



zCOST AutoSoftCapping – Solution Introduction IBM z/OS VWLC Software Pricing Optimization

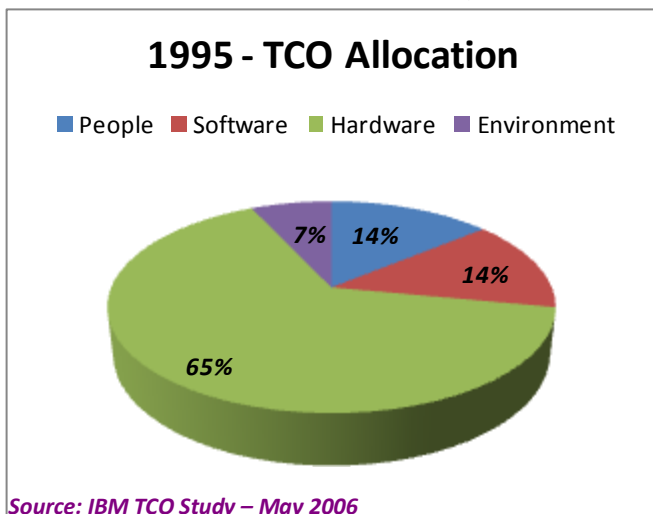


zCOST AutoSoftCapping Overview

zCOST AutoSoftCapping is a Systems Management solution for IBM zSeries Mainframes using the VWLC pricing metric with the z/OS Operating System. Before reviewing the benefits of this solution, maybe it's a good idea to reprise the intricacies of IBM Mainframe asset & TCO management.

IBM Mainframe TCO Allocation Evolution → 2004

Historically & certainly in the 1980's, the server was considered as the centre of the IT universe, & so it follows that generally most IT infrastructure decisions were server based. In the 1990's, as storage technologies advanced, data was perceived to be the true differentiator between one business & another, & so maybe storage became the centre of the IT universe? Regardless, for organizations deploying an IBM Mainframe, the TCO balance was heavily biased towards hardware assets, for example:



Technology innovation, largely based on the observance of [Moore's Law](#) generated dramatic hardware price reductions, which were typically outweighed by rapidly growing IT infrastructures, requiring ever increasing amounts of data. From a business perspective, an ever increasing need for data access became almost mandatory, where mission critical applications required near 24*7*365 availability, & so the "string of 9's" availability metric (E.g. 99.99999%) was born, where arguably only the IBM Mainframe platform could deliver near 100% availability...

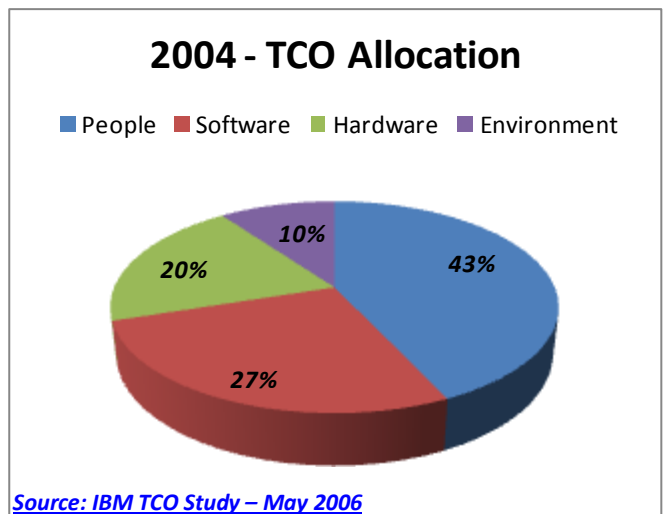
Most would agree technology innovation dictates that hardware is now a commodity, & although there are many IHV's delivering a choice of disk arrays for all platforms, since the early 2000's, only IBM develop & manufacture strategic zSeries servers. So for IBM Mainframes especially, a TCO evolution has occurred, where Systems Management software & people are required to deliver optimal IT infrastructure ROI efficiencies.

Hardware continues to decrease in price while increasing in commodity status, while true value & therefore business benefit is realized through software deployment & the associated IT infrastructure management...

IBM Mainframe TCO Allocation Evolution 2004 →

In 2003 IBM announced their [Mainframe Charter](#), which is a framework for planned future investment with the goal of delivering ongoing value to zSeries customers. The IBM Mainframe Charter guides the development of premier enterprise servers & the creation of technologies & offerings that help lower the cost of mainframe computing, via an "Innovation, Value & Community" ethos. Therefore "delivering value for an on demand world"!

One must draw one's own conclusions regarding said IBM Mainframe Charter, but the underlying message was clear, that IBM would be investing heavily in the zSeries platform, & so the deployment & management of the IBM Mainframe by their customers would evolve. Regardless, TCO metrics have clearly changed; where over a decade the people & software costs versus hardware metric has now polarized!



Legacy IBM Mainframe Software Pricing Metrics

Historically, IBM Mainframe software pricing has been largely based on One Time Charge (OTC) license fees, with annual maintenance/support charges. This metric certainly applied to the majority of ISV's, although IBM pricing was largely based on MLC (Monthly License Charge) metrics.

In the 1980's-1990's, many ISV's flourished, delivering subsystems & utilities for the IBM Mainframe platform, but these early software licenses didn't necessarily have in-built flexibility & so unfortunately the term "[Software Stiffing](#)" became commonplace, where companies could face significant upgrade or even "change of use" fees for their IBM Mainframe software portfolio.

This was an "early warning sign" for robust Software Asset Management (SAM) processes; so is there an interaction between software & hardware asset management?

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Current IBM Mainframe Software Pricing Metrics

As IBM Mainframe capacities have increased & the typical customer environment comprises SYSPLEX structures, with many servers & even more LPAR's, the requirement for usage based software pricing increases. So for IBM software certainly, starting with MULC, & evolving through PSLC, zELC, zNALC & WLC derivatives, there are a number of mechanisms for reducing software costs. One must draw one's own conclusions as to the availability of such pricing metrics throughout the IBM Mainframe ISV community, but largely there are mechanisms for the 21st Century Software Asset Manager to manage & optimize software expenditure.

Stating the obvious, the premier IBM zSeries Operating System, z/OS & associated major subsystems (E.g. CICS, DB2, Etc.) & programming languages are IBM based, & so largely software costs are heavily influenced by these [WLC](#) classified products. Hence, the flexibility to deploy [VWLC](#) (Variable) metrics becomes attractive, managing software costs by the allocation of [Sub-Capacity](#) for IBM zSeries hardware.

However, this in itself generates a new set of challenges for the IBM Mainframe Software Asset Manager, safeguarding that software costs are optimized, whilst delivering the highest possible Service Level Agreement (SLA) metrics from the available hardware resources...

zCOST AutoSoftCapping Introduction

Managing an IBM Mainframe processor infrastructure is a fine balance, especially with VWLC pricing metrics, as the rolling 4-Hour MSU usage average becomes pivotal. From a hardware viewpoint, each LPAR must have a [Relative Weight](#) (WEIGHT), so this differentiates the resource allocation between one LPAR & another. However, Relative Weight has no definitive unit of measure, so typically an organization would use a number such as 1000 as the overall number, allocating units of 1000, to each LPAR (E.g. 500 = 50%).

A modicum of flexibility was provided by Hard Capping, defining whether the relative weight could be exceeded or not, so ideal for chargeback or test workloads. A modicum of granularity was then introduced for z/OS 64-bit workloads, where Defined Capacity allowed the setting of an MSU rating, for Sub-Capacity pricing, managed by the Workload Manager ([WLM](#)) facility. The Intelligent Resource Director ([IRD](#)) facility leverages WLM functionality, allowing for the dynamic allocation of LPAR CPU's to deliver increased resources for priority workloads, not meeting their WLM goals (E.g. SLA).

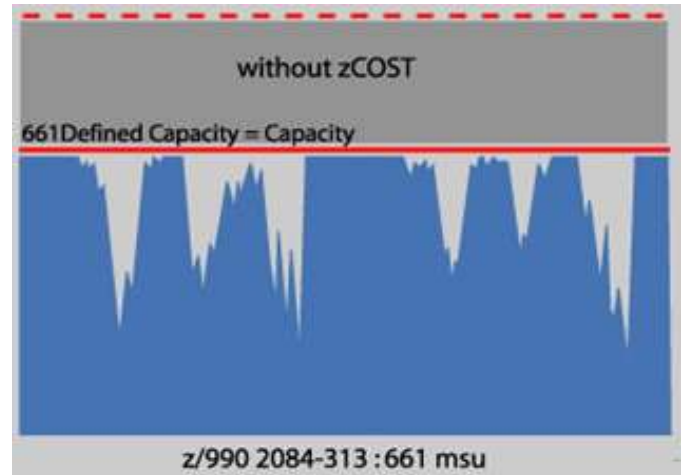
Although there are many mechanisms & functions to assist with VWLC pricing reduction, typically these are "after the event" based, so increased pricing or missed deadlines might be a consequence. So is there an alternative option?

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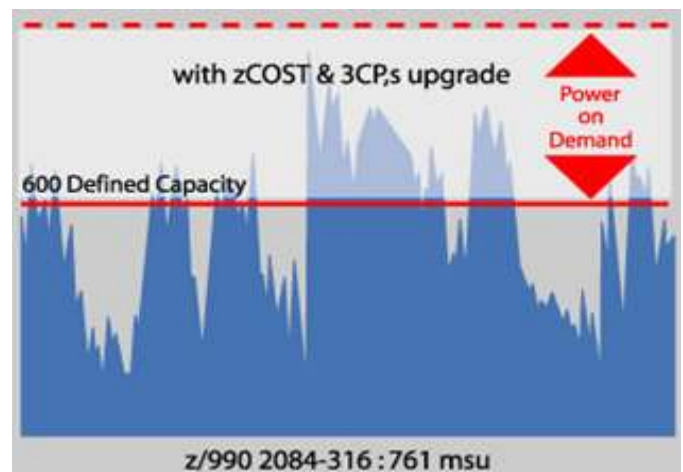


zCOST AutoSoftCapping Benefits

Although IBM zSeries servers offer Capacity on Demand ([CuOD](#)) options, these are generally for planned events. An ideal solution is safeguarding that the "***right MSU's are in the right place, at the right time & for the right cost***"! If we analyze a typical rolling 4-Hour average graph, based on a "fixed cost" basis, so Defined Capacity, we can observe "White Space", which is MSU resource not being used:



Ideally the ultimate objective is reduced software costs & increased processing efficiencies. So via dynamic MSU sharing based on customizable customer defined parameters, resource is shared by LPAR's, using standard IBM interfaces, while seamlessly integrating with WLM & HMC functions. So the goal of zCOST AutoSoftCapping is to allow the customer to "do more with less", via a "Power on Demand" ethos, with obvious financial & service delivery benefits:



With fully integrated technical (E.g. vis-à-vis SCRT) & management (E.g. SAM) reporting, other typical benefits are:

- Delayed processor capacity acquisition or reduced technology (E.g. z9-z10) upgrade costs
- Perpetual & on-going reduced software costs
- Mechanism to control MSU usage for looping processes
- Optimized Production service for "controlled costs"...



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