Preview and statement of direction: IBM z/OS hybrid cloud enablement

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At a glance

Enterprises are embarking on a digital transformation journey to address new business challenges, reach new markets, and deliver new value to clients. Capturing new business opportunities demands an ongoing innovation and evolution of IT that includes the exploitation of hybrid cloud technologies to enable new internal and external client experiences.

Business success will be predicated on the ability of clients to transform with agility and deliver excellent client experiences with confidence and certainty. IBM® z/OS™ brings enterprise computing capabilities to a hybrid cloud infrastructure, delivering on the combination of agility and trust:

- Agility in the adoption of new technologies in DevOps, microservices, and consumption models that are delivered as a service to accelerate their time to value
- Trust by delivering with confidence and certainty through:
  - Optimization that enables the ability to run computing workloads in the most efficient environment
  - Resiliency to deliver continuity of business services through exploitation of functions such as data encryption and high availability

These factors provide the ability to deliver results in a hybrid cloud, on demand and without interruption, which is critical to creating and maintaining an excellent highly satisfying client experience.

The Overview describes a set of z/OS capabilities that demonstrate the value that z/OS provides to enable the availability and management of resources that align to clients' vision of enhancing their hybrid cloud strategy to support the creation of new business opportunities.

Overview

IBM z/OS Container Extensions

IBM plans to introduce IBM z/OS Container Extensions (zCX), which is intended to enable access to a large ecosystem of open source and Linux® on IBM Z® applications that are planned to be deployed and managed within the native z/OS environment without requiring a separately provisioned and managed Linux server, using popular Docker container skills and patterns.

Imagine being able to use the latest open source tools, popular NoSQL databases, analytics frameworks, application servers, and so on within your z/OS environment. It is intended that z/OS developers will gain DevOps agility through the use of
Docker containers and the ability to deploy open source application development utilities, Linux based shell environments, and so on.

Co-location of Linux on IBM Z applications within z/OS images will usher in a new level of optimization that helps clients to extend the operational control and benefits of z/OS Quality of Service to Linux software without any software changes. The containers deployed in zCX can be fully integrated into your existing z/OS storage resiliency and disaster recovery solutions using HyperSwap®, disk replication, and GDPS®. zCX container workloads can be relocated across systems in a z/OS Sysplex environment for planned and unplanned outages. And all data for zCX containers can be transparently protected using z/OS Pervasive Encryption.

z/OS Container Extensions - Prerequisites and technical requirements:

- zCX is planned to be delivered with z/OS V2.4 in September 2019.
- zCX workloads are planned to be zIIP eligible.
- IBM intends for zCX to run on IBM z14™ systems with a hardware feature code.

For more information about z/OS Container Extensions, see the  z/OS Container Extensions web page.

IBM z/OS Cloud Ecosystem

IBM Cloud™ Private can now use the IBM z/OS Cloud Broker along with IBM z/OS MF to integrate z/OS resources and services into IBM Cloud Private. Non-IBM Z developers and end users can now consume these resources and services without needing any special IBM Z skills. While IBM Z assets are exposed through z/OS Cloud Broker, the security characteristics and control that are inherent to IBM Z remain fully in place.

Integration with IBM Cloud Private allows for service discovery and management in the multicloud environment. Back-end services for z/OS are published in the z/OSMF software catalog using IBM Cloud Provisioning and Management for z/OS. RESTful APIs provided by z/OSMF allow access to its software catalog from the IBM Cloud Private Kubernetes master through z/OS Cloud Broker. See Software Announcement 118-018, dated April 10, 2018, for additional details about z/OS Cloud Broker. The end result of this integration is a self-service consumption model for z/OS middleware that improves the DevOps process, particularly the configuration and deployment of software.

IBM z/OS Cloud Broker

z/OS Cloud Broker gives users the ability to access and deploy z/OS resources and services on IBM Cloud Private for a seamless and universal cloud development experience. This offering simplifies deployments and delivers business value by saving time and resources.

- Bring cloud native experience to the mainframe with an emphasis on simplicity, robustness, and portability.
- Protect existing platform investments by exploiting the trusted differentiating platform capability and the experience of established operational teams.
- Attract new skills, developers, and applications to the z/OS platform.

This offering installs onto IBM Cloud Private or another compatible cloud platform. The z/OS Cloud Broker enables the discovery and brokering of services running on z/OS to be surfaced and consumed by users of the cloud platform.

z/OS Cloud Broker - Prerequisites and technical requirements:

- IBM Cloud Private v3.1.0, or later, including ICP command-line interface
- z/OS V2.2, or later
- z/OSMF set up and configured with IBM Cloud Provisioning and Management for z/OS
See the product documentation for a full list of requirements across the middleware and subsystems.

For more information about z/OS Cloud Broker, see the IBM z/OS Cloud Broker for IBM Cloud Private web page.

**IBM Cloud Provisioning and Management for z/OS**

Cloud Provisioning and Management enables direct access of z/OS computing resources by end users through a self-service portal, allowing:

- Rapid provisioning technology to improve DevOps agility and efficiency
- The ability to maintain operational control at all times.

IBM Cloud Provisioning and Management for z/OS- Prerequisites and technical requirements:

- z/OSMF installed and enabled.
- IBM Cloud Provisioning and Management for z/OS is delivered with z/OS V2.2 and later.

For more information about Cloud Provisioning and Management, see the Cloud Provisioning and Management for z/OS web page.

**IBM z/OS Cloud Storage**

Data is at the heart of every business, and how that data gets stored and managed is critical. Cloud storage makes it possible to store practically limitless amounts of data, simply and cost effectively and access it from anywhere in the world using internet protocols.

The unique relationship between IBM DS8880 and IBM Z offers the optimal combination of performance, functionality, and availability to help mainframe clients meet today's business challenges through industry-leading capabilities:

- Transparent Cloud Tiering (TCT) utilizes hybrid cloud as a new storage tier. TCT improves business efficiency and flexibility and is designed to reduce capital and operating expenses with direct data transfer from DS8880 to hybrid cloud storage environments for simplified data archiving operations on IBM Z. Archiving the less frequently used data in the cloud can potentially reduce costs while keeping the information available when needed.

For details on additional z/OS exploitation of cloud storage with OAM's object support, see the OAM Cloud Storage statement of general direction in Software Announcement 218-472, dated November 13, 2018.

**z/OS Cloud Storage - Prerequisites and technical requirements:**

- TCT DFSMSShsm automatic migration delivered with DS8880 R8.3 and z/OS V2.2 with the PTF for APAR OA55561
- TCT Metro Mirror delivered with DS8880 R8.3, DFSMS PTF for APAR OA52386 on z/OS V2.2 and later, and GDPS PTF for APAR PI98596
- TCT FlashCopy(R) delivered with DS8880 R8.4 and DFSMS PTF for APAR OA55043 on z/OS V2.2
- TCT Global Mirror (GM) and Metro Global Mirror (MGM) delivered with DS8880 R8.5
- TCT Encryption delivered with DS8880 R8.5.1 and DFSMS PTFs for APAR OA55522 on z/OS V2.2 and APAR OA55538 on z/OS V2.3

**IBM Z Tailored Fit Pricing**

Tailored Fit Pricing for IBM Z is a transformational pricing option for IBM Z software that introduces two comprehensive alternatives to the Rolling 4 Hour Average (R4HA) peak-based pricing model, for both new and existing workloads. In the
constantly evolving era of hybrid cloud, it offers simple, transparent, and predictable pricing for IBM Z software running on the z/OS platform within a given country.

IBM Z Tailored Fit Pricing - Prerequisites and technical requirements:

- IBM z14 (all models)

For additional information about IBM Z Tailored Fit Pricing, see the Container Pricing for IBM Z web page and Software Announcement 219-014, dated May 14, 2019.

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**Key requirements**

IBM z/OS V2.4 is planned to run on these IBM Z platforms:

- IBM z14 Models M01-M05
- IBM z14 Model ZR1
- IBM z13s
- IBM zEnterprise EC12 (zEC12)
- IBM zEnterprise BC12 (zBC12)

If you will be running IBM z/OS V2.4 on IBM z/VM, the z/VM release must be z/VM 6.4, or later.

For a complete description of z/OS V2.4 hardware prerequisites, see z/OS V2R4 Planning for Installation (GA32-0890), when available, in IBM Knowledge Center.

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**Planned availability date**

September 2019

Previews provide insight into IBM plans and direction. Availability, prices, ordering information, and terms and conditions will be provided when the product is announced.

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**Statement of general direction**

The initial release of IBM z/OS Container Extensions for IBM z/OS V2.4 is intended to provide Docker Swarm as support for Docker cluster management.

IBM's future plans intend to leverage Kubernetes clustering for the orchestration, scalability, and management of z/OS Container Extensions with compatible cloud platforms.

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BP Attachment for Announcement Letter 219-233

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