

Oracle Database 23c Architecture



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Foundational Understanding of Oracle Database 23c

Oracle Database 23c is the latest iteration of Oracle's robust relational database management system (RDBMS). It builds upon its predecessors while introducing significant advancements in performance, security, and analytical capabilities.

The architecture of Oracle Database 23c can be conceptualized as an intricate system comprising several key elements, which we'll explore in detail throughout this presentation.



Key Architectural Components

1 Memory Structures

2 Background Processes

3 Logical Storage Structures

4 Physical Storage Structures

Each of these components plays a crucial role in the overall functionality and efficiency of the database system. In the following slides, we'll examine each component in more detail, highlighting their importance and innovations in Oracle 23c.

Memory Structures in Oracle 23c

System Global Area (SGA)

Enhanced algorithms for dynamic memory allocation

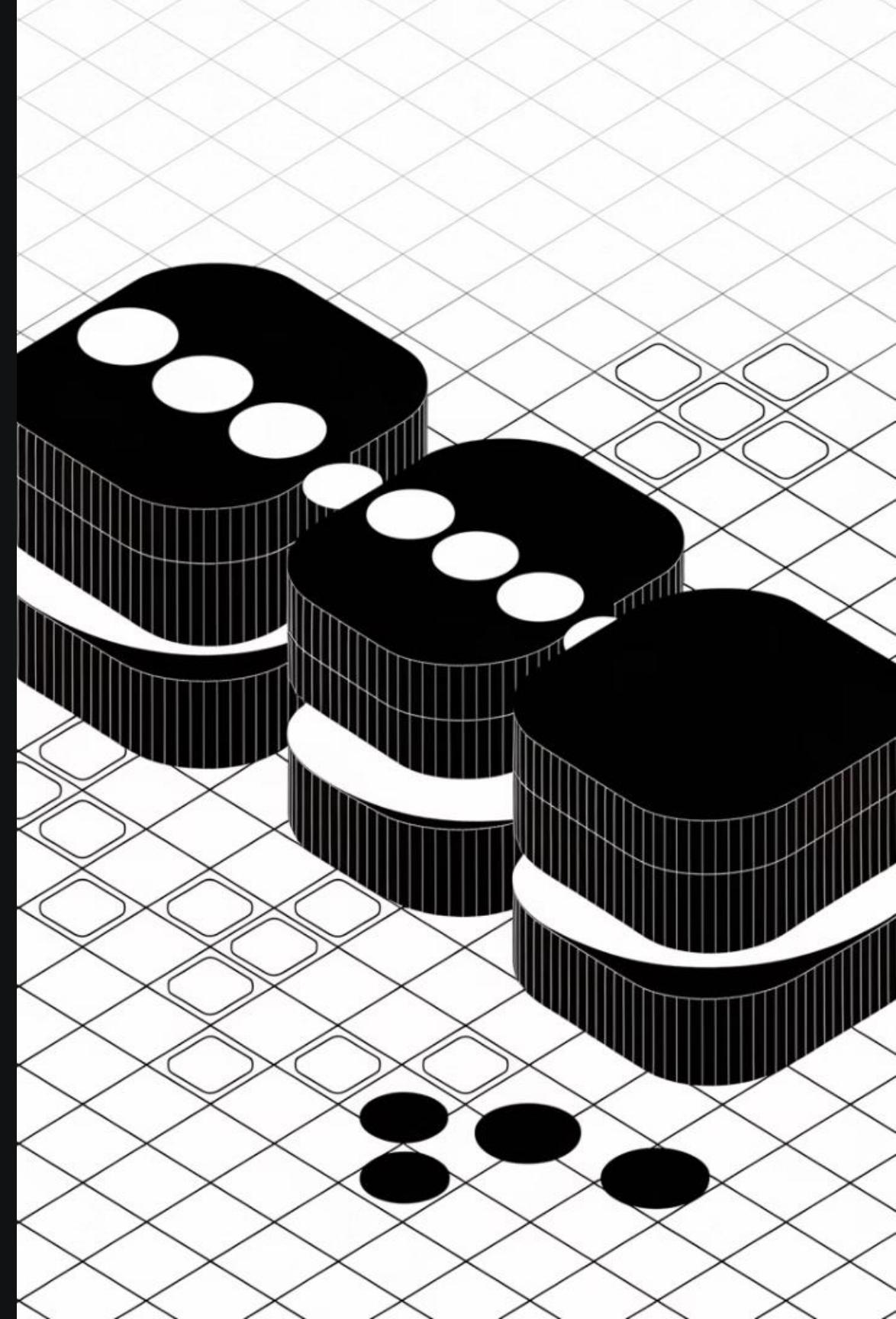
Program Global Area (PGA)

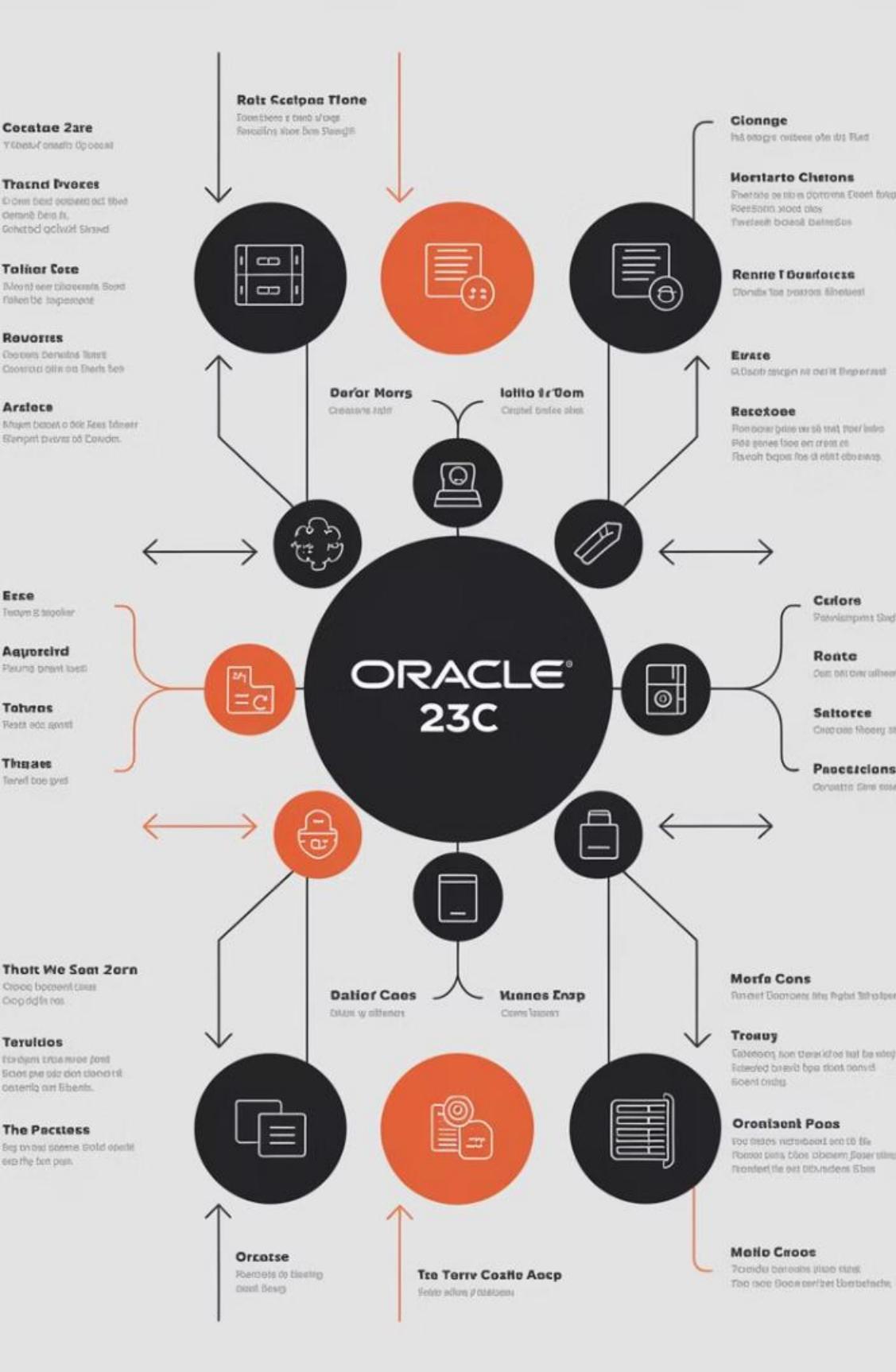
Improved efficiency in memory resource utilization

Dynamic Memory Management

Optimized for environments with fluctuating workloads

Oracle 23c continues to evolve its memory management capabilities, resulting in more efficient utilization of available memory resources, particularly in environments with fluctuating workloads.

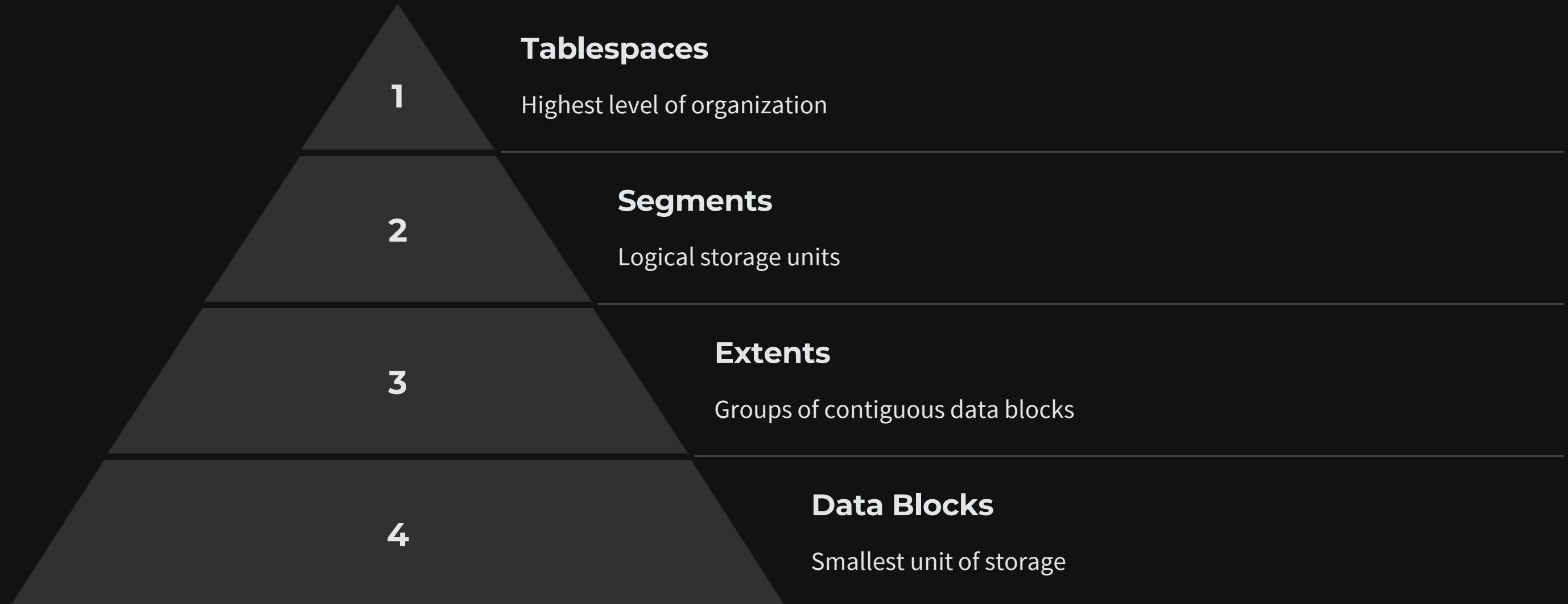




Background Processes in Oracle 23c

- 1 Enhanced Parallel Processing**
New processes designed to improve parallel processing capabilities
 - 2 Improved Database Recovery**
Enhanced mechanisms for faster and more reliable database recovery
 - 3 Existing Processes**
Complementing the suite of existing background processes, each serving specific critical functions
- Oracle 23c introduces new background processes that enhance parallel processing and database recovery, working in harmony with existing processes to ensure optimal database operations.

Logical and Physical Storage Structures



Oracle 23c maintains the hierarchical organization of storage structures while introducing innovations in storage management, particularly in areas such as in-memory column stores and hybrid columnar compression techniques.



Machine Learning Integration and Future Sessions

- 1
- 2
- 3

Machine Learning Integration

Real-time predictive analytics and automated database tuning

Upcoming Sessions

Detailed exploration of memory structures, including SGA components

Continuous Learning

Review concepts and prepare for upcoming sessions

Oracle 23c integrates machine learning algorithms directly into the database engine, representing a paradigm shift in database management practices. Our upcoming sessions will delve deeper into each architectural component, starting with a focus on memory structures in the next session.