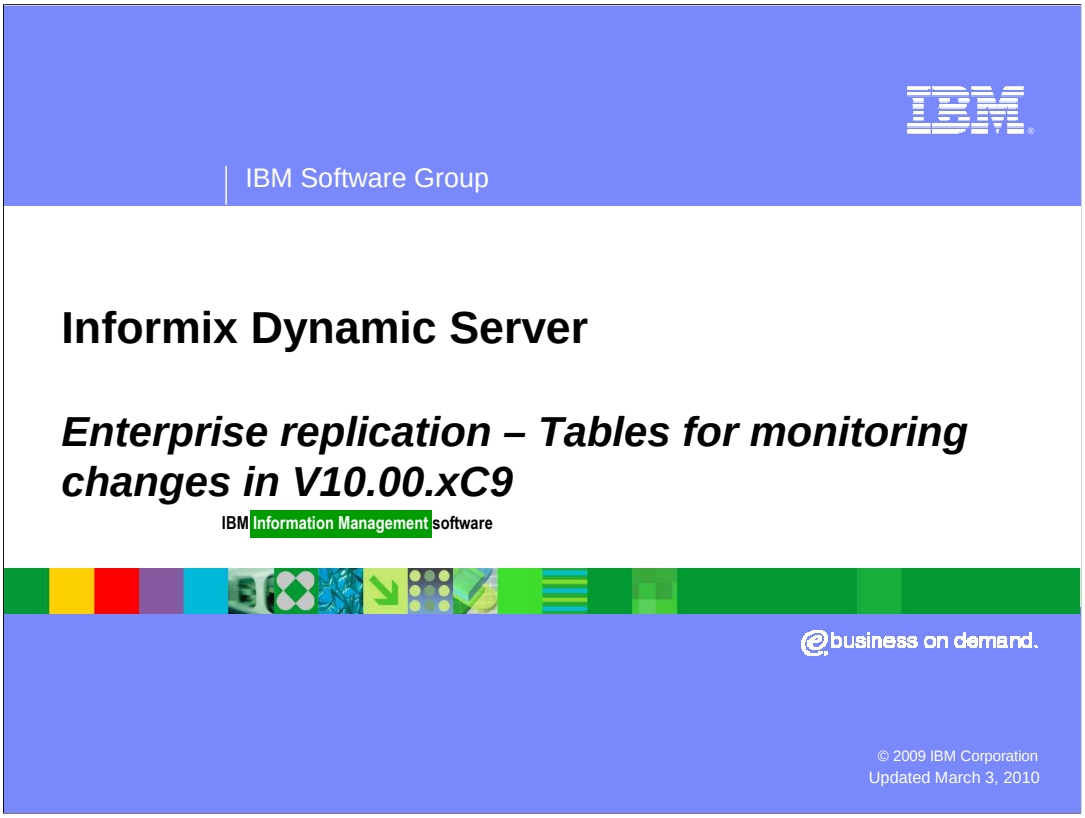

This presentation provides tables that contain descriptions of existing SMI tables, sysmaster pseudo tables, and column names and meanings of individual column values. The following slides do not contain audio. You can pause the presentation at any time to delay the advancement of future slides.

Existing SMI tables

Existing sysmaster APIs for ER

Table	Number of Rows	Purpose
syscdrq	1 for each table/target	Displays the information queued for given targets.
syscdrtx	1 for each of the source nodes	Displays information about applied transactions from the viewpoint of the datasync.
syscdrs	1 for each server in the ER domain	Displays the defined servers.
syscdrprog	1 for each target/replicate combination	Displays the stable progress table for each replicate which has been processed. By using this table, it is fairly easy to identify what has been ACKed from each of the target nodes.
syscdrsend_txn	1 for each transaction in the Send Queue	Display information about in memory transactions which are contained in the sendq such as commit LSN, stamp time, commit time.

Existing SMI tables

Existing sysmaster APIs for ER (continued)

Table	Number of Rows	Purpose
syscdrack_txn	1 for each ACK to be sent back to source	Similar information for the ACK queue.
syscdrctrl_txn	1 for each ACK to be sent back to source	Similar information for the Control Queue.
syscdrsync_txn	1 for each ACK to be sent back to source	Similar information for syscdr Sync Queue.
syscdrrecv_txn	1 for each ACK to be sent back to source	Similar information for Receive Queue.
syscdrsend_buf	Number of Txn times number of rows in the Send Queue	A breakdown of the buffers within the transactions in the Send Queue. This contains the replicate, number of bytes, and so on.

Existing SMI tables

Existing sysmaster APIs for ER (continued)

Table	Number of Rows	Purpose
syscdrack_buf	1 for each ACK to be sent back to source	Similar information about the ACK queue.
syscdrctrl_buf	1 for each ACK to be sent back to source	Similar information about the Control Queue.
syscdrsync_buf	1 for each transaction in the Send Queue	Similar information about the syscdr Sync Queue.
syscdrrecv_buf	1 for each ACK to be sent back to source	Similar information about the Receive Queue.
syscdrrecv_stats	1 for each source/replicate that data is received from	A breakdown of data received from each source node. Contains the # of txn's received from each source node, pending txn's waiting to apply, and commit rate from that node.

Existing SMI tables

Existing sysmaster APIs for ER (continued)

Table	Number of Rows	Purpose
syscdrlatency	1 for each source / replicate combination	Contains info. about each table receiving replicated data, including the source commit time/apply time of the last operation for that replicate.
syscdr_rqm	1 for each of the RQM Queues	Contains most of the information about each of the RQM Queue Header structures.

Existing SMI tables

Sysmaster APIs for ER - after ER is defined

Table	Number of Rows	Purpose
syscdrhost	1 for each entry in the SQLHOSTS	Contains network information about each of the elements within SQLHOSTS which are part of an ER group.
syscdrserver	1 for each configured node	Describes each of the servers defined within the syscdr database along with key information about each of the nodes.
syscdrerror	variable	Holds any global catalog errors, and errors printed in the online.log.
syscdrreplset	1 for each replset/repl combination	Contains a description of each replicate set within the syscdr database.

Existing SMI tables

Sysmaster APIs for ER - after ER is defined (continued)

Table	Number of Rows	Purpose
syscdrpart	1 for each define replicate/node	Description of each of the participants of the defined replicates.
syscdrqueued	1 for each target/replicate which had data currently queued	Summary of the data queued from the syscdrtx table.
syscdrtxproc	1 for each source node	Global summary of what has been processed from each source node.

New SMI tables

New Sysmaster APIs for ER

Table	Number of Rows	Purpose
syscdr_state	0,1	Provides a means of checking the state of ER as a whole, and the three major components of ER (capture, apply, and network).
syscdr_ddr	0,1	Provides a means of checking the snoopy portion of ER. In addition to normal log positions, this pseudo table also describes how many pages the capture has before running into a DDRBLOCK or log wrap condition.
syscdr_nif	1 for each network connection	Provides information about the various network connections with which each node has a connection. Additionally, it contains the stamp of the last message that was sent by that connection.
syscdr_rcv	0,1	Contains global information about the apply, including failure counts, number of datasync threads, number of pending ACKs to be processed, and so on.

New SMI tables

New Sysmaster APIs for ER (continued)

Table	Number of Rows	Purpose
syscdr_atsdir	1 for each entry in the ATS directory	This is very similar to “ls –l” output. It includes the name of the file and when the file was created.
syscdr_risdir	1 for each entry in the RIS directory	This is very similar to an “ls –l” output of the RIS directory.
syscdr_ats	1 for each entry in the ATS directory	This provides a means of viewing portions of the ATS file remotely. It includes some parsing of the header information to make it easier to filter the needed rows.
syscdr_ris	1 for each entry in the RIS directory	This is similar information as the syscdr_ats pseudo table, except it is for the RIS directory.

New SMI tables

New Sysmaster APIs for ER (continued)

Table	Number of Rows	Purpose
syscdr_rqmstamp	1 for each of the RQM Queues	This displays the stamp of the next transaction to be inserted into the queue. By comparing this with the last sent stamp from syscdr_nif, it is easy to calculate the number of outstanding transactions which are to be sent to any target node.
syscdr_rqmhandle	1 for each thread accessing any of the RQM Queues	This is a cursor each thread uses to keep track of the current transaction/message that it is processing within any of the queues.

New SMI tables

Contents for: syscdr_state

Column	Type	Comments
er_state	char(24)	Indicates if ER is running or not. Normally the value returned is “Active”, “Shut Down”, or “Uninitialized”.
er_capture_state	char(24)	Indicates if capture (DDR and Grouper) is running. If it is not running, but is supposed to be running, then “Down” is returned. If capture is not supposed to be running, then “Uninitialized” is returned.
er_network_state	char(64)	Indicates if the network is running.
er_apply_state	char(24)	Indicates if the apply (DataSync) is running.

New SMI tables

Contents for: syscdr_ddr

Column	Type	Comments
ddr_state	char(24)	Displays the current state of snoopy. If ddr is not running because the node is not a source node for any replication, then a value of “Uninitialized” is shown.
ddr_snoopy_logunique	integer	The current log ID that you are snooping.
ddr_snoopy_logpos	integer	The current log position that you are snooping.
ddr_replay_loguniq	integer	The replay log ID that is needed to recover ER.
ddr_replay_logpos	integer	The replay log position that is needed to recover ER.
ddr_curr_loguniq	integer	The current log ID.
ddr_curr_logpos	integer	The current log position.
ddr_logsnoop_cached	integer	The number of log pages that snoopy was able to read from its cache.
ddr_logsnoop_disk	integer	The number of times that snoopy had to read log pages from disk

New SMI tables

Contents for: syscdr_ddr (continued)

Column	Type	Comments
ddr_logs_tossed	integer	# of log pages that were not stored in cache because the snoopy buffer cache was full.
ddr_logs_ignored	integer	# of log records ignored because they were extensible log records that are unknown.
ddr_dlog_requests	integer	# of times ER requested dynamic log creation rather than enter DDRBLOCK state.
ddr_total_logspace	integer	Total # of log pages in the system.
ddr_logpage2wrap	integer	# of log paces until snoopy runs into a log wrap.
ddr_logpage2block	integer	# of log pages until snoopy runs into a DDRBLOCK state.
ddr_logneeds	integer	# of log pages needed to remain behind a log wrap to avoid a DDRBLOCK state.
ddr_logcatchup	integer	# of log pages needed to advance before going out of a DDRBLOCK state.

New SMI tables

Contents for: syscdr_nif

Column	Type	Comments
nif_connid	integer	The CDRID of the peer node.
nif_connname	char(24)	The name (group name) of the peer node.
nif_state	char(24)	see notes section for details…
nif_connstate	char(24)	see notes section for details…
nif_version	integer	The network protocol of this connection (ex. IDS 7, IDS 9.2,....) This is used to convert the message formats between dissimilar releases of the server.
nif_msgsent	integer	Number of messages/transactions sent to the peer node.
nif_bytessent	integer	Number of bytes sent to the peer node.
nif_msgrcv	integer	Number of messages/transactions received from the peer node.
nif_bytesrcv	integer	Number of bytes received from the peer node.
nif_compress	integer	Compression level to be used for communications.

New SMI tables

Contents for: syscdr_nif (continued)

Column	Type	Comments
nif_sentblockcnt	integer	# of times that a flow block request is sent.
nif_rcvblockcnt	integer	# of times ER received a flow block request from the peer node.
nif_trgsend_stamp1	integer	Stamp1 of last transaction sent to the peer node.
nif_trgsend_stamp2	integer	Stamp2
nif_acksend_stamp1	integer	Stamp1 of last ACK sent to the peer node.
nif_acksend_stamp2	integer	Stamp2
nif_ctrlsend_stamp1	integer	Stamp1 of last control message sent to peer node.
nif_ctrlsend_stamp2	integer	Stamp2
nif_syncsend_stamp1	integer	Stamp1 of the last sync message sent to the peer server.
nif_syncsend_stamp2	integer	Stamp2

New SMI tables

Contents for: syscdr_nif (continued)

Column	Type	Comments
nif_starttime	datetime	Time that the connection was established.
nif_lastsend	datetime	Time of last message sent to the peer node.

New SMI tables

Contents for: syscdr_rcv

Column	Type	Comments
rm_state	char(100)	Current state of the receive mgr and apply threads.
rm_num_sleepers	integer	# of Data Sync threads currently sleeping.
rm_num_dsthreads	integer	Current # of Data Sync threads.
rm_min_dsthreads	integer	Minimum # of Data Sync threads.
rm_max_dsthreads	integer	Maximum # of Data Sync threads.
rm_ds_block	integer	If 1, the Datasync is currently blocked to avoid causing a DDRBLOCK state.
rm_ds_parallel	integer	Parallel Rate – zero is the highest degree of parallelism. Three is the highest (serial apply).
rm_ds_failrate	float	A computed weighted ratio used to determine when ER needs to change the degree of parallelism.
rm_ds_numrun	integer	# of transactions run.
rm_ds_num_locktout	integer	# of lock timeouts encountered.

New SMI tables

Contents for: syscdr_rcv

Column	Type	Comments
rm_ds_num_lockrb	integer	# of forced rollbacks due to switch to serial apply.
rm_ds_num_deadlocks	integer	# of deadly embraces encountered.
rm_ds_num_pcommits	integer	# of out-of-order commits.
rm_ack_waiting	integer	# of ACKs waiting for a log flush to return to the primary.
rm_totsleep	integer	Total # the datasync threads have gone to sleep.
rm_sleeptime	integer	Total time that the datasync threads have slept.
rm_workload	integer	Current workload.
rm_optscale	integer	Factor determining how many DataSync threads allowed per CPUVP.
rm_min_fthreads	integer	Minimum float threads (ACK threads).
rm_max_fthreads	integer	Maximum floating threads (ACK threads).

New SMI tables

Contents for: syscdr_rcv

Column	Type	Comments
rm_ack_start	char(64)	Time ACK threads started.
rm_ds_start	char(64)	Time the Datasync started.
rm_pending_acks	integer	# of ACKs on the source not yet been processed.
rm_blob_error_bufs	integer	# of blobs not successfully applied.

New SMI tables

Contents for: syscdr_atsdir

Column	Type	Comments
atsd_rid	integer	pseudo rowid
atsd_file	char(128)	file name
atsd_mode	integer	file mode
atsd_size	integer	file size in bytes
atsd_atime	datetime	last access time
atsd_mtime	datetime	last modified time
atsd_ctime	datetime	create time

New SMI tables

Contents for: syscdr_risdir

Column	Type	Comments
risd_rid	integer	pseudo rowid
risd_file	char(128)	file name
risd_mode	integer	file mode
risd_size	integer	file size in bytes
risd_atime	datetime	last access time
risd_mtime	datetime	last modified time
risd_ctime	datetime	create time

New SMI tables

Contents for: syscdr_ats

Column	Type	Comments
ats_rid	integer	pseudo rowid
ats_file	char(128)	ATS file name
ats_sourceid	integer	CDRID of source node
ats_source	char(128)	source name
ats_committime	char(20)	source commit time
ats_targetid	integer	CDRID of target node
ats_receivetime	char(20)	target receive time
ats_risfile	char(128)	Corresponding RIS file name
ats_line1	char(200)	Ten lines corresponding to the transaction header.
ats_line10	char(200)	

New SMI tables

Contents for: syscdr_ris

Column	Type	Comments
ris_rid	integer	pseudo rowid
ris_file	char(128)	RIS file name
ris_sourceid	integer	CDRID of source node
ris_source	char(128)	source name
ris_committime	char(20)	Time the transaction committed on the source server.
ris_targetid	integer	CDRID of target node
ris_target	char(128)	Target server name
ris_receivetime	char(20)	target receive time
ris_atsfile	char(128)	Corresponding ATS file name
ris_line1	char(200)	Ten lines corresponding to the transaction header.
ris_line10	char(200)	

New SMI tables

Contents for: syscdr_rqmstamp

Column	Type	Comments
rqms_qidx	integer	Queue index corresponding to the Send, Receive, Sync, and Ack queues. 0 – Transaction Send Queue 1 – ACK Send Queue 2 – Control Send Queue 3 – CDR Metadata Sync Send Queue 4 – Transaction Receive Queue
rqms_stamp1	integer	stamp1 of the next transaction being put into the queue.
rqms_stamp2	integer	stamp2 of the next transaction being put into the queue.
rqms_cstamp1	integer	Communal stamp1 used to identify the next transaction read from the queue (Receive Queue).
rqms_cstamp2	integer	Communal stamp2 used to identify the next transaction read from the queue.

New SMI tables

Contents for: syscdr_rqmhandle

Column	Type	Comments
rqmh_qidx	integer	Queue associated with this handle.
rqmh_thread	char(18)	Thread owning the handle.
rqmh_stamp1	integer	Stamp1 of last transaction this handle accessed.
rqmh_stamp2	integer	Stamp2 of the last transaction this handle accessed.
rqmh_servid	integer	Part1 of txn key.
rqmh_logid	integer	Part2 of txn key.
rqmh_logpos	integer	Part3 of txn key.
rqmh_seq	integer	Part4 of txn key.

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