Understanding IBM's PowerVS Private On-Premises Service

PRECISION IT

TABLE OF CONTENTS

INTRODUCTION

Precision IT's SaaS platform is used to help customers determine the optimal cloud, on-premises, and/or hybrid infrastructure for their workloads and applications. With more customers opting to run some workloads in the cloud and some on-premises due to security, governance, and/or latency requirements, Precision's platform is often used to discover the optimal hybrid public cloud and on-premises private cloud solution. This white paper will provide an overview of public cloud and on-premises private cloud solutions, along with introducing IBM's new Power Virtual Server Private Cloud offering.

Public Cloud vs. Private Cloud Defined

Public Cloud

Public cloud refers to a type of cloud computing in which resources are publicly available for subscription and consumption by any organization. Common examples of the public cloud include Microsoft® Azure, Amazon Web Services, IBM Cloud®, and Google Cloud Platform. In this delivery model, the provider owns and manages the infrastructure, removing this burden from the customer.

Cloud computing provides pooling of resources, on-demand scalability, broad access, elasticity, and measured Capital Expense (CapEx) cost models.

Cloud offerings can provide greater flexibility, efficiency and strategic value compared to traditional on-premises IT infrastructure:

- Flexibility: Users can scale services to fit their needs, customize applications and access cloud services from anywhere with an internet connection.
- Efficiency: Enterprise users can get applications to market quickly, without worrying about underlying infrastructure costs or maintenance.
- Strategic Value: Cloud services give enterprises a competitive advantage by providing the most current and innovative technology available.

On-Premises Private Cloud

On-premises private cloud is a family of client or provider owned fully managed solutions delivering infrastructure and services to on-premises or edge locations, providing a congruous hybrid experience.

Below are use cases and benefits of on-premises private cloud:

- Higher level of data security and governance
- Lower latency and superior performance
- Customizable infrastructure
- Access to native public cloud services
- A single management plane across on-premises and public cloud
- Standardized infrastructure across on-premises and public cloud
- Fully managed installations

Hybrid Cloud

Public cloud, combined with on-premises private cloud, provides a true hybrid cloud environment offering a single management plane and standardized infrastructure for both on-premises and cloud workloads.

With public and on-premises cloud solutions, companies can now take full advantage of cloud provisioning interfaces and standardized infrastructure for applications that traditionally were not candidates for a cloud implementation. With on-premises private cloud, companies can now run applications that have high data security, corporate governance, and/or low latency requirements, necessitating data to reside on-premises.

Utilizing on-premises private cloud, companies can now run applications that have high data security and/or corporate governance, meeting regulations requirements, necessitating data to reside on-premises.

Introducing IBM Power Virtual Server Private Cloud

IBM Power Virtual Server Private Cloud is an on-premises cloud solution with IBM Power compute, storage, and networking infrastructure services residing at customers' data centers or colocation facilities. It is built, installed, owned, maintained, and fully managed (up to the virtual machine layer) by IBM Cloud.

IBM Power Virtual Server Private Cloud enables companies to run applications "in the cloud" with the same management plane and standardized infrastructure as IBM's public cloud offering, while meeting needs for data security, governance, and low-latency network requirements. IBM Power Virtual Server Private Cloud combines many of the benefits of cloud computing—including elasticity, scalability, and ease of service delivery—with the access control, security, and resource customization of on-premises infrastructure.

Power Virtual Server Private Cloud offers advanced features for managing and securing data, while allowing organizations to benefit from cloud-like scalability and flexibility. This arrangement ensures compliance with data protection regulations and internal governance policies, thus bridging the gap between public cloud benefits and private data control.

How IBM Power Virtual Server Private Cloud Fits into Hybrid Cloud Environments

The IBM Power Virtual Server Private Cloud solution of server, storage, and networking infrastructure, in conjunction with IBM Power Virtual Server capabilities, can be implemented at any customer data center, providing a consistent and reliable hybrid experience. IBM Power Virtual Server Private Cloud and IBM Power Virtual Server provide a true seamless hybrid solution for organizations requiring a balance between cloud and on-premises resources, ensuring they can leverage the advantages of both models.

Client Expectations of Cloud

Clients have diverse expectations when adopting cloud solutions, driven by the promise of operational efficiency, cost-effectiveness, and scalability. Key aspects include:

TCO of On-Premises vs. Cloud

Total Cost of Ownership (TCO) is a primary factor influencing cloud adoption. Traditional on-premise installations involve significant upfront capital expenditure on hardware and infrastructure, along with ongoing operational expenses for maintenance, energy, and personnel. In contrast, cloud solutions, including Power Virtual Server Private Cloud, typically offer a shift to operational expense (OpEx), which can be more predictable and scalable. The cost benefits of cloud solutions stem from the reduction of physical

infrastructure, lower energy consumption, and reduced skill set requirements.

Reduction in Datacenter Space (Public Cloud)

Public cloud services significantly reduce the need for physical datacenter space. Organizations leveraging cloud infrastructure can eliminate the need for on-premises datacenters, thus freeing up valuable real estate and reducing associated costs.

Reduction in Management/Skills Required

Servers

Cloud computing solutions, including Power Virtual Server Private Cloud, reduce the need for extensive server management. By leveraging managed cloud services, organizations can offload routine server maintenance, upgrades, and monitoring, focusing instead on higher-value activities.

Storage

Cloud storage solutions streamline data management by offering scalable and flexible storage options without the need for extensive on-premises storage

infrastructure. This reduces the burden on IT staff and minimizes storage-related challenges.

Networking/Switches

Cloud providers manage the networking infrastructure, simplifying the management and reducing the need for in-house expertise. This results in fewer physical switches and routers to manage, streamlining network operations.

Reduction in Energy Consumption

Public cloud providers often operate at scale, enabling energy-efficient practices and technologies that are less feasible for individual organizations to implement. As a result, organizations can benefit from lower energy consumption and a reduced carbon footprint by migrating to public cloud environments.

What is important from a TCO Perspective?

When evaluating the TCO for cloud versus on-premises solutions, several factors must be considered:

Hardware Maintenance

On-premises solutions require substantial investment in hardware and ongoing maintenance. Cloud solutions, including Power Virtual Server Private

Cloud, shift these responsibilities to the service provider, typically resulting in lower total hardware CapEx costs, and reduced maintenance burdens.

Energy

Energy costs for running and cooling datacenters can be significant for on-premises infrastructure. Cloud providers, operating large-scale co-located facilities, often achieve greater energy efficiency, translating to lower energy costs for clients.

Datacenter Costs

Maintaining a datacenter involves costs for space, power, cooling, and physical security. Cloud solutions eliminate these datacenter expenses by transferring them to the cloud provider, offering a more cost-effective alternative.

FTE (Full Time Equivalents)

Cloud adoption often reduces the need for IT staff dedicated to managing physical infrastructure. The shift to cloud services can result in lower staffing requirements, allowing IT personnel to focus on strategic initiatives rather than routine management tasks.

Software Licensing

Cloud models typically offer flexible software licensing options, which can be more cost-effective compared to traditional on-premises licenses via aligning license costs with actual usage.

Precision IT Model Details

Precision IT's platform and integrated model is used by business partners, infrastructure providers, and clients to determine the optimal solution for a client's environment.

- Provide comprehensive sizing and cost comparisons for cloud, 0n-premises, hybrid, and multi-cloud infrastructure environments.

- Utilize vendor-agnostic insights to give customers a detailed understanding of IT needs, right-sized solution, and cost-optimized TCO/ROI business case.

- Harness the power of data analytics to quickly assess software portfolios to ensure licensed software is running on-premises or in the cloud, at the lowest cost and best performance.

- Enable head-to-head performance comparisons across cloud and server vendors' products and configurations by utilizing unique Composite Performance Metrics (CPM).

Use Case

A client approached Precision IT to analyze their current environment and explore various alternatives for on-premises cloud native solutions. The client's existing infrastructure consisted of Power8® servers running WebSphere®, and Precision IT was tasked with evaluating options for migrating their application to an on-premises hybrid cloud solution with public cloud and on-premises cloud management capability. Below on the following page are the use case results.

5-year TCO Details

	Existing Power8 / WebSphere	Oracle Compute Cloud @ Customer	IBM Power Virtual Server Private Cloud	AWS Outpost	Microsoft Azure Stack	HPE GreenLake
Servers/Nodes	32	2	8	12	7	7
Cores/vCPUs	768	384	252	576	448	448
Processors	64	4	16	24	14	14
Composite Performance Metric (CPM)	59,872	64,576	60,732	60,756	66,451	66,451
Total Memory (GB)	8,192	13,720	8,192	9,216	10,752	10,752
CPU Architecture	POWER8	AMD EPYC	POWER10	Xeon Platinum	Xeon Gold	Xeon Gold
Useable Storage (TB)	150	175	150	165	154	160
Estimated Price (5-year)	N/A	$4,667,324	$5,227,269	$4,335,410	$4,443,271	$4,562,710
Hardware Maintenance (5-year)	$2,704,000	Included	Included	Included	Included	Included
Storage Cost	N/A	Included	Included	Included	Included	Included
Storage Maintenance (5-year)	$330,000	Included	Included	Included	Included	Included
Network Costs (5-year)	$106,600	$106,600	$106,600	$106,600	$106,600	$106,600
AIX Enterprise Edition (Scale Out) Support Cost (5-year)	$1,263,360	N/A	N/A	N/A	N/A	N/A
PowerVM Enterprise Edition (Scale Out) Support Cost (5-year)	$491,520	N/A	N/A	N/A	N/A	N/A
IBM WebSphere Application Server Network Deployment Support Cost (5-year)	$12,633,600	$5,691,700	$4,145,400	$9,475,200	$7,369,600	$7,369,600
Red Hat Enterprise Linux Server Premium (with Smart Management) Support Cost (5-year)	N/A	$16,520	N/A	$99,120	$57,820	$57,820
VMware Cloud Foundation - 3/5 Year Prepaid Commit - Per Core Support Cost (5-year)	N/A	$605,500	N/A	N/A	$0	$784,000
Red Hat Enterprise Linux 7 for Power (from IBM) Support Cost (5-year)	N/A	N/A	$364,280	N/A	N/A	N/A
Implementation/Migration Services	N/A	$100,000	$100,000	$100,000	$100,000	$100,000
FTE Cost (5-year)	$600,000	$120,000	$120,000	$120,000	$120,000	$120,000
Power/Cooling Cost (5-year)	$886,676	$180,899	$178,603	$248,832	$192,866	$192,866
Total 5-year Costs	**$19,015,756**	**$11,488,543**	**$10,242,152**	**$14,485,162**	**$12,390,157**	**$13,293,596**

The information provided in the above sample TCO Assessment are estimates and is provided for informational purposes only. Results obtained from individual TCO Assessments depend upon a number of variables derived from individual computing environments, scenarios and desired outcomes and will differ from the results expressed in the above table. Precision IT, Inc. is not responsible for any damages related to the information in this report, which is provided "as is" without warranty of any kind, whether express, implied, or statutory. Nothing in this report creates any warranties or representations from Precision IT, Inc.

Conclusions

IBM Power Virtual Server Private Cloud offers a compelling solution for organizations having on-premises data security, governance, and/or low latency requirements while seeking a hybrid cloud environment that combines the benefits of OpEx pricing, cloud management, and scalability - with the physical control of on-premises infrastructure. Power Virtual Server Private Cloud presents a cost-effective and efficient alternative to traditional on-premises solutions by providing a substantial TCO advantage compared to selected competitors when running per core and/or per socket licensed software. In addition, Power Virtual Server Private Cloud compute solution offers superior scalability over x86-based solutions while maintaining the advantages of private cloud data governance. Organizations evaluating their cloud strategy should consider Power Virtual Server Private Cloud as a viable option for optimizing their hybrid cloud environment for applications that have secure data, governance, and/or low latency requirements.

About Precision IT, Inc.

Precision IT, Inc. helps customers make smarter IT decisions. Precision IT's SaaS-based analytics platform and managed services have provided thousands of TCO/ROI based analyses for customers that simplified their cloud, datacenter, and software decisions optimizing their costs, time, and resources. Through a combination of extensive cloud, data center, and software experience coupled with cutting-edge technology, IP, and insights Precision IT excels at optimizing customer's IT spend, resources, and time. For more information about Precision IT, Inc., visit www.precisionitinc.com.