Introduction

As consumer demand for an on-demand economy grows, businesses are faced with a challenge in how they support a new and ever-changing set of requirements. Cloud has reset expectations as businesses look for the best way to leverage the benefits of cloud-based infrastructure to deliver better business results and customer experiences. Originally, many companies turned over part — or all — of their IT to public cloud platforms in hopes of becoming more agile and lowering overall costs. However, there are trade-offs associated with a public cloud. That’s why many companies are now deploying a mix of private, on-premises and public, off-premises clouds — also referred to as a hybrid cloud (or multicloud) strategy.

Cloud has reset IT expectations

Leading companies realize cloud is how you deploy IT, not where.

Businesses benefits of cloud:

- Deploy apps in minutes
- Pay for use / consumption on demand
- Provide rapid access to compute resources
- Simplify management with automation
- Continuous infrastructure innovation
- Rapidly create and refine new ideas at low cost with minimal risk

Is on-demand consumption worth the investment?

IDC research indicates that by 2020, consumption-based procurement will account for 40% of enterprise IT infrastructure spending, eclipsing traditional procurement in the process. But for business and IT leaders considering an update to their traditional models, the question remains: Is consumption-based IT worth the investment?

As more enterprises look at ways to reduce costs while maintaining the scalability required to stay competitive in today’s fast-paced business environment, consumption-based infrastructure models have grown increasingly popular. These consumption-based models enable customers to quickly scale their IT infrastructure up or down to optimize costs while quickly adapting to dynamic business environments. Regardless of industry or company size, the shift to consumption-based IT is clear.

What makes consumption-based IT the better option?

In a world where mixtures of on-premises, public cloud, and private cloud systems and applications make up IT infrastructure, traditional operating models can’t deliver an ideal balance of agility, control and scalability.

To maintain a competitive advantage, you need an IT model that helps you adapt rapidly to the changing tech landscape. That’s where consumption-based IT thrives because it:

- Balances the flexibility of cloud infrastructure with the control, security and reliability you’d expect from your on-premises data centers.
- Pays for IT resources and capacity on demand, reducing up-front CapEx and other costs associated with traditional procurement processes (i.e., energy, cooling, etc.).
- Enables rapid infrastructure expansion to accommodate the needs of new projects and workloads.

All of these benefits contribute to a greater alignment between the business and IT leaders. And when both sides of an organization are aligned, you’re better prepared to deliver innovative products and services to your customers.

1 Source: IBM Market Intelligence survey of 671 customers. IBM Growing up hybrid Accelerating digital transformation (https://www.ibm.com/downloads/cas/28G9P51V)
IBM® Power Systems
consumption-based IT offerings

With Capacity on Demand (CoD) offerings, you can dynamically activate one or more resources on your server as your business peaks dictate. Activate inactive processor cores or memory units that are already installed on your server on a temporary and permanent basis. CoD offerings are available on select Power Enterprise Servers.

Some servers include both active and inactive resources:
- Active processor cores and memory units are resources that are available for use on your server.
- Inactive processor cores and memory units are included with your server but are not available for use until you activate them.

Capacity on Demand offerings

CoD offerings are now simpler and easier to use, purchase, provision and enable in minutes via IBM Entitled Systems Support (ESS).  

<table>
<thead>
<tr>
<th>Capacity Upgrade on Demand</th>
<th>Trial Capacity on Demand</th>
<th>Elastic Capacity on Demand</th>
<th>Utility Capacity on Demand</th>
<th>Power Enterprise Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanently activate inactive processor cores and memory units by purchasing an activation feature and entering the provided activation code. You can do this without restarting your server or interrupting business.</td>
<td>Evaluate the use of inactive processor cores, memory or both at no charge using Trial CoD. After you enroll, the trial period is available for 30 power-on days.</td>
<td>Activate processor cores or memory units daily for as long as need by using your HMC to enable the resources temporarily. *</td>
<td>Utility CoD is used when you have unpredictable, short workload spikes. Automatically provide additional processor capacity on a temporary basis within the shared processor pool. Use is measured in processor minute increments and is reported at the Utility CoD website.</td>
<td>A Power Enterprise Pool is a group of Power Enterprise Systems that can share Mobile CoD processor resources and memory resources.</td>
</tr>
</tbody>
</table>

1 IBM ESS is not enabled or available in all countries  
2 Formerly referred to as On/Off CoD
Power Enterprise Pools

Provide flexibility and value with IBM Power Systems. Power Enterprise Pools is a technology developed for dynamically sharing processor and memory activations among a group (or pool) of Power Systems enterprise class servers. Using Mobile CoD activation codes, your systems administrator can perform tasks independently without contacting IBM to move mobile capacity between systems.

Power Enterprise Pools 2.0

Power Enterprise Pools 2.0 delivers enhanced multisystem resource sharing and by-the-minute consumption of on-premises compute resources for clients deploying a group or “pool” of Power E980 servers and managing a private cloud infrastructure. This flexibility combined with the security, reliability and scalability of the Power E980 provides clients with the consumption-based-IT solution required in today’s dynamic, hyper-competitive market. Power Enterprise Pools 2.0 can simplify system management, so clients can focus on optimizing their business results instead of provisioning additional servers to respond to changing business requirements. Resources are easily tracked and monitored via the IBM Cloud Management Console with HMC which automatically tracks usage by the minute and debits against capacity credits based on actual usage. With Power Enterprise Pools 2.0, clients no longer need to worry about over-provisioning capacity to support growth.

Power Enterprise Pools can support your business goals:

- Using Power Enterprise Pools can provide your organization with a dynamic infrastructure, reduced cost of performance management, improved service levels and controlled risk management.
- The Power Enterprise Pools technology is ideal for improving the flexibility, load balancing, and disaster recovery planning and operations of your Power Systems.
- Improves responsiveness and agility when adapting to quickly changing business requirements or needs to better support business growth.

Power Enterprise Pools 2.0 allows for shared utility across a pool of resources:

- Provides new innovation beyond the initial Power Enterprise Pools offering, by allowing Base Capacity processor & memory activations, and their corresponding license entitlements to be effectively shared across a collection of Power E980 systems without having to move Mobile activation resources through the Hardware Management Console (HMC).
- System capacity may be seamlessly made available when it is needed without requiring human awareness or intervention.
- Cloud Management Console with HMC automatically tracks usage by the minute and debits against Capacity Credits based on actual usage.

Device management

The IBM Cloud Management Console (CMC) for Power Systems provides a simplified, consolidated view of the Power Systems cloud landscape, no matter how many systems or datacenters comprise it. This includes inventory of systems and virtual components, consolidated performance data to optimize utilization and performance across all your data centers, and aggregated logging information to provide additional insights. The CMC is hosted in the IBM cloud and can be accessed securely at any time. This enables system administrators to easily run reports and gain insight into their Power cloud deployments. CMC is a platform through which IBM can deliver apps or micro services in a DevOps model. It’s also a convenient launcher for Power management software and solution for mobile devices, tablets and desktop browsers that enables cloud operators to enjoy convenient access to the applications.
**Built-in PowerVM® virtualization capability**

Every IBM POWER9™ server includes IBM PowerVM Enterprise technology. With PowerVM on the POWER9 servers, one machine has the power and flexibility to run multiple operating systems and workloads, streamline management, increase availability, lower operational costs and improve service levels — all with the ability to quickly deploy applications. IBM PowerVM supports up to a thousand VMs on a single server — each with its own processor, memory and I/O resources. And processor resources can be assigned at a granularity of 1/100th of a core. Multiple shared processor pools allow for the automatic, nondisruptive balancing of processing power between VMs assigned to shared pools. This ability increases throughput and gives you the power to cap processor core resources used by a group of VMs, potentially reducing processor-based software licensing costs. In addition, PowerVM technology on the POWER9 servers provide IBM Active Memory Sharing (AMS). This technology intelligently and dynamically reallocates memory from one VM to another to improve use, flexibility and performance. Because AMS lets you pool physical memory among VMs on a server, it helps maximize memory utilization and ultimately drives down system costs. To further enhance availability on the POWER9 servers, all systems include Live Partition Mobility (LPM). LPM allows you to move a running VM from one Power Systems server to another without application downtime. This capability minimizes application interruption for planned system maintenance, provisioning and workload management. Use LPM to simplify operating environment migration to new servers — either temporarily or permanently. Unique to POWER9 servers is the ability to exploit on-chip capabilities that provide secure accelerated LPM, which encrypts data in motion and compresses VMs to deliver LPM operations that are up to 4X faster.

**Seamless, nondisruptive growth**

The IBM Power® System E980 is the ideal foundation for a world-class private or hybrid cloud infrastructure, able to power the large-scale, mission-critical applications clients need to transform data into a competitive advantage. Each Power E980 comes tailored to your unique requirements and ready to deploy—with enterprise-class security, industry leading reliability and efficient, built-in IBM PowerVM™ virtualization. Massive throughput, performance and scalability in a modular high-end system with up to 192 POWER9 cores, up to 64TB memory, and the fastest POWER9 processors in the Power Systems portfolio.

**Finance your Capacity on Demand solutions**

IBM Global Financing can help match your payments with your usage with competitive financing for fixed and variable costs related to IBM Capacity on Demand offerings. By financing your Capacity on Demand costs and associated charges together with your base lease, spikes in demand need not become spikes in your budget.

**Public cloud experience with on-premises IT security, reliability and performance**

To remain relevant and deliver business growth in today’s dynamic environment, businesses are moving away from traditional IT procurement; they’re choosing to add flexibility and performance while optimizing costs through consumption-based IT initiatives. No more over-provisioning capacity for growth. Whether you are looking to optimize a single system or a system pool, Power Systems has the right solutions to provide access on-demand, when and where you need it within your on-premises IT environment.

For additional information, please visit:  www.ibm.com/it-infrastructure/power/enterprise