A47

Using Shared Queue for OTMA

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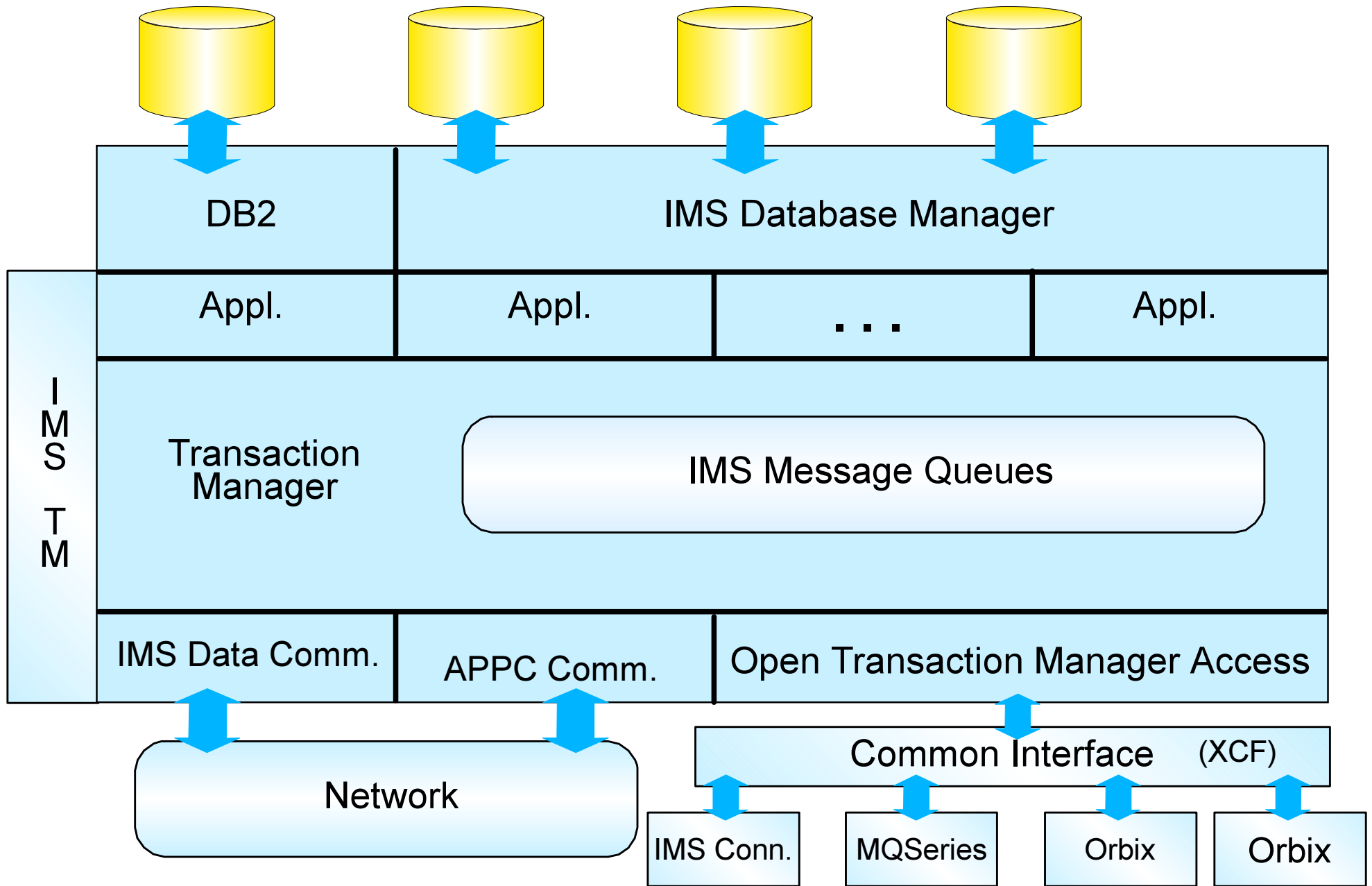**IMS Technical Conference**

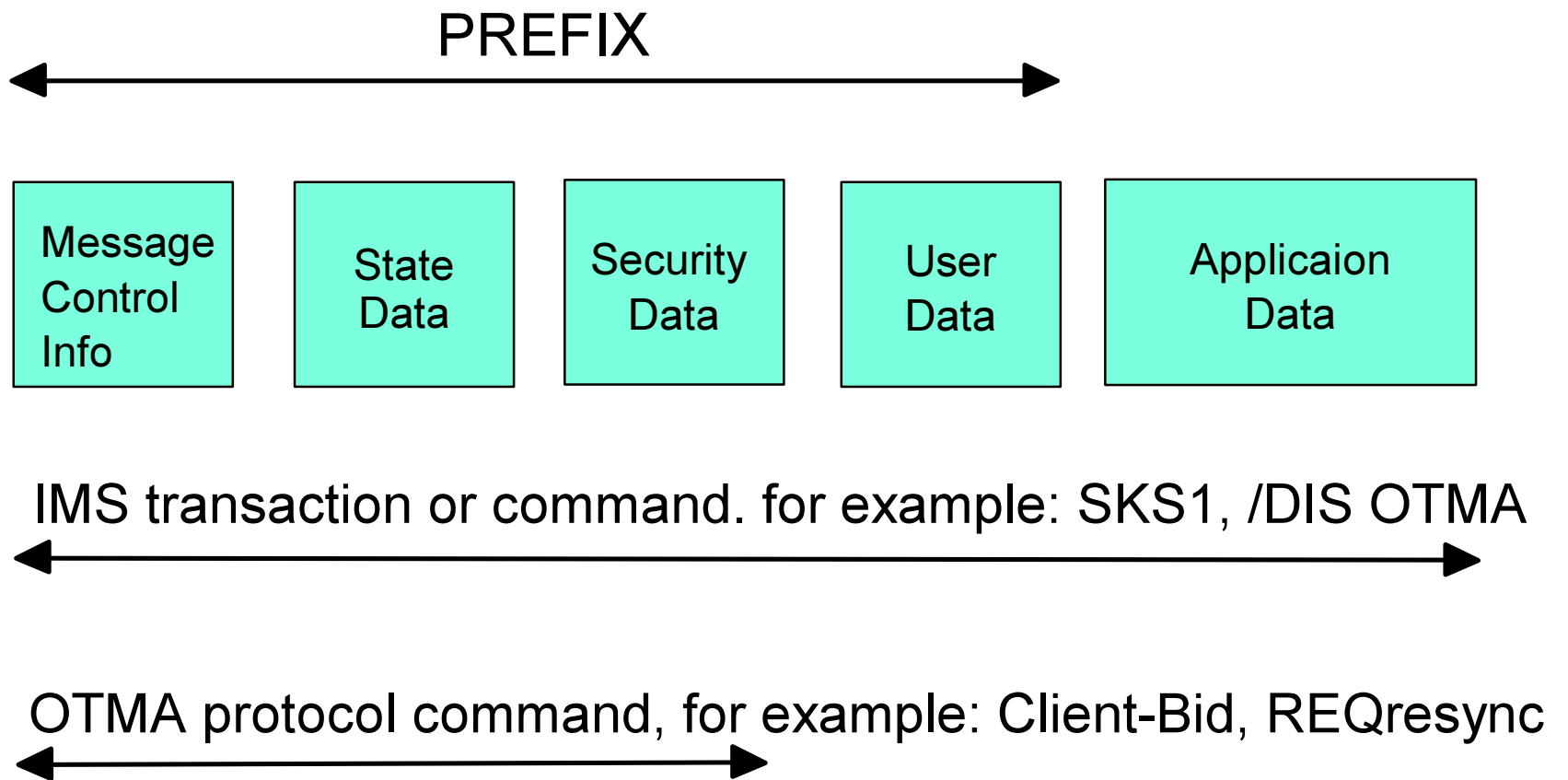Miami Beach, FL   October 22-25, 2001

Agenda

- IMS OTMA Intro
- Shared Queue Intro
- OTMA in IMS V6 Shared Queue environment
- OTMA in IMS V7 Shared Queue environment
- OTMA Shared Queue Requirement
- Summary

IMS OTMA

OTMA provides a high performance connectionless client/server protocol for IMS to communicate efficiently with MVS application other than VTAM, such as IMS Connect and MQSeries for MVS.

OTMA Messages (DFSYMSG)

PREFIX

Message Control Info	State Data	Security Data	User Data	Applicaion Data

IMS transaction or command. for example: SKS1, /DIS OTMA

OTMA protocol command, for example: Client-Bid, REQresync
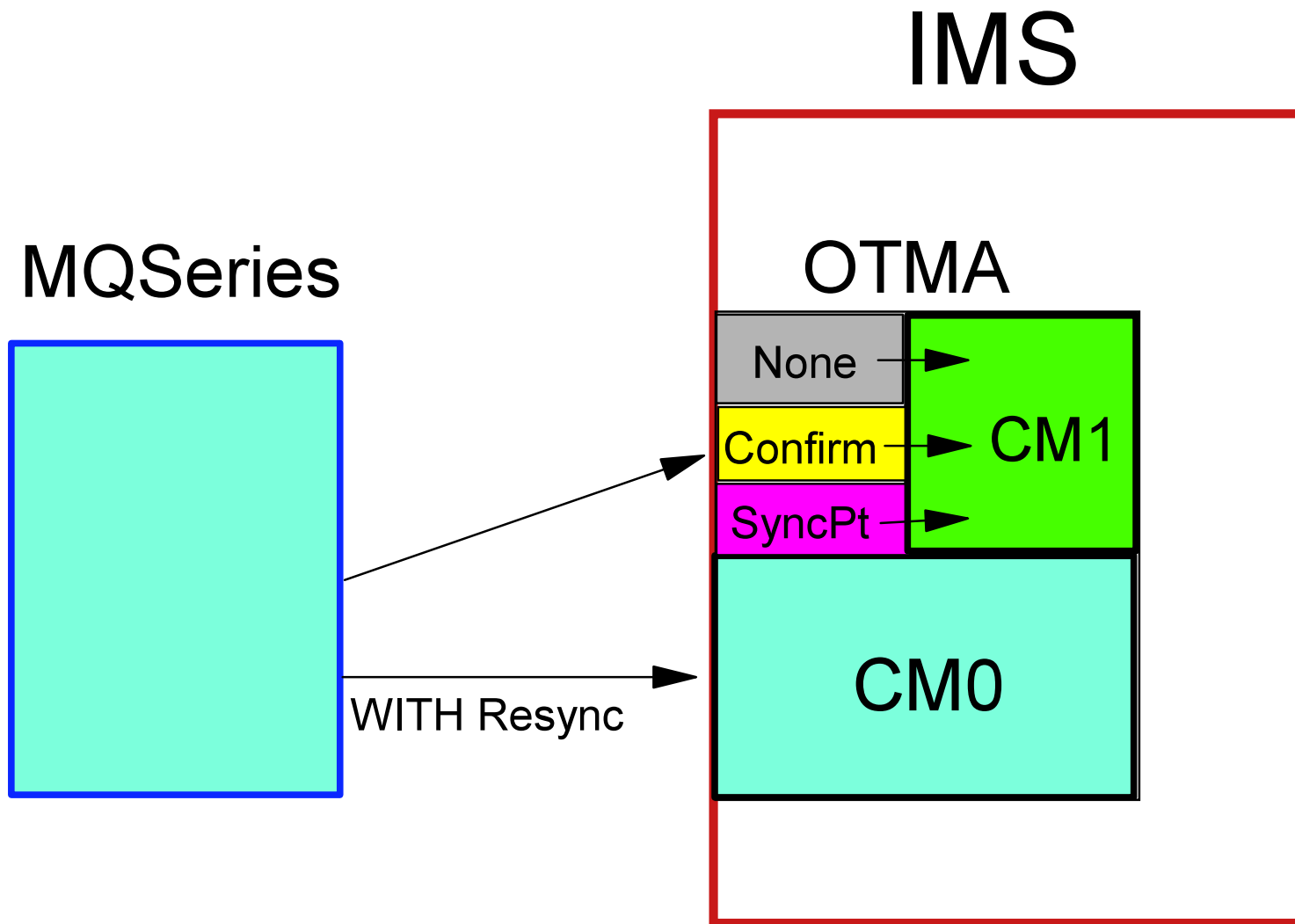
Commit Mode for OTMA Message

- Send-then-Commit (Commit mode 1)
  - ► Synclevel = None
  - ► Synclevel = Confirm
  - ► Synclevel = SyncPt
- Commit-then-Send (Commit Mode 0)
  - ► Synclevel = Confirm

How IMS Connect uses OTMA

IMS

IMS Connect

OTMA

None

Confirm

SyncPt

CM1

CM0

Without Resync
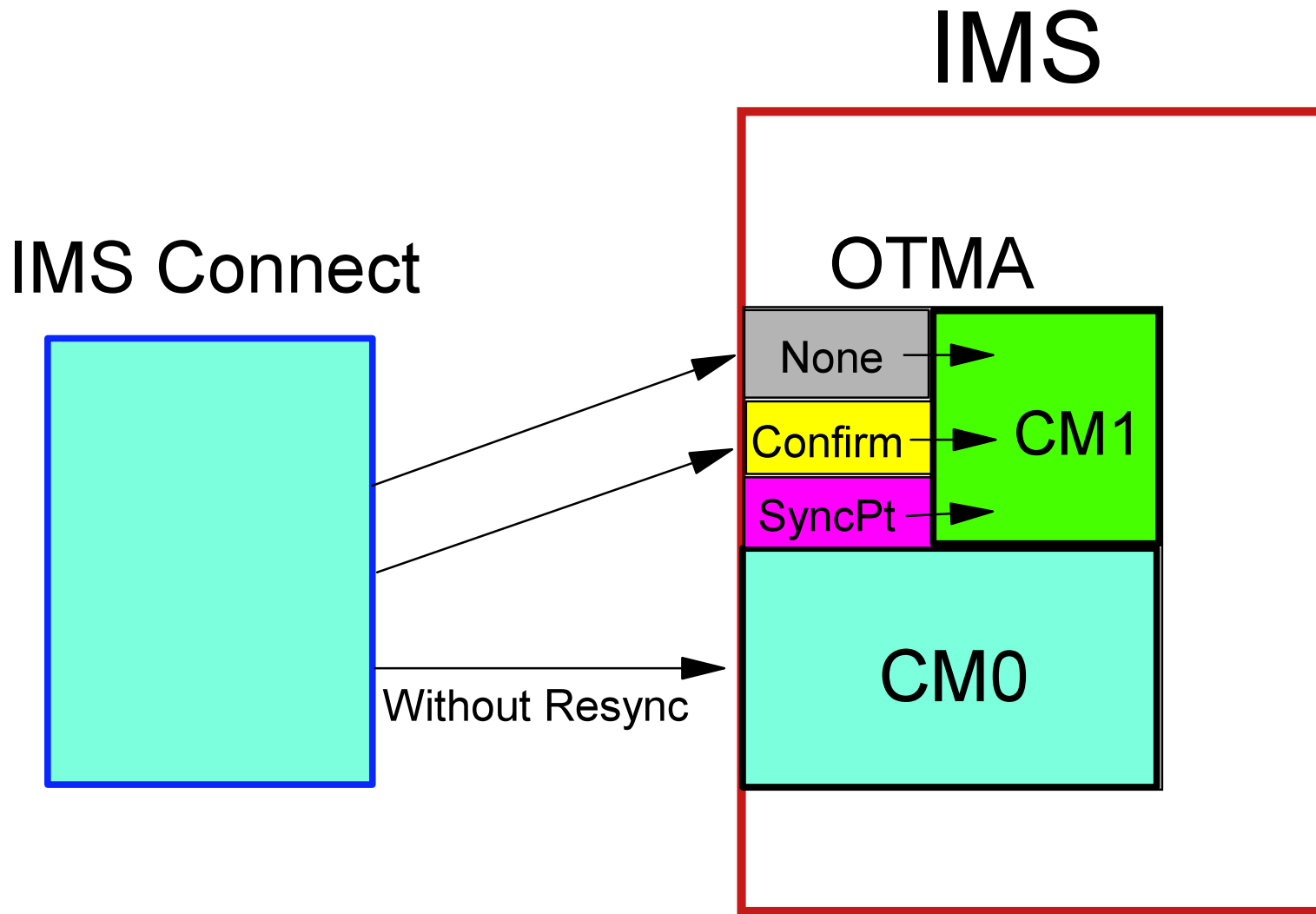
CM1 : Commit then Send
CM0 : Send then commit

How MQSeries uses OTMA

IMS

MQSeries

OTMA

None

Confirm

SyncPt

CM1

CM0

WITH Resync

CM1 : Commit then Send
CM0 : Send then commit

How Orbix uses OTMA

Orbix

IMS

OTMA

None

Confirm

SyncPt

CM1

CM0
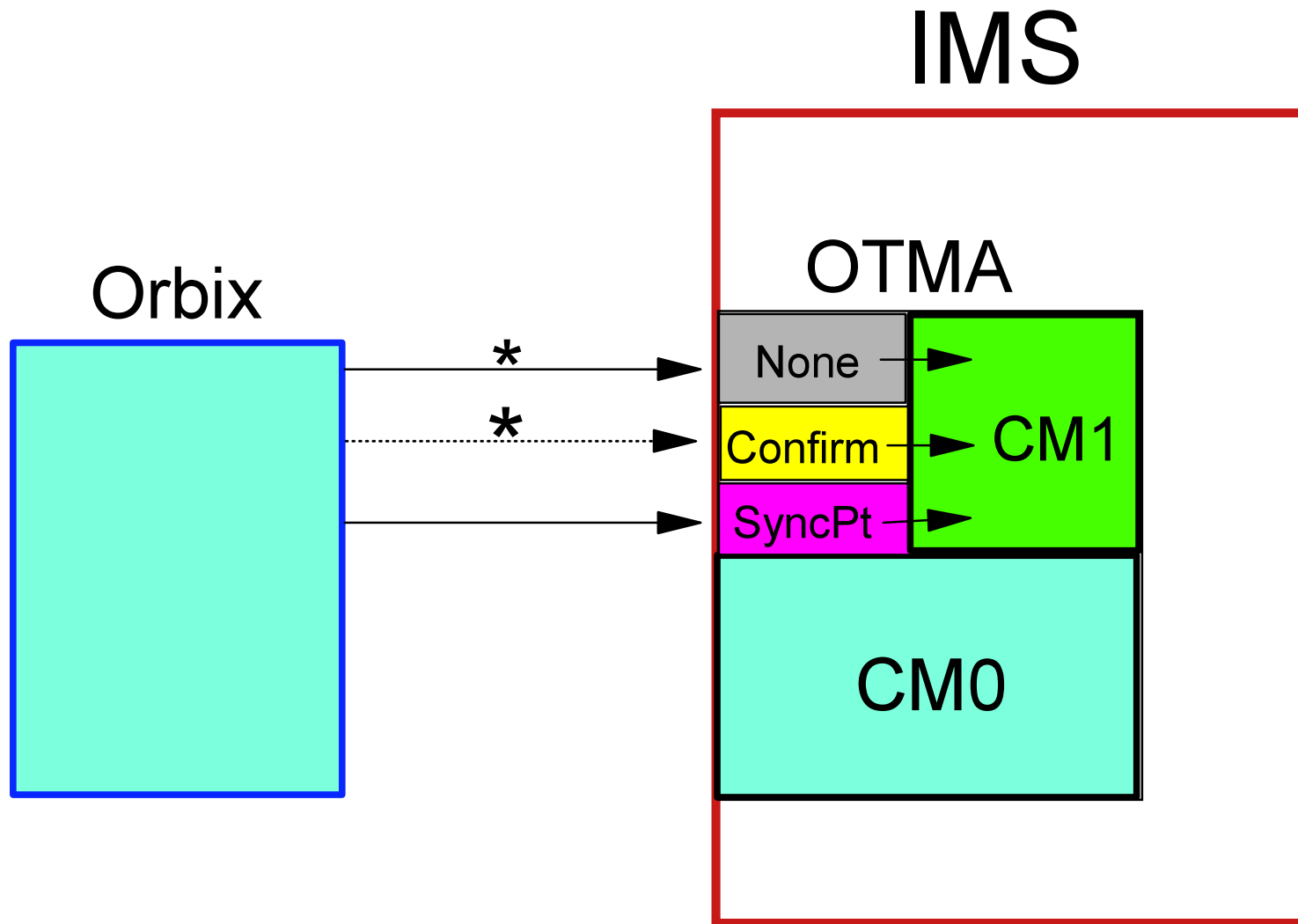
* APAR PQ51435 changes
the synclevel to None.

CM1 : Commit then Send
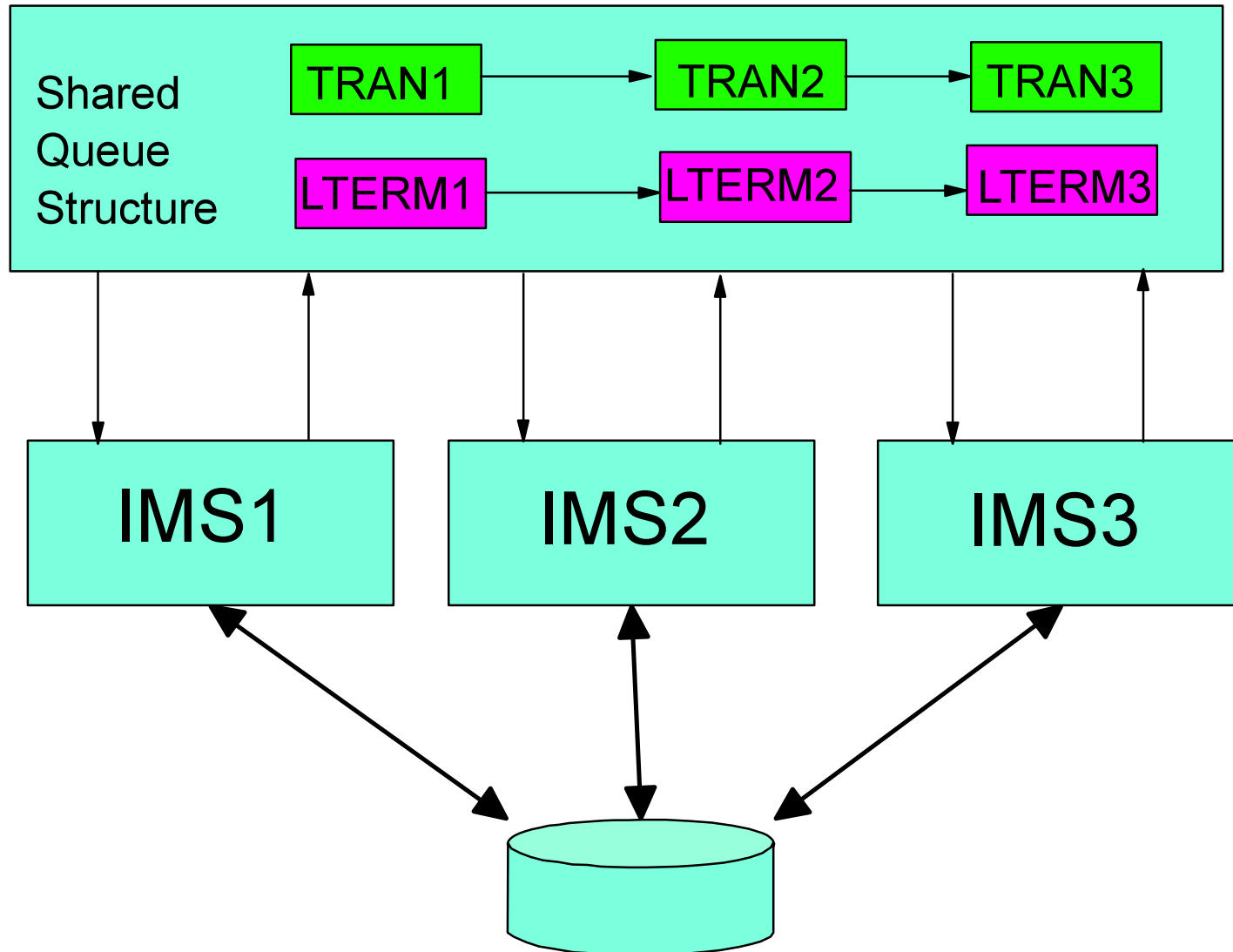CM0 : Send then commit

IMS2

IMS Connect → IMS1
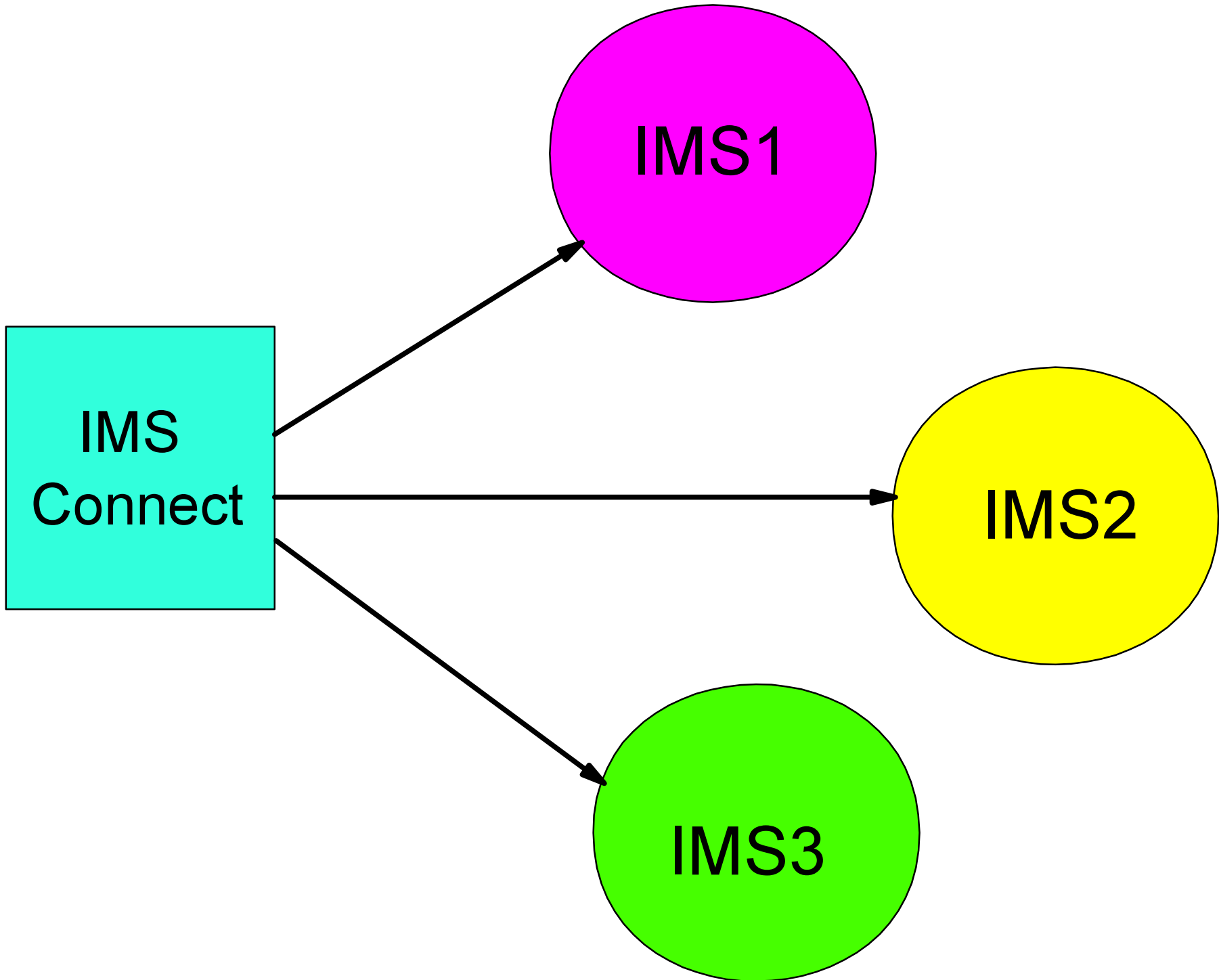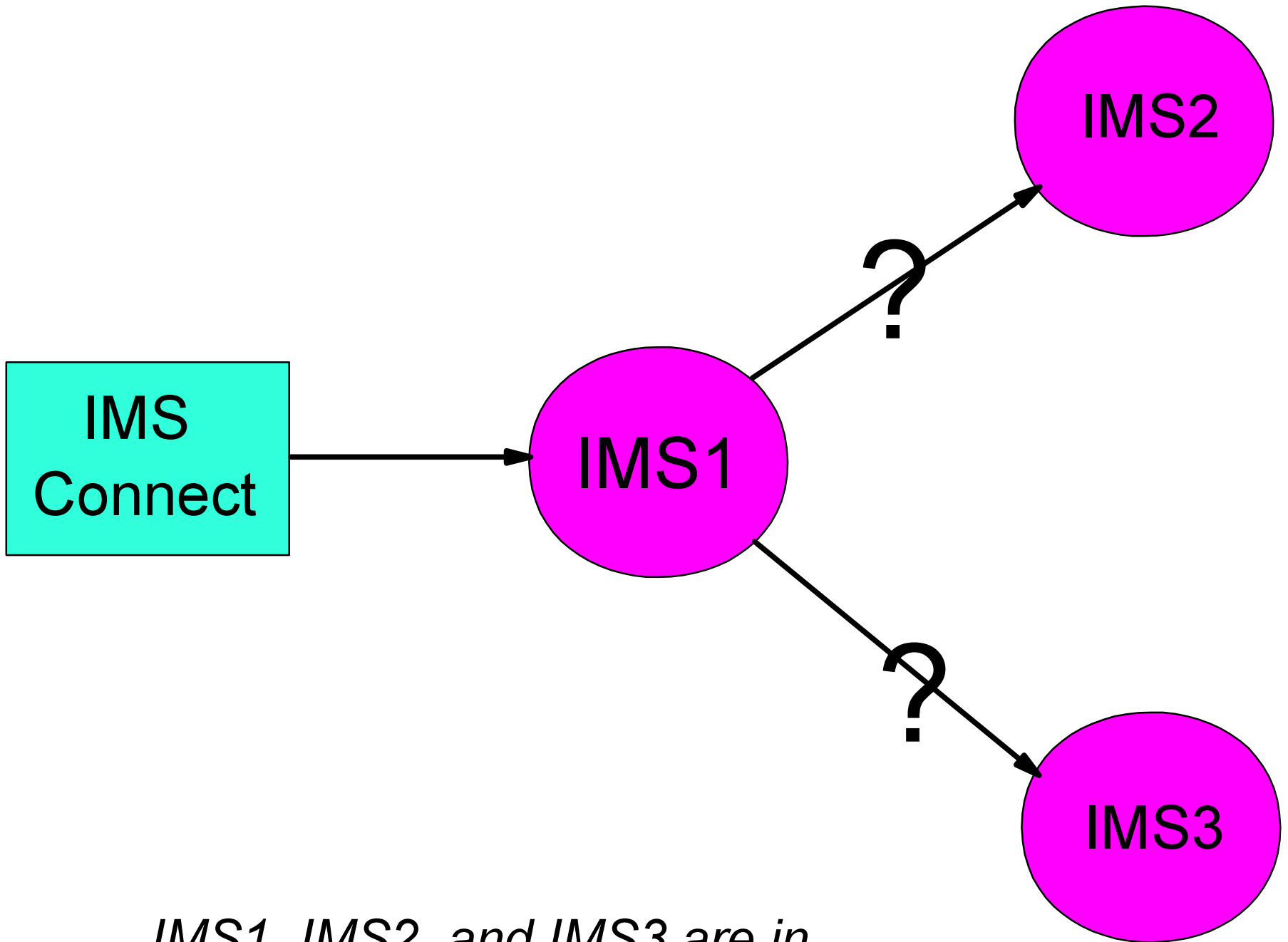
? → IMS2

? → IMS3

IMS1, IMS2, and IMS3 are in the IMS Shared Queue group.

What are Shared Queues?

A set of input and output message queues which can be shared by multiple IMSs in a Parallel Sysplex.

IMS Shared Message Queues

Coupling Facility

Shared Queue Structure

TRAN1 → TRAN2 → TRAN3

LTERM1 → LTERM2 → LTERM3

IMS1   IMS2   IMS3

IMS Shared Message Queues Example

IMS3

IMS2

Input

Output

IMS1

Coupling Facility

| Tran-Q | → | TranA | | RespA | ← | Lterm-Q |

IMS1,MPP1
IMS1,MPP2

IMS2,MPP1
IMS2,MPP2

IMS3,MPP1
IMS3,MPP2

IBM.

IMS Shared Message Queues Example

LTERMZ

Input   Output
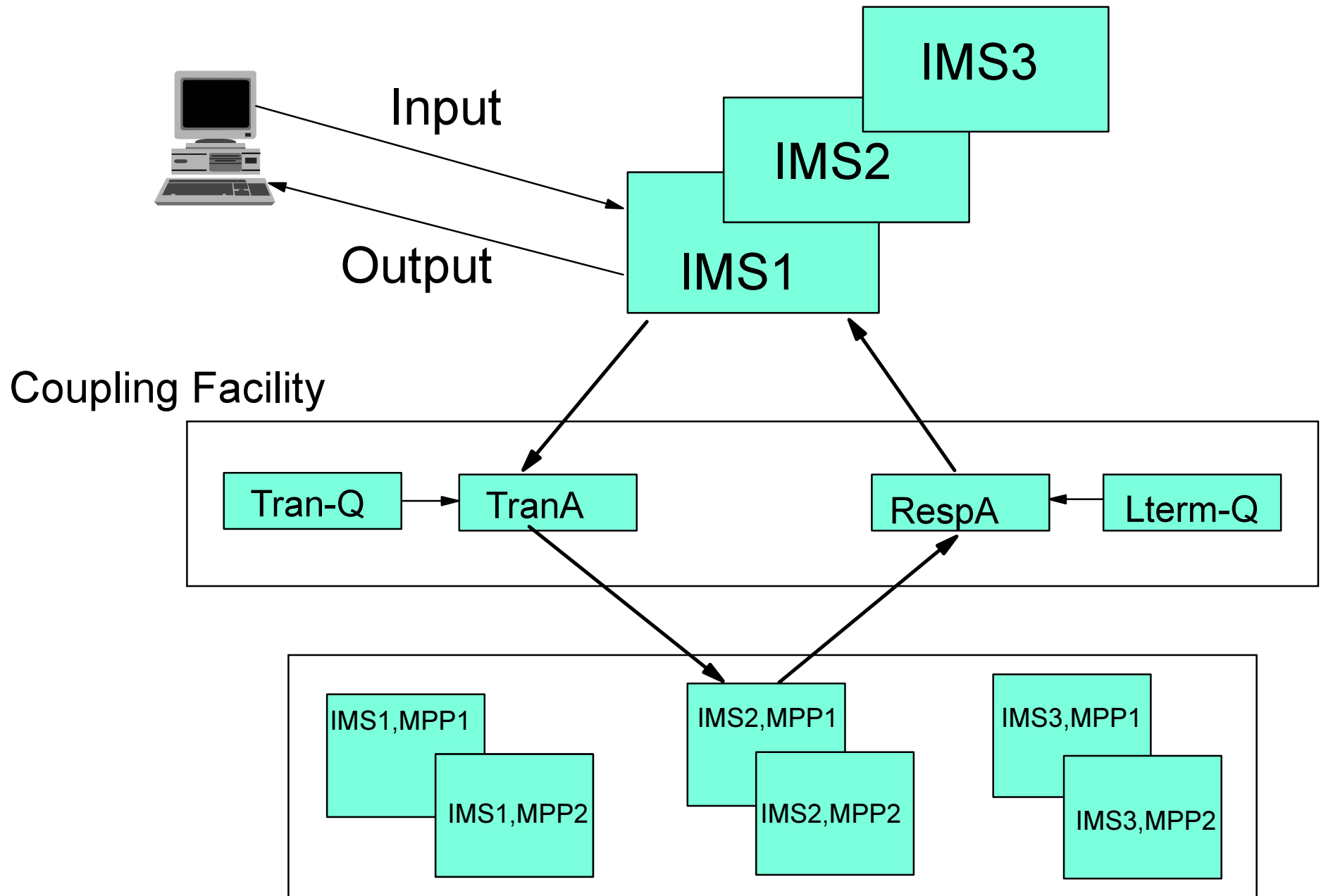
IMS1

Step1:
IMS1 receives TRANA from LtermZ and places it on shared queue.

Step4:
When IMS2 places response on LtermZ queue, IMS1 retrieves and delivers it.

Coupling Facility

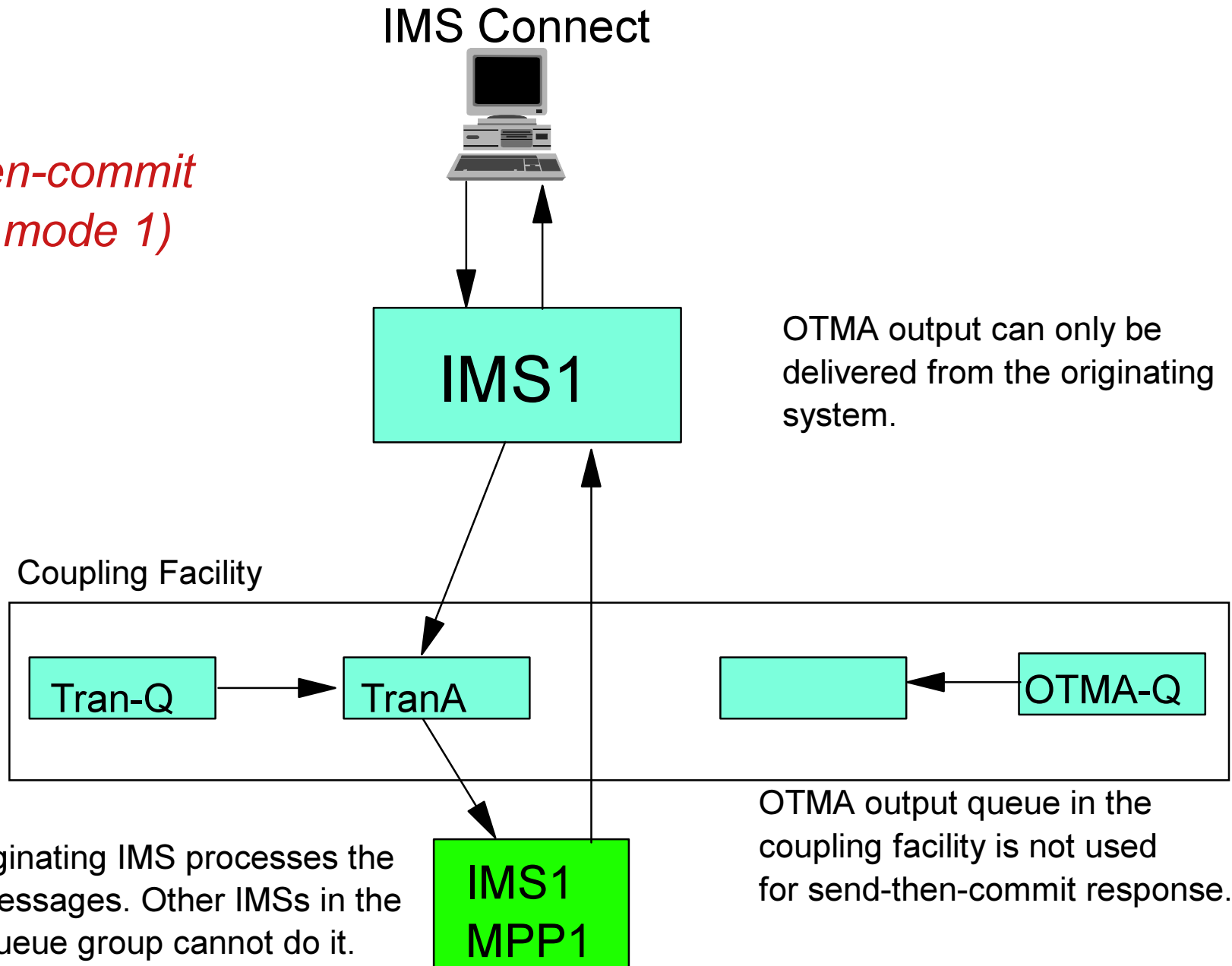| Tran-Q | → | TranA | | RespA | ← | Lterm-Q |

IMS2 MPP
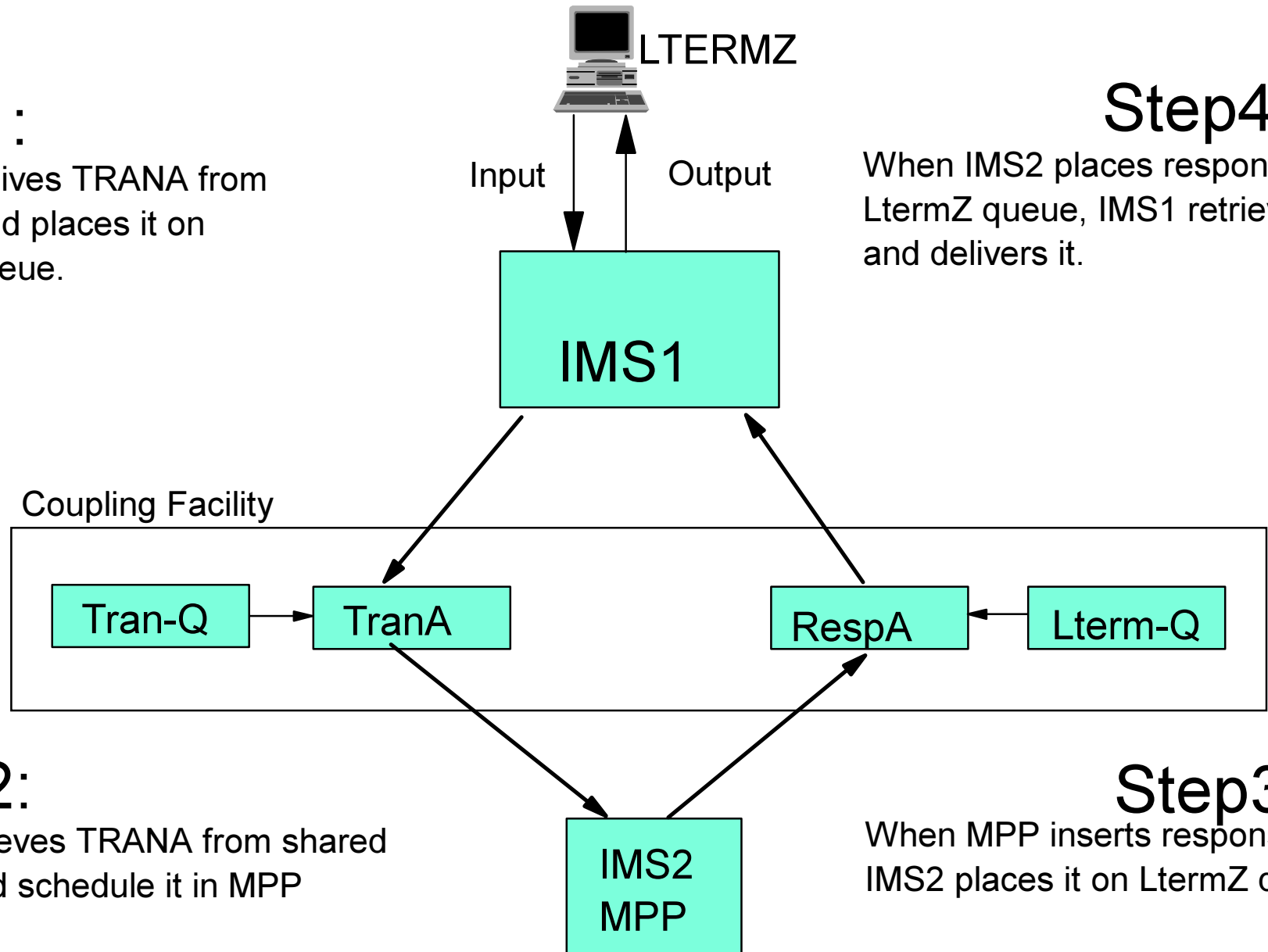
Step2:
IMS2 retrieves TRANA from shared queue and schedule it in MPP

Step3:
When MPP inserts response, IMS2 places it on LtermZ queue.

OTMA messages in IMS V6 Shared Queue Environment

IMS Connect

*Send-then-commit
(Commit mode 1)*

IMS1

OTMA output can only be delivered from the originating system.

Coupling Facility

| Tran-Q | → | TranA | | | | OTMA-Q |

IMS1
MPP1

* The originating IMS processes the OTMA messages. Other IMSs in the shared queue group cannot do it.

OTMA output queue in the coupling facility is not used for send-then-commit response.

IBM.

OTMA messages in IMS V6 Shared Queue Environment

*Commit-then-send
(Commit mode 0)*

IMS Connect

IMS1

OTMA output can only be delivered from the originating system.

Coupling Facility

Tran-Q → TranA

RespA ← OTMA-Q

IMS1
MPP1

* The originating IMS processes the OTMA messages. Other IMSs in the shared queue group cannot do it.

IBM.
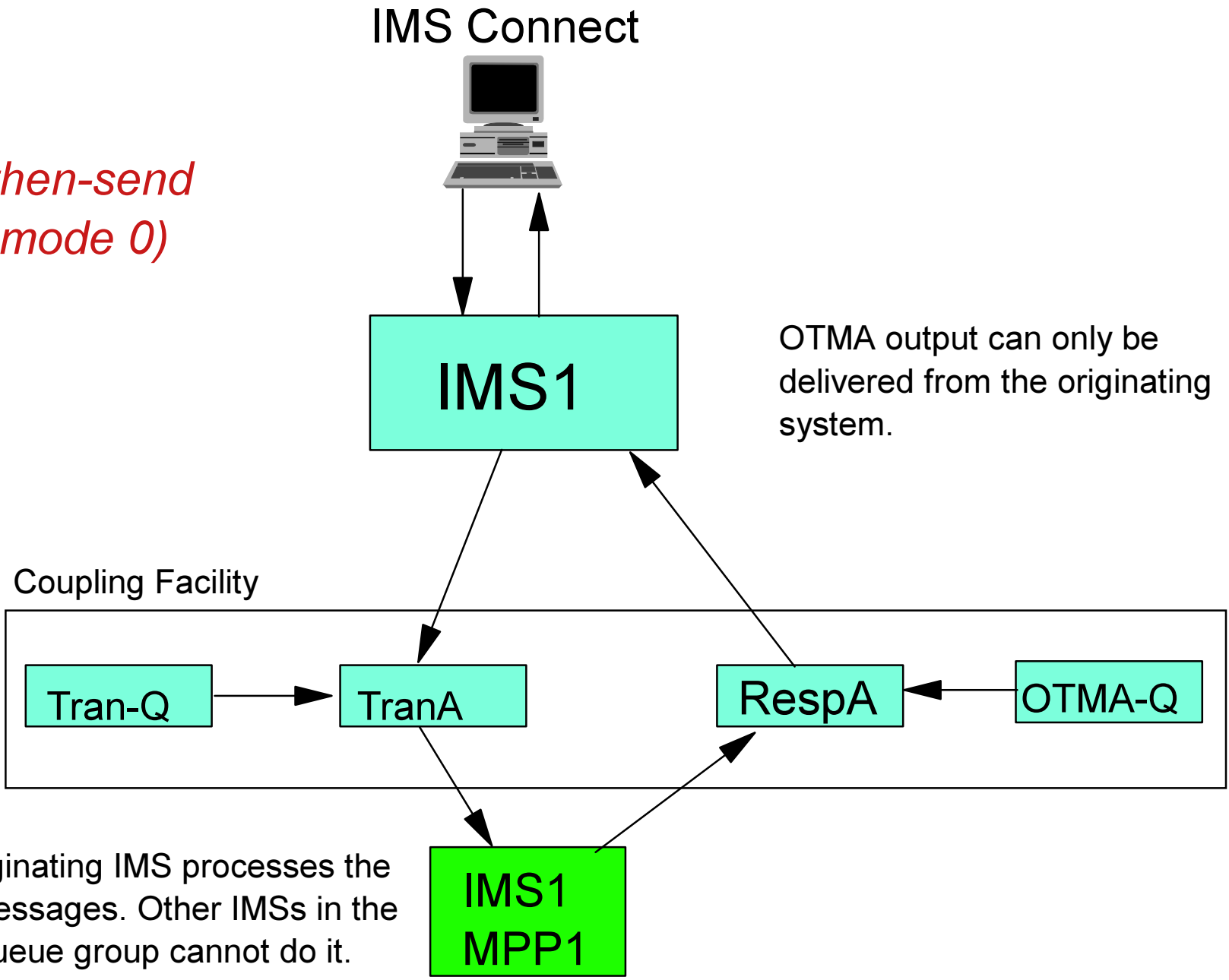
OTMA messages in IMS V6 Shared Queue Environment

- Non-MSC transactions entered from OTMA client
  - ► Transaction must run on the IMS which receives the OTMA messages.
  - ► Program switches also run on the same IMS.
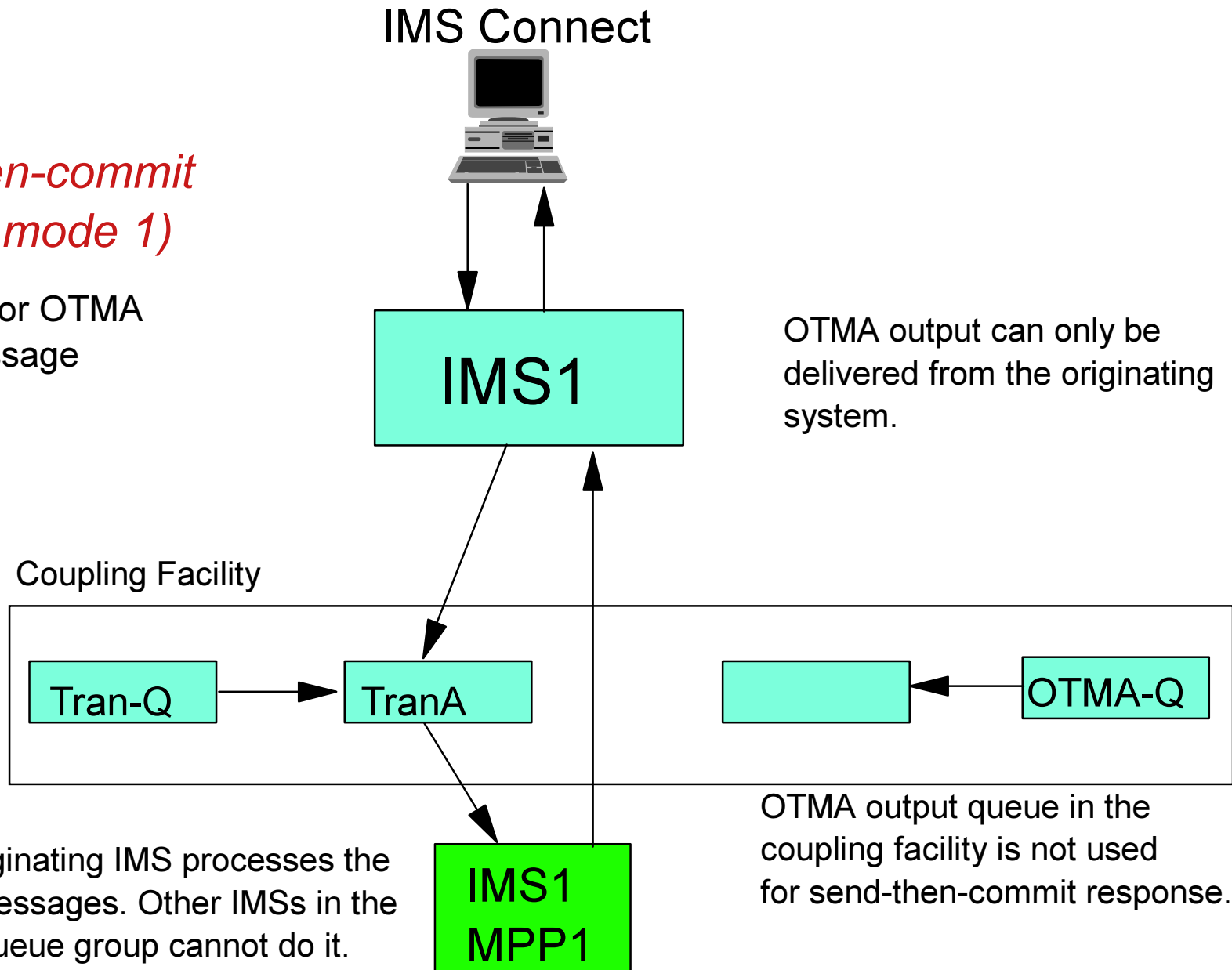 - ► Output can only be delivered from the same IMS, the originating IMS.

OTMA messages in IMS V6 Shared Queue Environment

- MSC transactions entered from OTMA client
  - ► MSC link may be defined on any IMS in the shared queue group.
  - ► Output can only be delivered from the originating IMS.

OTMA messages in IMS V7 Shared Queue Environment

IMS Connect

*Send-then-commit
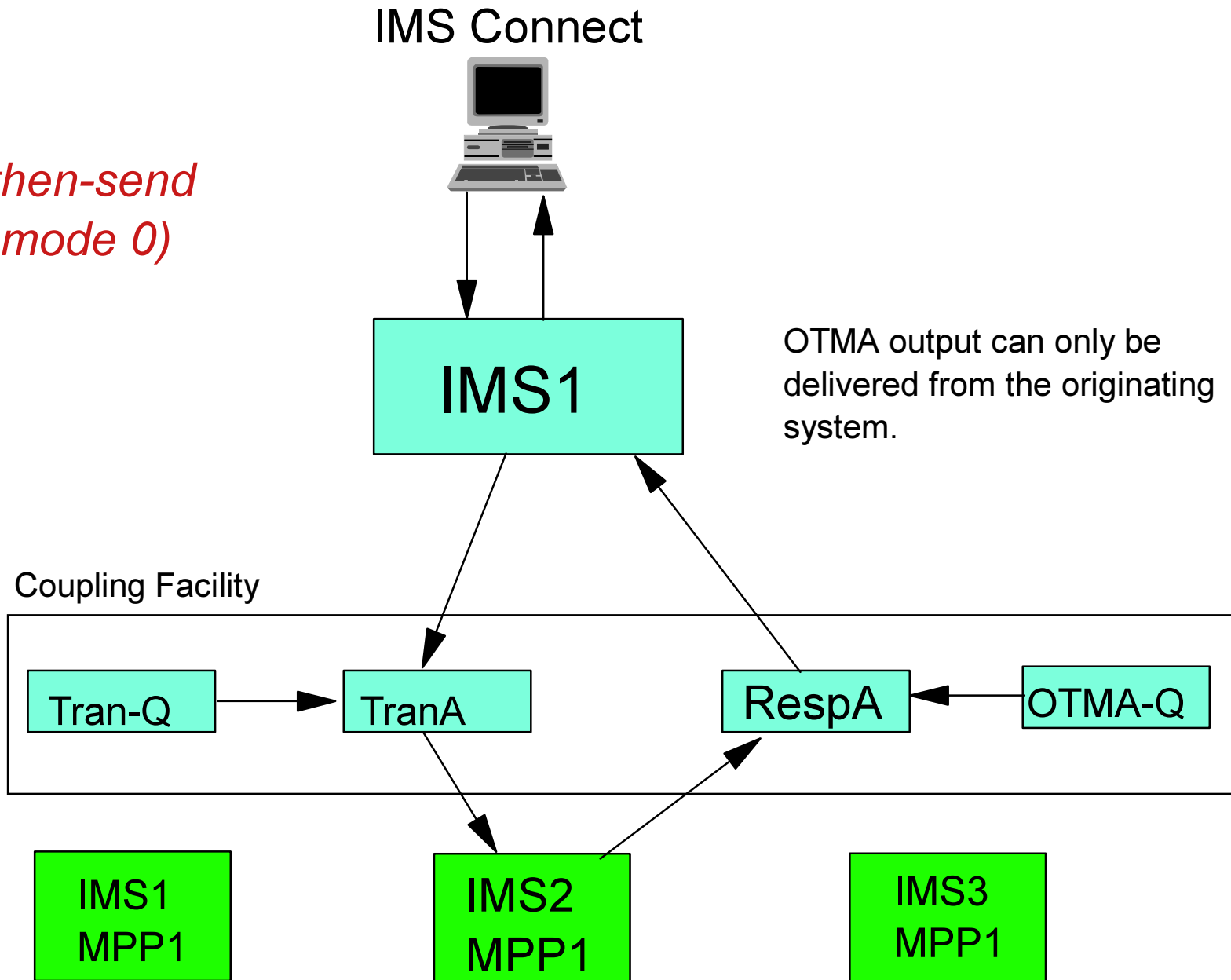(Commit mode 1)*

V6 = V7 for OTMA
CM1 message

IMS1

OTMA output can only be
delivered from the originating
system.

Coupling Facility

Tran-Q → TranA

OTMA-Q

IMS1
MPP1

OTMA output queue in the
coupling facility is not used
for send-then-commit response.

* The originating IMS processes the
OTMA messages. Other IMSs in the
shared queue group cannot do it.

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OTMA messages in IMS V7 Shared Queue Environment

IMS Connect

*Commit-then-send
(Commit mode 0)*

IMS1

OTMA output can only be
delivered from the originating
system.

Coupling Facility

| Tran-Q | TranA | RespA | OTMA-Q |

IMS1
MPP1

IMS2
MPP1

IMS3
MPP1

OTMA messages in IMS V7 Shared Queue Environment

- Commit-then-send transactions entered from OTMA client
  - ► Transaction must run on any IMS in the shared queue group.
  - ► Program switches can also run on any IMS.
  - ► Output can only be delivered from the originating IMS, the frontend IMS.
- Send-then-commit transaction processing remains the same. Only the originating IMS can process it.

/DIS TRAN ALL QCNT

- /DISPLAY TRAN ALL QCNT displays all of the transactions on the shared queue with a global queue count.
- It also displays an AFFINITY column which gives the IMS SYSID for transaction which have affinity for a particular IMS system.
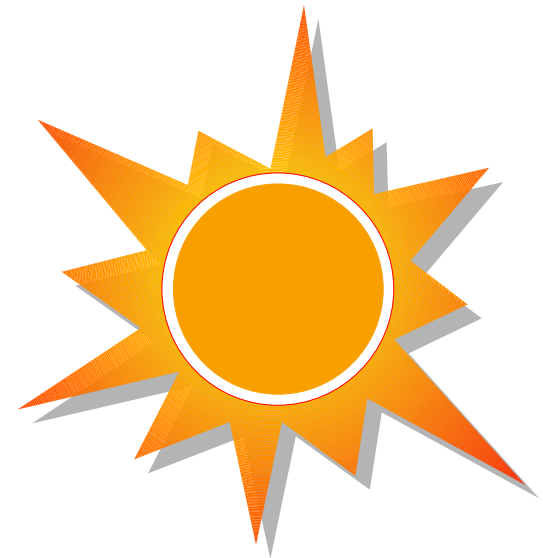
```
Entry:
/DISPLAY TRAN ALL QCNT

Response:
TRAN            GBLQCT          AFFINITY
SKS1            1234            IMS1
SKS1              56            IMS2
SKS1              78
```

User Requirements

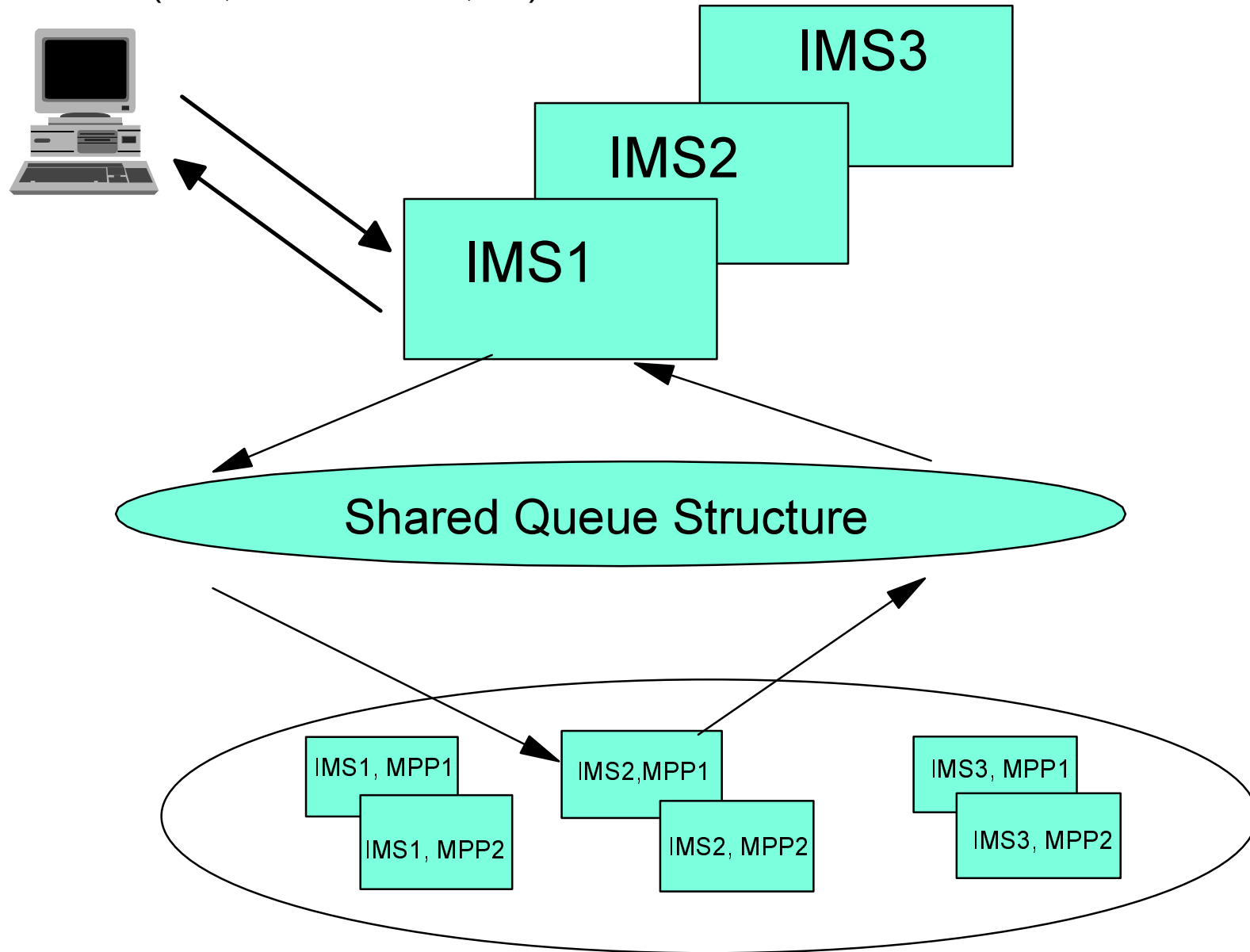Distribute workload in an IMSPLEX environment
for APPC synchronous transactions and
OTMA Send_then_commit (CM1) transactions.

Synchronous messages from
MVS APPC programs OR
OTMA Clients (MQ, IMS Connect, ...)

To be available in the future...

IMS3

IMS2

IMS1

Shared Queue Structure

IMS1, MPP1

IMS1, MPP2

IMS2,MPP1

IMS2, MPP2

IMS3, MPP1

IMS3, MPP2

Summary

- In IMS V6, OTMA workload cannot be distributed to any back-end system in the shared queue group.

  ▶ The IMS system which processes the OTMA messages is the same IMS system which receives the messages from the OTMA client.

- In IMS V7, the OTMA Commit-then-send messages can be processed on any IMS in the shared queue group.

- Distributing the workload in an IMSPLEX environment for OTMA Send_then_commit (CM1) transactions is the top requirement.