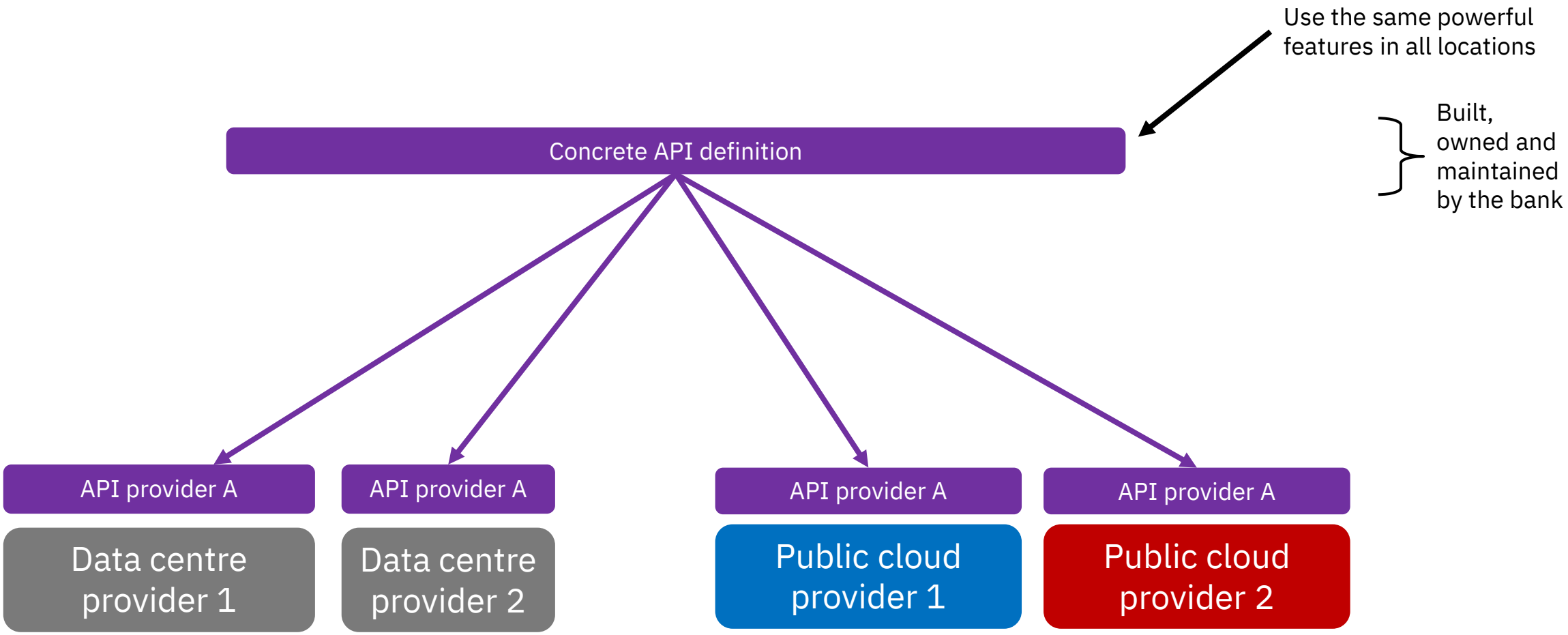


… with a world-class API Gateway

DataPower Gateway X3 Appliance

An industry leading, high security application gateway for modern, traditional and hybrid cloud workloads

X3 snapshot:

Processing capacity	X3: 32 cores
Next generation storage	X3: 2 * 1.6TB SSD
Enhanced network connectivity	X3: 2 * 40Gb, 4 * 10Gb, 8 * 1Gb network ports

Improve TCO

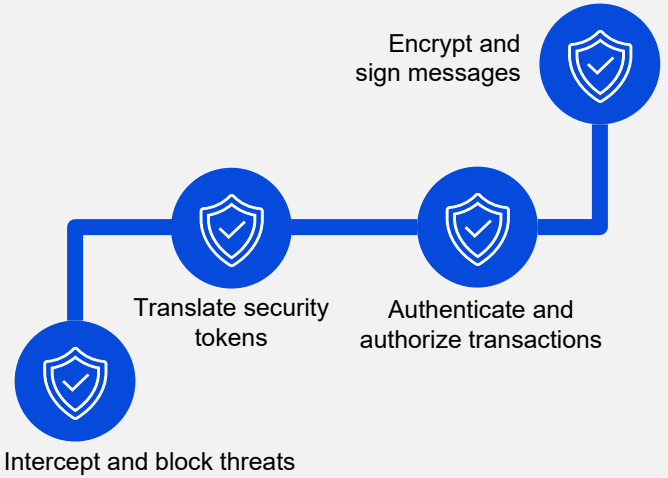
Save on hardware and maintenance costs by simplifying and consolidating your estate.

Simple Set-up

IBM DataPower firmware pre-installed on dedicated, secured hardware for simple set up and performance.

Secure your workloads

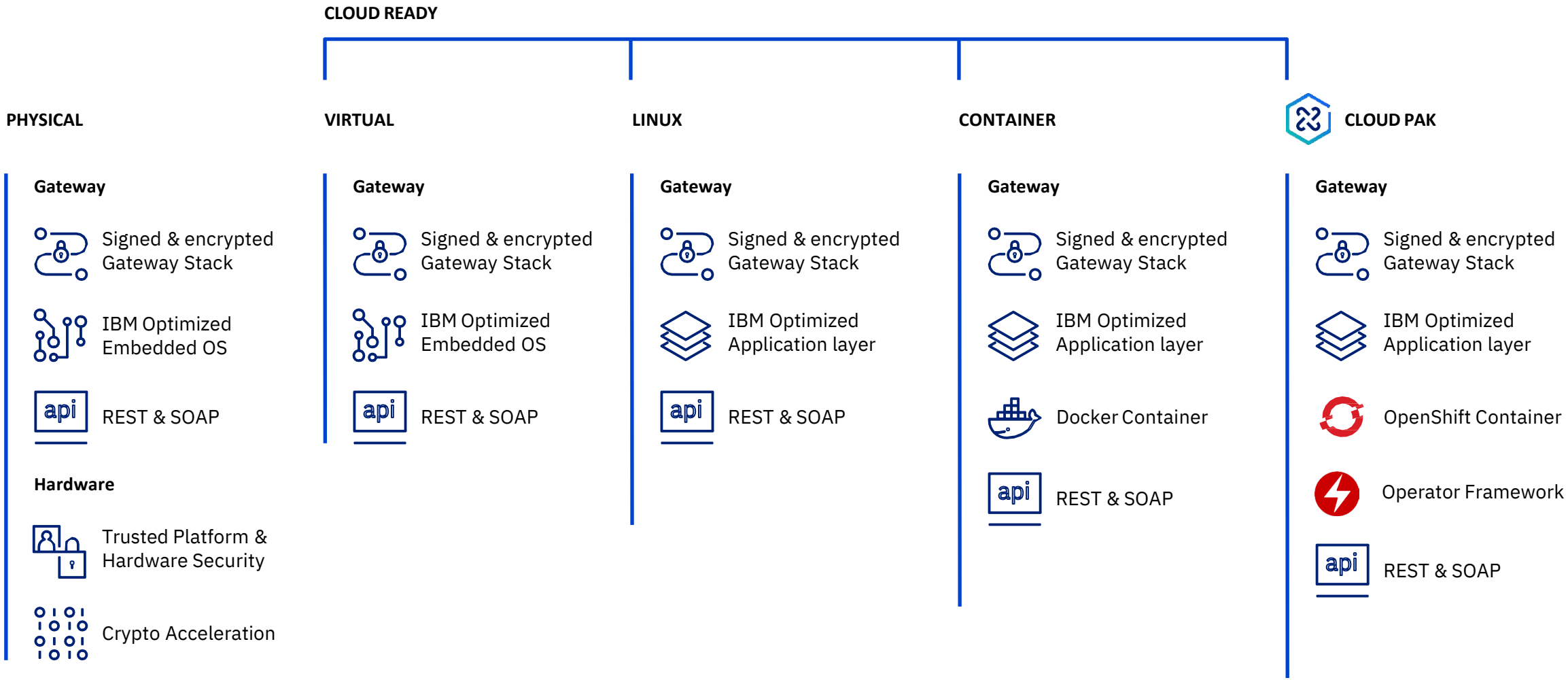
Ensure security at all stages



Control and Optimize Performance

- *Speed up application response time* with dynamic and intelligent load distribution
- *Protect applications* from over utilization with traffic control and quota enforcements
- *Improve response times* by reducing message traffic with application caching

Deployment choice and flexibility



Business outcomes:

Industry Trends

The Great Digital Shift

10 years of digitization in under one year.

When the COVID-19 pandemic broke out, much of the world moved online, accelerating a digital transformation that has been underway for decades

↑ 16%
of business channels replaced by digital in 2019

↑ 34%
of business channels replaced by digital in 2020

Gartner Top 10 Trends, 2020

The Great Resignation

Businesses are not investing in their people in a manner that appropriately reflects the direness of today's cyberthreat landscape.

↑ 62%
of cybersecurity professionals report an **increase in their workload**

38%
report that their teams are **understaffed** and experiencing **feelings of burnout**

The Life and Times of Cybersecurity Professionals 2021

Intensifying Threats

Malicious actors look to exploit vulnerabilities and leverage an increased dependency on digital infrastructures.

↑ 39%
Attacks on web applications increased to make up 39% of all breaches in 2021.

Verizon 2021 Data Breach Investigations Report

IBM DataPower Strategy

Deliver a leading gateway solution to provide highest levels of security with simplified and flexible deployment

Helping you…

Achieve highest application security

Using highest security gateway providing highest security and integration capabilities for on-premise, hybrid and cloud deployment

Deliver faster

Through simplified application to enterprise level deployment of security policies

Cloud native architecture is driving the need for ***application-scoped gateways with minimal footprint***

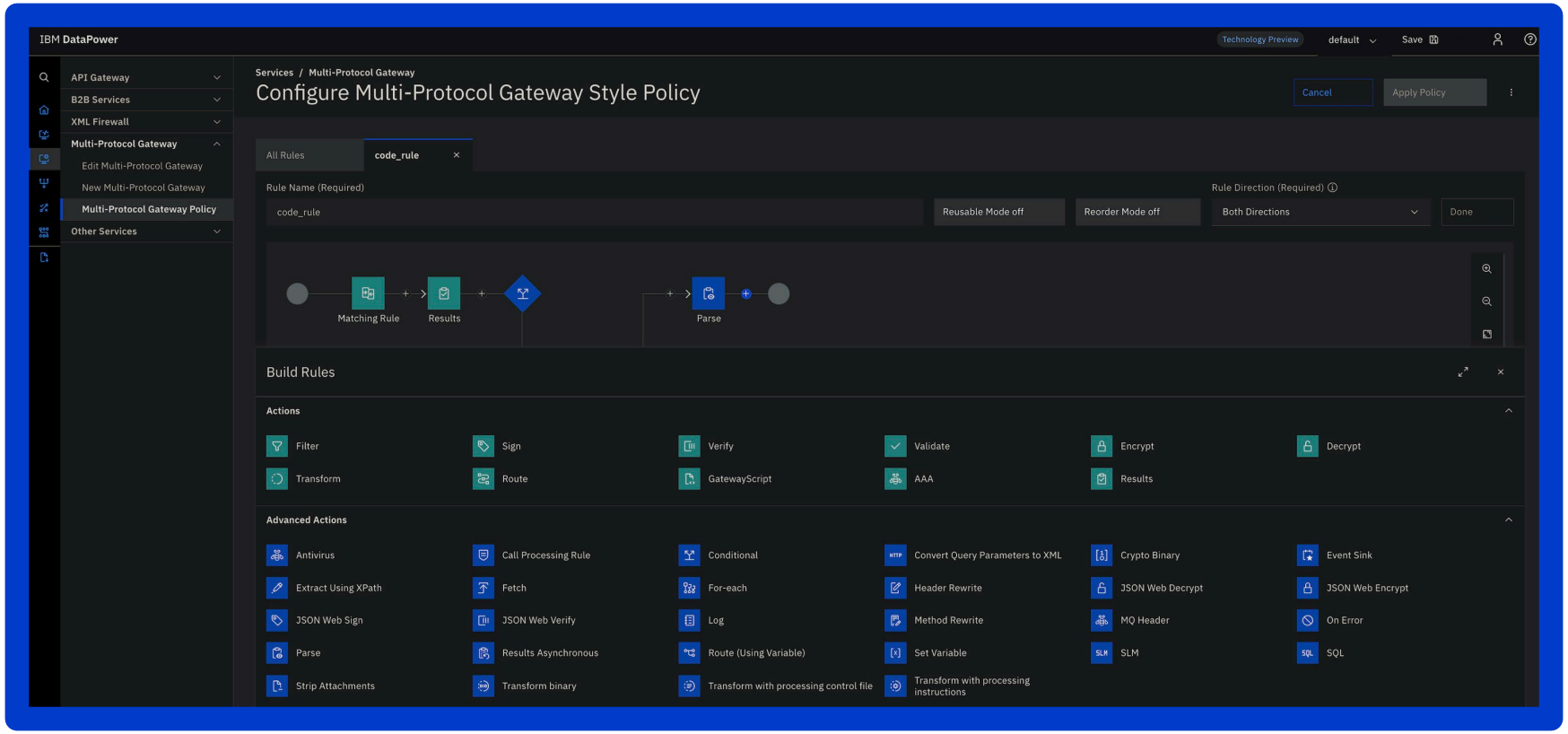
Adoption of latest standards require support for most modern protocols such as Kafka, AMQP, and HTTP/2

Customers are seeking to ***simplify and automate operations including Gateway configuration deployment***

Modern & consistent UXs are ***improving productivity*** driving new change in Gateway UX

Improve Developer Productivity

Secure your integrations in minutes with modern and consistent user interface



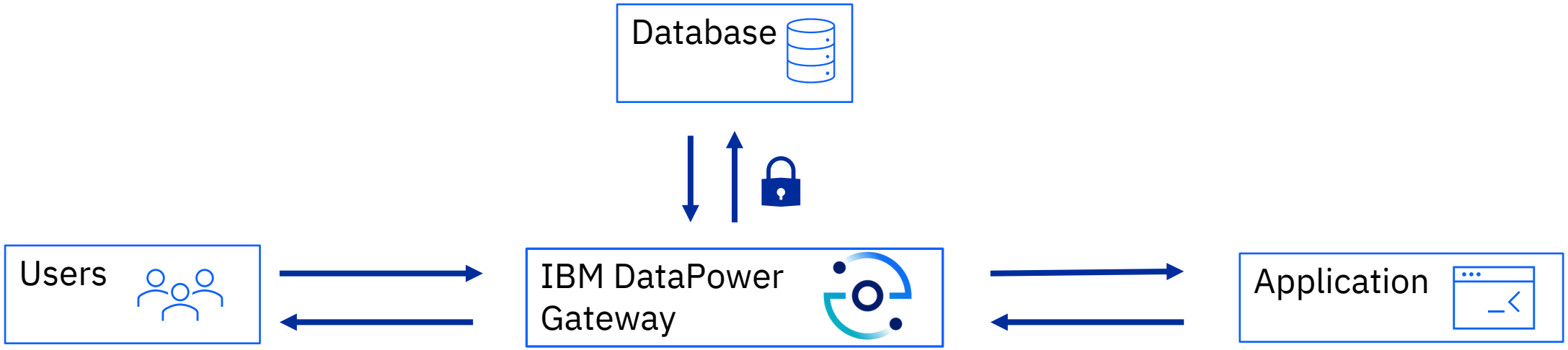
*Technology Preview

Security Enhancements

Customer Security Enhancements:

Provide greater security to database connections and meet modern cryptographic standards

- Encrypted/SSL Datasource support for SQL Server
- ODBC DataPower SSL/TLS to Oracle Database



Important Considerations

Migration execution and planning (with end of service dates)

Firmware V2018 - April 30, 2023

Migration should be completed or very near completion

IBM DataPower Gateway (8436) – June 30, 2023

Migration should be underway

IBM V10.0.1 – Upcoming

Begin planning for migration now

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More information

IBM DataPower Product Page
https://www.ibm.com/products/datapower-gateway

IBM DataPower Documentation
https://www.ibm.com/docs/en/datapower-gateway/10.5

DataPower Firmware Lifecycle:
https://ibm.biz/datapowerfirmwarelifecycle

DataPower X1 to X3 Migration:
https://ibm.biz/datapower-x3migration

IBM Appliance support guide
https://www.ibm.com/support/pages/ibm-appliance-support-guide

Thank you.

Want more?
Join the IBM Integration Community