PARAGON DATA

HCC – A turbo seldom recognized as such

Nuremberg, 11/18/2015, C. Trieb, P. Böhme

Profile and Aspirations

PARAGON DATA

Personal - Experienced - Efficient

- 60 employees at headquarters in Friedrichsdorf and Munich
- Turnover of €11 millions
- Industries: retail, logistics, public sector, pharma, banks
- Flat hierarchies, open communication, flexibility
- Comprehensive consulting with a focus on practice
- Individually optimized solutions
- We are a fair, professional partner on par with you
- Strong partner network

ORACLE Gold Partner
Specialized
Oracle Enterprise Manager 12*c*

ORACLE Gold Partner
Specialized
Oracle Real Application Clusters 11*g*

ORACLE Gold Partner
Specialized
Oracle Linux 6

Product Portfolio

PARAGON DATA

Oracle in Use

- ORACLE Real Application Clusters
- ORACLE Text
- ORACLE Data Guard
- ORACLE Partitioning
- ORACLE Enterprise Manager Cloud Control
- Oracle Exadata
- Oracle ZFS Appliance ZS3-2

Introduction

PARAGON DATA

Speakers

- Patrick Böhme
  - DBA
  - OCS
- Christian Trieb
  - DBA
  - OCS, OCA, OCP, OCE

Companies and References

PARAGON DATA

Overview

Hugendubel
Die Welt der Bücher

PARAGON DATA

Turnover: €11 M.

Employees: 60

Strong partner network

QSL
QUICK SERVICE LOGISTICS
Fresh. Fair. Fullservice!

tolino media

deugro
Minds over matter

Weltbild plus

Herzlich willkommen bei
FENEBERG
Wir freuen uns auf Sie.

Agenda

PARAGON DATA

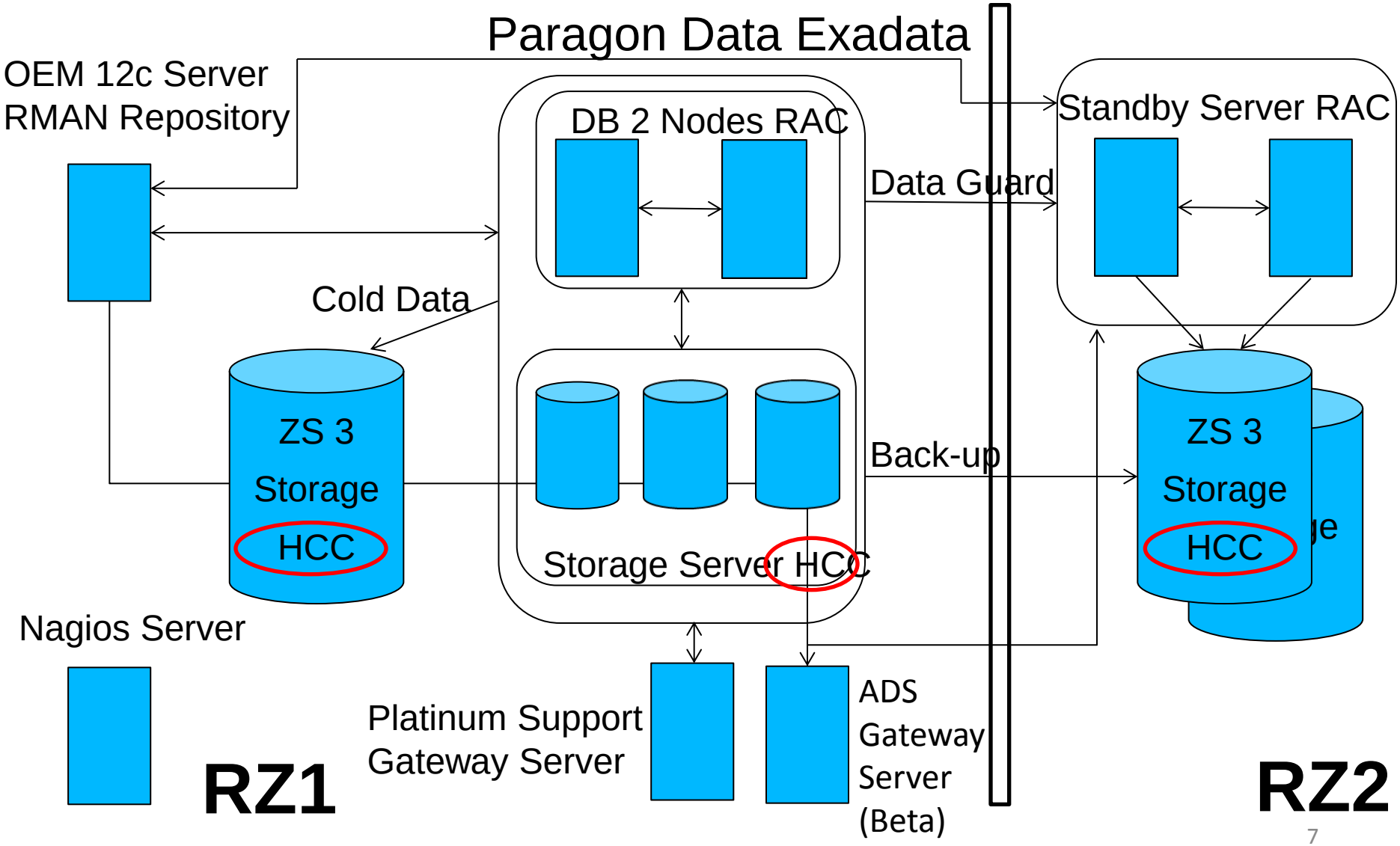
Overview

- Paragon‘s architecture
- Use of HCC
- HCC in a nutshell
- HCC Fields of application
- Summary

Paragon‘s Architecture

PARAGON DATA

Engineered Architecture



Reasons for and Ways of Compression

Saving disk space

Improving performance through faster I/O

⇒Reducing costs

Ways of compression:

- Index Key Compression
- BASIC
- OLTP (Advanced Compression Option)
- HCC Query Low
- HCC Query High
- HCC Archive Low
- HCC Archive High

PARAGON DATA

Hybrid Columnar Compression – When and what for?

BASIC
-Only for bulk load operations

OLTP (Advanced Compression Option)
-To be paid extra

Warehouse Compression (optimized for performance):
HCC Query Low
HCC Query High

Archive Compression (optimized for storage savings):
HCC Archive Low
HCC Archive High

Combination of column- and row-based data storage Data sets are organized into logical compression groups and sorted into columns Repeated data is grouped in the same blocks

Hybrid Columnar Compression – When and what for

- Data with similar characteristics
- Bulk load operations
  - Parallel DML
  - CTAS
  - SQL*LDR
  - Insert with Append Hint
- Many read operations
- Archived data

HCC in a Nutshell

PARAGON DATA

Compression with HCC

HCC

- Works only with Exadata or ORACLE Storage
- Not possible with the data type “Long“!
- Great benefits / high compression ratio only with bulk load operations
- Lower compression ratio with INSERT / UPDATE
- Tables are organized into compression units, a compression unit is larger than an ORACLE block
- Within compression units, data is organized by column instead of by row => similar values together, enhancing compression

Müller
Müller
Müller
Müller
Schultz
Schultz
Schultz
Meier
Meier

Müller	Schultz	Meier

HCC in a Nutshell

PARAGON DATA

Hybrid Columnar Compression Syntax

HCC Query Low

- Create Table ... column store compress for query low ...;
- Alter Table ... column store compress for query low ...;

HCC Query High

- Create Table ... column store compress for query high ...;
- Alter Table ... column store compress for query high ...;

HCC Archive Low

- Create Table ... column store compress for archive low ...;
- Alter Table ... column store compress for archive low ...;

HCC Archive High

- Create Table ... column store compress for archive high ...;
- Alter Table ... column store compress for archive high ...;

Hybrid Columnar Compression Syntax

In that case the “Alter Table” command only applies to data sets that have been newly inserted afterwards.
Therefore the existing data needs to be compressed explicitly:

- Alter Table ... move compress for ...;

Undo:

- Alter table ... nocompress;

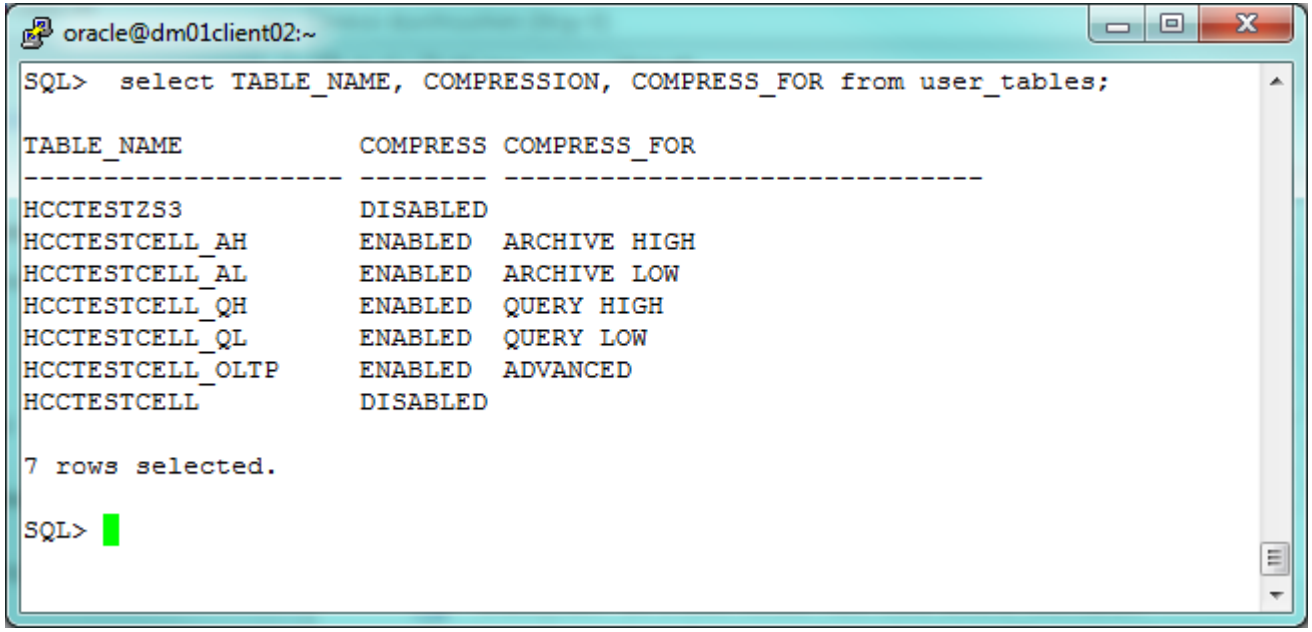
HCC in a Nutshell

PARAGON DATA

How do I know if a table was compressed?

Check which type of compression there is:
select TABLE_NAME, COMPRESSION, COMPRESS_FOR from user_tables;
(or also dba_tables)

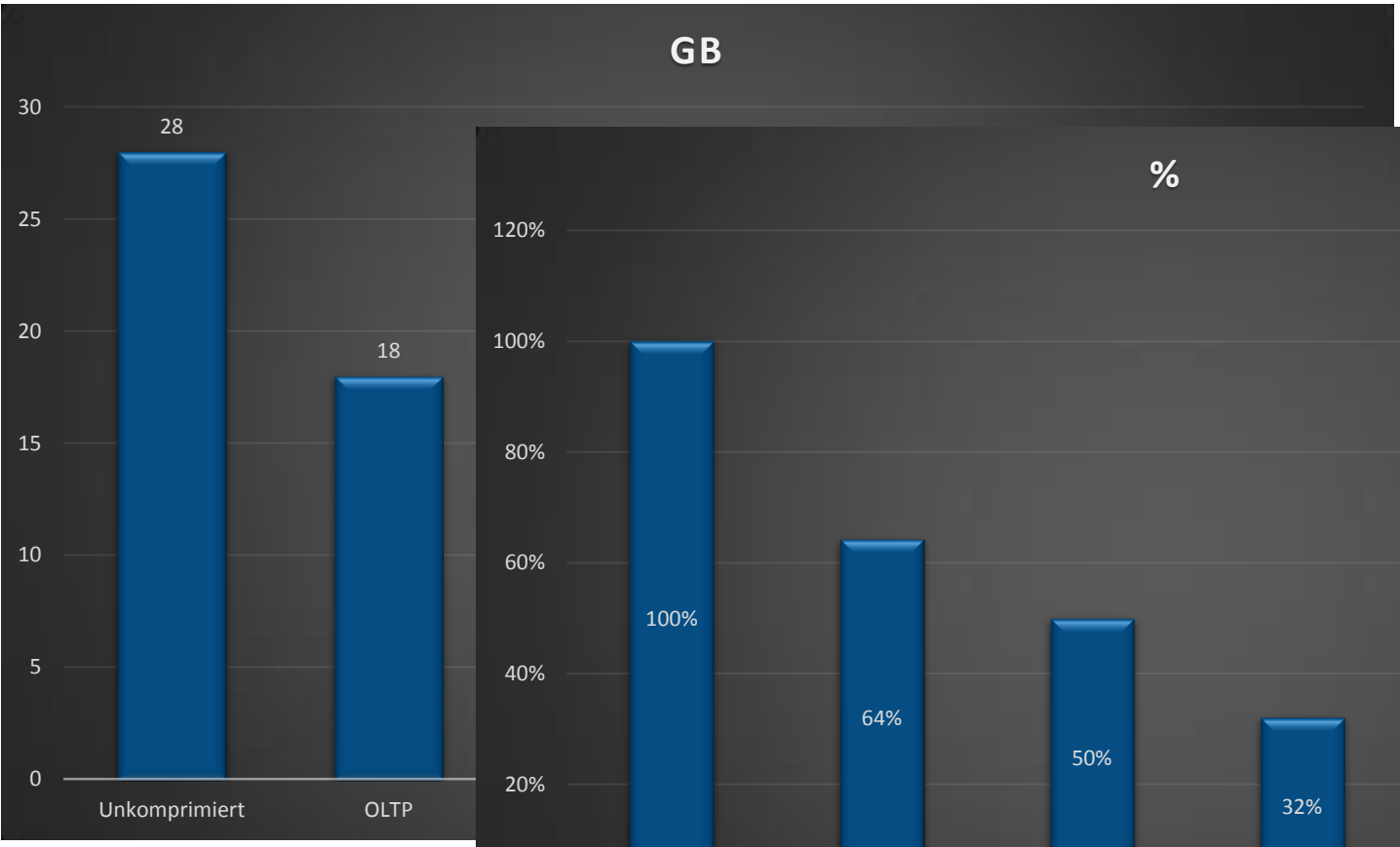
TABLE_NAME: Description of the object
COMPRESSION: DISABLED / ENABLED
COMPRESS_FOR: Type of compression, e.g.: BASIC / ADVANCED / QUERY HIGH / ARCHIVE HIGH



HCC in a Nutshell

PARAGON DATA

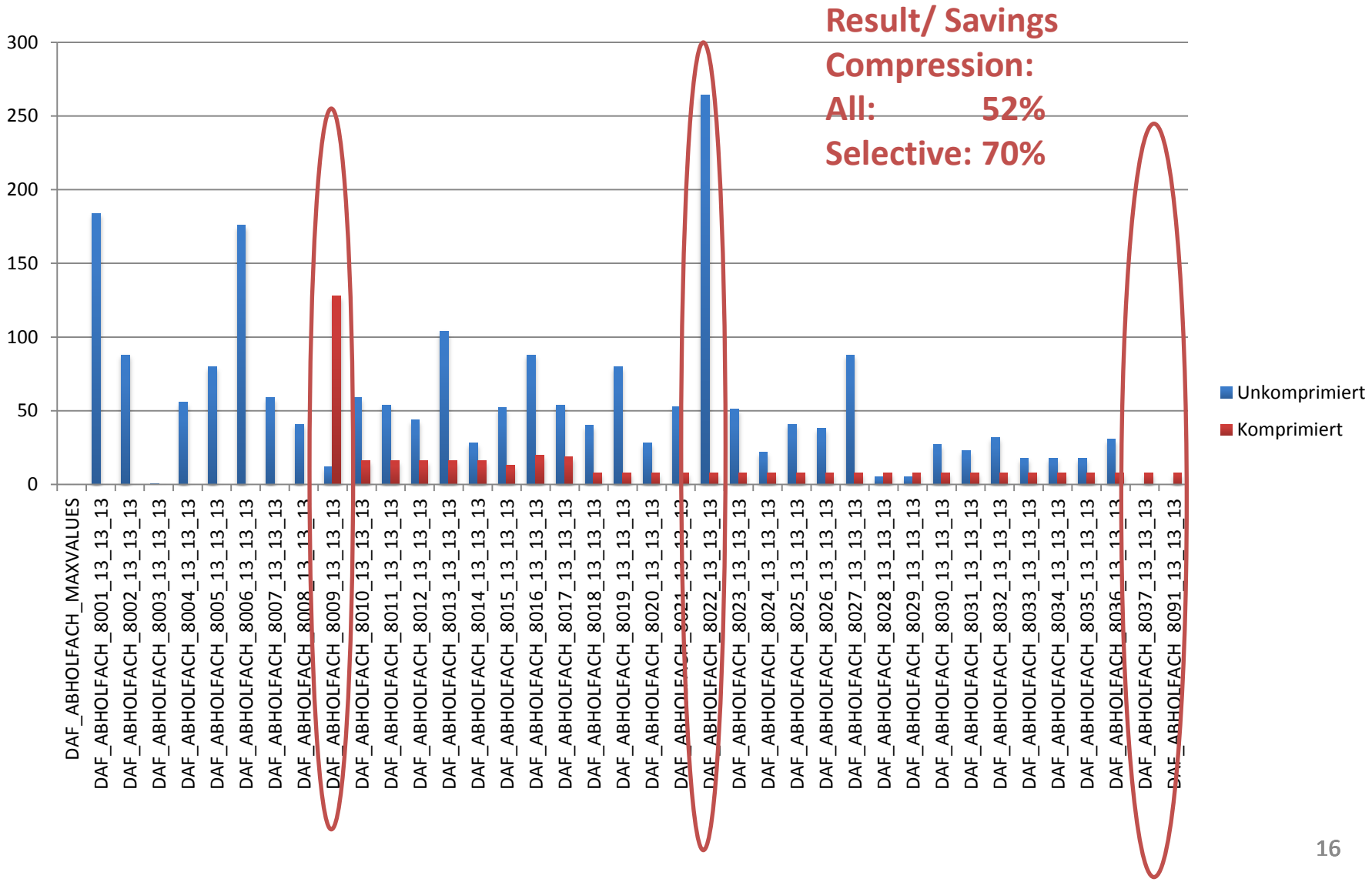
Compression Overview



HCC in a Nutshell

PARAGON DATA

HCC – Results of a Partitioned Table

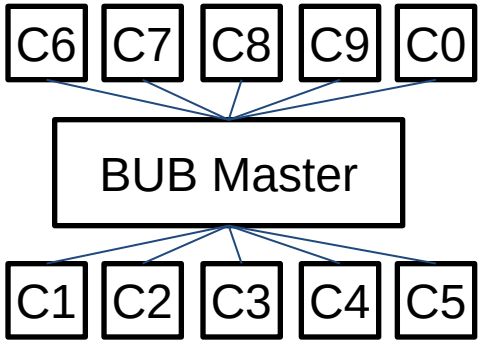


HCC in a Nutshell

PARAGON DATA

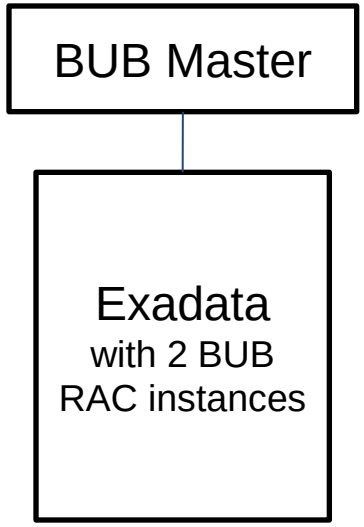
HCC – The Success Story

Bibliography/ catalogue system:
1 master for processing
10 slaves for read applications
3500 users at the same time
Very good response times of the application expected
Oracle Text full-text search + Oracle snapshots/ materialized views



High effort for hardware and administration!

Consolidation BUB on Exadata?
Oracle Text → almost only block IO performance?
Oracle HCC on Exadata → fewer reads
PoC



Application without HCC:
critical performance

with HCC:
Performance gain of 30%

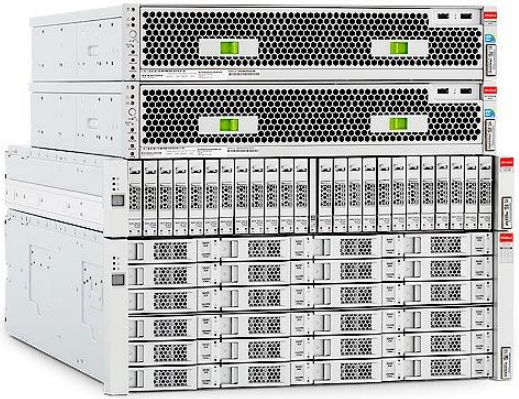
Less hardware
but standby and HCC?
→ Oracle ZS3-2!

HCC Field of Application

PARAGON DATA

What kind of hardware is needed for HCC?

Works only on Engineered Systems
und ORACLE Storage
But without additional
licensing fees there



ZFS Storage ZS3-2

Oracle FS1 Flash Storage System

Exadata Database Machine

HCC Field of Application

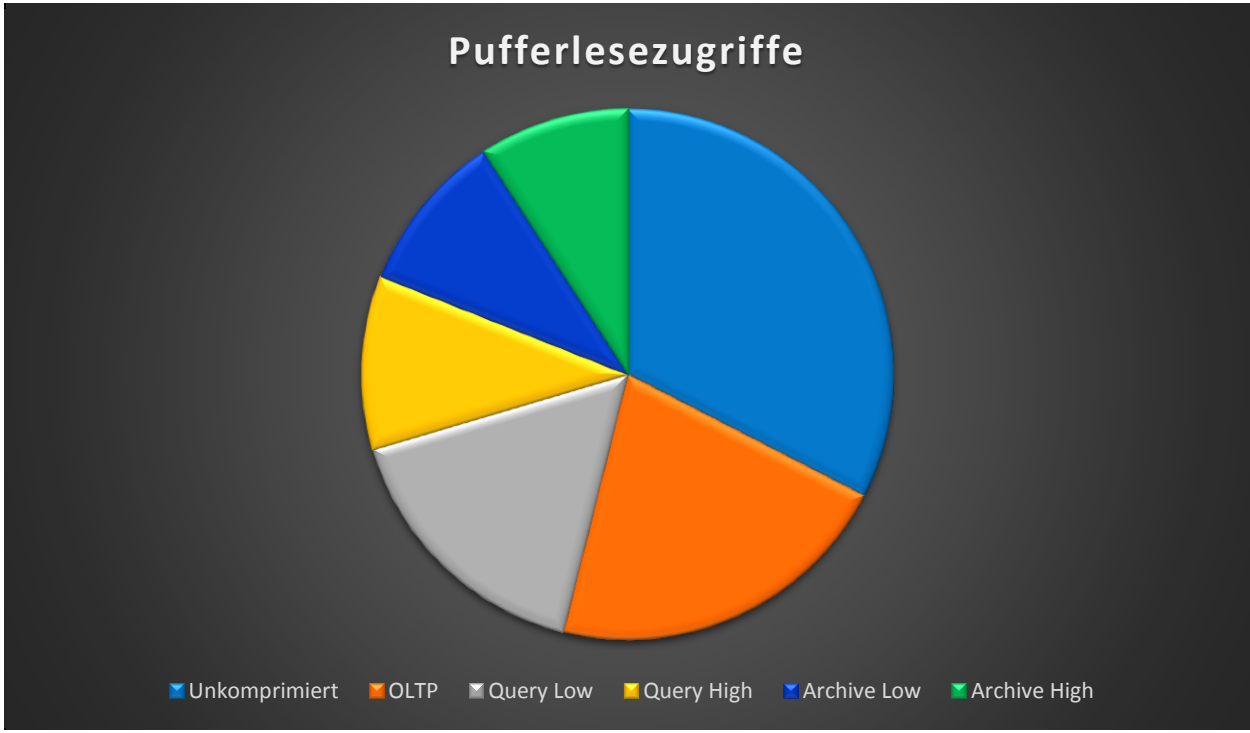
PARAGON DATA

What can HCC achieve?

Saving disk space

Improving performance

=> Reducing costs



Questions and Answers

Q & A

Thank you!

Christian Trieb, c.trieb@paragon-data.de and Patrick Böhme p.boehme@paragon-data.de