

IBM Software Group

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ALCS Requirements Status

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Recap

- IBM took over role of coordinating user group requirements in 2004
 - ▶ Lack of new requirements
 - ▶ Concern over the relevance / validity of older requirements
 - 7 requirements in Top 10 were 8 or more years old
 - Reviewed whole list and rejected 5 requirements
 - Called for new requirements

- Ongoing Assessment
 - ▶ Is the process still relevant
 - Generating enough new requirements
 - Ensure voting is not just because there “must be a Top 10”

Voting Summary

- Votes solicited from 18 licensees (19 last time)
- 11 customers cast votes
 - ▶ 2 customers cast no votes, 5 did not take part
- Up to 100 votes each, maximum 30 votes on a single item
- 1100 votes cast in all

- 28 requirements to be voted on (26 last time)
 - ▶ 16 new requirements (10 last time)
 - ▶ 12 from previous years (16 last time)

- New Top Ten
 - ▶ 9 new, 1 from 2007



Requirements Voting – The Top Eleven

Score	Number	Description	Effort ?
140	ATC0314	Add IP address To ZCTCP MATIP ASCUS Display	Small
100	ATC0307	Ability to access more than one MQ server	Medium
85	ATC0315	ZDCOM display Of ISTATUS for TCPIP Client Resources	Small
75	ATC0306	EVNTC in milliseconds	Medium
70	ATC0311	Add optional info to ZALCS display	Small
60	ATC0304	Enhancements to the ZCTHR facility (Throttle)	Medium
60	ATC0310	Add more information to ZDFIL I entry	Small
60	ATC0316	User Exit in e-mail send ECB program CSMS	Small
55	ATC0317	Display DECB by name in trace	Small
50	ATC0279	ZLOGN Audit	Small
50	ATC0312	Use TCPIP links for message router	Medium

45	ATC0290	Ability to add/alter RACF user data	Medium
40	ATC0137	Support ID checking (exit DXCUPIDC) for fixed as well as pool records	Small
40	ATC0305	Display Connection parameters in CTL-0003Cx message	Sm/Med
35	ATC0313	Performance Monitor History Records	Small
30	ATC0303	Allow CRI parm in STV= option of offline dump processing	Small
25	ATC0126	Improve separation of application function from system function	Medium
20	ATC0154	Use programs for 3270 map records,so they can be loaded/fallen back.	Large
20	ATC0301	Accessing HFS files	X Large
10	ATC0186	ZSNDU to display a specified message by msg number	Medium
10	ATC0295	Add SEQ file name/LINK name to ZCTCB task display	Medium
10	ATC0318	Monitor System Sequential File I/O time in ZPERF SYS	Medium
5	ATC0276	Mechanism to load test programs after copy system restore	Medium
5	ATC0308	User exit for program load to track changes	Small
0	ATC0170	When a printer MSG is processed in DXCUCOM4 system should process queue	Small
0	ATC0271	User exit in CPQC	Small
0	ATC0272	User exit in CPQX	Small
0	ATC0281	Call ASC2 on cycle to HALT	Small

Number 1 - ATC0314

Add IP address To ZCTCP MATIP ASCUS Display

- Requirement Sponsor
 - ▶ Aer Lingus

- Description
 - ▶ It is useful to have the Remote IP address, for each system using MATIP connectivity to connect to ALCS.

- Requirement
 - ▶ Display Remote IP address in ZCTCP MATIP ASCUS display.



ATC0314

Add IP address To ZCTCP MATIP ASCUS Display

- IBM Response
 - ☺ Requirement accepted
- Enhanced Display

Sample response to ZCTCP MATIP,ASCUS

```
DXC8999I CMD L 10.59.29 CTCP MATIP sessions
CRN      CRI      STATUS      TYPE H1 H2 A1 A2      REMOTE IP ADDRESS
3I060002 060002 ACTIVE      A    00 00 03 01 OK      10.142.1.123
3I060003 060003 ACTIVE      A    00 00 01 02 OK      10.142.1.121
3I060005 060005 ACTIVE      A    00 00 03 02 OK      10.142.1.123
```

Number 2 - ATC0307

ALCS able to listen to more than 1 MQ Server

- Requirement Sponsor
 - ▶ Emirates Airlines
- Description
 - ▶ Our current ALCS system is also a centralized message switching package for all interfaced systems that have the functionality to send and receive TTY messages. The standard is that these systems are to connect via MQ only. As such today we have around 50+ MQ connex that serve this purpose. We would like a independent MQ listener to attend to this service than the one that listens & transmits Reservation linked data. .
- Requirement
 - ▶ ALCS to be enabled to listen on another port & another MQ manager



ATC0307

ALCS able to listen to more than 1 MQ Server

- IBM Response
 - ☹ Initial development reaction very opposed
- Currently ALCS has a 1:1 relationship with sub-systems
 - ▶ Production ALCS connects to other z/OS production subsystems
 - ▶ Test ALCS connect to test subsystems
- The issuer of MQ verb, application or the communication definition, would need to be aware of which queue manager connection to use.
- To work with takeover/fallback systems this information needs to be virtual or the applications need to know which system they are on. Becomes very complex.
- One of the principles of ALCS has been to keep things simple
 - ▶ System setup
 - ▶ Operation

ATC0307

ALCS able to listen to more than 1 MQ Server

- IBM Response

- ☹ Requirement under review

- Why is this required ?

- ▶ “We need to know what the customer expects to achieve by connecting to multiple queue managers. Unless there's some problem, the natural solution is to connect to just one queue manager and route all traffic to ALCS into queues on that queue manager.” S. Hobson

- Customer Responses

- ▶ EK - to split workload
- ▶ SITA - to make setting up test scenarios easier
- ▶ IB - in case a queue is blocked and reaches it's limit



ATC0307

ALCS able to listen to more than 1 MQ Server

- IBM Response

- ☹ Requirement under review

- CICS can connect to only one MQ manager and one DB2 at a time.
 - ▶ CICS have rejected requests for connection to multiple DB2 systems and stated the same principle would apply to MQ.
- MQ for z/OS allows local queues to be shared by a group of queue managers, giving improved throughput and availability. Such queues are called shared queues, and the queue managers form a queue-sharing group.
 - ▶ See WebSphere MQ for z/OS Concepts and Planning Guide for a full discussion of queue-sharing groups.

ATC0307

ALCS able to listen to more than 1 MQ Server

- IBM Response

- ☹ Requirement under review

- 'WAS supports connections to multiple different JMS providers from the same WAS instance. This can include multiple WMQ queue managers if that's what the customer wants (though it's more likely to occur as an unwanted and damaging accident).'
- 'It is possible that a customer has multiple independent messaging systems using different technologies (WebSphere MQ and Sonic MQ). A special case is using both WebSphere MQ and WAS native messaging as JMS providers on the same WAS.'
- 'These are somewhat theoretical examples though; I don't know of anyone who actually does it.'

Number 3 - ATC0315

ZDCOM display of ISTATUS for TCPIP Client Resources

- Requirement Sponsor
 - ▶ Aer Lingus
- Description
 - ▶ Display the ISTATUS on a ZDCOM for TCPIP Client resources.
- Requirement
 - ▶ EI use the ISTATUS indicator to determine if they should attempt to reactivate a TCPIP client resource, during TCPIP connection monitoring. (i.e. if ISTATUS=ACTIVE, attempt to re-connect)
 - ▶ We can also keep a resource permanently 'down' by setting the ISTATUS indicator to INACTIVE. For these reasons it is useful to show ISTATUS in a ZDCOM Display. We also developed the ability to turn on/off the ISTATUS indicator with ZACOM entry, using ECB user exit ACME.

ATC0315

ZDCOM display of ISTATUS for TCPIP Client Resources

- IBM Response

- ☺ Requirement accepted

- ▶ Example display ...

```
zdc com n=ipclient d
DXC8900I CMD L 11.49.45 DCOM
Resource CRN          CRI      Ordinal  Routing  Status  Istatus
TCPIP-C  IPCLIENT  06001B  00005598  ACSA    ACTIVE  ACTIVE
User ID          - IALDUMMY
```

...

- Change will only be implemented for TCPIP Client resources

- ▶ Other resources make use of 'column' after Status already

```
Resource CRN          CRI      Ordinal  Routing  Status  Base Server
TCPIP-D  2I070003  070003  00000834  ACSA    INACTIVE  WWW1022
```



Number 4 - ATC0306

EVNTC in milliseconds

- Requirement Sponsor
 - ▶ Emirates and Turkish Airlines
- Description
 - ▶ Today EVNTC has seconds as the only wait configuration parameter. Systems have the power to respond back faster. We request you to introduce milliseconds as a configuration parameter.
- Requirement
 - ▶ EVNTC format has a definable TIMEOUT={180|seconds|(reg)}. This is maximum number of seconds an event is defined to wait prior to checking for completion. With this change EVNTC will need to have milliseconds & lowest value recommended as 250 ms.



ATC0306

EVNTC in milliseconds

- IBM Response

- 😊 Requirement accepted

- IBM Considerations

- The TPF version of the Event macros supports timeout values in seconds, milliseconds, microseconds, and nanoseconds.
- TIMEINC parameter is used to define the time unit to be used by the timeout process and can be specified as SECS, MILLI, MICRO or NANO.
- For compatibility, if possible, this requirement should consider the TPF version for the Event macros.

ATC0306

EVNTC in milliseconds

Current ALCS Timeout Process:

- The ALCS Hold Table is where event resource items are stored.
 - ▶ The amount of time in SECONDS for an event to timeout is stored in an item.
 - ▶ Every second ALCS scans the table and decrements the timeout fields by 1.
 - ▶ When a timeout field reaches ZERO, that event resource gets a timeout.

- The ALCS Timer subtask process gets control every 50ms. Every 20th time it gets control (every 1 sec) it invokes the timeout process.

- The Hold Table is indexed by event resource name only. Access is direct to add, search, delete but the timeout process accesses the table sequentially.
 - ▶ Whole table needs to be scanned every second, if there is at least one event item with timeout to be processed.

ATC0306

EVNTC in milliseconds

Two Solutions considered

- 1. Use the current ALCS structure and reduce the interval the ALCS Timer subtask gets control to provide higher granularity.
 - ▶ This option is cleaner, simpler and less risky.
 - ▶ But it will introduce performance concerns.

- 2. Replicate something similar to the TPF solution
 - ▶ This option does not introduce performance concerns
 - ▶ Compatible not only for milliseconds but also for microseconds and nanoseconds.

- The second option is the preferred one.

ATC0306

EVNTC in milliseconds

New ALCS Timeout Dispatch List (TDL), a sub list of the Hold Table

- list of Hold Table items, each containing a timeout value (TOD format)
 - ▶ Timeout Value = TOD at creation + timeout from event macro.
- The list is organized in ascending order of timeout value
 - ▶ First Hold Table item on list is first to timeout
- Hold Table Header new field contains address of first timeout item
- Hold Table Item contains new fields
 - ▶ Sub second timeout TOD clock
 - ▶ TDL forward chain
 - ▶ TDL backward chain

ATC0306

EVNTC in milliseconds

Timeout Processing

- The TDL is checked at the top of the CPU Loop
 - ▶ New TDL service request switch - ATDLREQ
- If TDL populated
 - ▶ Compare current TOD with the item at top of TDL
 - If equal or higher, then timeout that Hold Table item.
 - Take item off TDL, decrement ECB Hold counter, delete Hold Table item
 - Then check next item on the TDL
 - If lower then stop scanning TDL

Normal Processing

- If an event is removed from the Hold Table (POSTC) remove item from TDL
 - ▶ TDL processing is within the Hold Table process so serialised.



ATC0306

EVNTC in milliseconds

- When the CPU Loop finds no work to do it issues an MVS WAIT.
- The duration of the wait can be up to 50ms on a low activity system
 - ▶ Unacceptable precision EVNTC in milliseconds.

New STIMERM – DXCHLD

- STIMERM is set when an item is added to the top of the TDL.
 - ▶ There is just one STIMERM corresponding to the top item on the TDL.
 - ▶ If top item removed, the STIMERM is cancelled and a new one created for the new item at the top of the TDL if there is one.
- STIMERM routine gets control at the timeout time of the first TDL item. It flags that the TDL process needs to run and calls POSTALCS.
 - ▶ Improves precision on the timeout process
 - ▶ Avoids overhead by flagging when to process the TDL
 - Occurs only on demand



ATC0306

EVNTC in milliseconds

- IBM Response
 - ☺ Requirement under development as AM36014
- Currently testing
 - ▶ Precision found to be around 1 msec on our test system. So
 - Timeout = 2 ms expires in 3 ms, Timeout = 100 ms expires in 101ms
 - Current Hold Table precision can be as bad as 1 sec
- Potential follow up
 - ▶ Should the throttle be enhanced to use this sub-second capability ?
 - ▶ Review your programming of create loops
 - ▶ Implication if increased use of EVNTC on Hold Table size

Number 5 - ATC0311

Add optional info to ZALCS display

- Requirement Sponsor
 - ▶ Air New Zealand
- Description
 - ▶ We have an entry which displays storage addresses of fields in CPGEN.
- Requirement
 - ▶ If we get a Dump in DXCMON we can do our entry (ZDSTO). This gives us the starting address of each monitor segment. This allows us to quickly determine which segment the problem is in. If we need to find the address of a load module the ZDSTO entry has the address of the load module table.

ATC0311

Add optional info to ZALCS entry

- IBM Response
 - 😊 Requirement accepted
- Solution Considerations
 - ▶ Customer has an entry that shows this information already
 - ▶ We will enhance ZALCS command to incorporate some/all of this information
 - Format will be different and the output may be spread across different commands
 - Part of the user command output is shown on next pages ...

***** ALCS STORAGE MAP *****
DXC LABELS

NUC	00070E50						
ABR	0000C8E0	AUTH	0000CC20	CDSS	0000D528	COLA	0000D7C0
COLB	0000E828	COLC	00012A08	COLD	00014E00	COLF	00016F08
COLH	0001B538	COLI	0001C4F0	COMC	0001CB18	COMD	0001D7C8

. . . .

***** DATA STORAGE MAP *****

MONITOR AREAS

TABLE	15500000	END	15570580	WORK	000C8000	END	00125C00
-------	----------	-----	----------	------	----------	-----	----------

MISCELLANEOUS ADDRESSES

CTKB	7F5C6210	VFA	7F5C6638	POOL	570DB008	CINFC	F0F661F2
------	----------	-----	----------	------	----------	-------	----------

MONITOR WORK LIST ADDRESSES

IOCB	15500008	PAGE	00000000	READY	15500020	DELAY	15500038
INPUT	15500050	DEFER	15500068	DIOCB	15500080		

ECB STATUS QUEUE

NOT	15500098	RUN	155000B0	GET	155000C8	REC	155000E0
VFA	155000F8	HLD	15500110	TRC	15500128	SEQ	15500140
HKA	15500158	VFH	15500170	SQL	15500188	APPC	155001A0
MQI	155001B8	SLC	155001D0	PSEQ	155001E8	PTBL	5733B000

CONTROL BLOCK POINTERS

MACRO	15552920	DDUMP	15500260	CRET	15500E80	EVENT	1555D480
DIR	15501A98	HOLD	15562538	BLOCK	7F5C6B08	LIMIT	7F5C5088
LODIC	7F5C55E8	DBASE	7FF77000	KPT	7F2B7000	XCF	00000000
OCTM	54BDE000	MOMB	1556A638	PMTB	5733B000	THRT	57353B3C

OPTION AND WORK AREA ADDRESSES

DUMP	15500240	TIMER	15500E40	SLC	15500E98	GTF	15553838
APPC	570ED000	DCR	15500230	DB2	00000000	MQI	573EE000
SCRL	7F5C51A8	TCP	540EF000	PDU	570DC7F4	ENFX	824C9878

BLOCK LIST POINTERS

IOCB	15501B58	STORE	15531B88	TYPE2	1554ABB8
------	----------	-------	----------	-------	----------

INSTALLATION-WIDE MONITOR EXIT

LIST	57432000	SERV	57415000
------	----------	------	----------

PROGRAM MANAGEMENT ADDRESSES

SYSPG	7FF74000	PNAME	56F14008	PHASH	57128008	PNUM	00004273
MODL	5731C008	MODN	000000CD	FSTLK	57333010		

GLOBAL ADDRESSES

GLOBALS	7F2B703C	(DIRECTORY OF DIRECTORIES)
GLOB1	15571000	(GLOBAL AREA 1)
GLOBA	15571000	
GLOBB	15571528	00032F01
GLOBC	15571948	00042F01
GLOBG	15571B38	002C2F01
GLOBF	15571F20	002B2F01
GL1BA	15573448	
GL1BB	15573848	00DB2F01
GL1BC	15573C48	00DC2F01
GLOB2	1557A000	(GLOBAL AREA 2)
GLOB3	15836000	(GLOBAL AREA 3)

USER STORAGE

CDS	7F5C5000	CDC	570CB200	CDD	573A2000	CDT	00BBA000
-----	----------	-----	----------	-----	----------	-----	----------

Number 6 - ATC0304

Enhancements to the ZCTHR facility (Throttle)

- **Requirement Sponsor**
 - ▶ Air New Zealand
- **Description**
 - ▶ We need several changes to the throttle facility.
- **Requirement**
 - ▶ 1. Default no parameter entered to Display table instead of error message.
 - ▶ 2. Allow 3 digits of USR instead of 2 digits.
 - ▶ 3. Pass the LODIC value back to the application in R14 whether or not it is a positive reply or forced return.
 - ▶ 4. We also changed USR to ECB in input parm and header. Might be nice to have a parameter to be able to do that in SCTGEN.

ATC0304

Enhancements to the ZCTHR facility (Throttle)

- IBM Response

- ☺ Requirement accepted

- Default no parameter entered to display table. OK
- Allow 3 digits of USR instead of 2 digits. OK
- Pass the LODIC value back to the application. OK
 - ▶ May use a field in the prefix area rather than R14
- Option to change USR in SCTGEN. Not OK
 - ▶ We see no point in this item
- Add ability to use new sub second event logic
 - ▶ will require table changes

Number 7 - ATC0310

Add more information to ZDFIL I entry

- Requirement Sponsor
 - ▶ Air New Zealand
- Description
 - ▶ We have an User entry to get similar info to "ZDFIL I" .
- Requirement
 - ▶ We would like the following extra information in the display
 - a. Max Ordinal in Hex and Decimal of the group.
 - b. VFA options in place
 - c. Block length and CI size in decimal and hex
 - d. for short term pool - Directory number/displacement/byte value
 - e. For pool records on the dispense line the 6 hex characters at the end of the line are the CRI of the terminal that dispensed the record. We store this info prior to the time stamps in the end of the record.

Sample User Command Response

STANDARD RECORD INFORMATION - 044418E3

Ron Type FIXED -- DXCRID equ 0111
Record Type #PDLRI
Ordinal Number ... 00279576
Max Ordinal Number 003B825F
DB definition 03900000
VFA Option/Mode .. FI NU
Block Type 0031 L2
Block Length 041F 1055
CI Size 0600 1536
File Address/ID .. 044418E3 .. PD
Alloc. Pool Addr.. 47CE0A2C
Stamp Written 03.47.50 05/02/10



ATC0310

Add more information to ZDFIL I entry

- IBM Response
 - 😊 Requirement accepted
- We will update the ZDFIL I entry to add the requested information
- The layout is likely to differ from the user command shown on the previous page.



Number 8 - ATC0316

User Exit in e-mail send ECB program CSMS

- Requirement Sponsor
 - ▶ Aer Lingus
- Description
 - ▶ Need the ability to capture and store ALCS e-mail statistics.
- Requirement
 - ▶ Aer Lingus calls an ECB exit from CSMS, after successful transmission of each e-mail, to update our e-mail statistics package, where we store details of e-mail's sent by origin address (and history for 30 days).
 - ▶ We use a 'Z' message to display the statistics



ATC0316

User Exit in e-mail send ECB program CSMS

- IBM Response

- ☺ Requirement under development as AM38416

- ALCS will conditionally enter new exit ASMA after transmission of an outgoing SMTP message.
 - ▶ This allows (for example) to update user statistical information
- At entry, Register R15 contains the ALCS SMTP sender return code in hex:
 - ▶ 00 - Message sent.
 - ▶ 04 - Transient error. ALCS will retry the transmission.
 - ▶ 08 - Rejected by MTA. ALCS discards the message, tries to send next message.
 - ▶ 0C - Rejected by ALCS. ALCS discards the message , tries to send next message.
 - ▶ 10 - MTA connection problem.
 - ▶ 14- TCP/IP connection problem.
- ASMA does not need to save and restore registers, but it must save and restore any ECB work areas and levels which it modifies.
- ASMA must return using BACKC



Number 9 - ATC0317

Display DECB by name in trace

- Requirement Sponsor
 - ▶ China Airlines
- Description
 - ▶ Can not display a storage block in trace by DECB name, only by address.
Requirement
 - ▶ The DECB address is meaningless to the programmer and it changes in different entries but the DECB name may have the same value during development/testing.

ATC0317

Display DECB by name in trace

- IBM Response
 - ☺ Requirement accepted

- Trace will be enhanced to add a command to display DECB by name.

- Shall we add a summary command to show the in use DECB block names
 - ▶ D DECB all

- In addition to
 - ▶ D DECB name=

Number 10 - ATC0279

ZLOGN Audit

- Requirement Sponsor
 - ▶ China Airlines
- Description
 - ▶ We need to know when, where and who did ZLOGN entry for audit purpose.
- Requirement
 - ▶ Need an user exit which passes the DXCREI entry point and user_ID then we can log ZLOGN event for later use.
- Known (Partial) Solutions:
 - ▶ CI have a usermod to DXCSAF and write the information to the user sequential file.

ATC0279

ZLOGN Audit

- IBM Response

- 😊 Requirement accepted

- We will add a new user exit to DXCSAF to enable this processing to take place.
- We will contact the requester to confirm:
 - ▶ where they would like the exit positioned in DXCSAF
 - ▶ what parameters they require to be passed
 - ▶ If there is any decision (alternate action) to be taken on return



Number 11 - ATC0312

Use TCPIP links for message router

- Requirement Sponsor
 - ▶ Air New Zealand
- Description
 - ▶ To print documents from a test system to a live system printer. This is currently handled by message router over a LU6.1 link (ALCS Link)
- Requirement
 - ▶ LU6.1 technology is old architecture We would prefer to use a TCP/IP link .

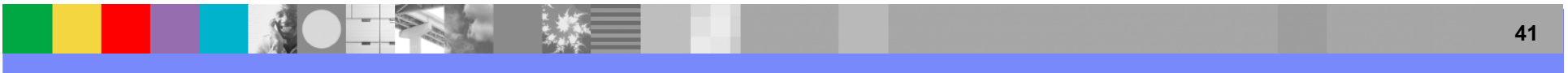
ATC0312

Use TCPIP links for message router

- IBM Response

- ☺ Requirement accepted

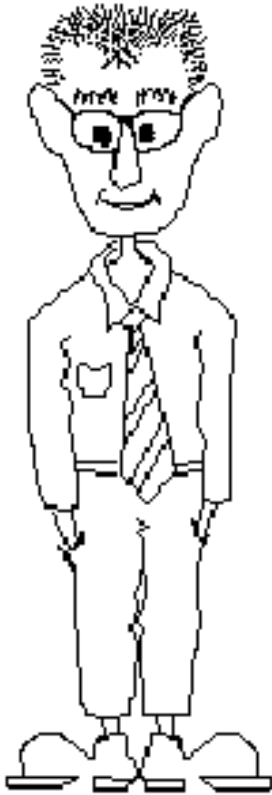
- We envisage an new TCPIP LDTYPE communication definition
- We think implementation will be fairly straightforward
 - ▶ Existing SLC / LU 6.1 code can be used as a model



Wrap up

- Important to keep software current
- Priority is given to support
- Other IBM developments may impact delivery

Any Questions ?



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