



A Consultant's View on Recent Software Pricing Options

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#SHAREorg



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Welcome



- Hi, thank you for coming.
- Who are we and what we do.
 - Three-person company; started in 1987
 - Frank Kyne joined us in 2014 from ITSO
 - Quarterly subscription-based newsletter –
Cheryl Watson's Tuning Letter
Cheryl Watson's System z CPU Chart
 - Classes on z/OS new features, WLM, performance, software pricing, chargeback, Parallel Sysplex, and high availability
 - Consulting on all the above topics
 - Software products – GoalTender and BoxScore

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Welcome

- Education
 - z/OS Software Pricing Strategies
 - October 12-14, Orlando, FL
 - November 11-13, Hamburg, Germany
 - Exploiting New Features of z/OS To Minimize Costs
 - November 18-20, Hamburg, Germany
 - SYS1.PARMLIB: Enhancements and New Features in z/OS 1.13, 2.1, and 2.2
 - November 16, Hamburg, Germany

- All classes are available on-site

Introduction

- The objective of this session.
 - To give you our thoughts on recent IBM z Systems pricing option changes.
 - To get you thinking about how you can optimally integrate and exploit these new options in your environment.
 - To provide you with some perspectives on these options that you might not have thought of previously.
- Questions? Please ask as we go along.

Agenda

What we are going to discuss:

- Software pricing basics
- Country Multiplex Pricing
- Mobile Workload Pricing
- z Collocated Application Pricing
- Summary

High Level Overview

- IBM introduced 3 new pricing options for z/OS over the last 1.5 years:
 - [Mobile Workload Pricing](#), May 6, 2014
 - [z Collocated Application Pricing](#), January 15, 2015
 - [Country Multiplex Pricing](#), July 28, 2015
- These options are intended to:
 - Encourage **growth** on the z/OS platform.
 - By making it significantly less expensive to **add** work, especially new workloads, to z/OS.
 - Provide greater configuration *flexibility*.
 - Improve *availability* and *manageability* by removing financial incentives to configure technically nonsensical sysplexes.



High Level Overview

- We believe that these options:
 - Are a **good thing** for any site that is growing its z/OS workloads or that is adding new workloads to z/OS.
 - Give you more flexibility in how you configure your systems by decoupling financial from technical requirements – no more Shamplexes, yipee!!!.
 - Should remove financial inhibitors to fully exploiting the performance and availability benefits of Parallel Sysplex.
 - **Should be looked at strategically:**
 - These are unlikely to reduce the cost of your *existing* workloads.
 - Although they may allow you to configure in a more sensible way without inflicting the cost of disaggregating.
 - However, over time, your existing (traditional) work will be a smaller and smaller part of the total z/OS workload, so an ever-increasing part of your work may be priced based on the new, more attractive, price points.

High Level Overview

- We believe that if you are to get the maximum value from these options, you **MUST** have a much closer working relationship between the technical staff, the software contract staff, and the application developers.
- Expectation setting (with your management and financial staff) is **CRITICAL**:
 - These options are **NOT** designed to reduce your current costs – they are there to help z/OS compete for new workloads on a more competitive cost basis.
 - Be very careful not to create unrealistic expectations.
 - You must differentiate between reducing *MSUs* and reducing *dollars* – reducing your peak Rolling 4 Hour Average by 50% **WILL NOT** reduce your software bill 50%.
 - Always under-promise and over-deliver....

High Level Overview

- As with most things, planning is vital. Do not just plow into this without understanding the options and implications.
- Understand that there is no free lunch – in return for reducing the cost of growth, you must accept that marrying your financial constraints to your technical controls will become even more challenging.

Software Pricing Basics

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Software Pricing Basics

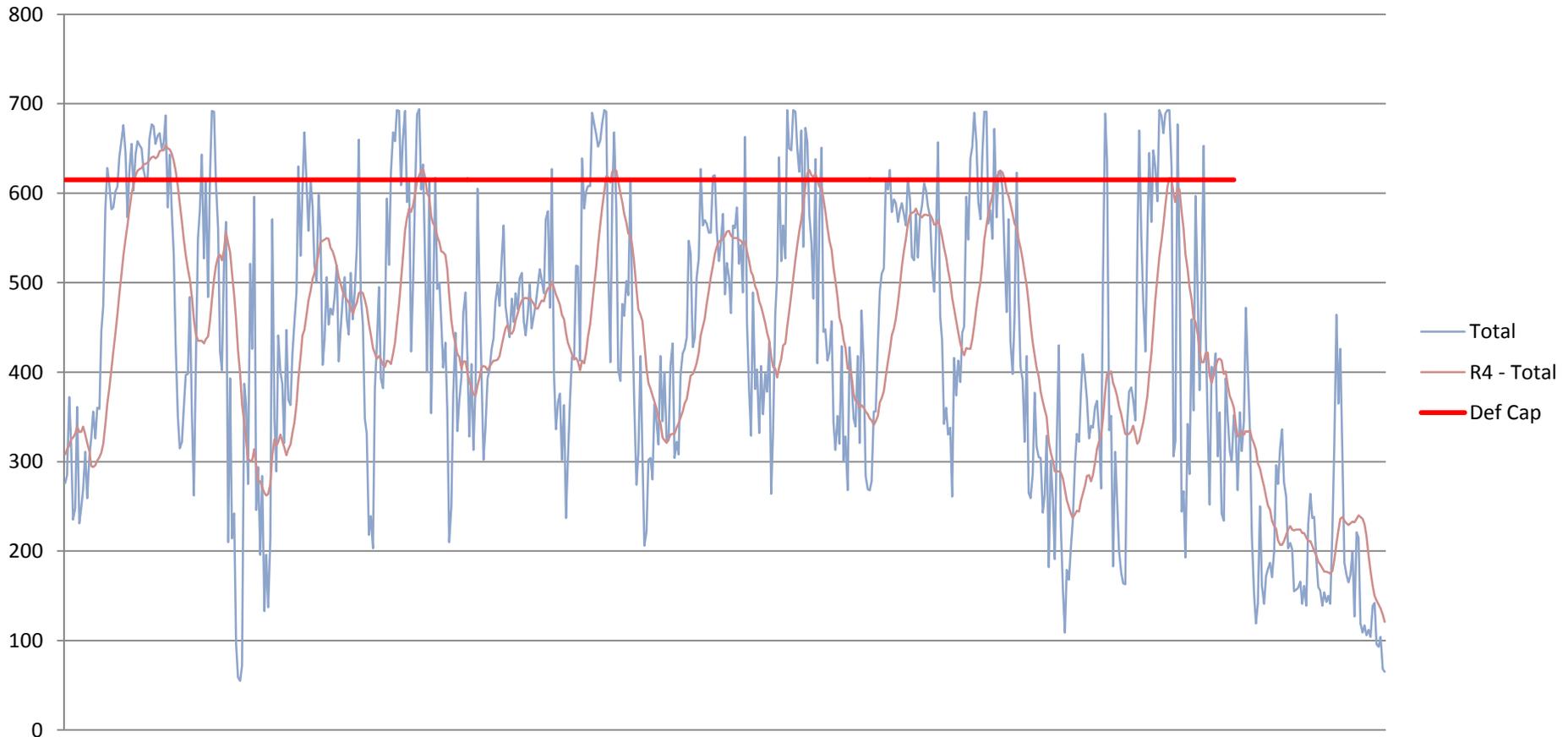
- In order to get the maximum value from the new IBM z/OS pricing options, you *must* be familiar with some concepts:
 - Rolling 4-Hour Average
 - The software “price curve”
 - The difference between the average and incremental price per MSU
 - Parallel Sysplex Aggregation

Software Pricing Basics

- Products that support sub-capacity pricing are charged for based on the peak Rolling 4-Hour Average (or the Defined Capacity or Group Capacity Limit) for the LPARs that the product runs in.
- Your bill is NOT based on the CPU used by the individual product – it is based on the peak R4HA for the *LPARs* the product is used in.
- Using R4HA rather than actual MSUs is a good thing for you, because R4HA is nearly always less than the peak actual utilization.

Software Pricing Basics

Actual MSUs & R4HA



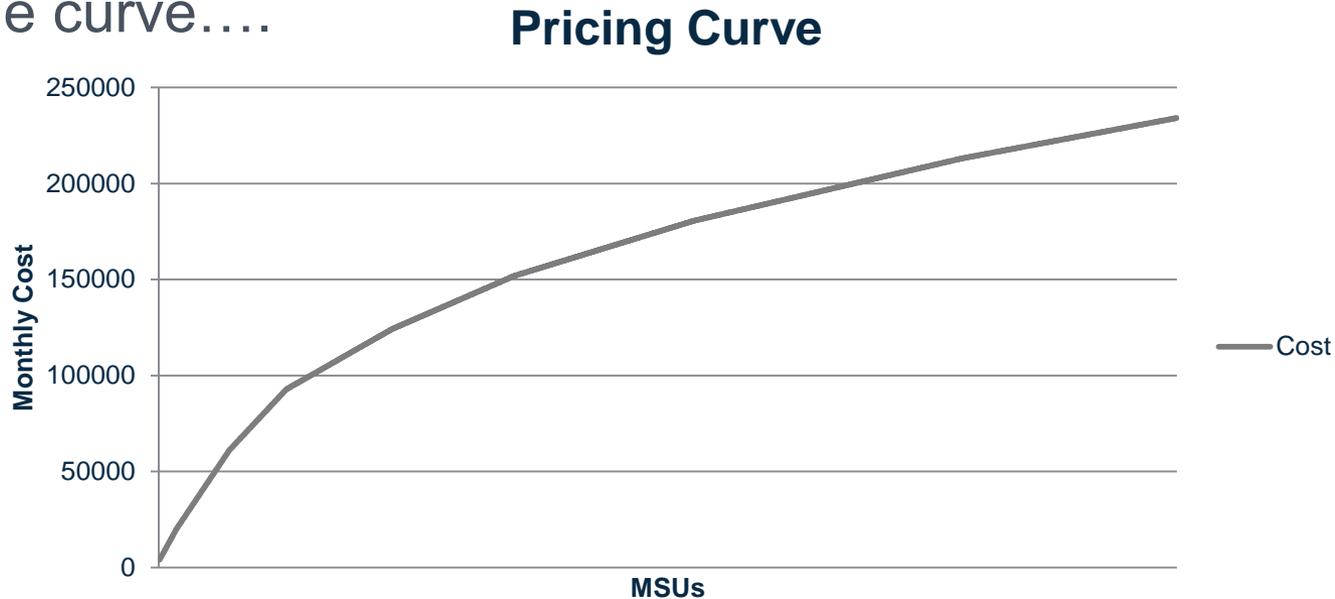
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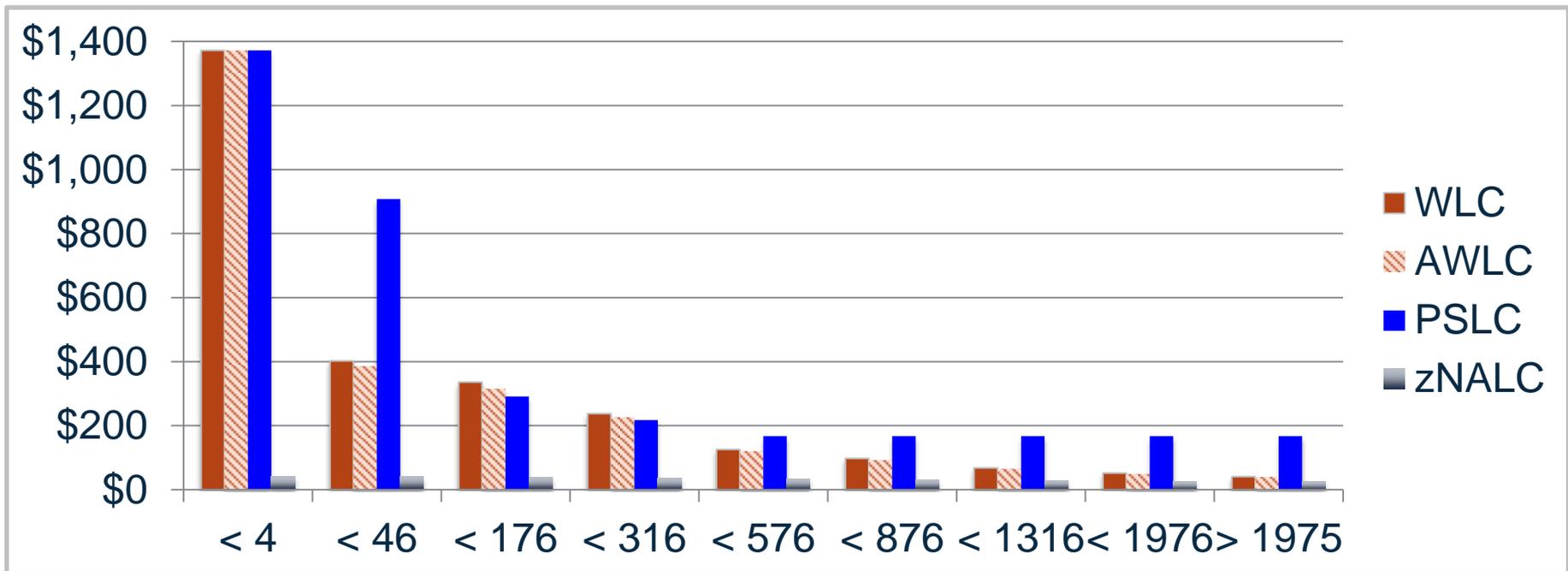
Software Pricing Basics

- The ‘software pricing curve’ reflects the fact that the price per additional MSU for software generally *decreases* as the number of MSUs used by the product *increases* (you might view this as a ‘volume discount’).
 - The Holy Grail of software pricing is to be on the flatter part of the curve....



Software Pricing Basics

- The price per MSU is high at the start, and drops as more capacity is added – the incremental cost is the \$ per MSU for your top tier.



Software Pricing Basics

- You should be aware of the *average* \$ per MSU for each of your LPARs and the *incremental* \$ per MSU.
- These are critical pieces of information needed for planning and managing your configuration and S/W budgets
- For example, consider an LPAR with a peak R4HA of 875 MSUs and using AWLC pricing metric:
 - To get *average* \$/MSU, get price of 875 MSUs (\$152,300) and divide by number of MSUs (875) = \$174/MSU
 - To get incremental cost, consult pricing database to determine \$/MSU for 875 MSUs (in the 576 to 875) = \$92.40/MSU
 - So if you reduce peak R4HA by 100 MSUs, you might save \$9240, but you won't be saving \$17400!
- Be careful of vendor's claims related to software costs savings – average \$/MSU is often used, rather than the incremental \$/MSU

Software Pricing Basics

- **Parallel Sysplex Aggregation** says that rather than looking at the MSUs for each box separately, the incremental price per MSU is calculated based on the summed utilization of every CPC that is in the same 'pricing plex'.
 - A pricing plex is the set of CPCs where >50% of the used MIPS are used by the same sysplex (usually Mon-Fri, 8 hours per day, 4 weeks per month).
- The *original* intent of Parallel Sysplex Aggregation was to encourage customers to fully exploit Parallel Sysplex by reducing their software costs.
 - Somewhere along the way, Sysplex Aggregation was hijacked by the bean counters as a way to reduce costs - achieving the savings became the objective, rather than using the savings to fund implementation of Parallel Sysplex (and all the availability benefits it delivers).

Software Pricing Basics

- Let's look at an example....
- You have 3 CPCs, all running monoplexes (so no pricing plex), peak R4HA in each CPC is 315 MSUs:
 - 3 x \$93,000 = \$279,000/Mth.
- If those 3 CPCs qualified for sysplex aggregation, the total MSUs would be 945, and the cost would be:
 - 1 x \$157,000/Mth.
- In this example, the savings would be \$122,000/Mth.
- No wonder people create shamplexes....

Country Multiplex Pricing (CMP)

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Country Multiplex Pricing

- As we have just seen, Parallel Sysplex Aggregation is a powerful tool for reducing z/OS-related software costs.
- However, it still has a number of drawbacks/limitations:
 - All CPCs in the pricing plex must be in the same physical sysplex. This effectively limits the distance between the CPCs to less than 100 km.
 - Many customers, especially those with many sysplexes, struggle to have one sysplex that consumes more than 50% of the used MVS MIPS on multiple CPCs.
 - Because the financial benefits of Sysplex Aggregation are so significant, it encourages customers to create sysplexes containing systems that really should not co-reside in the same sysplex, like production and test systems.

Country Multiplex Pricing

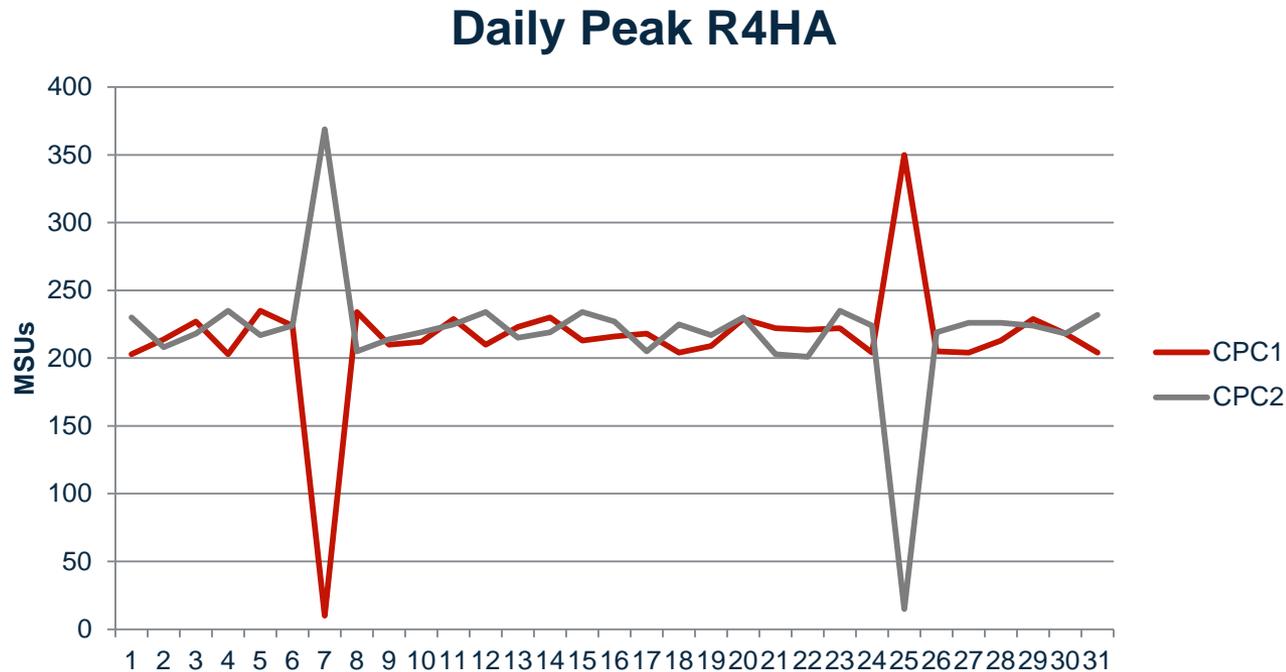
- From a Parallel Sysplex availability perspective, it is preferable to locate your CFs in a CPC that does not contain any z/OS LPARs that are in the same sysplex (for example, you could place your production sysplex CFs in the CPC that contains only test systems). However, the financial advantages of Sysplex Aggregation encouraged customers to place all CPCs in the same sysplex, meaning that there is no CPC to place your production CFs that doesn't also contain production z/OS LPARs (unless you use standalone CFs).

Country Multiplex Pricing

- Even though Sysplex Aggregation lets you pretend that all your LPARs are in the same CPC when determining where you are on the pricing curve, monthly bills are still calculated by finding the peak R4HA FOR EACH CPC, then summing those values. The tiered prices are then applied to the summed values to determine your monthly software bill.
- Let's look at an example....

Country Multiplex Pricing

- Even though the *combined* MSUs never exceeds 459, the peak R4HA on CPC1 is 350 and the peak R4HA on CPC2 is 365, so you would get a bill for 715 MSUs.



Country Multiplex Pricing

- So what does CMP do for you?
- Do you have data centers in two distant, exotic, locations (Hawaii and Poughkeepsie!) meaning that you can't aggregate them?
- No problem – CMP removes the requirement for the CPCs in the pricing plex to be in the same sysplex. The only requirement is that they are located in the same country.

Country Multiplex Pricing

- What else does CMP do for you?
- Do you find that you are constantly struggling to meet the dreaded 50% threshold??
- No problem. CMP eliminates the 50% threshold!!

Country Multiplex Pricing

- What *else* does CMP do for you?
- Driven to distraction (and unplanned outages) because you have unrelated systems in the same sysplex, PURELY to meet the 50% threshold?
- Good news. Because CMP eliminates the 50% threshold, there is no financial incentive to place all those disparate systems in the same sysplex any more.

Country Multiplex Pricing

- What **else** does CMP do for you?
- Agonizing over how to provide the failure isolation that a production CF requires (do you go for a standalone CF, or an internal CF that uses system-managed duplexing)?
- CMP has you covered. There is no driver to have all your CPCs in the same sysplex any more, so you can have production-only CPCs and test-only CPCs (if that makes sense for your organization). You can then place your production CFs in CPCs containing only test z/OS systems, and test CFs in CPCs containing only production systems. This gives you the required failure isolation without the cost of duplexing or a standalone CF.

Country Multiplex Pricing

- Anything else?
- Afraid to implement shared queues or dynamic workload routing because that makes your work more ‘mobile’, with the potential to adversely affect your software bill?
- No more. When using CMP, your monthly software bill is created by adding up the R4HA for each LPAR for each interval *across ALL CPCs in the country*. So moving xx MSUs of work from one CPC to another CPC has zero impact on your software bill because the sum of the MSUs for that interval has not changed.

Country Multiplex Pricing

- (This is getting boring) what else does CMP do for me? I suppose it lets me move MIPS from one CPC to another (ha ha)?
- Do you have scenarios where one CPC has unused Defined Capacity, but LPARs on another CPC are running at their cap?
- Not any more. Because R4HAs (or softcaps) are summed across ALL LPARs, you can now decrease a Defined Capacity on one CPC, increase a Defined Capacity on another CPC by the same amount, with no impact on your bill.

Country Multiplex Pricing

Is this cool or what??!!



WOOHOO!!!

Country Multiplex Pricing

- Still not happy?
- Single Version Charging normally gives you one year to migrate from one version of a product to another. If you do not complete the migration in one year, you revert to paying for two separate products.
- If you are using CMP, you get a new thing called Multiple Version Measurement (MVM). This not only removes the one year window to complete the migration, it doesn't have ANY migration window! So you can keep using both versions for as long as you want, and you only pay for the combined MSUs under one product (the newer version).

Country Multiplex Pricing

- What's the catch??
- Yes, there is always a catch....
- CMP is designed to reduce the cost of *growth*. If you sign up for CMP and do not change anything else, your bill will NOT decrease.
- When you sign up for CMP, your last 3 months MSUs and software bills are averaged and those values form your new base. Any changes (more MSUs or fewer MSUs) are applied as deltas to that base.

Country Multiplex Pricing

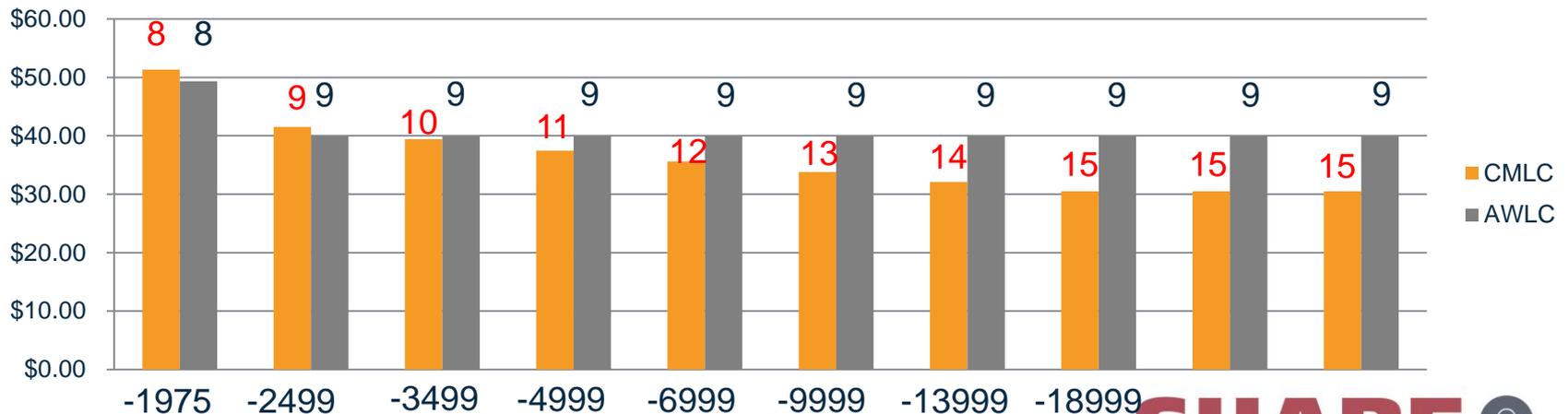
- However, you *could* break up those shamplexes to improve availability and manageability and that won't cost you anything now.
- You could also segregate production and test onto separate CPCs (thereby disaggregating the CPCs) and that won't negatively impact your software bill.
- If you grow, the cost of that growth is calculated using CMP pricing tiers (actually a new license charge called CMLC) and that amount is applied as a delta to your base.

Country Multiplex Pricing

- Pricing Tiers

- AWLC has 9 levels with last level being 1976 MSUs and over.
- CMLC has 15 levels (first 8 are the same MSU ranges as AWLC) with the last level being 14000 MSUs and over.
- CMLC will be equivalent to AWLC from base to 2500 MSUs, then price per MSU starts dropping (from 5+% lower at 2500 MSUs to about 36% lower at 14000 MSUs).

AWLC to CMLC Comparison



Country Multiplex Pricing

- Let's take an example using z/OS (these are using Jan 1, 2016 prices for both AWLC and CMLC):

	MSUs	\$ Base
CPC1 (POK, Jan-Mar)	2000	\$223K
CPC2 (HI, Jan-Mar)	1500	\$197K
CPC2 Upgrade 200 MSUs (Apr)	+200	+\$10.3K
CPC1+CPC2 (CMP, Apr)	3500	\$420K
CPC1+CPC2 (CMP, May, +200 MSUs)	3700	+\$7.9K
CPC1 Upgrade 2000 MSUs (Apr)	+2000	+\$83.2K
CPC1+CPC2 (CMP, May, +2000 MSUs)	5500	+\$74K

Country Multiplex Pricing

- Prerequisites:
 - ALL the z/OS or z/TPF CPCs in your company in a given country must be z196/z114 or later (today – in future, it will be the latest 3 announced generations).
 - You cannot create a multiplex if you have older CPCs running z/OS or z/TPF.
 - Must be running z/OS V1 or V2 or z/TPF.
 - You must sign the CMP agreement and related paperwork.
 - You must use a new Java-based release of SCRT (23.10.0, available Oct 2, 2015) to gather and submit the data to IBM.
 - “For existing sysplex clients, be in compliance with sysplex aggregation rules and have submitted a valid Sysplex Verification Package (SVP) within the last twelve months.” (In other words, do NOT disaggregate until AFTER you have moved to CMP).

Country Multiplex Pricing

- Summary:
 - For nearly any z Systems customer with >1 CPC that is growing, this is a huge step forward.
 - But there are specific restrictions for outsourcers.
 - Work with your IBM account team to determine how CMP would affect your monthly software bill in various scenarios.
 - If you have a shamplex today, consider breaking it up after you transition to CMP.
 - Time the transition to CMP carefully. Remember that your base (determined by averaging the 3 months before you transition to CMP) will play a significant part in your monthly bills for the foreseeable future, so do everything reasonably possible to select 3 quiet months, and lock everything down as tight as possible during those months.
 - If planning an upgrade, consider going to CMP BEFORE the upgrade.

Mobile Workload Pricing

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Mobile Workload Pricing

- What is Mobile Workload Pricing?
- New IBM Software Pricing Option, announced in May 2014.
- Headline is that it offers a 60% discount on MSUs consumed by transactions that originated on a mobile device.
- 60 percent Off! What else is there to say??



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- Quite a bit....

Mobile Workload Pricing

- First, mobile is not a fad. Pretending that mobile is not relevant to z/OS is akin to believing that giving users CICS screens rather than batch printouts is just a passing phase.
 - There are already large z/OS customers where mobile consumes 50% of their z/OS capacity.
 - And these are only the early days – we are still in the 3277 phase...
- IBM (and many others) believe this, so MWP is IBM's attempt to capture the mobile workloads that exploit existing z/OS applications rather than having customers host these applications on other platforms.
 - Important to note that MWP is aimed at customers that are re-using existing z/OS applications.
 - zCAP is the new pricing option for completely new workloads.

Mobile Workload Pricing

- If you sign up for Mobile Workload Pricing (it is optional, and you must sign an agreement), IBM will reduce the R4HA FOR EVERY IBM MLC PRODUCT IN THAT LPAR (including compilers and NetView and every other IBM Sub-Capacity product that runs in that LPAR) in each interval by 60% of the number of MSUs consumed by CICS, DB2, IMS, MQ, or WAS transactions that originated from a mobile device in that interval.

Mobile Workload Pricing

Let's dive into that 60% discount number a little more.....

- The R4HA for every interval is reduced by 60% of your MWP-eligible R4HA MSUs for that interval.
 - Note that it is the R4HA that is reduced, NOT the Defined Capacity amount, which could be lower.
- You will still pay SW bills based on the lower of the peak (adjusted) R4HA or the Defined Capacity.
 - So if there is no MWP-eligible work during your peak R4HA (batch window, for example), the discount is worth zero to you.
 - MWP could also shift your peak R4HA – your actual peak might be at 14:00 today, but if 50% of that is mobile, implementing MWP might result in your billing peak moving to the batch shift.
- Remember that incremental MSUs cost less than the average, so your savings will be based on the incremental rate, not the average price per MSU.

Mobile Workload Pricing

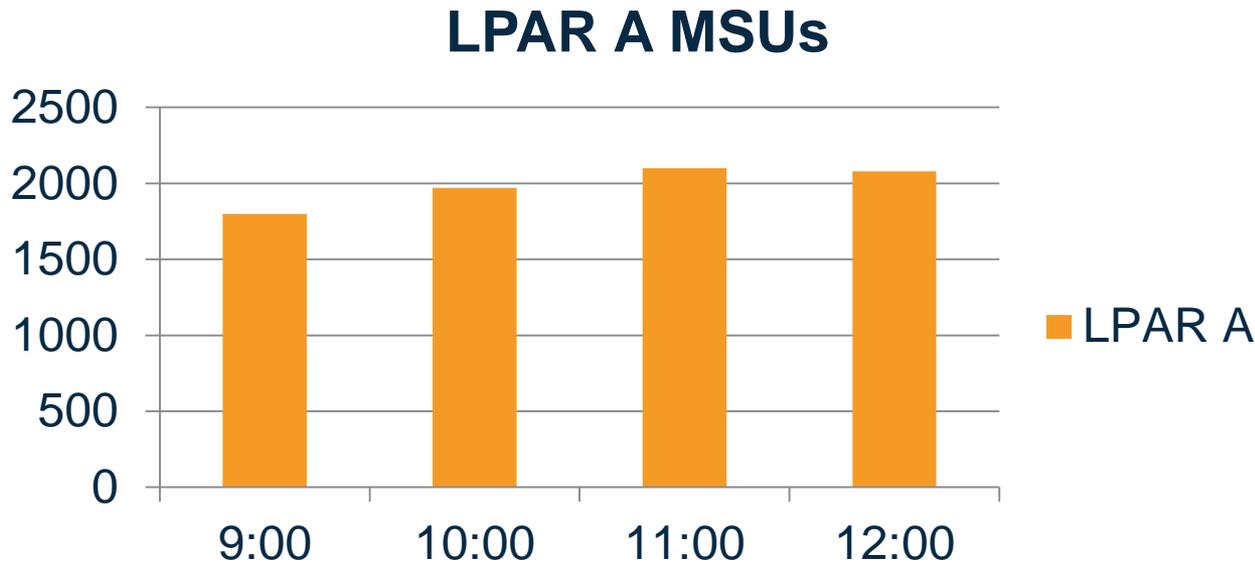
- The first question everyone has is ‘define a mobile device’:
 - A z13 in the back of a truck is NOT a mobile device.
 - A laptop is not a mobile device (from the perspective of MWP qualification). Not even if it is connected using a 4G card....
 - Kicking off your 100,000 nightly batch jobs from a phone does not make them MWP-eligible.
 - Smart phones are mobile devices.
 - Tablets are mobile devices.
 - Beyond that, bring your proposal to IBM and they will be as reasonable as possible (but let’s not turn this into another shamplex situation)

Mobile Workload Pricing

- The next question everyone has is ‘how do I identify the CPU time used by each mobile transaction’ (followed by frantic writing of SAS code and daily processing of GBs of SMF records)
- But before we go there, we need to look at something else first – how to control your SW costs in an MWP environment.
- Today, you can easily determine a reliable average cost per MSU for each of your LPARs.
- You also have a monthly SW budget for each LPAR, so divide the budget by the average cost/MSU, and that gives you your Defined Capacity value for each LPAR.
- But how do you do that when SOME (very variable) subset of your MSUs effectively have a different cost per MSU?
- Let’s look at a (greatly) simplified example....

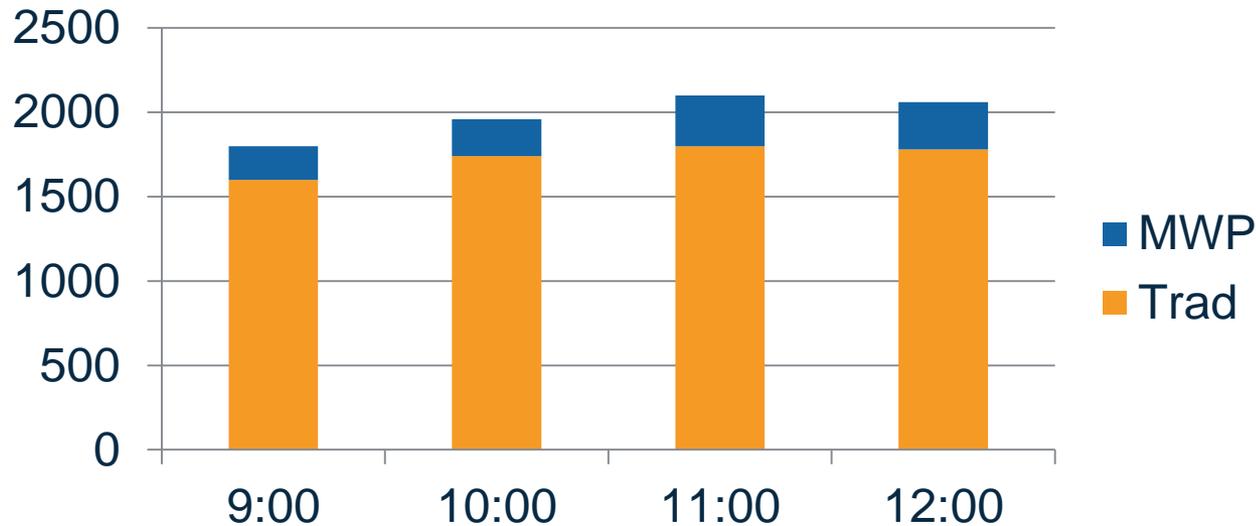
Mobile Workload Pricing

- Let's say your MSUs currently cost \$400/MSU. Your monthly SW budget is \$850K, so you would set your Defined Capacity to about 2100 MSUs. Because your peak R4HA is 2100 MSUs, your bill is \$840K.



Mobile Workload Pricing

- Because a significant part of your workload consists of mobile transactions, you sign up for MWP. In your peak R4HA, MWP-eligible work consumes 300 MSUs. So MWP reduces your bill by 180 MSUs. This means your bill for this month will be 1920 MSUs. This 180 MSUs aren't \$400/MSU, but at an incremental cost (maybe \$100/MSU, so you save \$18K/mon). Woohoo!

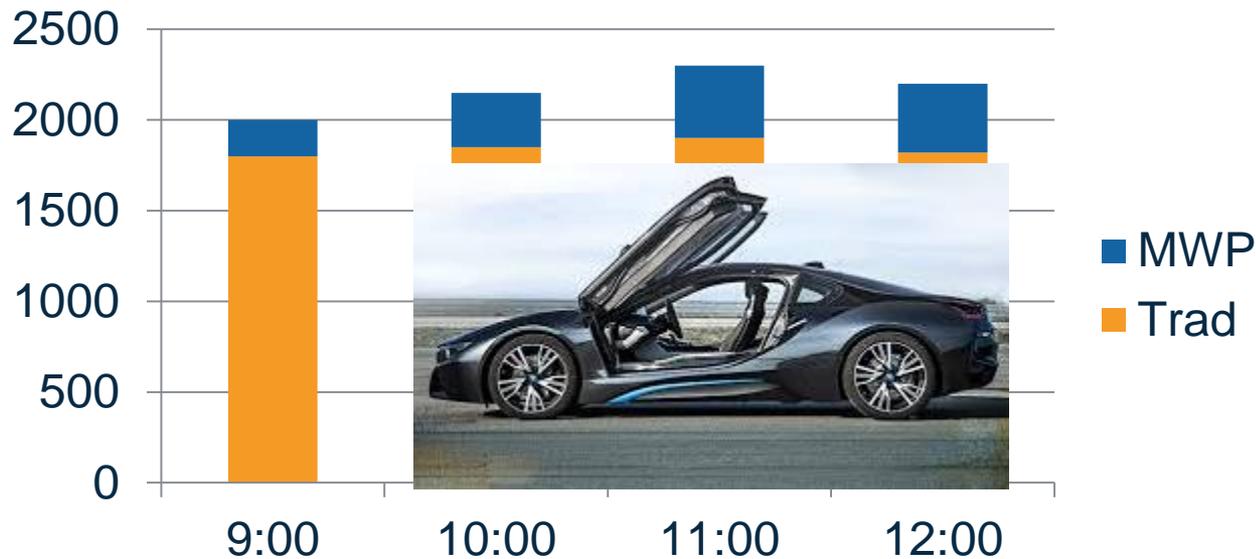


Mobile Workload Pricing

- Because we did so well last month (and because the CIO *loves* mobile), we can increase our Defined Capacity to deliver better performance and still live within our budget of \$850K. So we increase the cap to 2300 MSUs.

Mobile Workload Pricing

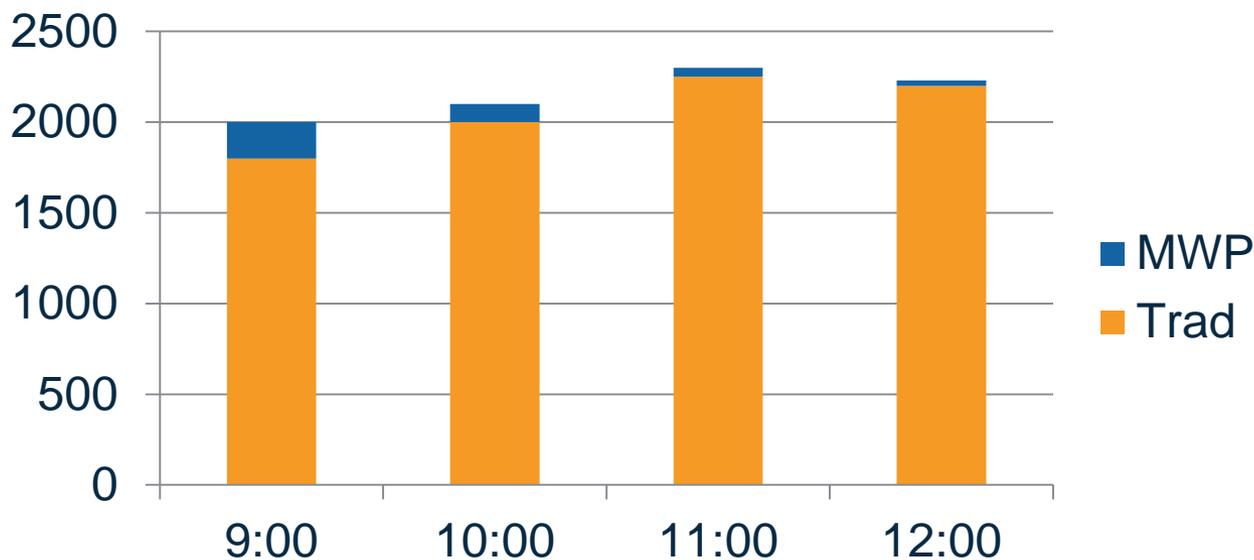
- In the next month, MWP-eligible work grew even more. Of the peak 2300 MSUs, 400 was mobile. So you get billed based on 2060 MSUs (and lease that new BMW in anticipation of your fat bonus).



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Mobile Workload Pricing

- Then next month arrives. Because there was little MWP-eligible work in the peak interval, and there was loads of batch work, traditional work used nearly all of the available capacity (2250 MSUs) and MWP consumed only 50 MSUs in the peak R4HA. So we get a bill for 2270 MSUs. Oops.



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Mobile Workload Pricing

- The problem is that budgets are specified in financial terms (\$s), but our levers for controlling system capacity are in terms of MSUs and response times. And those levers don't differentiate between MWP MSUs and traditional MSUs.
- If you configure on the basis of all MSUs being consumed by traditional work, you won't have enough capacity to handle large mobile workloads.
- If you configure to handle large mobile workloads, you could be faced with bills that blow your budget.
- What to do?

Mobile Workload Pricing

- IF you want to get the benefits of MWP (and other similar pricing options) but also maintain tight control over your software bills, a prerequisite is that you **MUST** have some way to identify the amount of CPU being consumed by your MWP-eligible work in *real time*.
- IF you can do this, then you might be able to combine MWP with a dynamic capping product to adjust your defined capacities based on the current mix of MWP and traditional work. If there is a lot of MWP work, it could increase the cap. If there is mostly traditional work, it could decrease the cap.
- But the ability to identify MWP CPU usage in real time is critical.
- This should be one of the inputs into your decision about how to configure for MWP.

Mobile Workload Pricing

- If you currently have little or no MWP-eligible work, take this opportunity to speak to your application architects and developers and ensure that they understand the need to be able to identify FROM SMF RECORDS which txns were initiated from a mobile device.
- Work closely with them to agree on a mechanism that will be a) easy to program for, and b) consistent across all applications. This will save you significant effort later on.
- Consideration must also be given to transactions that are called by other transactions, rather than directly from a mobile device – how will you identify them?

Mobile Workload Pricing

- If you have enough MWP-eligible work to make signing up for MWP worth your while, you have three options:
 - Run the MWP work in the same regions/subsystems as your traditional work.
 - There is currently no mechanism to identify MWP CPU use in real time if you select this option.
 - Run the MWP work in dedicated regions/subsystems in the same LPARs as traditional work.
 - Run the MWP work in dedicated LPARs.

Mobile Workload Pricing

- Running the MWP work in mixed regions appears to be the easiest option at first glance – no need to define any new regions, DB2s, etc. However:
 - It effectively eliminates the ability to dynamically manage LPAR sizes based on MWP CPU usage.
 - You need to consider how you will identify the subset of CICS/DB2/IMS/MQ/WAS transactions (using SMF data) that are MWP eligible.
 - The volume of SMF data to be processed is not trivial (potentially 100s of GBs per day).
 - YOU are responsible for providing *and maintaining* the programs to extract the CPU time info from the SMF data and creating an input file for MWRT.
 - You will typically not capture all the CPU time for that txn.

Mobile Workload Pricing

- You *could* move all your MWP work into dedicated regions/subsystems:
 - IF you have dedicated regions and subsystems, IBM will accept the SMF Type 30 records for those, eliminating the need to process transaction-level SMF data.
 - Additionally, if you use the Type 30 records, you capture ALL the CPU used by the region/subsystem. If you use transaction-level SMF records (CICS 110, DB2 101, etc) to identify the CPU used by MWP transactions, you should expect to capture no more than 80% of the CPU time.
 - This makes it possible to identify MWP CPU consumption in near real time.
 - You are still responsible for creating the MWRT input, but the process is MUCH easier.

Mobile Workload Pricing

- IF:
 - You have a LOT of MWP work (so it can make your bills swing even more wildly), **or**
 - Identifying information about the source of the transaction gets stripped away as soon as the transaction enters the system, **or**
 - MWP transactions call other transactions or route requests over DDF or in some other way create work that does not identify the original source of the transaction....
- Then it might be worth routing all your MWP-eligible work to one or more dedicated LPARs.
 - You can't claim the entire MSUs of the dedicated LPAR, but you CAN claim ALL the CICS/DB2/IMS/MQ/WAS MSUs.
 - IBM will accept just the Type 70 and Type 89 records for that LPAR. You don't even need to process the Type 30 records.
 - You can MUCH more easily control the cost of the LPAR because the *percent* of LPAR MSUs that are consumed by MWP-eligible work is much more predictable.
 - This lets you see how much CPU is consumed by MWP in real time if you want to monitor software costs in real time.

Mobile Workload Pricing

- You are now in a position to make an informed decision about the best way to provide an environment for your MWP-eligible workload.
- And the source of information about CPU time use by MWP-eligible work is now obvious:
 - Presumably you will only choose shared regions and subsystems if you have determined that the transaction-level SMF records contain the information you require for MWRT.
 - If you choose dedicated regions or LPARs, it should be possible to easily rework existing reporting programs to extract the information from the Type 30 or Type 70/89 records.

Mobile Workload Pricing

- In order to be able to avail of MWP, you must:
 - Have a zBC12 or zEC12 or later in your enterprise.
 - The MWP-eligible workloads must run on a z114/z196 or later.
 - Be running z/OS (V1 or V2) and one or more of CICS (V4 or V5), DB2 (V9, V10, or V11), IMS (V11, V12, or V13), MQ (V7 or V8), or WAS (V7 or V8).
 - Be using a sub-capacity pricing option – AWLC, AEWLC, or zNALC.
 - Sign the MWP supplement.
 - And agree with IBM which applications will be eligible, and how you will gather the usage data for those applications. And, especially, how you will identify the MWP-eligible transactions.
 - Provide your own mechanism to create the MWP input to MWRT.
 - Use MWRT rather than SCRT to report your utilization to IBM.

Mobile Workload Pricing

- Al Sherkow and Barry Merrill have produced some tools based on MXG to make it easier to extract the information for MWRT.
 - But they are still limited by the information that can be found in the SMF records.
- IBM has a product called Transaction Analysis Workbench 1.2 (5697-P37) that helps you gather data for MWP if [APAR PI29291](#) is applied.

Mobile Workload Pricing

- Mobile workload IS growing, at a huge rate. This is not a fad that is going to go away.
- If you don't have much MWP today, GREAT!! Start work now to ensure that MWP-eligible transactions can be identified from their SMF data.
- MWP can significantly reduce the financial impact of running that work on your z/OS systems. This is especially true as MWP grows and accounts for a larger and larger percentage of your workload.
- Start planning for this now. Find out how much of your current workload originates from a mobile device, and what the plans are for mobile in the future. Preparing your environment to meet the MWP requirements is not a trivial effort, so don't leave this until the last minute.

z Collocated Application Pricing

Complete your session evaluations online at www.SHARE.org/Orlando-Eval

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z Collocated Application Pricing

- As part of the z13 announcement, IBM announced IBM Collocated Application Pricing (subsequently renamed to zCAP).
- A little like MWP, zCAP is aimed at reducing the cost to deploy NEW applications on z/OS.
 - However, whereas MWP is really aimed at **existing** applications that are driven by mobile devices, zCAP is aimed at **new** applications.
 - The intent is that it should be much easier to identify CPU use by these new applications because you don't have the complexity of determining where the transaction was initiated.

z Collocated Application Pricing

- zCAP is similar to zNALC in that it is aimed at ‘new’ applications.
- An obvious question is “how long will something be considered ‘new’?”
 - According to IBM’s David Chase, “an application’s ‘newness’ does not wear off over time. An application that was accepted as being ‘new’ 5 years ago is still accepted as being ‘new’ today.”
- However, unlike zNALC, zCAP does not require those applications to be located in dedicated LPARs.
- From a cost point of view, zCAP delivers similar results to running the candidate workload in a dedicated zNALC LPAR.

z Collocated Application Pricing

- What is a ‘new’ workload?
 - Must be a new application to z/OS in your enterprise.
 - Does not have to be new ‘in the universe’ – for example, SAP has been around for many years, but if you are not using SAP on z/OS now, then it is eligible to be considered ‘new’ for zCAP purposes.
 - If you move SAP from another platform in your enterprise to z/OS, that also counts as being ‘new’ for zCAP purposes.
- The objective is to grow the z/OS workload in your enterprise by adding new applications.
- Organic growth of existing applications does not count as ‘new’ for zCAP purposes.

z Collocated Application Pricing

- So does zCAP affect billing in the same way as MWP?
 - OF COURSE not!
 - The concept is not dissimilar and the tools are the same (MWRT), but the details are different.
- Like MWP, you have to identify the MSUs used by the zCAP-eligible workload (CICS/DB2/IMS/MQ/WAS).
 - Then you subtract 50% of that amount from the z/OS MSUs.
 - And you subtract 100% of that amount from every other IBM product in the LPAR.
 - Then you pay for the MSUs for the subsystems used by the zCAP-eligible workload using the same pricing metric that is being used by the LPAR the application is running in.

z Collocated Application Pricing

- Let's look at two scenarios....
 - First one is where a new application is the only user of a 'zCAP-defining' subsystem (CICS/DB2/IMS/MQ/WAS)
 - Second one is where the new application uses an existing subsystem.

z Collocated Application Pricing

Net New MQ Example = 100 MSUs of new MQ workload *

1. Existing LPAR

MSUs used for subcap billing:

z/OS	1,000
DB2 and CICS	1,000

2. New MQ, standard rules

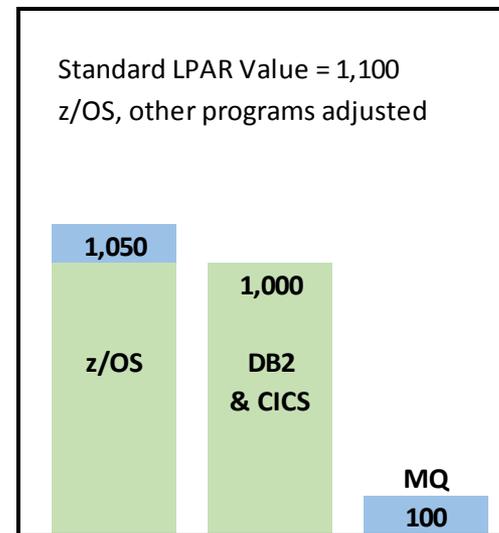
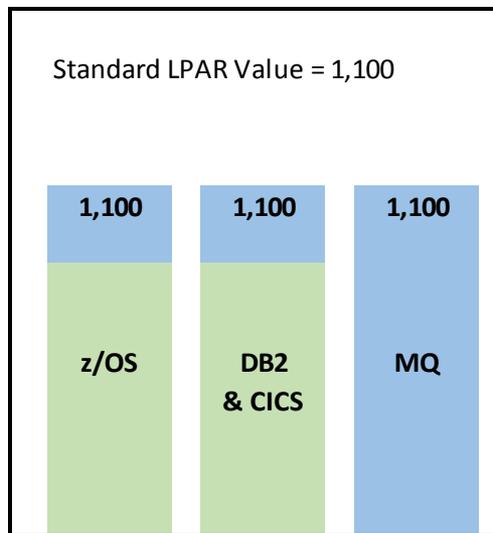
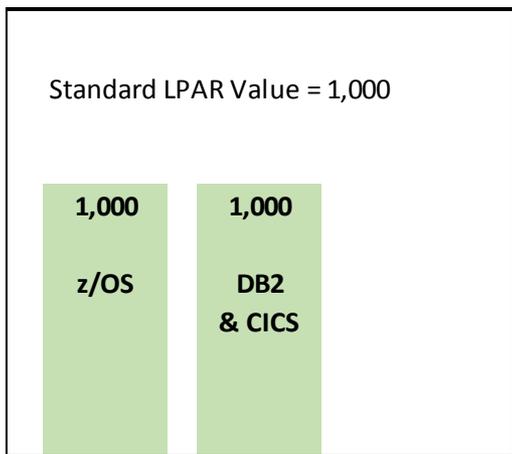
MSUs used for subcap billing:

z/OS	1,100
DB2 and CICS	1,100
MQ (LPAR value)	1,100

3. New MQ with zCAP pricing

MSUs used for subcap billing:

z/OS	1,050
DB2 and CICS	1,000
MQ (usage value)	100



* Assumes workloads peak at same time

Example courtesy of David Chase, IBM

z Collocated Application Pricing

- Consider what would have happened if you had used zNALC for this application...
 - You would have paid a discounted price for z/OS
 - You would have paid for 100 MSUs of MQ
- Because you are using zCAP in this example:
 - The MSU value used for CICS & DB2 was reduced by 100% of the capacity used by the new application – so you paid for 1000 MSU of CICS or DB2, rather than 1100 MSUs.
 - You reduced the total z/OS MSU number by 50% of the capacity used by the new application (100 MSUs)
 - You only paid for 100 MSUs of MQ, even though it lived in an LPAR that was using 1100 MSUs.
- So the net effect is similar to zNALC, but without the need for a separate LPAR.

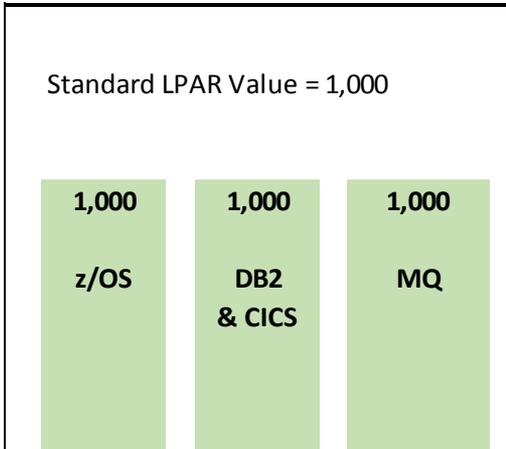
z Collocated Application Pricing

Incremental MQ Example = 100 MSUs of MQ growth *

1. Existing LPAR

MSUs used for subcap billing:

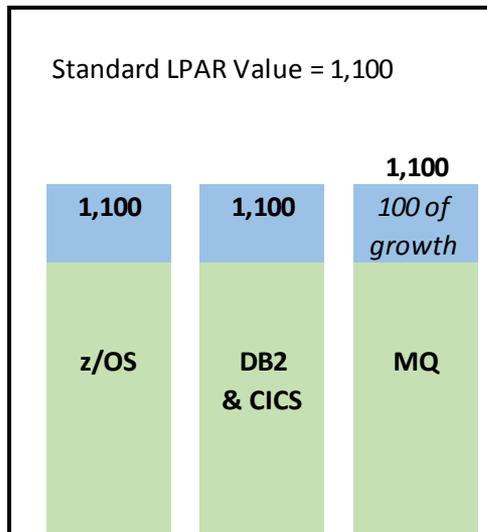
z/OS	1,000
DB2 and CICS	1,000
MQ	1,000



2. MQ growth, standard rules

MSUs used for subcap billing:

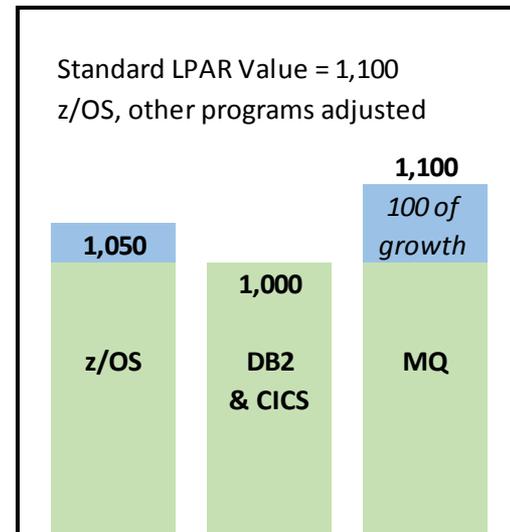
z/OS	1,100
DB2 and CICS	1,100
MQ w/growth	1,100



3. MQ growth with zCAP pricing

MSUs used for subcap billing:

z/OS	1,050
DB2 and CICS	1,000
MQ w/growth	1,100



* Assumes workloads peak at same time

Example courtesy of David Chase, IBM

z Collocated Application Pricing

- In this example, the new application used a product (MQ) that was already being used by existing applications:
 - The MQ cost went up by the 100 MSUs that the application was using.
 - The MSU value used for CICS & DB2 (and every other sub-capacity product in that LPAR) was reduced by 100 because the new application didn't use CICS or DB2.
 - The total z/OS MSU number was reduced by 50% of the capacity used by the new application (100 MSUs).
- So, again, the net effect is similar to zNALC, but without the need for a separate LPAR.
 - Comparing to the zNALC example earlier, with zNALC you paid \$6891/mo for 80 MSUs of z/OS. With zCAP, you would pay between \$1600 and \$12640/mo for 40 MSUs of z/OS (depending on where you are on the pricing curve for z/OS).

z Collocated Application Pricing

- As with MWP, the customer is responsible for identifying the capacity used by the new workload and translating that into a CSV file that is input to MWRT.
 - If the new application is the only user of a subsystem (as in the 1st example), it is acceptable to use data from the Type 89 SMF records.
 - If the application is using an existing subsystem product (MQ, in example 2), but runs in its own dedicated region, IBM will accept data from the Type 30 records for that region.
 - If the application is using an existing subsystem AND an existing region, then you need to use transaction-level information to determine the MSUs used by the new application.

z Collocated Application Pricing

- zCAP is only available for new applications that run in a z114/z196 or later with AWLC or AEWLC sub-capacity pricing.
- Data must be submitted to IBM using MWRT 3.3.0 or later (current version is 3.3.1)
- There is a new contract Addendum and accompanying Supplement:
 - Addendum for z Systems Collocated Application Pricing (Z126-6861)
 - Terms and conditions to receive zCAP benefit for AWLC, AEWLC, zNALC billing
- Supplement to the Addendum for zCAP (Z126-6862)
 - Customer explains how they measure their zCAP application CPU time
 - Agreement to and compliance with the terms and conditions specified in the zCAP contract Addendum is required

z Collocated Application Pricing

- In the Supplement, the customer must do the following *for each new application*:
 - Identify the new application.
 - Provide information about which zCAP-defining products the application will use.
 - Provide information about where it will run – dedicated regions or shared.
 - Describe how information about the CPU use of the new application will be identified.
- IBM must agree to all this information before you can avail of zCAP.

z Collocated Application Pricing

- zCAP provides the financial advantage of zNALC, without the restrictions of having to have separate LPARs.
 - Each case needs to be looked at separately to determine the relative costs. Don't forget to take into account the cost of provisioning another LPAR for zNALC.
- If you have a 'new' application that is being deployed on z/OS, ask IBM if you can use zCAP with it. There is no requirement that it uses Java, or mobile, or WAS – it could be Assembler and BTAM! It is not guaranteed that IBM will approve, but if you don't ask, you won't get.

z Collocated Application Pricing

- List of zCAP-defining products:
 - <http://ibm.com/systems/z/swprice/reference/exhibits/zcap.html>
- zCAP [Announcement Letter \(ENUS215-174\)](#)
- For additional information, contact your IBM account team.
 - Also, if you are attending any conferences, watch for sessions by David Chase. They are very informative and he is very good at answering questions.

Summary

Summary

- Thoughts.....
 - All of these initiatives are positive for the health of the platform – they make z/OS more cost –competitive with other platforms for new applications, they provide more flexibility (because there is no one-size-fits-all), and they should help improve availability.
 - Get up to speed now, so you don't dig holes that it will be difficult to get out of later.
 - Talk to your application developers and network administrators, especially in relation to mobile.
 - Talk to contract administrators.
 - Remember that ELAs are based on how much you would have paid if you didn't have the ELA, so do NOT assume that these options are not relevant to you just because you are currently in an ELA – at some point you will start a new one, and the cost of that will be impacted by your effective exploitation of these capabilities now.
 - Start planning for CMP now. Ensure that whoever is responsible for system and sysplex topology understands CMP.

Related sessions

- Other sessions that you might find interesting:
 - [Session 17880](#), *LPAR Defined Capacity, Initial Processing Weight, the Soft Cap and LPAR Group Capacity Limits*, by Al Sherkow (Tuesday)
 - [Session 18034](#), *SMFPRMxx Parameters - Which Can Help; Which Can Hurt*, by Cheryl and Frank (Wed 15:15)
 - [Session 17433](#), *The Cheryl and Frank zRoadshow*, by Cheryl and Frank

Thank you!

- Thank you for coming along. We hope you found this information interesting and valuable. Enjoy the rest of the week, and please let us know if you have any questions or suggestions or experiences that you would like to SHARE.
- Please remember to complete an evaluation

