Sub-Capacity Pricing

zSeries Software Pricing

Agenda

- ⚠ Sub-capacity Pricing Introduction
- ⚠ Setting-up for Sub-capacity Pricing
- ⚠ Sub-Capacity Reporting Tool(SCRT)
- ⚠ Implementing Sub-Capacity Pricing
  - ➢ System Programmer Tasks
  - ➢ Software Asset Manager Tasks
- ⚠ IBM Processing

Sub-Capacity Pricing

Introduction

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Phase One: Sub-Capacity Reporting

Part One: Submit Sub-Capacity Report

- Utilize Sub-Capacity Reporting Tool to Create Sub-Capacity Report
- E-mail Report Once per Month, if Environment Changes
- E-mail Report Once per Quarter, if Environment Does Not Change
- Sub-Capacity Reporting Tool Will:
  - Analyze and Report on 30 days of SMF data on z900 Machine
  - Be Available for Download from WLC Web site @ **ibm.com**/zseries/wlc_lm

Part Two: Transmit System Availability Data

- Utilize Existing Remote Support Facility
  - no change to facility
  - commonly referred to as "Call Home Facility"
- Send Data Once per Week

Phase Two: IBM License Manager

Planned Software License Management Tool
- Based on XSLM Open Standard
- ILM manages product execution based on product T&Cs
- Product T&Cs implemented via digital license certificates

To Be a Base element of z/OS

Contains Four Major Components
- ILM License Server
- ILM Agent
- ILM Management Tool
- ILM Digital License Certificates

Expected ILM Prerequisites
- z/Architecture, Minimum monoplex/basic sysplex, System Logger (DASD only), SMS, OCSF, UNIX System Services, TCP/IP, RACF (or equivalent)
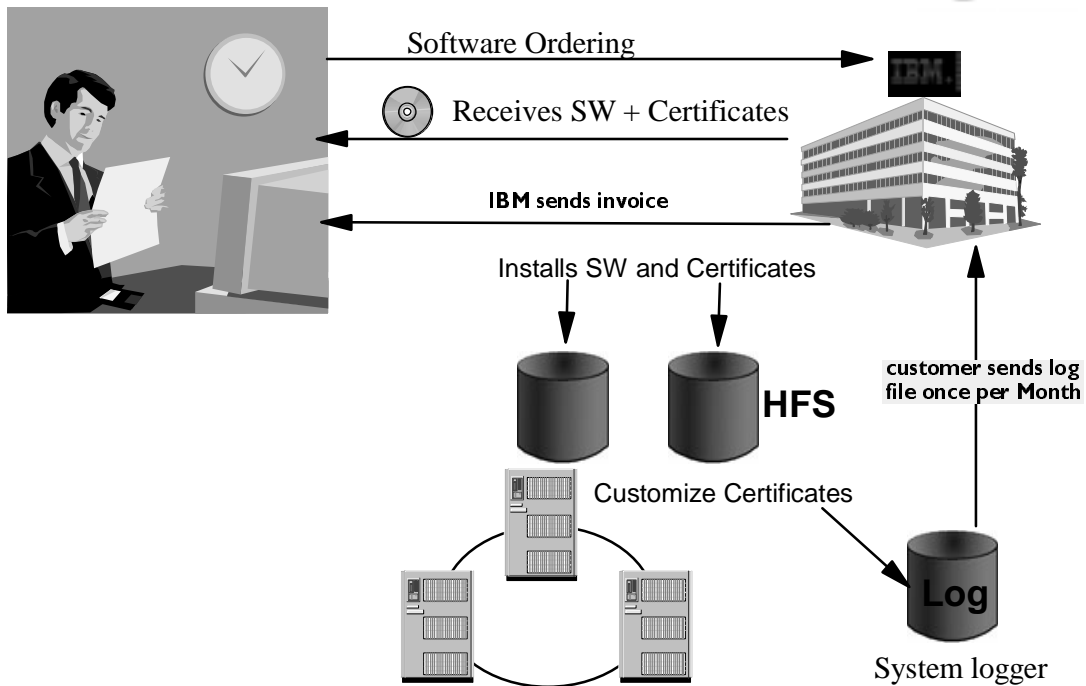

Sub-capacity Announcement

- Workload License Charges
  - Available on September 30, to eligible z/OS customers, as previously announced
  - Two-step approach to implementing WLC sub-capacity
    - Now: new Sub-Capacity Reporting Tool
    - Future: production-level version of IBM License Manager
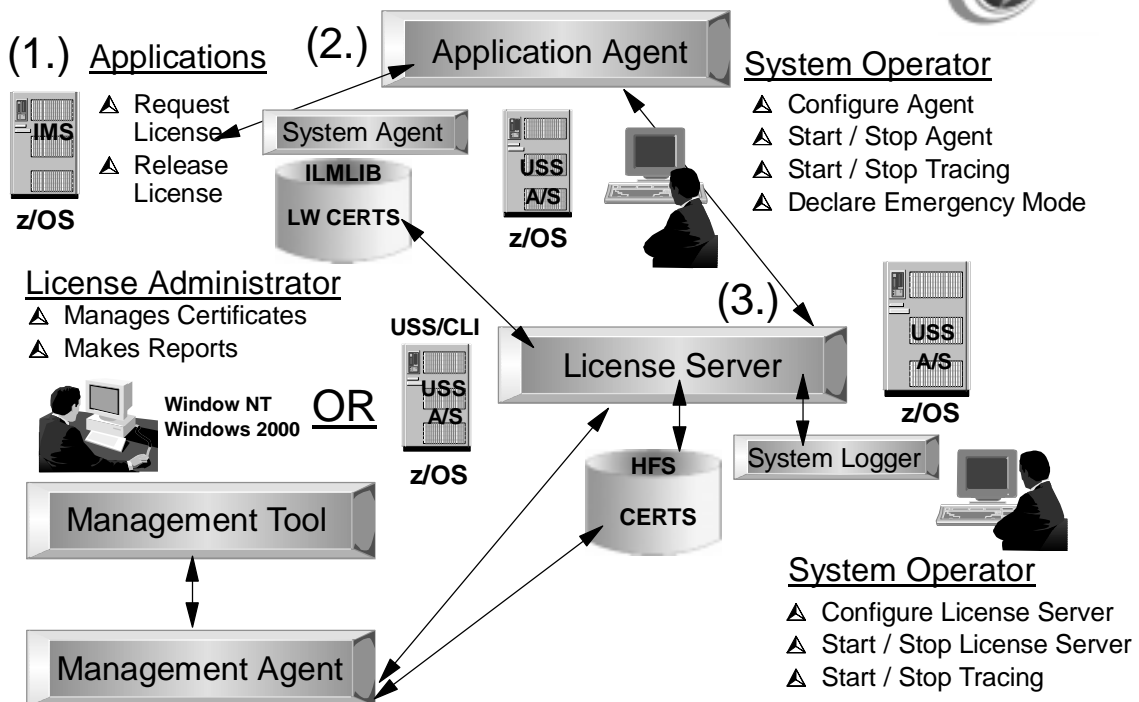 - WLC sub-capacity is based on product defined capacity

- Eligible Application Development and Data Management Tools
  - Available on September 30, subject to applicable terms
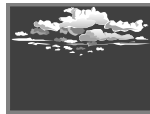 - AD and DM tool sub-capacity are based on z/OS product defined capacity

Software Ordering

Software Ordering

Receives SW + Certificates

IBM sends invoice

Installs SW and Certificates

HFS

customer sends log file once per Month

Customize Certificates

Log

System logger

IBM License Manager Overview

(1.) Applications (2.) Application Agent   System Operator

IMS
- Request License
- Release License

System Agent

ILMLIB

LW CERTS

USS A/S

z/OS

z/OS

- Configure Agent
- Start / Stop Agent
- Start / Stop Tracing
- Declare Emergency Mode

License Administrator
- Manages Certificates
- Makes Reports

(3.)

USS/CLI

USS A/S

z/OS

License Server

USS A/S

z/OS

Window NT Windows 2000 OR

Management Tool

HFS

CERTS

System Logger

Management Agent

System Operator
- Configure License Server
- Start / Stop License Server
- Start / Stop Tracing

Sub-capacity Pricing

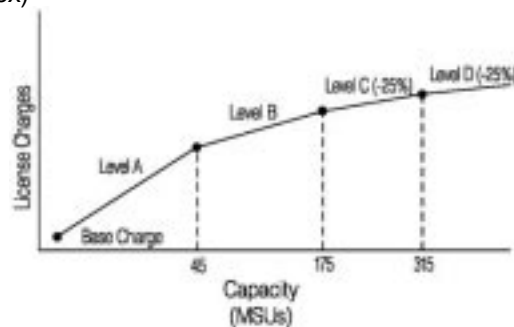# Workload License Charges

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WLC Overview

Starting Point

⚠ Parallel Sysplex License Charge (PSLC)

- ➢ $/MSU Decreases as Capacity Increases
- ➢ IBM software products priced via monthly license Charge
- ➢ PSLC may be applied to:
  - – A single system
  - – A qualified Parallel Sysplex (aggregation of MSUs across the Parallel Sysplex)

MSUs and LPAR Capacity

- ⚠ MSU - Million Service Units/hour
  - ➢ Not an indicator of relative processor capacity
  - ➢ Not valid to be used for charge-back systems, or capacity planning
- ⚠ Defined in terms of the CEC, not the LPAR's logical CP configuration

- ⚠ LPAR Capacity can be defined with 1 MSU granularity

Model	MSUs	
1C1	43	1-way
1C2	83	2-way
1C3	119	3-way
1C4	153	4-way
1C5	187	5-way
1C6	217	6-way
1C7	247	7-way
1C8	276	8-way
1C9	302	9-way
110	327	10-way
111	350	11-way
112	372	12-way
113	392	13-way
114	410	14-way
115	426	15-way
116	441	16-way
101	43	1-way
102	78	2-way
103	112	3-way
104	143	4-way
105	173	5-way
106	199	6-way
107	225	7-way
108	245	8-way
109	265	9-way

Workload License Charges

- ⚠ Allow independent growth of hardware and software
  - ➢ Workload License Charges are not tied to machine capacity
- ⚠ Granular software licensing for Key* Products
  - ➢ "Pay for What you Need"... Sub-Capacity Pricing
  - ➢ Increase/Decrease Software Capacity in 1 MSU Increments
  - ➢ Highest Licensed Capacity for Month Establishes License Charges
- ⚠ Flexibile Licensing Requirements for Key* Products
  - ➢ License for Average Requirement, Not Peak Requirement

Workload License Charges (Continued)

⚠ Software pricing model for zSeries machines

➤ Pay for the software capacity needed

➤ Utilize excess hardware capacity without software charges

⚠ WLC pricing supports the following catagories of products

➤ Variable WLC products - VWLC

➤ Flat WLC products - FWLC

➤ Value unit pricing
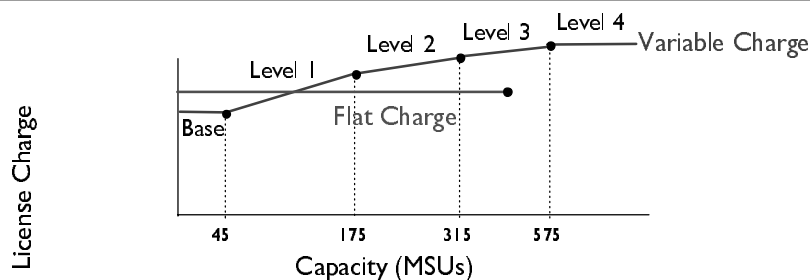

Workload License Charges

Available on z900 Machines running z/OS

Variable Charge Products:	Flat Charge Products:
• Defined Capacity in MSUs • $/MSU decreases as capacity increases • Priced via Monthly License Charge • Aggregation across a Qualified Sysplex • Applies to z/OS, DB2, IMS, CICS, MQSeries, System Automation, NetView and others	• Single Price per Machine • Priced via Monthly License Charge • Applies to Other Current Products, VM, VSE and legacy S/390 products

Level 1, Level 2, Level 3, Level 4 — Variable Charge

Base, Flat Charge

License Charge

Capacity (MSUs): 45, 175, 315, 575

Sub-Capacity Pricing

⚠ Introduction to Sub-Capacity Topics

➤ Machine MSUs

➤ LPAR MSUs

➤ Whitespace

➤ Rolling 4-hour Average

➤ Softcapping

LPAR Capacity

⚠ Specified via zSeries LPAR definitions (with z/OS)

➤ New parameter called "Defined Capacity"

➤ Enables optimal Sub-Capacity Software pricing

➤ Monitored and enforced via z/OS WLM and z900 PR/SM

⚠ All sub-capacity products in an LPAR have the same capacity

➤ LPAR partition capacity based pricing not product usage based pricing

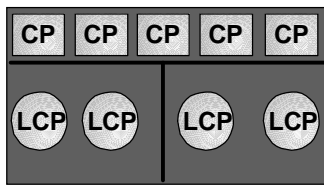➤ Regardless of actual CPU seconds used by the product

Whitespace

⚠ Machine Rating - Sum of LPAR Capacites = Whitespace

➤ Can simply exist on the processor

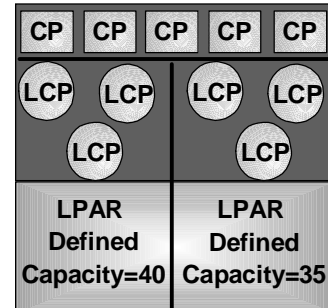➤ Created by defined capacity

Example 2: CP=20 MSUs

Example 1: CP=20 MSUs

CP	CP	CP	CP	CP
LCP	LCP	LCP	LCP

Number of logical CPs is
less than physical CPs

WS = 20 MSU

Unaccessible Whitespace

CP	CP	CP	CP	CP
LCP	LCP	LCP	LCP
LCP		LCP	

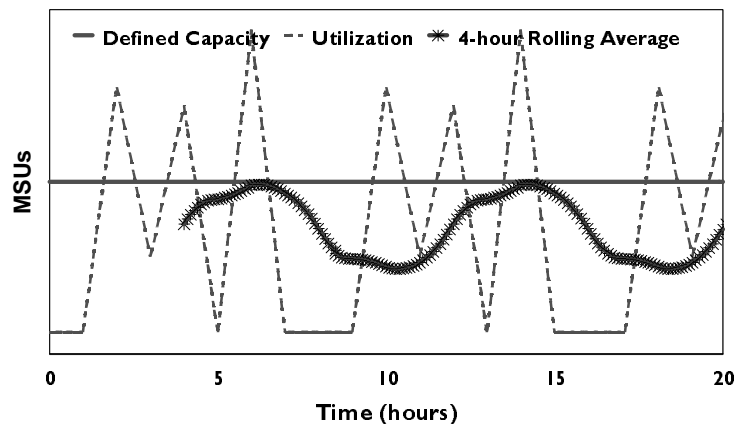| LPAR Defined Capacity=40	LPAR Defined Capacity=35

WS = 25 MSU

Accessible Whitespace

LPAR Defined Capacity and WLM

⚠ Rolling 4-hour average tracked by Workload Manager

➤ Rolling 4-hour average not permitted to exceed defined capacity

➤ If 4-hour average exceeds defined capacity, LPAR gets soft capped

➤ Works for both goal mode and compat mode systems

Workload License Charges Example

Key Advantage: Grow Hardware and Software Independently

zSeries Model 111 - 350 MSUs

LPAR 1 200 MSUs	LPAR 2 80 MSUs	LPAR 3 50 MSUs	20 MSUs of White Space
	PL/1 V1	PL/1 V1	
PL/1 V1	Ditto	IMS V6	
DB2 V6	SDF II	CICS TS	
CICS TS	IMS V6	COBOL V2	
z/OS	z/OS	z/OS	

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |

Variable WLC:
z/OS - 330 MSUs
DB2 - 200 MSUs
CICS - 250 MSUs
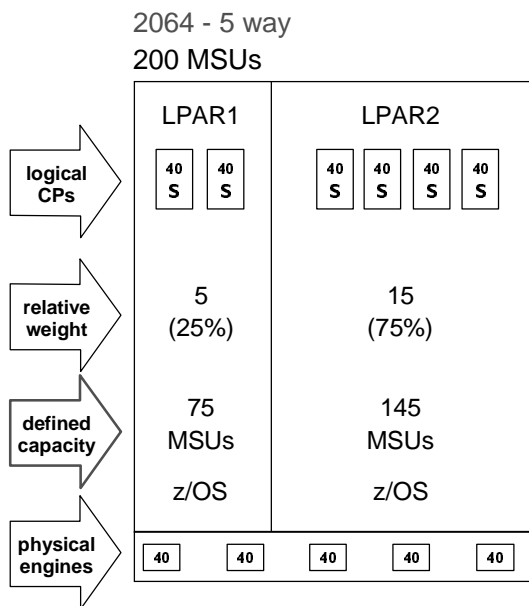IMS - 130 MSUs
COBOL V2 - 50 MSUs

Flat WLC:
SDF II - flat
Ditto - flat
PL/1 V1 - flat

Sub-capacity Pricing

Workload License Charges Growth Scenarios

LPAR Overview - zSeries Example

2064 - 5 way
200 MSUs

	LPAR1	LPAR2
logical CPs	40 S 40 S	40 S 40 S 40 S 40 S
relative weight	5 (25%)	15 (75%)
defined capacity	75 MSUs	145 MSUs
	z/OS	z/OS
physical engines	40 40	40 40 40

Configuration
- 200 MSU 2064 CEC
- 5 physical engines, 40 MSUs each
- 2 LPARs, LPAR1 & LPAR2
- LPAR1 = 2 shared logical CPs
- LPAR2 = 4 shared logical CPs

Logical CPs: *always a factor*
- LPAR1 = 2 engines (80 MSUs)
- LPAR2 = 4 engines (160 MSUs)

Relative Weights:
factored during contention
- LPAR1 = 25% capacity (50 MSUs)
- LPAR2 = 75% capacity (150 MSUs)

Defined MSU Capacity
factored when 4-hour avg exceeds defined capacity
- LPAR1 = 75 MSUs (defined)
- LPAR2 = 145 MSUs (defined)

Workload License Charges Baseline

zSeries Model I I I
350 MSUs

LPAR I	LPAR 2	LPAR 3
200 MSUs	80 MSUs	50 MSUs
Fortran		IMS
DB2		CICS
CICS	IMS	COBOL
z/OS	z/OS	z/OS
1 2 3 4 5	6 7 8	9 10 11

WLC Price Based On:

z/OS - 330 MSUs

DB2 - 200 MSUs

CICS - 250 MSUs

IMS - 130 MSUs

COBOL - 50 MSUs

Fortran - flat

WLC: Grow a Single Workload

zSeries Model 112
372 MSUs

LPAR 1	LPAR 2	LPAR 3
~~200~~ 230 MSUs	80 MSUs	50 MSUs
		IMS
Fortran		CICS
DB2		COBOL
CICS	IMS	
z/OS	z/OS	z/OS

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

Price Based On:

z/OS - 360 MSUs
DB2 - 230 MSUs
CICS - 280 MSUs
IMS - 130 MSUs
COBOL - 50 MSUs
Fortran - flat

only these products in LPAR1 are affected

WLC: Add a New Workload

zSeries Model 114
410 MSUs

LPAR 1	LPAR 2	LPAR 3	LPAR 4
230 MSUs	80 MSUs	50 MSUs	45 MSUs
		IMS	
Fortran		CICS	
DB2		COBOL	
CICS	IMS		Domino
z/OS	z/OS	z/OS	z/OS

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

Price Based On:

z/OS - 405 MSUs
DB2 - 230 MSUs
CICS - 280 MSUs
IMS - 130 MSUs
COBOL - 50 MSUs
Domino - 45 MSUs
Fortran - flat

only the products in LPAR 4 are affected
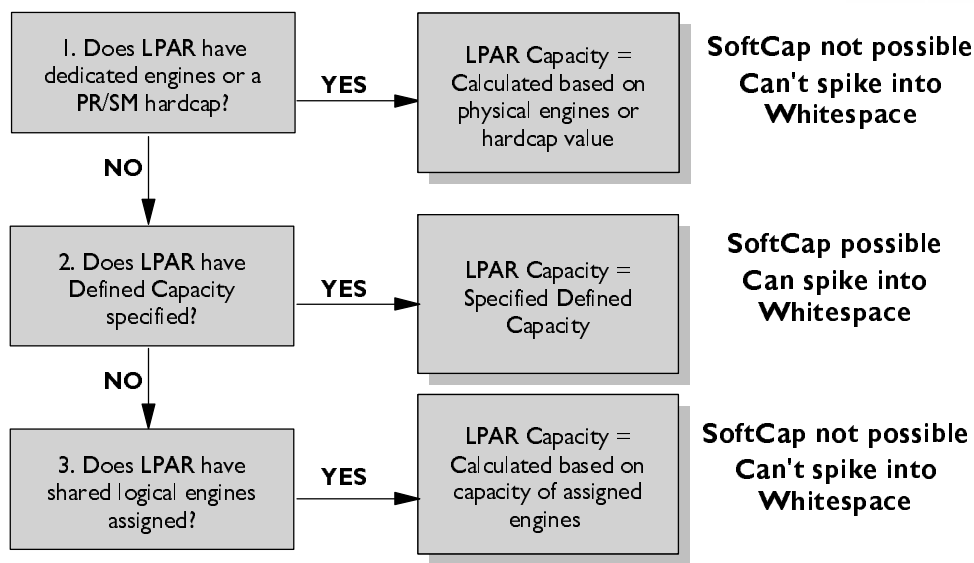
WLC: Add Spare Capacity

zSeries Model 116
441 MSUs

LPAR 1 230 MSUs	LPAR 2 80 MSUs	LPAR 3 50 MSUs	LPAR 4 45 MSUs	36 MSUs of Capacity Not Carrying any Software Charges
Fortran DB2 CICS z/OS	IMS z/OS	IMS CICS COBOL z/OS	Domino z/OS	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Price Based On:
z/OS - 405 MSUs
DB2 - 230 MSUs
CICS - 280 MSUs
IMS - 130 MSUs
COBOL - 50 MSUs
Domino - 45 MSUs
Fortan - flat

"White Space"
✓ Stems from LPAR Configurations
✓ Supports Short Term Workload Spikes
✓ May be Enabled to Support Longer Term Increases in Workload Demands

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Determining LPAR Capacity

1. Does LPAR have dedicated engines or a PR/SM hardcap?	— YES →	LPAR Capacity = Calculated based on physical engines or hardcap value	**SoftCap not possible Can't spike into Whitespace**

NO ↓

2. Does LPAR have Defined Capacity specified?	— YES →	LPAR Capacity = Specified Defined Capacity	**SoftCap possible Can spike into Whitespace**

NO ↓

3. Does LPAR have shared logical engines assigned?	— YES →	LPAR Capacity = Calculated based on capacity of assigned engines	**SoftCap not possible Can't spike into Whitespace**

Otherwise, the CEC is in Basic Mode and full CEC Capacity is used.

Sub-capacity Pricing

Value Unit Pricing

Value Unit Pricing

⚠ Value Unit Pricing: One Time Charge with Annual Support/Subscription at Competitive Price Points

➢ IBM is Extending Sub-Capacity Pricing to Database Management and Application Development Tools

⚠ Tools May Be Licensed at z/OS Capacity

➢ Announced 23 July 2001

➢ Available on z900 machines running z/OS, subject to applicable Terms and Conditions

⚠ Product Examples:

➢ DB2 Tools: DB2 Performance Monitor, DB2 DataPropagator

➢ IMS Tools: IMS Library Management Utilities, IMS Connect

➢ AD Tools: Fault Analyzer, File Manager, Breeze, Cloud 9

Value Unit Software Pricing

License:	Subscription and Support (S&S):
⚠ Provides License Rights to the Product ⚠ Products not Licensed to a Specific Machine ⚠ Products can be Moved By Customer in accordance with License Terms ⚠ One Time Charge ⚠ Priced with Value Units, Based on MSUs ⚠ Aggregated Across an Enterprise	⚠ Provides Future Releases and Versions, Level 1/2/3 Support ⚠ Annual Recurring Charge, Automatically Renewed ⚠ Priced with Value Units, Based on MSUs (at the same quantity as the license) ⚠ Orders Aggregated

	MSUs	Value Units/MSU
Base	1-3	1.0
Tier A	4-45	.45
Tier B	46-175	.36
Tier C	176-315	.27
Tier D	316+	.20

Value Unit Pricing Example

zSeries Model 111 - 350 MSUs

LPAR 1 200 MSUs	LPAR 2 80 MSUs	LPAR 3 50 MSUs	20 MSUs of White Space
DB2 Performance Monitor **z/OS V1**	Fault Analyzer **z/OS V1**	**z/OS V1**	

1	2	3	4	5	6	7	8	9	10	11

Tools:
DB2 PM - 330 MSUs = 110 Value Units
Fault Analyzer - 330 MSUs = 110 Value Units

Variable WLC:
z/OS - 330 MSUs

Sub-Capacity Pricing

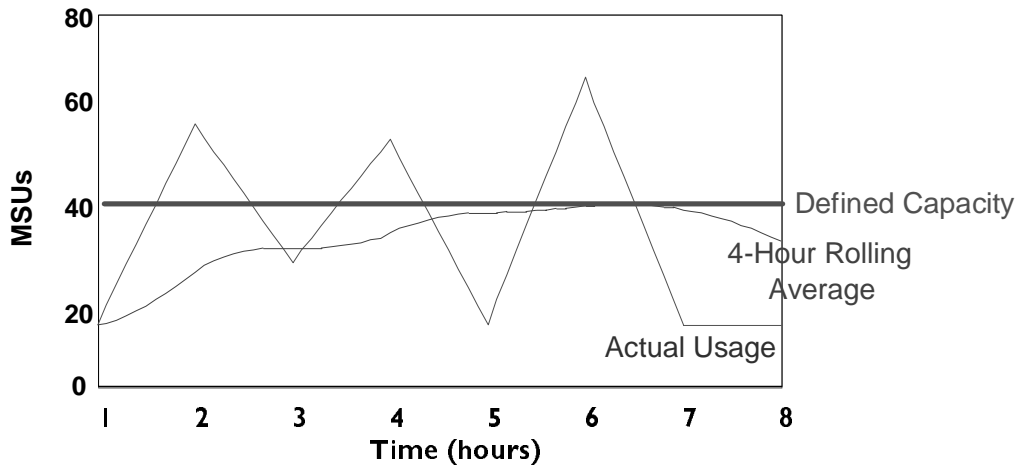# Setting-up the Environment

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Hardware Set-up

Using a Defined Capacity

⚠ Recommended method for sub-capacity pricing

⚠ LPAR capacity defined for a workload

➤ "Soft cap" - Managed by WLM

➤ Allows spikes in the workload

⚠ Applies to all products running in the LPAR
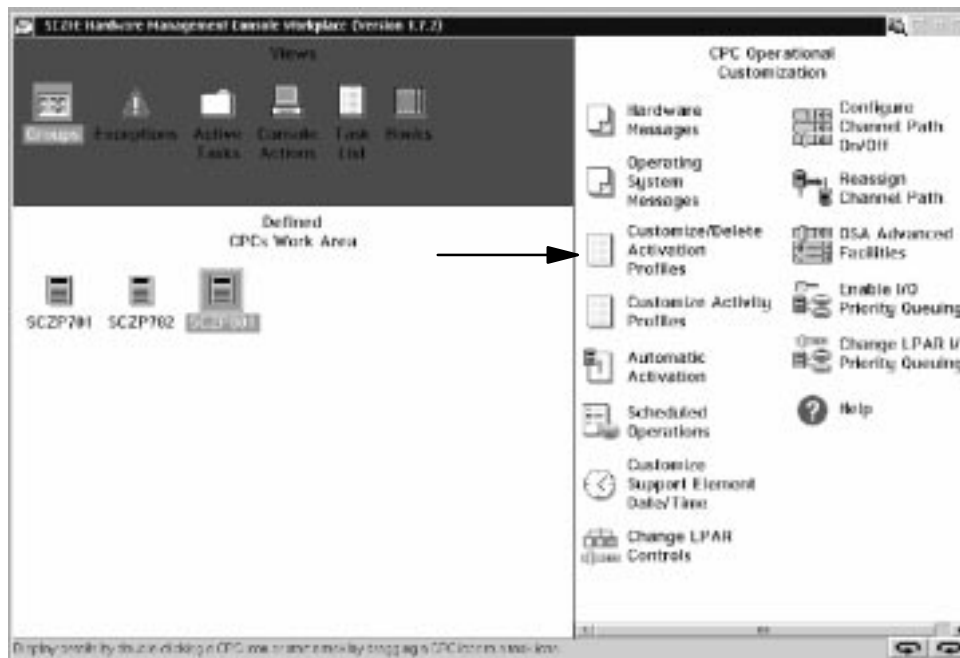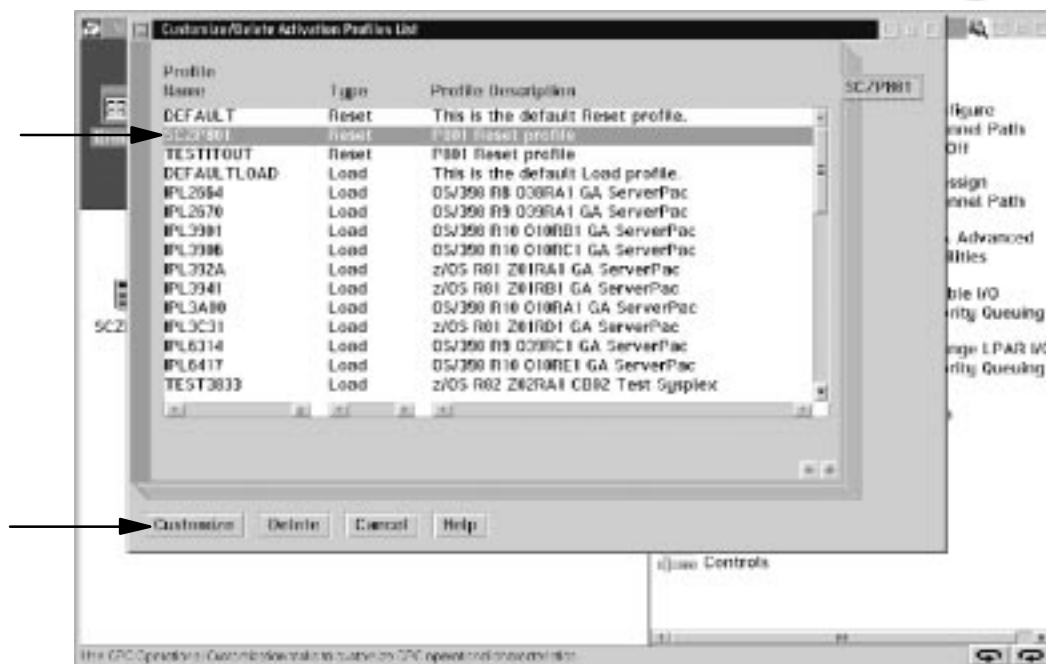
Defined Capacity

Chart: MSUs (y-axis, 0 to 80) vs Time (hours) (x-axis, 1 to 8)

- Defined Capacity
- 4-Hour Rolling Average
- Actual Usage

Setting up Defining Capacity

SCZH: Hardware Management Console Logon

Log on

Status Indicator

Message indicators

Hardware Messages
Operating System Messages

Log on information
User identification   SYSPROG
Password   ********

Log on   Change password...   Cancel   Help

Setting up Defining Capacity

Customize/Delete Activation Profile List

Customize Activation Profiles
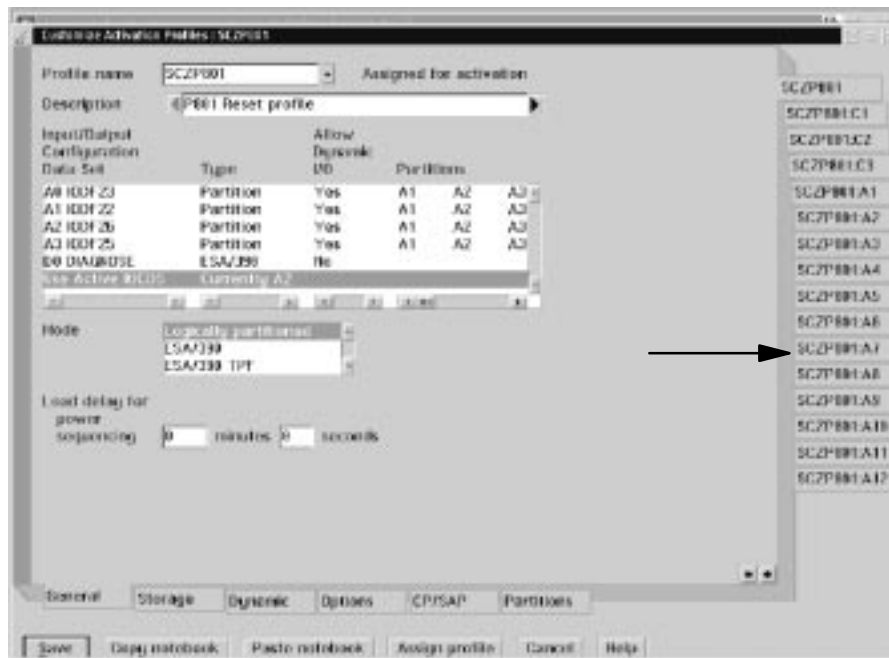

Image Options

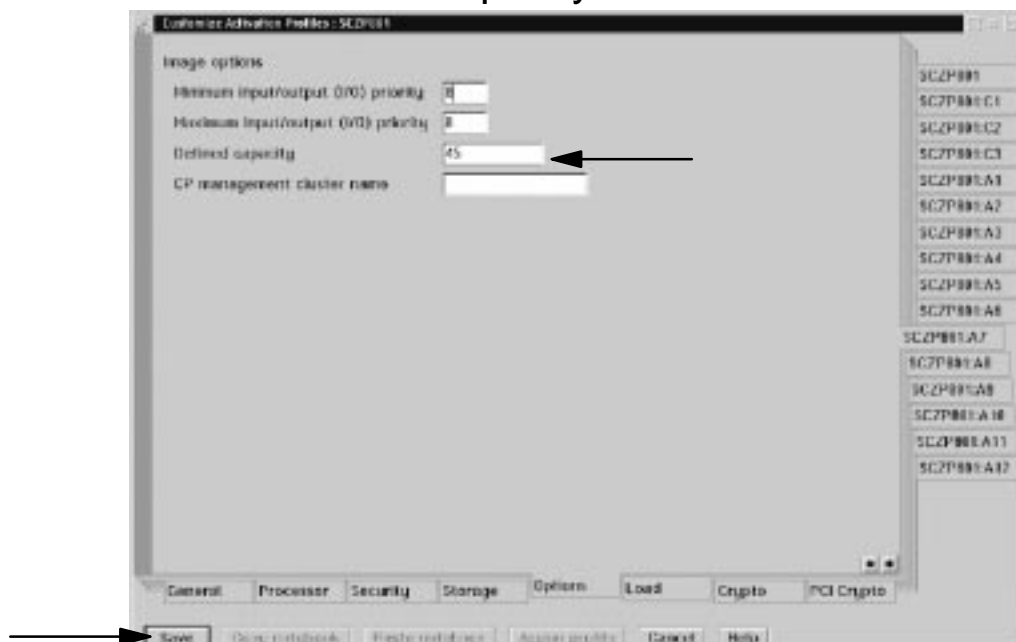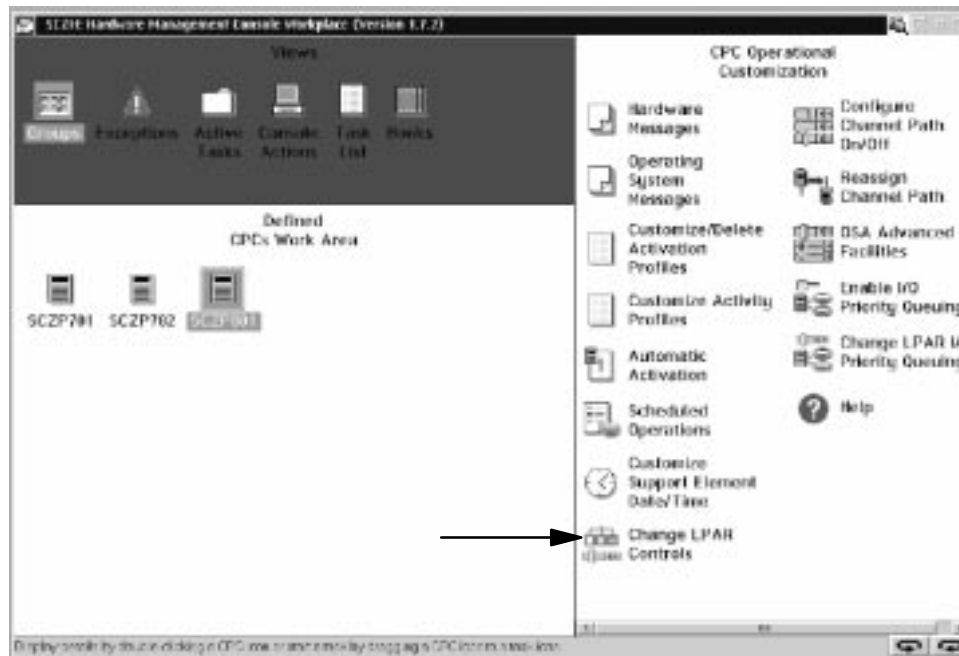## Defined capacity - 45 MSUs

Changing a Defined Capacity

Change Logical Partition Controls

Changing Defined Capacity

Change recorded by SMF

SMF 70 Records in z/OS

⚠ SMF70 in z/OS contains the LPAR MSU values

➢ RMF Post Processor Partition Data Report will show:

− Capacity of an LPAR in MSUs

− CPU usage of an LPAR in MSUs

− Percentage of time an LPAR was soft capped

RMF Report

```
--------- PARTITION DATA --------------- -- LOGICAL PARTITION PROCESSOR DATA --

                ----MSU----   -CAPPING--   PROCESSOR-  ----DISPATCH TIME DATA----
NAME     8  WGT DEF   ACT   DEF   WLM%    NUM  TYPE   EFFECTIVE         TOTAL

NP1      A  400   0     5   NO    0.0     4    CP    00.02.27.649    00.02.30.388
NP2      A  200   0     5   NO    0.0     4    CP    00.02.28.330    00.02.30.449
NP3      A  200   0    65   NO    0.0     4    CP    00.31.47.073    00.31.47.881
NP4      A  400  50    54   NO   86.7     4    CP    00.26.46.161    00.26.45.617
NP5      A  850  50     5   NO    0.0     5    CP    00.02.14.117    00.02.16.743
CB88     A   10   0     0   NO    0.0     2    CP    00.00.00.000    00.00.00.000
CFC1     A  DED   0    30         0.0     1    CP    00.14.59.839    00.14.59.862
CFC2     A  DED   0    30         0.0     1    CP    00.14.59.945    00.14.59.963
*PHYSICAL*                                                          00.00.50.252
                                                     -------------   -------------
TOTAL                                                01.35.43.117    01.36.41.158
```

Data Collection Environments

	z900	non z900 hardware	multiple mainframe machines
z/OS	analyze data, produce report		analyze data, produce report for 1st z900 in input dataset
mixed z/OS and OS/390	analyze data, produce report		analyze data, produce report for 1st z900 in input dataset
OS/390			
MVS			

Software Set-up

- ⚠ SMF Requirements
  - ➢ Collect SMF 70 and 89 records
  - ➢ All z/OS images in the machine
- ⚠ Data collection requirements
  - ➢ A full month of data
- ⚠ SMF 70 records considerations
  - ➢ Requires RMF
  - ➢ Other softwares (BMC's CMF)

Sub-capacity Pricing

Implementing
Sub-Capacity Pricing

Qualifying for Sub-Capacity Pricing

zSeries

PSLC	
OS/390	OS/390

Configuration to Qualify
for Sub-Capacity Benefits
(all OS/390 migrated to z/OS)

zSeries

full capacity	
z/OS	OS/390

zSeries

sub-capacity	
z/OS	z/OS

Interim qualifications:

⚠ Appropriate Contracts
⚠ Sub-Capacity Reporting Tool
⚠ Call Home Data

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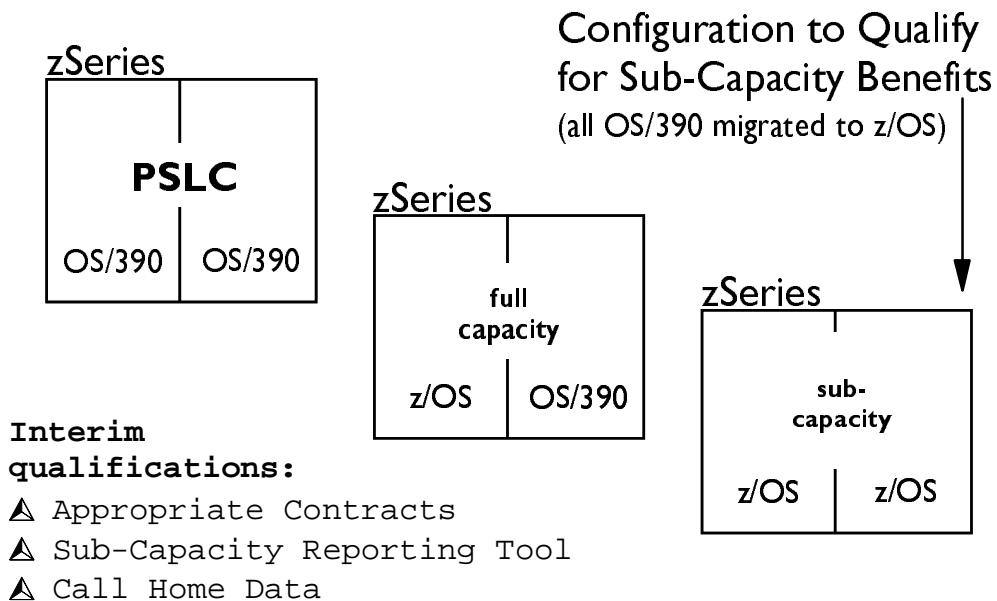
zSeries Sub-Capacity Technology

z/Architecture
Unique Technology
  ⚠ Defined Capacity
  ⚠ Softcapping
  ⚠ Rolling 4-Hour Average

Function Available
30 March 2001 with
  ⚠ z900 Hardware
  ⚠ z/OS Operating System

Implemented Through
  ⚠ z/OS Workload Manager
  ⚠ z900 LPAR Technology

zSeries Model 111 rated @ 350 MSUs

LPAR 1
200 MSUs

LPAR 2
100 MSUs

50 MSUs of White Space to Support
Spikes or Incremental Growth

Tools for Planning and Monitoring

Planning

- Download WLC Tool from WLC Web site
  - as-is, no-charge tool which analyzes SMF70s
  - runs on any OS/390 or z/OS environment
- Ask your IBM Rep about CP2000, the IBM Capacity Planning Tool
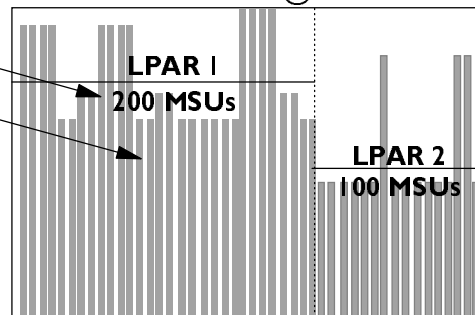
Real-Time Monitoring

- RMF Monitor III for z/OS V1R2+
- Vendor Tools

After-the-Fact Monitoring

- RMF Post-Processor, Partition Data Report for z/OS V1R1+
- Vendor Tools

Implementing LPAR Defined Capacity

Washington Systems Center FLASH!

- Any z/OS partition on a z900 with a defined capacity will be managed by WLM to that defined capacity
  - WLM calculates the rolling four hour average and apply soft cap if capacity exceeds the defined capacity
- This support is active whether or not sub capacity pricing is used
  - Including CECs which have both OS/390 and z/OS partitions active
  - Eligibility for WLC requires all active MVS partitions to be running z/OS
  - RMF PP in z/OS can be used to see the potential impacts of WLM soft capping on system capacity (CPU Activity via PDR report)

Recommendation: Do not specify a defined capacity for any z/OS partition unless the installation wants to enable the defined capacity support

ibm.com/support/techdocs/atsmastr.nsf/PubAllNum/Flash10099

How Many MSUs for a Product

⚠ WLC tool on the Web

  ➢ www-1.ibm.com/servers/eserver/zseries/wlc_lm/

  ➢ WLCTOOL.exe ===> WLCTOOL.bin

  ➢ Upload WLCTOOL.bin to host

⚠ Run this tool against your RMF data - (1 Months data)

  ➢ View output with any spreadsheet

    – .csv file format

Workload License Charge Example

zSeries 900	LPAR1	LPAR2	LPAR3
z/OS	200	80	50
CICS	200		50
IMS	200	80	50
COBOL			50

IBM Price Based On:
z/OS - 330 MSUs
CICS - 250 MSUs
IMS - 330 MSUs
COBOL - 50 MSUs

Excel Workbook Showing Results

	A	B	C	D	E	
1	Customer Name	ILLINOIS				
2	System Name	A1H0				
3	Serial Number	10A8E				
4	Machine Description	2064-110				
5	Capacity (MSUs)	327				
6			LPAR ILIO01	LPAR ILIO01	LPAR MNRO22	LPAR
7	Date of RMF Interval	Time of RMF Interval	Avg MSUs/Interval	Rolling 4-Hr Avg	Avg MSUs/Interval	Rollin
8	2-Apr-01	1:30	69	** (Not Available)	72	** (No
9	2-Apr-01	2:00	80	** (Not Available)	48	** (No
10	2-Apr-01	2:30	63	** (Not Available)	43	** (No
11	2-Apr-01	3:00	29	** (Not Available)	13	** (No
12	2-Apr-01	3:30	21	** (Not Available)	18	** (No
13	2-Apr-01	4:00	26	** (Not Available)	17	** (No
14	2-Apr-01	4:30	20	** (Not Available)	14	** (No
15	2-Apr-01	5:00	11	40	10	
16	2-Apr-01	5:30	12	33	12	
17	2-Apr-01	6:00	15	25	11	
18	2-Apr-01	6:30	21	19	23	
19	2-Apr-01	7:00	27	19	35	
20	2-Apr-01	7:30	45	22	21	
21	2-Apr-01	8:00	46	25	20	
22	2-Apr-01	8:30	73	31	45	
23	2-Apr-01	9:00	86	41	56	
24	2-Apr-01	9:30	96	51	72	
25	2-Apr-01	10:00	105	63	69	
26	2-Apr-01	10:30	116	74	96	

Sub-capacity Pricing

Sub-Capacity Reporting Tool (SCRT)

WLC Sub-Capacity Terms and Conditions

Prerequisites
- ⚠ z900 with z/OS, no other MVS-based operating system
- ⚠ New WLC attachment signed, Z125-6516 (US only)
- ⚠ Revised WLC Exibit, Z125-6324-05(US)
- ⚠ Customer provides call home and other required information
  - ➤ Frequency as set by IBM

Required process
- ⚠ Obtain Sub-Capacity Reporting Tool (SCRT)
- ⚠ Install any required service
- ⚠ Collect SMF data required by SCRT
- ⚠ Retain SMF data for a minimum of 6 months
- ⚠ Use SCRT to process SMF data
- ⚠ Provide an initial Sub-Capacity Report for the first full reporting period, to qualify for sub-capacity for the next reporting period

---

WLC Sub-Capacity T's and C's, continued

Required information process, continued
- ⚠ Submit a Sub-Capacity Report to IBM each month if the highest product defined capacity MSU value has changed from the previous month; or for the last reporting period of a calendar quarter, if there were no changes in the first two months of the quarter
  - ➤ Sub-Capacity Reports are considered to be orders, resulting in billing increases or decreases
- ⚠ Configure systems to send data via z900 call home facility

IBM Reserves the Right To.....
- ⚠ Ask for explanations of the data on the Sub-Capacity Reports
- ⚠ Ask to see up to 6 months of SMF data
- ⚠ Compare the call home data to Sub-Capacity Reports
- ⚠ Compare z/OS values on Sub-Capacity Reports to IPLA Tool orders

End to End: Sub-Capacity Process

CUSTOMER

② product orders

③ **Customer Provided Data**
(MSU Values by Product)

IBM

⑤

data audit, when needed

⑥ invoice

①

Inventory

④

Call Home
(LPAR data only)

Call Home Data with LPAR Information
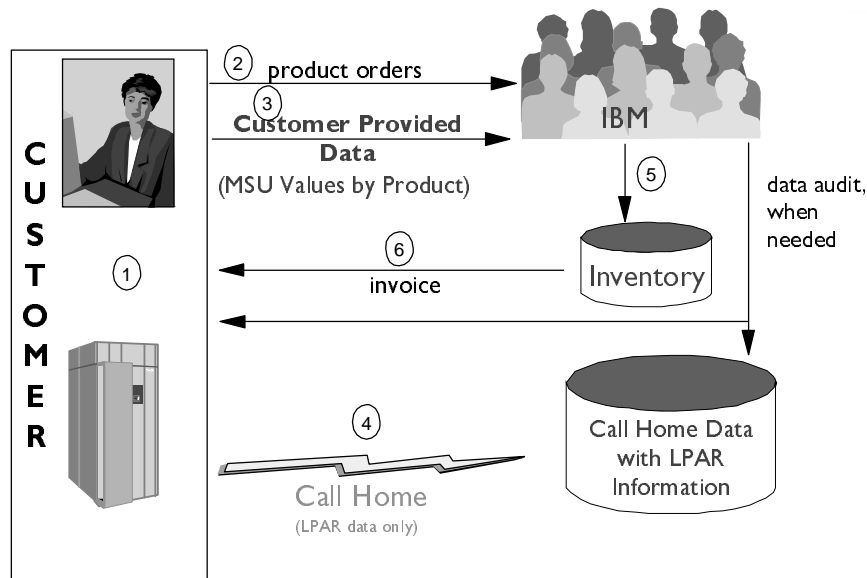
Sub-Capacity Reporting Process

⚠ ## Submit Data to IBM:
- ➢ Sub-Capacity Report
- ➢ Call Home Data

⚠ ## Sub-Capacity Report
- ➢ Customer to Provide Required Data
- ➢ Planned Sub-Capacity Reporting Tool Will:
  - – Analyze and Report on 30 days of SMF data on z900 Machine
- ➢ Tool Planned to be Available for Download Tool from WLC Website
- ➢ Send Data Once per Month, if Environment Changes
- ➢ Send Data Once per Calendar Quarter, if Environment Does Not Change

⚠ ## Call Home Data
- ➢ Utilize Existing Call Home Facility (no change to facility)
- ➢ Send Data Once per Week

Sub-Capacity Reporting Tool (SCRT)

- ⚔ SCRT is a reporting tool
    - ➤ Compiles and reports customer data
        - – Highest MSU level per product, LPAR data
    - ➤ Notes some errors
    - ➤ Does not enforce WLC T's and C's
- ⚔ Instructions and User Guide available on the SCRT site

SCRT Overview,continued

- ⚔ Download SCRT from the WLC Website
    - ➤ http://www.ibm.com/zseries/wlc_lm/tool.html
- ⚔ Run SCRT for each zSeries Machine
    - ➤ tool outputs a flat, comma-separated-value, text file
- ⚔ View and Edit Sub-Capacity Report Output
- ⚔ Output includes information on LPAR Capacities and VWLC Products
    - ➤ host: use XEDIT or other text editor
    - ➤ desktop: use Microsoft Excel, Lotus 1-2-3 or text editor

Using the Sub-Capacity Reporting Tool

Expected Elements:

preparation:
- ✓ collect SMF70
- ✓ collect SMF89
- ✓ download tool

execution:
- ✓ segregate and concatenate one month of SMF70/SMF89
- ✓ run tool against data, producing Data Delimited text Output File

submission:
- ✓ view/update Output File using spreadsheet package
- ✓ e-mail Output File to IBM

Planned Output: Sub-Capacity Reporting Tool

Update Fields Marked with "XXXXX" in the Sub-Capacity Reporting Tool Output Data File.

```
=========== SUB-CAPACITY REPORT ===========
Run Date/Time                        05 Sept 2001 - 12:46
Name of Person Submitting Report:    XXXXX
E-Mail Address of Report Submitter:  XXXXX
Phone Number of Report Submitter:    XXXXX

Customer Name                        THEBIGBANK
Machine Serial Number                12345
Machine Type and Model               2064-111
Machine Rated Capacity (MSUs)        350
Purchase Order Number                XXXXX
Customer Comments                    XXXXX

The data supplied in this sheet will be used to adjust your billing for all VWLC Programs
on this machine. In accordance with our agreement, IBM will treat a change in product licensed
capacity as an order. If the MSUs have increased since the last report, your billing will increase.
For any VWLC Program, the total number of MSUs should not exceed the rated machine capacity.
Note: This report is expected to provide a "% data collected" > 95% and data reporting period
beginning on the 2nd of the previous month and ending on the 1st of the current month.

===========================================================
TOOL INFORMATION
Tool Release Date                    14 Sept 2001
Data Start Date                      02 Sept 2001
Data End Date                        01 Oct 2001
% Data Collected                     99% for 30 days
Any MVS or OS/390?                   NO      <- If yes, ineligible for sub-CEC
Any zOS running as VM guest?         NO      <- If yes, manual calc req'd

===========================================================
PRODUCT SUMMARY INFORMATION
```

VWLC Product Name	VWLC Prod	Tool MSUs	Cust MSUs	Customer Comments
z/OS V1	5694-A01	300	XXXXX	
DB2 for MVS/ESA V4	5695-DB2	0	XXXXX	
DB2 UDB for OS/390 V7	5675-DB2	0	XXXXX	
DB2 UDB for OS/390 V6	5645-DB2	200	XXXXX	
IBM DB2 for OS/390 Version 5	5655-DB2	0	XXXXX	
QMF MVS Version 3	5706-254	0	XXXXX	
CICS TS for OS/390 V2	5697-E93	0	XXXXX	
CICS TS for OS/390	5655-147	300	XXXXX	

Product Summary Information

```
================================================================
PRODUCT SUMMARY INFORMATION
```

VWLC Product Name	VWLC Product I	Tool MSUs	Customer MSUs	Customer Comments
z/OS V1	5694-A01	332	XXXXX	
DB2 for MVS/ESA V4	5695-DB2	0	XXXXX	
DB2 UDB for OS/390 V7	5675-DB2	0	XXXXX	
DB2 UDB for OS/390 V6	5645-DB2	132	XXXXX	
IBM DB2 for OS/390 Version 5	5655-DB2	0	XXXXX	
QMF MVS Version 3	5706-254	0	XXXXX	
CICS TS for OS/390 V2	5697-E93	0	XXXXX	
CICS TS for OS/390	5655-147	132	100	relocated CICS
CICS/ESA V4	5655-018	0	XXXXX	
MQSeries MVS/ESA	5695-137	0	XXXXX	
MQSeries for OS/390	5655-F10	0	XXXXX	
MQSERIES FOR OS/390 V.2.1	5655-A95	200	XXXXX	
IMS V7	5655-B01	0	XXXXX	
IMS/ESA V6	5655-158	200	XXXXX	
IMS/ESA V5	5695-176	0	XXXXX	
Netview Perf Mon	5655-043	N/A	XXXXX	
Tivoli NetView	5697-B82	N/A	XXXXX	
OPC	5697-OPC	N/A	XXXXX	
Lotus Domino for S/390	5655-B86	N/A	XXXXX	
System Automation for OS/390	5645-005	N/A	XXXXX	
System Automation OS/390 V2	5645-006	N/A	XXXXX	
COBOL for OS/390 & VM V2	5648-A25	N/A	XXXXX	
VA PL/I for OS/390	5655-B22	N/A	XXXXX	
IBM Enterprise PL/I for z/OS and OS/390	5655-G31	N/A	100	From LPAR A
IBM Enterprise Cobol for z/OS and OS/390	5655-G53	N/A	32	From LPAR B

N/A for no SMF 89s

Customer Verification Sections

```
================================================================
DETAIL DATA SECTIONS - FOR CUSTOMER ANALYSIS PURPOSES ONLY
================================================================
DETAIL LPAR DATA SECTION (Only Intervals with Changes Are Shown)
```

Interval	LPAR A	LPAR B	LPAR C	
02 Sept 2001 - 00:00	75	32	175	
10 Sept 2001 - 00:00	100	32	175	
15 Sept 2001 - 00:00	100	32	200	
01 Oct 2001 - 23:45				
MAX ==>>	332			
MAX Interval ==>	15 Sept 2001 - 00:00			

```
================================================================
PRODUCT SUMMARY DRILL DOWN
```

VWLC Product Name	VWLC Product	HIGHEST	DATE/TIME	2nd HIGHEST	DATE/TIME
z/OS V1	5694-A01	332	15 Sept 2001 - 00:00	307	10 Sept 2001 - 00:00
DB2 for MVS/ESA V4	5695-DB2	0		0	
DB2 UDB for OS/390 V7	5675-DB2	0		0	
DB2 UDB for OS/390 V6	5645-DB2	132	10 Sept 2001 - 00:00	107	02 Sept 2001 - 00:00
IBM DB2 for OS/390 Version 5	5655-DB2	0		0	
QMF MVS Version 3	5706-254	0		0	
CICS TS for OS/390 V2	5697-E93	0		0	
CICS TS for OS/390	5655-147	132	12 Sept 2001 - 00:00	100	12 Sept 2001 - 00:00
CICS/ESA V4	5655-018	0		0	
MQSeries MVS/ESA	5695-137	0		0	
MQSeries for OS/390	5655-F10	0		0	
MQSERIES FOR OS/390 V.2.1	5655-A95	200	15 Sept 2001 - 00:00	175	02 Sept 2001 - 00:00
IMS V7	5655-B01	0		0	
IMS/ESA V6	5655-158	200	15 Sept 2001 - 00:00	175	02 Sept 2001 - 00:00
IMS/ESA V5	5695-176	0		0	

z900 Sub-capacity Pricing and VM

z900 - 325 MSUs

LPAR A **100 MSUs**	LPAR B 50 MSUs	LPAR C 150 MSUs			LPAR D linux
SYS1 CICS DB2	SYSA DB2 z/OS	SYSB IMS z/OS	SYSC IMS z/OS	linux	linux
z/OS	z/VM	z/VM			

Using the MSU values calculated by the SCRT, the following licenses are required:

```
z/OS    LPAR A (100) + LPAR B (50) + LPAR C (150) = 300 MSUs
CICS    LPAR A (100) = 100 MSUs
DB2     LPAR A (100) + LPAR B (50) = 150 MSUs
IMS     LPAR C (150) = 150 MSUs
z/VM    Flat, regardless of placement on z900 (not covered by SCRT)
```

SCRT Summary - z/VM

LPAR A

==							
PRODUCT SUMMARY INFORMATION							
VWLC Product Name	VWLC Product ID	Tool MSUs	Customer MSUs	Customer Comments	*SYSA	*SYSB	*SYSC
z/OS V1	5694-A01	100	XXXXX		50	150	150
DB2 for MVS/ESA V4	5695-DB2	0	XXXXX				
DB2 UDB for OS/390 V7	5675-DB2	0	XXXXX				
DB2 UDB for OS/390 V6	5645-DB2	100	XXXXX		50		
IBM DB2 for OS/390 Version 5	5655-DB2	0	XXXXX				
QMF MVS Version 3	5706-254	0	XXXXX				
CICS TS for OS/390 V2	5697-E93	0	XXXXX				
CICS TS for OS/390	5655-147	100	XXXXX				
CICS/ESA V4	5655-018	0	XXXXX				
MQSeries MVS/ESA	5695-137	0	XXXXX				
MQSeries for OS/390	5655-F10	0	XXXXX				
MQSERIES FOR OS/390 V.2.1	5655-A95	0	XXXXX				
IMS V7	5655-B01	0	XXXXX			150	150
IMS/ESA V6	5655-158	0	XXXXX				
IMS/ESA V5	5695-176	0	XXXXX				

VM guests *SYSA, *SYSB, and *SYSC

Customer Updated Report Manually

Updates

PRODUCT SUMMARY INFORMATION								
VVLC Product Name	VVLC Product ID	Tool MSUs	Customer MSUs	Customer Comments		*SYSA	*SYSB	*SYSC
z/OS V1	5694-A01	100	300	added VM guests		50	150	150
DB2 for MVS/ESA V4	5695-DB2	0						
DB2 UDB for OS/390 V7	5675-DB2	0						
DB2 UDB for OS/390 V6	5645-DB2	100	150	added VM guests		50		
IBM DB2 for OS/390 Version 5	5655-DB2	0						
QMF MVS Version 3	5706-254	0						
CICS TS for OS/390 V2	5697-E93	0						
CICS TS for OS/390	5655-147	100						
CICS/ESA V4	5655-018	0						
MQSeries MVS/ESA	5695-137	0						
MQSeries for OS/390	5655-F10	0						
MQSERIES FOR OS/390 V.2.1	5655-A95	0						
IMS V7	5655-B01	0	150	added VM guests			150	150
IMS/ESA V6	5655-158	0						
IMS/ESA V5	5695-176	0						

Monthly Charges

Charges For the Next Month Are Based on the Highest MSU Value In the Reporting Period

Product Defined Capacity

75 MSUs   100 MSUs   75 MSUs

Product Charges

100 MSUs

75 MSUs   75 MSUs

Feb   March   April   May   June   July
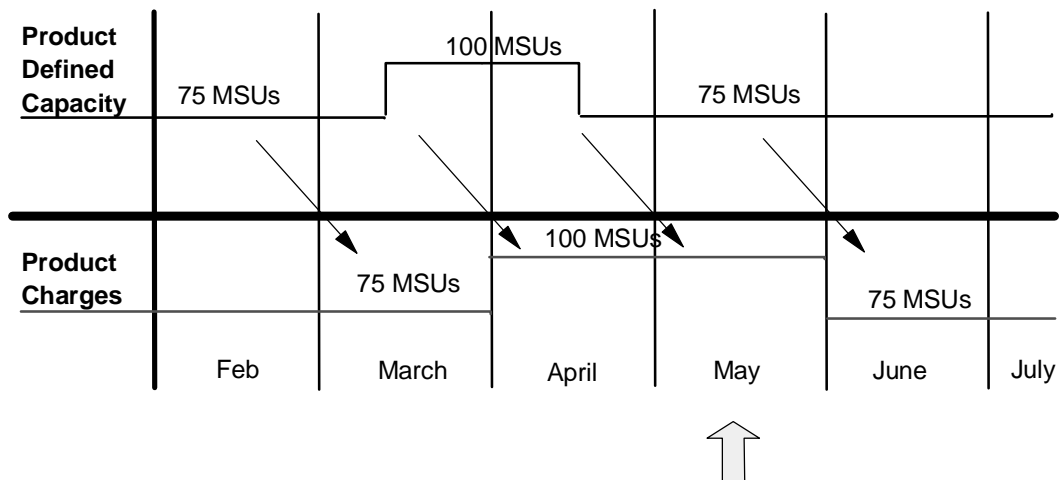
Timing for WLC Sub-Capacity Pricing

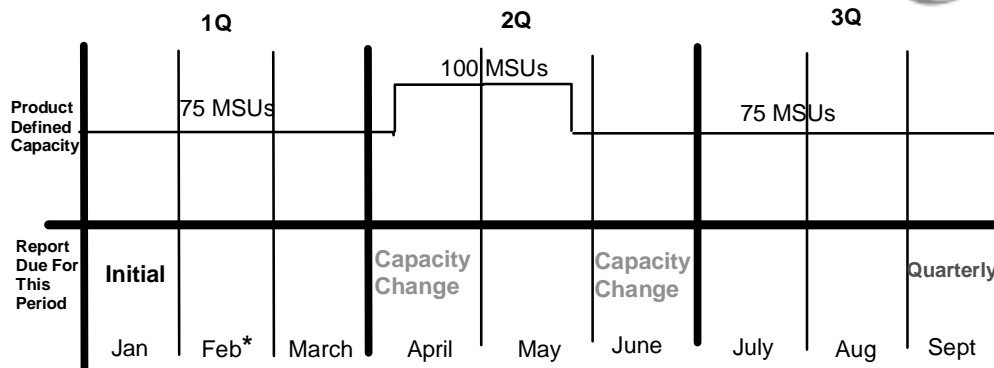| Sub-Capacity Pricing Starts SCRT Available	Start Data Collection	End Data Collection	Run Tool, Send Data to IBM
Sept 30	Oct 2	Nov 1	Nov 2-9
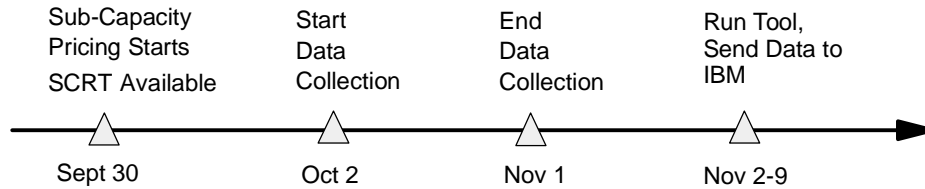
Sub-Capacity Prices Used *
November 1 if Monthly Charge or
Next Transition Program Calculation or
Next Software Contract Calculation

* If data is sent between November 2 & 9

Sending Reports to IBM

	1Q			2Q			3Q		

Product Defined Capacity: 75 MSUs — 100 MSUs — 75 MSUs

Report Due For This Period:

Initial — Capacity Change — Capacity Change — Quarterly

Jan | Feb* | March | April | May | June | July | Aug | Sept

Rules:

To start: send an initial report

Changes: send a report when the peak MSU number changes (product defined capacity change)

No changes: send a report for the third reporting period in a calendar quarter if a report has not been sent for the first two reporting periods

* First month of sub-capacity charges

SCRT Report Checklist

- Was the report generated using the most current level of the SCRT?

- Was the report generated using the minimum set of SMF data as input?

- Did you supply the required information not generated by the tool?

- Have you reviewed all PDCs generated by the SCRT, and provided alternate values where appropriate?

SCRT Report Checklist *(continued)*

- Have you provided PDCs for any VWLC products that do not generate SMF type 89 records?

- Are you licensed for all the products for which a PDC is specified on this report?

- Have you already submitted a report for this reporting period?

- Have any conditions been detected by the SCRT that would indicate this machine is not eligible for sub-capacity charges?

AD and DM Tool
Sub-Capacity Process

⚠ Customer must qualify for WLC sub-capacity

➢ z900, z/OS (no other MVS-based operating systems), signs
WLC attachment, collects SMF data and runs Sub-Capacity
Report

⚠ Customer submits tool order

➢ Determine the MSUs needed for each machine on which the
tool will run

- Full capacity: non-z900 machines, z900 machines with
multiple MVS-based operating systems, z900 machines
with only z/OS that do not qualify for sub-capacity

- Sub-capacity: z900 machines with z/OS that do qualify for
sub-capacity - use the z/OS product defined capacity

AD and DM Tool
Sub-Capacity Process

⚠ IBM converts the ordered MSUs to Value Units

⚠ Each month the customer may check the z/OS
product defined capacity, using the SCRT
report, for machines where the tool is priced at
sub-capacity

➢ z/OS capacity increase - check entitlement, order more
MSUs if necessary

➢ z/OS capacity decrease - use extra entitlement elsewhere

AD and DM Tool
Sub-Capacity Process

⚠ Customer checks tool licenses on other machines, and orders additional capacity if necessary

⚠ Orders are aggregated with previous entitlement, for pricing for the IPLA product

Overview: S/390 IPLA Charges

License:	Subscription and Support:
⚠ Provides Right to Use the Product	⚠ Provides Future Releases and Versions, Level 1/2/3 Support
⚠ Products not Licensed to a Specific Machine	
⚠ Products can be Moved By Customer	⚠ Annual Recurring Charge, Automatically Renewed
⚠ One Time Charge	
⚠ Priced with Value Units, Based on MSUs	⚠ Priced with Value Units, Based on MSUs
⚠ Orders Aggregated	⚠ Orders Aggregated

	MSUs	Value Units/MSU
Base	1-3	1.0
Tier A	4-45	.45
Tier B	46-175	.36
Tier C	176-315	.27
Tier D	316+	.20

Order Example for IPLA Tools

60	60	27
CICS TS DB2	DB2 PM	
z/OS	z/OS	VM

2064-104   147 MSUs

25	75	100	83
	CICS TS DB2	DB2 PM	Linux
VM	z/OS	z/OS	

2064-109   283 MSUs

109
CICS TS DB2 DB2 PM
z/OS

9672-R66   109 MSUs

Machine	DB2 PM MSUs
2064-104	120
2064-109	175
9672-R66	109

Total Required Capacity: 404 MSUs

Sub-capacity Pricing

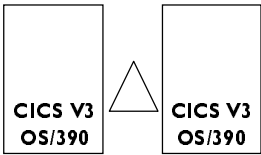# Workload License Charges
Financial Overview

z/OS WLC Pricing

Potential Financial Benefit

OS/390 PSLC   z/OS WLC

$K/Month

180
160
140
120
100
80
60
40
20
0

$800/MSU
$255/MSU
$191/MSU
$110/MSU
$145/MSU
$85/MSU

42% Savings   24% Savings   41% Savings

3   73   143   213   283   353   423   493   563   633   703   773

MSUs
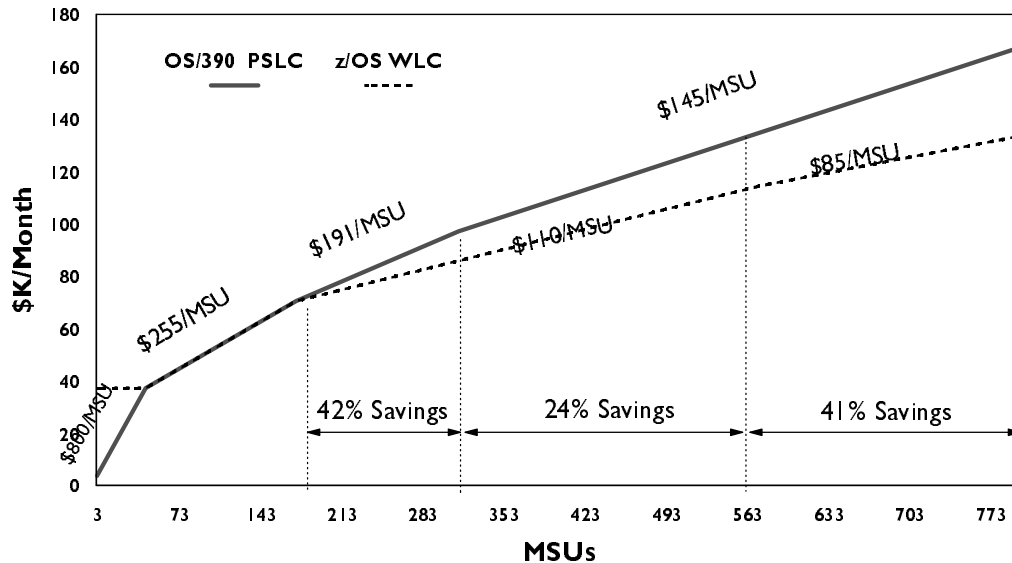
Flat WLC Pricing

Potential Financial Benefit

Starting Point:

9672-X67
148 MSUs

9672-X67
148 MSUs

CICS V3
OS/390

CICS V3
OS/390

PSLC Pricing:
CICS V3
296 MSUs
$27K/month

CICS V3	WLC *about 350 MSUs*	WLC Growth *about 450 MSUs*
Case One Consolidation	**One** 2064-111 350 MSUs $15K/month	**One** 2064-116 441 MSUs $15K/month
Case Two Vertical Growth	**Two** 2064-105s 346 MSUs $30K/month	**Two** 2064-107s 450 MSUs $30K/month
Case Three Horizontal Growth	**Three** 2064-103s 336 MSUs $45K/month	**Four** 2064-103s 448 MSUs $60K/month
	hypothetical PSLC $31K/month	hypothetical PSLC $37K/month

WLC Defined Capacity

Potential Financial Benefit

zSeries Model 108
245 MSUs

	LPAR 1 110 MSUs	LPAR 2 110 MSUs
		CICS TS
	DB2 V6	DB2 V6
	Operating System	Operating System

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

25 MSUs of White Space

	PSLC MSUs	PSLC Bill	WLC MSUs	WLC Bill
CICS	245	$28K	110	$20K
DB2 V6	245	$25K	220	$26K
OS	245	$82K	220	$75K
total		$135K		$121K
	OS/390 = PSLC		z/OS = WLC	

CICS 29% decrease based on Defined Capacity
DB2 .5% increase based on new VWLC price point
Operating System 9% decrease based on z/OS Price Point Decrease & Defined Capacity

---

Potential WLC Financial Benefits

Summary

z/OS Operating System Price Points

- Under WLC, z/OS is less expensive than OS/390 above 1000 MIPS

Flat Product Pricing

- Flat WLC Structure Allows Machine Growth without an increase in Software Costs
- Depending on Configuration, Machine Consolidation may potentially drive additional Flat WLC Savings
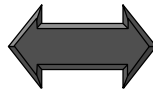
Defined Capacity

- Once you are running only z/OS on a zSeries machine with the IBM License Manager or the interim Sub Capacity Reporting Tool (subject to terms), you can take advantage of defined capacity pricing for Variable WLC products

Sub-capacity Pricing

Sub-Capacity End-to-End Details

Vendors, Transition Program, Price Assurance, Roadmap

Vendors Participate in WLC?

IBM Strategy
- Re-Engage in Tools Market by Developing Competitively priced Data Management and Application Development Tools
- Leverage and Utilize Open Standards in the Marketplace
- Provide technology to Vendors

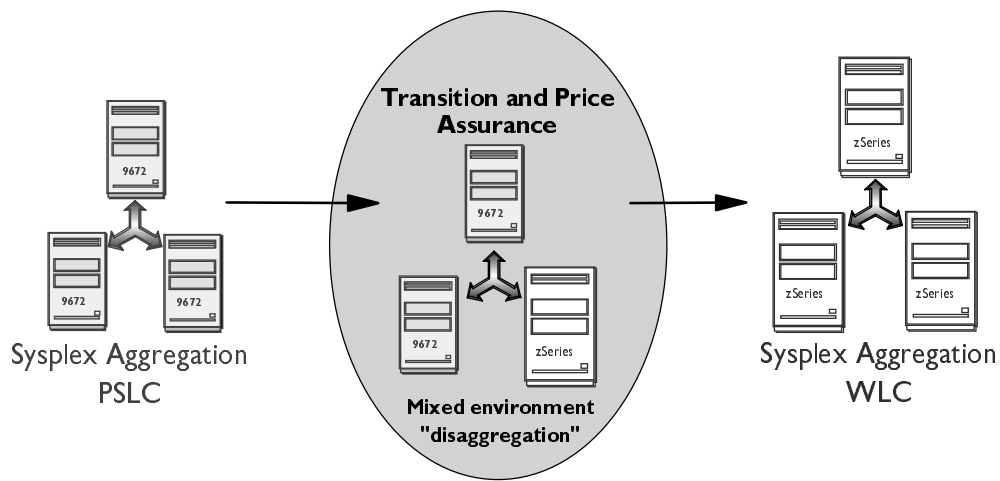## Technologies for Vendors
- **Both Phases:** Vendors May Utilize Virtual Server Callable Service (QVS)
- **Phase One:** Vendors May Leverage Sub-Capacity Report
- **Phase Two:** Vendors May Utilize License Manager (Open Standards)

ISVs with Announced Support for Sub-Capacity
- Allen Systems Group
- BMC Press Release
- Candle Press Release
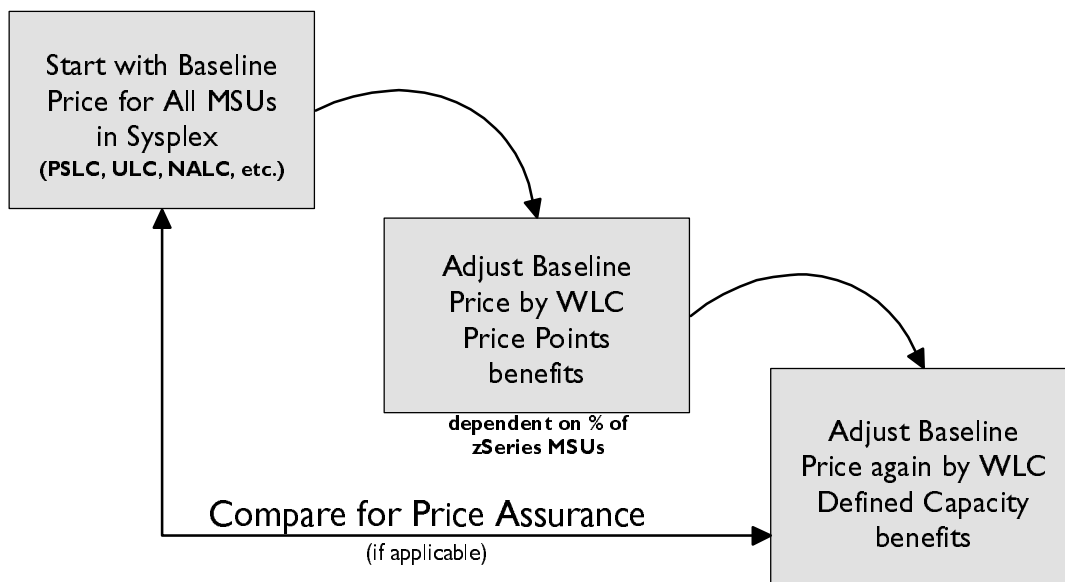- Isogon Press Release
- Compuware Press Release

Transition Program

Transition and Price
Assurance

9672

Mixed environment
"disaggregation"

9672

zSeries

zSeries

zSeries

zSeries

9672

9672

9672

Sysplex Aggregation
PSLC

Sysplex Aggregation
WLC

Transition Program/Price Assurance

One Transition Plan, One Price Assurance per Sysplex

Start with Baseline
Price for All MSUs
in Sysplex
(PSLC, ULC, NALC, etc.)

Adjust Baseline
Price by WLC
Price Points
benefits

dependent on % of
zSeries MSUs

Adjust Baseline
Price again by WLC
Defined Capacity
benefits

Compare for Price Assurance
(if applicable)

Price Assurance Example

Purpose: Ensure zSeries Customers Benefit From WLC
If Not, Customers Revert to Existing Pricing Models

2 x G6 Model ZZ7 1 x zSeries Model 105	z/OS and OS/390
Transition Program @ 749 MSUs (24% zSeries MSUs)	$500K
Existing Models @ 749 MSUs (PSLC, Usage, NALC) referred to as "Ceiling"	$475K
Price Assurance Applies?	YES

1 x G6 Model ZZ7 2 x zSeries Model 108	z/OS
Transition Program @ 803 MSUs (65% zSeries MSUs)	$600K
Existing Models @ 803 MSUs (PSLC, Usage, NALC) referred to as "Ceiling"	$675K
Price Assurance Applies?	NO

Qualification:

- ⚠ Implemented through Transition Program
- ⚠ zSeries standalone machine or sysplex (zSeries Model 102 or larger)
- ⚠ Lasts until earliest of:
  - ➤ End of Transition Program
  - ➤ December 31, 2003
  - ➤ WLC charges are equal to or lower than 'Ceiling' charges

---

Summary: Pricing Models Reviewed

	z/OS and Key Middleware	Legacy zSeries Products	Database Management and Application Development Tools
Structure	Variable WLC	Flat WLC	Value Unit
Billing	Monthly License Charge	Monthly License Charge	One Time Charge plus S&S
Licensing Capacity	based on LPAR configuration	price per Server	based on z/OS licensed capacity
Product Examples	z/OS, DB2, CICS, IMS, MQSeries	Older Middleware, Compilers and Tools plus VM & VSE	DB2 and IMS Tools, AD Tools

Where to Get More Information

WLC Web site
ibm.com/servers/eserver/zseries/wlc_lm

ILM Web site
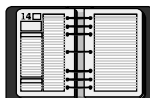**ibm.com**/servers/eserver/zseries/zos/ilm

z/OS Publications
ibm.com/servers/eserver/zseries/zos/bkserv/

ILM Forum
www.listserv.uga.edu/archives/ibmlm-l.html

Sub-capacity Pricing

Reference Materials

Variable WLC Products

z/OS V1

DB2 Database Server V4

DB2 Database Server V5

DB2 UDB for OS/390 V6

DB2 UDB for OS/390 V7

CICS V4

CICS Transaction Server V1

CICS Transaction Server V2

IMS V5

IMS V6

IMS V7

MQSeries V1 MVS/ESA

MQSeries for OS/390 V2.1

MQSeries for OS/390 V5R2

Cobol for OS/390 & VM V2

VA PL/I for OS/390 V2

QMF V3 MVS

TME 10 NetView for OS/390

TME 10 OPC V2

NetView PM V2 MVS

System Automation for MVS V1

System Automation for OS/390 V2

Domino V5 for S/390

**Sub-Capacity Workload License Charges apply to
Variable Workload License Charge Products.**

Value Unit Products

AD Tools
IBM Fault Analyzer
IBM File Manager
IBM Breeze for SCLM
IBM Cloud 9 for SCLM

DB2 Tools
IBM DB2 Administration
IBM DB2 Archive Log Compression Tool
IBM DB2 Automation Tool
IBM DB2 Bind Manager
IBM DB2 Change Accumulation Tool
IBM DB2 DataPropagator
IBM DB2 Diagnostic and Recovery Utilities
IBM DB2 Forms
IBM DB2 High Performance Unload
IBM DB2 Log Analysis Tool
IBM DB2 Object Comparison Tool
IBM DB2 Object Restore Tool
IBM DB2 Operational Utilities
IBM DB2 Path Checker
IBM DB2 Performance Monitor
IBM DB2 Query Monitor
IBM DB2 Recovery Manager
IBM DB2 Row Archive Manager
IBM DB2 SQL Performance Analyzer
IBM DB2 Table Editor
IBM DB2 Utilities Suite
IBM DB2 Web Query Tool

IMS Tools
IMS Library Management Utilities
IMS Advanced ACBGEN
IMS Image Copy Extensions
IMS Sequential Randomizer Generator
IMS High Performance Unload
IMS High Performance Load
IMS High Performance Prefix Resolution
IMS High Performance Pointer Checker
IMS Data Base Repair
IMS HD Compression-Extended
IMS ETO Support
IMS Program Restart Facility
IMS Performance Analyzer
IMS Recovery Saver
IMS Index Builder
IMS Connect
IMS Queue Control Facility
IMS Fast Path Basic Tools
IMS Fast Path Online Tools
IMS Data Base Integrity Control Facility
IMS High Performance Sysgen
IMS Command Control Facility
IMS MFS Reversal Utilities

Flat Workload License Charge Products

5655-007 - NETVIEW V3R1
5688-197 - AD/C COBOL/370 V1
5668-958 - VS COBOL II V1
5685-111 - NETVIEW V2 MVS/ESA-CS
5685-083 - CICS V3 MVS/ESA
5695-007 - OPC/A MVS/ESA V1
5685-DB2 - DB2 V3
5685-016 - NETVIEW DM V1 MVS/XA
5688-235 - AD/C PL/I MVS/VM V1
5685-093 - IMS/VS DB TOOLS V2
5688-218 - CSP/370 AD V4
5665-366 - SDF/II
5648-092 - APPLICATION SYSTEM V
5685-108 - NETVIEW FTP V2 MVS
5668-806 - FORTRAN/390
5695-171 - INFO V6 MVS
5655-103 - DITTO/ESA FOR MVS V1
5688-008 - ESCON
5668-910 - OS PL/1 V2R1 COMP.&L
5668-909 - OS PL/I V2

5688-121 - TPNS V3
5695-013 - IBM COMPILER FOR REXX
5655-002 - ASF V3 FOR MVS
5695-101 - E.P.D.M.
5695-014 - IBM LIBRARY FOR REXX
5655-A17 - IBM SMARTBATCH FOR OS/390
5688-228 - APL2 MVS/VM V2
5688-216 - C/370 AD/C COMP.
5688-188 - C/370 LIBR.
5685-106 - OV/MVS V1
5695-010 - CICS VSAM RECOVERY /ESA V2
5688-206 - CSP/370RS V4
5648-142 - INFO V7 MVS
5685-013 - IMS/ESA TM V4
5688-087 - VS FORTRAN COMP & LIBR
5655-102 - DB2 PM V4
5695-041 - FAF V2
5665-290 - DISOSS V3 MVS
5685-151 - AOC V1 V1
5695-042 - IODM/2 V2
5648-A12 - IXFP SNAPSHOT
5655-A23 - DPROPR Capture for MVS V5.1
5685-101 - DW/370 MVS CICS V2
5695-081 - CICSPLEX SM/ESA V1
5688-132 - COMM SUBSYS FOR INTER

Web Sites

WLC Web site
- http://www.ibm.com/zseries/wlc_lm

Database Tools Web site
- http://www.ibm.com/software/data/db2imstools

Application Development Tools Web site
- http://www.ibm.com/zseries/zos/pdpak/

IBM License Manager Web site
- http://www.ibm.com/zseries/zos/ilm

z/OS Publications
- http://www.ibm.com/servers/eserver/zseries/zos/bkserv/
- "Planning for Workload License Charges" - revision available now

WLC Sales Information
- http://w3.ibm.com/sales/systems/ibmsm.nsf/docnames/s3skwlc

Implementation of Sub-Capacity

	Phase One **Interim Sub-Capacity Reporting Process**	Phase Two **IBM License Manager**
Leveraging zSeries Sub-Capacity Technology	Defined Capacity Rolling 4-Hour Average Softcapping	Defined Capacity Rolling 4-Hour Average Softcapping
Submitting Sub-Capacity Data to IBM	Sub-Capacity Reporting Tool	IBM License Manager Reconciliation Process
Enforcing/Managing Software Terms and Conditions	Limited, based on reported data (IBM may audit)	IBM License Manager License Server & Agents

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Sub-Capacity Example

Sub-Capacity Available only on z900 Servers Running zIOS
✓ Where **MVS or OS/390 are Not Running**
✓ However, **z/VM, VM, VSE, Linux, TPF permitted**

zSeries Model 114 rated @ 410 MSUs

LPAR 1 200 MSUs	**LPAR 2** 80 MSUs	**LPAR 3** 50 MSUs	**LPAR 4**
File Manager DB2 V6 z/OS V1	File Manager IMS V6 z/OS V1	IMS V6 z/OS V1	Linux

Variable WLC: z/OS - 330 MSUs DB2 - 200 MSUs IMS - 130 MSUs	*Sub-Capacity Tools:* File Manager - 330 MSUs	**Key Advantage:** Grow Hardware and Software Independently

* Customer Must Provide Required Data for Sub-Capacity Eligibility