

Mobile Workload Pricing

Tagging and tracking mobile-initiated transactions



Mobile on System z

20-11-2014

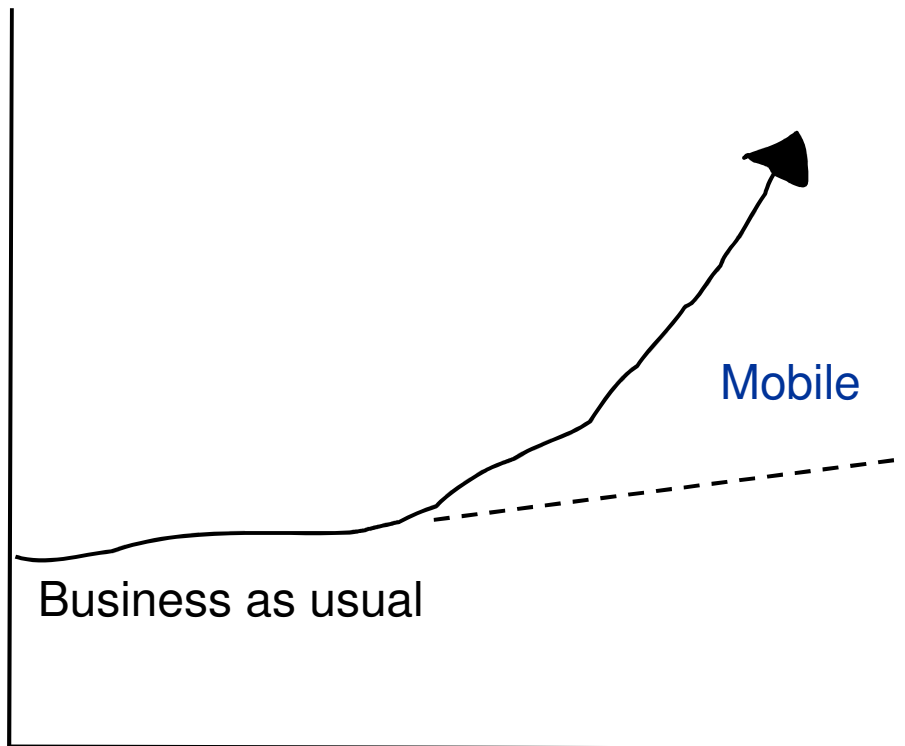
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Agenda

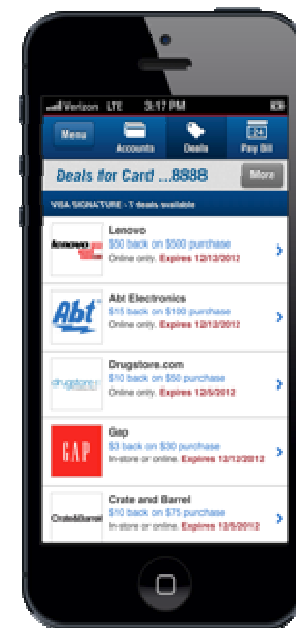
- What is the problem
- What has been announced for Mobile Workload Pricing (MWP)
- Mobile Workload Reporting Tool (MWRT)
- Tagging and tracking mobile transactions
 - Different methods
- Summary



Mobile workload growth



- Driving back-end transactions
- Increasing capacity growth
- Higher proportion of inquiry



Mobile Workload Pricing for z/OS

▪ Benefits

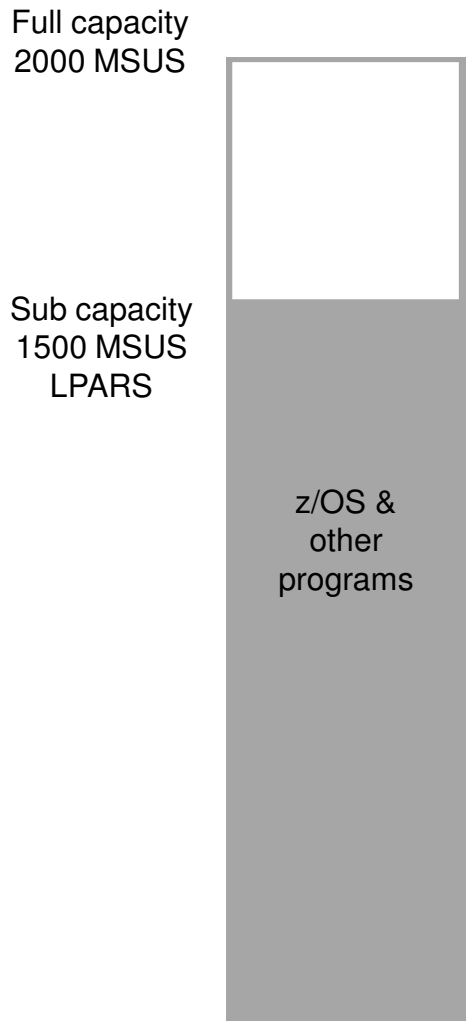
- Improves the cost of growth for mobile transactions processed in System z environments such as CICS, IMS, DB2, WAS and MQ
- Mobile Workload Pricing (MWP) for z/OS enhances Sub-Capacity pricing
 - Mitigates the impact of Mobile on MLC charges where higher transaction volumes cause a spike in machine utilization
 - Normalizes the rate of transaction growth
- No infrastructure changes required, no separate LPARs needed
 - It is an enhanced way of reporting sub-capacity MSUs
 - System runs as it always has, workload execution is not altered
 - **But you do need to be able to tag and track mobile transactions**

▪ Hardware requirements

- Available to all enterprises running a zEC12 or zBC12 server (actual mobile work may run on any zEnterprise machine including z196 and z114)



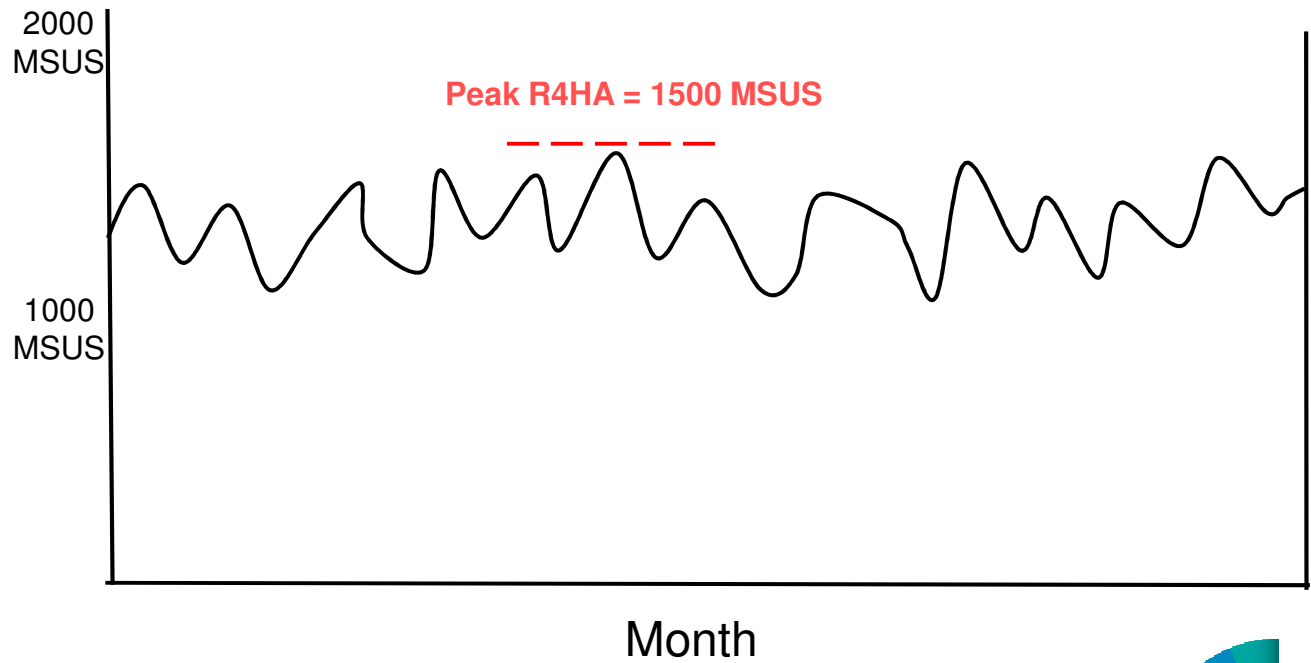
Sub-capacity Workload Licence Charges



Sub-capacity Reporting Tool (SCRT) calculates a rolling four hour average utilisation for each LPAR in each hourly interval

SCRT determines peak utilisation across all the LPARS in which a program runs

SCRT report is submitted monthly to set monthly licence charges

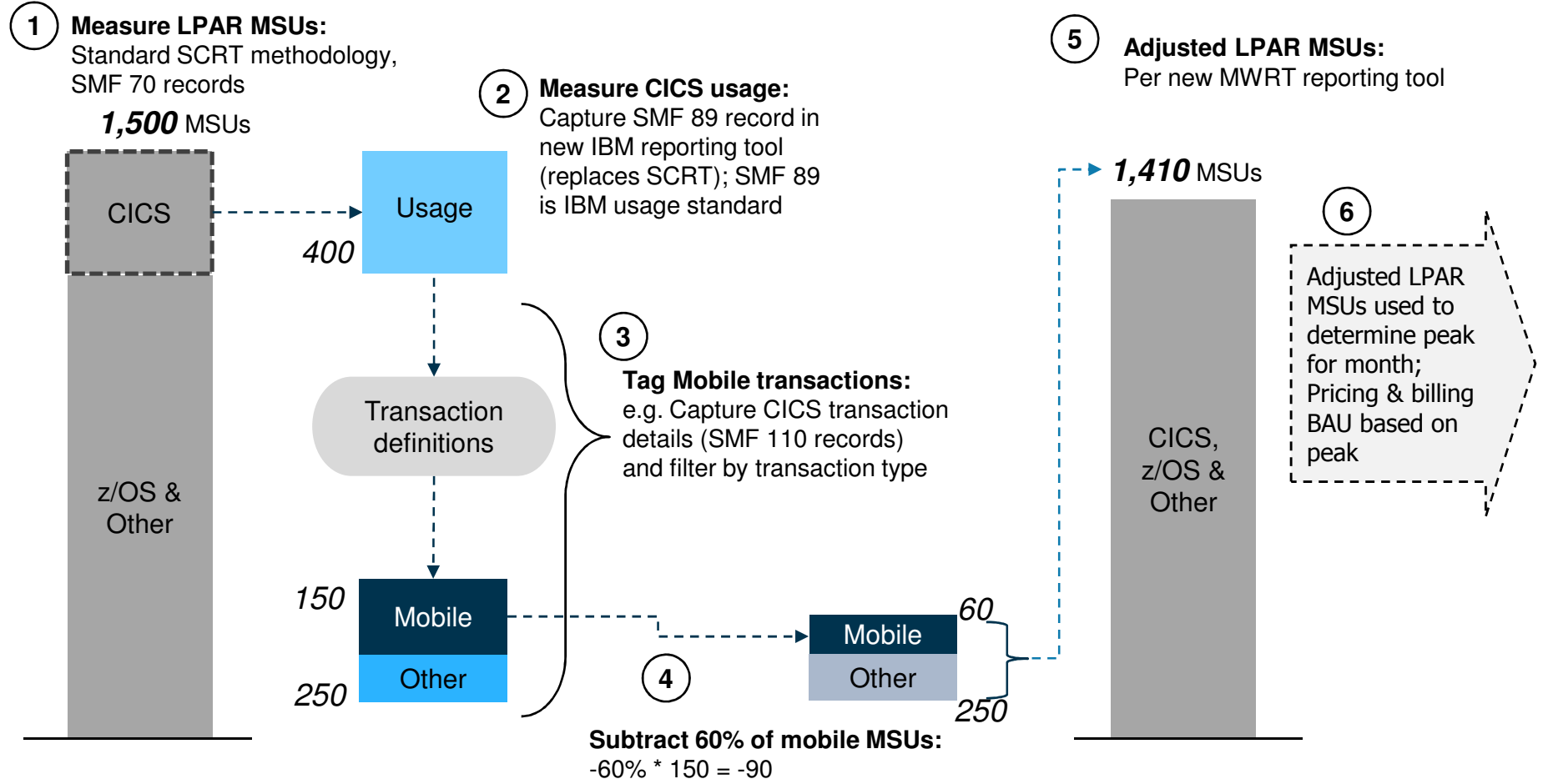


Mobile Workload Pricing Reporting Process

- **New Mobile Workload Reporting Tool (MWRT) – available 30 June 2014**
 - A new Windows-based Java tool to report sub-capacity MSUs and make adjustments to reported LPAR MSUs based on Mobile transaction data
 - Standard SCRT methodology plus new feature to adjust for Mobile workload impact
 - New tool will replace SCRT for customers who take advantage of Mobile Workload Pricing
- **Customers must track mobile transactions and produce a file showing mobile CPU consumption each month**
 - Record mobile program transaction data, including CPU seconds, on an hourly basis per LPAR
 - Load the resulting data file into MWRT each month (IBM-specified CSV format)
 - Run MWRT and submit the results to IBM each month (Replaces SCRT process)
- **MSU adjustments and monthly peak calculation for billing**
 - MWRT will subtract 60% of the reported Mobile MSUs from a given LPAR in each hour, adjusting the total LPAR MSU value for that hour
 - This will function like a partial “off-load” from a software pricing perspective (real system processing is completely unchanged)
 - When an LPAR value is adjusted, all software running in the LPAR will benefit from lower MSUs
 - Tool will calculate the monthly MSU peak for a given machine using the adjusted MSU values



Example: how MWP can reduce LPAR peak MSUs



LPAR MSUs for billing (Standard)

z/OS/Other	1,500
CICS	1,500

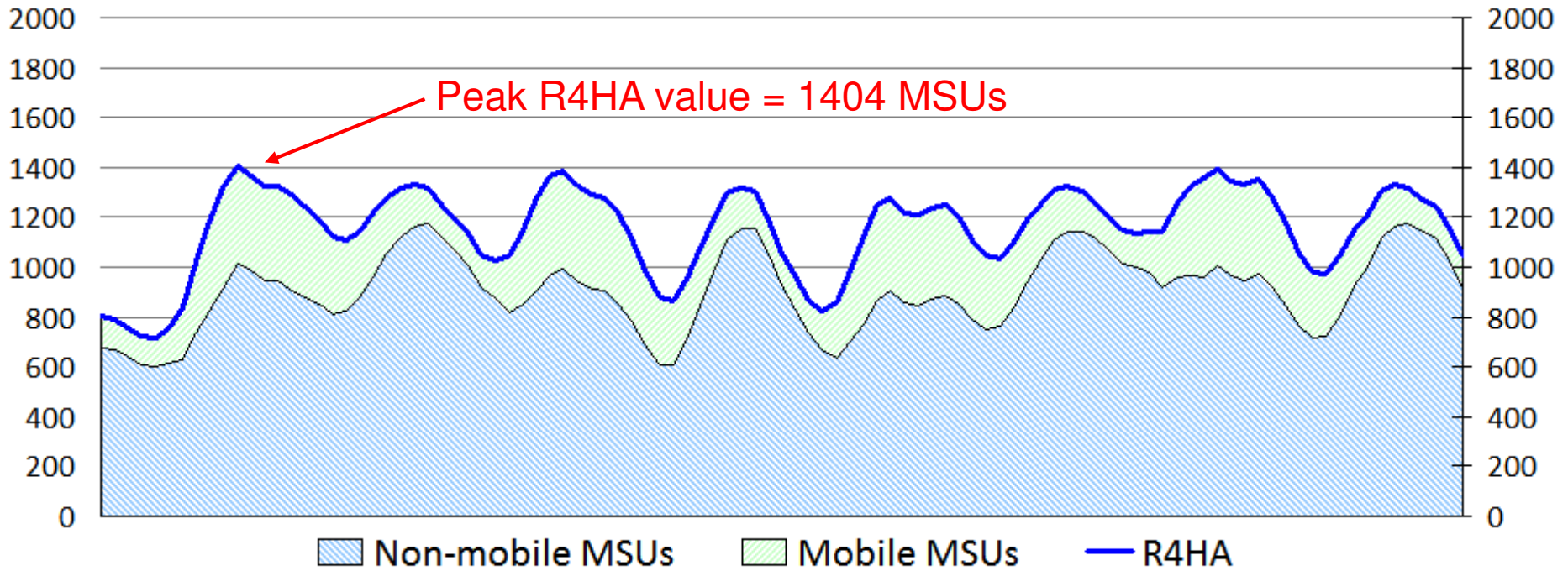
LPAR MSUs for billing (Adjusted)

z/OS/Other	1,410
CICS	1,410

Figures are for illustrative purposes only.



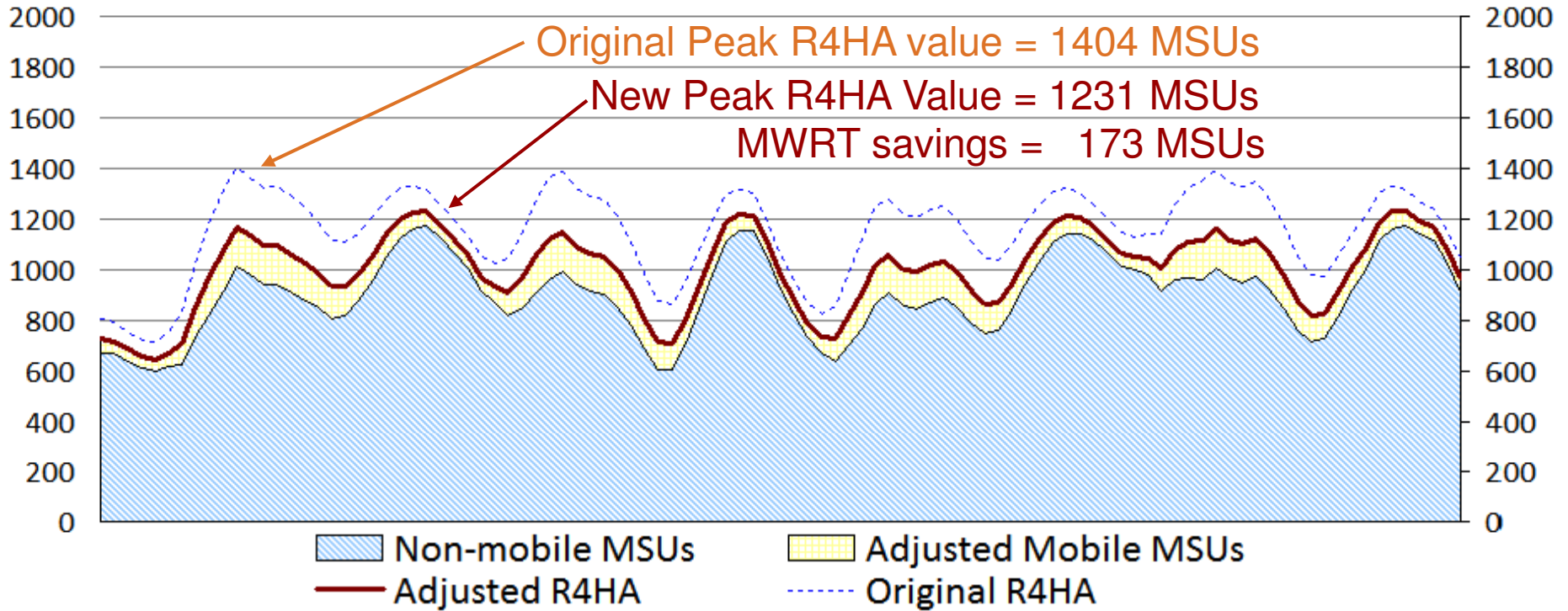
Example: Sample LPAR MSU values by hour



- SCRT calculates the Rolling 4-Hour Average (R4HA) MSU peak
 - All workloads are included



LPAR MSU values adjusted for mobile contribution



- MWRT removes 60% of the Mobile workload, interval-by-interval
 - Non-mobile workload is unchanged
 - Billing MSUS for the month are based upon the newly calculated R4HA curve after the mobile workload has been reduced

***Provides benefit when Mobile workloads contribute to monthly peak MSUs;
Off-peak MSU adjustments will not affect MSUs used for billing.***



Identifying Mobile Transaction Workload

- Customers are responsible for processing their mobile transaction data into a predefined format to be loaded into MWRT for each sub-capacity reporting period.
 - IBM must approve the data gathering methodology.
- The data must consist of **general purpose processor CPU seconds** for each mobile transaction program summarized by hour by LPAR for all machines processing mobile transactions.
 - Detailed instructions, including CSV file format, available in the MWRT user's guide.
- Mobile Workload Pricing Defining Programs:

5655-S97	CICS TS for z/OS V4	5655-DSQ	IMS DB VUE V12
5655-Y04	CICS TS for z/OS V5	5655-DSM	IMS DB VUE V13
5722-DFJ	CICS VUE V5	5655-TM1	IMS TM VUE V12
5635-DB2	DB2 V9 for z/OS	5655-TM2	IMS TM VUE V13
5605-DB2	DB2 10 for z/OS	5655-L82	WS MQ for z/OS V6
5615-DB2	DB2 11 for z/OS	5655-R36	WS MQ for z/OS V7
5697-P12	DB2 VUE V9	5655-W97	WS MQ for z/OS V8
5697-P31	DB2 10 VUE	5655-VUE	WS MQ VUE V7
5697-P43	DB2 11 VUE	5655-VU8	WS MQ VUE V8
5635-A02	IMS V11	5655-N02	WebSphere App Server for z/OS V7
5635-A03	IMS V12	5655-W65	WebSphere App Server for z/OS V8
5635-A04	IMS V13		



New MWP Contract Addendum & Supplement

- Mobile Workload Pricing is available for Mobile workloads running on a zEC12 or zBC12 server with AWLC or AEWLC sub-capacity pricing
 - Alternatively, if you install and operate a zEC12 or zBC12 in your enterprise you will be eligible for MWP when running a Mobile Workload Pricing Defining Program on a z196 or z114 server with sub-capacity pricing
- There is a new contract addendum:
 - Addendum for System z Mobile Workload Pricing (Z126-6300)
 - Terms and conditions to receive MWP benefit for AWLC, AEWLC, zNALC billing
 - Supplement to the Addendum for System z MWP (Z126-6628)
 - Customer explains how they tag/track their Mobile application CPU time
- Agreement to and compliance with the terms and conditions specified in the MWP contract Addendum is required
 - If the MWP Addendum is not implemented, MWRT Reports will be rejected!



Tagging and tracking mobile transactions

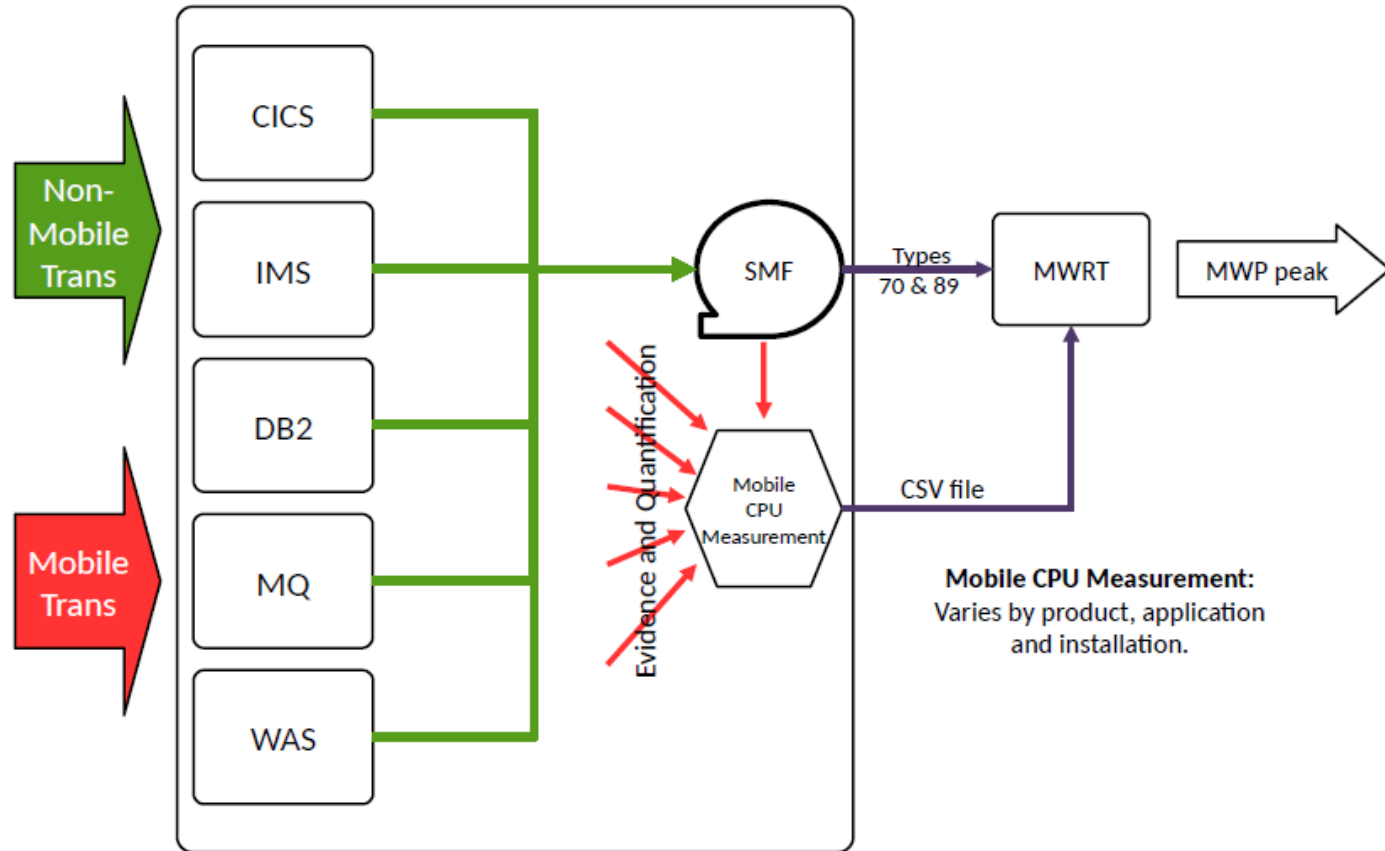


Tagging and Tracking for Mobile Workload Pricing - Overview

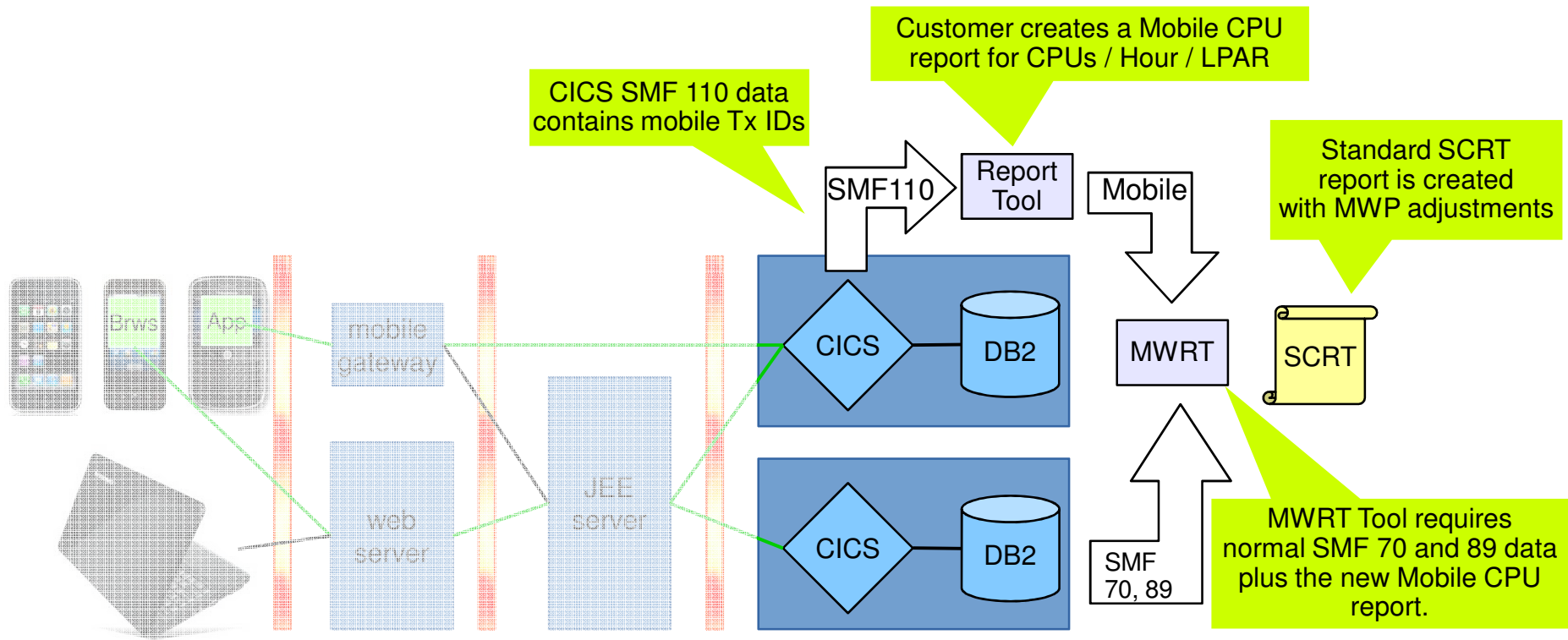
End-User	Middleware	z/OS Sysplex	MWP Reporting
<p>Clear Definition Here!</p> <ul style="list-style-type: none">• “Transactions that are triggered on a Mobile Device”• “A Mobile Device is a Tablet or a Smartphone”	<p>Tagging - The Unknown!</p> <p>How to forward a 'Mobile Tag' all the way through to a z/OS Defining Program?</p>	<p>Clear Definition Here!</p> <p>“z/OS Defining Programs: WAS, MQ, CICS, IMS, DB2”</p> <p>“GCP CPUs that are used in the Defining Programs to process Mobile workload are eligible for MWP”</p>	<p>Tracking Examples</p> <p>“SMF Report”</p> <p>“WLM Report”</p> <p>“Customer Reporting Tool”</p> <p>Overhead of some SMF classes might be a concern...</p> <p>MWRT Tool is available</p>



Overview of Tagging and Tracking Process

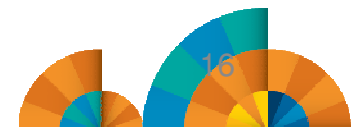
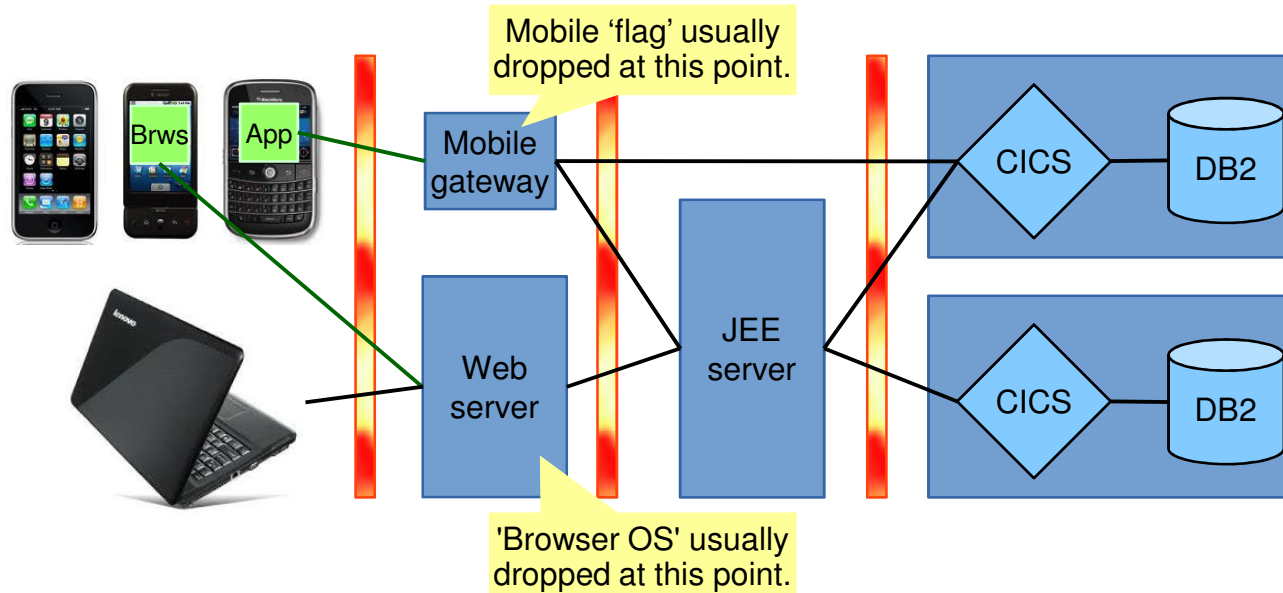


Example of Tagging and Tracking Process



How do customers track their mobile workload today?

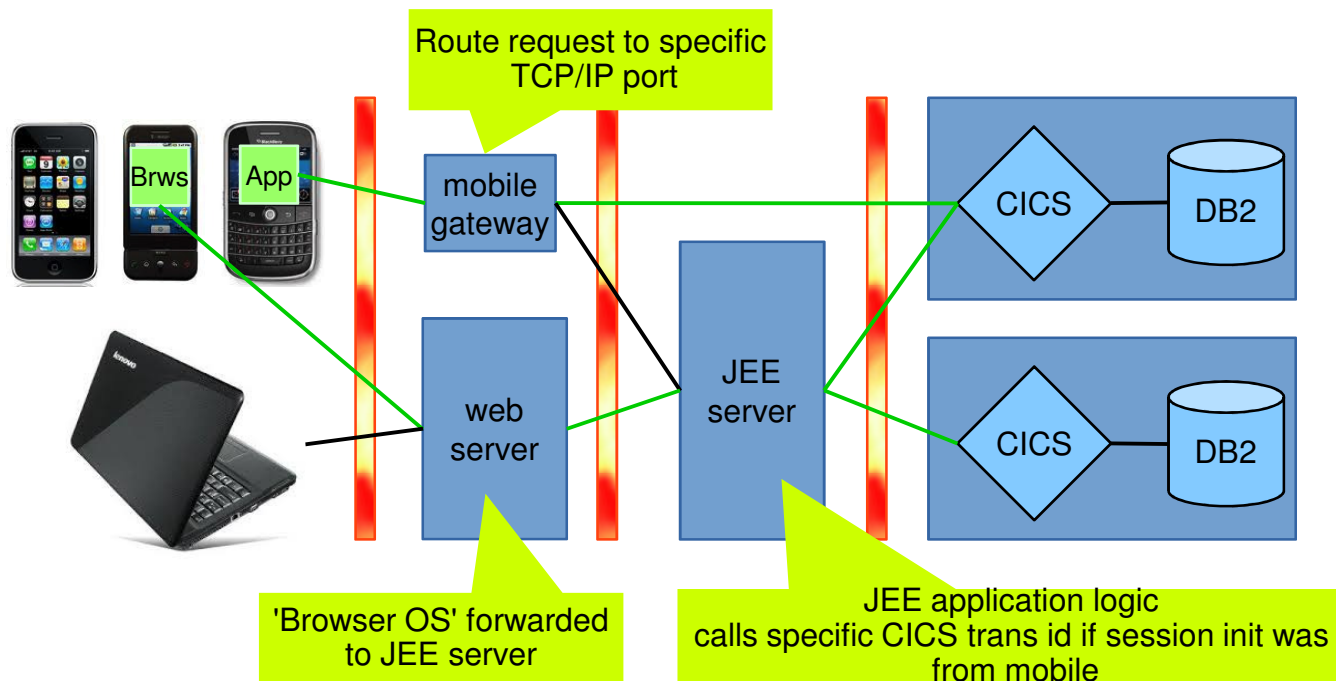
- Mobile Devices usually terminate at a web-server, JEE server, mobile gateway (e.g DataPower) or Worklight Server
- From there, back-ends – including z/OS applications and data – are accessed
- At the back-end level, typically a lot of services have shared-access from different service requesters
- Some customers have middleware components that are channel-aware and call back-end systems based on channel context (but not everyone)



How to forward a 'Mobile Tag'

- Network layer: route certain requests (from mobile gateway for example) to specific TCP/IP ports
- SOA Layer: in ESB / IIB / etc. route incoming SOA requests from mobile to a specific web service (different URI)
- JEE Layer: change web application programs to change context of back-end request (e.g transaction id) when session was established by a mobile device.

Examples:



Which Tracking mechanisms can be used with MWP?

- Use an **individual LPAR** for mobile-only workloads. All defining programs in here can report their GCP CPUs as mobile CPUs.
- Build **individual subsystems** of the defining programs for mobile-only workloads. These can then report their GCP CPUs as mobile CPUs.
- Use same subsystems for mobile and non-mobile but create **different CPU reports for mobile CPU**.

How could this be done? Examples:

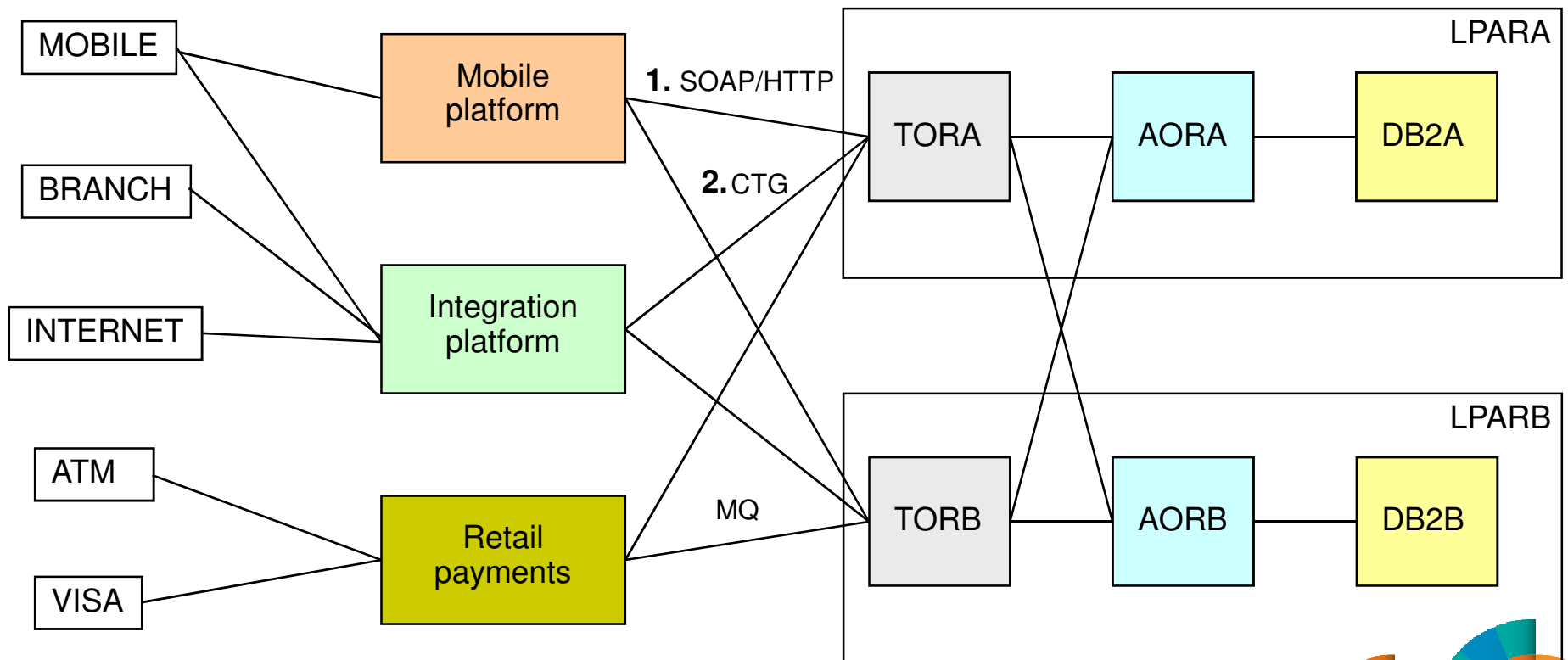
- CICS: Transaction id, TCP/IP port, User id → SMF110 Report
- IMS: LTERM, IMS Transaction Name, User id → Transaction Level Statistics x'56FA'
- MQ: Connection Type, Queue Name → SMF 116 Report
- DB2: JDBC stats like 'Program Name' → SMF 102 Report
- WAS: unique URL for mobile → SMF 120.9 Report

Note: this presentation contains examples of mobile tracking for CICS



Banking showcase architecture

- Banking services are accessed by mobile clients in two ways:
 - Mobile apps connect to mobile platform which then calls CICS web services
 - Mobile web apps connect to integration platform that serves multiple web channels, integration platform then uses CTG (CICS Transaction Gateway) to connect to CICS



In Summary

- Mobile Workload Pricing (MWP) Benefits
 - Improves the cost of growth for mobile transactions processed in System z environments such as CICS, IMS, DB2, and WAS
 - No infrastructure changes required, no separate LPARs needed
 - **But you do need to be able to tag and track mobile transactions**

- Tagging and tracking mobile transactions
 - Customer must provide evidence a transaction is eligible for MWP and quantify the GP CPU consumed
 - The challenge is to flow a mobile context either implicitly or explicitly with the transaction request and preserve its evidence into the CPU consumption data
 - CPU consumption will normally be calculated using data from RMF or SMF

- The scenarios in this presentation demonstrates some example ways of tracking CICS mobile transactions and calculating mobile CPU consumption





Thank you

