New IT Evolution

Rita Ceresi
IBM System Client Architect
Rita.Ceresi@it.ibm.com

Cloud is evolving as the technology for Enterprise Innovation

Rapid Innovation

Speed business innovation

Rapidly provision capacity to meet demand

Open container technology prevents vendor lock-in; choice of deployment

Differentiated Integration

Connect applications with data and services across all clouds securely

Enhance application intelligence with public cloud services, including Watson integration

Investment Leverage

Reduced cost of managing and upgrading your on-premises IBM middleware implementation

Protects existing investments, and **Leverages** existing skills

Faster time-to-market

Management & Compliance

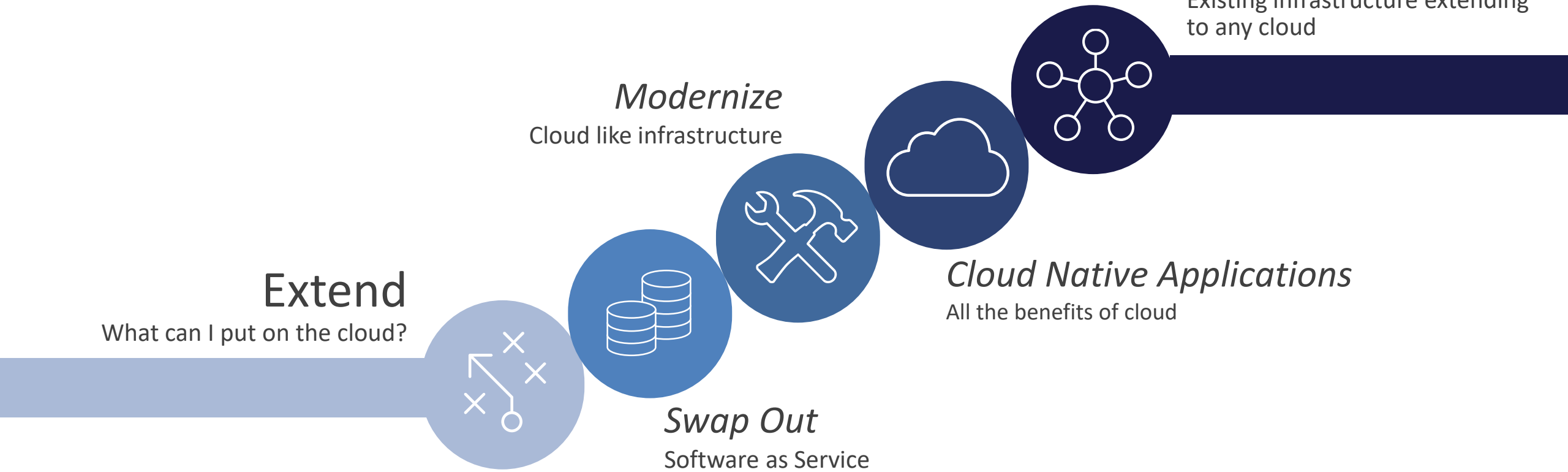
Security and control of an untethered environment

Integrated set of management tools; flexibility to integrate with existing ones

Clients' Maturity Curve for Cloud Execution

Speed of Change

On premises infrastructure – evolving to provide all the benefits of "cloud" and extending to any cloud



Extend

What can I put on the cloud?

Swap Out

Software as Service

Modernize

Cloud like infrastructure

Cloud Native Applications

All the benefits of cloud

Multi-Cloud

Existing infrastructure extending to any cloud

AI businesses need data and analytic platforms on a Multi Cloud

MAKE SENSE OF INDUSTRY BUSINESS NEEDS AND TAKE ACTION

Descriptive
- Discover
- Report
- Analyze

+

Predictive
- Predict
- Decide
- Act

+

Cognitive
- Understand
- Reason
- Learn
- Interact

GAIN UNIQUE INSIGHT INTO PEOPLE, THINGS AND BUSINESSES

Data you possess
- Customer records
- Transactional systems
- Predictive models
- Institutional expertise
- Operational systems

+

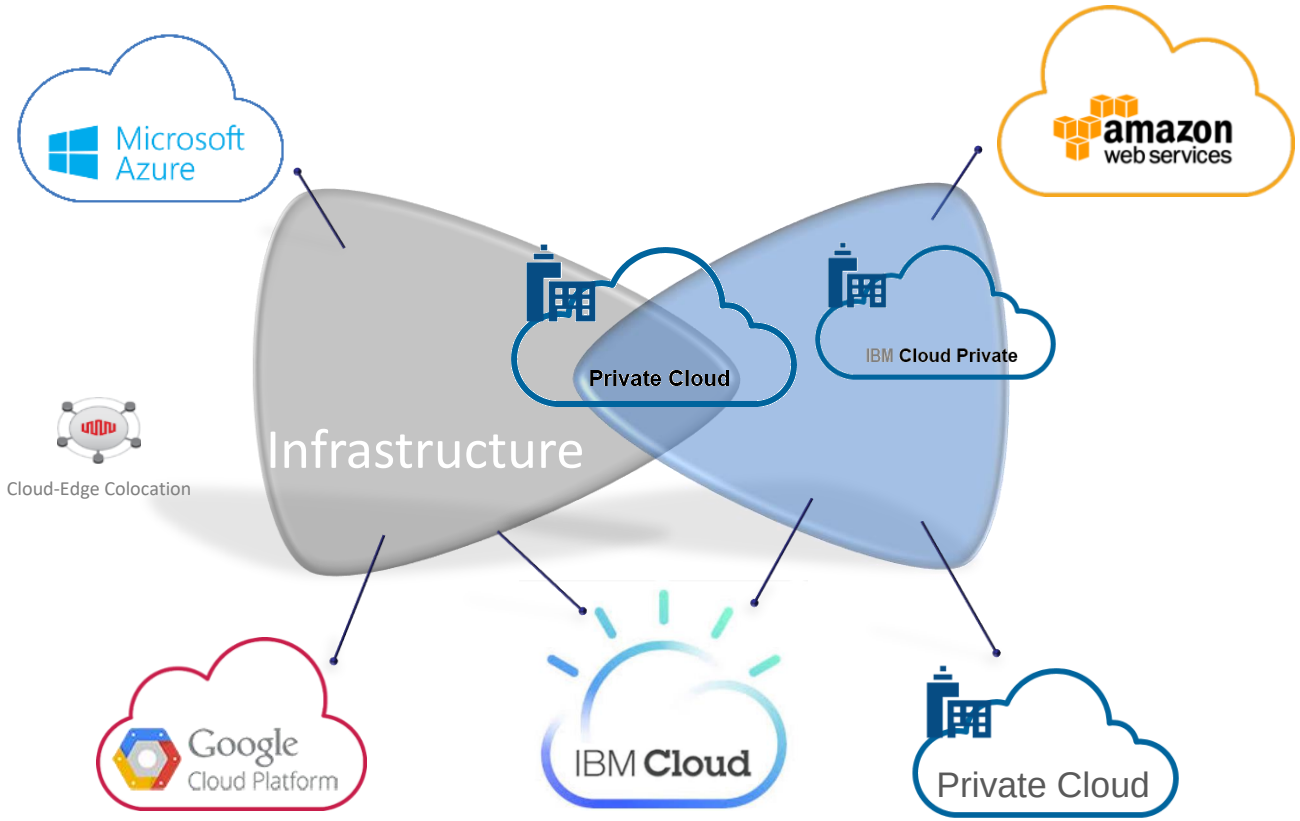
Data outside your firewall
- News
- Events
- Social media
- Weather
- Geospatial information

+

Data that's coming
- IoT
- Sensory data
- Images
- Video

Multi-Cloud Storage Architecture: Data Driven

- The era of data is here. Those who can harness the power of their data have a competitive advantage
- Enterprises are multi-cloud now…and increasingly so.
- Enterprise clients are looking to develop a Data & Cloud strategy for their Infrastructure
- IBM is uniquely positioned to help clients understand their current situation, plan a future state and execute a strategy to get to this future state.



Data Driven Multi-Cloud Architecture is:

Flexible

- Data Portability between Private & Public Clouds
- Secure and Compliant
- High ROI Use Cases

Modern

- Service Level Driven
- Software Defined and Flash Optimized
- Modern Backup and Replication

Agile

- API Automation
- Native DevOps Capable
- Self Service

IBM New Era Vision: Strategy for realizing this Vision

Data is the asset.

AI is the goal.

Multi Cloud is the platform.

SDS is the foundation for that platform.

SDS is at the foundation of all AI.

Modernize & Transform & Integrate

MODERNIZE TRADITIONAL WORKLOADS

Private Clouds for traditional Application infrastructure that are as agile, flexible and cost effective as Public Clouds, that seamlessly extend to leverage Public Cloud Infrastructure as business demands

vmware · IBM DB2 · ORACLE · Microsoft SQL Server · Exchange · Microsoft Hyper-V · KVM · IBM Z

TRANSFORM WITH NEXT-GEN APPLICATION

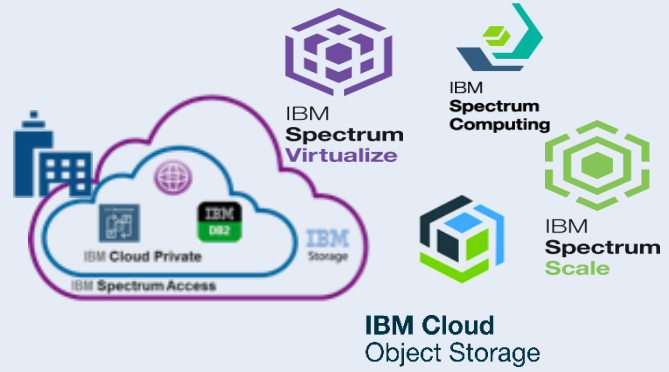
AI and Big Data infrastructure to support High Performance Data Analytics and HPC leveraging the power of the Open Source community, supporting the very small to the largest clusters in the world

mongoDB. · Spark · cassandra · hadoop · elastic + + kibana

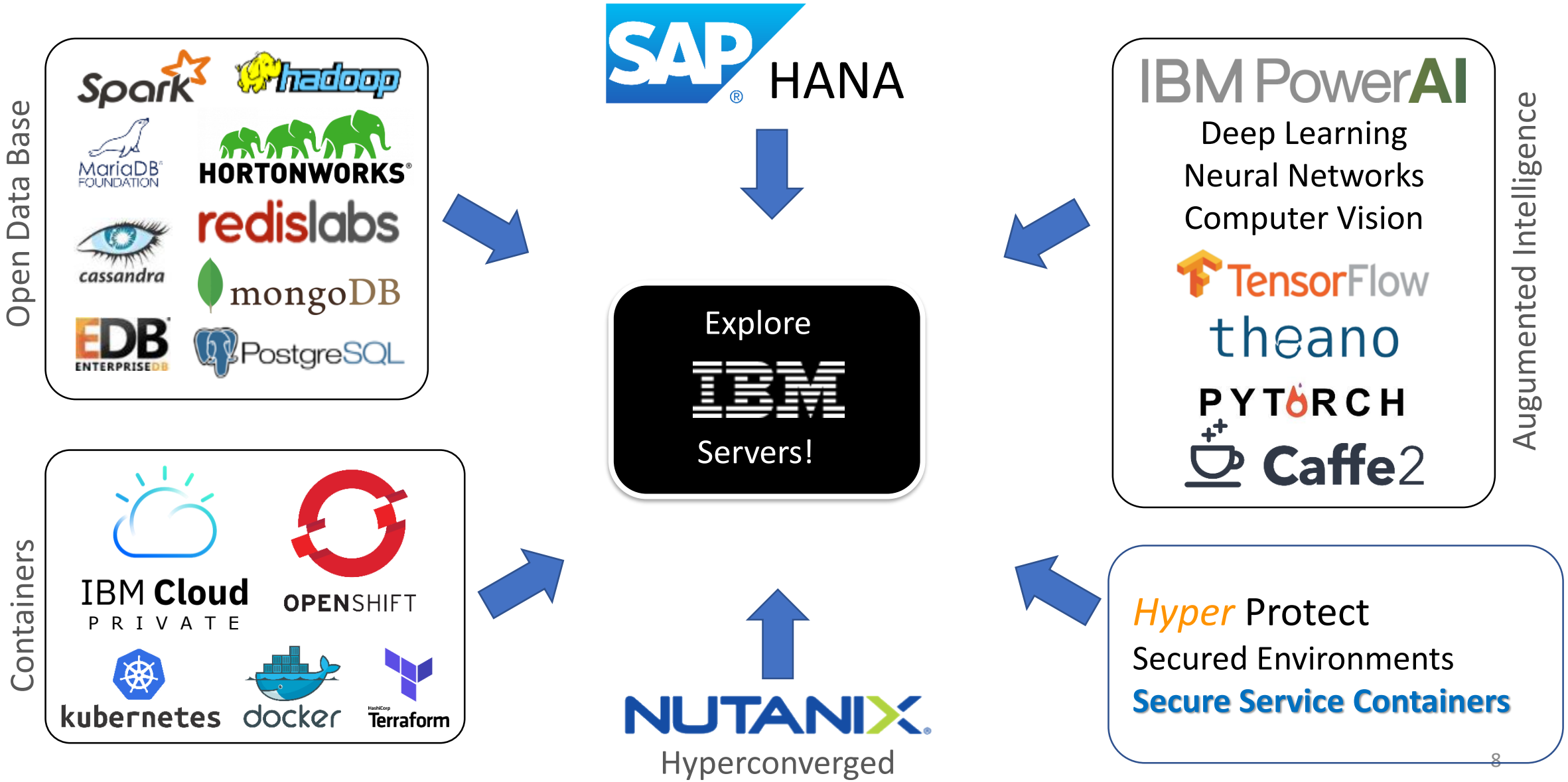
APPLICATION REFACTORING / INTEGRATION

Integrated Docker and Kubernetes
Private Clouds for App modernization and agile development with full portability to leverage Public Cloud Infrastructure

docker · kubernetes · openstack. · lxd



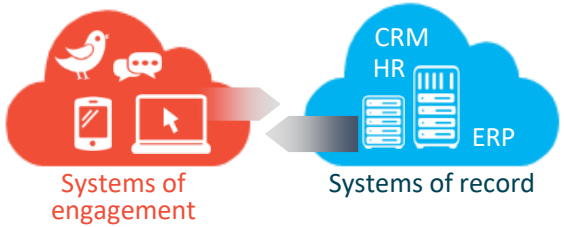
Where IBM Servers can give a Value to Business!



Backup Slides

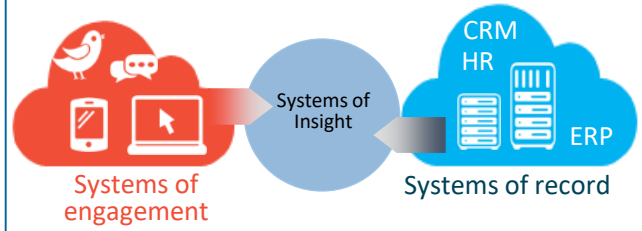
Multi Cloud Use Cases

SoR-SoE Integration



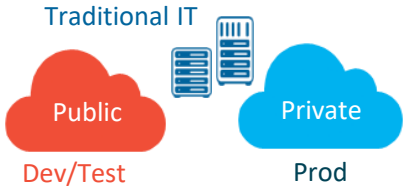
Link new social and mobile systems to core business systems

Systems of Insight



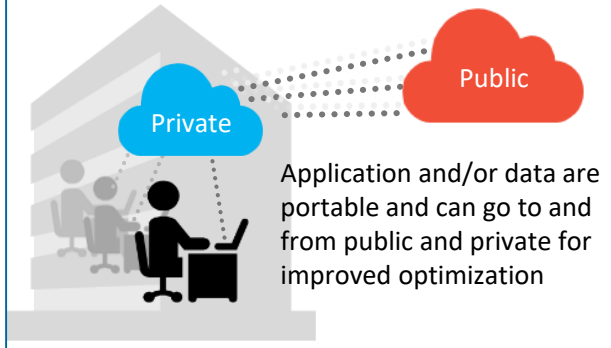
Integration of data in the systems of engagement and systems of records

Independent Workloads



Choose private, public or hybrid cloud based on independent workload requirements

Portability and Optimization



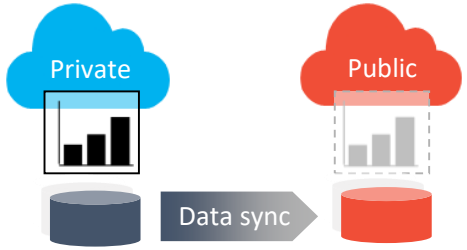
Application and/or data are portable and can go to and from public and private for improved optimization

Able to be implemented quickly, without infrastructure or application changes

Hybrid Cloud Brokerage & Management

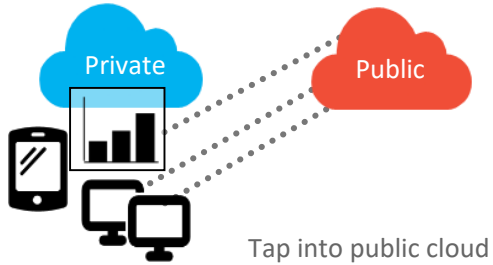
Planned or Policy based Management and sourcing across multiple environments (infrastructure, platform & app)

Disaster Recovery



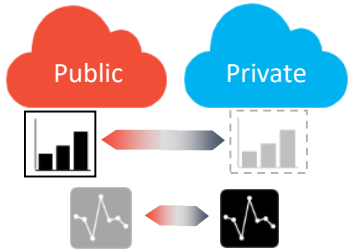
Use private cloud normally and switch to public cloud to recover files and data

Reserve for capacity (bursting)



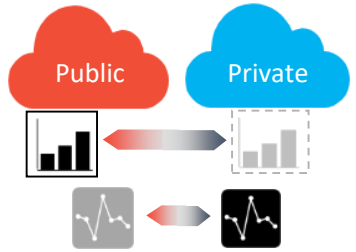
Tap into public cloud resources dynamically when a shortage occurs on private cloud

Backup



Leverage off-premise resources for backup of on-premises resources

Archive



Leverage off-premise resources for archive of on-premises resources

More complex deployment, possibly requiring infrastructure or application changes

Hybrid, Multi Cloud Infrastructure

Apps

1. Augumented Intelligence
2. Modern Data Platform
3. Hyper Protect Environments
4. Sap Hana
5. Cloud Native Apps

Containers

OPENSHIFT
docker
kubernetes
Terraform
IBM Cloud PRIVATE

Infrastructure

LinuxONE

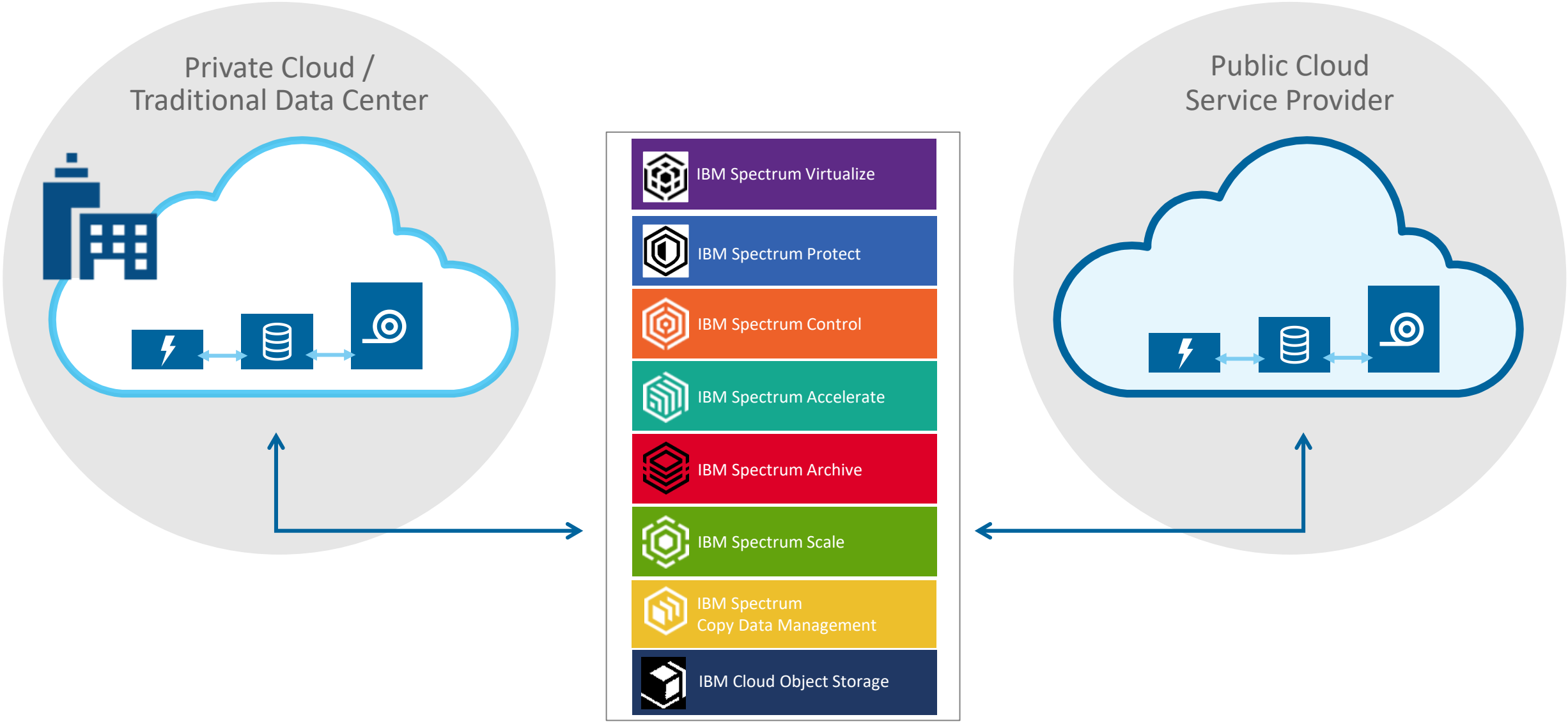
Power Servers

POWER9 NVIDIA

IBM Spectrum Storage

IBM Cloud
Microsoft Azure
amazon web services
Google Cloud Platform

Enabling hybrid cloud data services



Data Driven Multi-Cloud Storage Architecture for Traditional Application Infrastructure

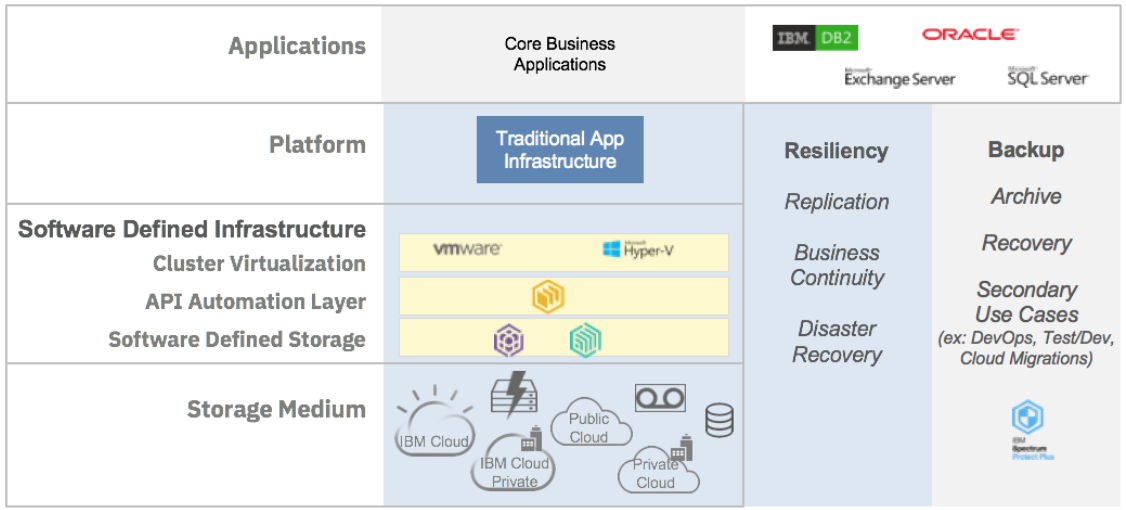
If you have...

vmware · Microsoft Hyper-V · Exchange · Microsoft SQL Server · ORACLE · KVM · IBM DB2

MODERNIZE TRADITIONAL WORKLOADS

Private Clouds for traditional Application infrastructure that are as **agile**, **flexible** and **cost effective** as Public Clouds, that seamlessly extend to leverage Public Cloud Infrastructure as business demands

Take advantage of...



Flexible

Data Portability
Secure and Compliant
High ROI Use Cases

Modern

Service Level Driven
Software Defined and Flash Optimized
Modern Backup and Replication

Agile

API Automation
Native DevOps Capable
Self Service

Seamlessly extend to Public Clouds like IBM Cloud and Amazon

Software Defined Storage (SDS)

Flash-optimized for ultimate performance as well as simplified Storage management

SLA-driven Primary and Secondary storage

- Set SLA levels and manage by exception – free up team
- Seamlessly enabled Orchestration layers (VMware, DevOps tools, etc.) to drive rich storage automation and self-service via API

World-class replication

Modern Backup and Recovery

- Agentless but App aware
- Instant recovery as well as secondary data use cases like cloud migration, DR, DevOps or Test/Dev

Data Driven Multi-Cloud Storage Architecture

for New Generation Application Architecture

If you have...

mongoDB. Spark hadoop cassandra elastic + + kibana

TRANSFORM WITH NEXT-GEN APPLICATION

AI infrastructure to support High Performance Data Analytics and HPC leveraging the power of the Open Source community, supporting the very small to the largest clusters in the world

Take advantage of...

IBM Spectrum Storage

Industry leading Cluster Virtualization for AI workloads

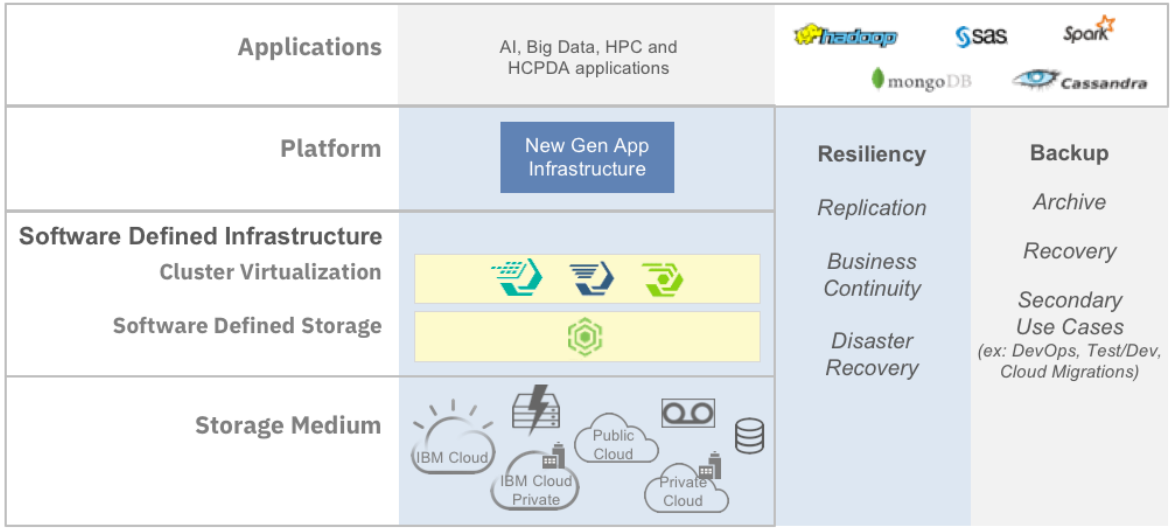
- Workload management and workflow optimization (i.e. similar to the value of VMware vCenter for traditional application infrastructure but for AI compute grids)

Software Defined Storage (SDS)

- Natively supports Open Source AI platforms
- Proven scalability and enterprise features like caching, tiering, snapshots and replication

Flash-optimized for ultimate performance as well as simplified Storage management

Seamlessly extend to Public Clouds like IBM Cloud and Amazon



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Data Driven Multi-Cloud Storage Architecture

for Docker Container Environment

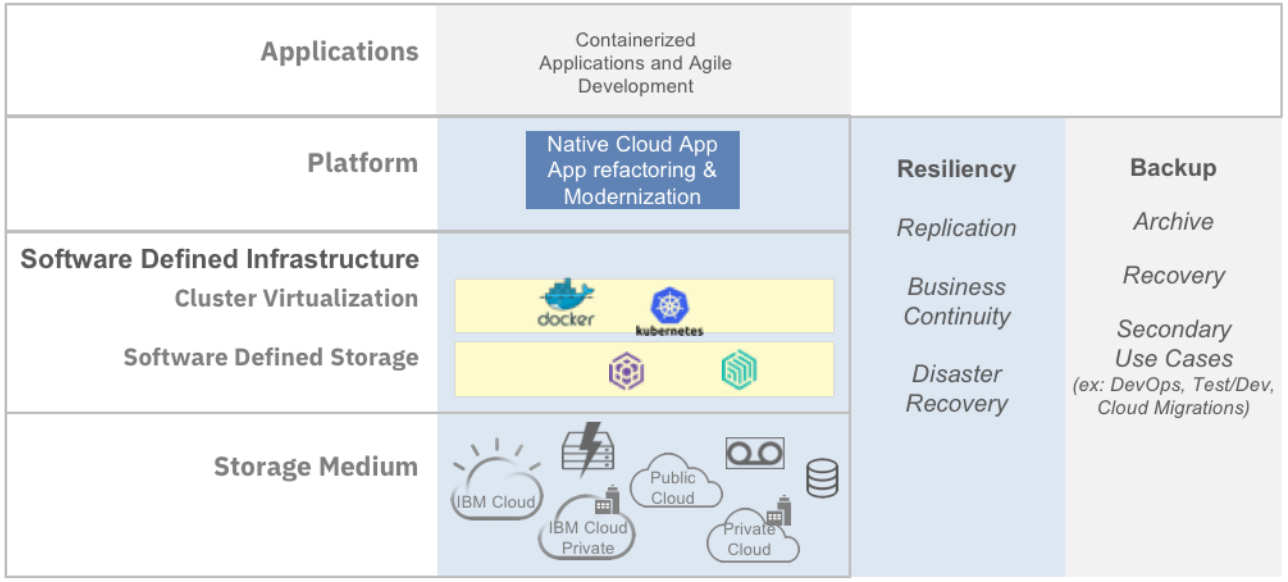
If you have...

kubernetes openstack. docker lxd

APPLICATION RE-FACTORING / INTEGRATION

Integrated Docker and Kubernetes Private Clouds for App modernization and agile development with full portability to leverage Public Cloud Infrastructure

Take advantage of...



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Rapid Innovation

- Turn-key Open Kubernetes-based container platform, Cloud Foundry for app dev and deployment and Integrated DevOps toolchain

Differentiated Integration

- API management to unlock and integrate, Secure access to public cloud services (AI, Blockchain) and Consistent experience across private/public

Investment leverage

- Containerized versions of IBM Middleware (WebSphere, MQ, DB2, DSX and popular Open Source), Prescriptive guidance to optimize workloads and Work with existing apps, data, skills, infrastructure

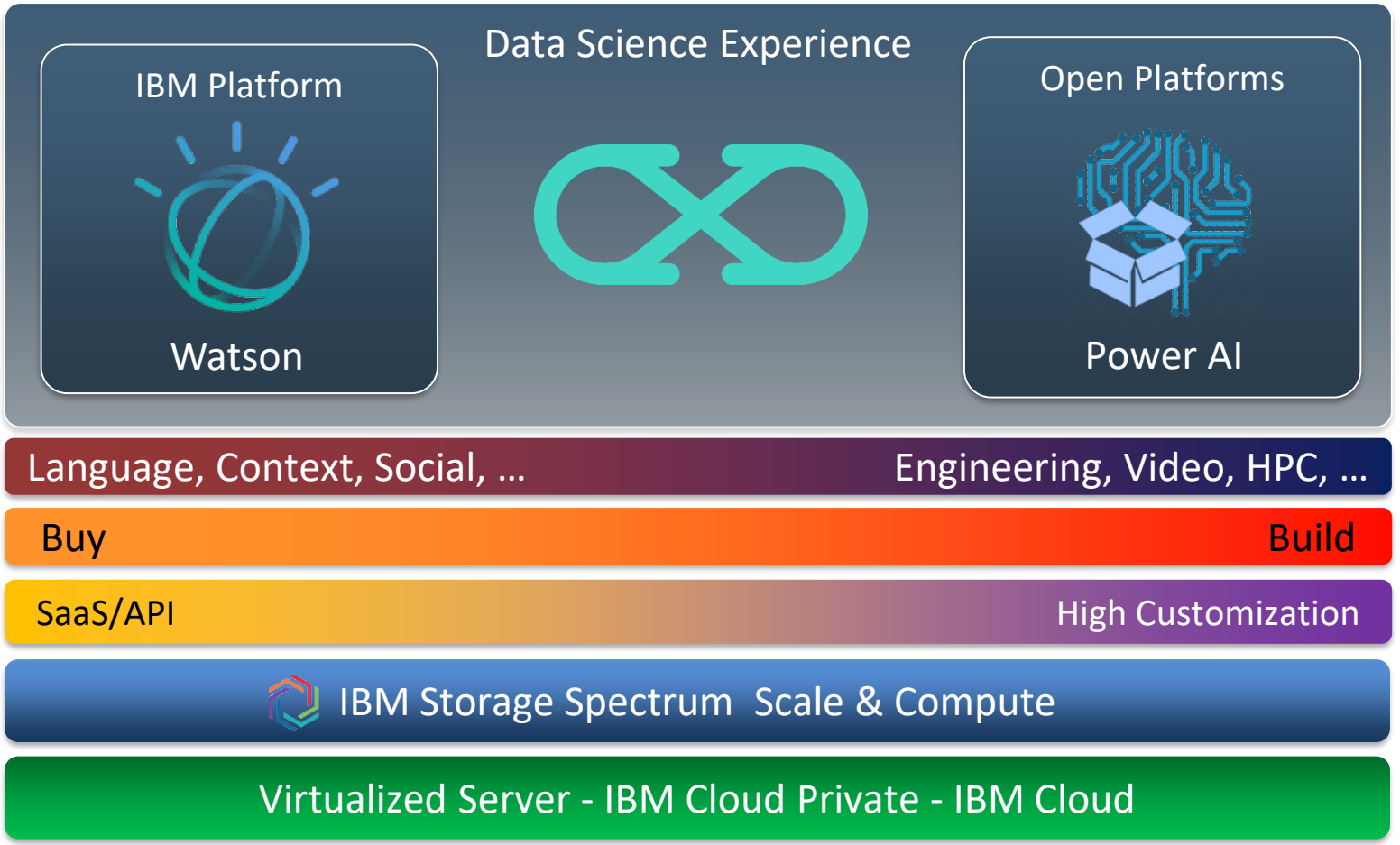
Management and Compliance

- Core operational services including logging, monitoring, security as well as Flexibility to integrate with existing tools and processes

Artificial Intellingence Development Platform

Sometimes a client will need Watson

If one of the 58 Watson services out there fits your client's needs and they can move their data to the cloud, Watson is the fastest and easiest way to bring this type of application into their organisation.



Sometimes it will be PowerAI

For those cases that don't fit this picture, if your client needs a bespoke solution that doesn't exist today, or, if they cannot move their data to the cloud and they need to deploy an open source on premise solution for AI, the default is PowerAI.

Sometimes it will be the the best of both worlds

The perfect scenario - When Watson & PowerAI both feature in a client's AI strategy, e.g.

- Watson APIs for chatbot, with PowerAI providing rapid access to backend data for real-time client answers
- Watson for image recognition, with PowerAI for classification against an organisation's inventory

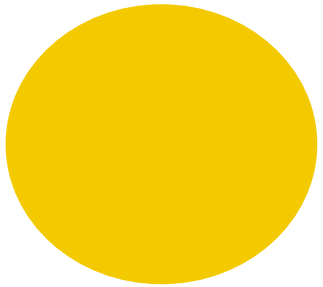
IBM Design Thinking Client Workshops

Principles

See problems and solutions from a new point of view.

Observe

Get to know people, uncover their needs, test your ideas.

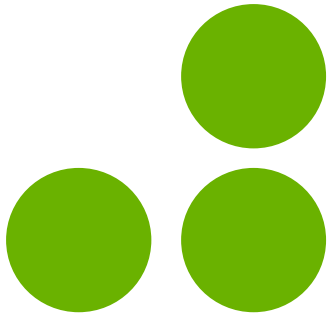


A focus on user outcomes

When you use IBM Design Thinking, put your users' needs first.

Reflect

Build understanding, form intent, commit to decisions.

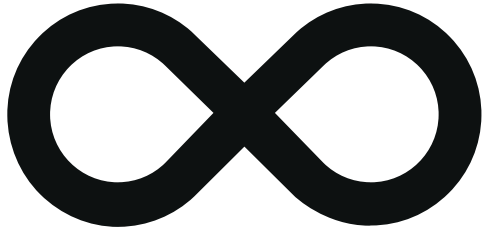


Multidisciplinary teams

Collaborate across disciplines to move faster and work smarter.

Make

Explore ideas, prototype possibilities, drive outcomes.



Restless reinvention

Everything is a prototype. Listen, learn, and course-correct.

The Way: Becoming an AI business in five steps

Discovery Workshop based on IBM Design Thinking principles