

# Discover and Understand Usage of Mainframe Software Assets

*Introducing HCL Z Asset Optimizer*



# Business Challenges

- ▶ Maintain accurate inventory of mainframe software assets and their features, versions and maintenance levels
- ▶ Understand usage of software assets on each mainframe system and be ready for software auditing & compliance
- ▶ Plan for software upgrade to ensure production systems are running with supported version of software products
- ▶ Optimize software and operational cost
- ▶ Maintain accurate inventory of in-house programs
- ▶ Plan for COBOL compiler upgrade
- ▶ Ensure deployment and decommission of in-house programs
- ▶ Flexible software license to meet changing mainframe environment (eg. M&A)



# Introducing HCL Z Asset Optimizer

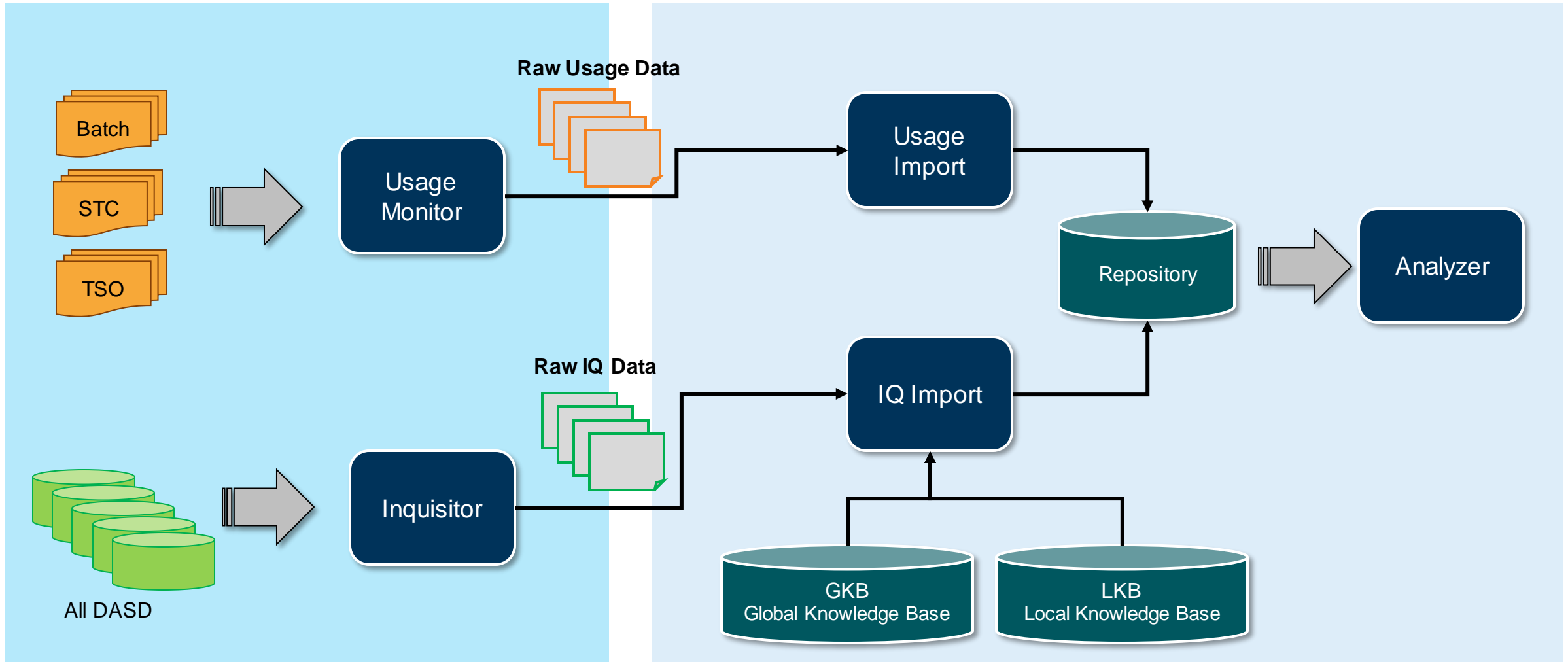
- ▶ HCL Z Asset Optimize (ZAO) is a market leading software asset discovery product for IBM® z/OS® mainframe systems
- ▶ ZAO recognizes over 12,000 mainframe software products and features from IBM and other software vendors
- ▶ Software assets and their usage are discovered by a batch inquisitor and a real-time usage monitor
- ▶ Be software audit compliance check ready
- ▶ Optimize mainframe systems by eliminating less frequently used software and ensuring supported software is being used
- ▶ Plan for compiler upgrade to take advantage of new mainframe hardware investment
- ▶ Flexible licensing to enable usage tailored for your unique requirements



# ZAO Core architecture

## Remote Mainframe Components

## Central Mainframe Components



# Discovery and Reporting of Software Inventory

## What does it do?

- ▶ ZAO Inquisitor is a batch job which discovers loadable programs in z/OS® data sets and z/OS UNIX Systems Services file systems – it locates load libraries by either scanning the VTOC of online volumes, or by searching the system catalog for relevant data sets
- ▶ Discovered loadable programs are identified as ‘product’ or ‘in-house program’ by matching against the information in the Global Knowledgebase (GKB) or the Local Knowledgebase (LKB)
- ▶ Information in the GKB is updated as part of ongoing maintenance of ZAO while the LKB needs to be populated by the user

## Why is this useful?

- ▶ ZAO discovers all software assets physically available on your mainframe systems
- ▶ Over 12,000 products and features are recognised
- ▶ Compilers used to create ‘in-house’ applications are also reported
- ▶ See the screenshot of a sample inventory report and product trend report on the next slides:

# Product Inventory Report

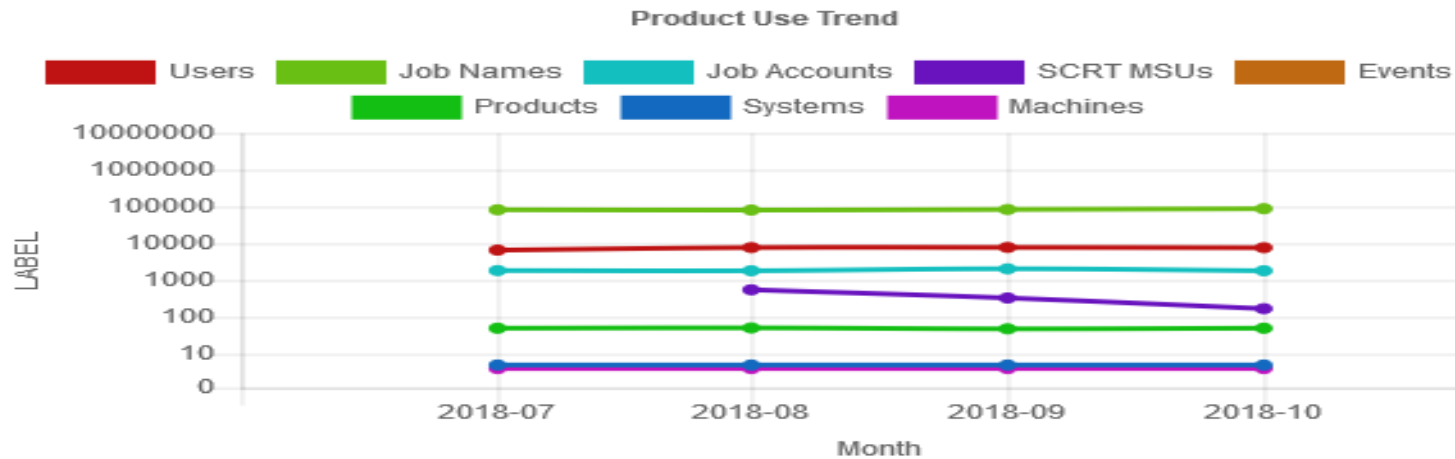
Vendor	Product	Version Title	Version	PID	S&S PID	Feature	EID	Sysplex Name	MLC	IPLA	SUBCAP	Discovered Installed	Annotation	Systems Installed	Last Used	Systems Used	Machines Used
IBM	ACF/NCP	ACF/NCP V7	V7	5648-063		ACF/NCP V7	S000W6K	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	Automatic Binary Optimizer	Automatic Binary Optimizer	V1	5697-AB1	5697-ABS	Automatic Binary Optimizer	S017V8C	AUPLEX	N	Y	z/OS-based	<a href="#">2018-04-01</a>		2		0	0
IBM	BookManager BUILD/MVS	BookManager BUILD/MVS	V2	5650-ZOS	5650-ZOS	BookManager BUILD/MVS	S01728X	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	C/370 Library	IBM C/370 Library Version 2	V2	5688-188		IBM C/370 Library Version 2	S0011N1	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	C/370 Library	IBM C/370 Library Version 2	V2	5688-188		IBM C/370 Library Version 2	S0011N1	USPLEX	Y	N		<a href="#">2018-04-01</a>		3		0	0
IBM	CCCA for OS/390 & MVS & VM	CCCA for OS/390 & MVS & VM	V2	5648-B05	5648-B05	CCCA for OS/390 & MVS & VM	S000LWR	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	CICS TS for z/OS	CICS TS for z/OS V5	V5	5655-Y04		CICS TS for z/OS	S0172DF	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2	<a href="#">2018-10</a>	2	1
IBM	CICS TS for z/OS	CICS TS for z/OS V5	V5	5655-Y04		CICS TS for z/OS	S0172DF	USPLEX	Y	N		<a href="#">2018-04-01</a>		3	<a href="#">2018-10</a>	3	3
IBM	COBOL II	COBOL II	V1	5688-023		CICS Library		USPLEX	Y			<a href="#">2018-04-01</a>		3		0	0
IBM	COBOL II	COBOL II	V1	5688-023		COMPILER		AUPLEX	Y			<a href="#">2018-04-01</a>		2		0	0
IBM	Compiler REXX on zSeries	IBM Compiler REXX on zSeries	V1	5695-013		IBM Compiler for REXX/370	S0002RW	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2	<a href="#">2018-10</a>	1	1
IBM	Connect:Direct z/OS Std Ed	Connect:Direct z/OS Std Ed	V5	5655-X09	5655-X10	BASE	S016XGX	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2	<a href="#">2018-10</a>	2	1
IBM	Connect:Direct z/OS Std Ed	Connect:Direct z/OS Std Ed	V5	5655-X09	5655-X10	BASE	S016XGX	USPLEX	Y	N		<a href="#">2018-04-01</a>		3	<a href="#">2018-10</a>	1	1
IBM	Data Provider for z	Data Provider for z	V1	5698-ABJ	5698-ABK	Data Provider for z	S0182NT	AUPLEX	N	Y	Execution-based	<a href="#">2018-08-01</a>		2		0	0
IBM	Data Provider for z	Data Provider for z	V1	5698-ABJ	5698-ABK	Data Provider for z	S0182NT	USPLEX	N	Y	Execution-based	<a href="#">2018-08-01</a>		3		0	0
IBM	DATABASE 2 (DB2)	IBM DATABASE 2 (DB2) V3	V3	5685-DB2		IBM DATABASE 2 (DB2) V3	S0012K1	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	DB/DC Data Dict	DB/DC Data Dict. Version 1	V1	5740-XXF		DB/DC Data Dict. File Gen. V1	S0011F3	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	DB/DC Data Dict	DB/DC Data Dict. Version 1	V1	5740-XXF		DB/DC Data Dict. File Gen. V1	S0011F3	USPLEX	Y	N		<a href="#">2018-04-01</a>		3		0	0
IBM	DB/DC Data Dict	DB/DC Data Dict. Version 1	V1	5740-XXF		DB/DC Data Dict. Version 1	S0011F4	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	DB/DC Data Dict	DB/DC Data Dict. Version 1	V1	5740-XXF		DB/DC Data Dict. Version 1	S0011F4	USPLEX	Y	N		<a href="#">2018-04-01</a>		3		0	0
IBM	DB2	DB2 11 for z/OS	V11	5615-DB2		DB2 11 for z/OS	S0171R2	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2		0	0
IBM	DB2	DB2 11 for z/OS	V11	5615-DB2		DB2 11 for z/OS	S0171R2	USPLEX	Y	N		<a href="#">2018-04-01</a>		3		0	0
IBM	DB2	DB2 12 for z/OS	V12	5650-DB2		DB2 12 for z/OS	S017GWM	AUPLEX	Y	N		<a href="#">2018-04-01</a>		2	<a href="#">2018-10</a>	2	1
IBM	DB2	DB2 12 for z/OS	V12	5650-DB2		DB2 12 for z/OS	S017GWM	USPLEX	Y	N		<a href="#">2018-04-01</a>		3	<a href="#">2018-10</a>	3	3
IBM	DB2 Administration Tool	DB2 Administration Tool V11	V11	5655-DAT	5655-E90	DB2 Administration Tool V11	S016GL1	AUPLEX	N	Y	Reference-based	<a href="#">2018-04-01</a>		2	<a href="#">2018-08</a>	1	1

# Product Trend Report

**HCL**  
ZAO Demo

Z Asset Optimizer

Product Use Trend



Month	Users	Job Names	Job Accounts	SCRT MSUs	Events	Products	Systems	Machines
2018-07	<a href="#">6626</a>	<a href="#">82739</a>	<a href="#">1847</a>	554	<a href="#">615691163</a>	<a href="#">50</a>	<a href="#">5</a>	<a href="#">4</a>
2018-08	<a href="#">7766</a>	<a href="#">81291</a>	<a href="#">1825</a>	331	<a href="#">635675687</a>	<a href="#">51</a>	<a href="#">5</a>	<a href="#">4</a>
2018-09	<a href="#">7836</a>	<a href="#">84250</a>	<a href="#">2056</a>	170	<a href="#">576551467</a>	<a href="#">48</a>	<a href="#">5</a>	<a href="#">4</a>
2018-10	<a href="#">7700</a>	<a href="#">88257</a>	<a href="#">1825</a>		<a href="#">650296976</a>	<a href="#">50</a>	<a href="#">5</a>	<a href="#">4</a>

4 rows from database query - [DB2 DEB3](#) 08:50:37 2018-12-05

```
/asset/product_use_trend
vendor      = IBM
repository  = ZAOREPJ1
```

# Monitoring Software Usage

## What does it do?

- ▶ ZAO Usage Monitor is a server address space that runs as a started task
- ▶ Invocation of programs in batch, started task and TSO are recorded
- ▶ Usage under CICS can be monitored
- ▶ Number of invocation of each program along with other accounting information on each system is reported

## Why is this useful?

- ▶ ZAO reports actual usage of software assets on your mainframe systems
- ▶ Enables analysis of software usage for future planning to improve operational efficiency
- ▶ Enables planning for future upgrades
- ▶ Enables discovery of unexpected software usage



# Product Use Report

Aqua highlight % increase from previous month

Yellowhighlight % drop from previous month

Red highlight % drop from previous month

Update table

Vendor Product		Version	PID	Feature	Sysplex	System	Month / Events							
							2018-07	2018-08	2018-09	2018-10				
IBM	CICS TS for z/OS	V5	5655-Y04	CICS TS for z/OS	AUPLEX	AU01	5801	3907	2314	977				
						AU02	203895	252727	252276	308102				
					USPLEX	US01	43866	43898	42507	49497				
						US02	15346	15585	15256	16136				
						US03	128134	130561	124820	138677				
					DB2	V12	5650-DB2	DB2 12 for z/OS	AUPLEX	AU01	23399	7821	11959	13048
										AU02	3945231	4121647	3353446	4701322
USPLEX	US01	1363730	1336386	1203749					1491485					
	US02	18141	14001	18814					17078					
					US03	282039	279925	275544	308966					

40 rows from database query - [DB2.DEB3](#) 08:53:49 2018-12-05

```

/asset/product_use_month
metric      = EVENT
vendor      = IBM
product     = CICS TS for z/OS
product     = DB2
repository  = ZAOREPJ1
showfeature = on
showpid    = on
showsspid  = off
    
```

# Flexible Licensing to Meet Your Requirements

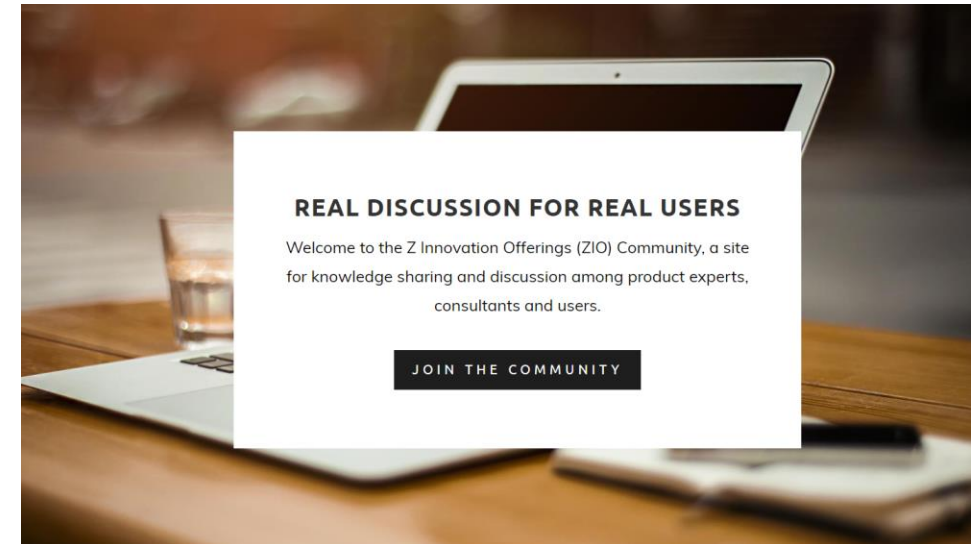
- ▶ Pay month to month or pay in advance to qualify for discount
- ▶ Sub-capacity eligible: select LPARs where ZAO is required and the pricing is based on their respective capacity
- ▶ Increase or decrease ZAO license entitlement based on your requirements – no hidden cost



## Additional Information

- ▶ Need help?
  - Our SME consultants can help to install and configure the product with minimal disruption of your daily tasks
  - Recommendation based on consultation to implement the product most effectively based on your requirements
  - Customization to ensure ISV software products as well as in-house applications are correctly reported
  - Review product reports and assist in preparing project plan to optimize your mainframe systems
- ▶ Visit [www.zio-community/products/ZAO](http://www.zio-community/products/ZAO) for more information

Meet the Experts: [www.zio-community.com](http://www.zio-community.com)



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