IBM Power10

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Making secure, resilient, agile, hybrid multi-cloud and AI workloads possible

AIX IBMi Linux

IBM Power

Engineered for agility

Provides a frictionless hybrid cloud experience

Respond faster to business demands

with efficient scaling and consistent pay-for-use consumption across public and private clouds

Protect data from core to cloud

using memory encryption at the processor level designed to support end-to-end security across public and private clouds without impacting performance

Streamline insights and automation

by running AI inferencing directly in core and leveraging Watson services in IBM Cloud

Maximize availability and reliability

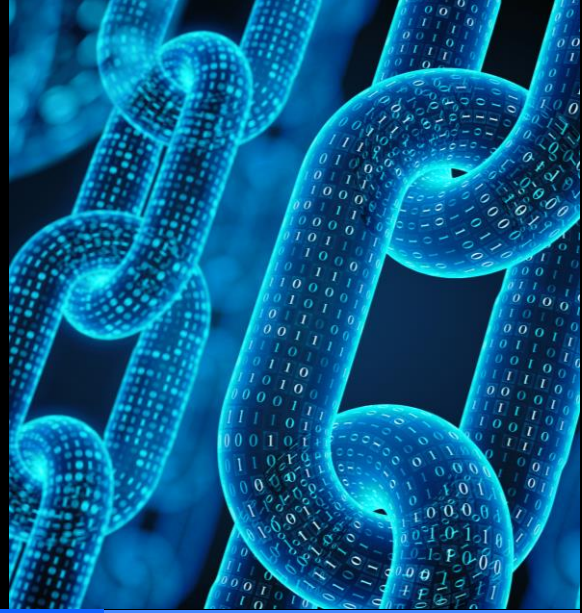
with built-in advanced recovery and self-healing for infrastructure redundancy and disaster recovery in IBM Cloud

IBM Power Security

Design, architecture, and integration

Security is architected into Power for all types of threats: traditional, new, and emerging

- Processor
- Firmware
- Hypervisors
- Management
- Network
- Operating systems
- Containers
- Applications
- Middleware
- AI



Base Platform Security & Integrity

Continuously protect platform integrity across main processor, service processor and peripherals

End to End Hybrid Cloud Security

Offer all platform capabilities with the highest level of security from enterprise through Cloud

Workload Security Enablement

Provide features to secure client workloads: HW, firmware, and OS support for isolation, integrity, encryption, event monitoring, …

Simplified Security Management

Automated security management to simplify security operations and compliance: patching, integrity monitoring, health checking, …

System level security

Workloads, VMs, and containers

OS security

Hardware and firmware security

Isolation

Integrity

Secure VMs/Containers

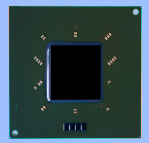
Signed images and files

Runtime verification of workload files

OS, LPAR, container isolation

Runtime verification of OS files

Firmware, Hypervisor, Ultravisor



Power processors: Hardware isolation, root of trust, crypto acceleration

Boot time Integrity

End to end security with full stack encryption

Stay ahead of current and future threats with support for:
- **Quantum-safe cryptography**
- **Fully homomorphic encryption**

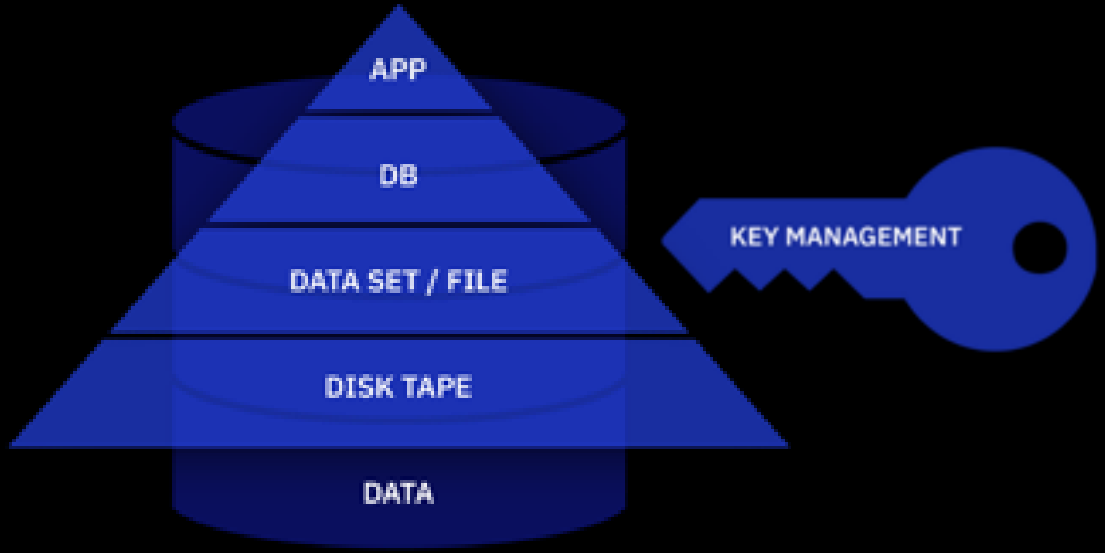
Applications
Hyper-sensitive data

Databases
Sensitive in-use, in-flight and at-rest data

File and data sets (AIX EFS)
Sensitive data tied to access control for in-transit and at-rest data

Memory encryption
All data in memory

Full disk and tape
(AIX LV encryption, IBM i ASP encryption)
Protect at-rest data



Transparent memory encryption with:
- No additional management setup
- No performance impact

Blazing fast hardware-accelerated encryption
- 4x crypto engines in every core

Simplify and integrate security management

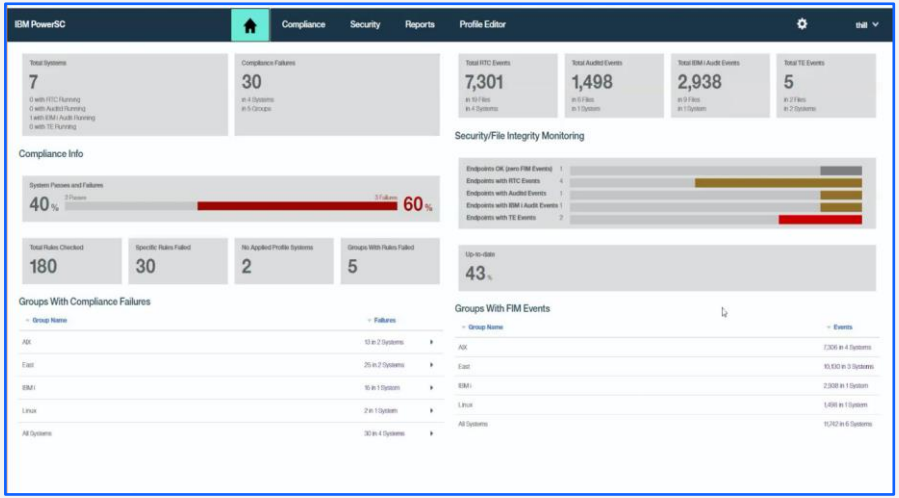
Ensure correct configuration across the stack, monitor them and react quickly if unexpected changes are detected

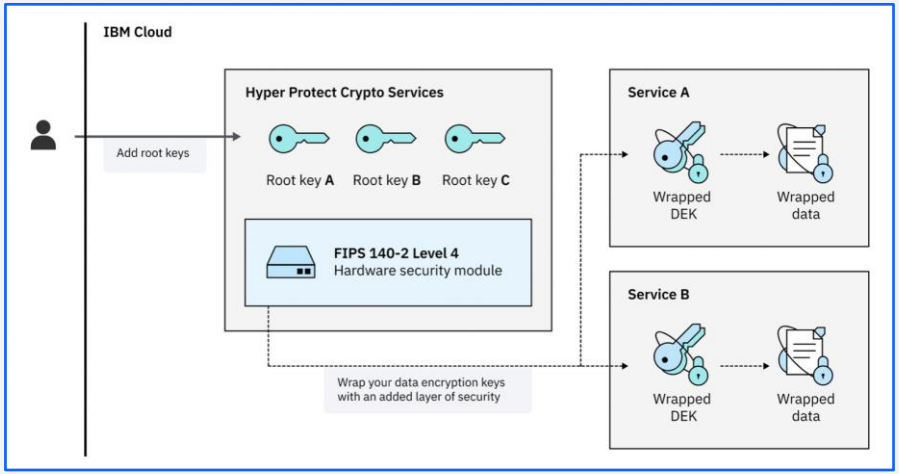
PowerSC

- Centralized dashboard
- Compliance Automation and Reporting (PCI, HIPAA, GDPR, …)
- Real-time intrusion detection
- Patch management
- MFA

Key management

- Standards based enterprise key management
- Bring Your Own Key (BYOK) with IBM Cloud Hyper Protect Crypto Services





Respond faster to business demands

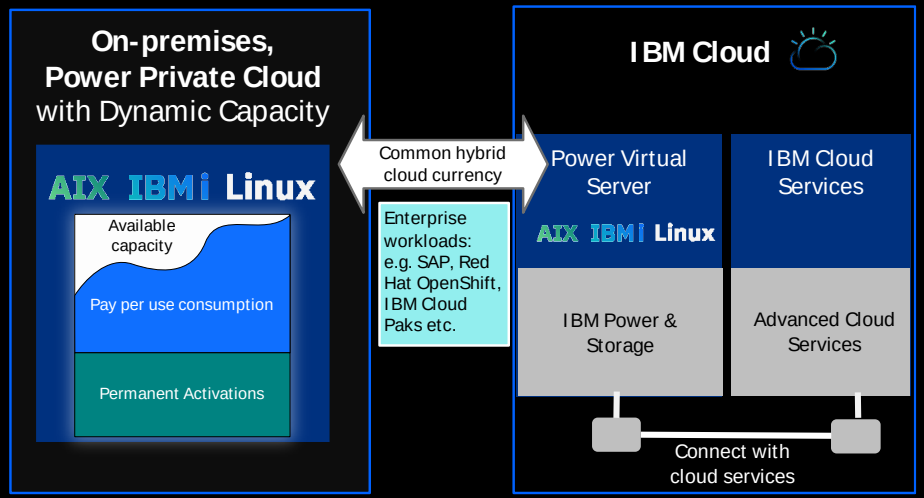
- 4.1X more containerized throughput per core than x86[2] running Red Hat OpenShift
- 2.5X per core vs x86 SPECint_rate[3]
- 50% more capacity, same energy consumption[4]
- World record 8-socket two-tier SAP SD standard application benchmark[1]
- Instant scaling with pay per use consumption

OPENSHIFT

Gain performance and TCO advantages by co-locating Linux, AIX, IBM i and Red Hat OpenShift environments

IBM Power for frictionless hybrid cloud

Consistent experience for elastic computing across the IT environment

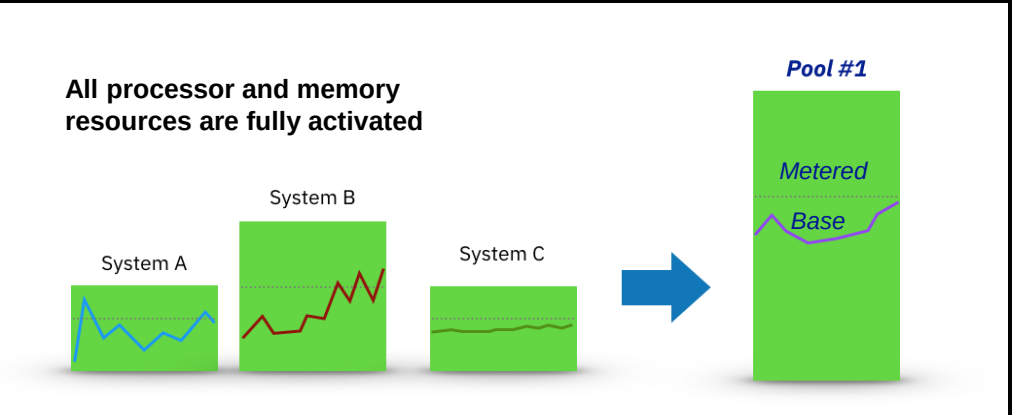


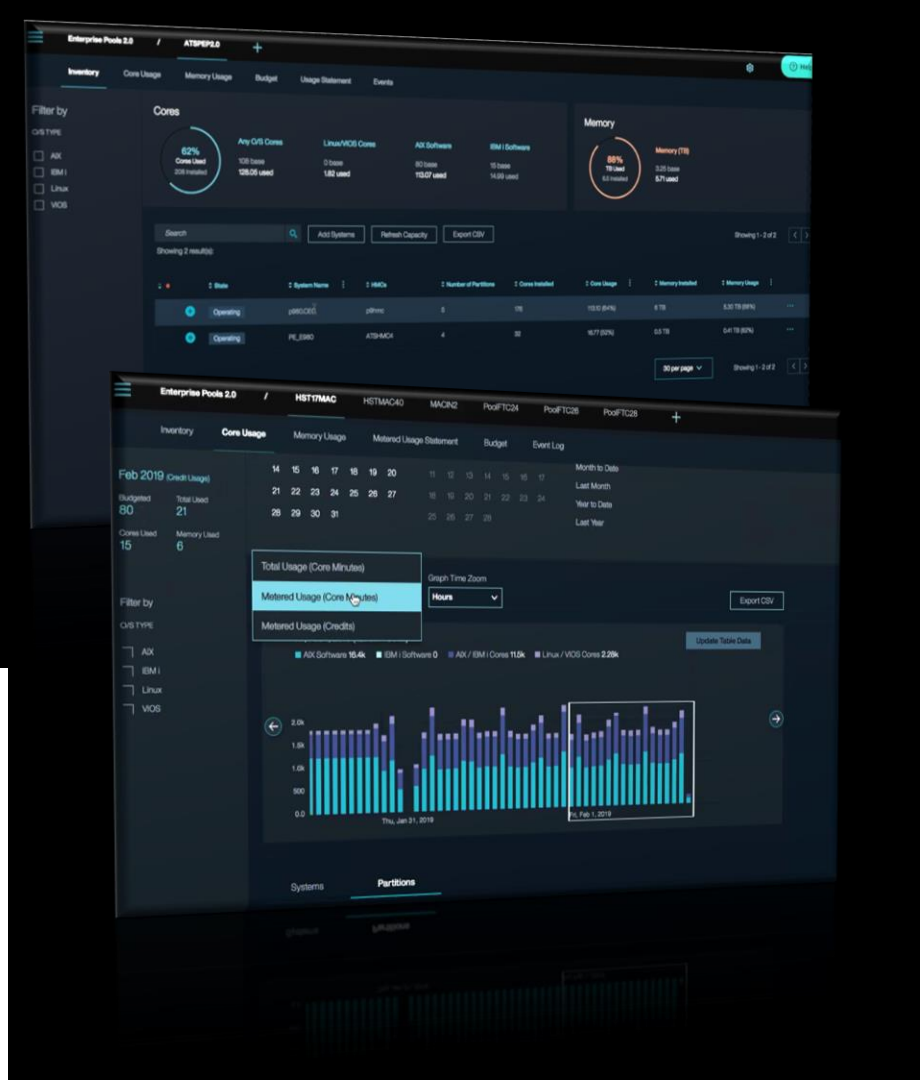
- Consistent and compatible IT architecture – no additional middleware or application refactoring required
- Extend workloads across on-premises and Power Virtual Server
- Common hybrid cloud currency for pay-per-use consumption

Power private cloud with shared utility capacity

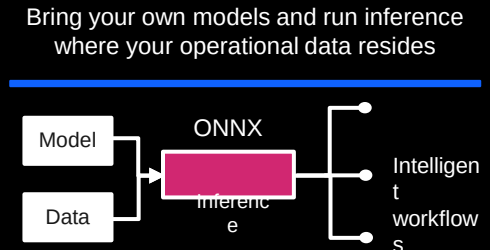
Deploy shared utility capacity across a pool of Power E1080/E980 systems, Power E950 systems or S922/S924 systems

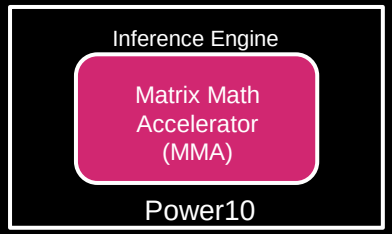
IBM Cloud Management Console with HMC automatically meters any resource use that exceeds the pool's base capacity, and debits minutes real-time against capacity credits on account





Streamline insights and automation with
In-core AI inferencing and machine learning





4 MMA Engines per Core

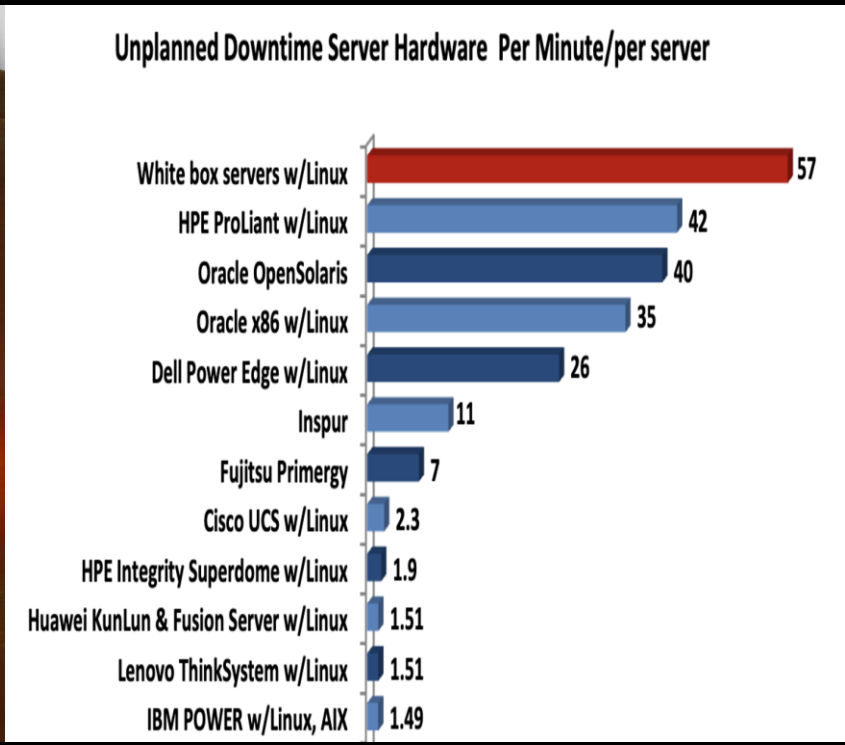
5X

Faster AI inferencing per socket over Power E980*

- Perform in-core AI inferencing and ML where the data resides
- Train AI models anywhere, deploy on Power without changes for AI
- Support for popular libraries, AI frameworks and ONNX runtime
- Provides alternative to using separate GPU systems

* 5x improvement in per socket inferencing throughput for large size 32b floating point inferencing models from Power9 E980 (12-core modules) to Power10 E1080 (15-core modules). Based on IBM testing using PyTorch, OpenBLAS on the same BERT Large with SQuAD v1.1 data set

IBM Power ranked number 1 in every major reliability category by ITIC for the 13th straight year



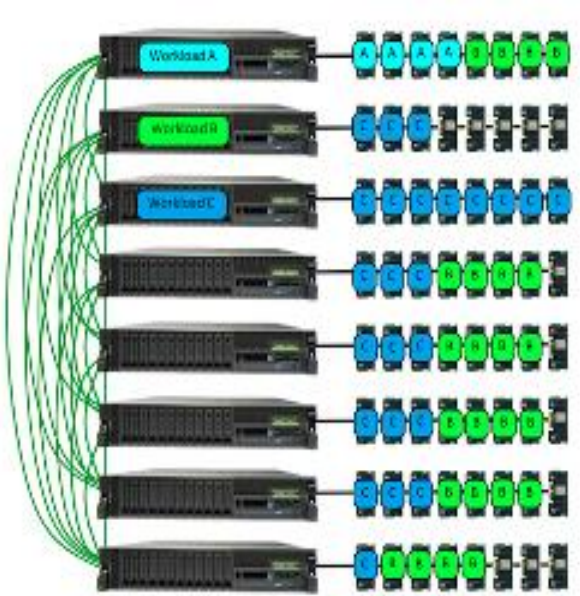
IBM Power10

Making the most reliable server, even better

Maximize memory availability

The new memory architecture, Open Memory Interface (OMI) in Power10 delivers:

- 2X better memory RAS than industry standard DIMMs[1]
- 2.6X higher memory bandwidth than scalable (4+ socket) x86 processors
- Ability to support future advanced memory solutions, such as distributed memory



1. Based on IBM's internal analysis of the IBM product failure rate of DDIMMS vs Industry Standard-DIMMs

Software solutions that grow with you

IBM AIX

Scalable and robust enterprise open standards-based UNIX operating system for the Power Systems architecture. AIX has a history of consistently delivering a high-performance secure environment.

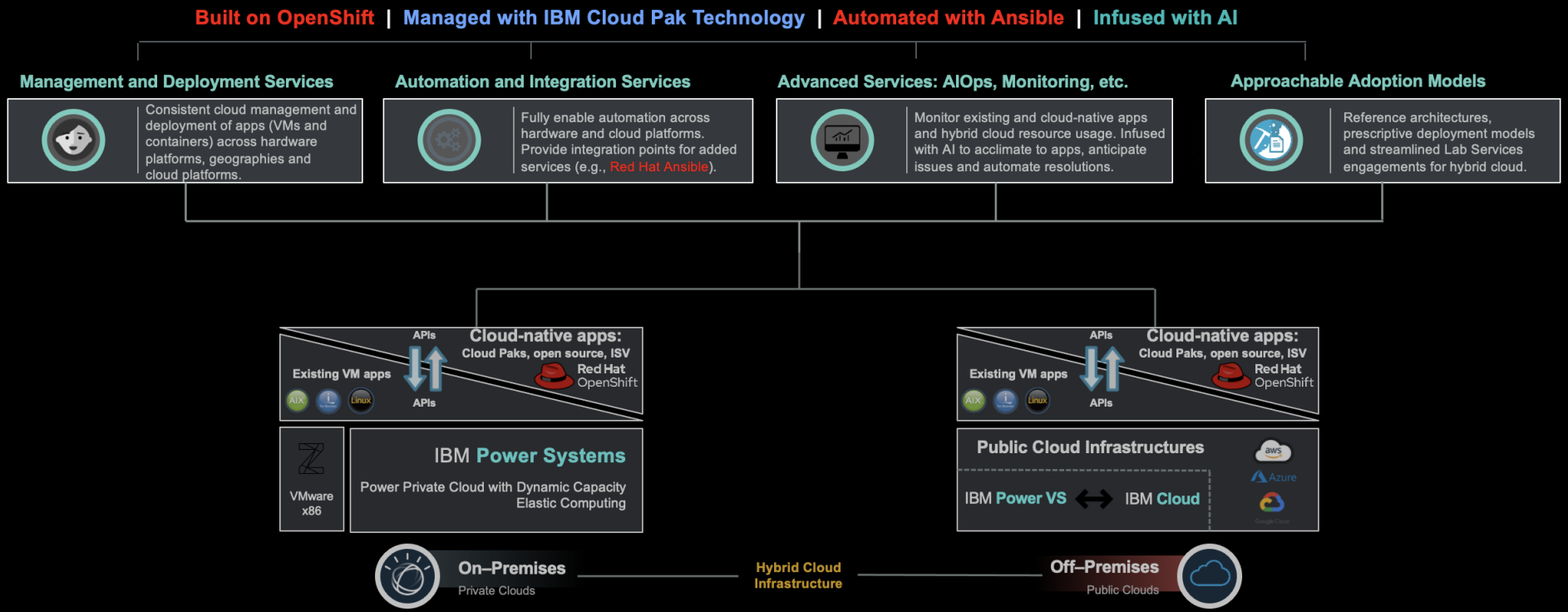
IBM i

An integrated platform enabling flexibility and dependability with robust architecture, exceptional security and business resilience.

Linux

An open operating system built by the open source community, resulting in faster processing speed, bandwidth and inherent security.

The enterprise hybrid cloud with IBM Power and Red Hat

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