

Oracle Measurement Results

Prof. Bayer, PhD

Dipl.-Inform. Volker Markl

Roland Pieringer

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Environment of the benchmark suite

- Measures on two machines:
 - Compaq PC (4 Intel Processors, 200 MHz, 512 MB RAM)
with Oracle 8.0.4.0.0
 - SUN Ultra 2 (2 Ultra Sparc Processors, 200 MHz, 1 GB RAM)
with Oracle 8.0.4.0.0
- Data uniformly distributed and created by a program
- Elimination of cache side effects by NOCACHE

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Used indexes

- **UB:**
UB Tree (index that causes this meeting)
- **COMPOUND:**
concatenation of several indexes to get a multi dimensional index
in Oracle as **index only table** implemented
- **MULT:**
secondary indexes on all index attributes
- **SCAN:**
no index, relation scan, in Oracle as full table scan

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Kinds of benchmarks

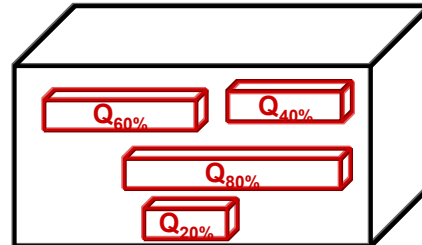
- c% measurements:

$$Q = (I_1, \dots, I_n)$$

$$I_k = 1 \% \dots 100 \%$$

$$I_1, \dots, I_{k-1}, I_{k+1}, I_n = c \%$$

random starting point



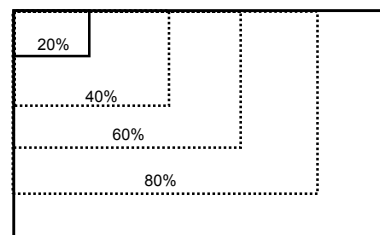
- Cube measurements:

$$Q = (I_1, \dots, I_n)$$

$$I_i = 0\% \dots 100\%,$$

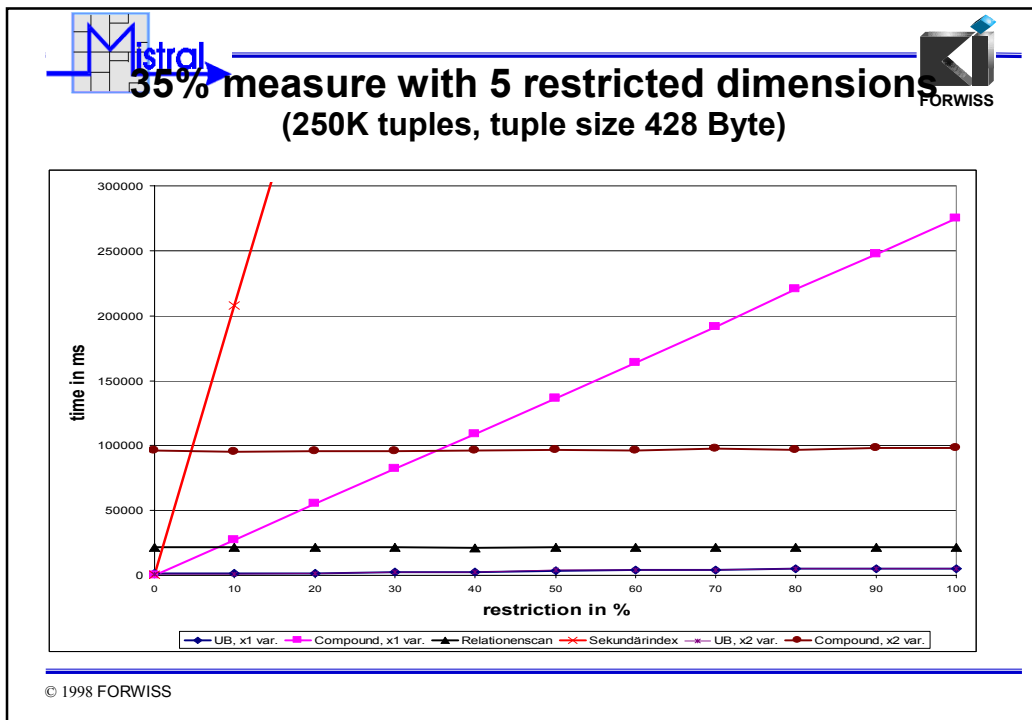
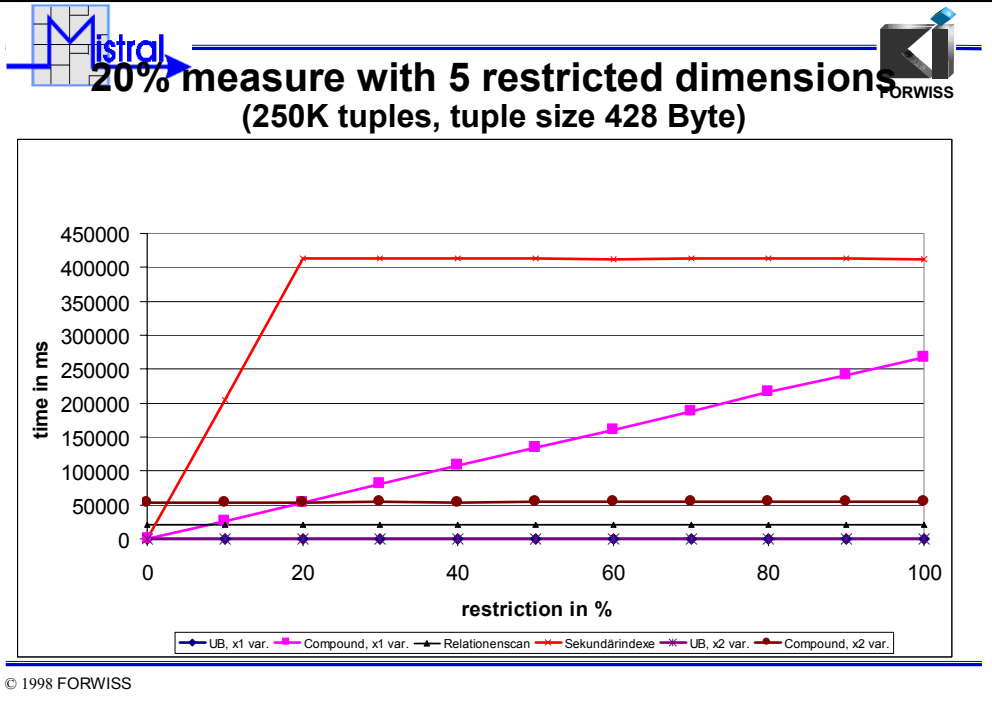
$$\text{for } i = 1, \dots, n$$

fix starting point



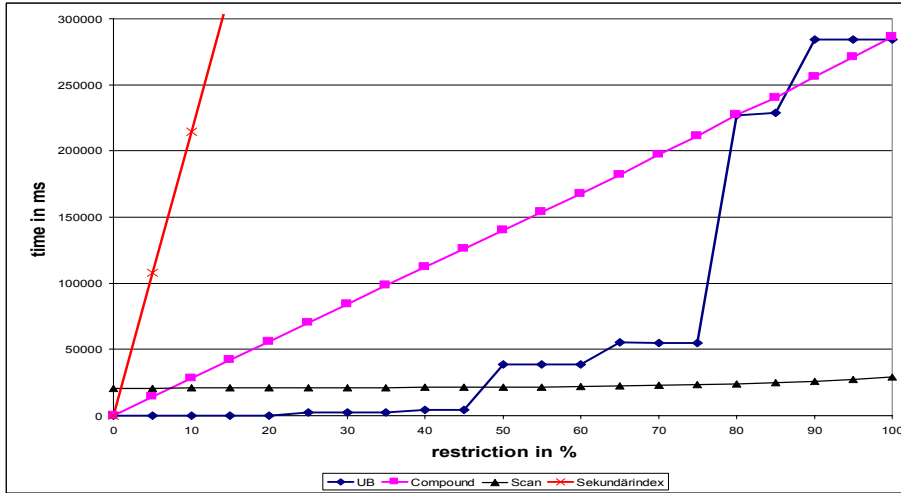
Results of the measurements

- Complete benchmarks suite
- Comparison of Windows NT and SUN Solaris
- Variation of the size of tuples
- Variation of the number of tuples
- Variation of the number of restricted dimensions



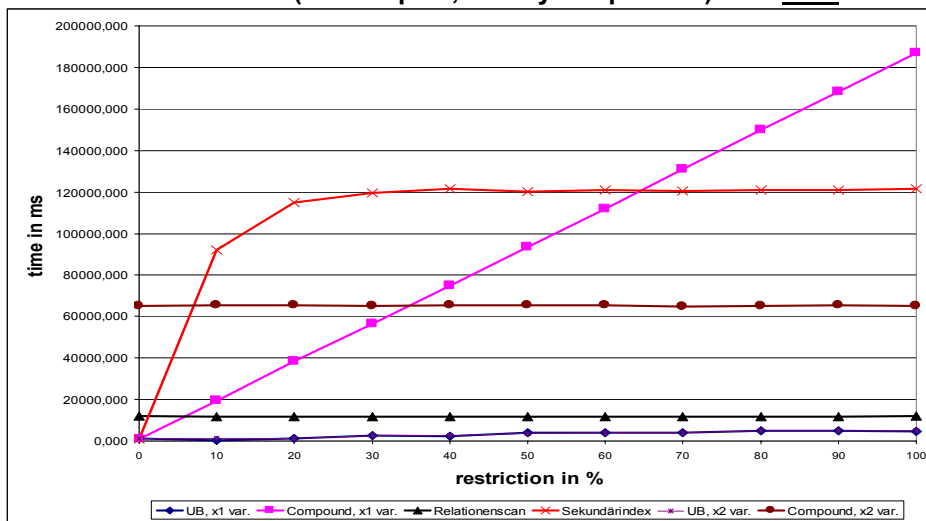
Cube measure

(250K tuples, tuple size 428 Byte)

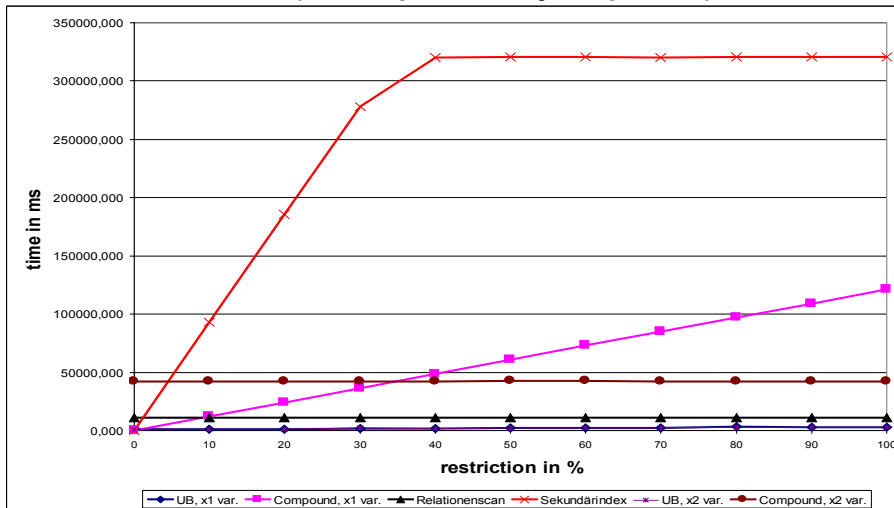


Solaris - NT:

35% measure (125K tuples, 428 Byte tuple size) with SUN



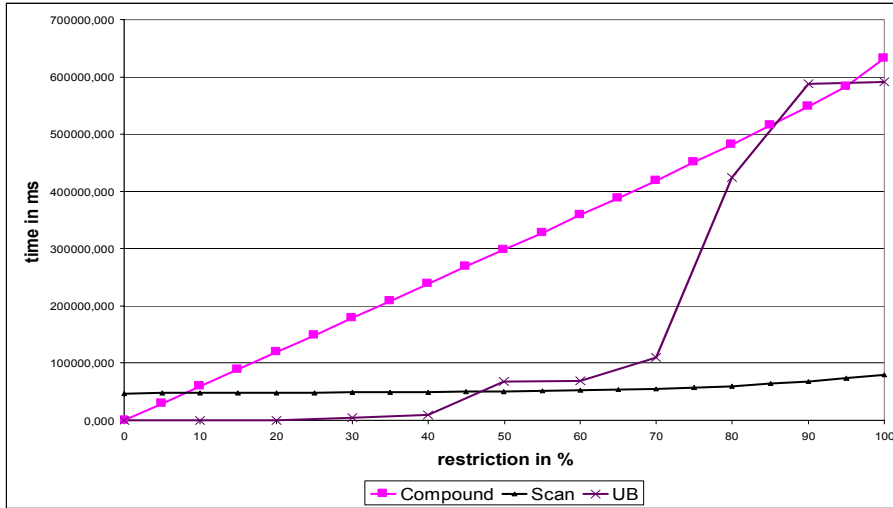
35% measure (125K tuples, 428 Byte tuple size) with NT



Comparison of tuple size

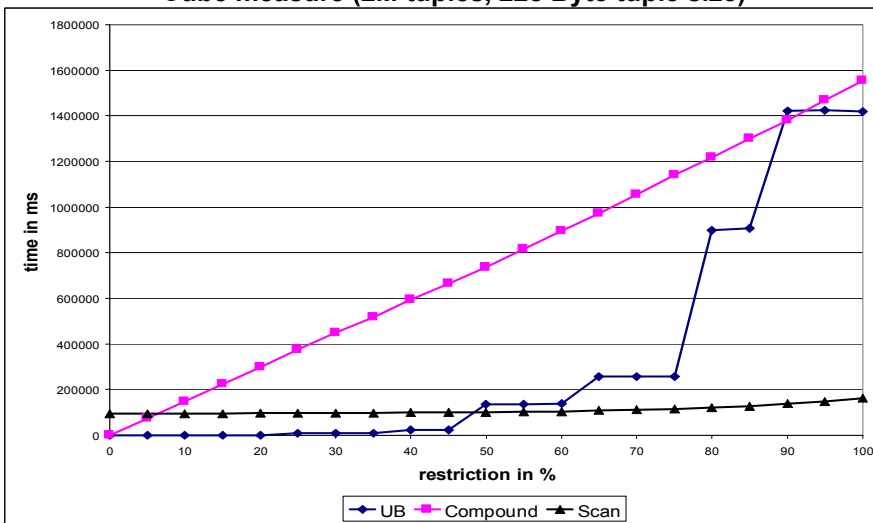
- Intersection of compound and relation scan:
 - small tuples: about 10%
 - large tuples: about 8%
- Intersection UB Tree and relation scan:
 - small tuples: about 65%
 - large tuples: about 47%
- Decrease of performance of the relation scan:
 - small tuples: factor 4
 - large tuples: factor 1.4

Comparison of the number of tuples
Cube measure (1M tuples, 228 Byte tuple size)



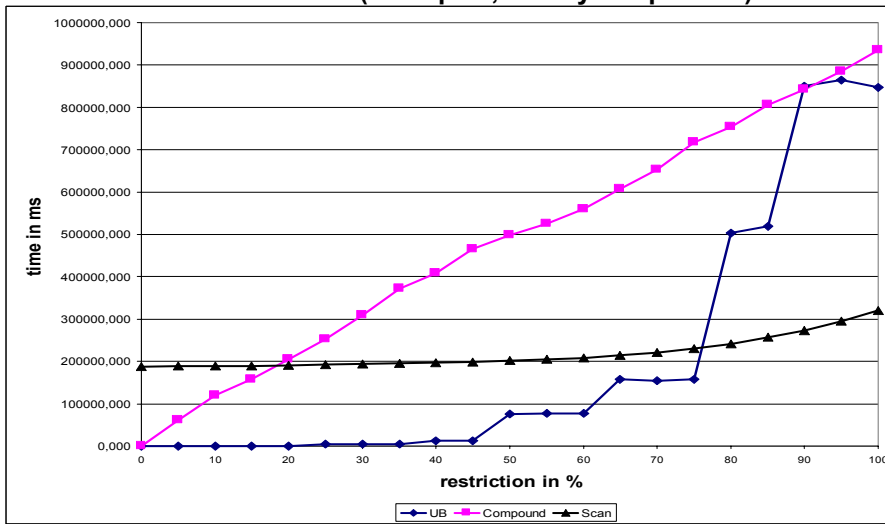
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Comparison of the number of tuples
Cube measure (2M tuples, 228 Byte tuple size)



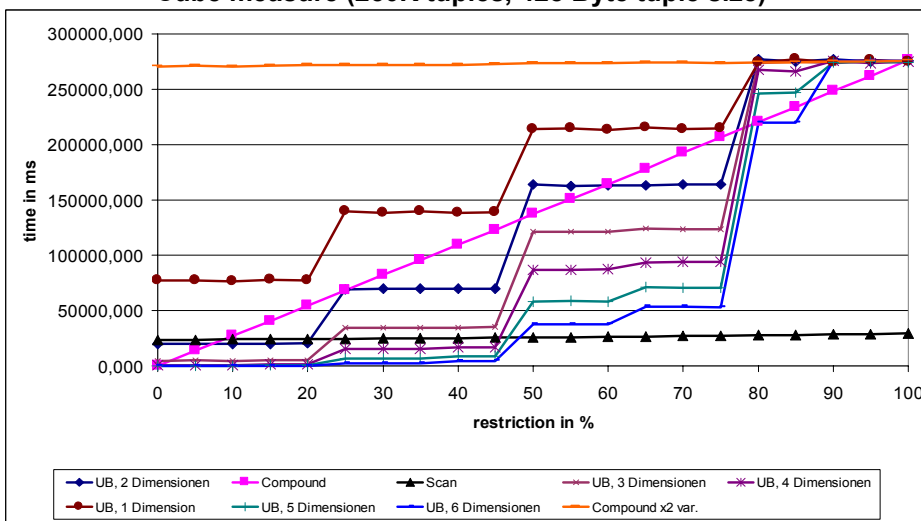
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Comparison of the number of tuples
Cube measure (4M tuples, 228 Byte tuple size)



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Variation of the number of restricted dimensions
Cube measure (250K tuples, 428 Byte tuple size)



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Variation of the number of restricted dimensions

35% measure (250K tuples, 428 Byte tuple size)

