

Session z104137

Container Pricing: A new dawn or oncoming train?

—

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Please note

Software pricing is a topic that stirs the emotions of even the coldest bean counter. Yet, surprisingly, we hear more complaints about the complexity of software pricing than we do about the size of the bills. IBM's attempt to address these concerns is Container Pricing. In this session, Cheryl Watson describes the announced pricing options, gives her take on the direction of this initiative, and offers advice on where Container Pricing can help you. This is the first of two sessions on this topic.

Introduction

Thank you for coming.

Who are we?

- Cheryl Watson, President of Watson & Walker Inc. since 1986, working on IBM mainframes since 1965
- Frank Kyne, Editor and Technical Consultant since 2014, worked with IBM (most recently in ITSO) for 28 years
- We publish Cheryl Watson's Tuning Letter (since 1991)
- We teach classes, consult, and have three software products: BoxScore, BoxScore II, GoalTender
- Our latest SCRTPro Service Offering processes SCRT reports and helps to control your IBM Software costs
- z/OS evangelists, Subject Matter Experts in Software pricing, Parallel Sysplex, and Workload Manager.

What we are going to talk about:

- IBM Container Pricing

Feel free to ask questions and make this session as interactive as possible.



Container Pricing

What is it? TWO things:

- Infrastructure enhancements (in WLM, SMF, RMF, SDSF, z/OSMF, and SCRT) that lay the groundwork for far greater flexibility in software pricing.
 - These will be covered in session z104138 tomorrow.
- New software pricing options (three so far) that will exploit the new infrastructure. The pricing options are called “Solutions”.
 - In *all* cases, the *stated* objective is that the cost of the *non-container* workload should not be affected by the presence of the workload that is using one of the Solutions. **In reality, the cost of the non-container workload might be affected.**
 - Additionally, IBM tries to make the cost of selected workloads more affordable/predictable/attributable-to-business metrics.

Container Pricing

MORE software pricing options??!!



Yes, more pricing options.

However, due to the infrastructure enhancements, the new Container-Based Pricing options should be free of the contractual restrictions that came with some of the old options:

- You can run the qualifying workload in its own LPAR (like zNALC), OR in existing LPARs ('collocated'), OR across both.
- Assigning work to a Solution, collecting usage information, and passing it to SCRT should all be handled by the infrastructure, rather than you having to write your own programs and wade through TBs of SMF data.

Container Pricing

The technical details of how containers work are covered in Session z104138 tomorrow.

In this session, we will focus on recent pricing options that exploit the Container Pricing infrastructure.

- DevTest Solution
- New Application Solution
 - Original offering
 - November 23, 2018 offering (SCLC)
- Payments Processing Solution

Container Pricing – DevTest Solution

DevTest Solution

- The most popular offering currently is the DevTest Solution one (nearly 100 customers signed or investigating).
- Development and test LPARs typically need to have every piece of software that is running in any of the production LPARs. This makes the cost per MSU of these LPARs very high.
- As a result, many customers cap the development LPARs to contain costs. But this is not very popular with developers, who have to suffer glacial response and turnaround times.

Container Pricing – DevTest Solution

DevTest Solution

- This low-productivity environment works to make off-platform development options even more attractive.
- This is not consistent with encouraging application owners to deploy new applications on z/OS.
- Most customers have separate LPARs for Development and Test. This makes sizing the container and implementing the Solution easier than would be the case if LPARs are shared between DevTest and Production.

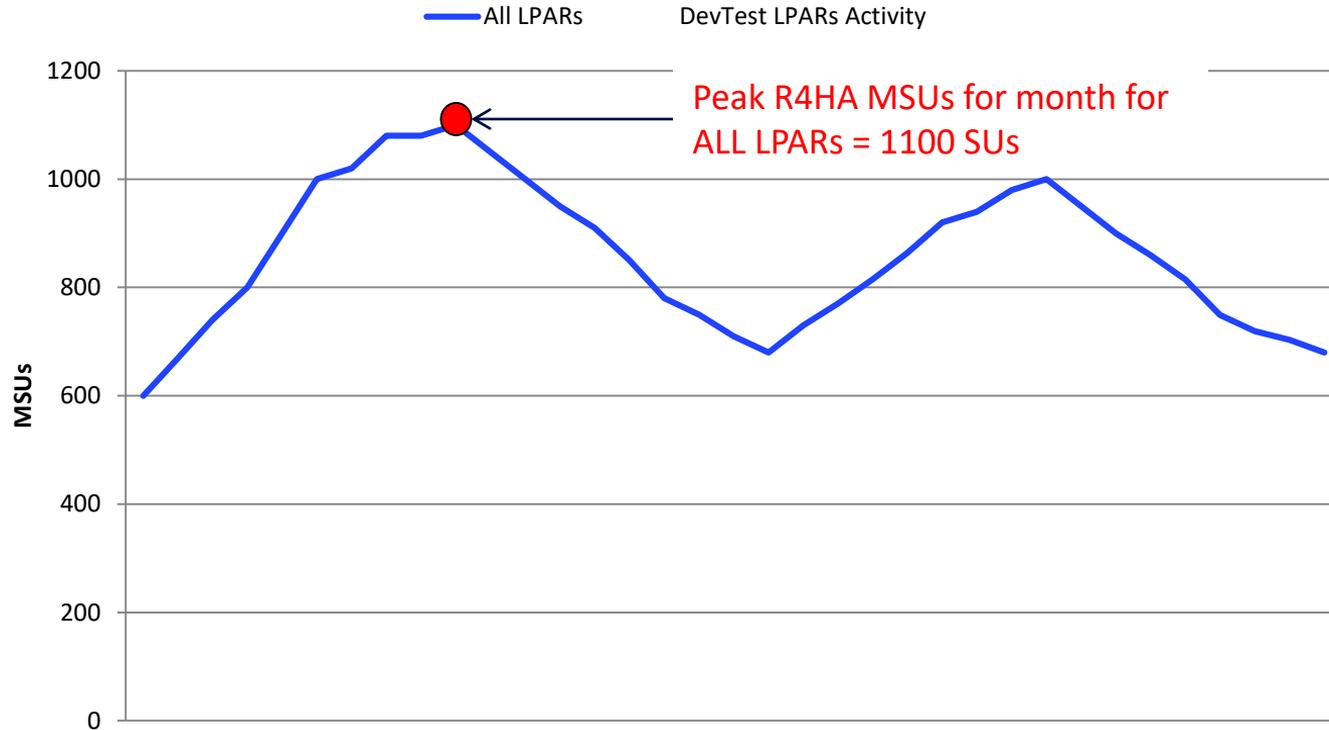
Container Pricing – DevTest Solution

DevTest Solution

- It removes the consumption of the development and test workloads when calculating the peak R4HA of the other workloads.
- It limits the cost of the MLC software for the DevTest workloads, even if the consumption of those workloads increases up to 3 times the current peak R4HA of those workloads.
- Let's look at an example...

DevTest Solution example

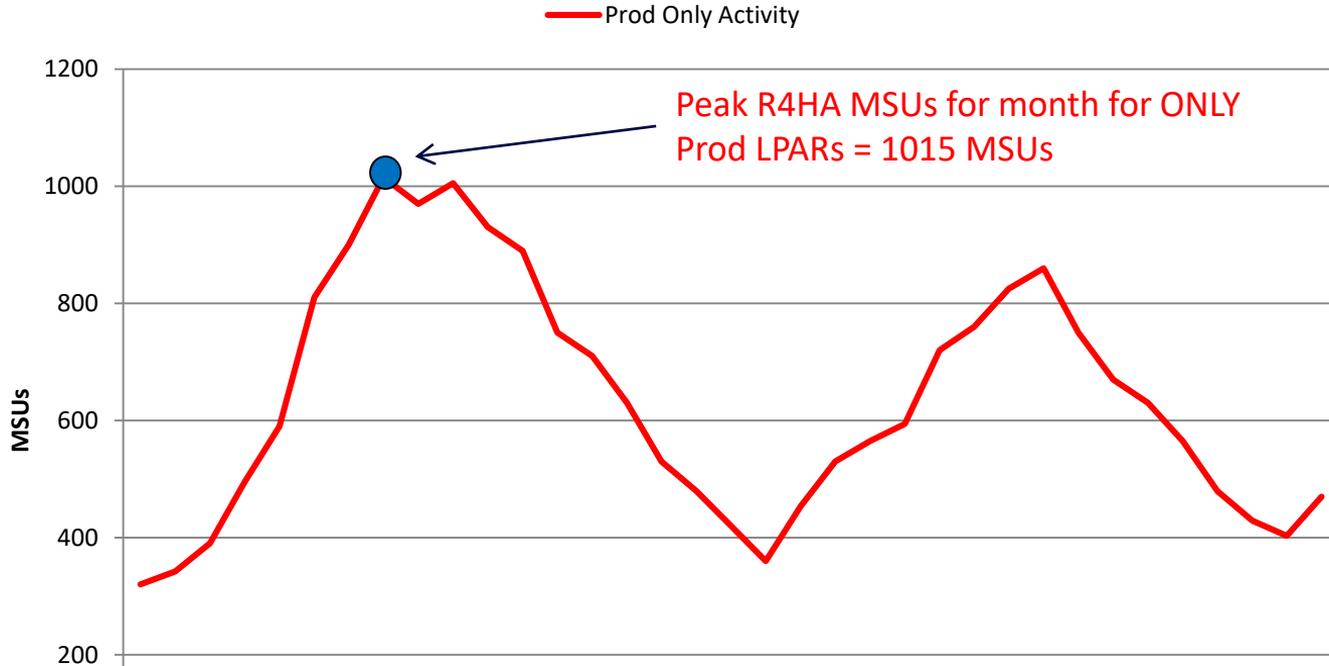
Courtesy of Andrew Sica, IBM



Step 1: Identify peak R4HA for ALL workloads
Step 1A - get \$ cost for each product in that interval

DevTest Solution example

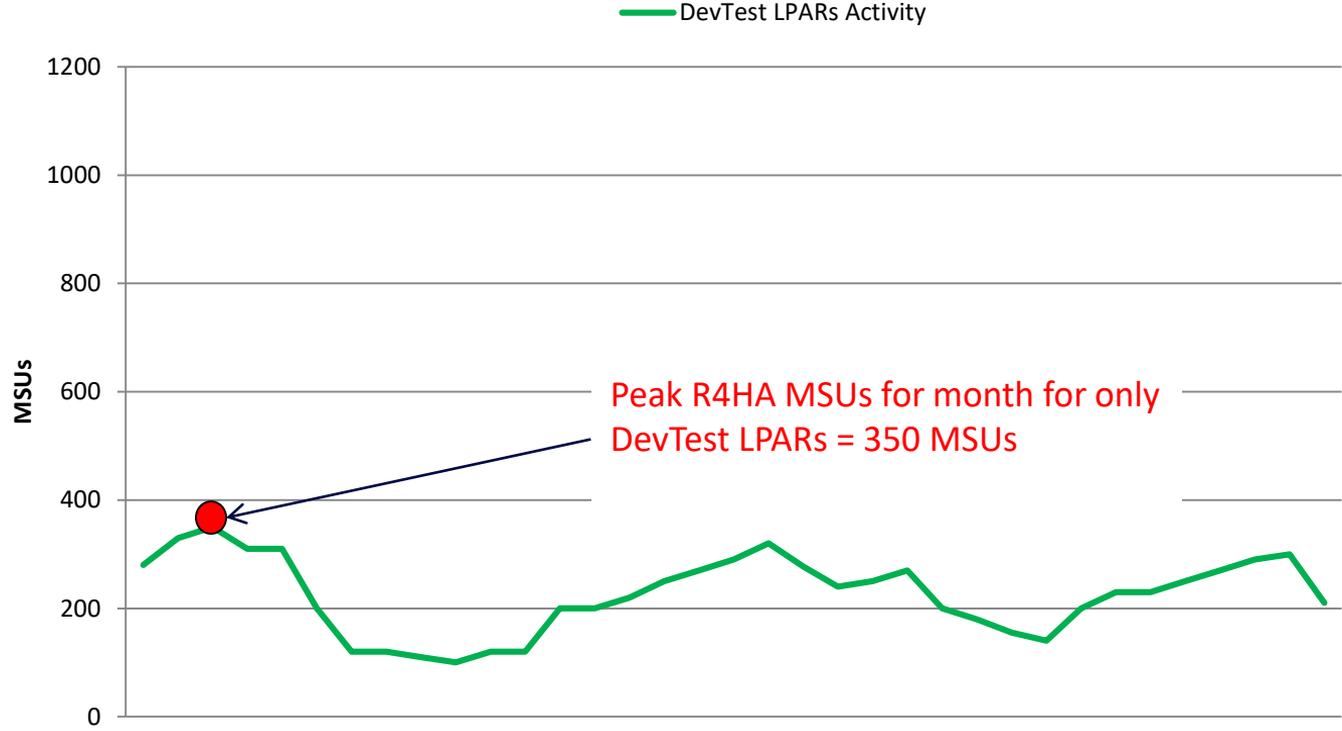
Courtesy of Andrew Sica, IBM



Step 2: Identify peak R4HA for ONLY Production LPARs
Step 2A - get \$ cost for each product in that interval
(note that this might be a different interval)

DevTest Solution example

Courtesy of Andrew Sica, IBM



Step 3: Identify peak R4HA for only DevTest workloads

DevTest Solution

What does IBM do with these numbers?

Container Cost =

Cost of Peak R4HA for ALL LPARs (Step 1A) - Cost of Peak R4HA for Only Prod LPARs (Step2A)

DevTest MSU Base =

Peak R4HA for DevTest LPARs (Step3)

"Solution MSUs" =

DevTest MSU Base x 3

The customer-chosen multiplier in this case is 3x. Could also be 1x or 2x.

Future bill for Prod LPARs will be based on peak R4HA for just the Prod LPARs.

Refresher
– Price
per MSU
gets
lower

Country MLC	Price (USD)
Base price (Included: 3 MSU)	\$4,453.00
Cumulative Unit Price for 4 to 45 MSU	\$417.93
Cumulative Unit Price for 46 to 175 MSU	\$341.84
Cumulative Unit Price for 176 to 315 MSU	\$245.30
Cumulative Unit Price for 316 to 575 MSU	\$130.60
Cumulative Unit Price for 576 to 875 MSU	\$99.94
Cumulative Unit Price for 876 to 1315 MSU	\$70.41
Cumulative Unit Price for 1316 to 1975 MSU	\$53.37
Cumulative Unit Price for 1976 to 2499 MSU	\$43.16
Cumulative Unit Price for 2500 to 3499 MSU	\$41.01
Cumulative Unit Price for 3500 to 4999 MSU	\$38.96
Cumulative Unit Price for 5000 to 6999 MSU	\$37.01
Cumulative Unit Price for 7000 to 9999 MSU	\$35.16
Cumulative Unit Price for 10000 to 13999 MSU	\$33.40
Cumulative Unit Price for 14000 to 18999 MSU	\$31.73
Cumulative Unit Price for 19000 to 24999 MSU	\$31.73
Cumulative Unit Price for 25000 and more MSU	\$31.73

How are these numbers used?

- The MLC cost of the Solution ('Container cost') will not change as long as the DevTest container Peak R4HA does not exceed the agreed 'Solution MSUs' and no new MLC products are added.
- The MLC bill for the **non-DevTest** systems will be calculated by removing the DevTest MSUs *for each month* from the Total MSUs. It is NOT calculated by subtracting the fixed Container cost from the bill.
- zIPLA products must have enough Value Units to cover the 'Solution MSUs' (unless that is > CPC capacity?).
 - If you have IPLA products licensed at full cap, that addresses the Container VU requirements.
- Handling of NEW MLC products that might be added to the DevTest Container is treated as if they were always there.

Assuming no
change in
Prod MSUs
(and
ignoring IPLA
software for
a minute):

- If the DevTest workload during the overall peak R4HA is not growing, the adjusted Prod R4HA MLC plus the MLC for the container should equal current MLC, so no savings. On the other hand, you have the flexibility to handle spikes in the DevTest workload without any impact to your MLC costs.
- If the DevTest workload is growing or is capped (and there is spare capacity to uncap it), then the adjusted MLC for Prod plus the container MLC should equal current MLC, resulting in you using more capacity *without* directly increasing your MLC costs. *Note that higher CPU utilization could cause an indirect increase in MLC costs.*
- If DevTest is shrinking, the adjusted MLC for Prod would be less plus the container MLC would remain the same as today, meaning that your total MLC would be unchanged.
- If DevTest is shrinking and Prod is growing, then Prod could be higher due to more expensive cost per MSU.

What about IPLA?

- If all your IPLA products are licensed at full capacity, then signing up for DevTest should not result in additional IPLA costs.
 - Upgrading your *CPC* would result in your having to purchase additional *VUs*, but that is no different than the current situation.
- If your IPLA products are licensed at sub-capacity, then you need to get a price from IBM for the additional Value Units:
 - You will need sufficient Value Units for the 'Solution *MSUs*'. All IPLA products used in a container must have sufficient value units for the *FULL* container size - this *might* be a reason why you would select a smaller value than 3x.
 - Don't forget to factor the Subscription & Service (*S&S*) costs into your calculations.

What's New?

- On October 2, 2018, IBM provided announcement [218-324](#) that expanded the DevTest Container Solution
- One item was a requirement for SCRT V26.1.0. (Available 10/10/18)
- Another was a DevTest Container Sizing Calculator
- This is not available until November 23, 2018

What's New?

- Another was a better clarification of what was DevTest:
 - Functional testing
 - Unit testing
 - System testing
 - Maintenance testing
 - Performance load testing
 - Source code maintenance

Considerations

- If you outgrow the size of the Container, additional MLC MSUs are priced at 20% of the CMLC price.
- Costs only ratchet up. If your Solution MSUs is 1000 and in one month your DevTest peak R4HA is 1100 MSUs, your bill for every month after that will be based on 1100 MSUs (until the peak R4HA exceeds 1100, at which point it will ratchet up to the new peak value).
- Play safe and Group Cap your DevTest LPARs at the Solution MSUs number.
- The cost of the container is fixed.
 - If you like consistency and predictability, this is ideal.
 - However, if your DevTest MSU consumption is declining, the container cost will not reduce.

Considerations

- You get to nominate the LPARs that will be in the DevTest solution.
 - Obviously, they must all be development or test - no production.
 - Be careful if you have test LPARs that are used for stress testing. It is not unusual to see them peak at 10 or 15x their normal usage. Depending on overall activity, such spikes could potentially push the entire container beyond the 3x limit.
- If you would like an estimate from IBM, you will need your existing SCRT reports, plus another run containing only your Production LPARs.
- Think carefully about what multiplier you go for:
 - A large one gives you much more scope for growing your DevTest workload without increasing your MLC costs.
 - But it also potentially increases the number of VUs that you need to purchase for the container. AND it potentially increases your S&S costs.

Some suggestions

- Make sure that the contract explicitly states *how many VUs* must be purchased for each IPLA product, and what discount you will receive on Value Units that you purchase up front, and for future purchases (if you exceed the 3x limit).
- Get written agreement that VUs purchased for use in the Container can be used for other workloads if you decide to discontinue using the DevTest Solution.
- Get written clarification about the VU requirement for reference-based IPLA products that are not used in the container, but the referenced product IS used in the container. For example, a Db2 tool that is only used in production, but Db2 itself is used in both production and test.

Some suggestions

- Get a clear written statement about whether any prices stated in the contract *include* TTO and ELA discounts, or if the discounts should be applied on top of those prices.
- Get a written statement about which pricing *tier* is used for MLC MSUs above the Container size.
- The contract should clarify the cost implications (if any) of moving to new versions of MLC products that are in the Container.
- Get clarification of how the price of additional MLC products that you add to the container in the future would be priced.

Summary

- The DevTest Solution is currently by far the most popular of the solutions.
- Very attractive for any site with growing or capped Development or Test environments. Even in a stable environment, it protects you from month to month fluctuations and provides a fixed bill for planning purposes.
- Make sure that you understand how the different metrics are used - this is not simple stuff.
- Talk to all the ISVs - How will they handle container products?

Summary

- The 'gotcha' is likely to be IPLA VU costs, depending on your software stack.
- IBM seems willing to offer significant discounts on VUs.
- Don't forget the S&S costs, which might be discounted. (But only if you ask,)
- Remember that the VU requirement only goes up. The number of VUs that you require (and pay S&S on) does not reduce if you have a quiet month.
- Model, model, model - don't sign up for anything until you have tested the impact of likely scenarios in your installation.

Container Pricing – New Application Solution

New Application Solution

- The offering that is closest to the previous pricing options is the New Application Solution
- Containers for new applications can replace IWP, zCap, and Solution Edition price offerings
- But containers are much easier and more flexible.
- As of November 23, 2018, there are two flavors; but first the current flavor (not as attractive)

Container Pricing – New Application Solution

New Application Solution

- You provide IBM with the expected peak R4HA of your new application and the list of products the application will use.
- IBM prices the container using:
 - z/OS is priced at 50% off the MzNALC price for that number of MSUs.
 - *All other products must be licensed as IPLA, with sufficient Value Units to cover the agreed Container size. Value Units must be purchased up-front, not as you go along.*
- As long as the Container peak R4HA doesn't exceed the agreed size, you will pay a fixed price for the Container.
- The MSUs for all non-Container work are reduced by the R4HA of the Container.

Container Pricing – New Application Solution

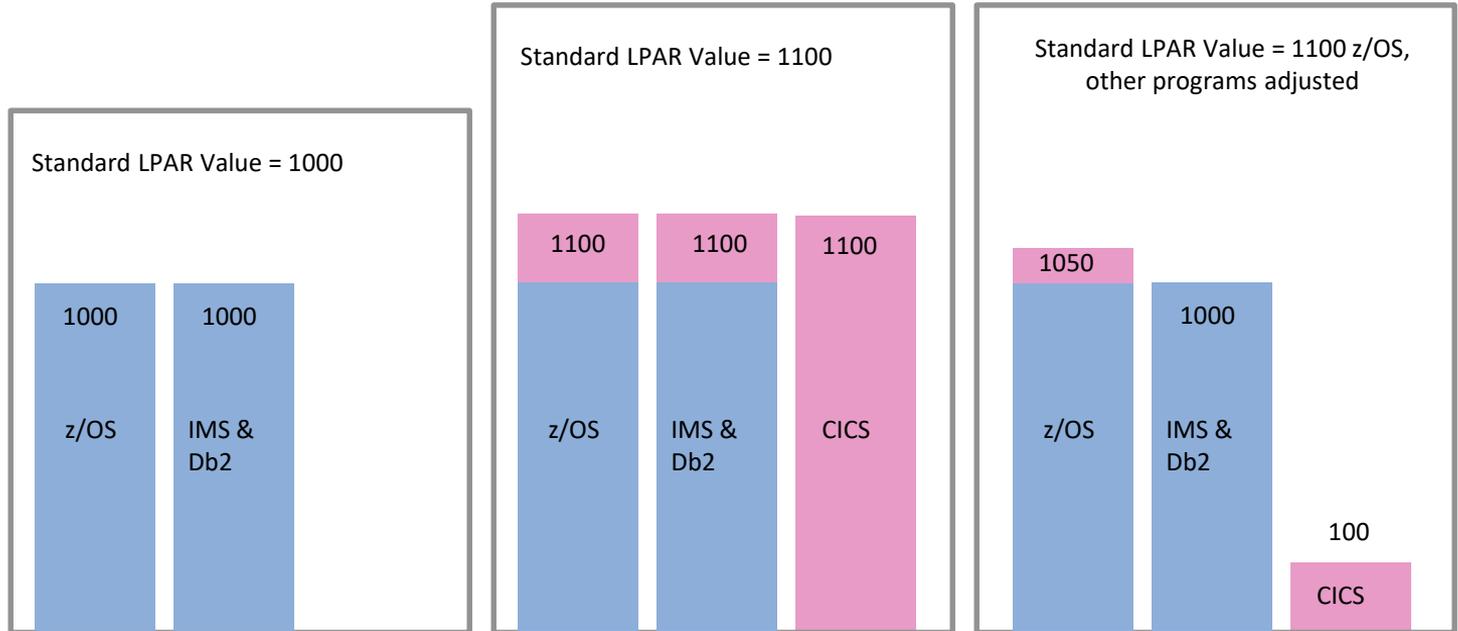
New Application Solution differences

- It doesn't have any requirement for dedicated LPARs (like zNALC or Solution Edition). You can run the work in a dedicated LPAR, collocated in a shared LPAR, or in both.
- There is a fixed price for the Container, regardless of when it runs, or its contribution to the peak overall R4HA.
- The *entire* consumption of the Container is deducted from the overall R4HA. Previous offerings deducted some percent of the additional MSUs for all products, or 100% of the additional MSUs for a subset of products.

z Systems Collocated Application Pricing

Example of zCAP application that is the first user of CICS in an IMS/Db2 shop (assumes all products have peak R4HA at same time).

Example courtesy of David Chase, IBM



Container Pricing – New Application Solution

New Application Solution Considerations

- The most common question is “Why would you specify (and pay for) a large container size up front, rather than specifying a smaller size, and paying for growth as you go along?”
- One likely reason is that you will probably get a better discount if you buy a 'large' number of VUs upfront, rather than buying a few every month as you grow.
- Another commonly-cited reason is that it is easier to get spending approval once, for a larger amount, than to have to go back over and over for approval for smaller purchases.

Container Pricing – New Application Solution

New Application Solution Considerations

- This is for new applications - IBM is likely to adhere to the rules more strictly than was the case for some previous 'new application' pricing options.
- The software cost for using zIIPs is zero. If your new application uses Java, much of the processing will run on zIIPs. If new application uses DDF, 55-60% of the Db2 processing will run on a zIIP. Make sure you factor this in to your sizing calculations.
- You are not locked in to using the Solution - if it transpires that the application runs nearly entirely outside the peak R4HA, you can stop using the Solution for that application if you wish. *But*, you had to use the IPLA version of everything other than z/OS - you will not get the money that you paid for the VUs back if you stop using the Solution.

Container Pricing – New Application Solution

New Application Solution Considerations

- Containers are not aggregated to your traditional workloads when calculating the z/OS price - each container starts at the 1 MSU price point. The z/OS price is based on 50% of the MzNALC price, so it is probably still cheaper than your incremental z/OS price, but this IS an added consideration to factor into your calculations.
- Check with your ISVs to see how they will handle these types of containers

Container Pricing – New Application Solution

New Application Solution Considerations

- This offering is far less of a 'no-brainer' than the DevTest one:
- The Container will have a fixed cost. For previous new application pricing options (zCAP, for example), the new application *might* cost as little as nothing, if it only runs outside the peak R4HA.
- Recommend that you model various scenarios using zCAP, zNALC, and New Application Solution. Depending on the particular application, the 'right' answer might be different for each one.
- You can always sign up for zCAP now (if IBM approves your application), locking in that option, and then switch to New Application Solution later after you get more experience running the new application in production.

Container Pricing – New Application Solution

What's New?

- On October 2, 2018, IBM provided announcement [218-325](#) that announced a second version of a NewApp Container Solution
- SCLC - Solution Consumption License Charges
- This is a pay-as-you-go offering based on the total MSUs consumed during the month in an SCLC container (in dedicated LPARs or collocated work)
- 20% discount if you commit to 25,000 MSUs or more, but the commitment may change. These MSUs are removed from the peak R4HA.

Container Pricing – New Application Solution

What's
New?

- This is much less riskier, although more variable in cost
- This could be less expensive for new apps than zCap
- If you try this, please let us know
- Does not require switching to IPLA products, so you can switch back if it doesn't work
- Requires z13 or z14 CPCs
- SCLC pricing will be available for z/OS, CICS, IMS, Db2, MQ in November 23, 2018

Container Pricing

Payments Processing Solution

- This solution is aimed at a very niche market, so we won't get into all the details.
- *However*, the model that it uses is very interesting as a possible indicator of what IBM has in mind for future offerings.

Container Pricing

Payments Processing Solution:

- Unlike the TestDev or New Application Solutions, this one does not have a fixed price for the container.
- Instead, the cost of the container is based on the number of payments that are processed by Financial Transaction Manager for z/OS, the heart of the offering.
- This provides a direct correlation between the price the customer pays for the container and the business value delivered by the product - if FTM processes more payments, that means more business value and therefore a higher bill. Fewer payments would mean a smaller bill.

Container Pricing

Payments Processing Solution

- This is interesting from a number of perspectives:
- It uses the container pricing infrastructure to measure the R4HA of the container so that the R4HA of all other work can be adjusted accordingly.
- It is supporting two metrics - one metric (# of payments) determines the cost of the container, and a quite different metric (R4HA) is used to ensure that the cost of other workloads is not affected by the presence of the container workload.
- In the future, this concept could be extended to things like transaction counts, TBs read, total CPU time consumed, jobs run, just about anything that can be measured programmatically and audited could be used as the basis for the container bill.

Container Pricing

Summary

- While technically all Solutions do support collocated configurations, you need to consider how easy it would be to identify *all* work associated with the Container in the WLM classification rules.
- Shared services (a single Db2 subsystem, for example) are supported. But the CPU time that Db2 does not charge back to the application will be charged to the non-Container part of the workload.
- MWP and zCAP and zWPC supported classification at the individual transaction level. Container Pricing only supports classification at the address space or independent enclave level.

Container Pricing

Summary

- We believe that it is impossible to make a blanket statement that Container Pricing is *always* better than one of the previous software pricing options such as zCAP. On the other hand, IBM is making very aggressive statements about doing whatever is necessary to compete with other platforms.
- It depends mainly on the impact of the new application on the peak R4HA and on how much your business needs predictable bills.

Container Pricing

Summary

- The comparison is made even more difficult by the requirement to use IPLA licenses for ALL the products in the New Application Solution container. You can't get the Value Unit money back if you change your mind (although you should be able to use those VUs elsewhere).
- The best that you can do is to model the cost of various scenarios and select the option that is the best fit for your company.
- Before moving any ISVs to a container, check with each ISV about their products.

Container Pricing

For more information about Container Pricing, refer to:

- Announcement letters:
- Container Pricing preview - [117-044](#).
- Application Development and Test Solution - [217-490](#).
- New Application Solution - [217-519](#).
- Payments Processing Solution - [217-518](#).
- Application Development and Test Solution Update - [218-324](#).
- New Application Solution Consumption License Charges (SCLC) - [218-325](#).
- Container Pricing White Paper [WP102719](#).
- [List of sample Solution IDs](#)
- [SCRT User's Guide](#)
- SHARE in Sacramento Session [22548](#), *Container Pricing Overview and Sub-Capacity Reporting*, by **Andrew Sica**.
- *Cheryl Watson's Tuning Letter 2018 No. 1*

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