Columnstore Index Basics

Columnstore Indexes

– Overview

- Not searching all data in entire row
- Columnstore queries search only relevant columns
- Columnstore indexes are heavily compressed, which means even faster searches

Columnstore Indexes

 High performance data warehouse queries against very large data sets

Row Store

	ProductID	OrderDate	Cost
	310	20010701	2171.29
	311	20010701	1912.15
	312	20010702	2171.29
	313	20010702	413.14
data page 1000			

	ProductID	OrderDate	Cost
data	314	20010701	333.42
	315	20010701	1295.00
	316	20010702	4233.14
	317	20010702	641.22
page 1001			

Column Store

311 1912.1 312 20010702 2171.2 313 413.14 314 333.42 315 20010703 1295.0 316 4233.1 317 641.22 319 24.95 320 20010704 64.32						
311 1912.1 312 20010702 2171.2 313 413.14 315 20010703 1295.0 316 317 4233.1 318 641.22 319 320 20010704 64.32 321 data page data page		ProductID		OrderDate		Cost
312 313 314 315 316 317 318 319 320 321 data page 1912.1 20010702 2171.2 413.14 333.42 4233.1 641.22 24.95 64.32 1111.2		310		20010701		2171.2
312 313 314 315 316 317 318 319 320 321 data page 20010702 2171.2 413.14 333.42 4233.1 641.22 24.95 64.32 1111.2		311				1912.1
313 314 315 316 317 318 319 320 321 data page data page 413.14 333.42 413.14 333.42 4233.1 641.22 4233.1 641.22 1111.2		312		20010702		
314 315 20010703 316 317 318 319 320 321 data page 333.42 20010703 1295.0 4233.1 641.22 24.95 64.32 1111.2		313				
315 316 317 318 319 320 321 data page 20010703 1295.0 4233.1 641.22 24.95 64.32 1111.2		314				
316 317 318 319 320 321 data page 316 317 4233.1 641.22 24.95 64.32 1111.2		315		20010703		
317 318 319 320 321 data page 317 641.22 24.95 64.32 1111.2		316				
318 319 320 320 321 data page data page data page data page		317				4233.1
320 20010704 64.32 1111.2 data page data page		318				641.22
data page data page data page		319				24.95
data data page page		320		20010704		64.32
page page		321				1111.2
	page		page		page	

Considerations for Columnstore Indexing

- Columnstore indexes are most suitable for:
 - Databases with star or snowflake schemas
 - Tables with large numbers of rows
 - Tables that contain data that responds well to compression