

Understanding the MSU Consumption metric in an Enterprise Consumption Solution.

A deeper look into the metric used for metering production workloads.



Introduction

Tailored Fit Pricing for IBM Z® is a transformational pricing option for IBM Z software. It offers simple, transparent, and predictable pricing for IBM Z software running on the z/OS® platform within a given country.

Tailored Fit Pricing introduces two comprehensive alternatives to the Rolling 4 Hour Average (R4HA) based pricing model, for both new and existing workloads:

- The Enterprise Consumption Solution is a tailored consumption-based licensing model.
- The Enterprise Capacity Solution is a tailored full-capacity licensing model.

Both models dramatically simplify the existing pricing landscape, delivering flexible deployment options that are tailored to reflect the client's individual environments

In this document, we focus on the Enterprise Consumption Solution. This offering has a fundamental change from traditional sub-capacity models: the technical metric that IBM uses for determining software charges is based on consumption over time, rather than a single peak hour.

For nearly two decades, IBM has used the MSU metric for software pricing purposes. Fundamentally, an MSU is a unit used to measure the amount of CPU consumed per hour. It is a metric that is used to rate relative machine software capacity: LSPR publishes machine capacity ratings in MSU. RMF, SMF, and various IBM and ISV products track and report information on this metric.

For purposes of MLC charges, IBM has historically used the peak rolling four-hour average of MSU usage, as reported by the Sub-Capacity Reporting Tool (SCRT). For a given product, the peak rolling four-hour average is based on the combined simultaneous peak utilization of the LPARs on which a product executes.

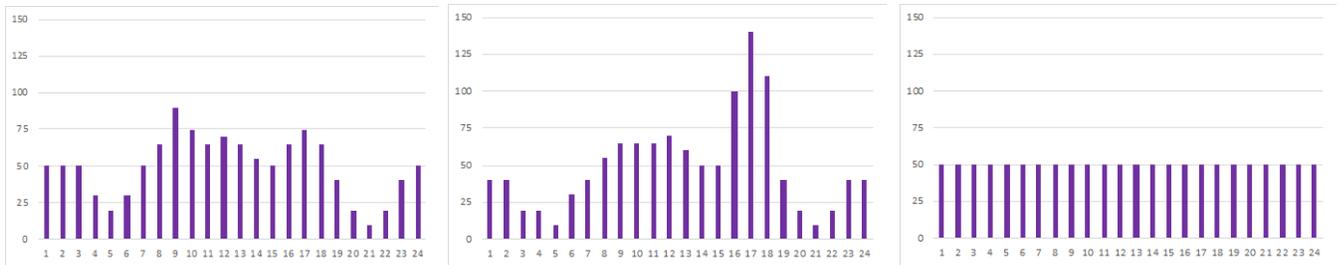
In the Enterprise Consumption Solution software costs are instead based on total MSU consumption, rather than a peak rolling four-hour average. The metric will enable you to deploy workloads as you see fit, without the need to hyper focus on whether they will drive a peak hour and disrupt your IT budget.

For clients that sign an Enterprise Consumption Solution, this transition from the traditional rolling four-hour average view of MSUs is a key part of the value of the offering. For these clients and those considering it, it is critical that we establish a base understanding of this new metric.

The MSU Consumption Model

As we've discussed, the change of metric from the rolling four-hour average to MSU consumption is a key feature of the Enterprise Consumption Solution.

The following 3 graphs illustrate this difference:



Figures A,B and C

These are 3 example periods of time. In each case, a set of time intervals is shown with a corresponding MSU value for the hour.

In these examples, figure B clearly has the highest peak – interval 17 is approximately 140 MSUs. In the rolling four-hour average model, interval 17 is the peak value, which sets your software costs – regardless of what occurred in the other hours.

These three examples do have something in common – in each case, exactly 1,200 MSUs were consumed over the 24 intervals shown. In the Enterprise Consumption Solution model, interval 17 does not set your software costs – instead, the MSUs consumed in each interval are simply added together, and this cumulative value is used.

With an Enterprise Consumption Solution, SCRT is enhanced to report the MSU consumption for an entire pricing container (where a container is typically one or more LPARs). This container MSU value is the reference metric for all products running in the container – unlike sub-capacity pricing, no product specific values are provided in a Enterprise Consumption model. This allows you to use IBM products where they are needed, rather than micromanaging the LPARs on which they are deployed.

Calculating MSU Consumption

The Sub-Capacity Reporting Tool is the official IBM method to determine MSU consumption for an Enterprise Consumption Solution; however, many clients have tools to help them monitor cost factors. This section will help you understand how MSU consumption is calculated for a consumption solution.

Pricing containers provide an infrastructure that allows IBM to meter specific workloads. In most cases, a pricing container will correspond to one or more LPARs; this mapping will normally be the case in an Enterprise Consumption Solution.

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SCRT calculates and reports the "Total MSU Consumed" on a per container basis. The "Total MSU Consumed" value is based on the aggregate MSUs consumed by all LPARs that are configured as part of the container.

To determine this value, SCRT first calculates the MSU consumption for each individual LPAR on a per hour basis. This is based on the "general purpose" CP time consumed by LPAR, excluding LPAR management time. This information is retrieved from the SMF type 70 subtype 1 records that are required input to SCRT.

SCRT uses the following base calculation to compute MSU consumption per hour:

$MSU\ consumed = (SMF70EDT / 1000000) * 16 * SMF70CPA_scaling_factor / SMF70CPA_actual$

- SMF70EDT is the effective dispatch time for the LPAR. If dedicated or 'wait complete' processors are in use, this value may be adjusted as appropriate.
- SMF70CPA_scaling_factor and SMF70CPA_actual are the CPU adjustment factors based on the model capacity rating of the CPC.

Since SCRT only reports whole number MSUs, this hourly value is rounded to the nearest whole number. Remember, MSUs are added up and reported for the entire reporting period at once.

Summary

The information presented in this document is intended to provide a basic overview and explanation of MSU consumption. MSU consumption and its application in the Enterprise Consumption Solution provides for a pricing model that is simple and flexible, and based on true consumption.

If you have additional questions or would like to discuss the Enterprise Consumption Solution further, please reach out to your IBM sales representative or business partner.

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