COMPLIANCE COMPONENT

DEFINITION	
Name	Transaction Based Middleware Guidelines
Description	Transaction Based Middleware, also known as Transaction Processing Monitors (TPM), are middleware products servicing clients requiring transaction services in a single tier or n-Tier distributed application environment. An example of this type of product is CICS.
Rationale	TPM products are important when applications require high transaction volumes, load balancing, failure recovery and fail-over capabilities. TPM is an integral part of State software products.
Benefits	• Ensures transaction integrity for transactions that involve databases • Provides application services to thousands of clients simultaneously

ASSOCIATED ARCHITECTURE LEVELS	
Specify the Domain Name	Interoperability
Specify the Discipline Name	Application Interoperability
Specify the Technology Area Name	Transaction Based Middleware
Specify the Product Component Name	CICS from IBM (as TP Monitor)

COMPLIANCE COMPONENT TYPE	
Document the Compliance Component Type	Guideline
Component Sub-type	

COMPLIANCE DETAIL	
State the Guideline, Standard or Legislation	Transaction processing monitors (TPM) perform an administrative function by accessing and updating shared databases on behalf of an on-line user. A transaction processing system is an integrated set of products that supports transactions processing applications. These products include both hardware, such as processors, memories, disks and communications controllers, and software such as operating systems, database management systems, computer networks and TP monitors. Much of the integration of these products is provided by TP monitor which coordinates the flow of transaction request between terminals that issue requests and TP applications that can process them. Transaction processing must ensure transaction integrity for transactions that involve databases. Transactions often involve multiple steps, all of which must be completed before a database commit can be executed. Transaction processing monitors are critical because without them, it would be a very difficult job to write the programs necessary to track transactions across multiple platforms and databases. Some of the services provided by transaction processing monitors include the following: Transaction integrity, two-phase commits, failure/recovery, and load balancing. These services are described briefly below.

	Transaction Integrity Necessary services to ensure those atomic database transactions comprising a business transaction are applied successfully or not at all. If any one transaction fails, all transactions contained in the unit of work must be rolled back to return the database to its "before" state. If all succeed, all are committed to the database(s). **Two-Phase Commit** A means of implementing transaction integrity when there is more than one target database system (server) involved in the transaction. Two-phase commit ensures that all servers have successfully posted the transactions targeted at their database before committing these to the databases involved in the unit of work. **Failure Recovery** Failure Recovery provides means for reestablishing the appropriate connections and restarting transactions when network and platform outages occur. **Load Balancing** A feature of Transaction Monitors in which the server component manages the workload presented by the clients by fully utilizing the resources available. Load balancing and thread management services are important because transaction processing monitors need to process many transactions on many different systems in a very short time period. The monitor can change traffic patterns, processing parameters, or increase the pool of processors. This enables the monitor to dynamically adjust to the workload. Transaction Monitors generally utilize transaction priorities and multiple database sessions and/or threads to optimize throughput.
Document Source Reference #	

Compliance Sources			
Name		*Website*	
Contact Information			
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Contact Information			

KEYWORDS	
List Keywords	Middleware, Transaction Processing Monitor, TPM, Transaction Based Middleware

COMPONENT CLASSIFICATION				
Provide the Classification	☐ *Emerging*	☒ *Current*	☐ *Twilight*	☐ *Sunset*
Sunset Date				

COMPONENT SUB-CLASSIFICATION		
Sub-Classification	Date	Additional Sub-Classification Information
☐ *Technology Watch*		
☐ *Variance*		
☐ *Conditional Use*		

Rationale for Component Classification			
Document the Rationale for Component Classification			
Migration Strategy			
Document the Migration Strategy			
Impact Position Statement			
Document the Position Statement on Impact			
CURRENT STATUS			
Provide the Current Status	☐ *In Development* ☐ *Under Review* ☒ *Approved* ☐ *Rejected*		
AUDIT TRAIL			
Creation Date	12/15/04	*Date Approved / Rejected*	1/11/05
Reason for Rejection			
Last Date Reviewed		*Last Date Updated*	
Reason for Update			