IBM IMS Connect Extensions for z/OS

Product Overview

IBM

IMS **Tools**

for z/OS

IBM IMS Connect Extensions for z/OS

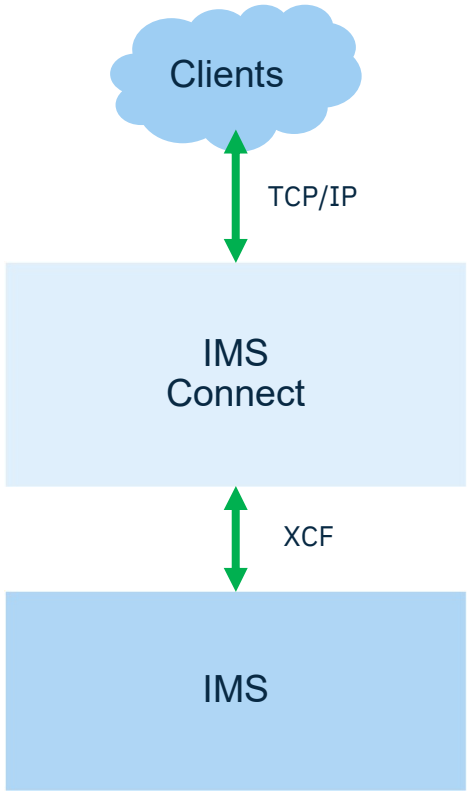
Mission statement:

> "For **IMS administrators** who need to maintain **availability**, **maintainability**, **flexibility**, and **costs** in the face of large, growing, or complex IMS Connect topologies and workloads, **IBM IMS Connect Extensions for z/OS** provides a **single point of control** for IMS Connect monitoring, OTMA and ODBM **workload balancing and shaping**, IMS **fallback routing** for flood conditions and maintenance scheduling, **access control and IP address rules**, and transaction **performance metrics** which cannot be obtained from IMS Connect alone."
>
> "For **IMS application developers** tasked with resolving **application issues**, IMS Connect Extensions provides **tracing** features better than the IMS Connect recorder trace and advanced analysis options via **off-host analytics platforms**."

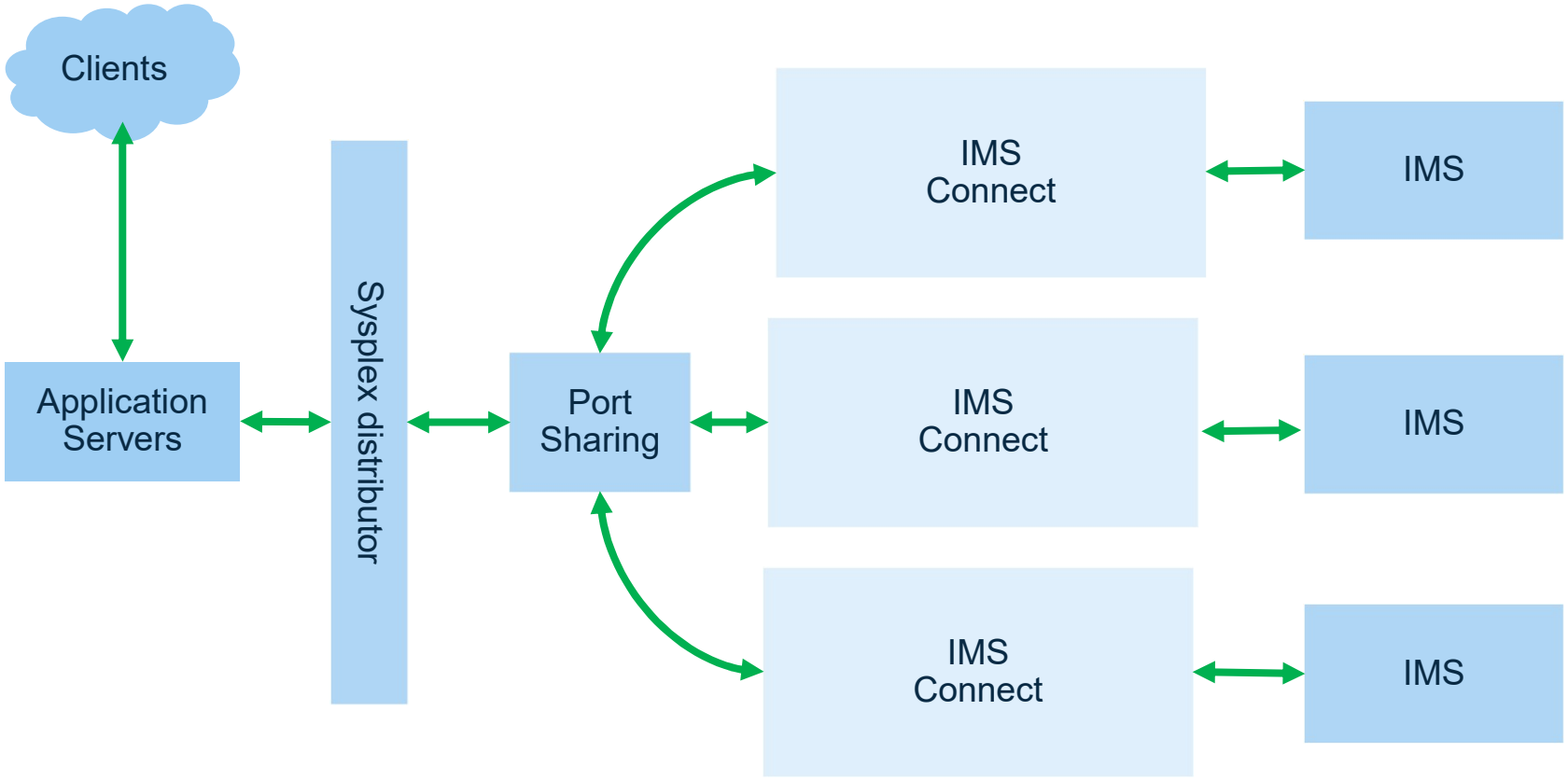
IMS Connect: A bridge between TCP/IP clients and IMS

High-performance TCP/IP communication between one or more IMS Connect clients and one or more IMS systems.

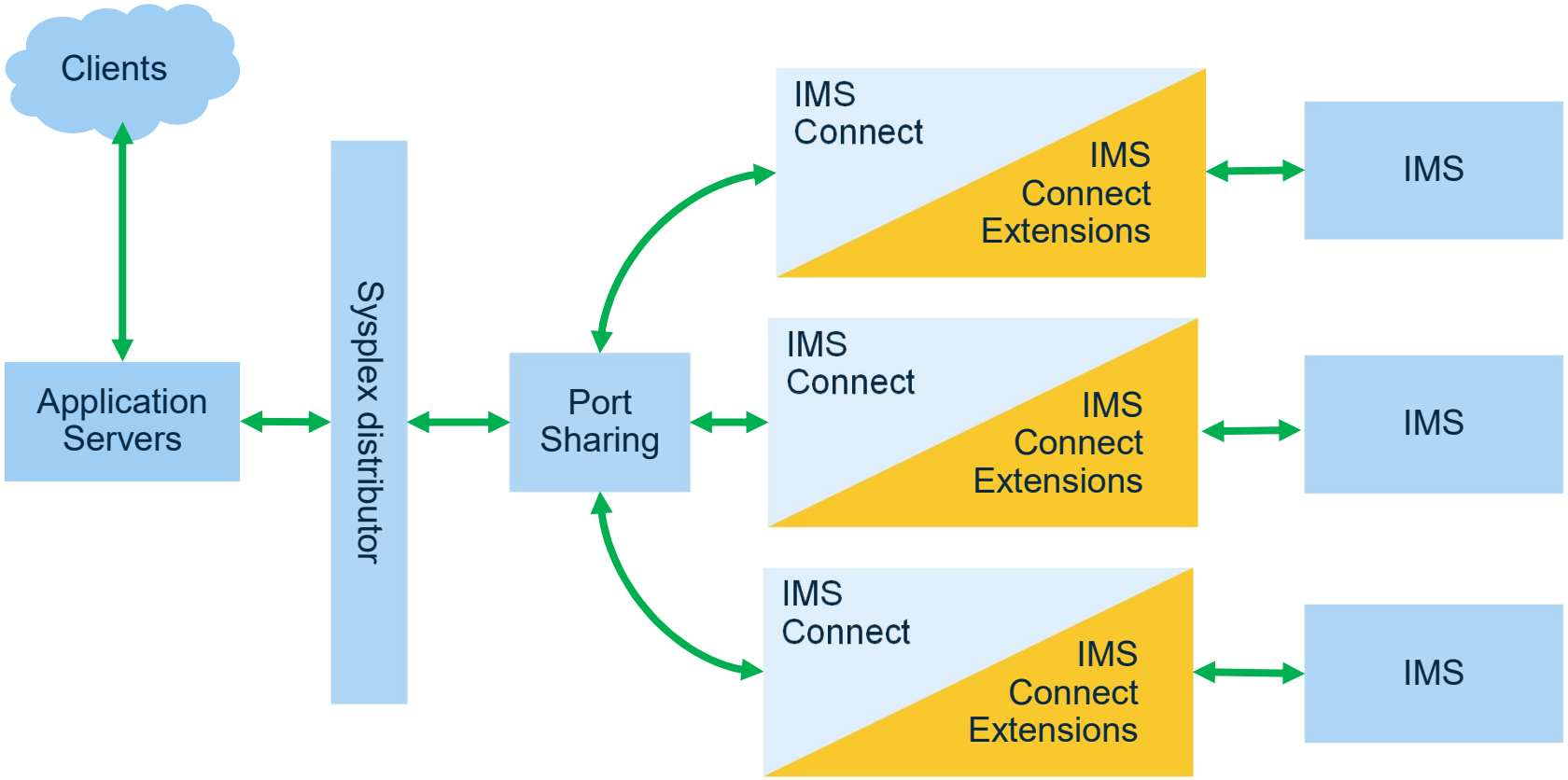
- IMS Connect provides access to:
  - IMS TM for transaction processing support through OTMA (XCF)
  - IMS DB through ODBM (Common Services Layer)
- Clients can include:
  - IMS TM Resource Adapter (TMRA):
    - z/OS Connect
    - Websphere
    - Other
  - IMS Universal Database resource adapter (Open Database/DRDA)
    - z/OS Connect
    - Websphere
    - Other
  - IMS Administration (IMS Explorer)
  - Intersystem Communication (ISC) and Multiple Systems Coupling (MSC)
  - SOAP gateway
  - Custom (roll your own)
    - Java / C API



Configuring for high availability/growing workloads/growing topologies



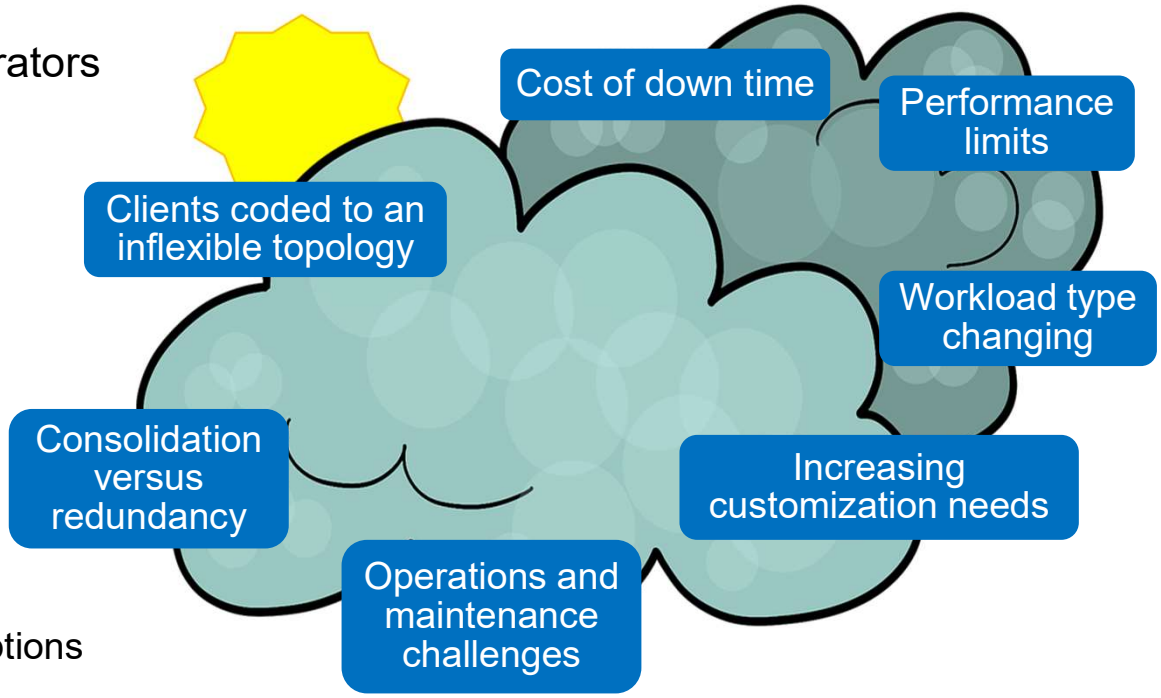
IMS Connect Extensions works in combination with IMS Connect



Challenges addressed by IMS Connect Extensions

As IMS Connect becomes more important and workload through IMS Connect continues to grow, systems administrators begin to seek…

- Higher IMS availability
- Greater/faster/easier scalability
- Systems that are workload-flexible
- Cost containment via:
  - Reduced bespoke customizations (e.g. via custom exits)
  - Greater implementation consistency across the enterprise
  - Easy reconfiguration and maintenance
  - Reduced troubleshooting effort/time
- Finer-grained access control/security options



Requirements must be met **while minimizing the disruption to existing client code and existing client instances**

IMS Connect Extensions feature summary

- **IMS Connect workload management**
  - Balance OTMA/ODBM workload across multiple IMS systems
  - Configure a primary/fallback IMS
  - Create custom routing rules/routing plans
  - Set up automatic session rebalancing
  - Security: access control + IP address rules
- **IMS Connect event collection**
  - Events, IRM and OTMA tracing (with IMS Problem Investigator or IBM Transaction Analysis Workbench)
  - Performance reporting, port usage, exception reporting, gap analysis, trace reporting, and OTMA routing behavior reporting (with IMS Performance Analyzer)
  - Event forwarding and analysis (with off-host data analytics platforms i.e. Splunk)
- **IMS Connect operations**
  - Single point of control (SPOC) for all your IMS Connect systems
  - ISPF dialog, Operations Console for z/OS Explorer, or develop your own workflows with REXX:
    - Status monitoring and usage statistics: IMS Connect, TCP/IP ports, DATASTORE connections to IMS, ODBMs, active sessions…
    - Operations: start/stop/drain a DATASTORE connection to IMS, stop an IMS Connect system, stop/drain an active session, start/stop IMS Connect Extensions trace, change routing plans, dynamically reshape workloads…

What are some of the things that IMS Connect Extensions adds to IMS Connect?

IMS Connect alone…	…with IMS Connect Extensions
Routing to IMS determined by TCP/IP client. • Client applications are locked to your IMS topology – they must know about your DATASTORE and ODACCESS statements. • One TCP/IP request -> one DATASTORE or ODBM target.	**Routing rules** create a layer that decouples your client applications from your IMS topology. Use virtual IMS targets and let the routing rule perform the translation. • Use routing rules to create abstractions (virtual targets) that improve scalability and allow for system consolidation. • One TCP/IP request -> any DATASTORE or ODBM target based on centrally controlled rules. Dynamically change rules to reshape workload distribution. • Improve parallelism (multiple DATASTOREs) and add redundancy (fallback IMS).
Status of each IMS Connect obtained from IMS Connect command output (e.g. **`VIEWHWS`**) in job logs. IMS Connect assets managed by commands on individual systems.	Centralized operations management and monitoring: • **Operations Console for z/OS Explorer** and **ISPF dialog** (multi-system view of all IMS Connect assets and client sessions with context-driven management options) • **REXX** (enabling IMS Connect automation) • **Event feed** (to analytics platforms such as Splunk)
Need to **customize exit to get instrumentation** (HWSTECL). **IRM and OTMA trace information** with IMS Connect Recorder Trace Facility.	• Write IMS Connect event records (with the option to **conditionally** include IRM and OTMA trace information) to the **IMS Connect Extensions journal**: 1. Browse the events in the journal with IMS Problem Investigator or IBM Transaction Analysis Workbench. 2. Process and report with IMS Performance Analyzer (performance, exceptions, port usage, transaction summary…) • **Forward transaction summary to analytics platforms** (e.g. Splunk) for performance analysis and monitoring
Security: access control with ACEE caching. Additional features require exit customization.	• **Validation** based on IMS Connect system name, client IP address, and target port. • **IP address rules** to centrally manage the **OTMA trusted user flag** • Set user ID from IP address rules and/or **AT-TLS client certificates** • **Audit** of activity in journal (including network security credentials)

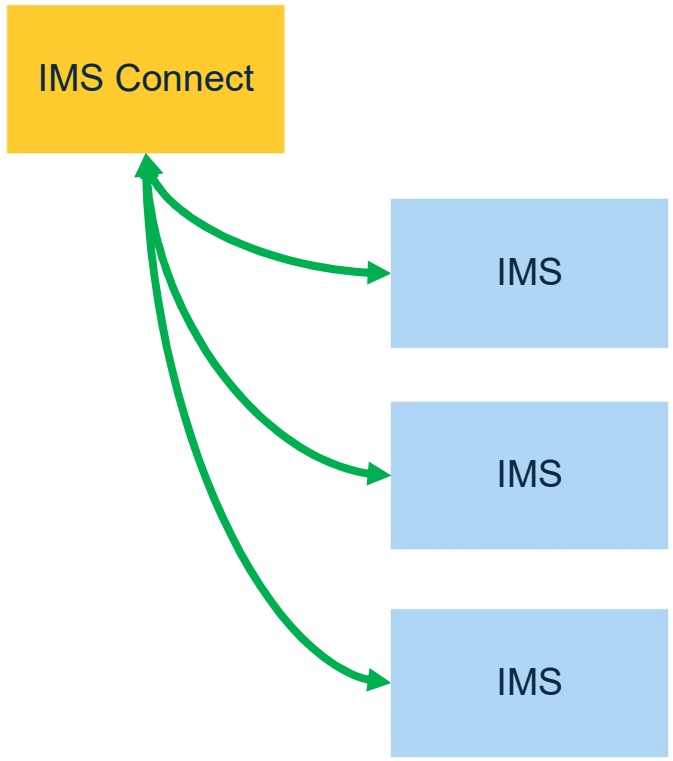
IMS Connect workload management

Implementing and monitoring OTMA and ODBM rules-based routing with IMS Connect Extensions

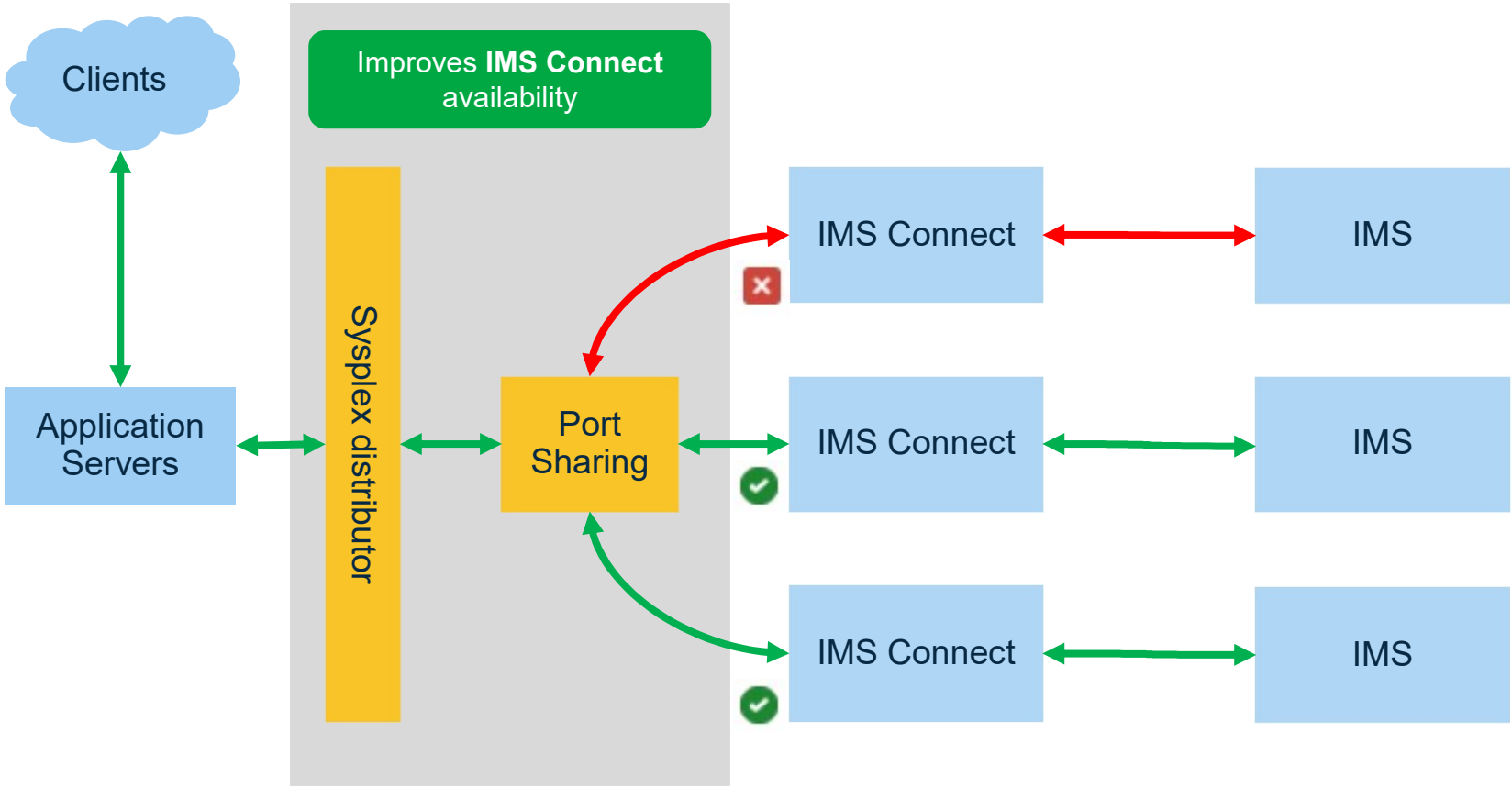
IMS Connect workload management

What's involved?

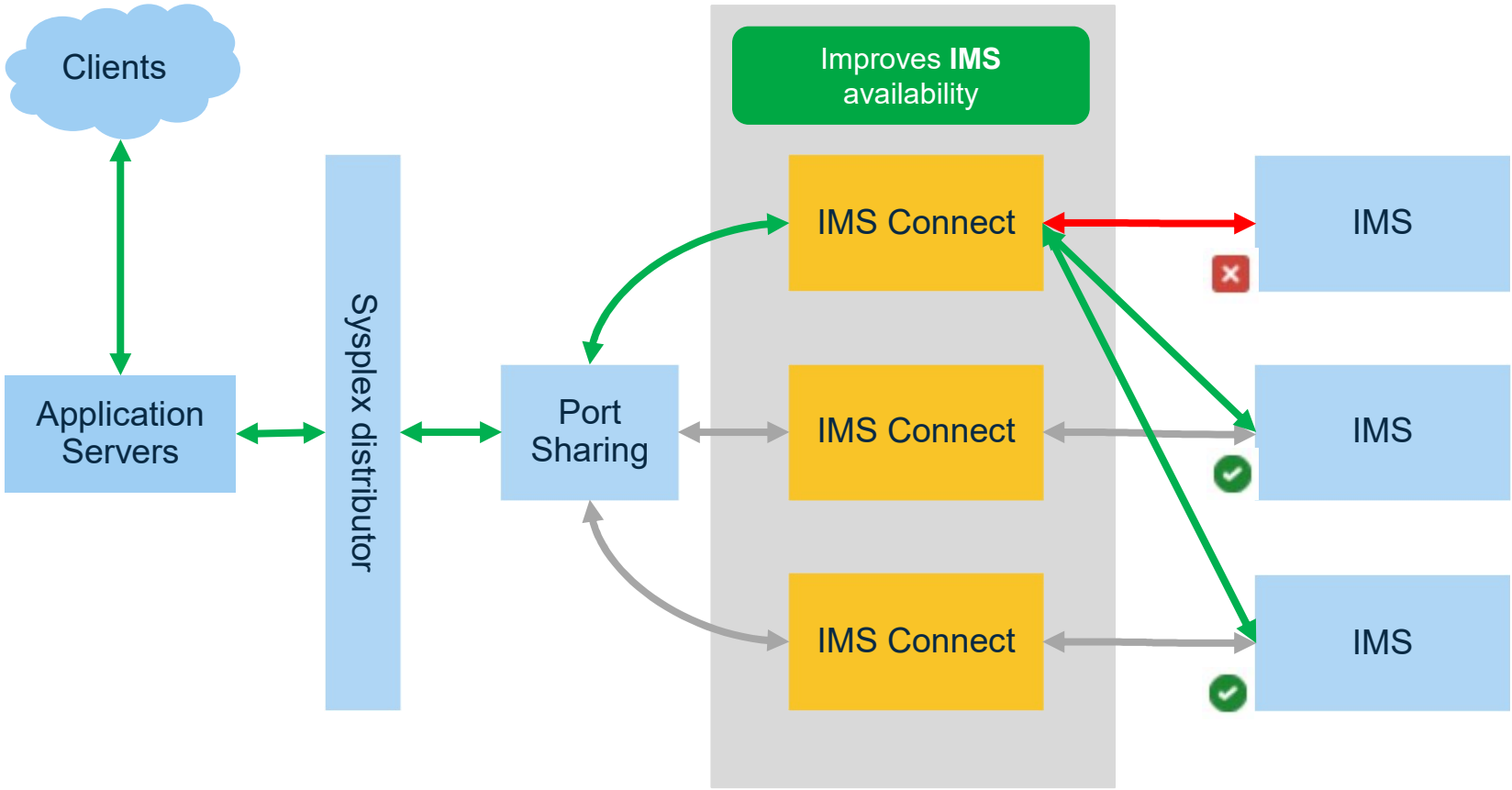
- **IMS** and **IMS Connect**
- Multiple **DATASTORE and ODBM-based connections** to IMS systems from IMS Connect
- **IMS Connect Extensions** routing rules to:
  - Balance workload across several IMS systems to avoid stress on a single system
  - Route workload to other IMS destinations when an IMS experiences a flood warning/flood condition or otherwise unavailable (scheduled maintenance or outage)
  - Dynamically reshape workload distribution
  - Decouple client applications from the underlying IMS topology
- Performance monitoring and making adjustments



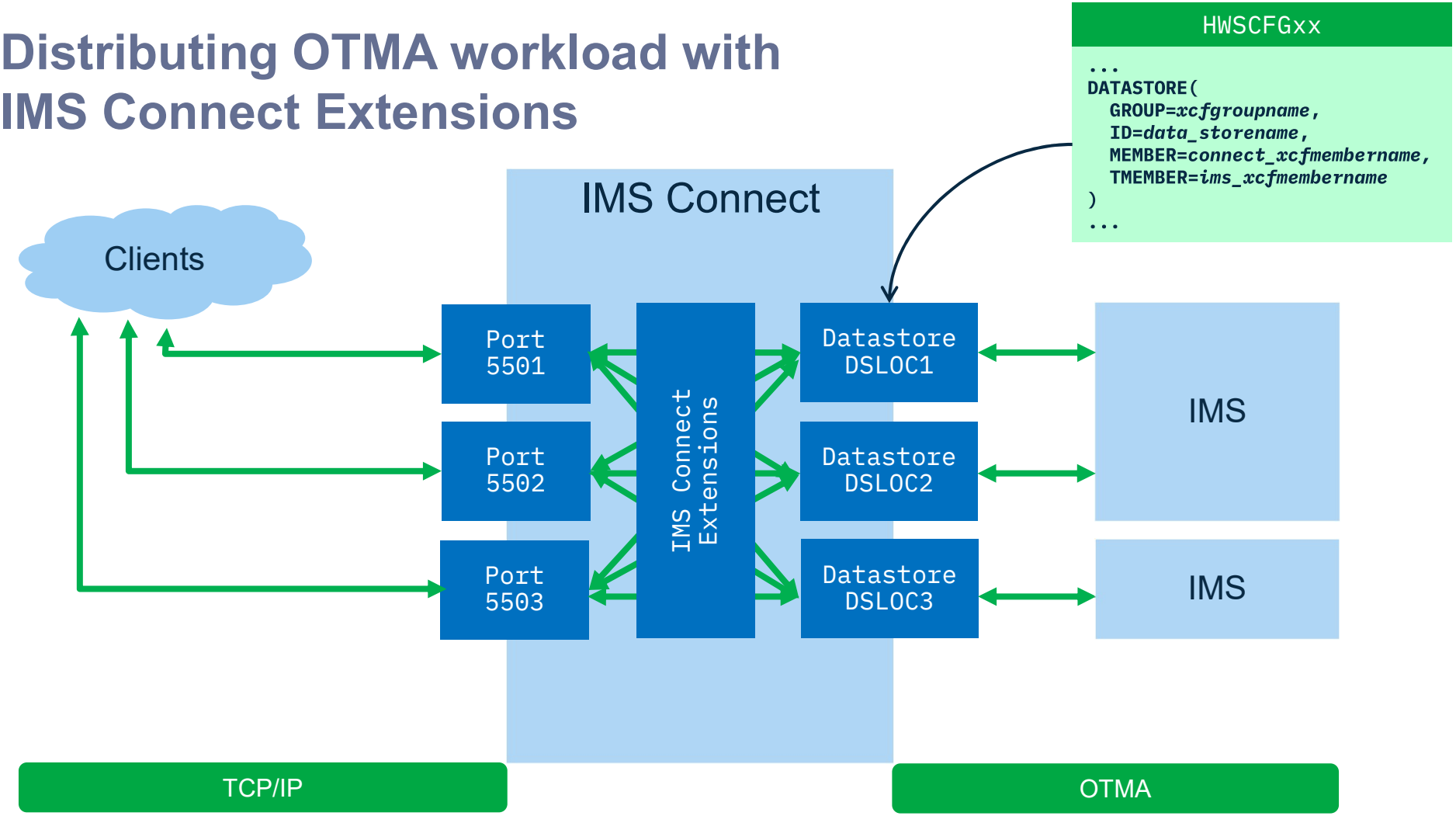
Managing TCP/IP workload coming into IMS Connect



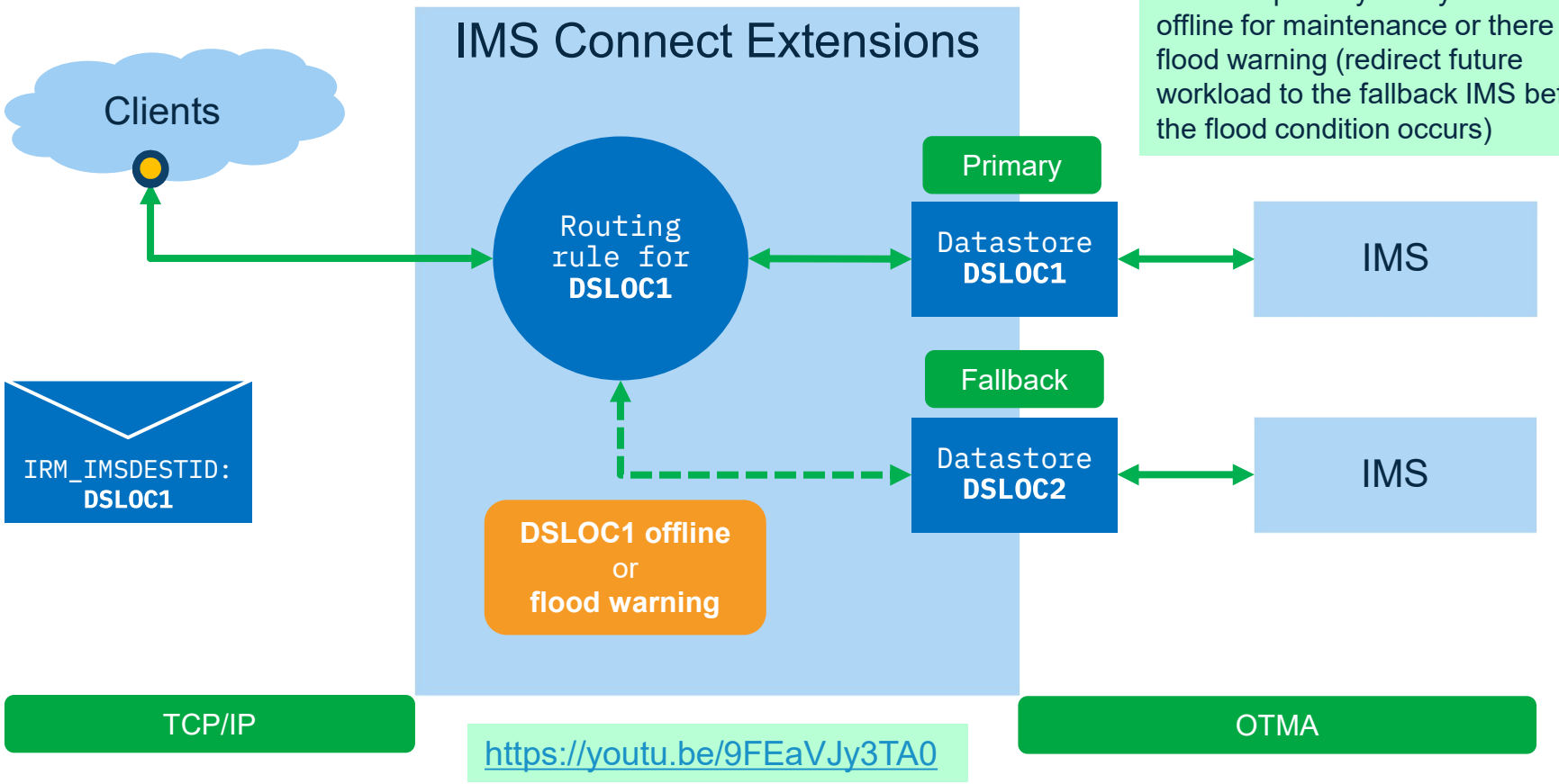
Managing OTMA workload coming in to IMS



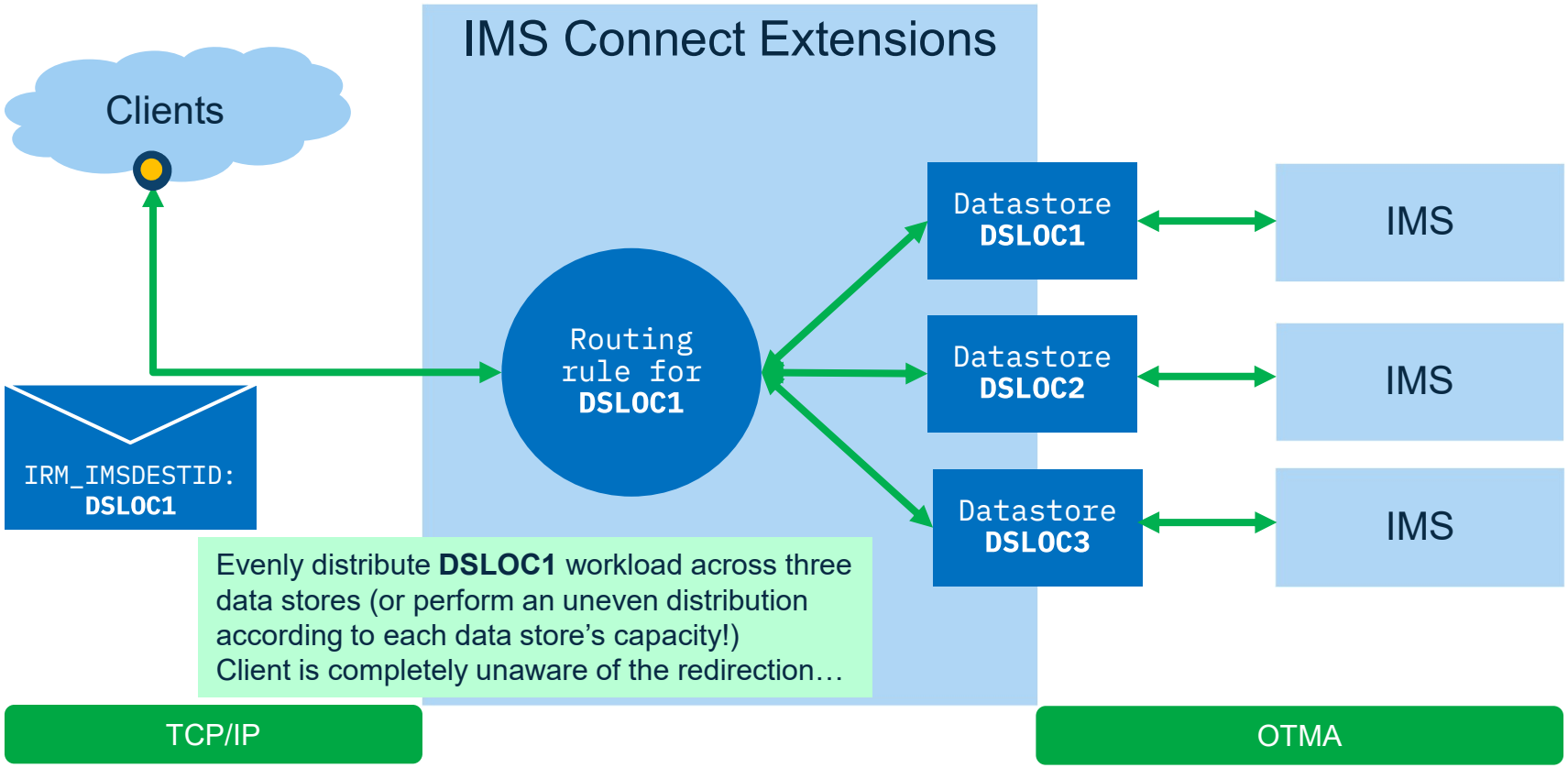
Distributing OTMA workload with IMS Connect Extensions



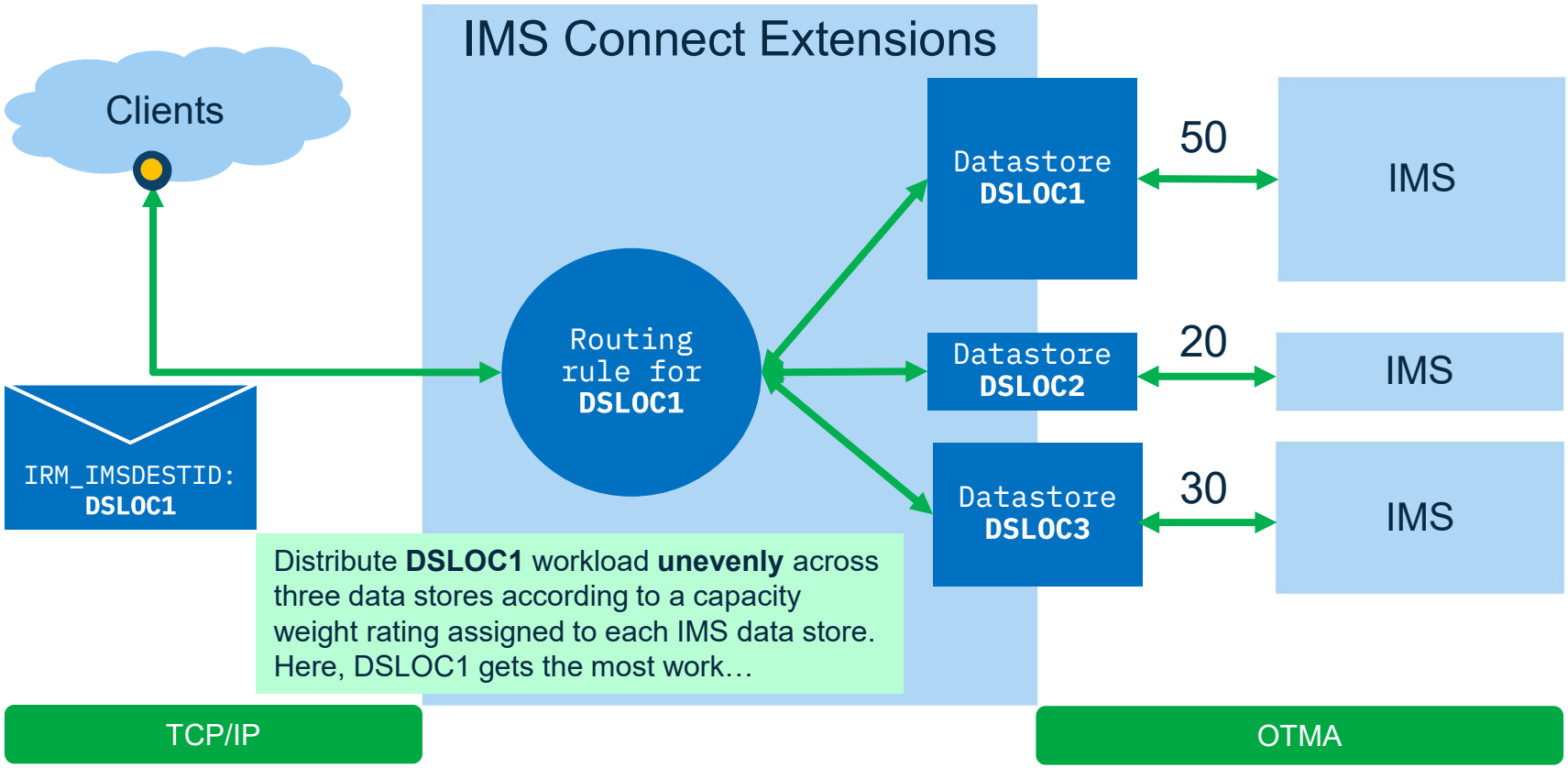
Routing techniques: primary and fallback



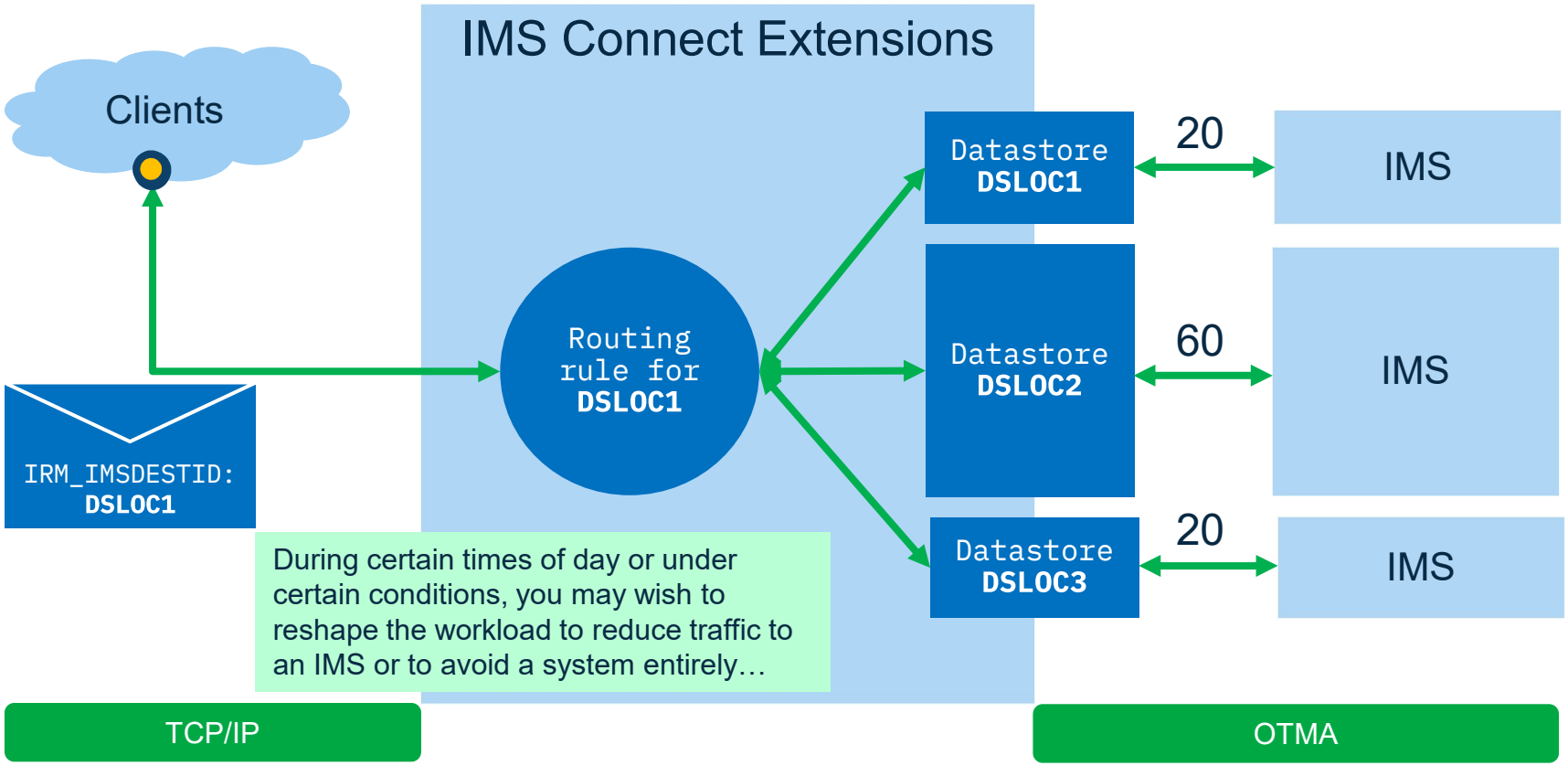
Routing techniques: workload balancing



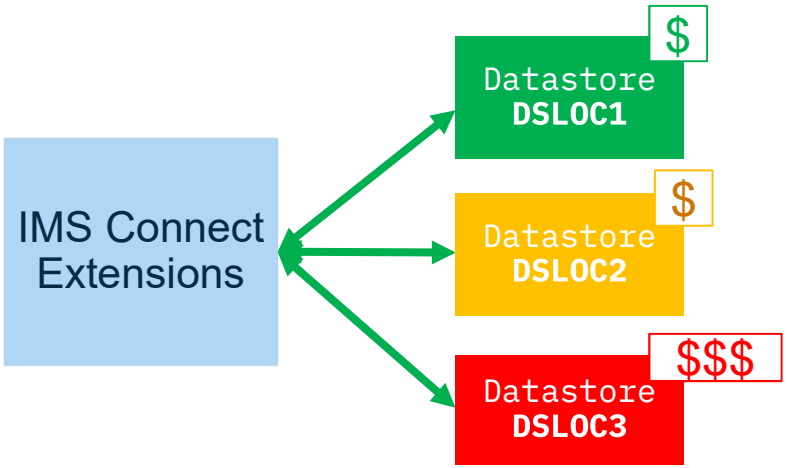
Routing techniques: workload w/capacity rating

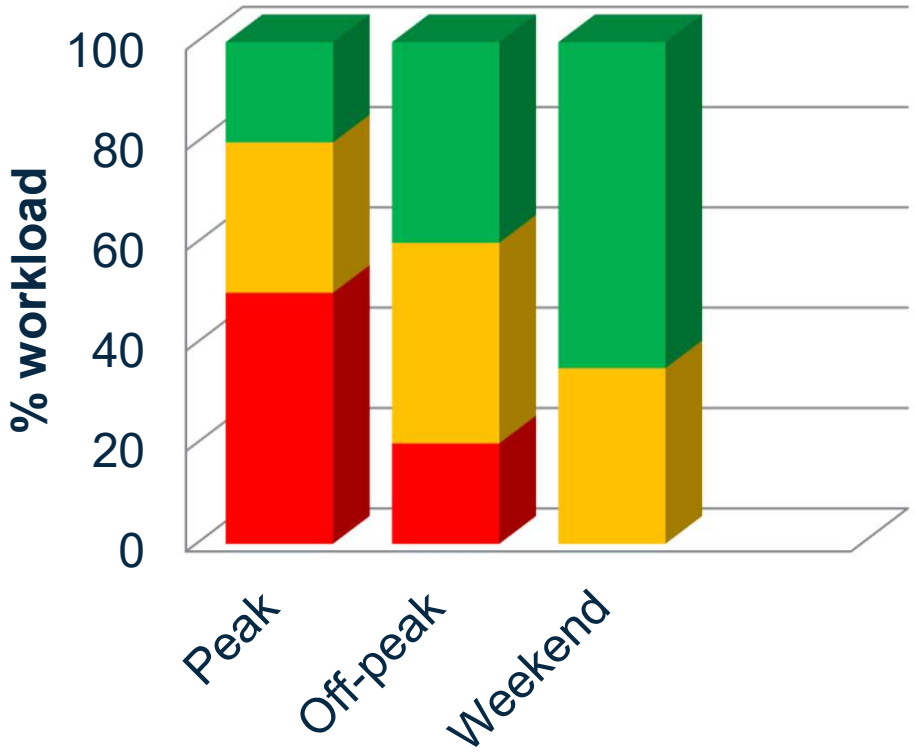


Routing techniques: dynamically change capacity



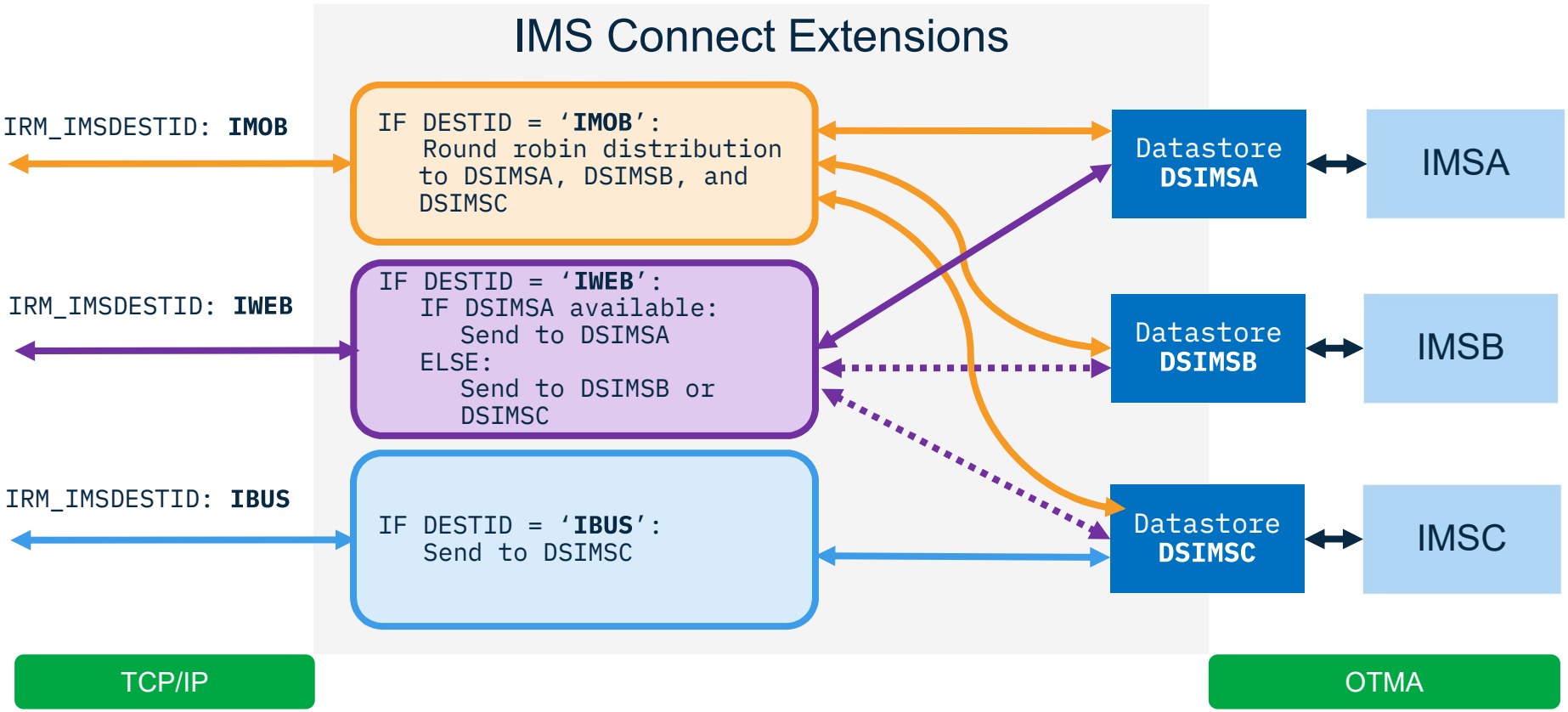
User Story: Dynamically change the workload balance by schedule/demand





Because capacity weight ratings allow you to favour certain DATASTORE connections over others, you can set up REXX-based automation to dynamically change the weightings according to the day of the week, time of day, or manually via z/OS Explorer/ISPF during maintenance, etc.…

Routing techniques: a plan with multiple rules



Routing techniques: monitor and review

IMS Performance Analyzer
ICON WORKLOAD DISTRIBUTION

SUMM0001 Printed at 20:11:46 17Jan2018

Original Datastor	Target Datastor	Dest Tmember	Tran Count
IBUS	DSIMSC	XCFMIMSC	212
IMOB	DSIMSA	XCFMIMSA	53
IMOB	DSIMSB	XCFMIMSB	52
IMOB	DSIMSC	XCFMIMSC	54
IWEB	DSIMSA	XCFMIMSA	192
IWEB	DSIMSB	XCFMIMSB	34
IWEB	DSIMSC	XCFMIMSC	33

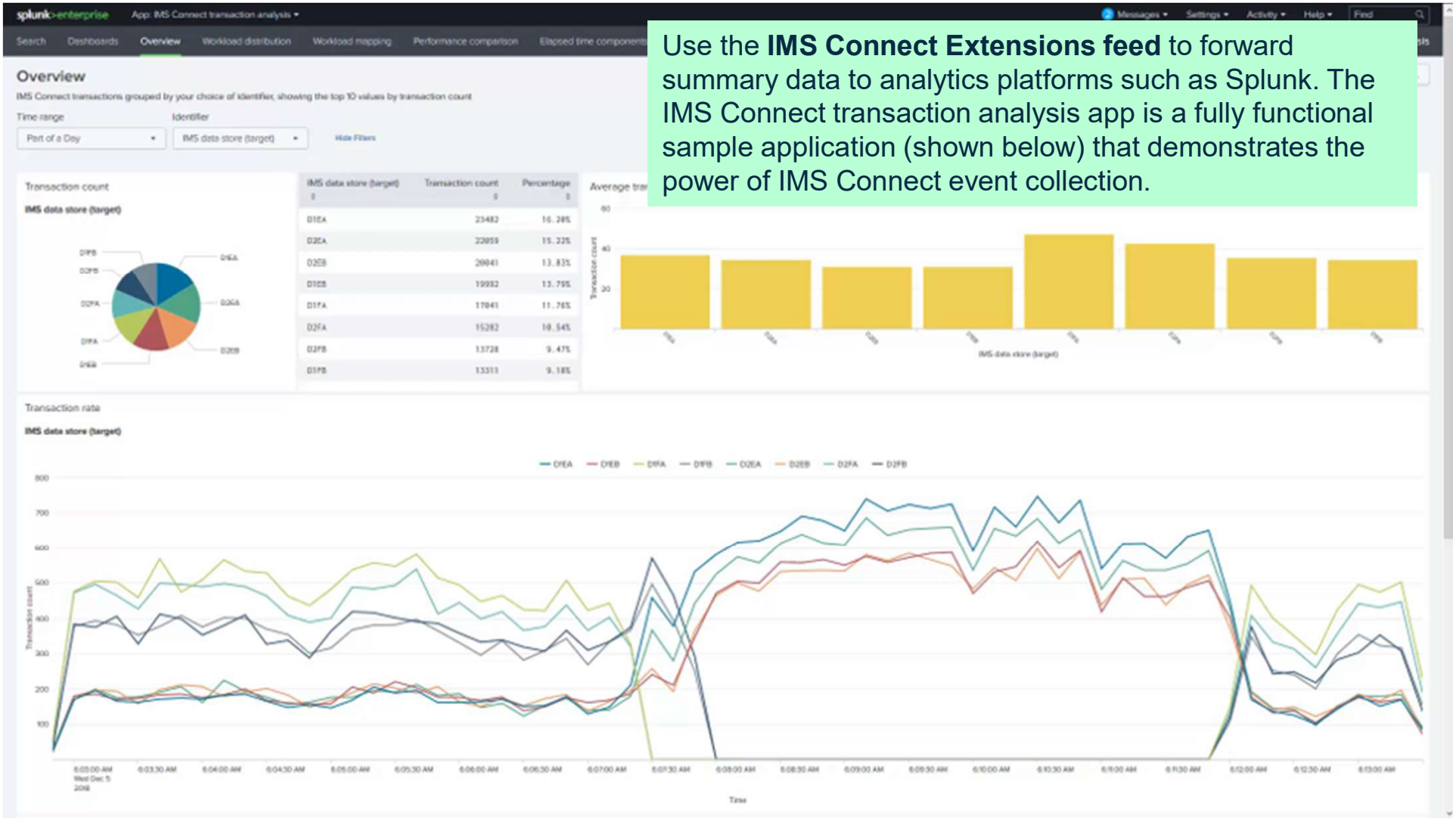
The **IMS Connect Extensions journal** records routing decisions made by its rules based routing feature. Use the journal in combination with **IMS Performance Analyzer** to see how your workload is being distributed…

Number of transactions

Data store requested by TCP/IP client (IMOB)

The data stores that were used to process the requests

The names of the IMS systems in the XCF group



Use the **IMS Connect Extensions feed** to forward summary data to analytics platforms such as Splunk. The IMS Connect transaction analysis app is a fully functional sample application (shown below) that demonstrates the power of IMS Connect event collection.

splunk>enterprise App: IMS Connect transaction analysis ▾ 2 Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

Search Dashboards Overview Workload distribution Workload mapping Performance comparison Elapsed time components Documentation ↗ IMS Connect transaction analysis

Overview

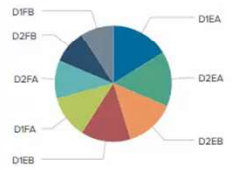
Edit Export ▾ ...

IMS Connect transactions grouped by your choice of identifier, showing the top 10 values by transaction count

Time range: Part of a Day ▾ Identifier: IMS data store (target) ▾ Hide Filters

Transaction count

IMS data store (target)

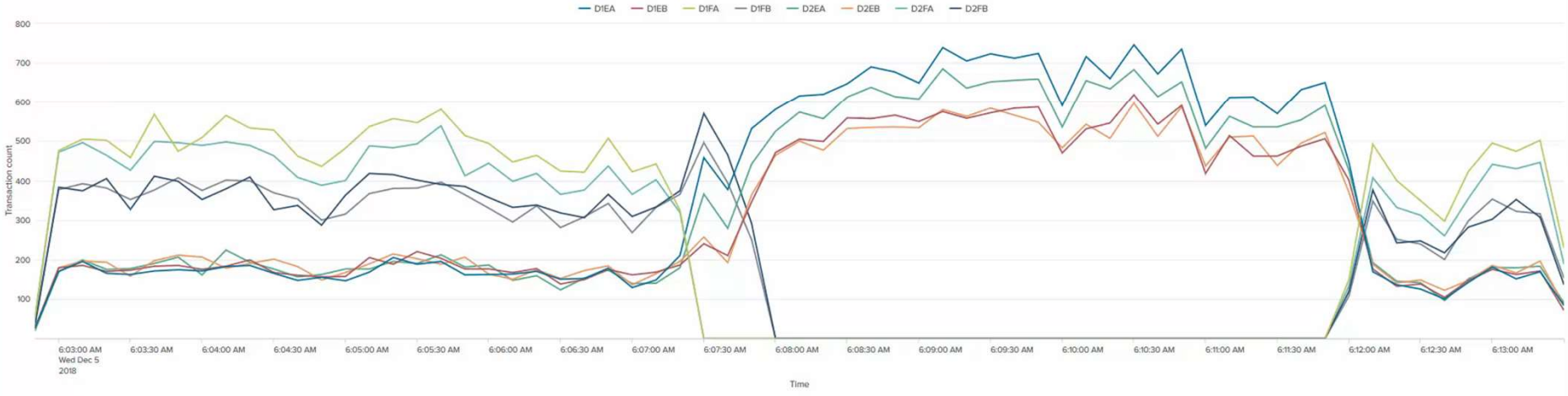


IMS data store (target)	Transaction count	Percentage
D1EA	23482	16.20%
D2EA	22059	15.22%
D2EB	20041	13.83%
D1EB	19992	13.79%
D1FA	17041	11.76%
D2FA	15282	10.54%
D2FB	13728	9.47%
D1FB	13311	9.18%

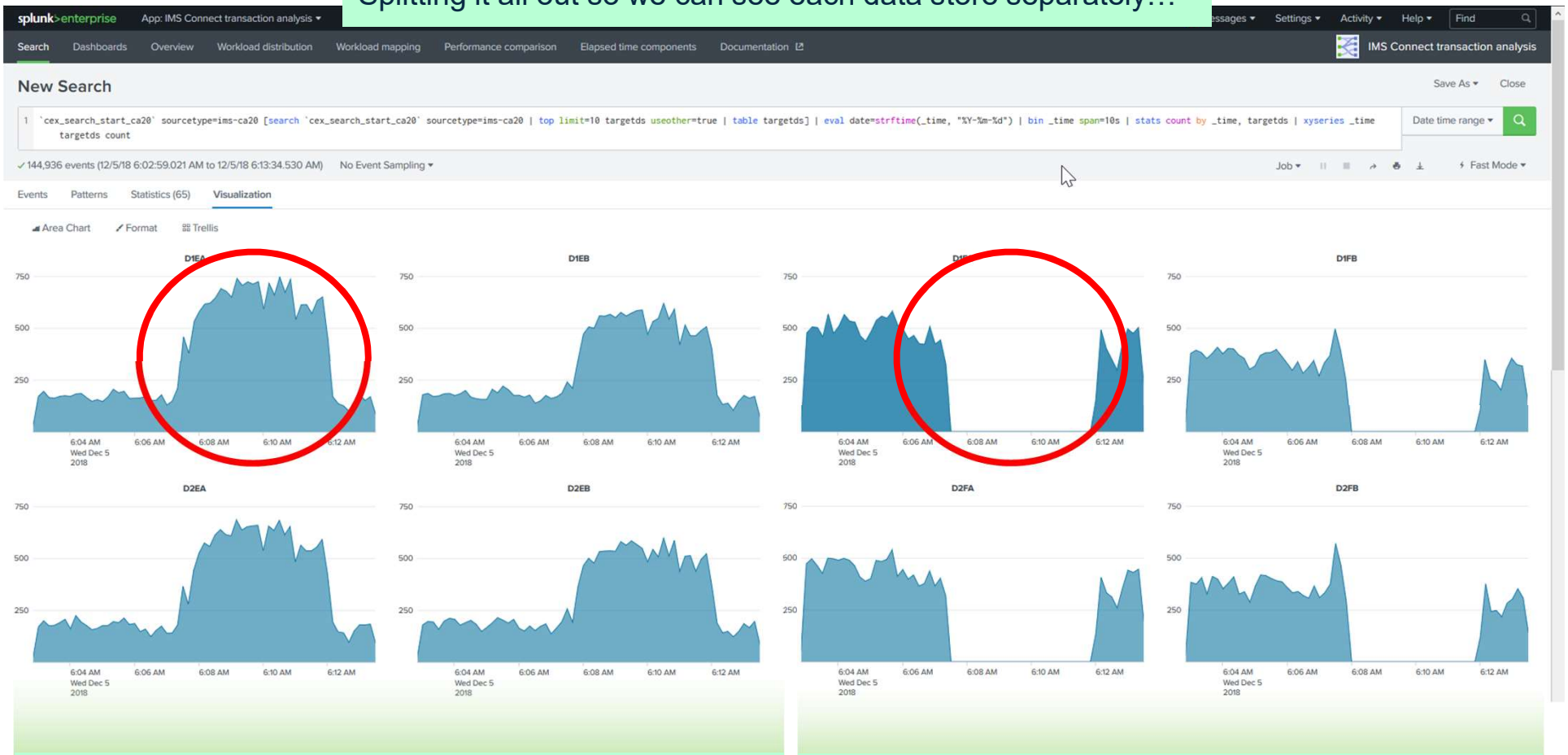
Average transactions per second

Transaction rate

IMS data store (target)

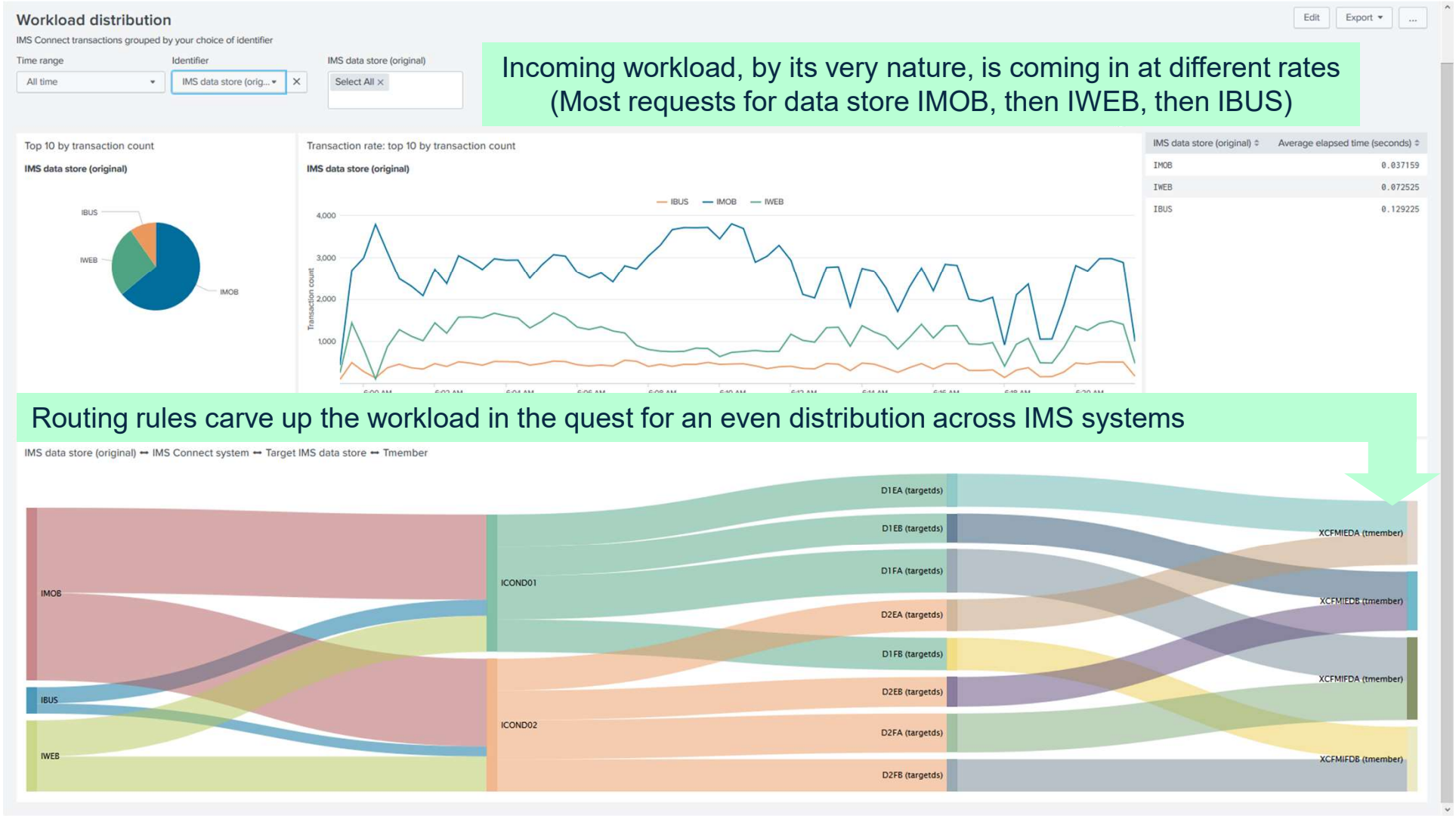


Splitting it all out so we can see each data store separately…

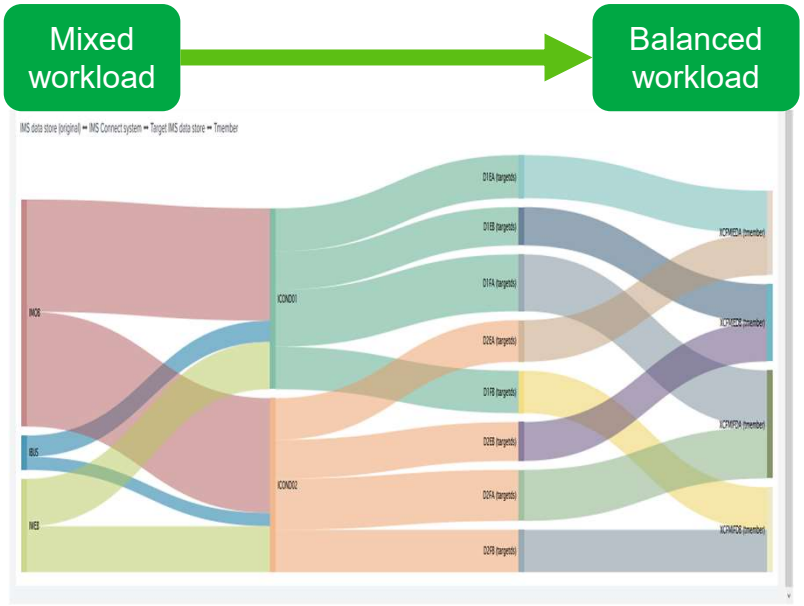


These four data stores show periods of increased workload

These four were “at rest” during the same period


Workload distribution
IMS Connect transactions grouped by your choice of identifier
Edit
Export
...
Time range
All time
Identifier
IMS data store (orig...
IMS data store (original)
Select All
Incoming workload, by its very nature, is coming in at different rates
(Most requests for data store IMOB, then IWEB, then IBUS)
Top 10 by transaction count
IMS data store (original)
IBUS
IWEB
IMOB
Transaction rate: top 10 by transaction count
IMS data store (original)
IBUS
IMOB
IWEB
4,000
3,000
2,000
1,000
Transaction count
IMS data store (original)
Average elapsed time (seconds)
IMOB 0.037159
IWEB 0.072525
IBUS 0.129225
Routing rules carve up the workload in the quest for an even distribution across IMS systems
IMS data store (original) ••• IMS Connect system ••• Target IMS data store ••• Tmember
IMOB
IBUS
IWEB
ICOND01
ICOND02
D1EA (targetds)
D1EB (targetds)
D1FA (targetds)
D2EA (targetds)
D1FB (targetds)
D2EB (targetds)
D2FA (targetds)
D2FB (targetds)
XCFMIEDA (tmember)
XCFMIEDB (tmember)
XCFMIFDA (tmember)
XCFMIFDB (tmember)

Why is this a good thing?



A balanced workload means:

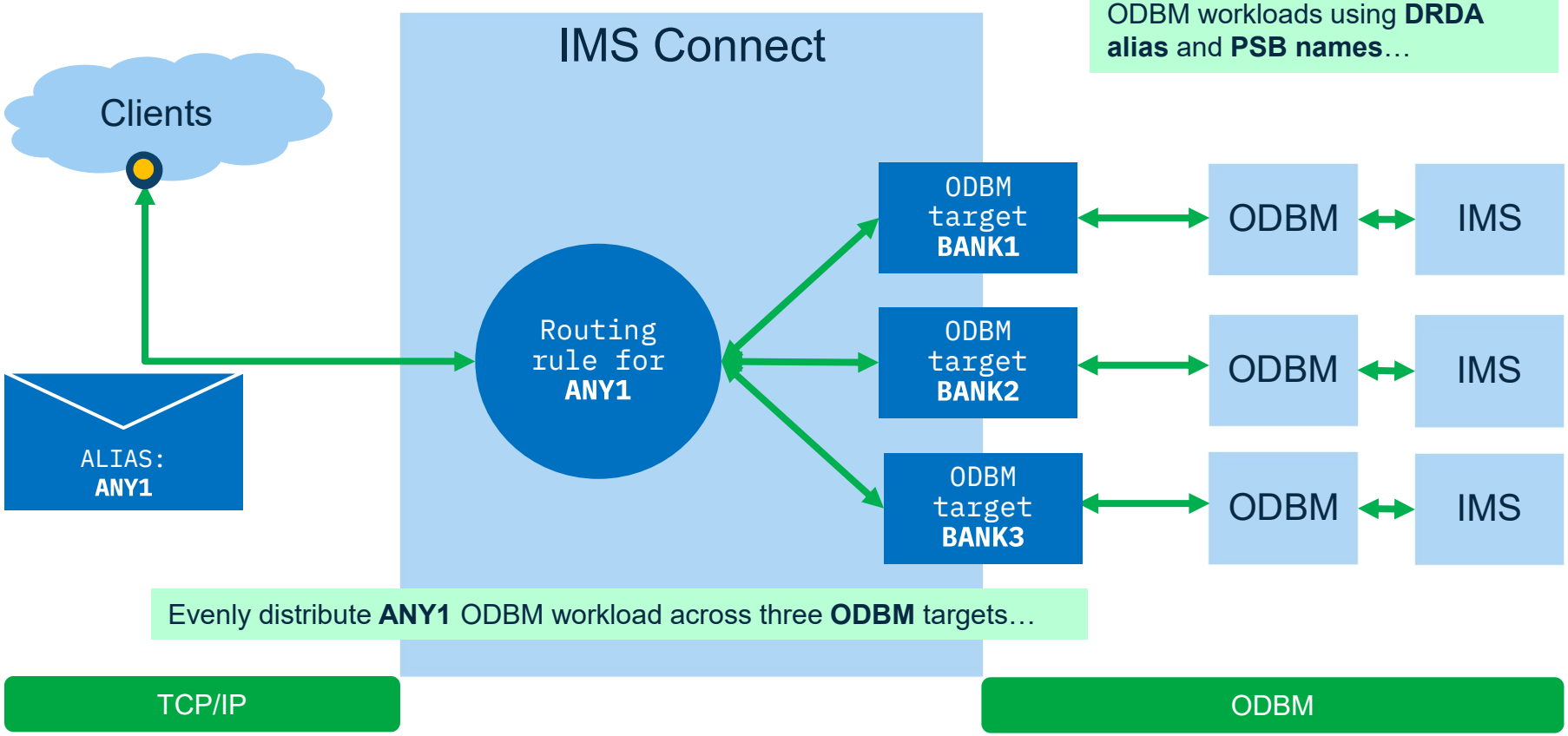
- Reduced chance of flooding a single IMS system (and causing an outage)
- Potential for better general performance via improved throughput and reduced chance of bottlenecks

Using fallback IMS systems and creating additional connections to those system (IMS data stores) help:

- Maintain overall IMS Connect availability during both planned and unplanned outages.
- Avoid flood conditions by quickly diverting workload when the first flood warning occurs.

Routing techniques: ODBM

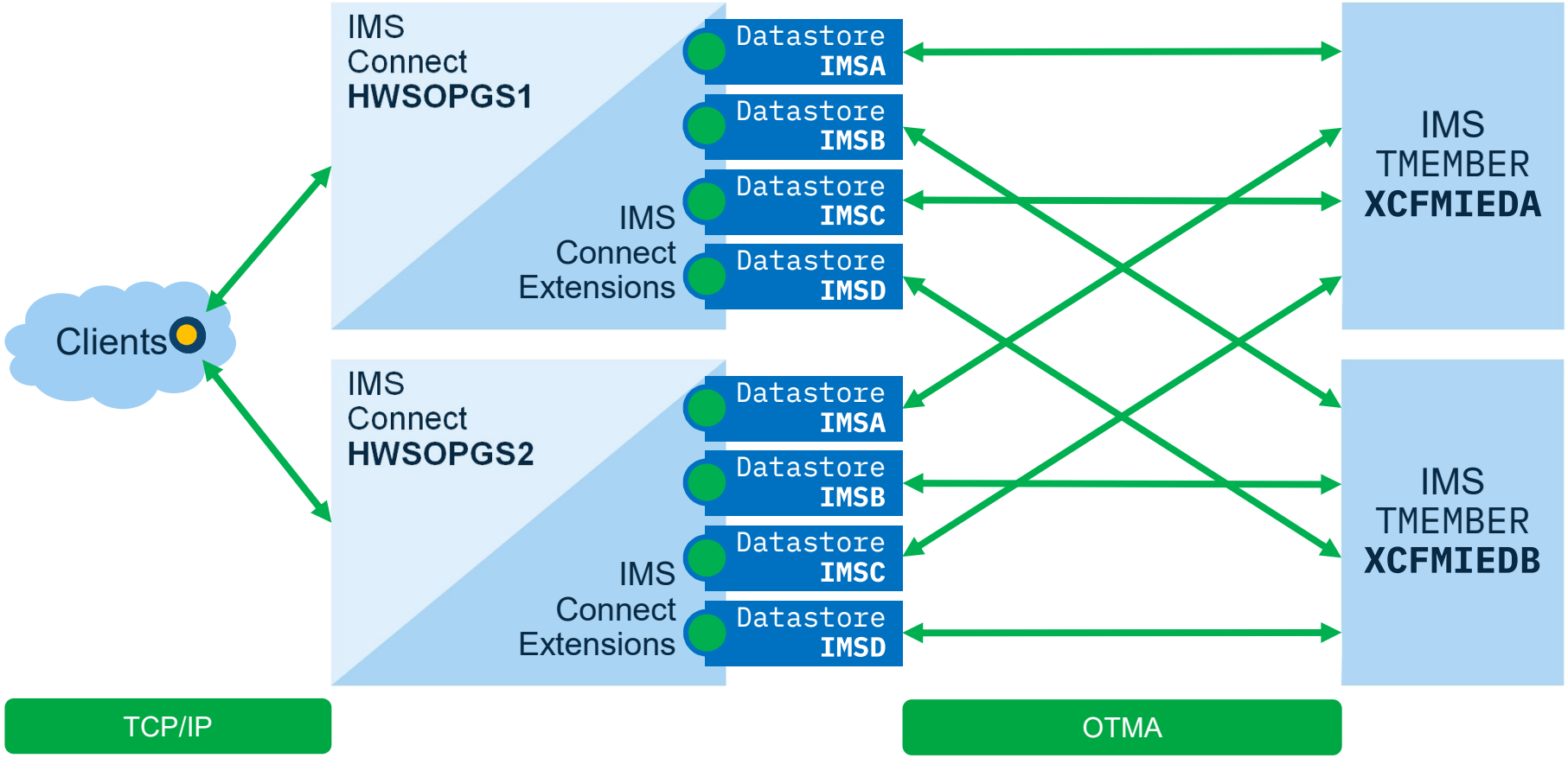
All OTMA workload routing techniques can also be applied to ODBM workloads using **DRDA alias** and **PSB names**…



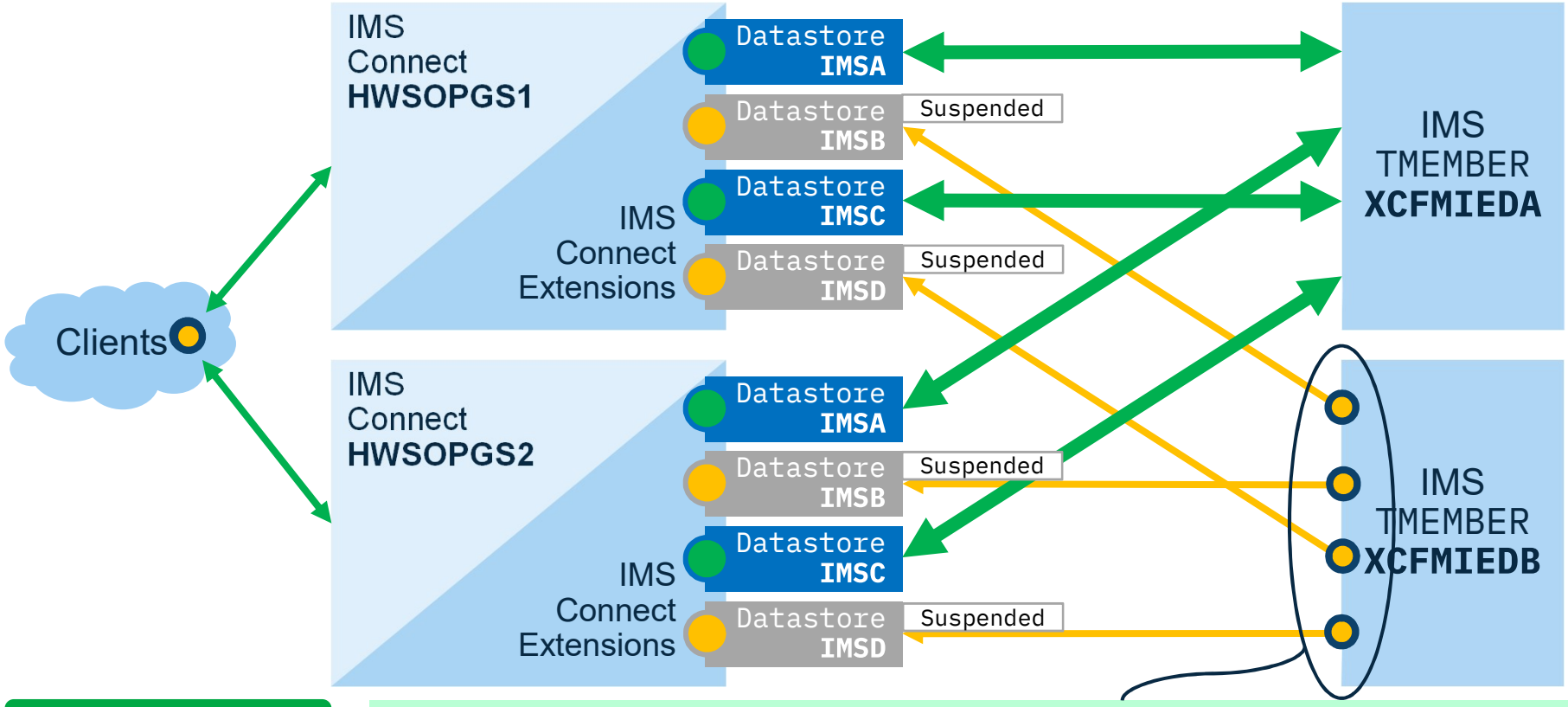
Draining DATASTORE connections to IMS

an IMS shutdown process that won't interrupt in-flight work

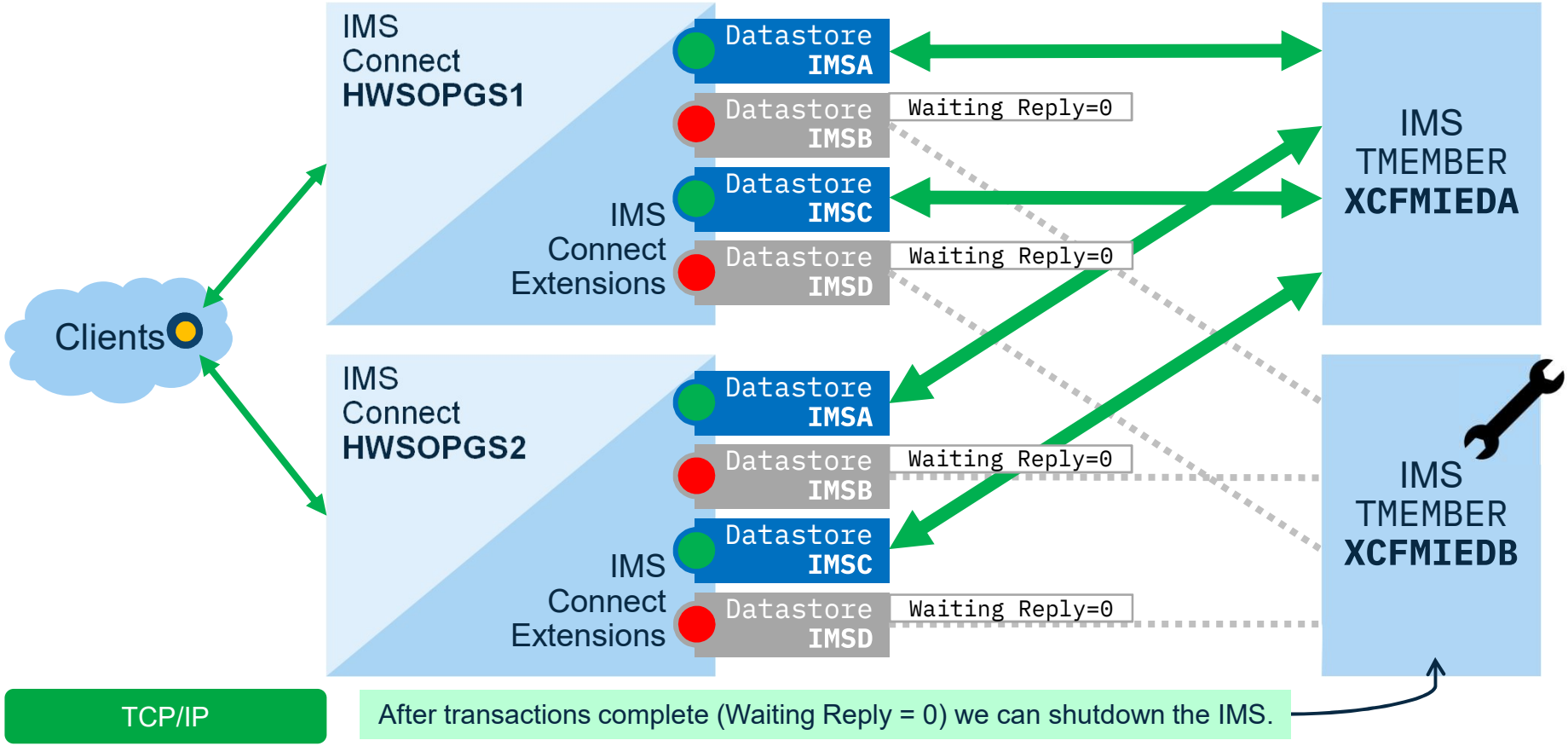
Question: How can we shutdown one IMS without interrupting in-flight work?



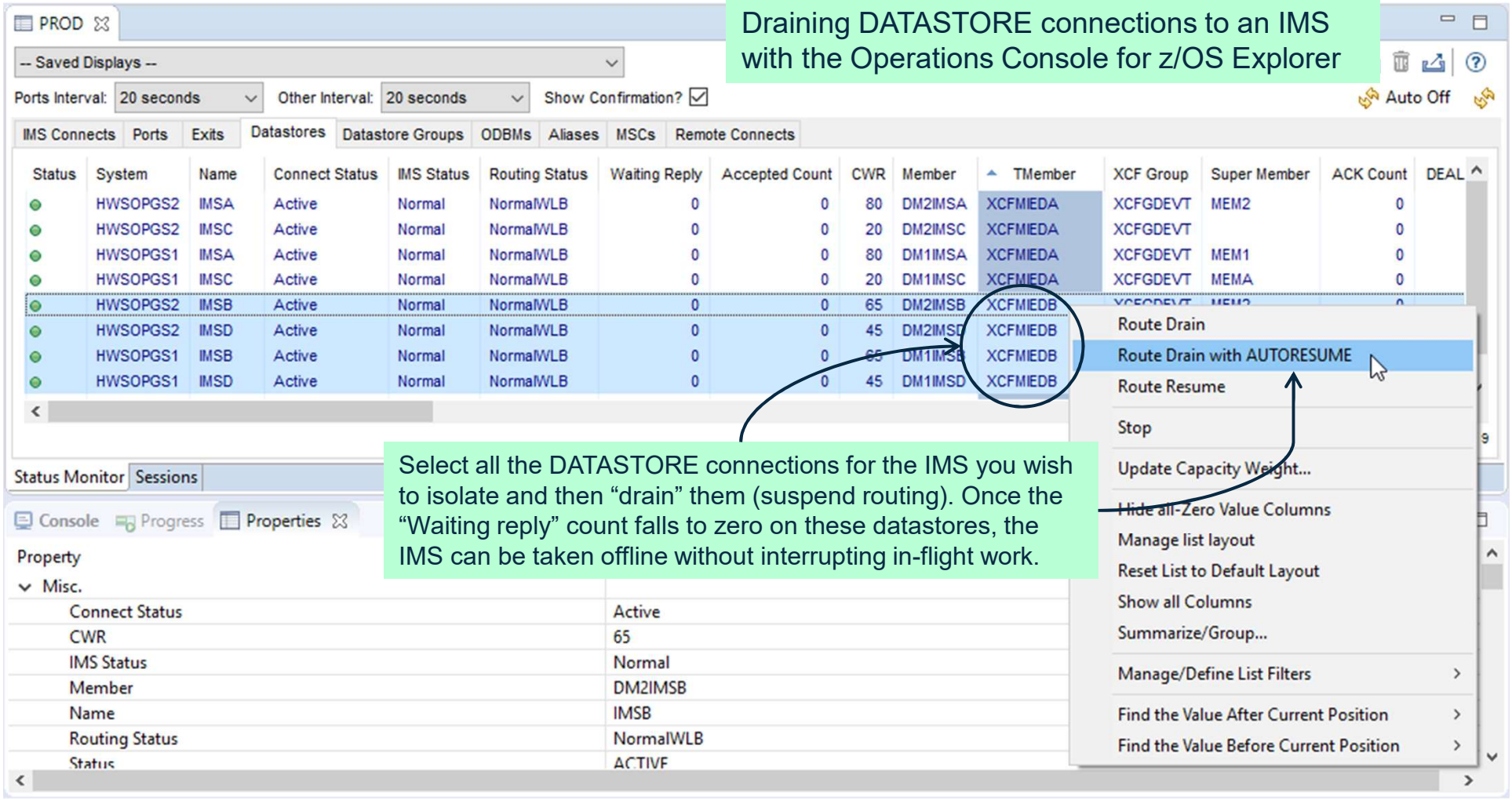
Answer: Suspend routing to all DATASTORE connections to the IMS and let the other IMS take over whilst it undergoes an upgrade…



Answer: Suspend routing to all DATASTORE connections to the IMS and let the other IMS take over whilst it undergoes an upgrade…



Draining DATASTORE connections to an IMS with the Operations Console for z/OS Explorer

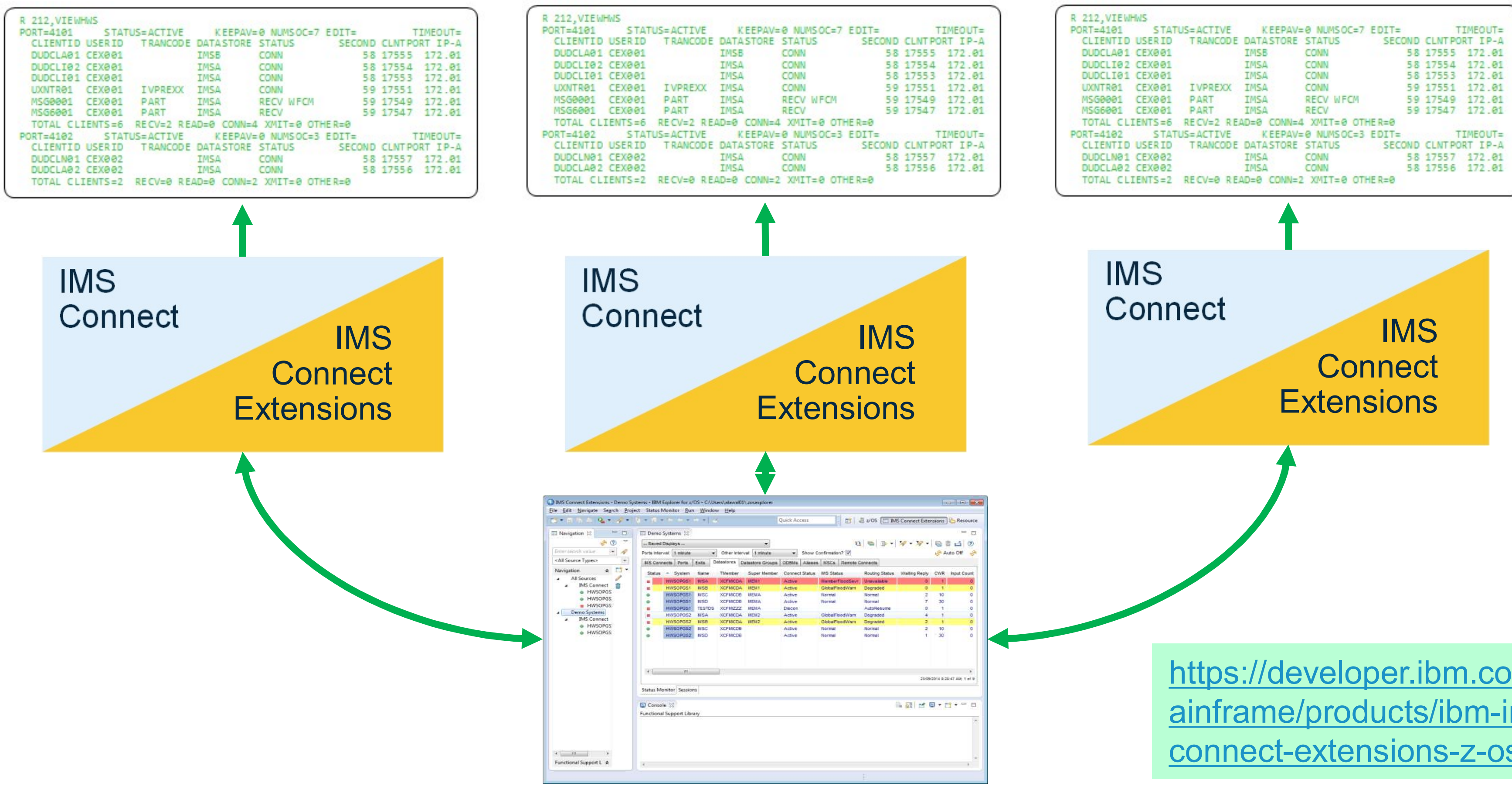


Select all the DATASTORE connections for the IMS you wish to isolate and then “drain” them (suspend routing). Once the “Waiting reply” count falls to zero on these datastores, the IMS can be taken offline without interrupting in-flight work.

IMS Connect Extensions

operations management

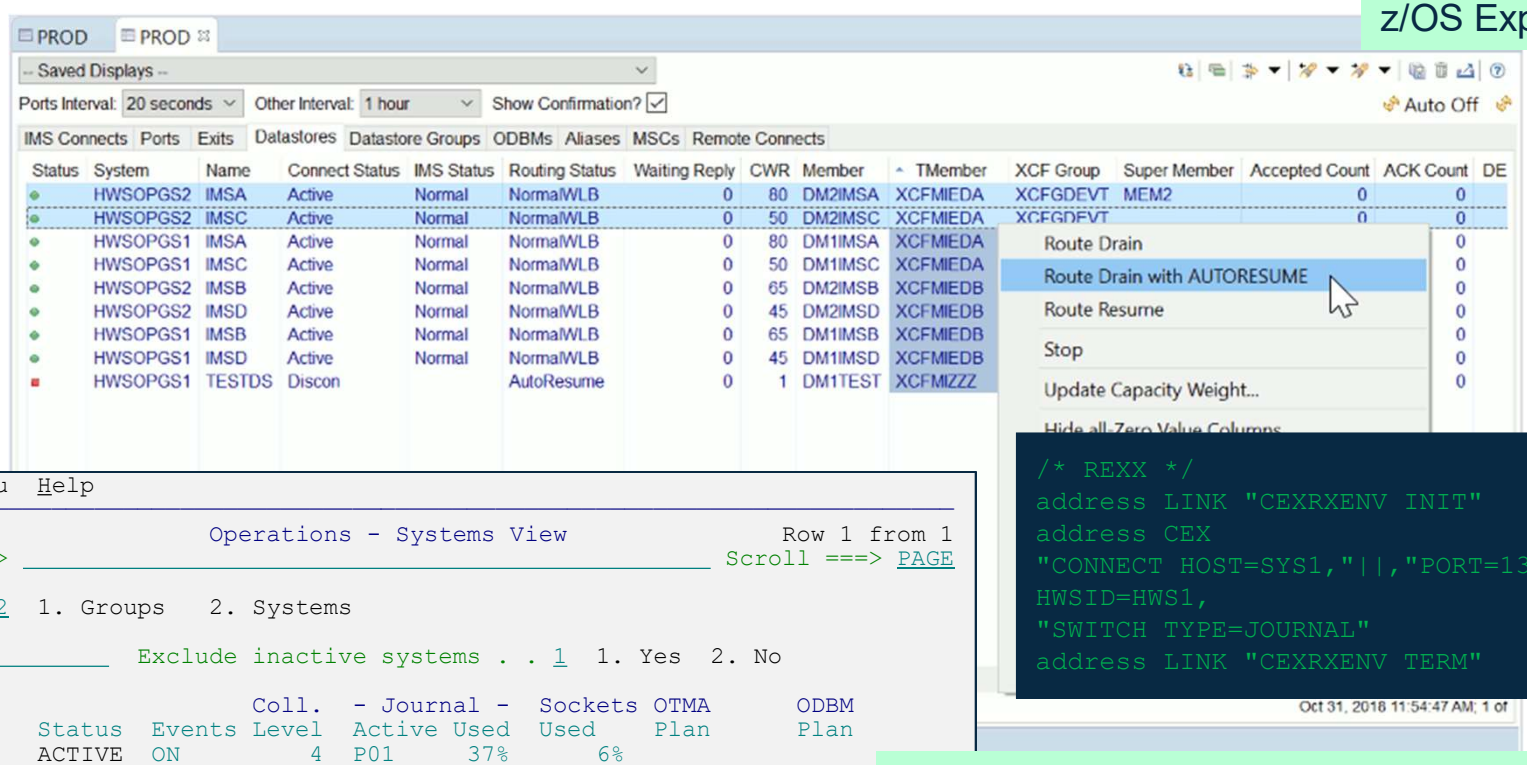
VIEWHWS vs IMS Connect Extensions



https://developer.ibm.com/mainframe/products/ibm-ims-connect-extensions-z-os/

Centralized operations management with IMS Connect Extensions

z/OS Explorer

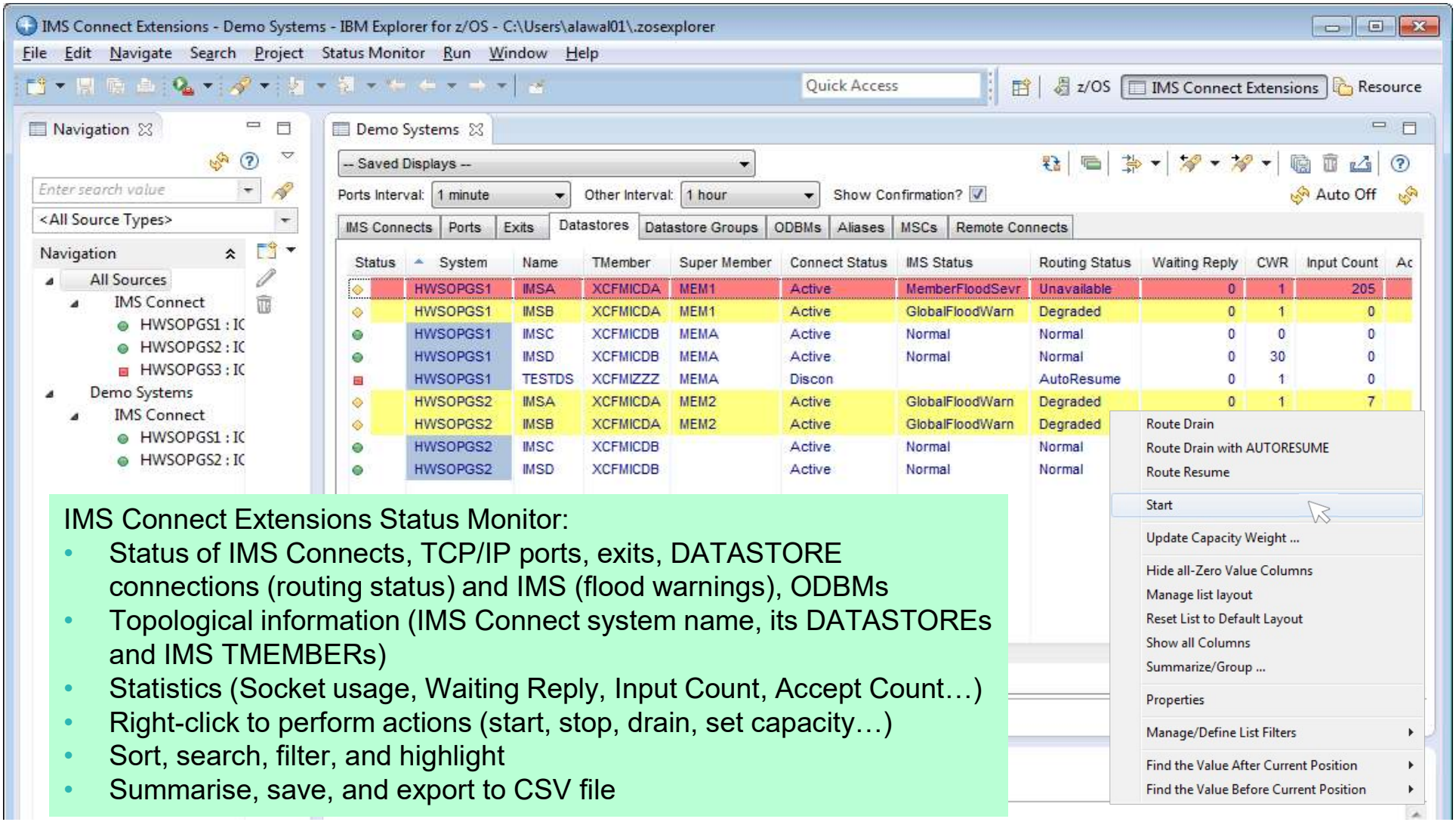


REXX

```
/* REXX */
address LINK "CEXRXENV INIT"
address CEX
"CONNECT HOST=SYS1,"||,"PORT=13883,
HWSID=HWS1,
"SWITCH TYPE=JOURNAL"
address LINK "CEXRXENV TERM"
```

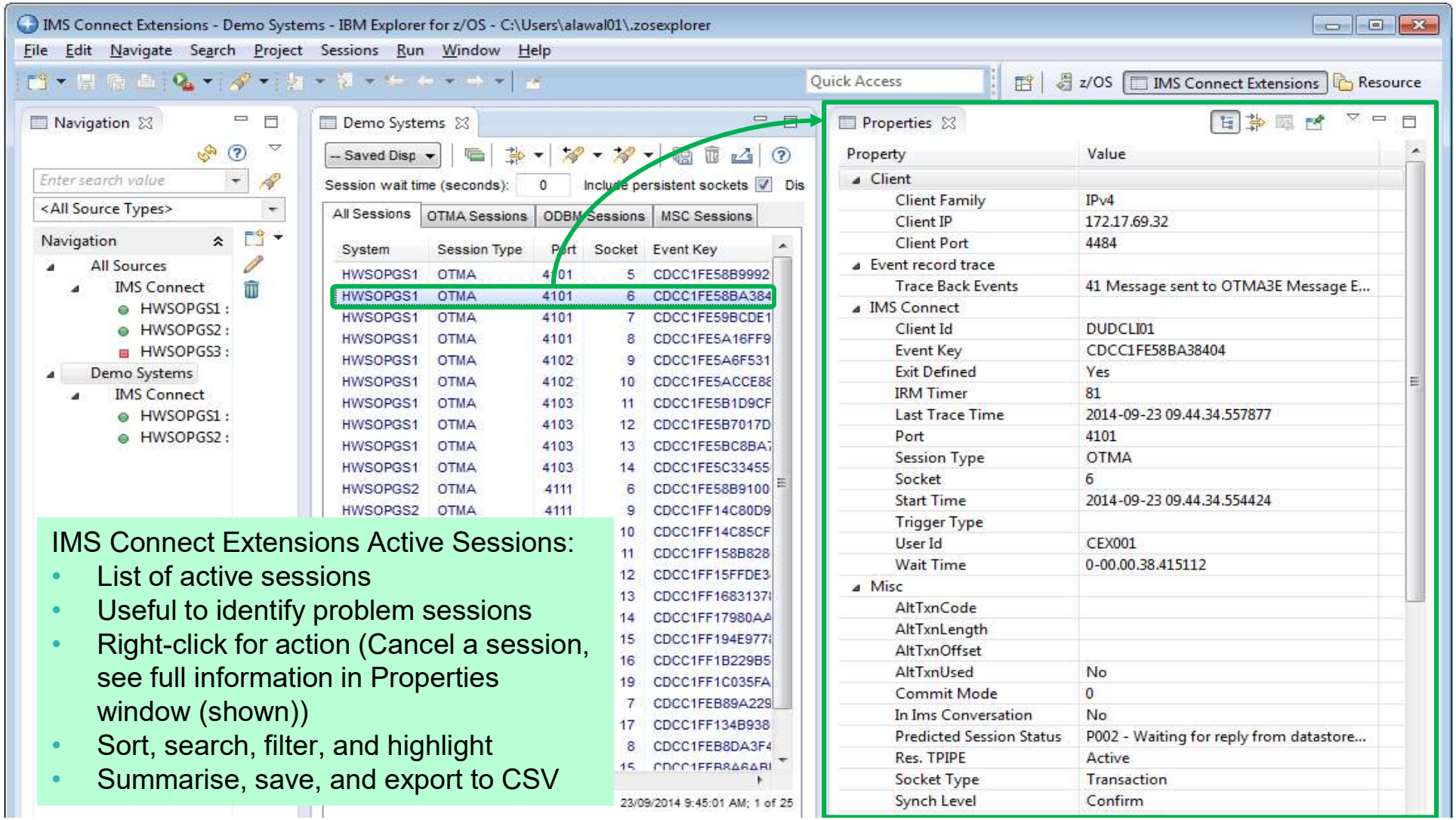

ISPF dialog

Growing workloads and growing topologies mean more IMS Connect instances to monitor and control – an impossible task for VIEWHWS



IMS Connect Extensions Status Monitor:

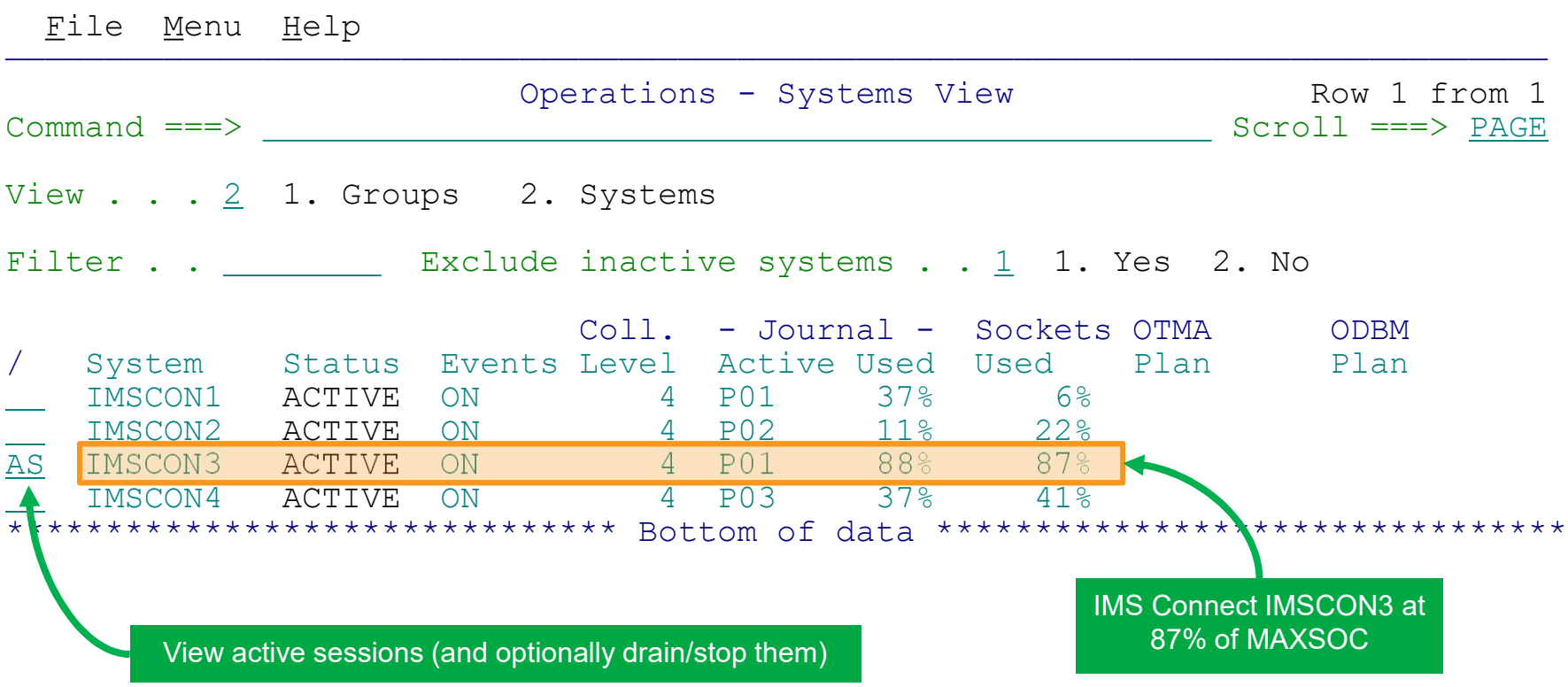
- Status of IMS Connects, TCP/IP ports, exits, DATASTORE connections (routing status) and IMS (flood warnings), ODBMs
- Topological information (IMS Connect system name, its DATASTOREs and IMS TMEMBERs)
- Statistics (Socket usage, Waiting Reply, Input Count, Accept Count…)
- Right-click to perform actions (start, stop, drain, set capacity…)
- Sort, search, filter, and highlight
- Summarise, save, and export to CSV file



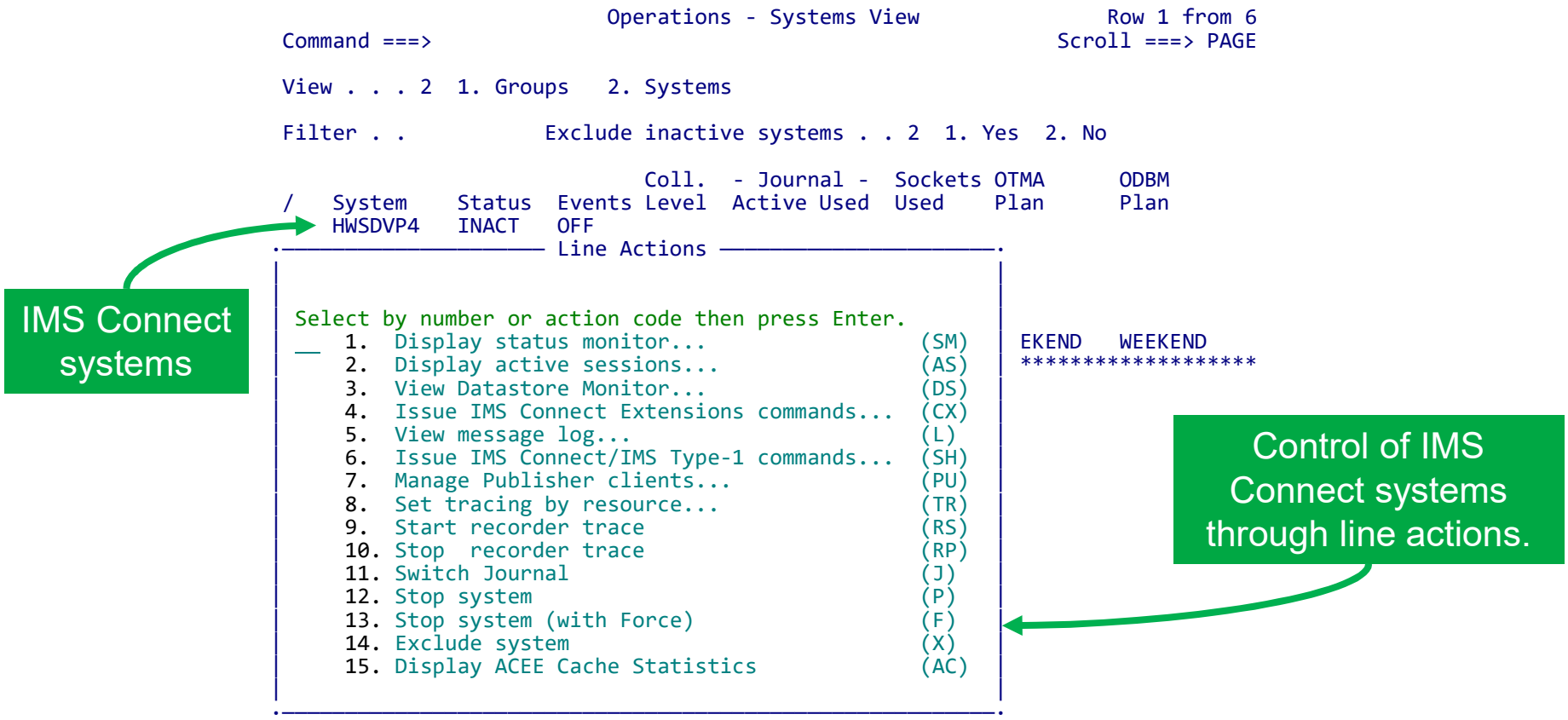
IMS Connect Extensions Active Sessions:

- List of active sessions
- Useful to identify problem sessions
- Right-click for action (Cancel a session, see full information in Properties window (shown))
- Sort, search, filter, and highlight
- Summarise, save, and export to CSV

Keeping an eye on socket use (IMS Connect Extensions ISPF dialog)…



Operations management from the ISPF dialog



IMS Connect Extensions REXX automation samples

- Drain (suspend) routing to DATASTORE connections
  - **Suspend routing to a list of DATASTOREs (connections to IMS) and then automatically issue IMS shutdown**
- Workload balancing
  - **Adjust DATASTORE capacity in fixed increments up or down (dynamic workload shaping in response to changing conditions)**

Implemented as a REXX environment:
- Interoperable with other REXX environments (e.g. MVS console, SDSF, TSO, IMS type-2, etc.)
- Allows you to extend your existing automation into IMS Connect

- Activating OTMA and ODBM routing plans (rule sets)
- IMS Connect status queries
  - **Status Monitor statistics**
  - **Active Sessions statistics**
  - **Socket utilization metrics**
  - **Journal utilization metrics**
- IMS Connect Extensions trace
- IMS Connect Extensions journal switching
- And more…

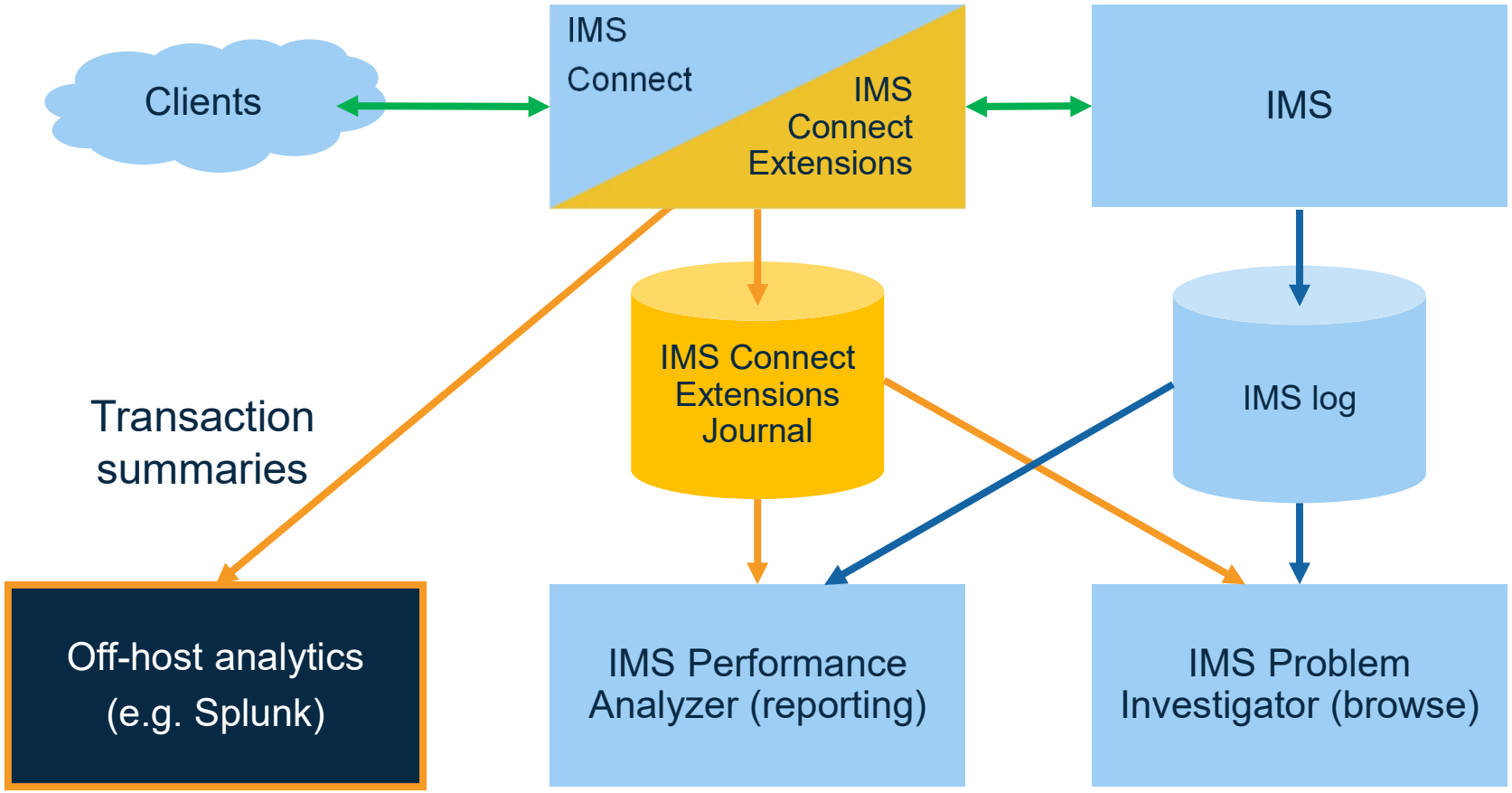
https://www.ibm.com/support/knowledgecenter/SSAVHV_3.1.0/cexu-rexx-samples.html

IMS Connect Extensions

making use of the journal and the feed

Event logging and analytics environment

https://www.ibm.com/support/knowledgecenter/en/SSAVHV_3.1.0/cexu-part-events.html



IMS Performance Analyzer

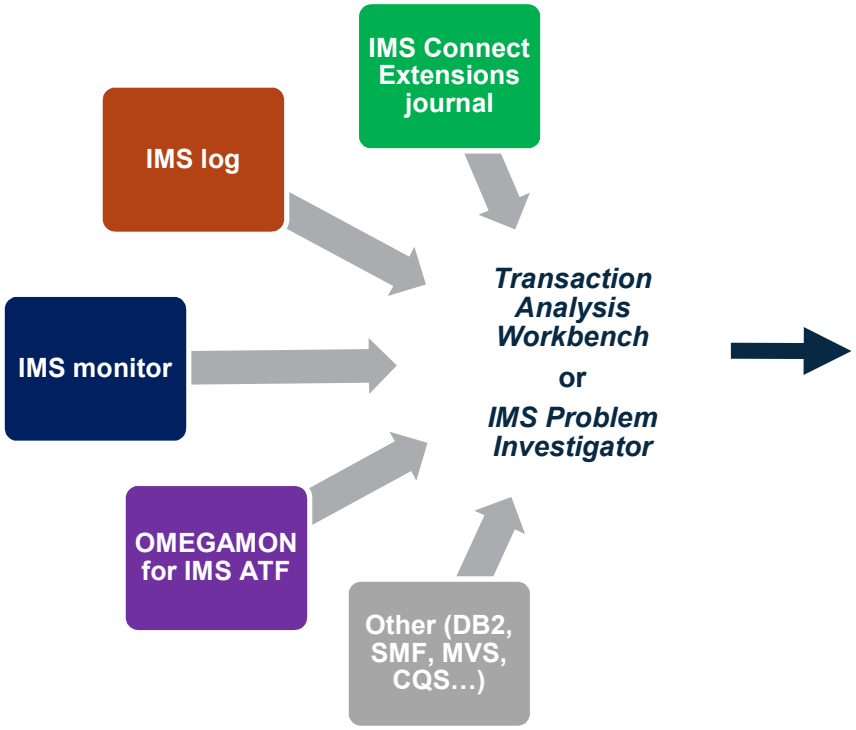
IMS Connect Transit Log – constructed from the IMS Connect Extensions journal by IMS Performance Analyzer. Many other types of reports to choose from.

IMS Performance Analyzer
IMS Connect Transit Log - DVPCFGDA
Log from 15Apr2019 10.48.46.40

Start Time	Transact	Target	Port	Response	Input				-Process-		Output		
HH.MM.SS.THmiju	Code	DataStor	Number	Time	Pre-OTMA	READ Sock	READ Ex	SAF	OTMA	Confirm	Post-OTMA	XMIT Ex	E
10.48.46.407703	DVPTRAN5	IMD3	8801	631.340	1.198	0.507	0.243	0.000	60.516	569.538	0.087	0.105	
10.48.47.455008	DVPTRAN5	IMD3	8801	641.975	0.839	0.388	0.161	0.000	43.400	597.644	0.090	0.117	
10.48.48.403977	DVPTRAN5	IMD3	8801	638.017	0.725	0.357	0.232	0.000	15.356	620.419	1.516	0.228	
10.49.06.240175	IVTCV	IMD3	8801	294.089	0.743	0.249	0.199	0.000	75.222	218.048	0.075	0.116	
10.49.06.837155	IVTCV	IMD3	8801	712.028	0.745	0.392	0.235	0.000	101.217	610.034	0.030	0.122	
10.49.07.549765	IVTCV	IMD3	8801	2.668	0.523	0.234	0.088	0.000	0.749	0.000	1.394	0.045	N
10.49.20.627624	IVTCV	IMD3	8801	553.921	238.108	237.703	0.292	0.000	21.185	294.595	0.033	0.112	
10.49.21.486274	IVTCV	IMD3	8801	610.756	0.835	0.435	0.229	0.000	10.200	599.644	0.075	0.058	
10.49.22.401900	IVTCV	IMD3	8801	623.785	0.644	0.296	0.215	0.000	9.954	613.111	0.075	0.052	
10.49.23.026219	IVTCV	IMD3	8801	2.618	0.599	0.251	0.044	0.000	0.736	0.000	1.282	0.104	N
10.49.46.989823	IVTCV	IMD3	8801	467.398	0.729	0.250	0.292	0.000	199.231	267.405	0.032	0.117	
10.49.47.762563	IVTCV	IMD3	8801	693.966	0.743	0.298	0.221	0.000	23.973	669.201	0.047	0.113	
10.49.48.457862	IVTCV	IMD3	8801	3.024	0.914	0.485	0.216	0.000	0.712	0.000	1.397	0.045	N
10.50.17.644034	DVPTRAN5	IMD3	8801	2.696.652	302.567	302.003	0.344	0.000	86.355	2.307.654	0.075	0.110	
10.50.21.110778	DVPTRAN5	IMD3	8801	4.877.428	301.982	301.597	0.236	0.000	13.110	4.562.304	0.031	0.053	
10.50.32.297230	DVPTRAN5	IMD3	8801	1.417.832	0.756	0.370	0.231	0.000	15.107	1.401.937	0.030	0.115	
10.50.34.118110	DVPTRAN5	IMD3	8801	1.232.251	298.323	297.938	0.237	0.000	118.086	815.810	0.030	0.114	
10.50.35.648306	DVPTRAN5	IMD3	8801	1.096.759	290.238	289.867	0.237	0.000	15.997	789.034	1.488	0.222	
10.51.07.119390	IVTCV	IMD4	8801	0:43	0.728	0.256	0.325	0.000	23.758	0:43	0.031	0.116	
10.51.50.571677	IVTCV	IMD4	8801	3.716.608	263.082	262.695	0.237	0.000	35.675	3.417.819	0.031	0.116	
10.51.56.334200	IVTCV	IMD4	8801	3.909.816	274.131	273.661	0.236	0.000	9.148	3.626.459	0.076	0.113	
10.52.20.858335	IVTCV	IMD4	8801	0:39	1.394	0.875	0.170	0.000	53.750	0:39	0.114	0.117	
10.52.59.441817	IVTCV	IMD4	8801	2.775	0.614	0.349	0.091	0.000	0.639	0.000	1.521	0.125	N

IMS Problem Investigator

End-to-end DRDA request using multiple data sources (including IMS Connect Extensions)




```
__ 003C Prepare READ Socket                                    13.16.53.026908
__ 0049 READ Socket                                                   +0.000118
__ 005B DRDA 1041 EXCSAT-Exchange Server Attributes                   +0.000125
__ 0049 READ Socket                                                   +0.000151
__ 005B DRDA 106D ACCSEC-Access Security                              +0.000182
__ 005C DRDA 1443 EXCSATRD-Server Attributes Reply Data               +0.000204
__ 004A WRITE Socket                                                  +0.000310
__ 0049 READ Socket                                                   +0.854012
__ 005B DRDA 106E SECCHK-Security Check                               +0.854020
__ 0063 ODBM Security Exit called                                     +0.854053
__ 0064 ODBM Security Exit returned                                   +0.854126
__ 005C DRDA 1219 SECCHKRM-Security Check Reply Message               +0.854142
__ 004A WRITE Socket                                                  +0.854230
__ 0049 READ Socket                                                   +1.022542
__ 005B DRDA 2001 ACCRDB-Access RDB                                   +1.022551
__ 005D ODBM begin Allocate PSB (APSB) Program=AUTPSB11               +1.022572
__ 0061 ODBM Routing Exit called                                      +1.022582
__ 0062 ODBM Routing Exit returned                                    +1.022740
__ 00AA ODBM Trace: Message sent to ODBM                              +1.022880
__ 0069 Message sent to ODBM                                          +1.022887
__ 06   BMP Scheduling start TranCode=ODBA02CD Region=0004            +1.024870
__ 4E02 BMP Scheduling start Region=0004                              +1.024873
__ 08   Application Start Program=AUTPSB11 Region=0004                +1.025814
__ 5607 Start of UOR Program=AUTPSB11 Region=0004                     +1.025815
__ 5616 Start of protected UOW Region=0004                            +1.026013
__ 4E03 BMP Scheduling end TranCode=ODBA02CD Region=0004              +1.026018
__ 00AA ODBM Trace: Message received from ODBM                        +1.028028
__ 006A Message received from ODBM                                    +1.028043
__ 005E ODBM end Allocate PSB (APSB) Program=AUTPSB11                 +1.029573
__ 005C DRDA 2201 ACCRDBRM-Access RDB Reply Message                   +1.029600
__ 004A WRITE Socket                                                  +1.031028
__ 0048 Trigger Event for ODBMMSG                                     +1.031063
__ 003C Prepare READ Socket                                           +1.051454
__ 0049 READ Socket                                                   +1.051540
__ 005B DRDA 200C OPNQRY-Open Query                                   +1.051546
__ 0049 READ Socket                                                   +1.051605
__ 005B DRDA CC05 DLIFUNC-DL/I function                               +1.051635
__ 0049 READ Socket                                                   +1.051658
__ 005B DRDA CC01 INAIB-AIB data                                      +1.051689
__ 0049 READ Socket                                                   +1.051712
__ 005B DRDA CC04 RTRVFLD-Field client wants to retrieve data         +1.051742
__ 0049 READ Socket                                                   +1.051787
__ 005B DRDA CC06 SSALIST-List of segment search argument             +1.051795
__ 00AA ODBM Trace: Message sent to ODBM                              +1.052210
__ 0069 Message sent to ODBM                                          +1.052221
__ 01   DLI GHU Database=AUTOLDB SC='  ' Elapse=0.000364             +1.052811
__ 4E60 DLI Call start Region=0004                                    +1.052816
__ 4E62 DLA00 start Database=AUTOLDB Region=0004 Func=GU              +1.052873
__ 4E63 DLA00 end Region=0004 Seg=DEALER   SC='  '                    +1.053029
__ 4E61 DLI Call end Region=0004                                      +1.053165
__ 00AA ODBM Trace: Message received from ODBM                        +1.053760
__ 006A Message received from ODBM                                    +1.053771
__ 005C DRDA 2205 OPNQRYRM-Open Query Complete                        +1.053915
```

https://www.ibm.com/downloads/cas/DYA6PNBY

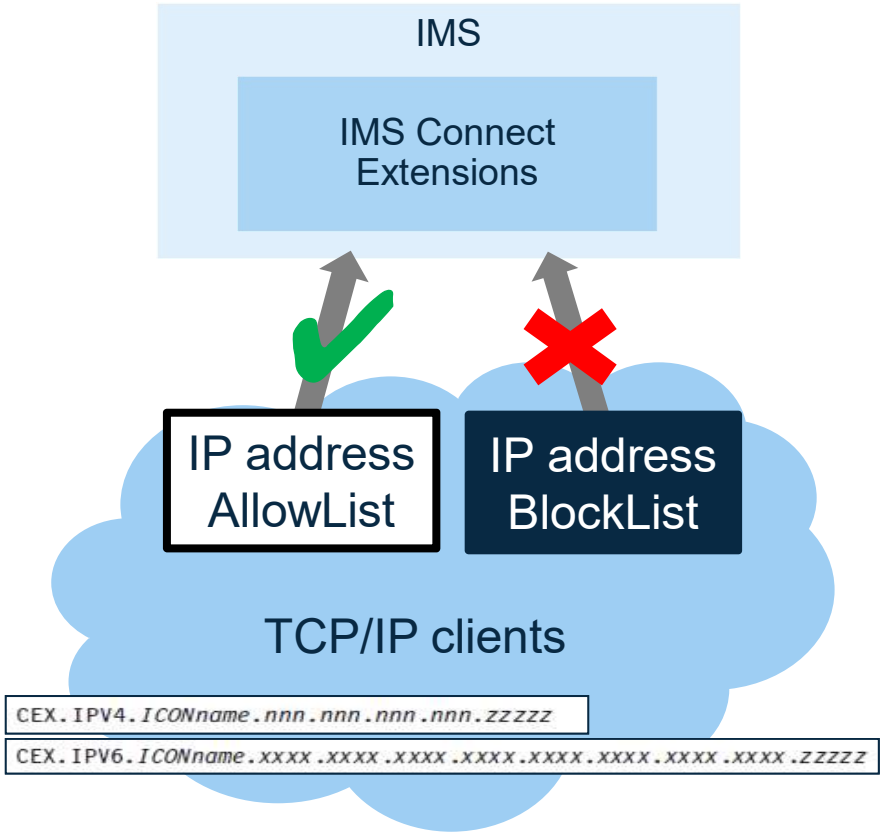
IMS Connect transaction analysis Splunk app

[Click here to watch the YouTube video: https://youtu.be/wptRV2uz6pY](https://youtu.be/wptRV2uz6pY)

IMS Connect Extensions

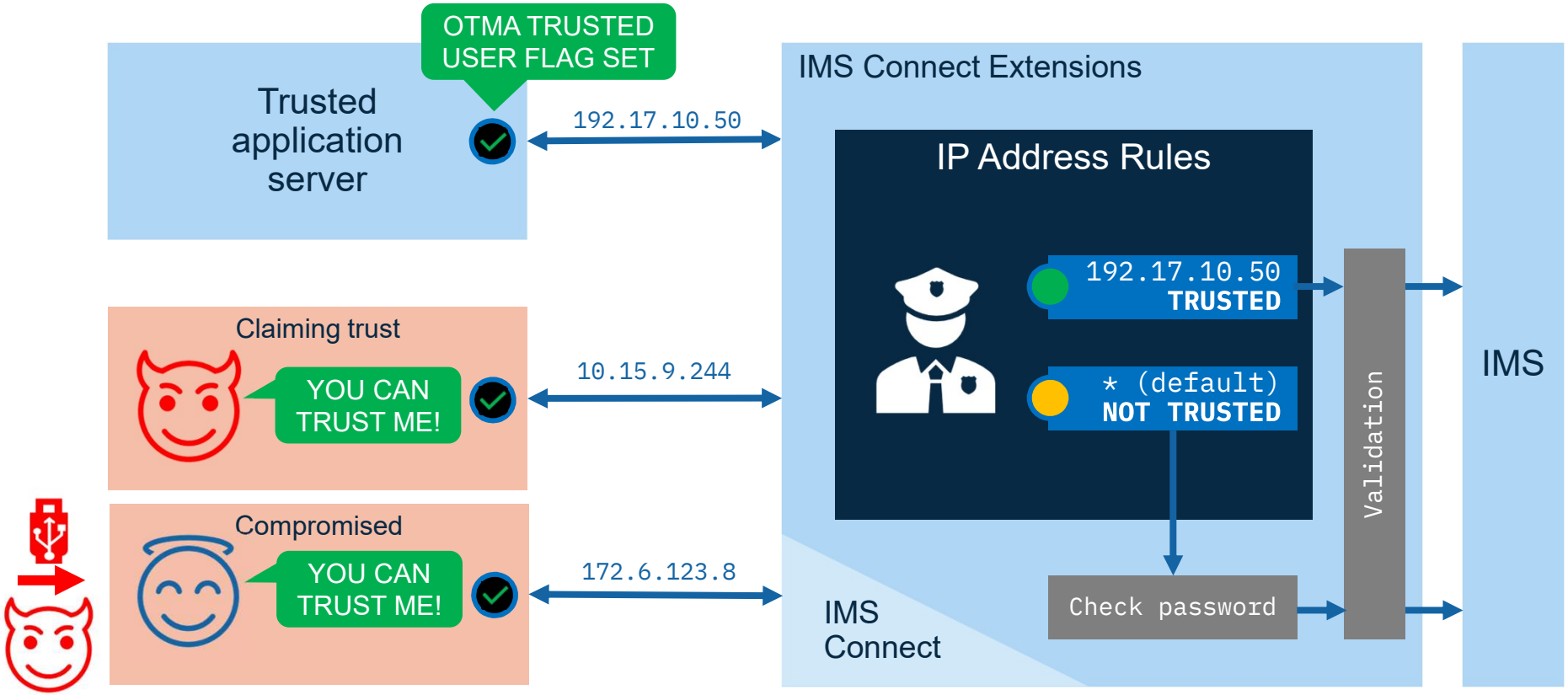
security

Validation of IP addresses

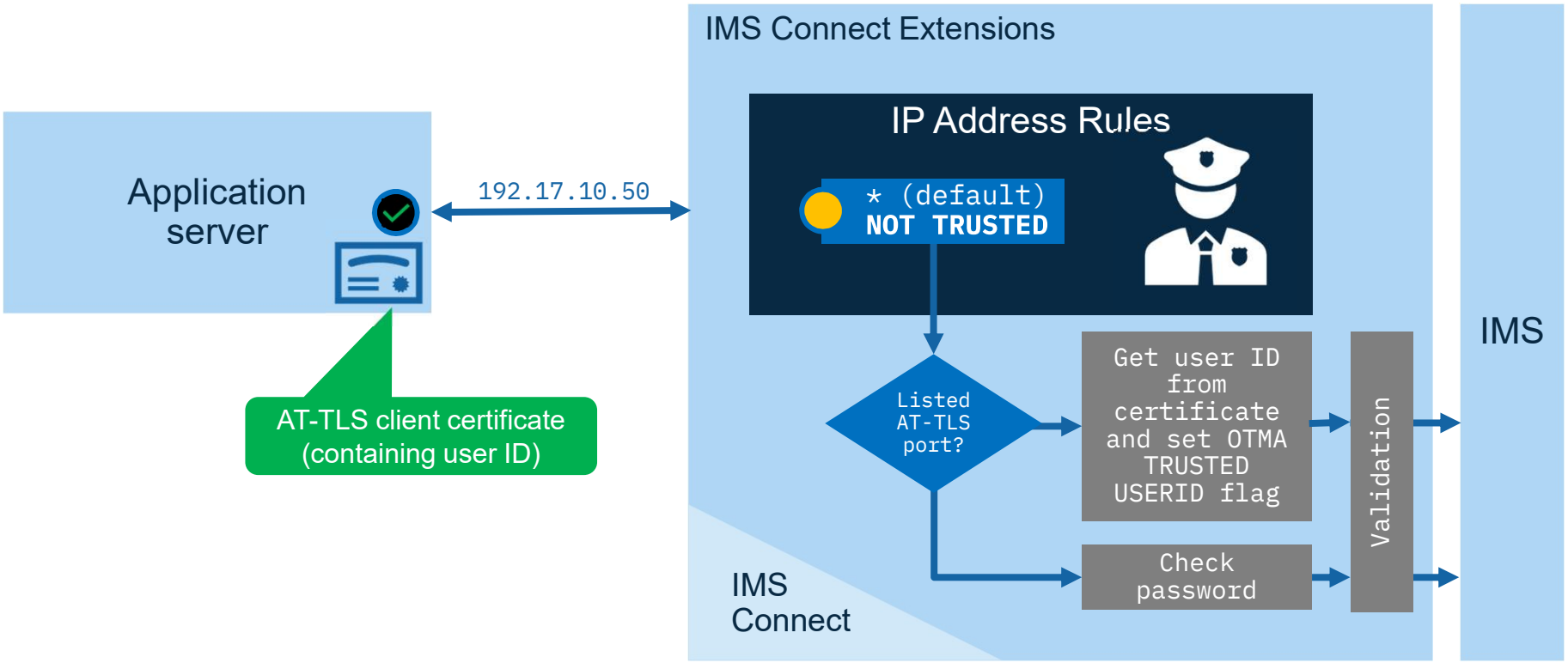


- Manage access to IMS Connect systems based on the **IMS Connect system** a client is connecting through and the **IP address** they are connecting from
- Security rules (RACF or other) can be used to produce **AllowLists**
- Rules can be formed to produce **BlockLists** that reject access from certain IP addresses or address ranges
- Access can be restricted further based on the **IMS Connect port** being used by the client

Centralized management of trust based on IP address



Take the user ID from the client's digital certificate (AT-TLS)



IMS Connect Extensions feature summary

- **IMS Connect workload management**
  - Balance OTMA/ODBM workload across multiple IMS systems
  - Configure a primary/fallback IMS
  - Create custom routing rules/routing plans
  - Set up automatic session rebalancing
  - Security: access control + IP address rules
- **IMS Connect event collection**
  - Events, IRM and OTMA tracing (with IMS Problem Investigator or IBM Transaction Analysis Workbench)
  - Performance reporting, port usage, exception reporting, gap analysis, trace reporting, and OTMA routing behavior reporting (with IMS Performance Analyzer)
  - Event forwarding and analysis (with off-host data analytics platforms i.e. Splunk)
- **IMS Connect operations**
  - Single point of control (SPOC) for all your IMS Connect systems
  - ISPF dialog, Operations Console for z/OS Explorer, or develop your own workflows with REXX:
    - Status monitoring and usage statistics: IMS Connect, TCP/IP ports, DATASTORE connections to IMS, ODBMs, active sessions…
    - Operations: start/stop/drain a DATASTORE connection to IMS, stop an IMS Connect system, stop/drain an active session, start/stop IMS Connect Extensions trace, change routing plans, dynamically reshape workloads…

https://www.ibm.com/us-en/marketplace/ims-connect-extensions-for-zos/resources

For more information

- IMS Tools website
  www.ibm.com/it-infrastructure/z/ims/tools
- IMS Tools new functions
  www.ibm.com/support/docview.wss?uid=swg22015506
- IMS Tools Product Documentation
  www.ibm.com/support/docview.wss?uid=swg27020942
- IMS Tools YouTube Playlist
  www.youtube.com/playlist?list=PLezLS0Tuqb-5DSdF1Locnq5lhTgcX02vf
- IMS new functions
  www.ibm.com/support/knowledgecenter/en/SSEPH2_15.1.0/com.ibm.ims15.doc.rpg/ims_cd_functions.htm
- IBM zITSM newsletter (email every 2 months with summary articles and links to more information)
  http://ibm.biz/zITSMNewsletterSubscribe
- IMS Tools support for IMS V15
  www.ibm.com/support/docview.wss?uid=swg22009341
- IMS Tools support for Managed ACBs
  www.ibm.com/support/docview.wss?uid=ibm10731745
- IMS Tools support for Data Set Encryption
  www.ibm.com/support/docview.wss?uid=ibm107333513

धन्यवाद
Hindi

多謝
Traditional

감사합니다
Korean

Спасибо
Russian

Ndzi khense ngopfu
Tsonga

Gracias
Spanish

Thank You
English

Obrigado
Brazilian Portuguese

شكرا
Arabic

Grazie
Italian

Danke
German

多谢
Simplified Chinese

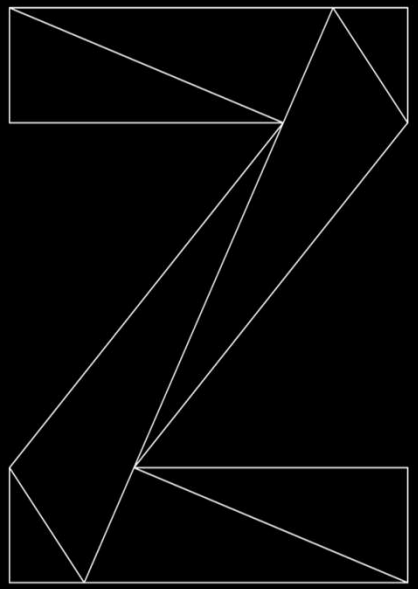
Merci
French

Ke a leboha
Tswana

நன்றி
Tamil

ありがとうございました
Japanese

ขอบคุณ
Thai



Additional topics
for IMS Connect Extensions

Keeping persistent sessions balanced

across your IMS Connect systems with IMS Connect Extensions

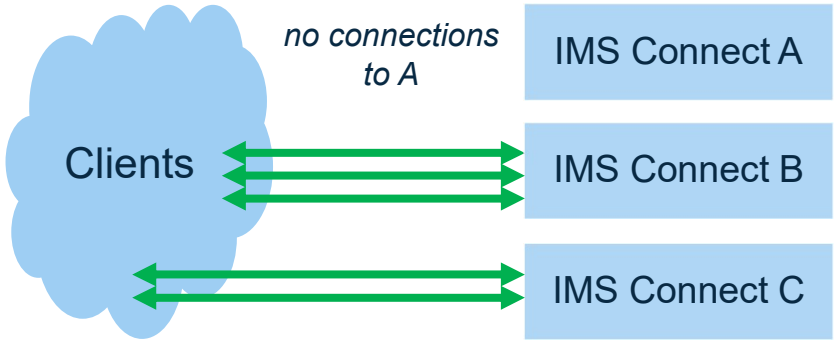
Concept: Balancing persistent sessions

Problem:

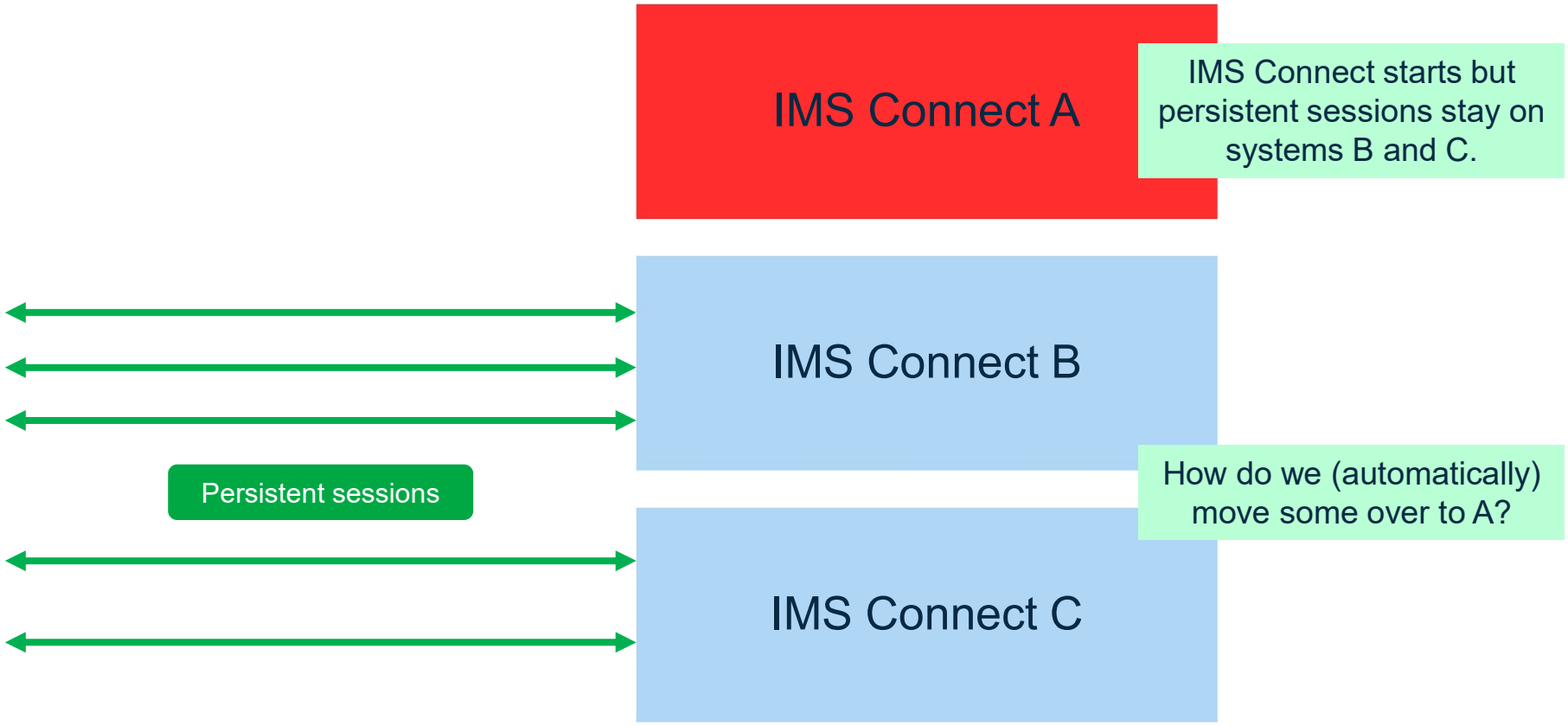
- Persistent sessions are unbalanced across IMS Connect systems.
- Can occur when an IMS Connect is taken out of service. Bringing the IMS Connect back online does not resolve the problem.

What's involved?

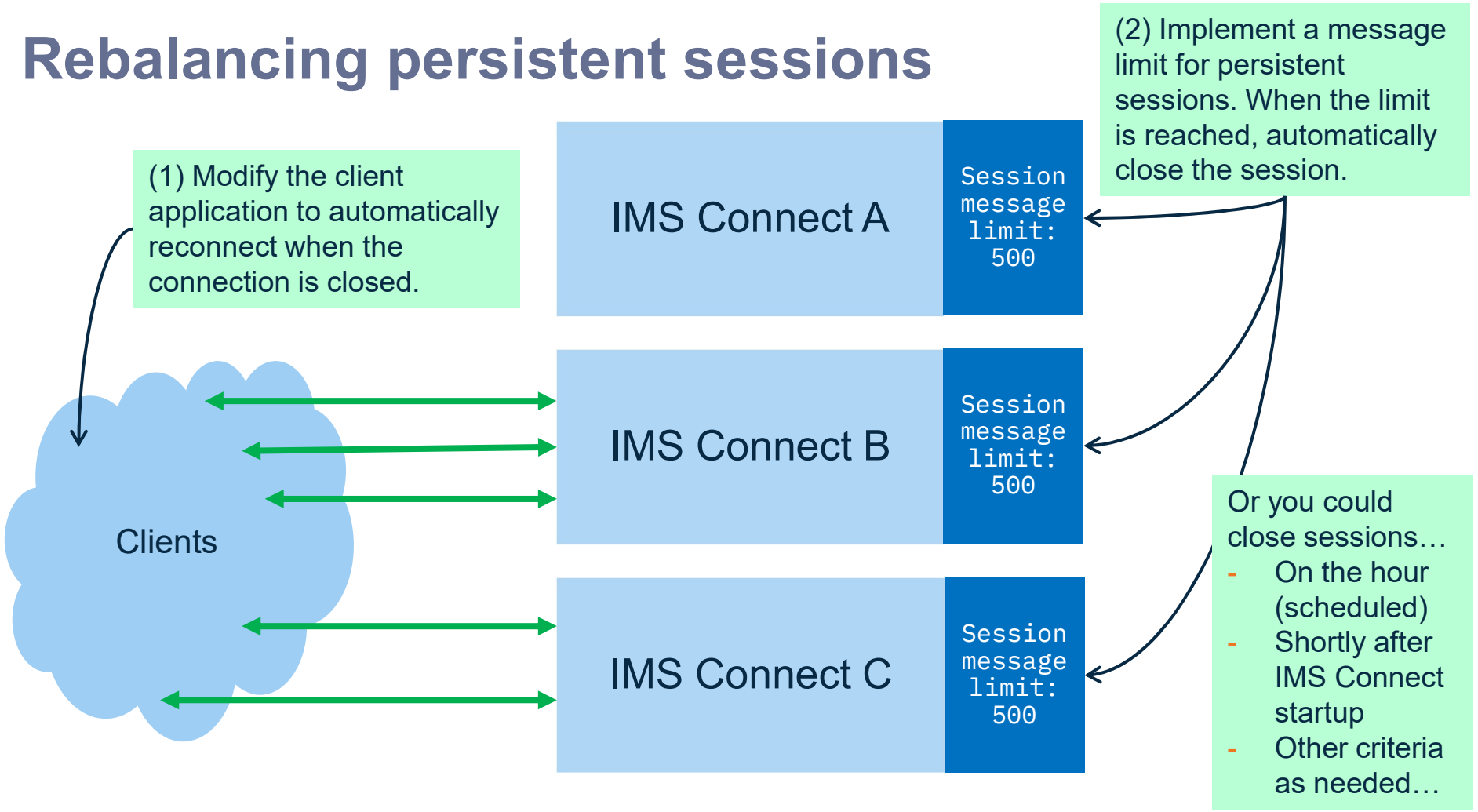
- IMS Connect Extensions session message limits
- Client application changes
- Sysplex distributor and WLM



Unbalanced persistent sessions



Rebalancing persistent sessions



Rebalancing in action

When a session hits the limit, the client is forced to re-establish the connection. The new connection is then distributed according to the Workload Manager (WLM) recommendation.