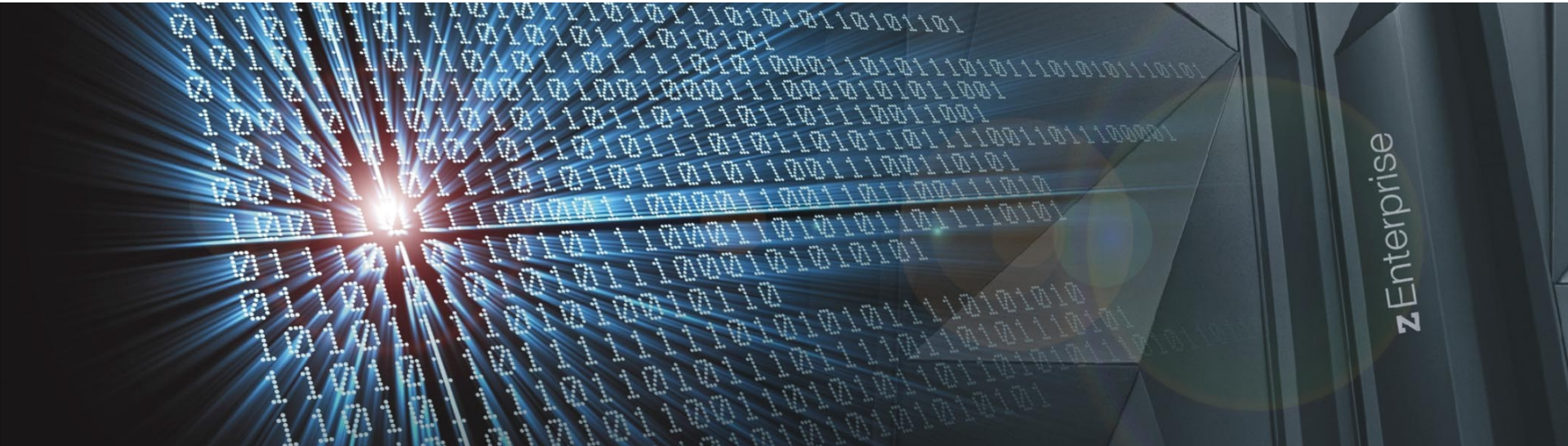


VS01 - Aktuelles zu z/VSE V5.2 und den z/VSE- Konnektoren

Dagmar Kruse, IBM
Ingo Franzki, IBM



<http://www.ibm.com/zVSE>

<http://twitter.com/IBMzVSE>

Agenda



- z/VSE V5.2
 - Eckdaten
 - Aktueller Service

- TCP/IP for VSE/ESA 15F


- MQ Trigger Monitor + Migration MQ Server zu MQ Client

- BigData und Hadoop mit z/VSE Daten

z/VSE V5.2 - Eckdaten

Aktuelle z/VSE-Release: (<http://www-03.ibm.com/systems/z/os/zvse/about/status.html>)

Supported z/VSE releases

Version.Release	Date available	Withdrawal from Marketing effective (1)	Withdrawal from Service effective	Minimum z/VM level (2)
z/VSE V6.1	11/27/2015 Announcement	TBD	TBD	z/VM V5.4
 z/VSE V5.2	04/25/2014 Announcement	TBD	TBD	z/VM V5.4
z/VSE V5.1	11/25/2011 Announcement	05/23/2014 Announcement	06/30/2016 Announcement	z/VM V5.4

Note (1): If you have a need for z/VSE tapes from a release that is no longer available for ordering, i.e. for an intermediate FSU step during release upgrade from older releases, then please contact the z/VSE team.

Note (2): The minimum z/VM level applies when z/VSE is running as a guest under z/VM. In some cases, the minimum level of z/VM may not be supported. For information on the service status of z/VM, please refer to the z/VM web site.



z/VSE V5.2 ist auch weiterhin bestellbar !

z/VSE V5.2 steht noch kein "End of Service" (EoS) fest!

z/VSE Hardware Support:

<i>IBM z Systems</i>	z/VSE V6.1	z/VSE V5.2	z/VSE V5.1	z/VSE V4.3 (EoS)
IBM z13	✓	✓	✓	✓
IBM zEnterprise EC12 & BC12	✓	✓	✓	✓
IBM zEnterprise 196 & 114	✓	✓	✓	✓
IBM System z10 EC & z10 BC	✓	✓	✓	✓
IBM System z9 EC & z9 BC	✗	✓	✓	✓
IBM eServer zSeries 990 & 890	✗	✗	✗	✓
IBM eServer zSeries 900 & 800	✗	✗	✗	✓

z/VM V5.4:

- z/VM V5.4 unterstützt noch IBM System z9 (z/VM V6 unterstützt IBM System z10 und neuer)
- **End of Service (EoS) vom z/VM 5.4:**
31.12. 2016 oder später, abhängig vom EoS-Termin der IBM System z9 EC/BC

Ausgeliefert wird **z/VSE V5.2.0** (seit 25.04.2014)

Neuerungen:

- unterstützt aktuelle Hardware
- bei **z/VSE-Konnektoren** und Netzwerkanbindung:
 - VSE Virtual Tape Server (VTAPE): Stacking Tape Support für 3592-Cartridge
 - Web Services (SOAP)-Erweiterungen
 - IPv6 Erweiterungen
- bei der **Installation**:
 - „Tapeless Initial Installation“ möglich
 - TCP/IP for VSE/ESA jetzt in **PRD2.TCPIPC** statt bisher in **PRD1.BASE**

und vieles mehr

(Details wurden bereits in etlichen GSE-Vorträgen beleuchtet)



hauptsächlich
Standardanpassungen und Weiterentwicklungen
der bisherigen Implementierungen

z/VSE V5.2.0

Übersicht bietet der

- z/VSE Release Guide V5 (SC34-2636-03)
- Live Virtual Classes (**LVC**): <http://www-03.ibm.com/systems/z/os/zvse/education/#completed>

Fast Service Upgrade (FSU) möglich von z/VSE V4.3 und z/VSE V5.1

Service/ PTF- Stände:

- Installationsbänder vom **05.03.2014**
- aktuelle RSLs : **31.08.2015** (verfügbar ab Okt. 2015)

Feedback der Kunden:

- bisher sehr positiv (im April detailliert berichtet)
- Stolpersteine/Probleme gibt es bei jedem Releasewechsel – so auch hier:
 - Vergessen Sie nicht, die LIBDEF-Definitionen für PRD2.TCPIPC bei Ihren Anwendungen anzupassen!

Beachten Sie auch die zugehörigen z/VSE Hot Service News:

<http://www-03.ibm.com/systems/z/os/zvse/support/#news>

<http://www-03.ibm.com/systems/z/os/zvse/support/#news>

Hot service news

Date	Description
Oct 1, 2015	z/VSE 5.2.0 & 5.1.2 RSL updated to the Aug 31, 2015 level.
May 1, 2015	z/VSE 5.2.0 & 5.1.2 RSL updated to the Apr 30, 2015 level.
March 23, 2015	<p>HIPER APAR PI35643/PI35642 DATA SEQUENCE ERROR WHEN USING Z/VSE FAST PATH TO LINUX ON SYSTEM Z:</p> <p>In case you are using the z/VSE Fast Path to Linux on System z (LFP) ensure that PTF UI25399/UI25398 for APAR PI35643/PI35642 is installed. This PTF updates the Linux Fast Path daemon (LFPD). Make sure that you download the WBOOK IJBLFPLX.W and update the LFPD on Linux (using rpm -u). You can also download the latest LFPD code here.</p>
Dec 31, 2014	z/VSE 5.2.0, 5.1.2 & 4.3.1 RSL updated to the Dec 31, 2014 level.
Dec 18, 2014	Impact of POODLE (CVE-2014-3566) on z/VSE (PDF, 105KB)
October 31, 2014	z/VSE V4.3 end of service

...

Aktuelle RSLs (Recommended Service Level) einspielen

<http://www-03.ibm.com/systems/z/os/zvse/support/preventive.html#rsl>

Latest update Oct 1, 2015

z/VSE 5.2.0 upgraded to the Aug 31, 2015 level

z/VSE 5.1.2 upgraded to the Aug 31, 2015 level

New PTFs are indicated by an asterisk in the Base Products and Optional Products files.

Service recommended for	PTF Order List	Cutoff Date
z/VSE 5.2.0	Base Products	PTFs 520B
	Optional Prod.	PTFs 520O
z/VSE 5.1.2	Base Products	PTFs 512B
	Optional Prod.	PTFs 512O
z/VSE 5.1.1	Base Products	PTFs 511B
	Optional Prod.	PTFs 511O
z/VSE 5.1.0	Base Products	PTFs 510B
	Optional Prod.	PTFs 510O
Out of Service releases		
z/VSE 4.3.1	Base Products	PTFs 431B
	Optional Prod.	PTFs 431O

Aktuelle RSLs (Recommended Service Level)

Service recommended for	PTF Order List	Cutoff Date
z/VSE 5.2.0	<u>Base Products</u>	Aug 31, 2015
	<u>Optional Prod.</u>	
	<u>PTFs 520B</u>	
	<u>PTFs 520O</u>	

z/VSE base Products 5.2.0 - 31/08/15

<u>CICS Transaction Server 1.1.1</u>	CICS Transaction Server 1.1.1 *****		
<u>DITTO/ESA VERSION 1.3.0</u>	Apar #	PTF #	Applicable Component-CLC
	*****	*****	*****
	PI12578	UI18480	5648-05400-BOP
	PI14361	UI19013	5648-05400-BOP
	PI16728	UI18008	5648-05400-BOP
	PI20332	UI19789	5648-05400-BOP
	PI22263	UI20804	5648-05400-BOP
	PI26013	UI22421	5648-05400-BOP
	PI27214	UI23189	5648-05400-BOP
	PI28366	UI23574	5648-05400-BOP
	PI35376	UI26401	5648-05400-BOP
	PI36509	UI27383	5648-05400-BOP*
	PI40483	UI30403	5648-05400-BOP*
	PI40620	UI29611	5648-05400-BOP*
	PI41089	UI27869	5648-05400-BOP*
	PK31083	UI23574	5648-05400-BOP
	PK37353	UI18480	5648-05400-BOP
	PK40173	UI27869	5648-05400-BOP*
	PK81926	UI23574	5648-05400-BOP
	PM70388	UI18480	5648-05400-BOP
	PM81883	UI18480	5648-05400-BOP
	PQ46348	UI18008	5648-05400-BOP
	PQ53366	UI23574	5648-05400-BOP
	PQ60318	UI18480	5648-05400-BOP
	PQ69052	UI19013	5648-05400-BOP
	PQ74254	UI18480	5648-05400-BOP
	PQ80837	UI22421	5648-05400-BOP
	PQ89412	UI18480	5648-05400-BOP

* kennzeichnet neue PTFs seit letztem RSL

Aktuelle RSLs (Recommended Service Level)

Service recommended for	PTF Order List	Cutoff Date
z/VSE 5.2.0	Base Products	Aug 31, 2015
	Optional Prod.	

Recommended service levels

PTF numbers 31/08/15

z/VSE base Products - 5.2.0

CICS Transaction Server 1.1.1

UI18008 UI18480 UI19013 UI19789 UI20804 UI22421 UI23189 UI23574 UI26401
UI27383 UI27869 UI29611 UI30403

DITTO/ESA VERSION 1.3.0

UI15757 UI22996 UI27451

EREP 3.5.0

UD54087

ICKDSF 1.17.0

UI22219 UI27640

Bei Shopz-
Bestellung für
Copy & Paste
nutzen:

Neue PTFs seit
letztem RSL
sind kursiv

z/VSE5.2.0 – aktueller PSP-Bucket

http://www-01.ibm.com/support/docview.wss?uid=isg1_ZVSE520

Stand: 11.10.2015 - **Alle PTFs sind im aktuellen RSL (Cutoff 31.08.2015) enthalten**

	DATE	SUBSET ALTERED	COMMENTS
13.	15/07/10	ZVSE/52C	SECTION 1, ADDED ITEM 1
12.	15/07/09	ZVSE/52C	SECTION 4, ADDED ITEM 6 DY47612 UD54121
11.	15/04/13	ZVSE/52C	SECTION 4, ADDED ITEM 4 DY47595 UD54098
		ZVSE/52C	SECTION 4, ADDED ITEM 5 DY47595 UD54097
10.	15/03/23	ZVSE/52C	SECTION 4, ADDED ITEM 3 PI35643 UI25399
9.	15/01/27	ZVSE/52C	SECTION 4, ADDED ITEM 2 DY47588 UD54085
8.	14/12/30	DB2/5NN	REPLACED SECTIONS 1 - 2
7.	14/08/14	IBMLANG/52K	SECTION 4, ADDED ITEM 2 PI23443 UI20397
6.	14/07/30	CICS/TS/B0P	SECTION 4, ADDED ITEM 2 PI20332 UI19789
5.	14/07/23	IBMLANG/52K	SECTION 4, ADDED ITEM 1 PI21205 UI19477
4.	14/06/16	CICS/TS/B0P	SECTION 4, ADDED ITEM 1 PI12578 UI18480
3.	14/05/12	ZVSE/52C	SECTION 4, ADDED ITEM 1 DY47537 UD54029
2.	14/03/25	ZVSE520	CHANGED AVAILABILITY DATE
		OTPTSERVICE	REPLACED SUBSET
		BASESERVICE	REPLACED SUBSET
1.	14/03/17	UPGRADE/SUBSETS	CREATED - SMRG

SCSI-Support


AF-Macro

LFP

VSE/POWER

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-  ▪ TCP/IP for VSE/ESA 15F

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- BigData und Hadoop mit z/VSE Daten

TCP/IP for VSE/ESA 15F - Service

- TCP/IP for VSE/ESA - APARs für z/VSE V5.2.0 (Release CTP):

APAR	PTFs	verfügbar	Beschreibung
PI18501	UI18251	23.05.2014	Several TCP/IP for VSE zaps
PI23778	UI20507	14.08.2014	Provide latest TCP/IP for VSE zaps
PI27143	UI22558	28.10.2014	Provide latest TCP/IP for VSE zaps
PI34507	UI25360	23.02.2015	Several TCP/IP for VSE zaps
PI41459	UI29960	06.08.2015	Ship \$DBGTCPV as debugging version for \$EDCTCPV

Obigen PTFs sind alle im aktuellen RSL (Cutoff 31.08.2015) enthalten!

PI49011	UI31664	in Arbeit	TCP/IP for VSE/ESA 1.5F product refresh on the basis of the CSI pre-applied service pack from Aug 05, 2015 plus additional zaps (until Sept.2015): → ganze Produkt + OME wird ersetzt !
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TCP/IP for VSE/ESA 15F – Service

Ab z/VSE V5.2:



PTFs für TCP/IP for VSE/ESA werden immer direkt eingespielt.

TCP/IP for VSE/ESA ist nicht mehr in der **Basis-Library PRD1.BASE** ist !

→ Auswahl des „Indirect PTF Apply“ im Dialog greift nicht mehr!

Alternativen zum Testen der PTFs:

- Erst in eine separate Test-Library einspielen
- Vor Apply PTF : Backup von PRD2.TCPIPC + MSHP-File

TCP/IP for VSE/ESA 15F - Service

APAR [PI41459](#): SHIP \$DBGTCPV AS DEBUGGING VERSION FOR \$EDCTCPV

<http://www-01.ibm.com/support/search.wss?q=PI41459#v%3D%2B1%26q%3DPI41459>

Debug Version für LE/VSE C Run-Time Environment (Nur auf IBM Request ersetzen!)

Problem summary

```

*****
* USERS AFFECTED: All users that want to debug the LE/VSE          *
*                   C Run-Time Socket API with TCP/IP for VSE.      *
*****
* PROBLEM DESCRIPTION: Ship $DBGTCPV as debugging version for      *
*                   $EDCTCPV.                                       *
*****
* RECOMMENDATION: After installing the PTF debugging                *
*                   can be enabled by replacing                      *
*                   $EDCTCPV.PHASE with $DBGTCPV.PHASE.             *
*                   This can be done using the LE Socket            *
*                   API multiplexer or by renaming                  *
*                   $EDCTCPV.PHASE to $EDCTCPV.OLDPHASE            *
*                   and $DBGTCPV.PHASE to $EDCTCPV.PHASE.          *
*                   Debugging can be disabled by deleting          *
*                   or changing back the LE Socket API             *
*                   multiplexer definitions or by renaming          *
*                   $EDCTCPV.PHASE to $DBGTCPV.PHASE and           *
*                   $EDCTCPV.OLDPHASE to $EDCTCPV.PHASE.          *
*****
    
```

...

LE/C Socket API Multiplexer

Unterschiedliche LE/C-Anwendungen können unterschiedliche TCP/IP Stacks verwenden:

- den **TCP/IP Stack SYSIDs** werden dabei die entsprechenden Socket Interface Phasen zugeordnet

Skeleton EDCTCPMC in ICCF Library 62:

```
EDCTCPMC CSECT
EDCTCPMC AMODE ANY
EDCTCPMC RMODE ANY
*
      EDCTCPME SYSID='00', PHASE=' $EDTCPV \  <-- CSI
      EDCTCPME SYSID='01', PHASE=' IJBLFPLE \  <-- LFP
      EDCTCPME SYSID='02', PHASE=' BSTTTCP6 \  <-- BSI
*
      END
```


LE/C Socket API Multiplexer

Neu mit z/VSE 5.2:

- Mit dem neuen Parameter **SSLPHASE** kann jetzt zusätzlich noch die **SSL-Implementierung** separat gewählt werden



Damit ist jetzt **jede Kombination** von TCP/IP Stack und SSL Implementierung (OpenSSL oder CSI) möglich.

z.B. CSI Stack und Linux Fast Path mit OpenSSL

*

```
EDCTCPME SYSID='00', PHASE=' $EDCTCPV', SSLPHASE=' IJBSSLLE '  
EDCTCPME SYSID='02', PHASE=' IJBLFPLE', SSLPHASE=' IJBSSLLE '
```

Wenn die **SSLPHASE** nicht angegeben ist, dann wird PHASE-Angabe verwendet:

```
EDCTCPME SYSID='00', PHASE=' $EDCTCPV'  
EDCTCPME SYSID='02', PHASE=' IJBLFPLE', SSLPHASE=' IJBSSLLE '
```

Achtung: Funktioniert nur für LE/C Anwendungen

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WebSphere MQ for z/VSE V3.0 (5655-U97)

The WebSphere MQ for z/VSE V3.0 (aka MQ Server) is no longer available on z/VSE:

- Withdrawn from marketing on September 8, 2014
- Withdrawn from service effective September 30, 2015



The EoM announcement letter 914-104 contains the following notes:

- While IBM WebSphere MQ for z/VSE V3.0 is being withdrawn from marketing **with no direct replacement**, a **WebSphere MQ Client for VSE** will **continue to be available** to enable connectivity over WebSphere MQ from VSE environments to MQ deployments on other systems.
- One alternative option for users of WebSphere MQ for z/VSE V3.0 is to use the **WebSphere MQ Client for VSE** available as SupportPac MQC5
http://www.ibm.com/support/docview.wss?rs=171&uid=swg24010051&loc=en_US&cs=utf-8&lang=en
- Following the End of Support announcement for WebSphere MQ for VSE V3.0, there are **no immediate plans to withdraw support for this SupportPac** within the same timeframe.

Using the WebSphere MQ Client for VSE

- When a z/VSE application is using MQ Server on z/VSE, it does not need to know with which MQ Server it is working, since there is only one (local) MQ Server.
- When using **MQ Client**, then the application **must tell the MQ Client with which MQ Server it wants to work with**, and where the MQ Server is located.

There are 2 options how an application specifies the MQ Server it wants to work with:

1. Using **MQCONN** with **MQSERVER** environment variable:

- While the MQCONN call itself remains unchanged, the application must **set the MQSERVER environment variable prior to calling MQCONN**.
- Setting environment variables can be done via the **setenv()** call when using LE/C.
- COBOL and PL/1 applications must use the **MQSETENV** API call, which is provided by the MQ Client for VSE.
- Environment variables can also be set in the LE runtime default options (see CEEUOPT, CEEDOPT and CEECOPT).

2. Using **MQCONNX**:

- This requires changing the MQCONN call to an MQCONNX call and setup the MQCNO and MQCD data structures accordingly.

Re-link of the applications against MQ Client library

You must **re-link** the applications against the **MQ Client library (MQICVSE.OBJ)**.

- When using the MQ Client, you must **explicitly include the MQ Client object deck MQICVSE.OBJ** to your application.
- MQICVSE contains the entries of all MQI calls (e.g. MQGET, MQCONN, etc).
- Make sure that the MQ Client sublibrary is in the LIBDEF of your compile and link jobs.

In addition, applications using the MQ Client must be **prelinked** using the **LE prelinker**.

- When using the MQ Client, you must prelink all your applications, even when they are implemented in COBOL or PL/1.

```
// OPTION CATAL
  PHASE YOURPROG,*
  INCLUDE YOURPROG
  INCLUDE MQICVSE
/*
// EXEC EDCPRLK,SIZE=EDCPRLK,PARM='UPCASE MAP'
/*
// EXEC LNKEDT,SIZE=256K
/*
```

Triggering

Triggering is a must-have feature when asynchronous message passing is used.

- It allows to **start (trigger) an application** when one or more **messages arrive on a queue**.
- Per queue, you can define which trigger program is to be triggered.

When invoked (triggered), the trigger program gets information about the trigger event it was invoked for.

- Besides others, the trigger event contains information about the queue that caused the trigger.
- The triggered program then performs MQGET operations to get the messages from the queue and processes them.

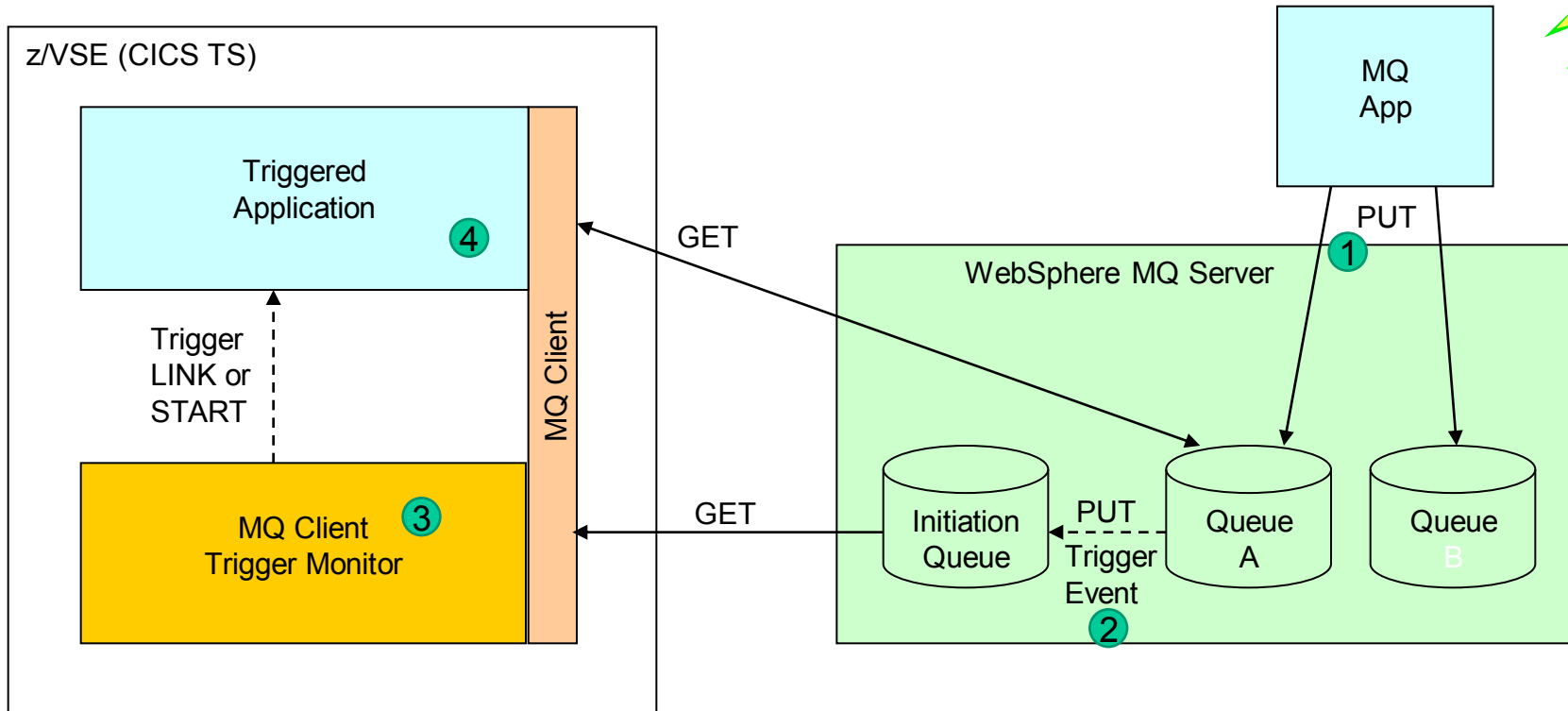
There is a nice description of how triggering works in the following blog entry

“Triggering for beginners”:

https://www.ibm.com/developerworks/community/blogs/aimsupport/entry/triggering_for_beginners?lang=en



The new MQ Client Trigger Monitor



1. An MQ application puts a message onto queue A on a remote MQ server
2. Triggering is activated for Queue A, thus a trigger event is put onto the trigger initiation queue.
3. The MQ Client Trigger Monitor watches for trigger events on the initiation queue, gets the event and invokes (triggers) the associated z/VSE program
4. The triggered z/VSE application get the message associated to the trigger event from queue A and processes it

The new MQ Client Trigger Monitor

The z/VSE MQ Client Trigger Monitor is available as follows:

- **z/VSE 6.1:** integrated
- **z/VSE 5.2:** APAR PI42615 / PTF UI28409
- **z/VSE 5.1:** APAR PI42612 / PTF UI28408



The user interface to the z/VSE MQ Client Trigger Monitor is provided by the MQTM transaction

- You can use MQTM from a terminal
- Or from the z/VSE console (via MSG F2,DATA=MQTM ...)

There can be multiple MQ Client Trigger Monitor instances active on a CICS TS system.

- Each instance is monitoring exactly one Initiation-Queue on a specific MQ Server and Queue manager.
- Instances can be started and stopped individually through the MQTM transaction.
- There is also an auto-start feature that will start pre-configured instances during CICS start-up (PLTSI).
- During CICS shutdown (PLTSD) all active instances will be stopped gracefully.

Setup triggering on an WebSphere MQ Server

MY.DESTINATION.QUEUE - Properties

General
Extended
Cluster
Triggering
Events
Storage
Statistics

Triggering

Trigger control: On

Trigger type: Every

Trigger depth: 1

Trigger message priority: 0

Trigger data: ___CICSTESTE

Initiation queue: TRIGGER.INIT.QUEUE

Process name: CICS.PROGRAM

- This trigger configuration triggers on EVERY new message
- “Trigger Data” specifies an 8 character program name (‘CICSTEST’) and 1 character flag ‘E’ for EVERY.
- Process is ‘CICS.PROGRAM’

- Process definition ‘CICS.PROGRAM’ with an “Application type” of ‘CICS VSE’.
- The remaining fields are not used, but are passed to the triggered program within the MQTM structure.

CICS.PROGRAM - Properties

General
Statistics

General

Process name: CICS.PROGRAM

Description:

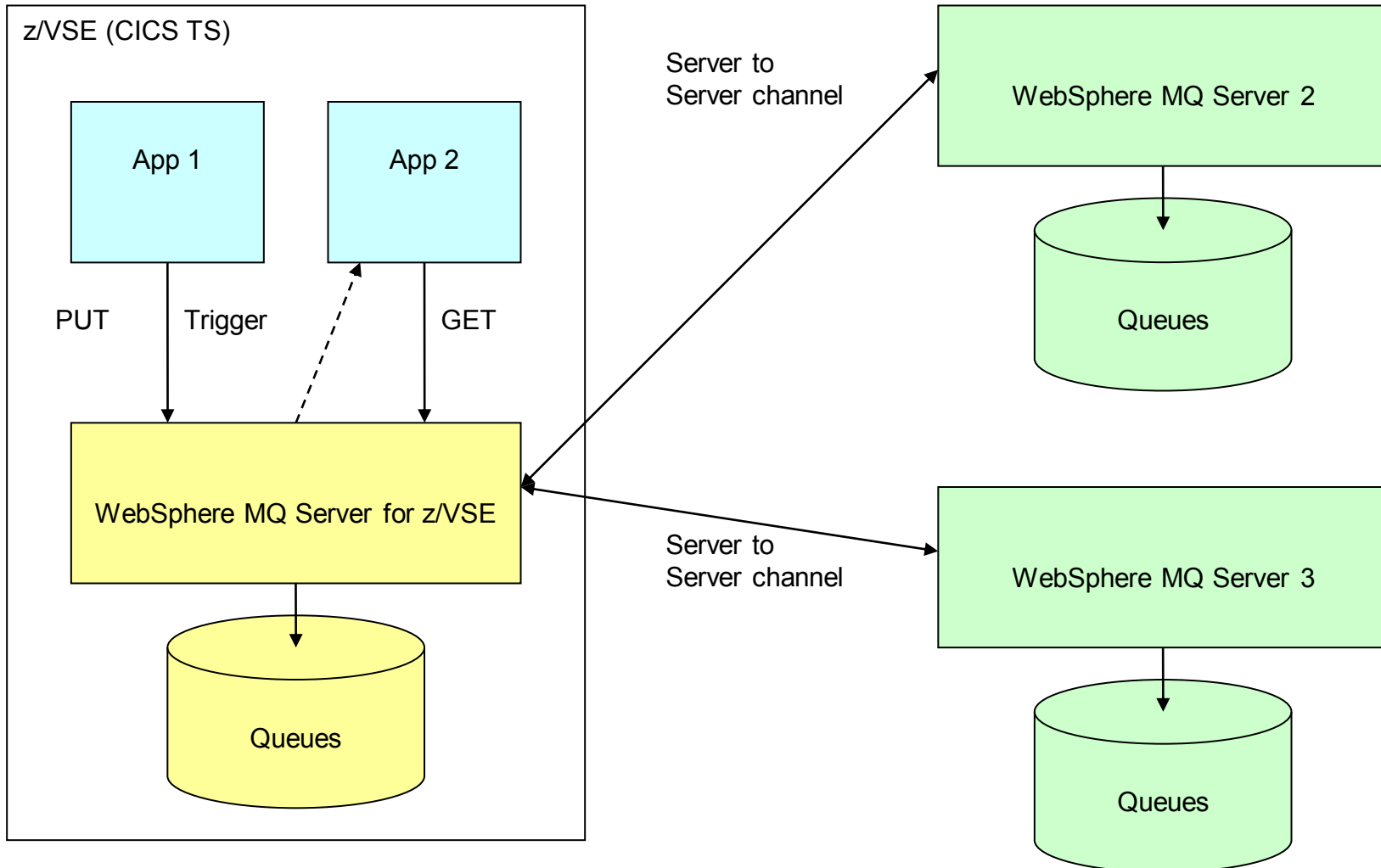
Application type: CICS VSE 65536

Application ID: CICSPROG

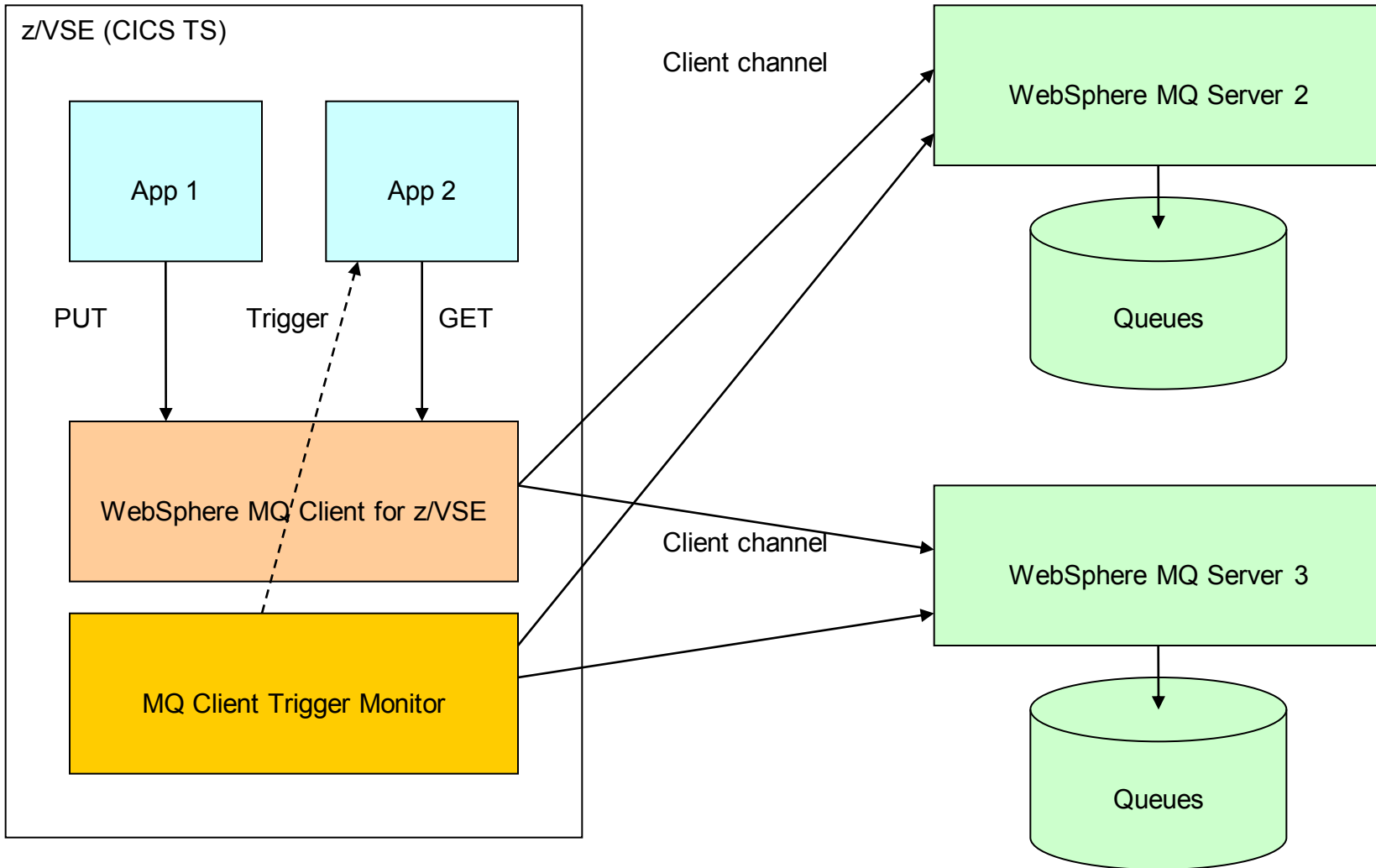
Environment data: aabbcc

User data: xyyzz

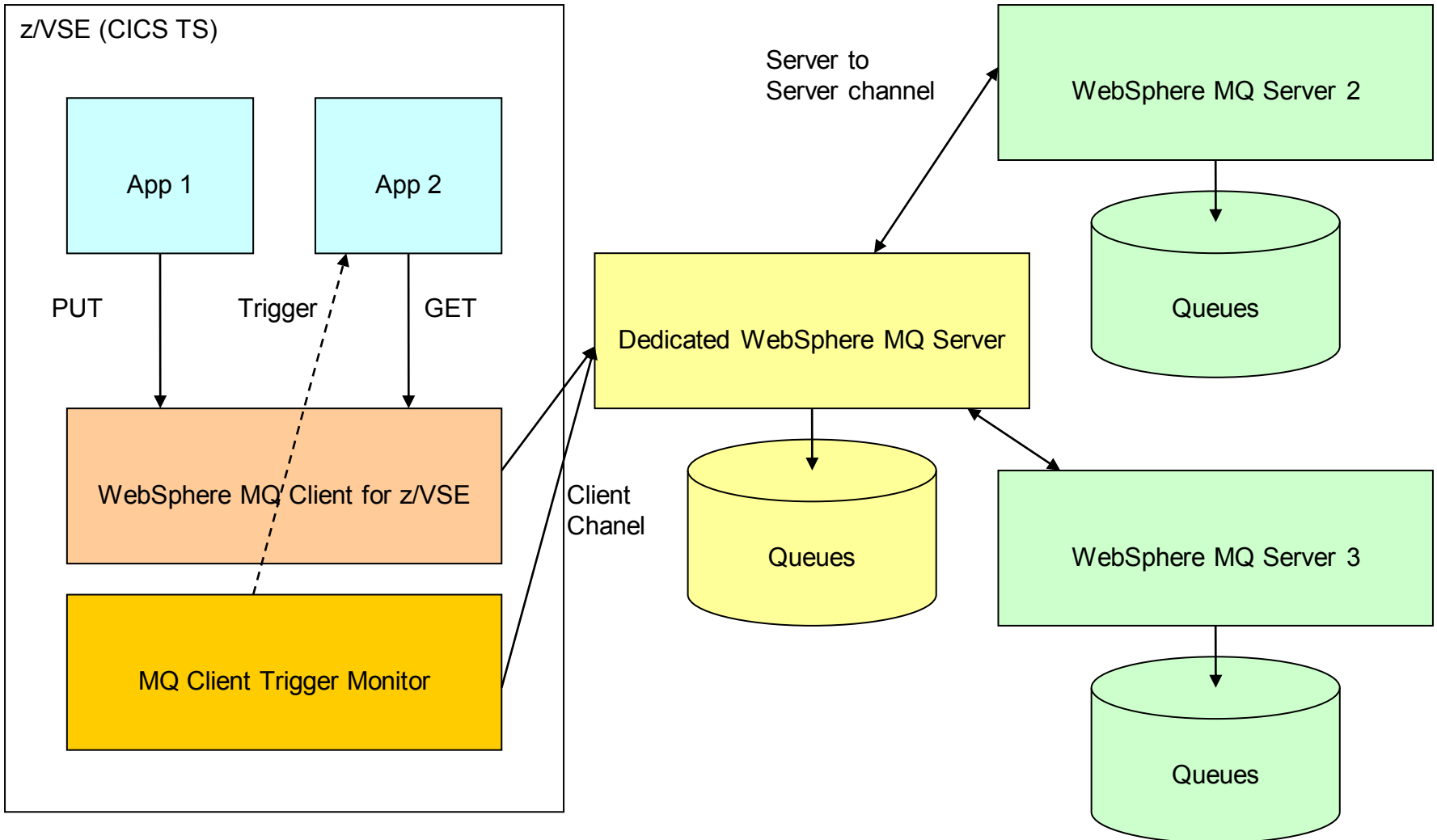
Typical WebSphere MQ Server scenario



Option 1: Replace MQ Server with MQ Client directly



Option 2: Add a dedicated MQ Server for VSE applications



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What is Hadoop ?



Apache Hadoop is an open source software project

- Enables distributed processing of large data sets across clusters of commodity servers.
- It is designed to scale up from a single server to thousands of machines, with very high degree of fault tolerance.
- Rather than relying on high-end hardware, the resiliency of these clusters comes from the software's ability to detect and handle failures at the application layer.

The project includes these modules:

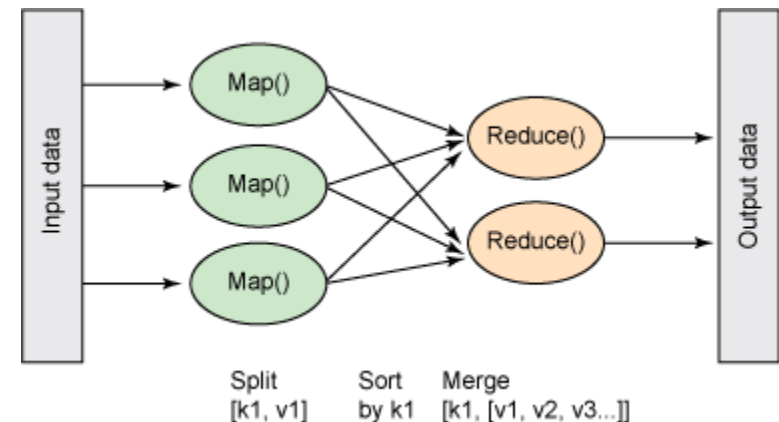
- **Hadoop Common:** The common utilities that support the other Hadoop modules.
- **Hadoop Distributed File System (HDFS):** A distributed file system that provides high-throughput access to application data.
- **Hadoop YARN:** A framework for job scheduling and cluster resource management.
- **Hadoop MapReduce:** A YARN-based system for parallel processing of large data sets.

What is MapReduce?

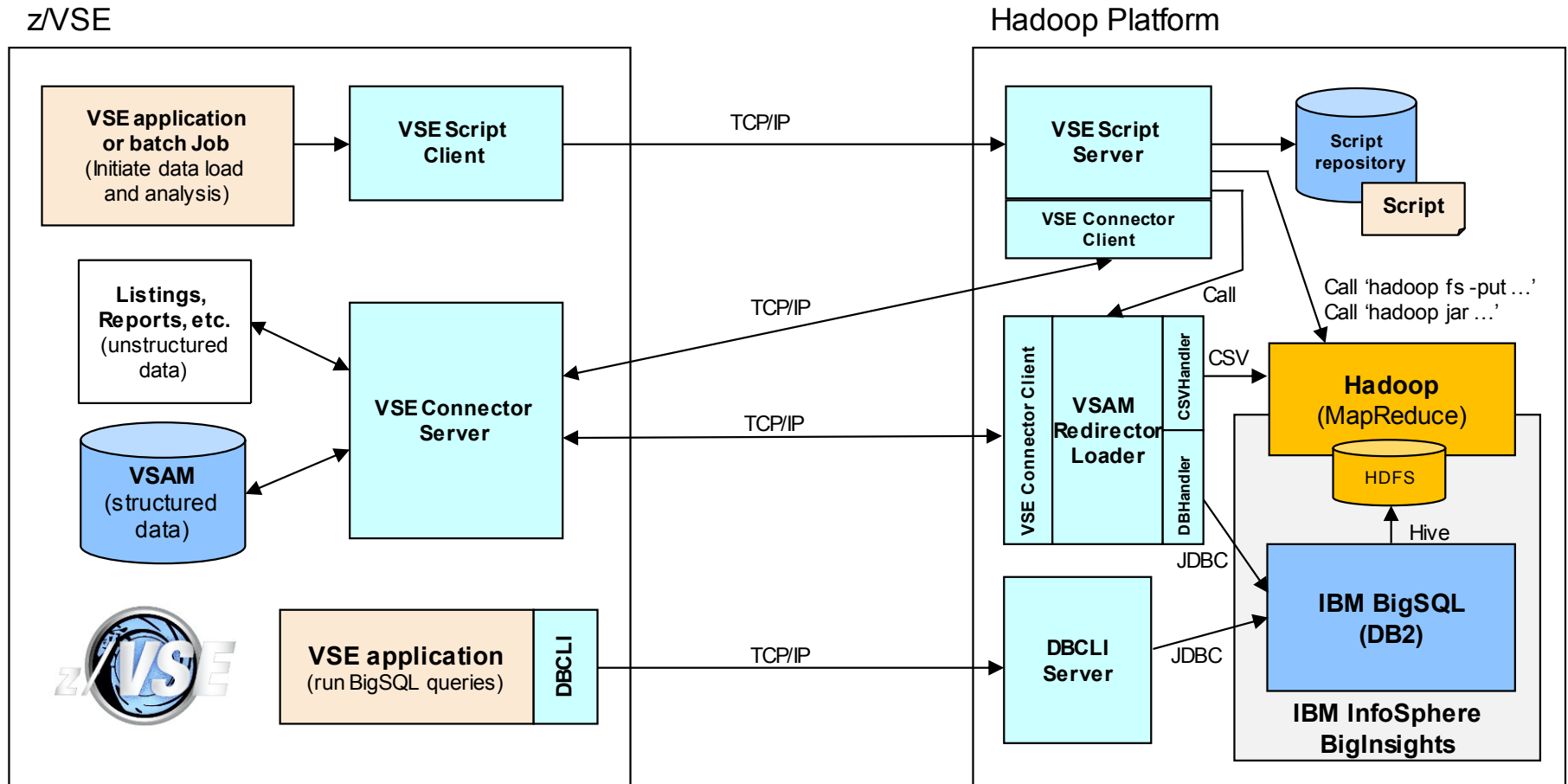


MapReduce is the heart of Hadoop

- It is this programming paradigm that allows for massive scalability across hundreds or thousands of servers in a Hadoop cluster.
- The term **MapReduce** actually refers to two separate and distinct tasks that Hadoop programs perform.
- The **map job**
 - takes a set of data and converts it into another set of data
 - where individual elements are broken down into tuples (key/value pairs).
- The **reduce job**
 - takes the output from a map as input
 - combines those data tuples into a smaller set of tuples.
- As the sequence of the name MapReduce implies, the reduce job is always performed after the map job.



Using the z/VSE Connectors to analyze VSE data with Hadoop



Whitepaper: Big Data and Hadoop with z/VSE

ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/BigData_with_zVSE.pdf

Questions ?



THANK YOU

<http://www.ibm.com/zVSE>