Al Sherkow's
LPAR CAPACITY AND SOFTWARE USAGE ANALYSIS (LCS)

LCS Provides Timely Information You Can Use To Manage Your IBM Software Charges

IBM announced a new mainframe pricing model, Workload License Charges (WLC), in October 2000. IBM's tools to assist sites trying to understand and evaluate WLC are limited in scope. The LPAR Capacity and Software Usage Analysis (LCS) Software was developed to assist installations in planning for, implementing, monitoring and auditing IBM's Workload License Charges (WLC).

Fact — WLC's sub-capacity pricing was delivered by IBM on October 1, 2001. If you have z/OS running on z900s then you could already be using WLC.

Fact — You need to determine whether each z900 machine should continue with your current pricing (probably PSLC and ULC) or switch to use WLC.

Fact — The sooner you begin using the IBM's Sub Capacity Reporting Tool the sooner you will be able to take advantage of WLC.

Fact — Once you choose WLC you cannot go back to PSLC if your analysis was not correct!

How Will You Make These Decisions?

What Software is Running in Each LPAR?
You need to build a matrix of which IBM software products run in which LPARs. IBM does not have a tool to help you build this matrix. ***LCS Provides This Capability***.

What are the Maximum Simultaneous Four-Hour Rolling Averages?
SMF data provides the four-hour rolling average (4HRA) for z/OS LPARs, but not the Simultaneous four-hour rolling averages for multiple LPARs. ***LCS Provides This Capability*** and calculates 4HRAs for OS/390 LPARs and calculates simultaneous 4HRA for all combinations of LPARs. The Maximum Simultaneous 4HRA is the basis of the charge for Variable WLC products.

Will WLC Reduce Software Charges?
When you have Maximum Simultaneous 4HRAs you want to know the charges. IBM will assist with this step and will give you a "spreadsheet" with their analysis. It is their "answer", but you cannot do "what-if" analysis with this spreadsheet, because IBM provides the results of their calculations but does not provide the price tables or the formulas in these spreadsheets. ***LCS Provides This Capability*** by including price tables for the Variable WLC products.

Fact — Some sites will find that using Full-Capacity Workload License Charges is cheaper than continuing with current PSLC pricing!

What Should Defined Capacity Be Set To?

Leveraging Defined Capacity and WLC may provide additional savings. To develop alternative configurations you will want to do "what-if" analysis and only **_LCS Provides This Capability_**.
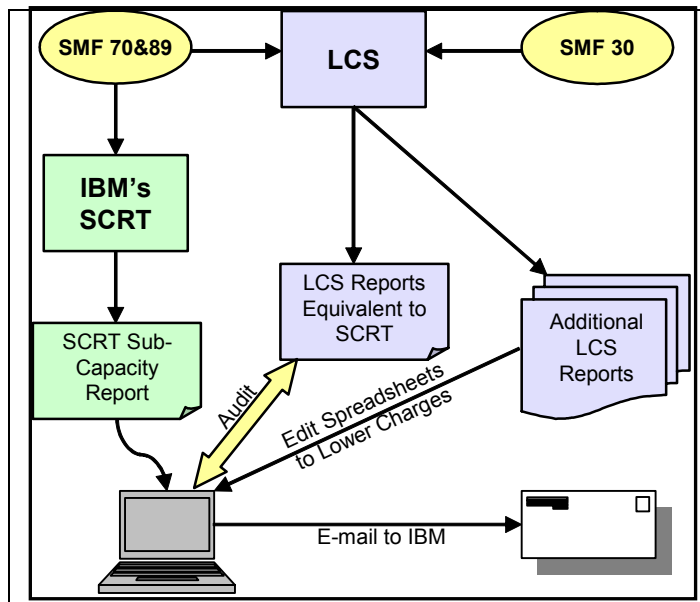
How Will You Audit WLC?

Do you want to audit the MSUs Reported by SCRT? Through detailed reports **_LCS Provides This Capability._**

How Will You Monitor WLC?

IBM's SCRT is run at the end of each month to process an entire month's SMF data. The output of SCRT is a file that you edit on your PC as a spreadsheet and then email to IBM. Using this spreadsheet IBM will update your software bill. You'll receive the updated bill in the following month. Do you want that information sooner? **_LCS Provides This Capability._** LCS can be run each day to read your MXG or SAS/ITRM data and will report the products in use, the 4 hour rolling averages, and the estimated PSLC and WLC Charges. The report below shows the Simultaneous 4 Hour Rolling Averages date for z/OS, CICS, Cobol and two versions of DB2. The rightmost column is LCS's estimated WLC software charges. **_LCS Provides This Capability._**

ProdID	Product Name	Max MSUs	Date of Max MSUs	Simultaneous LPARs	LCS Estimated $/Month
5645-001	z/OS 01.02	387.7	12NOV:05:30	PRODPLX_SYSA*TESTPLX_SYSB	93,805
5675-DB2	DB2 V7	387.7	12NOV:05:30	PRODPLX_SYSA*TESTPLX_SYSB	35,818
5645-DB2	DB2 V6	106.5	11NOV:13:45	TESTPLX_SYSB	SVC
5655-G53	COBOL	260.7	07NOV:14:00	PRODPLX_SYSA*TESTPLX_SYSB	5,368

IBM's SCRT does not know when some products execute or which LPARs they execute in. This leads most sites to use the z/OS simultaneous four-hour rolling average as the charge basis for the compilers and other non-89 producing products. In fact, each product has its own maximum simultaneous four-hour rolling average (S4HRA) based on the LPARs it is running in; and these maximum S4HRA are the basis for your bills. In the example above Cobol's S4HRA is 260.7 MSUs, far less than the S4HRA of z/OS at 387.7 MSUs. The analysis of the data provided by LCS leads to a savings on Cobol of $1,314 per month. (This is a representative sample only). Which number would you rather "edit into" the SCRT spreadsheet? The z/OS S4HRA MSUs or the actual Cobol S4HRA MSUs? **_LCS Provides This Capability._**

LCS Supplements IBM's Tools

- Operating on the newest hardware and software (z900, z800 and z/OS) as well as pre-z900 hardware and on OS/390 software
- Discovery of Hardware and Software Configuration:
    - o Automates the process of building a matrix of LPARs and the software products you use in each LPAR
    - o In addition to using the SMF Measured Usage information:
        - LCS processes the SMF30 Step data to identify additional programs and products
        - Optionally, LCS processes your system logs, analyzing messages to identify additional products
- Analysis of the four-hour rolling average, and the simultaneous four-hour rolling average for combinations of LPARs is critical to planning for "Defined Capacity"
- Analysis of the simultaneous four hour rolling average utilization for LPARs running a product. Since IBM's April 30, 2002 announcement the simultaneous four hour rolling average utilization will now be the capacity for which products are billed
- Provides pricing of the key components of your IBM software products. The Initial release provides PSLC and WLC prices for Variable WLC software products.
- LCS emulates all of SCRT's reports and enhances many of them with additional information
- LCS provides additional reports to assist in planning, monitoring and leveraging WLC.
- Especially useful is a report to help set Defined Capacity and Spreadsheets to analyze Defined Capacity.
- LCS introduces the Concept of Expendable MSUs based on your WLM Goals and Importance settings. While analyzing Defined Capacity LCS is the only tool that helps you understand the impact on your workload as well as the impact on your budget!

Through LCS's processing of program names and system log messages you gain additional information that could reduce your installation's software charges. Once you understand your LPAR configuration and your software configuration you can begin doing "What-If" scenarios with the LCS analysis spreadsheets. You can evaluate different software pricing options and changes in machines or configurations. Different scenarios can be used to compare PSLC with WLC for the key Variable WLC products.

LCS has two parts, the analysis spreadsheets you can use on a PC and SAS programs to run on your mainframe. The SAS programs work with Merrill Consultants' MXG software to provide automated assistance in building the spreadsheets. The LCS analysis spreadsheets can be used with or without the SAS programs. This allows you to analyze alternatives without having to use SAS. What-If analysis and development of different scenarios are done with the spreadsheets.

Other Required Software

LCS requires base SAS and can be run on your mainframe or on other SAS platforms. LCS extracts data from MXG or SAS/ITRM. A future release will support NeuMICS. For "what-if" analysis LCS generates standard comma delimited files that are compatible with Microsoft Excel and Lotus 123.

Al Sherkow

The software was designed and developed by Al Sherkow of I/S Management Strategies, Ltd. Al has been consulting for IBM on Workload License Charges since March 2000. Through his relationship with IBM, Al has been helping installations understand WLC and assess the value of WLC for their data centers. As a capacity planning and performance consultant, he is an industry expert regarding the configuration and planning of PR/SM. Since 1988 he has been helping his clients make the most of their LPARs through onsite consulting, his logical partitioning seminars, magazine articles, papers and dozens of presentations.

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