

Best SOA Practices for Date & Time Simulation (DTS) and Global Time Zone Virtualisation (GTZV)**ESTIMATES ARE THAT:**

- 30% OF z/OS MAINFRAMES USE JAVA AND IT WILL GO TO 40%
- NEARLY 60% USE SOA EITHER PARTIALLY OR FULLY
- IT IS CLAIMED THAT SOA DEVELOPMENTS CAN CUT COSTS BY UP TO 90%
- SOA WAS SEEN AS MUCH HYPE BUT NOW IT IS PART OF US

1-WHAT IS YOUR EXPERIENCE?

No.	Best DTS Practice in SOA	Issues related to DTS in SOA	DTS SOA Resolution
1	DTS Test all of z/OS apps in an SOA Manner	<ul style="list-style-type: none"> • SOA is much about loosely-coupled apps across a variety of platforms • When z/OS is a main SOA hub it is usually because of the wealth of information and logic that resides in CICS, DB2, IMS and other databases, a major heart of the organization • WebSphere Application Servers (WAS) and Java language apps are in an open world with sometimes millions of tablet, smartphone and PC users logging in to collaborate with very important information • Often the Java apps are integrated with batch, CICS, WAS for z/OS and must be treated with the same, zealous testing as has been the case for years with Cobol, PL1, Natural and other • Exponential date and time errors can occur far outside of z/OS in online apps being used by clients 	<ul style="list-style-type: none"> • DTS all of your z/OS-based apps with a single product • Easy to use ISPF panels • a maximum of 1,000 rules in a job set • Add Notes, document their function, etc. • Job rule definitions are system-wide resources, and the ability to include notes means users ensure their purpose is well documented.
2	DTS Test z/OS 64-bit support	<ul style="list-style-type: none"> • zSeries provides for data above the 2-gig bar • Home grown and 3rd party apps are using data above the 2-gig bar in combination with IMS (FastPath), DB2, Java, USS, SAP and more • Performance and TCO are paramount • Once again, exponential date and time errors can occur far outside of z/OS in online apps being used 	<ul style="list-style-type: none"> • Thoroughly DTS Test all 24, 31 and 64-bit apps whatever code or storage is being used by one product • Maximize DTS Testing results without going into silos • Be SOA aloof with DTS

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		by clients	
3	DTS Test DB2 Stored Procedures coming from any SOA component to z/OS	<ul style="list-style-type: none"> • DB2 SP's are now essential with or without SOA • SP's are often embedded components in one or more distributed DB2 databases across the SOA environment • SP's reduce network traffic where the SP performs the database accessing without returning unnecessary data across the network • SP's are re-usable SOA components, reducing costs • SP's are known as "repeatable services" to be shared between apps • SP's define business rules that are common to several applications. This is another way to define business rules, in addition to using constraints and triggers 	<ul style="list-style-type: none"> • Ensure you DTS SP's with Fully Nested QA; that is date or time calls from within nested SP's will be shifted correctly, no matter how deeply nested they are • Make sure you shift CURRENT DATE, TIME or TIMESTAMP calls from Stored Procedures consistently with whatever virtual clock the caller of that Stored Procedure is running with. <input type="checkbox"/> Make sure different callers of the same Stored Procedure in the same DB2 subsystem can be running with different simulated clocks (or none at all). These different callers could be CICS or IMS transactions, batch programs, Java programs running under WebSphere Application Server for z/OS, and so on.
4	DTS Test Event-driven SOA Triggers	<ul style="list-style-type: none"> • Event-driven SOA lets business users monitor, analyze, and enrich events to make the connections among disparate events • Triggered SQL and Stored Procedure arriving from any SOA component to z/OS are specifically event-driven • The Triggers create high-level business events from numerous lower level events. • Triggered SQL support is essential with or without 	<ul style="list-style-type: none"> • Ensure you DTS Test all Triggered SQL with Fully Nested QA; that is date or time calls from the wide variety of triggers at all • As Triggers can be at any stage before or after an SP and/or SQL, you must DTS at every possible level to remove exponential data errors

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		SOA	
5	DTS Test IMS as much as you can	<ul style="list-style-type: none"> • Under SOA, IMS (and DB2) is no longer approached from within but is accessed from loosely-coupled apps and systems from with zSeries and outside • User rule sharing must be detailed across all regions 	<ul style="list-style-type: none"> • You must now DTS Test within regions sharing the same IMS subsystem, or • within regions grouped by the same job rule set (the default), or • within all IMS regions on the LPAR • You must drill down and DTS everywhere • The only way is to DTS Test all aspects of SOA which includes Java WAS for z/OS; from a single product
6	DTS Test CICS within SOA	<ul style="list-style-type: none"> • CICS Transaction Server serves as key components in SOA • CICS often connects to the outside world via WebSphere Application Server for z/OS (WAS for z/OS) and Java • In SOA WAS is referenced by IBM as a “managed environment”. That is, the app is running in a JEE environment such as WAS, i.e. management of connections, transactions, and security all managed by the application server • The application development costs for a non-managed environment are significant and the quality of service is generally not as good as that provided by a managed environment such as WebSphere Application Server • “Both CICS Transaction Server and WebSphere Application Server are strategic IBM middleware 	<ul style="list-style-type: none"> • DTS Test all combined SOA logic • From one product • Easy ISPF interface • High quality QA is essential • Date and time errors are not an accident, waiting to happen • Date and Time errors are not an over sight, they are a strategic mistake, letting down many thousands of hours of work • SOA results deserve more

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		<p>products that interoperate well using technologies, such as web services, to support end-to-end on demand systems.”</p> <ul style="list-style-type: none"> • “They exploit and complement z/OS qualities of service, such as high availability and scalability at a low cost per transaction, with a high level of security.” • “In combination, WebSphere Application Server and CICS support almost any mission-critical SOA solution.” 	
7	DTS Test CICS MRO under SOA	<ul style="list-style-type: none"> • CICS MRO (multi-region operations) provides CICS systems running in the same z/OS sysplex to communicate with one another using optimized networking facilities based on CICS cross-memory facilities or intercommunication through the IBM Parallel Sysplex coupling facility • MRO does not support communication between a CICS system and a non-CICS system such as IMS 	<ul style="list-style-type: none"> • DTS Test all combined CICS MRO logic • Under SOA, MRO date and time logic could be from any source and must be tested as part of the whole picture <input type="checkbox"/> CICS regions should be grouped by the name of the rule set that activated for them, and users will see the same virtual date no matter in which region in the group their transaction runs. <input type="checkbox"/> This support is a significant enabler for accurate application testing and certification in an SOA-driven world where CICS is being opened up to other platforms, and MRO configurations are the norm. • •
8	DTS Test CICSplex under SOA	<ul style="list-style-type: none"> • Typically, CICS regions are used in a cluster termed a CICSplex 	<ul style="list-style-type: none"> • DTS testing needs to surround CICSplex in an integrated manner

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		<ul style="list-style-type: none"> • Most z/OS-based enterprises are running many tens or hundreds of CICS regions under the SOA banner • It supports their needs for capacity, resilience, and workload management • Integration with WAS for z and Java are highly strategic 	with MRO, without concern
9	DTS Test with Parallel Sysplex	<ul style="list-style-type: none"> • Parallel Sysplex handles a cluster of mainframes acting together as a single system image under z/OS • A well-designed high-availability infrastructure can provide a solution to these issues by building on the unique technology provided in a System z Parallel Sysplex 	<ul style="list-style-type: none"> • DTS Test Parallel Sysplex allowing automatic synchronisation of shared rules and clocks across a Sysplex. • For example if a CICS user sets a virtual date in one region of a CICS MRO that date can be propagated automatically to all other participating regions, even if spread across multiple LPARs.¹
10	DTS Test z/OS UNIX System Services (USS)	<ul style="list-style-type: none"> • USS (technically OMVS) is now tightly integrated under z/OS • “USS is built for the enterprise where you can prioritize workloads for high performance when running with a mixed workload” • “Applications can work with data in both the z/OS UNIX file systems and traditional MVS data sets” • “MVS programs can access UNIX files, and UNIX programs can access MVS data sets” • WebSphere Application Server, CICS, DB2, IMS, Java and more, all use z/OS USS. • “There is a broad range of ISV applications ported to z/OS UNIX, such as SAP 	<ul style="list-style-type: none"> • It appears that DTS testing of the 2013 USS is complex • As a DTS Tester you must be able to thoroughly test at a strategically high SOA level but tactically drill down and test the inter-connected apps that may well be in association with several, if not many components of SOA • Softdate is unique because it is the only and unique SOA z/OS-based DTS product that can test USS, Parallel Sysplex, CICSPlex,

¹ For multi-LPAR support this does require customers to use their automated operations software to detect certain SoftDate messages and then issue commands to the participating LPARs.

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| | <ul style="list-style-type: none">• USS provides UNIX under z/OS• UNIX apps are sometimes ported from UNIX boxes to USS under partial or full SOA• | <p>CICS MRO, CICS, IMS (including FastPath), fully nested DB2 Stored Procedures/SQL/Triggers, and full support of 64-bit.</p> <ul style="list-style-type: none">• In addition, Softdate can synchronize at the date and time environment, at a platform level of all your SOA systems (e.g. z/OS, UNIX, Linux, Power. I) to ensure at a global level, they do stay in synch timewise. |
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