

一銀教育訓練- SQL資料庫介紹

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1. SQL Server 架構
2. SQL Server 參數設定
3. 效能監控方式
4. 成效數據對比

◆提升Memory – 750g Ram

◆提升CPU core數 – 28 core

>>>升級 SQL enterprise **Core Based** version

效能監控方式-查詢目前執行SESSION

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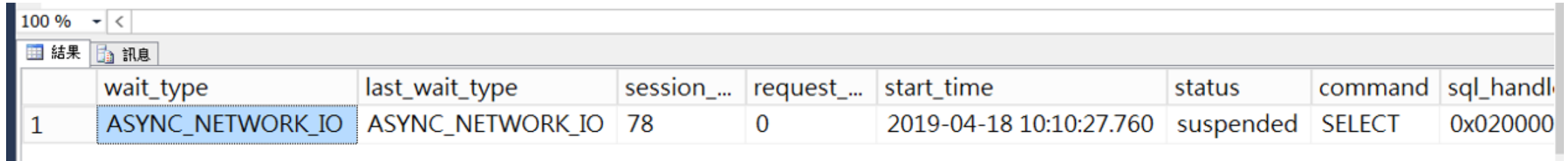
```
SELECT TEXT,session_id,status,command,cpu_time,total_elapsed_time
FROM sys.dm_exec_requests a
CROSS APPLY sys.dm_exec_sql_text(sql_handle) AS b
ORDER BY total_elapsed_time desc
```

	TEXT	session_id	status	command	cpu_time	total_elapsed_time
1	SELECT SCHEMA_NAME(tblschema_id) AS [Schema], tblname AS [Name], tblobject_id AS [ID] FRO...	219	suspended	SELECT	39018	572144
2	SELECT SCHEMA_NAME(tblschema_id) AS [Schema], tblname AS [Name], tblobject_id AS [ID] FRO...	499	suspended	SELECT	41416	520168
3	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	384	runnable	SELECT	132549	304750
4	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	474	runnable	SELECT	30450	174810
5	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	358	runnable	SELECT	29220	168444
6	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	328	runnable	SELECT	31443	110958
7	CREATE PROCEDURE [dbo].[SAR_CaseAssign_GetPendingCases] @ForAutoAssign BIT = 0, @Assi...	309	suspended	SELECT	285489	72719
8	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	287	runnable	SELECT	11283	51113
9	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	331	runnable	SELECT	5759	50589
10	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	355	runnable	SELECT	5463	50549
11	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	479	runnable	SELECT	7397	49594
12	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	408	runnable	SELECT	8203	49075
13	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	315	runnable	SELECT	10151	47524
14	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	510	runnable	SELECT	11693	46996
15	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	532	runnable	SELECT	9230	46505
16	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	317	runnable	SELECT	10930	45971
17	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	523	runnable	SELECT	9953	45484
18	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	522	runnable	SELECT	9253	44956
19	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	537	runnable	SELECT	6633	44436
20	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	472	runnable	SELECT	4982	43404
21	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	425	runnable	SELECT	17968	42389
22	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	406	runnable	SELECT	4631	41314
23	SELECT X.ent_num, X.alt_num, X.sdn_name, X.sdn_type, ISNULL(X.sdn_grp_num, 0) AS sdn_grp_nu...	538	runnable	SELECT	8703	39774
24	CREATE PROC [dbo].[DBCHK_GetRecidFilter] @GRIDTYPE CHAR(1), @ROLE INT, @HANDLE...	348	running	SELECT	4585	27885
25	CREATE PROC [dbo].[DBCHK_GetRecidFilter] @GRIDTYPE CHAR(1), @ROLE INT, @HANDLE...	464	runnable	SELECT	5391	24728
26	CREATE PROCEDURE [dbo].[UserDashboard_GetQueueStatus] @UserID NVARCHAR(40) AS BE...	360	runnable	SELECT	1690	24217

效能監控方式-查詢SESSION等待類型

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```
SELECT wait_type,last_wait_type,* FROM SYS.dm_exec_requests WHERE SESSION_ID =XX
```

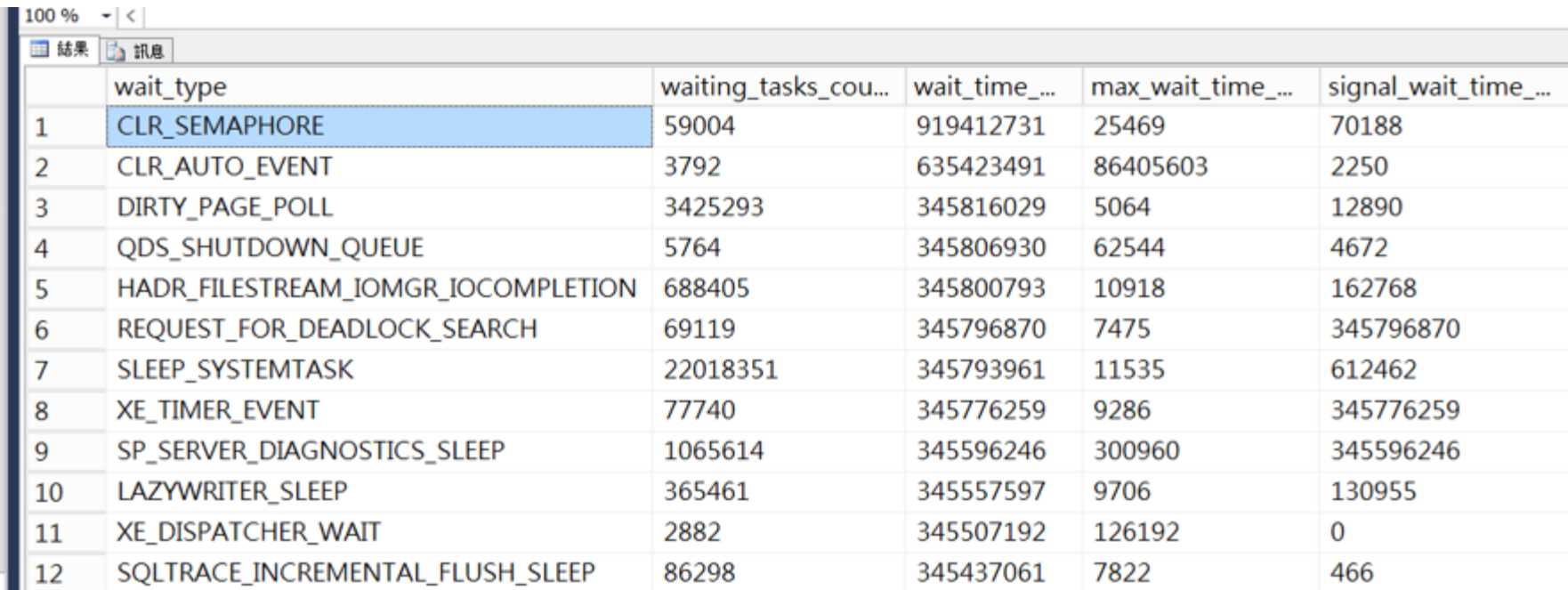


100 %

結果 訊息

	wait_type	last_wait_type	session_...	request_...	start_time	status	command	sql_handl...
1	ASYNC_NETWORK_IO	ASYNC_NETWORK_IO	78	0	2019-04-18 10:10:27.760	suspended	SELECT	0x020000

```
select * from sys.dm_os_wait_stats order by 3 desc
```



100 %

結果 訊息

	wait_type	waiting_tasks_cou...	wait_time_...	max_wait_time_...	signal_wait_time_...
1	CLR_SEMAPHORE	59004	919412731	25469	70188
2	CLR_AUTO_EVENT	3792	635423491	86405603	2250
3	DIRTY_PAGE_POLL	3425293	345816029	5064	12890
4	QDS_SHUTDOWN_QUEUE	5764	345806930	62544	4672
5	HADR_FILESTREAM_IOMGR_IOCOMPLETION	688405	345800793	10918	162768
6	REQUEST_FOR_DEADLOCK_SEARCH	69119	345796870	7475	345796870
7	SLEEP_SYSTEMTASK	22018351	345793961	11535	612462
8	XE_TIMER_EVENT	77740	345776259	9286	345776259
9	SP_SERVER_DIAGNOSTICS_SLEEP	1065614	345596246	300960	345596246
10	LAZYWRITER_SLEEP	365461	345557597	9706	130955
11	XE_DISPATCHER_WAIT	2882	345507192	126192	0
12	SQLTRACE_INCREMENTAL_FLUSH_SLEEP	86298	345437061	7822	466

<https://www.sqlshack.com/sql-server-wait-types/#l>

效能監控方式 – 查詢近期執行SESSION總數

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SELECT TOP 100

qs.total_elapsed_time / qs.execution_count / 1000000.0 AS average_seconds, qs.total_elapsed_time / 1000000.0 AS total_seconds, qs.execution_count, SUBSTRING (qt.text, qs.statement_start_offset/2, (CASE WHEN qs.statement_end_offset = -1 THEN LEN(CONVERT(NVARCHAR(MAX), qt.text)) * 2 ELSE qs.statement_end_offset END - qs.statement_start_offset)/2) AS individual_query, o.name AS object_name, DB_NAME(qt.dbid) AS database_name FROM sys.dm_exec_query_stats qs CROSS APPLY sys.dm_exec_sql_text(qs.sql_handle) as qt LEFT OUTER JOIN sys.objects o ON qt.objectid = o.object_id where qt.dbid = DB_ID() ORDER BY average_seconds DESC;

100 %						
結果 訊息						
	average_seconds	total_seconds	execution_count	individual_query	object_name	database_name
1	23.949673000	143.698043000	6	SELECT DISTINCT B.REFNO, B.new_acct_name, B.user_brmch...	NMCHK_GETReconciliationRpt	BSADBTW
2	20.769993000	2617.019166000	126	;WITH TempFullData AS (--namecheck SELECT A.QueueID, ...	UserDashboard_GetQueueStatistic	BSADBTW
3	13.485914000	62790.416682000	4656	;WITH CTE_PersonalQueue AS (SELECT A.UID, A.CIF_KE...	DBCHK_GetResultFilter	BSADBTW
4	13.158851000	13.158851000	1	INSERT INTO dbo.Customer_RiskAssessmentAuditLog(Cif...	CIP_UpdateCIPRecord	BSADBTW
5	11.544976000	11.544976000	1	IF EXISTS(SELECT NULL FROM dbo.[CUST_ETL_CHG_LOG...	HRS_GetQuestionnaireBusinessCustomerDetails	BSADBTW
6	9.832815000	26440.441516000	2689	INSERT INTO @Temp_FullResults([NameID], [SourceTable], [S...	SWIFT_Detection_CLR	BSADBTW
7	9.734640000	48.673200000	5	;WITH workgroupBranches AS (/get queue with its branches*/ ...	SAR_CaseAssign_GetWorkgroupStatistics	BSADBTW
8	8.793521000	8.793521000	1	IF NOT EXISTS (SELECT NULL FROM sys.[columns] WHER...	GM_GetAllBusinessEstablishYearDim	BSADBTW
9	8.714766000	43.573831000	5	INSERT INTO dbo.OFAC_DoNotScanList_Result_Groups ([main...	SWIFT_UpdateDoNotScanList_Result	BSADBTW
10	8.493904000	8.493904000	1	IF NOT EXISTS (SELECT NULL FROM sys.[columns] WHERE ...	GM_GetAllAccountStatusDim	BSADBTW
11	8.440992000	8.440992000	1	IF NOT EXISTS (SELECT NULL FROM sys.[columns] WHER...	GM_GetAllBankDealingPeriodDim	BSADBTW
12	8.409527000	8.409527000	1	INSERT INTO dbo.ACCT_XREF_LOG(ACCT_KEY,APPL,CIF_...	CIP_UpdateCIPRecord	BSADBTW
13	8.301109000	24.903328000	3	;WITH workgroupBranches AS (/get queue with its branches*/ ...	SAR_CaseAssign_GetUserStatistics	BSADBTW
14	6.795187000	13.590374000	2	INSERT INTO dbo.CASEDETECTOR_TEMP_EMAIL(REF_KE...	SAR_CaseAssign_ProcessEmail	BSADBTW
15	6.791804000	14432.585397000	2125	INSERT INTO @Temp_New_Acct_Matches_Table([new_acct_ke...	NMCHK_Detection_Blacklist	BSADBTW
16	6.55143500	58.962920000	9	IF EXISTS(SELECT 1 FROM dbo.CUST_ETL_CHG_LOG WIT...	CIP_IsExistETL	BSADBTW

Page Life Expectancy:

衡量記憶體指標，表示：平均資料可以停留在記憶體的時間(秒)

記憶體耗用量

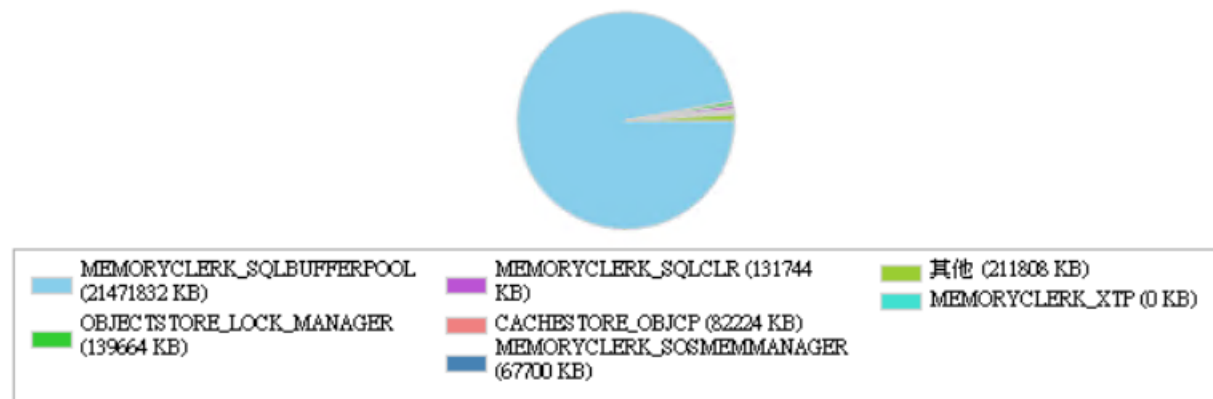
在IAN101 的 18/4/2019 10:11:42

Microsoft SQL Server 2014

此報表會提供執行個體中，元件記憶體耗用量的詳細資料，以及由預設的追蹤所記錄，執行個體記憶體使用量變更的歷程記錄資料。

Memory Grants Outstanding	0	Page life expectancy	107967
Memory Grants Pending	0		

排名最前端的記憶體耗用元件



效能監控方式(Memory)

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雜湊比對(hash join)：

當系統記憶體不足時，無法取得足夠記憶體把比對資料放入hash table，所以若大量電文近來，memory使用非常大。

查詢 1: 查詢成本 (相對於批次): 100%

SELECT X.ent_num, X.alt_num, X.sdn_name, X.no_names, X.name_all, X.backListData ([list])

遺漏索引 (影響 83.7752): CREATE NONCLUSTERED INDEX ON X (ent_num, alt_num)

SELECT 成本: 0 %

計算純量 成本: 0 %

雜湊比對 (內部聯結) 成本: 14 %

雜湊比對

使用頂端輸入的每一個資料列來建立雜湊表，並使用底端輸入的每一個資料列來探查雜湊表，然後輸出所有符合的資料列。

實體作業	雜湊比對
邏輯作業	內部聯結
實際的執行模式	Row
估計的執行模式	Row
實際資料列數目	202393
實際批次數目	0
估計的 I/O 成本	0

警告

運算式 (CONVERT_IMPLICIT (nvarchar(max),[X].[name_all],0)) 中的類型轉換可能會影響到查詢計劃選擇中的 "CardinalityEstimate"

localhost (12.0 SP1) IAN101\Administrator (78) BSADBTV

平行處理原則的成本臨界值：**50**

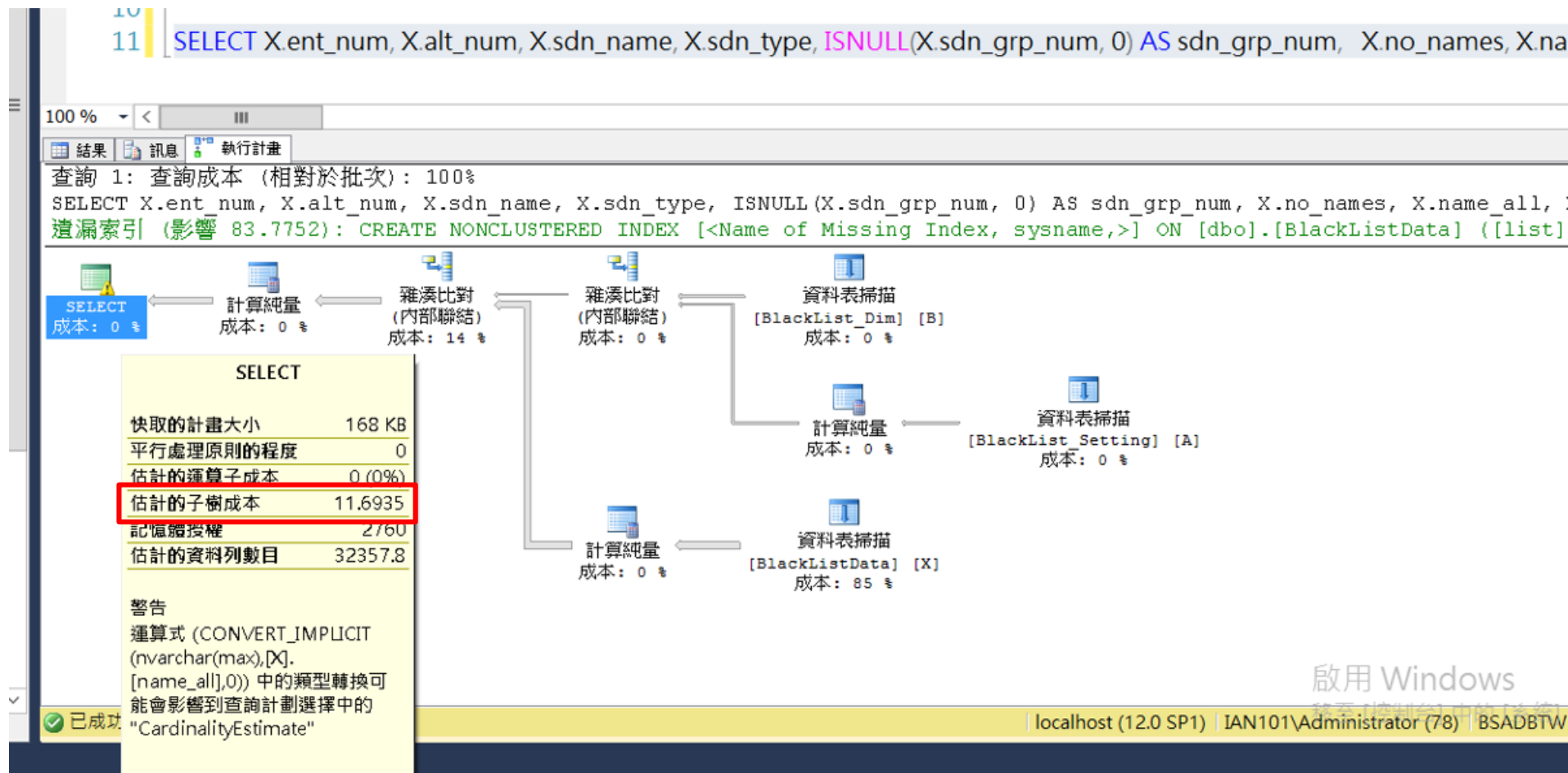
代表cost超過多少就使用平行處理，也就是多顆CPU來執行語法，看執行計畫可以知道用了多少core跑該語法。

平行處理原則的最大程度：**8**

代表當使用平行處理的時候，最多用幾個core，0代表不限制，若是8代表最多只會有8core

執行計畫查詢CPU成本數:

估計子樹成本若高於cost threshold for parallelism，則會使用平行運算若cost threshold for parallelism 太低，代表query都會使用平行運算，則CPU都有可能居高不下



成效數據對比

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1. IIS網頁處理速度變快

之前AML系統會在下午(15:00~16:00)會變的相當緩慢,但在資料庫升級後網頁速度明顯變快 (從500秒變為5~8秒)

(3/29)升級前的IIS網頁反應時間 (單位為毫秒) 在網框處可以看到大約在500秒上下

註 Log上時間和台灣時區不同,此為下午4點

BEFORE

2019-03-29 07:00:32	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	64	504270
2019-03-29 07:00:36	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	64	502003
2019-03-29 07:00:37	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	502815
2019-03-29 07:00:40	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	20625
2019-03-29 07:00:40	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	19281
2019-03-29 07:00:40	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	16625
2019-03-29 07:00:40	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.143	Jakarta+Commons-HttpClient/3.1	-	200	0	0	15453
2019-03-29 07:00:40	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	64	505112
2019-03-29 07:00:49	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.204.13	Axis/1.4	-	200	0	0	502738
2019-03-29 07:00:56	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.143	Jakarta+Commons-HttpClient/3.1	-	200	0	0	496707
2019-03-29 07:00:57	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	64	498129
2019-03-29 07:01:02	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	500832
2019-03-29 07:01:04	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	64	507629
2019-03-29 07:01:04	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	503051
2019-03-29 07:01:11	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	20953
2019-03-29 07:01:11	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	19172
2019-03-29 07:01:12	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.143	Jakarta+Commons-HttpClient/3.1	-	200	0	0	15113
2019-03-29 07:01:16	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	64	508492
2019-03-29 07:01:17	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	64	508054
2019-03-29 07:01:24	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	510601
2019-03-29 07:01:30	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	64	509116
2019-03-29 07:01:31	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.41	Java/1.6.0	-	200	0	0	20488
2019-03-29 07:01:31	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.41	Java/1.6.0	-	200	0	0	16625
2019-03-29 07:01:31	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	15016
2019-03-29 07:01:31	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	15734
2019-03-29 07:01:32	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.143	Jakarta+Commons-HttpClient/3.1	-	200	0	0	17016
2019-03-29 07:01:32	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	15297
2019-03-29 07:01:32	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	510647
2019-03-29 07:01:36	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	64	514264
2019-03-29 07:01:39	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	64	511278
2019-03-29 07:01:42	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	64	511044

AFTER

2019-04-03 07:02:00	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	5000
2019-04-03 07:02:01	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	3890
2019-04-03 07:02:09	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	3844
2019-04-03 07:02:10	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	5078
2019-04-03 07:02:16	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	3781
2019-04-03 07:02:17	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	5484
2019-04-03 07:02:20	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	5984
2019-04-03 07:02:22	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	4562
2019-04-03 07:02:37	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	4078
2019-04-03 07:02:27	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	5142
2019-04-03 07:02:28	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.204.15	Axis/1.4	-	200	0	0	4829
2019-04-03 07:02:34	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	7407
2019-04-03 07:02:35	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	6719
2019-04-03 07:02:37	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	6907
2019-04-03 07:02:37	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	7235
2019-04-03 07:02:39	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	11798
2019-04-03 07:03:02	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	6438
2019-04-03 07:03:04	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	4438
2019-04-03 07:03:06	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	8923
2019-04-03 07:03:07	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	4875
2019-04-03 07:03:08	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	6078
2019-04-03 07:03:09	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	6000
2019-04-03 07:03:10	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	5453
2019-04-03 07:03:15	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	6737
2019-04-03 07:03:24	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	8110
2019-04-03 07:03:25	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	4843
2019-04-03 07:03:28	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	4937
2019-04-03 07:03:31	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	5328
2019-04-03 07:03:45	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	4754
2019-04-03 07:03:46	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	5598
2019-04-03 07:03:48	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.14	IBM+WebServices/1.0	-	200	0	0	7974
2019-04-03 07:03:49	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.13	IBM+WebServices/1.0	-	200	0	0	5828
2019-04-03 07:03:57	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.208.41	Java/1.6.0	-	200	0	0	8665
2019-04-03 07:04:01	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.11	IBM+WebServices/1.0	-	200	0	0	5359
2019-04-03 07:04:03	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	4406
2019-04-03 07:04:08	10.8.204.122	POST	/NameCheck.svc	wsdl	8081	-	10.8.211.12	IBM+WebServices/1.0	-	200	0	0	6984

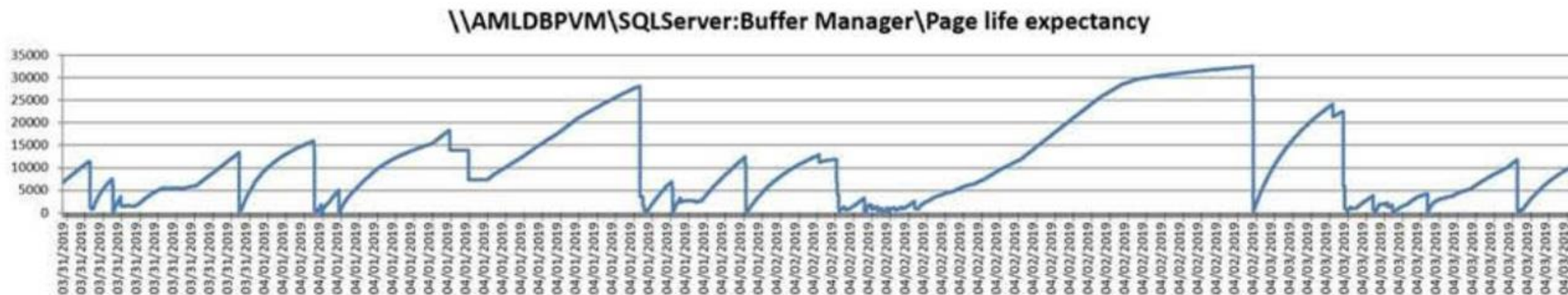
2. 資料庫記憶體效能明顯上升

我們使用PLE(Page Life Expectancy)指標做觀察,它代表資料庫上的資料平均可以在記憶體存活多久的時間(單位為秒)

在升級前資料庫只能使用128GB,PLE明顯不足,上班時間Cache大約2~3分鐘就被flush out



在升級後我們給資料庫75GB,PLE明顯上升,上班時間Cache大約可以在記憶體存活7~8個小時



成效數據對比

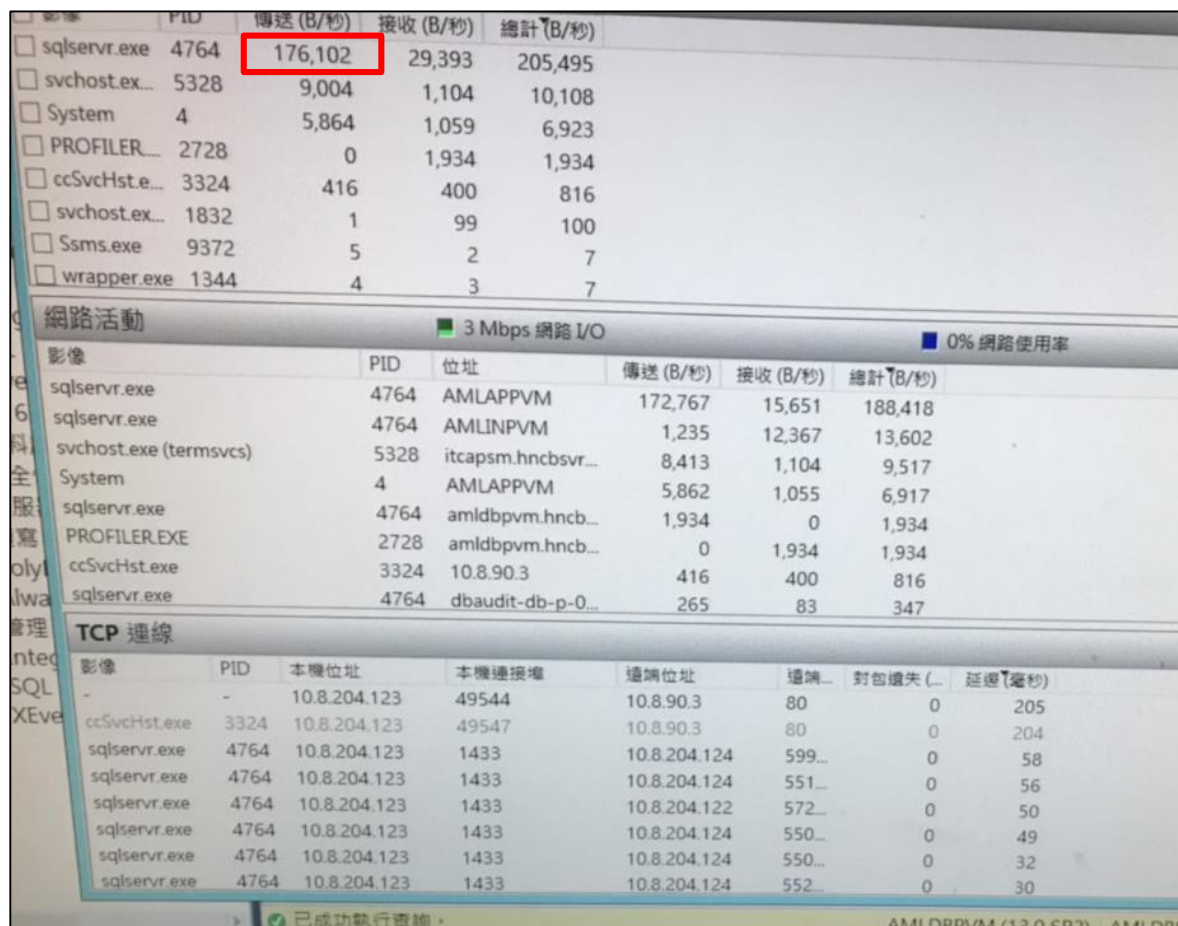
WWW.STI.Com.TW

3. SQL網路傳輸速度變快

<https://support.microsoft.com/zh-tw/help/951037/information-about-the-tcp-chimney-offload-receive-side-scaling-and-net>

發現關閉TCP Chimney資料庫可以傳輸更多的位元(Byte)給IIS和Integration Service

BEFORE



映像	PID	傳送 (B/秒)	接收 (B/秒)	總計 (B/秒)
sqlservr.exe	4764	176,102	29,393	205,495
svchost.exe	5328	9,004	1,104	10,108
System	4	5,864	1,059	6,923
PROFILER...	2728	0	1,934	1,934
ccSvcHst.exe	3324	416	400	816
svchost.exe	1832	1	99	100
Ssms.exe	9372	5	2	7
wrapper.exe	1344	4	3	7

映像	PID	位址	傳送 (B/秒)	接收 (B/秒)	總計 (B/秒)
sqlservr.exe	4764	AMLAPPVM	172,767	15,651	188,418
sqlservr.exe	4764	AMLINPVM	1,235	12,367	13,602
svchost.exe (termsvcs)	5328	itcapsm.hnbsvr...	8,413	1,104	9,517
System	4	AMLAPPVM	5,862	1,055	6,917
sqlservr.exe	4764	amldbpm.hnbc...	1,934	0	1,934
PROFILER.EXE	2728	amldbpm.hnbc...	0	1,934	1,934
ccSvcHst.exe	3324	10.8.90.3	416	400	816
sqlservr.exe	4764	dbaudit-db-p-0...	265	83	347

映像	PID	本機位址	本機連接埠	遠端位址	遠端埠	封包遺失 (%)	延遲 (毫秒)
-	-	10.8.204.123	49544	10.8.90.3	80	0	205
ccSvcHst.exe	3324	10.8.204.123	49547	10.8.90.3	80	0	204
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.124	599...	0	58
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.124	551...	0	56
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.122	572...	0	50
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.124	550...	0	49
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.124	550...	0	32
sqlservr.exe	4764	10.8.204.123	1433	10.8.204.124	552...	0	30

AFTER



映像	PID	傳送 (B/秒)	接收 (B/秒)	總計 (B/秒)
sqlservr.exe	4764	2,475,641	31,446	2,507,087
svchost.exe	5328	6,475	363	6,838
System	4	5,705	841	6,546
svchost.exe	1832	12	104	116
wsdriver.exe	2644	0	2	2
wrapper.exe	1344	1	2	2
java.exe	2124	1	1	2

映像	PID	位址	傳送 (B/秒)	接收 (B/秒)	總計 (B/秒)
sqlservr.exe	4764	AMLAPPVM	2,473,687	21,806	2,495,493
sqlservr.exe	4764	AMLINPVM	1,944	9,638	11,582