

# VSEnSCRT and Something More

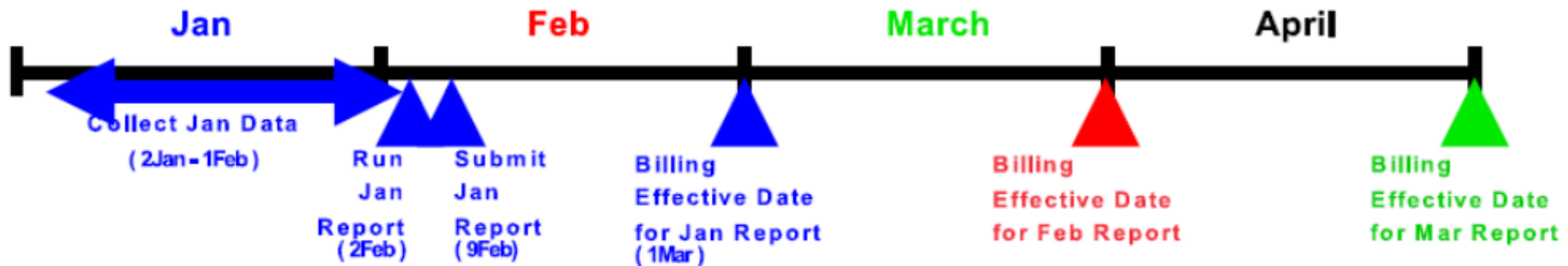
Devin Ayres  
VSEn Support Engineer

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Pricing Terms & Conditions



- Process
  - Pricing is full capacity or sub-capacity
  - Sub-Cap Pricing begins after processing of 1st full month report
  - Data Collection Period: 2nd of the previous month - 1st of current month
  - Submission Period: 2nd - 9th following data collection
- Sub-Capacity Pricing Terms & Conditions
  - Must report on all LPARS and z/VM guests (No exceptions for "Test", "Sandbox", "Maintenance" LPARs, etc.)
  - Minimum of 95% Data Collection
  - Must have VSAM input files
  - Must retain SMF data for at least 6 months



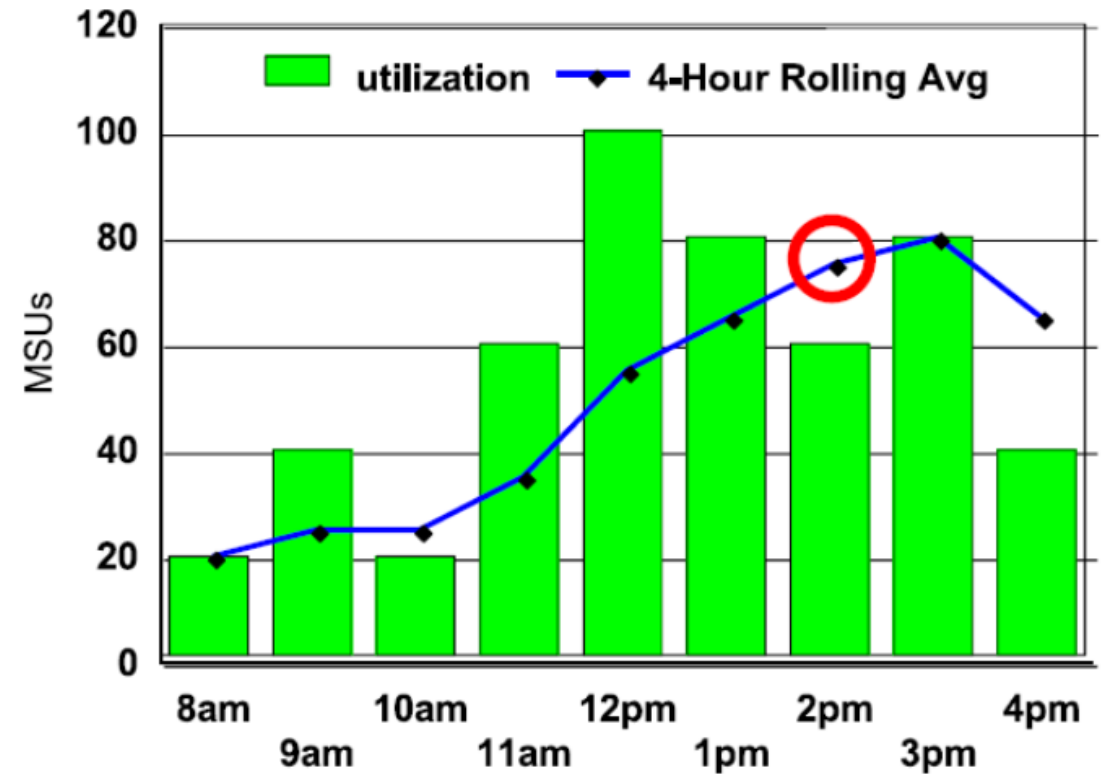
# VSEn Sub-Capacity Pricing and Reporting

## SubCap Concept: Rolling 4-Hour Average Utilization

- Captures the rolling 4-hour average LPAR utilization for each interval in the month
- Capacity and utilization is measured in Millions of Service Units (MSU) per hour

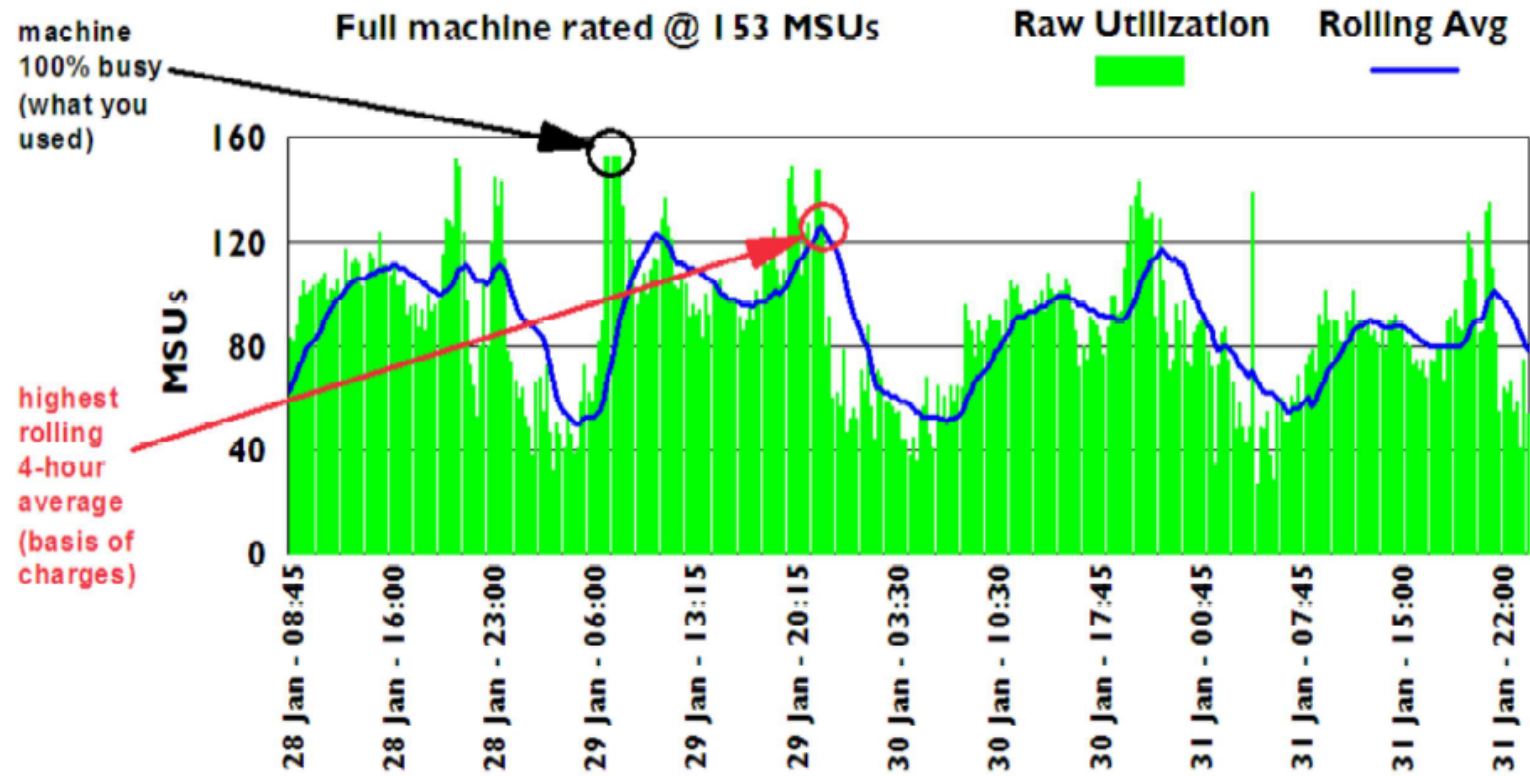
### Rolling 4-Hour Average

11 am (8,9,10,11): 35 MSUs  
12 pm (9,10,11,12): 55 MSUs  
1 pm (10,11,12,1): 65 MSUs  
**2 pm (11,12,1,2): 75 MSUs**  
3 pm (12, 1, 2, 3): 80 MSUs  
4 pm (1, 2, 3, 4): 65 MSUs



# VSEn Sub-Capacity Pricing and Reporting

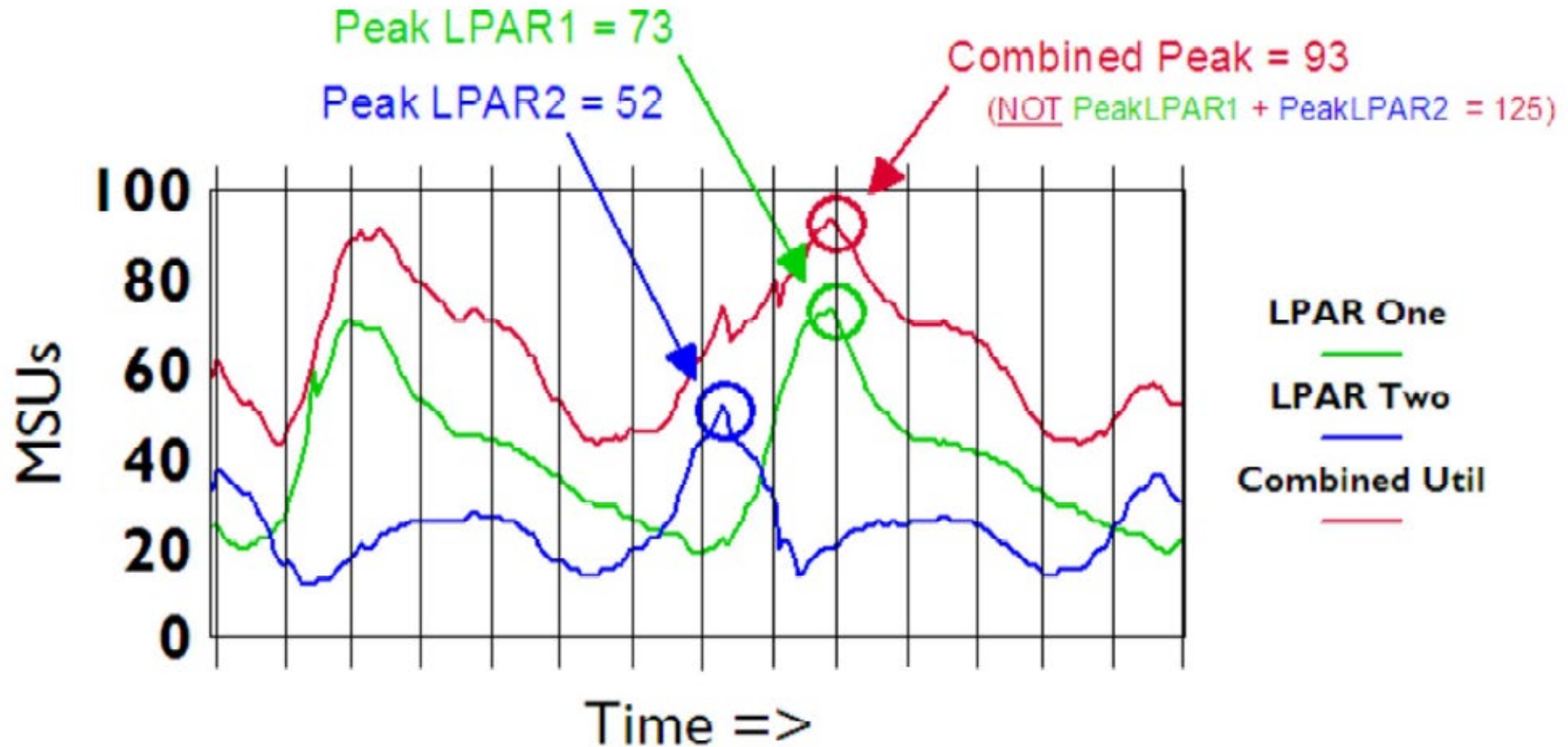
## Example: Rolling 4-Hour Average



- Rolling 4-Hour Average Utilization Smooths Out Peaks in Raw Utilization
- Allows for Varied Peaks, Bases Software Charges on More Moderate Measure

# VSEn Sub-Capacity Pricing and Reporting

SubCap Concept: Simultaneous Combined Rolling 4-Hour Average



# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Overview

### 100 MSU Rated Capacity

| <u>LPAR 1</u>               | <u>LPAR 2</u>               | <u>LPAR 3</u>                 |
|-----------------------------|-----------------------------|-------------------------------|
| IPv6<br>OLTP<br>DB2<br>VSEn | PL/I<br>DB2<br>DL/I<br>VSEn | COBOL<br>OLTP<br>DL/I<br>VSEn |

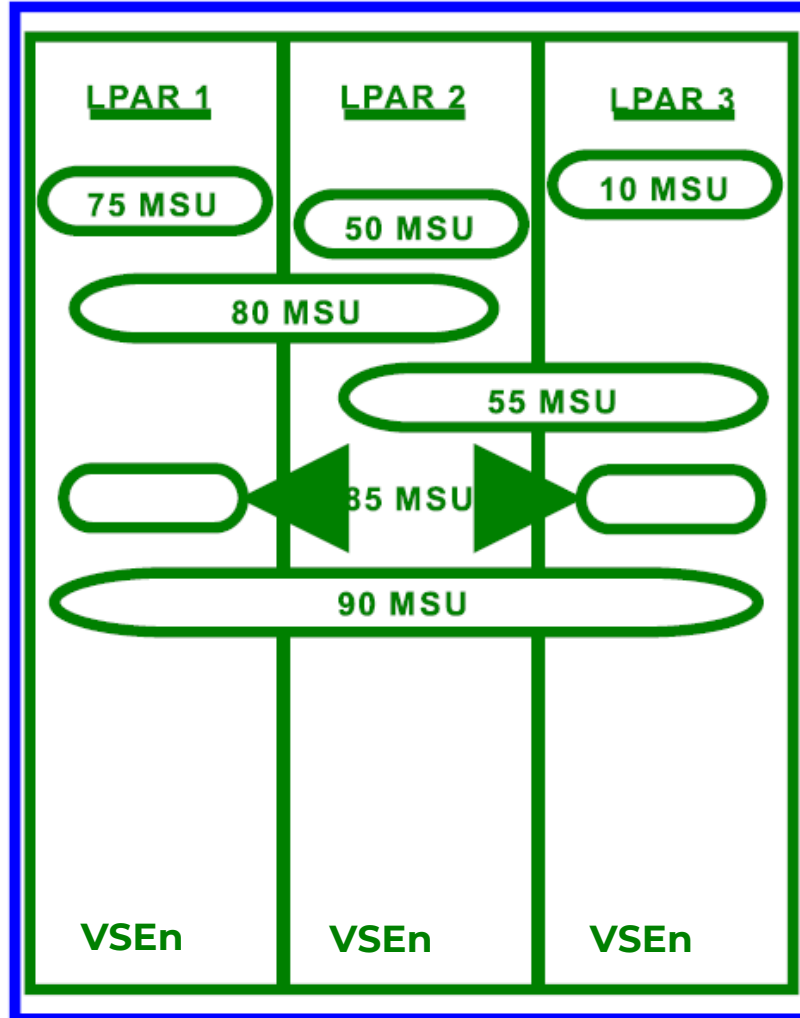
#### ■ Full Capacity Pricing

- Charges based on Machine Capacity of machines where product runs
- Each SW product on the machine is charged 100 MSUs

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Overview

100 MSU Rated Capacity



### ■ Full Capacity Pricing

- Charges based on Machine Capacity of machines where product runs

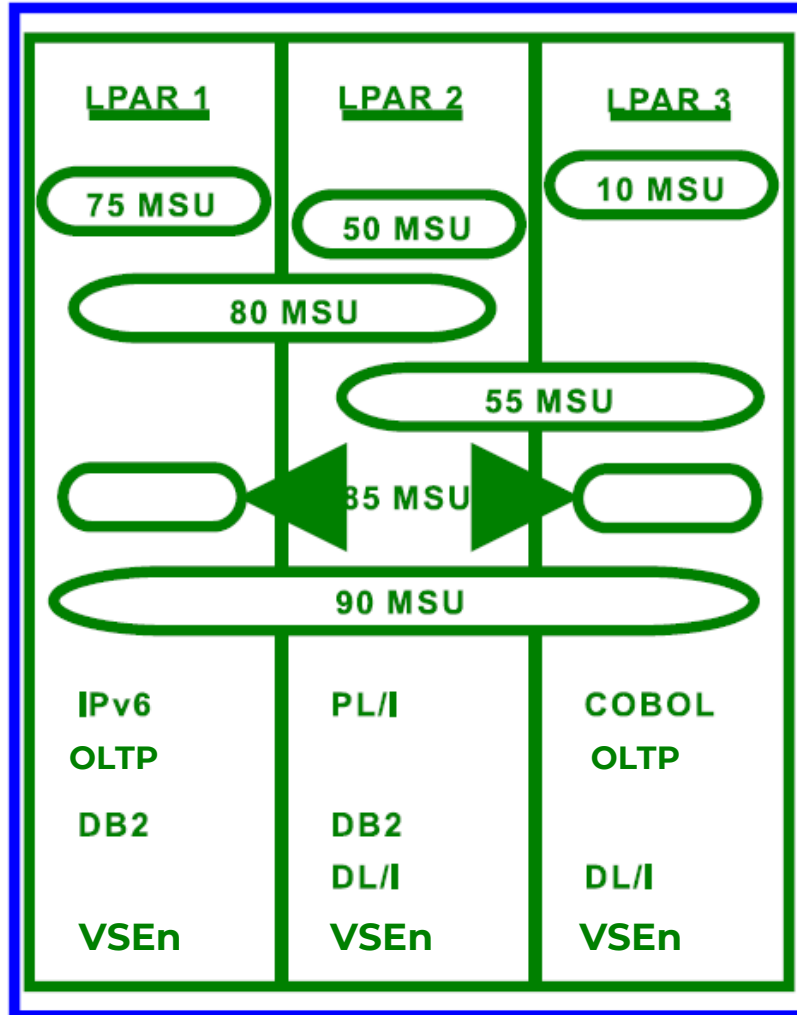
### ■ Sub-Capacity Pricing

- Charges based on Hardware Utilization of LPARs where product runs
- Hourly intervals measured
- Rolling 4-Hour Average calculated for each combination of LPARs
- Charges based on Monthly Peak R4HA of appropriate LPAR combination

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Overview

### 100 MSU Rated Capacity



#### Full Capacity Pricing

- Charges based on Machine Capacity of machines where product runs

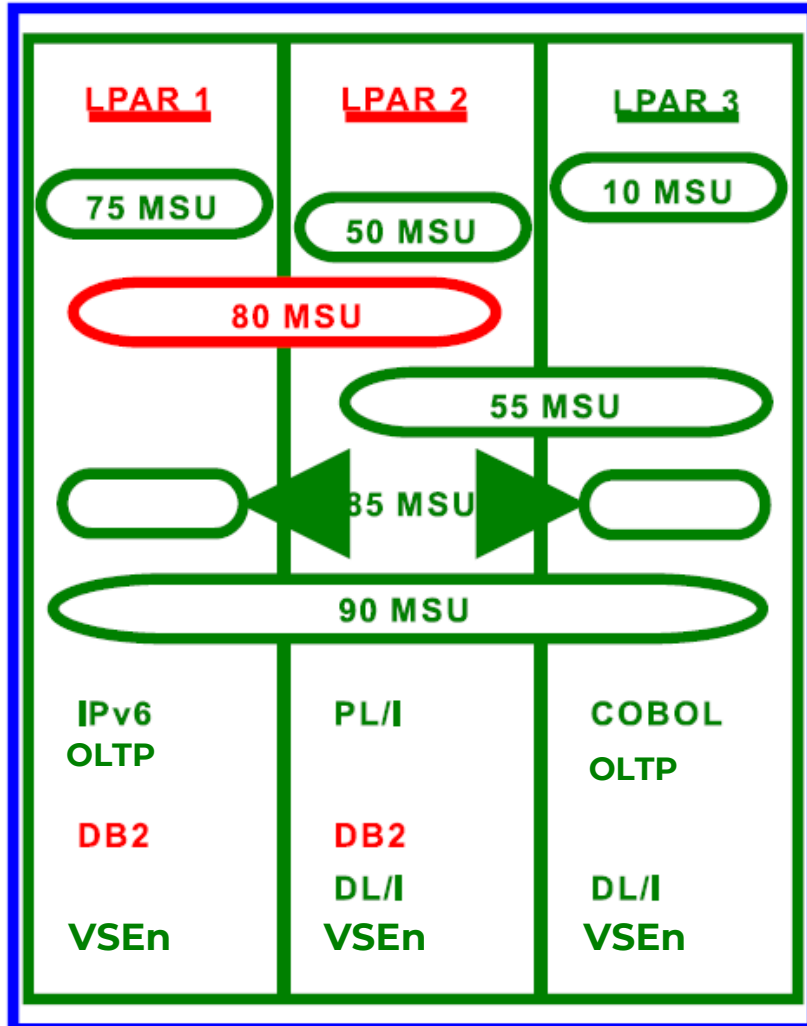
#### Sub-Capacity Pricing

- Charges based on Hardware Utilization of LPARs where product runs
- Hourly intervals measured
- Rolling 4-Hour Average calculated for each combination of LPARs
- Charges based on Monthly Peak R4HA of appropriate LPAR combination
- Not based on individual Product measurement

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Overview

100 MSU Rated Capacity



### Full Capacity Pricing

- Charges based on Machine Capacity of machines where product runs

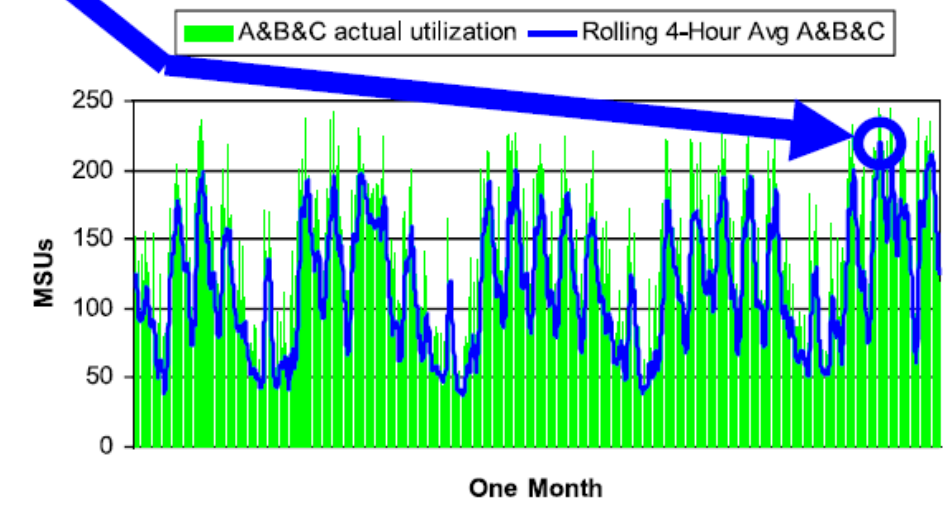
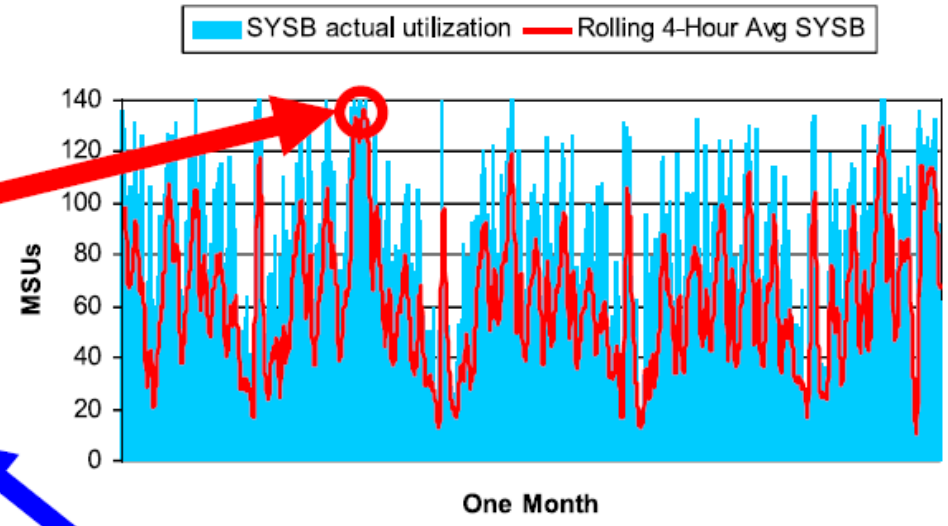
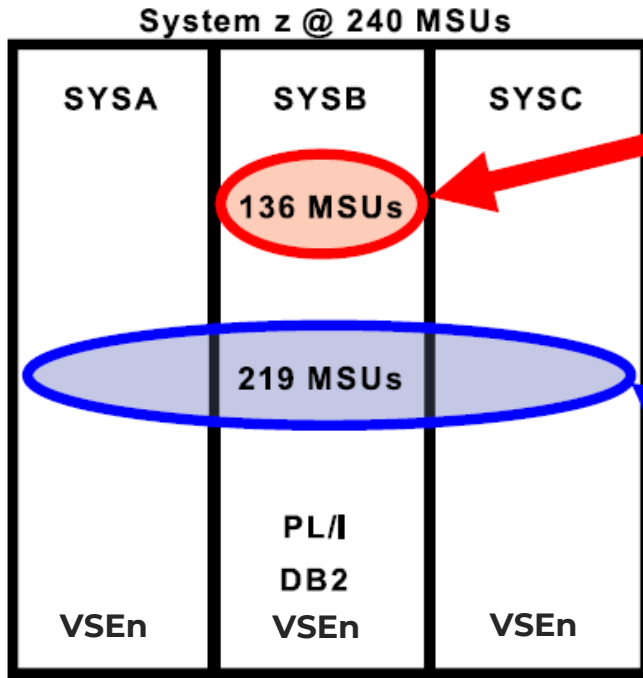
### Sub-Capacity Pricing

- Charges based on Hardware Utilization of LPARs where product runs
- Hourly intervals measured
- Rolling 4-Hour Average calculated for each combination of LPARs
- Charges based on Monthly Peak R4HA of appropriate LPAR combination
- Not based on individual Product measurement

*e.g. DB2 is charged 80 MSUs because LPARs 1&2 had a peak R4HA utilization of 80 MSUs and DB2 ran in LPARs 1&2, **not** because DB2 "used" 80 MSUs*

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Example



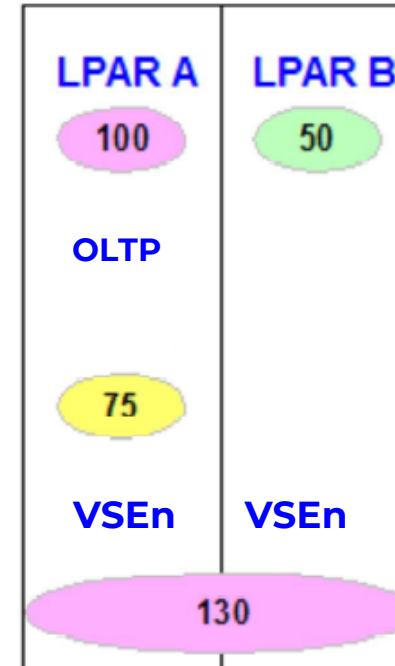
SCRT  
Report:

| Product | Sub-Cap MSUs |
|---------|--------------|
| PL/I    | 136 MSUs     |
| DB2     | 136 MSUs     |
| VSEn    | 219 MSUs     |

# VSEn Sub-Capacity Pricing and Reporting

## SCRT Algorithm

|                       |            |     |            |     |            |     |     |            |     |            |     |
|-----------------------|------------|-----|------------|-----|------------|-----|-----|------------|-----|------------|-----|
| Hour                  | 1          | 1   | 2          | 2   | 3          | 3   | ... | 719        | 719 | 720        | 720 |
| LPAR                  | A          | B   | A          | B   | A          | B   |     | A          | B   | A          | B   |
| r4hr avg <sup>x</sup> | 70         | 30  | 75         | 30  | 50         | 50  |     | 100        | 30  | 100        | 10  |
| r4hr A/B              | 100        |     | 105        |     | 100        |     |     | 130        |     | 110        |     |
| VSEn                  | yes<br>100 | yes | yes<br>105 | yes | yes<br>100 | yes |     | yes<br>130 | yes | yes<br>110 | yes |
| OLTP                  | yes<br>70  |     | yes<br>75  |     | yes<br>50  |     |     |            |     |            |     |

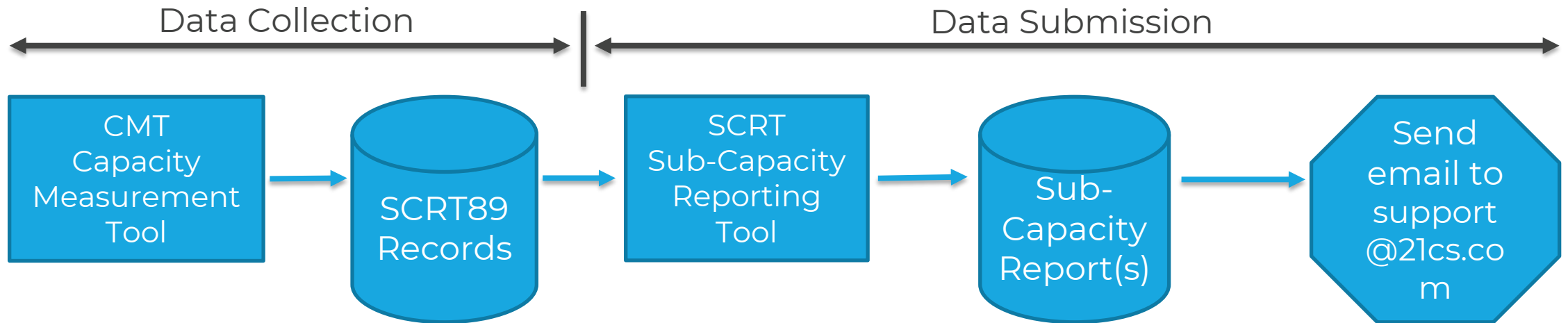


\* Respective r4ha for each LPAR

- **True:** Peak interval for A&B where VSEn ran = hour 719, so VSEn is 130
- **False:** VSEn runs in LPAR A and B, add A (100) + B (50), so VSEn is 150
- **True:** Peak interval for A where OLTP ran = hour 2, so OLTP is 75
- **False:** OLTP Runs in LPAR A, LPAR A peaks at 100, so OLTP is 100

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Measurement and Reporting on VSEn

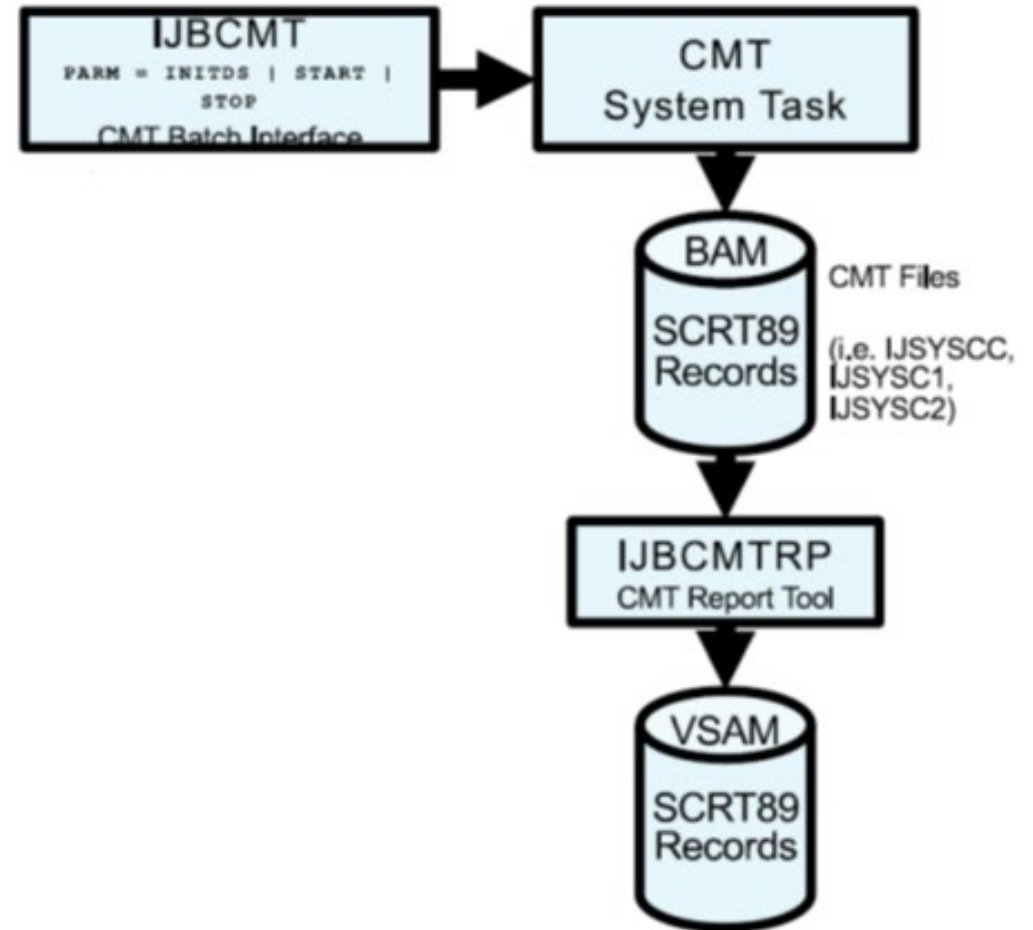


In case of a problem, send email to [support@21cs.com](mailto:support@21cs.com)

# VSEn Sub-Capacity Pricing and Reporting

## VSEn Capacity Measurement Tool (CMT)

- CMT System Task
  - Measures used CPU capacity
  - Generates an SCRT89 record every measurement interval (30 minutes)
  - Writes the record to the CMT files (wrap-around)
- CMT Batch Interface (IJBCTM)
  - Initialize CMT files (INITDS, only done once)
  - Start measurement and specify CMT ID (START,ID= ... )
  - Stop measurement (STOP)
- SIR AR Command
  - Query CMT status: 'CAPACITY MEASUREMENT ACTIVE'
- CMT Report Tool (IJBCTMRP)
  - Extracts SCRT89 records for a specified reporting period from the CMT BAM files into a VSAM ESDS file
- Setup using skeletons in ICCF library 59: SKCMT, SKCMTINI, SKCMTREP (Manual: *Using the Sub-Capacity Reporting Tool ("SCRT User's Guide")*)



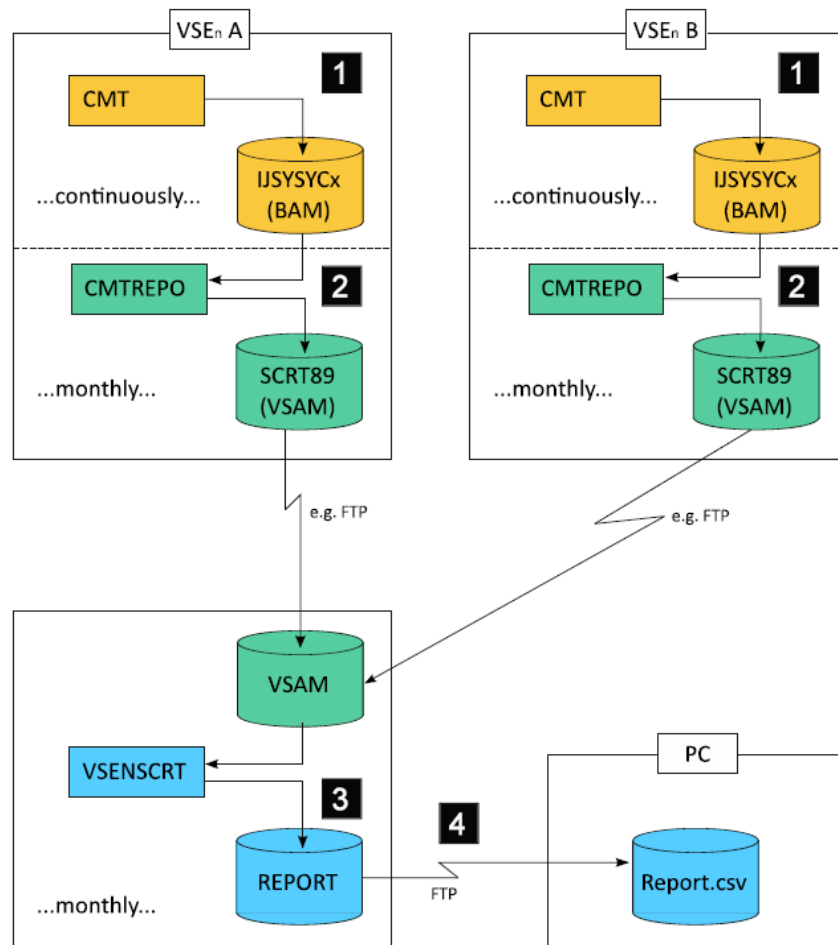
# VSEn Sub-Capacity Pricing and Reporting Skeletons



- SKCMT - Prepares and activates CMT
- SKCMTAWS - Copies records of data written by CMT to a VTAPE
- SKCMTINI - Initializes the files used by CMT
- SKCMTOUT - Defines the ESDS cluster into the CMT for writing SCRT89 data
- SKCMTREP - Extracts records of data written by CMT into CMTREPO file
- SKSCRT - Creates the SCRT report from the data by CMT to a CSV file
- SKSCRTDS - Defines the ESDS cluster for CSV output
- SKUSERBG - Skeleton used to automatically start CMT during IPL

# VSEn Sub-Capacity Pricing and Reporting

## Sub-Capacity Reporting Tool (SCRT)



- Sub-Capacity Reporting Tool (SCRT)
  - Processes SCRT89 records from multiple systems (and optional from multiple machines) together
  - Generates a Sub-Capacity Report ("SCRT report") for each machine
- The SCRT report is in Comma Separated Values (CSV) format
  - Can be viewed and edited using spreadsheet applications(e.g. MS Excel, OO.org Calc)
- Submission process to 21CS License Management:
  - Download report to workstation for review and editing
  - Send by email to [support@21cs.com](mailto:support@21cs.com)

# VSEn Sub-Capacity Pricing and Reporting

## Types of Products



- SCRT89-Products: Monitored by CMT
  - SCRT89 record contains information if product was active during the measurement interval
    - VSEn Base (2121-VN6)
    - OLTP for VSEn (2121-VO2)
    - VCDD for VSEn (2121-VV4)
- N089-Products: Not monitored by CMT
  - Customer provides list of LPARs and VM guests where the products were active in SCRT JCL NO 89 section
    - SDB Server for VSEn (2121-VS7)
    - SDB Client for VSEn (2121-VC7)
    - HDB for VSEn (2121-HD1)
    - High Level Assembler for VSEn (2121-VA1)
    - C for VSEn (2121-CV1)
    - COBOL for VSEn (2121-CO1)
    - PL/I for VSEn (2121-PL1)
    - TCP/IP for VSEn (2121-TC2)
    - IPv6/VSE (2121-TB1)
    - GPSP-IVU (2121-GV1)
    - GPSP-IMD (2121-GM2)
    - GPSP-PGF (2121-GG2)
    - AUDT for VSEn (2121-AU1)
    - SCRDEF for VSEn (2121-SD1)
    - SMCART for VSEn (2121-SM3)
    - RPG II for VSEn (2121-VR1)
    - Table Change Replication Facility or TCRF for VSEn (2121-VT7)
    - Debug Tool VSEn (2121-DT1)
    - HLASM Toolkit for VSEn (2121-HT1)

# VSEn Sub-Capacity Pricing and Reporting

## Hints & Tips



- CMT BAM files (IJSYSCC, IJSYSC1, IJSYSC2):
  - Must not be shared among multiple systems (for write)
    - each system requires its own set of files
  - Can reside on a shared disk as long as disk sharing is set up correctly:
    - IPL DLF statement (one single shared lock file)
    - IPL ADD statement with option SHR (for each shared disk) Must not be relocated (neither moved on the disk nor to another disk) It is recommended to stick to the default configuration values (e.g. number of tracks or blocks specified for ECKD and FBA disks)
- CMT ID (=SYSID in z/OS) must be unique among all systems and across all operating systems:
  - If every machine (=CPC) is processed on its own SCRT run, then the IDs must only be unique for each machine (this is the preferred solution)
  - If multiple machines (=CPCs) are to be processed in one SCRT run, then the IDs must be unique among all machines being processed together
- SCRT User's Guide:
  - Send email to [support@21cs.com](mailto:support@21cs.com)

Demo:

[21CS VSEnSCRT Tool Demo \(Something More\)](#)

# Thank You