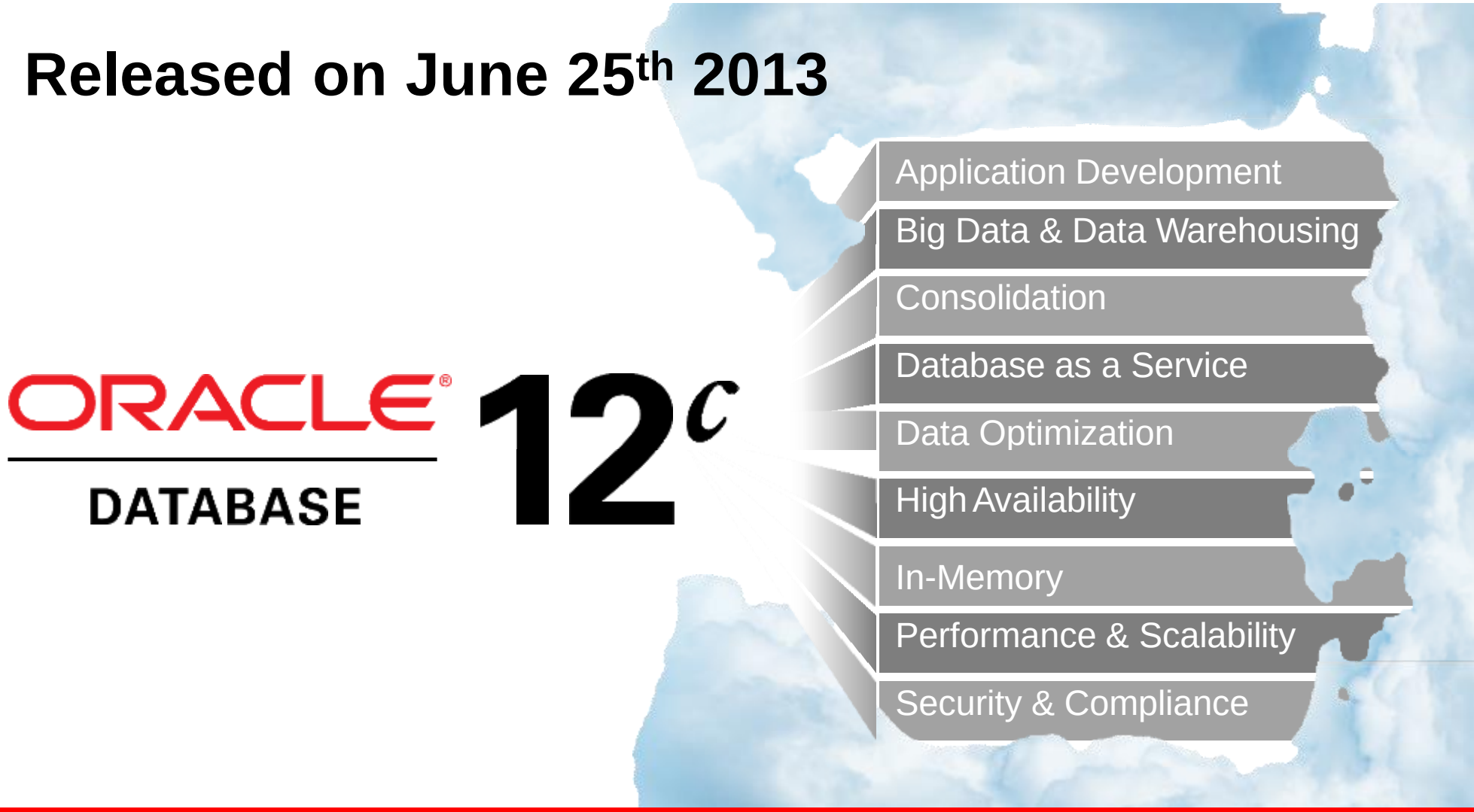

ORACLE®

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Released on June 25th 2013



Engineered for Clouds and Big Data

Customer Initiatives

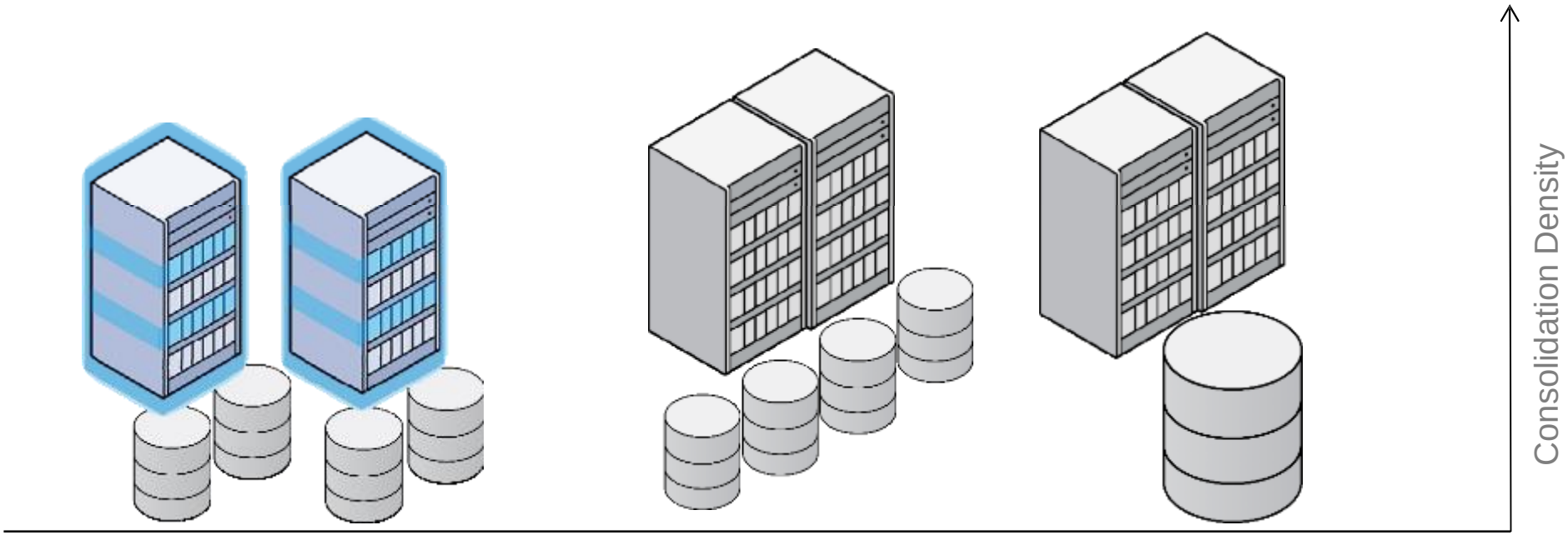
Cloud

Big Data

Database Consolidation on Clouds

Traditional consolidation methods

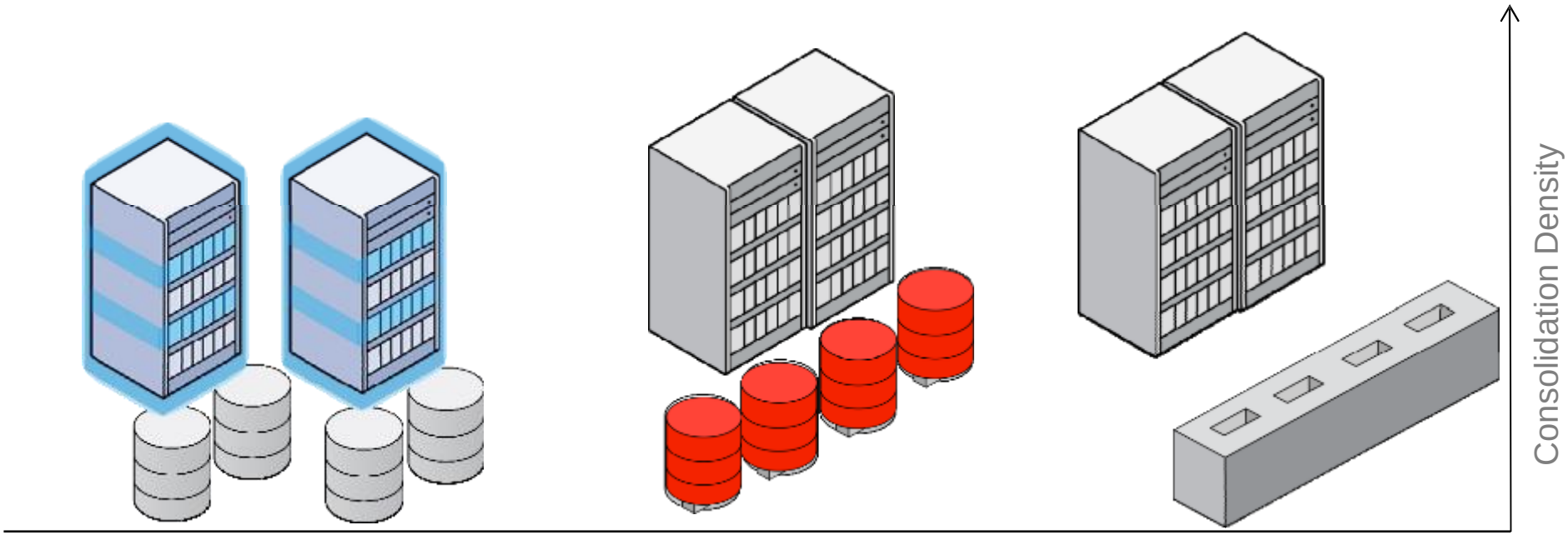
Virtual Machines **Clustered Databases** **Schema Consolidation**



Oracle Multitenant

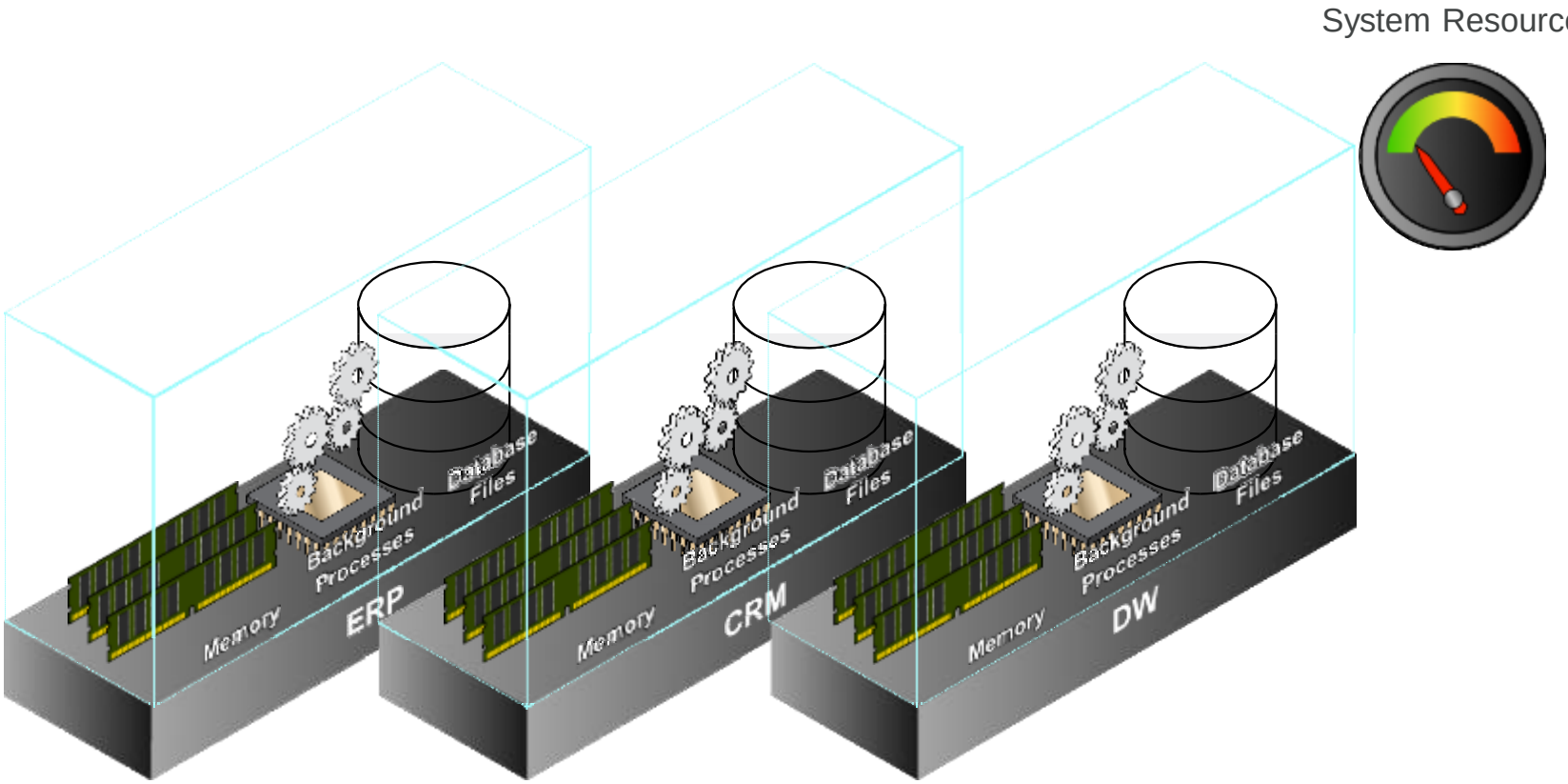
Simplifies consolidation, enables Database as a Service

Virtual Machines **Clustered Databases** **Pluggable Databases**



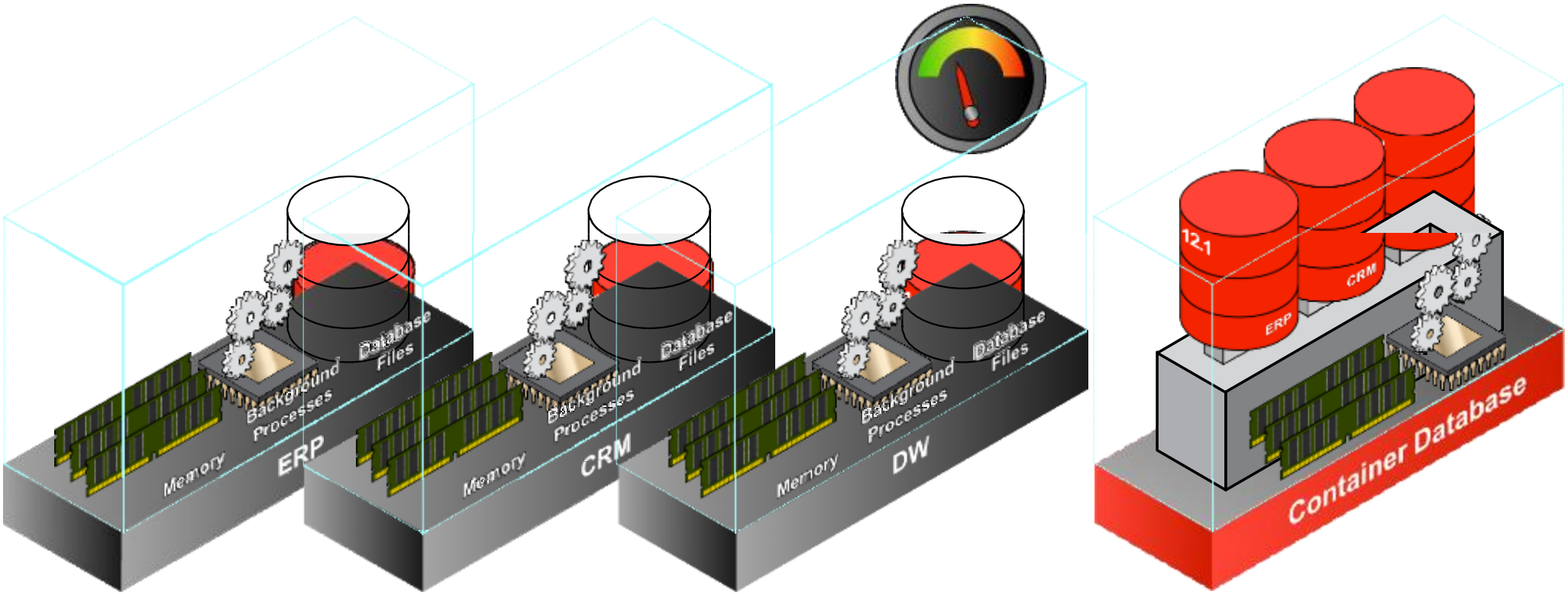
Oracle Database Architecture

Requires memory, processes and database files



New Multitenant Architecture

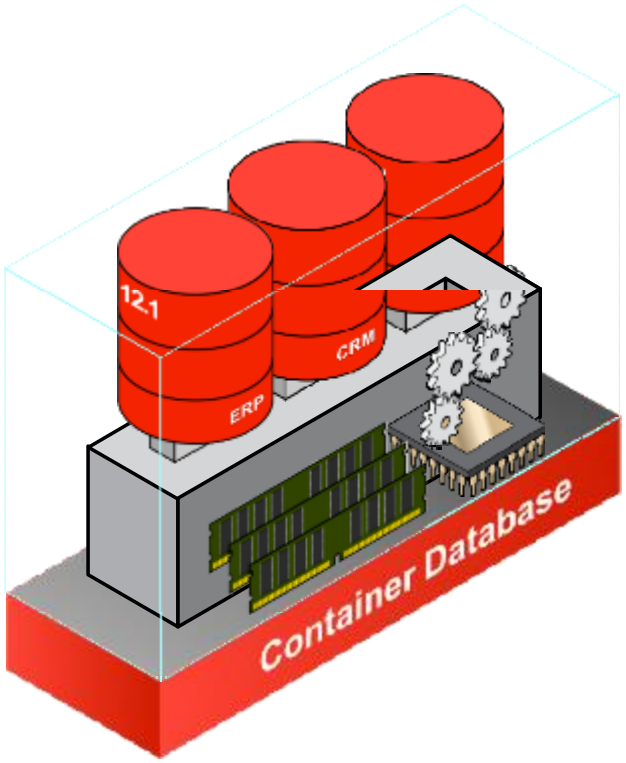
Memory and processes required at container level only



Oracle Multitenant for Consolidation

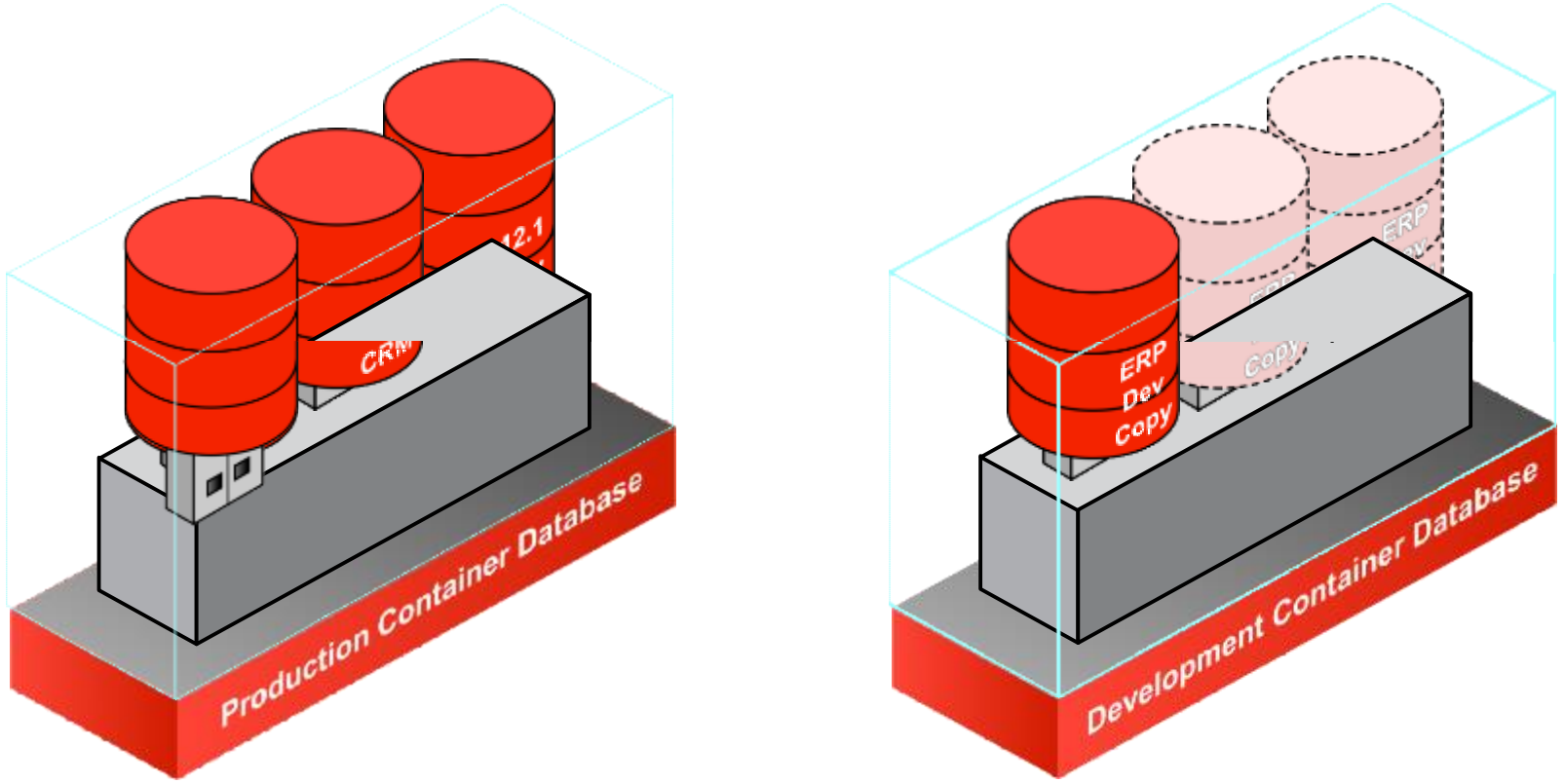
More efficient utilization of system resources

System Resources



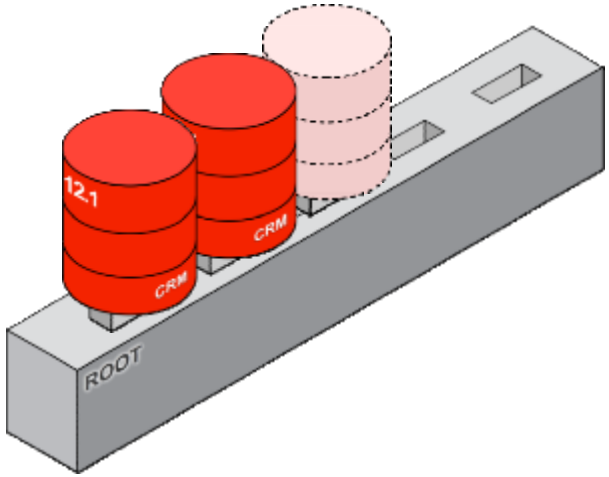
Oracle Multitenant for Test and Development

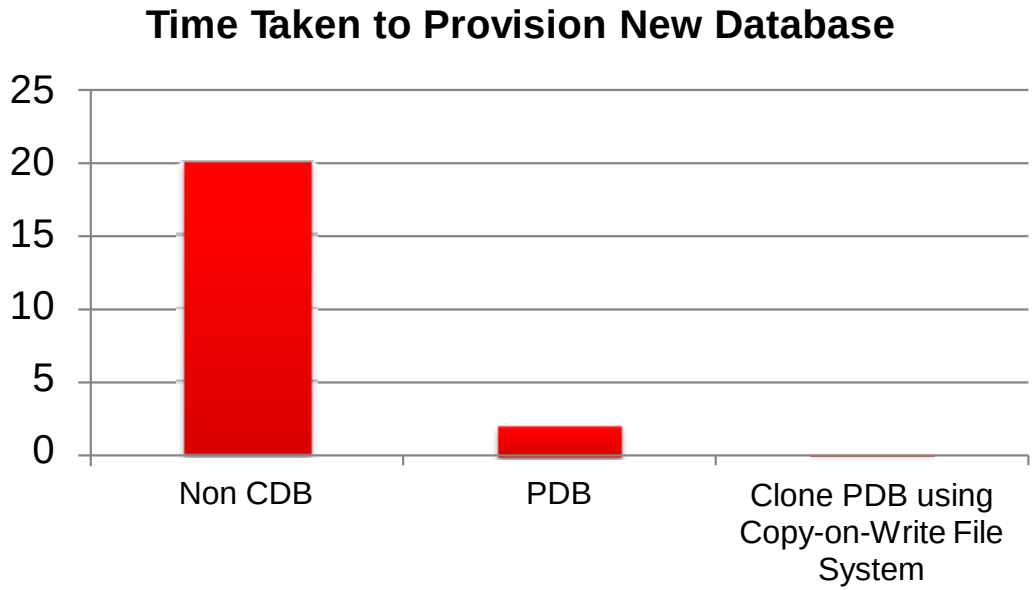
Fast, flexible copy and snapshot of pluggable databases



Oracle Multitenant for Provisioning

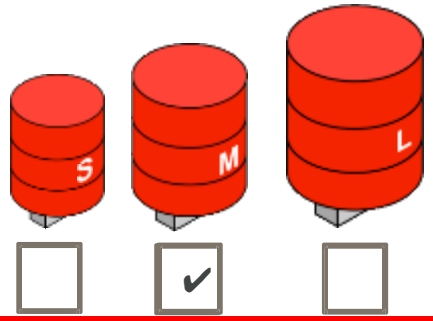
Fast Provisioning, Snapshot Clones

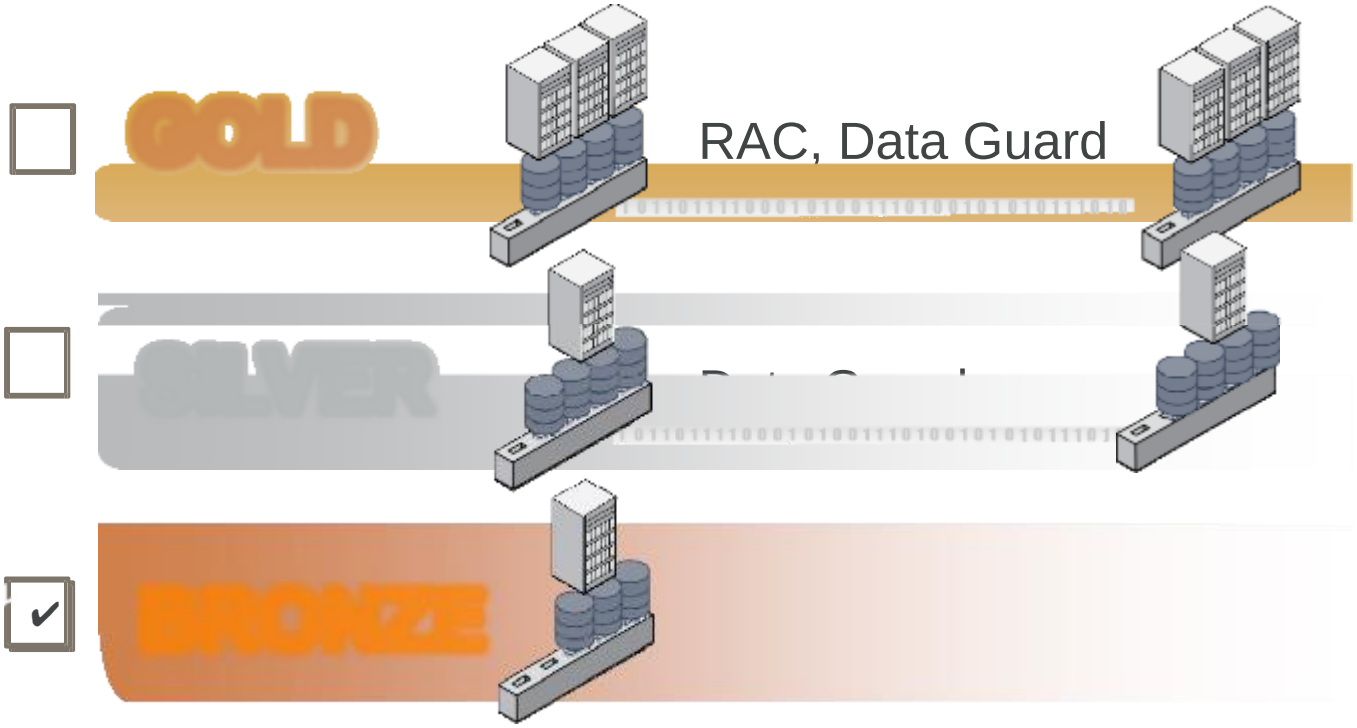




Oracle Multitenant for Database as a Service

Pick from standard sizes and service levels

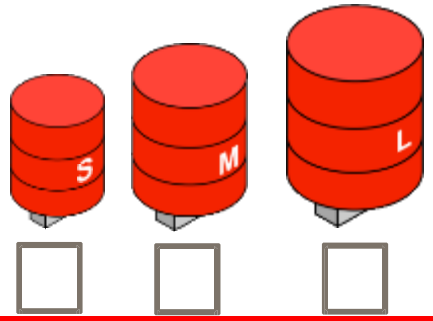


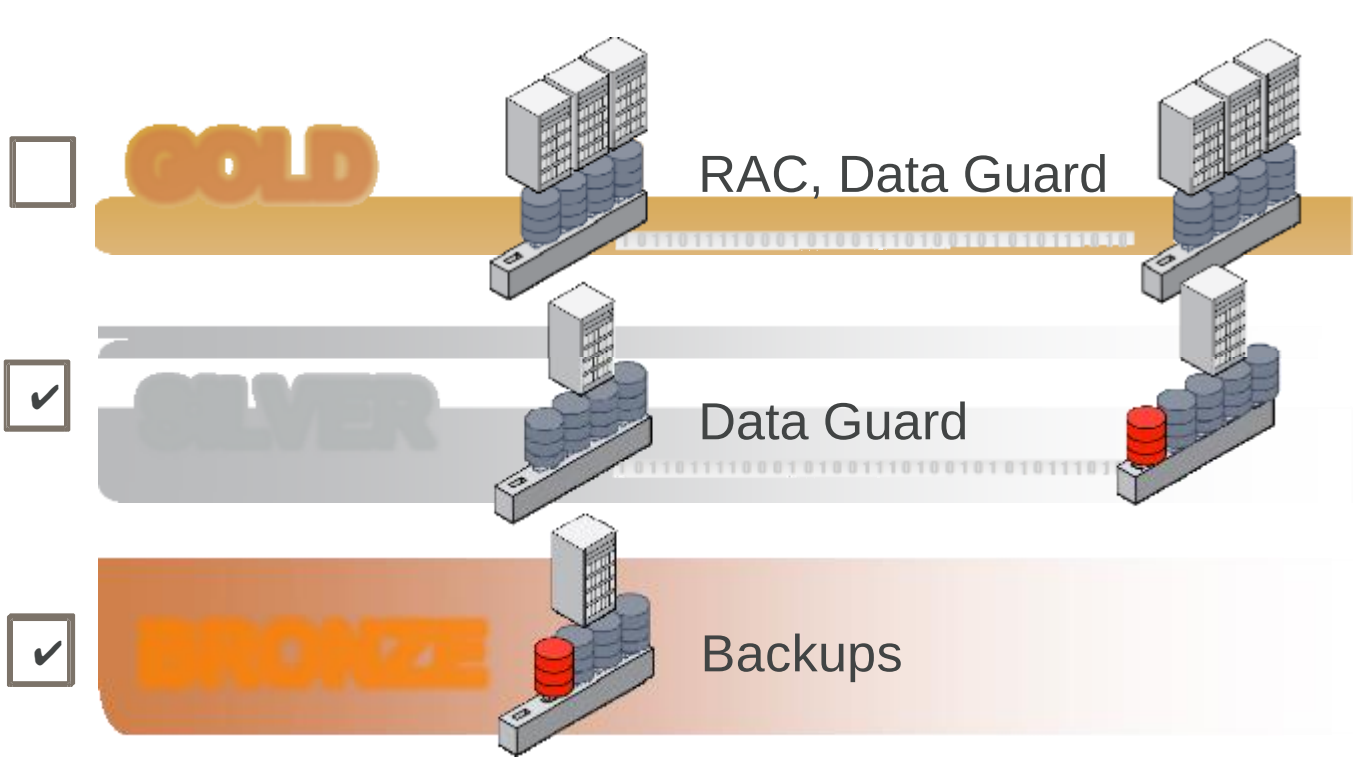


Demo
Self-Service Provisioning

Oracle Multitenant for Database as a Service

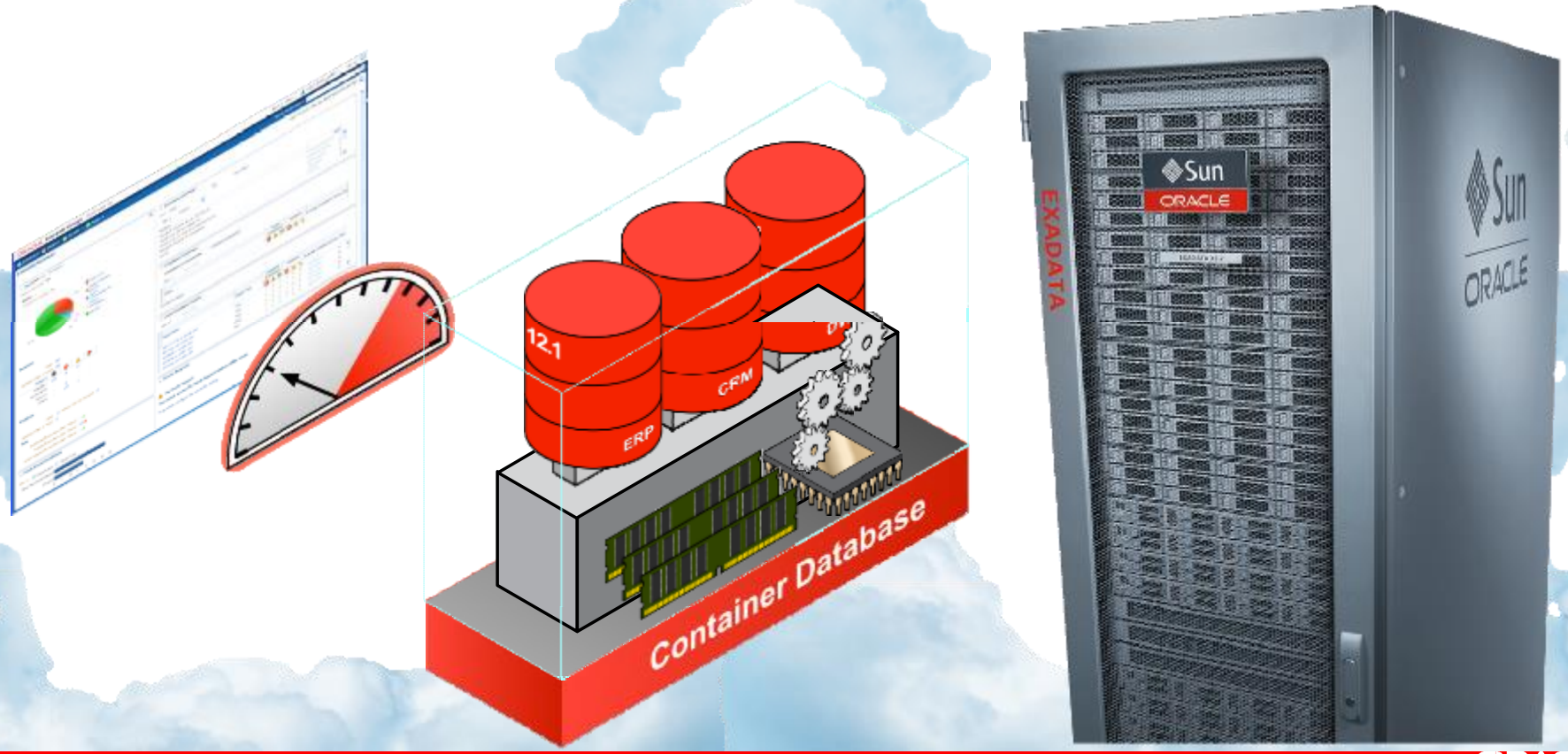
Trivially migrate tiers as databases become more mission critical





Delivering Database as a Service

Oracle Enterprise Manager, Oracle Multitenant and Oracle Exadata

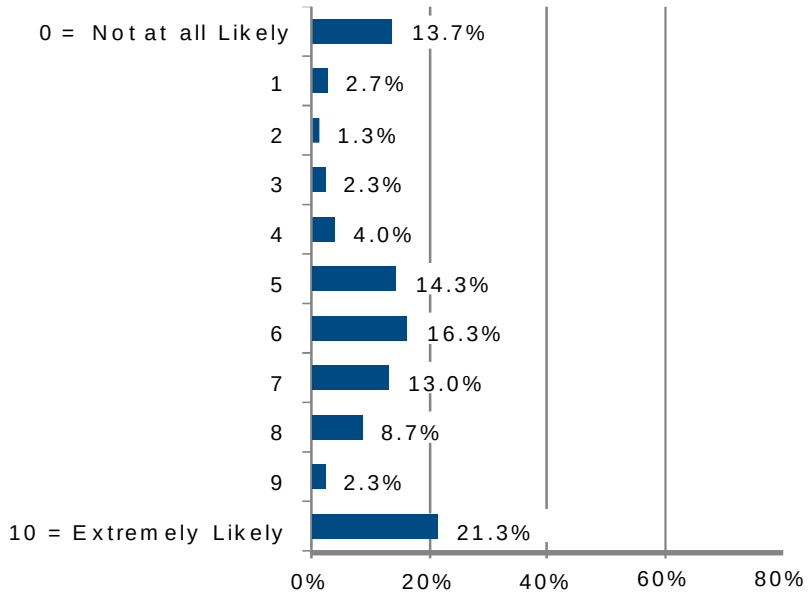



Donald Feinberg
VP Distinguished Analyst
Gartner
00:20
Play

IDC Converged & Integrated Systems Survey Results

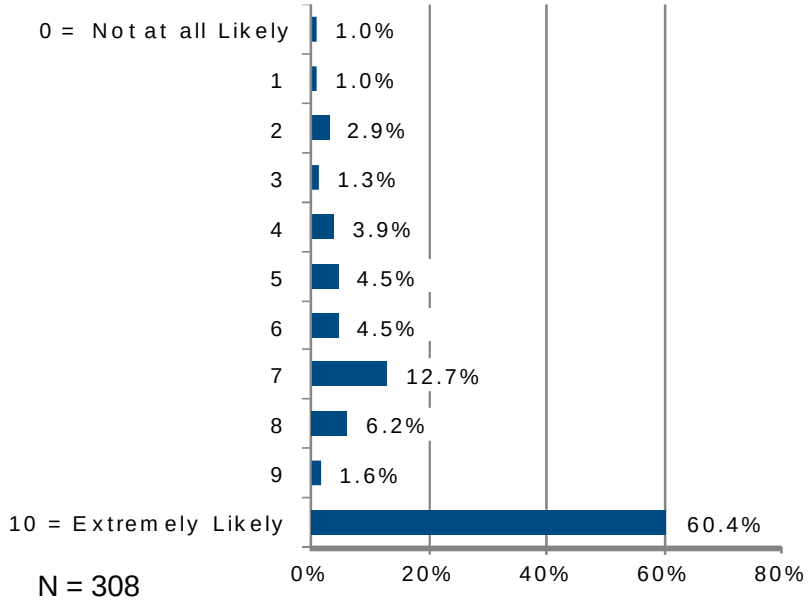
Rate how likely is it that your organization will utilize converged systems over the next three years?

2012



N = 300
Base = All Respondents
Source: IDC *Converged Systems Survey*, July 2012

2013



N = 308
Base = All Respondents
Source: Source: IDC Converged and Integrated Systems End-User Survey, July, 2013

What Customers Think

About Engineered Systems for Oracle Databases.

*"**Standardizing our database services** and configurations has yielded benefits across many dimensions."* Andy Wottenhofer, University of Minnesota

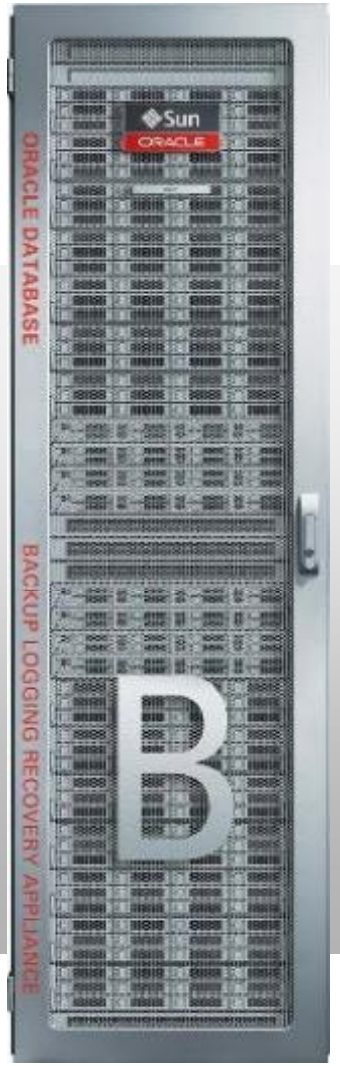
*"Oracle Database Appliance enables us to provide a single system solution that's affordable and **simple to deploy**."* Luigi Giuri, Wirex

*"There are a **lot less people involved** to support the Oracle Exadata system."* Alex Mann, Garmin

*"Oracle Exadata achieved a **large reduction** in administration time along with huge storage savings costs and greatly improved performance."* Eric Zonneveld, KPN

INTRODUCING

ORACLE DATABASE BACKUP LOGGING RECOVERY APPLIANCE



ORACLE

Database Backup and Recovery

Typical customer challenges.

"We take regular backups, but have no confidence that backups will work when needed." Global Payments Company

"With close to 1000 databases to protect, standardization and automation of backup/recovery is very important to us." Pharmacy Benefit Management Company

"Trying to reduce our backup windows has traditionally been a problem for us especially with our larger databases." Global Research Company

Database Protection Without Compromise

Oracle Database Backup Logging Recovery Appliance

000s of Databases

Redo and change data

Validated and compressed changes

Replicate changes offsite to the Cloud

What Customers Think

About the Oracle Database Backup Logging Recovery Appliance.

*"This new appliance can **solve our recovery problems** for us."* Global Payments Company

*"It will allow us to **simplify** the DBA and storage management disconnect."* Global Oil Company

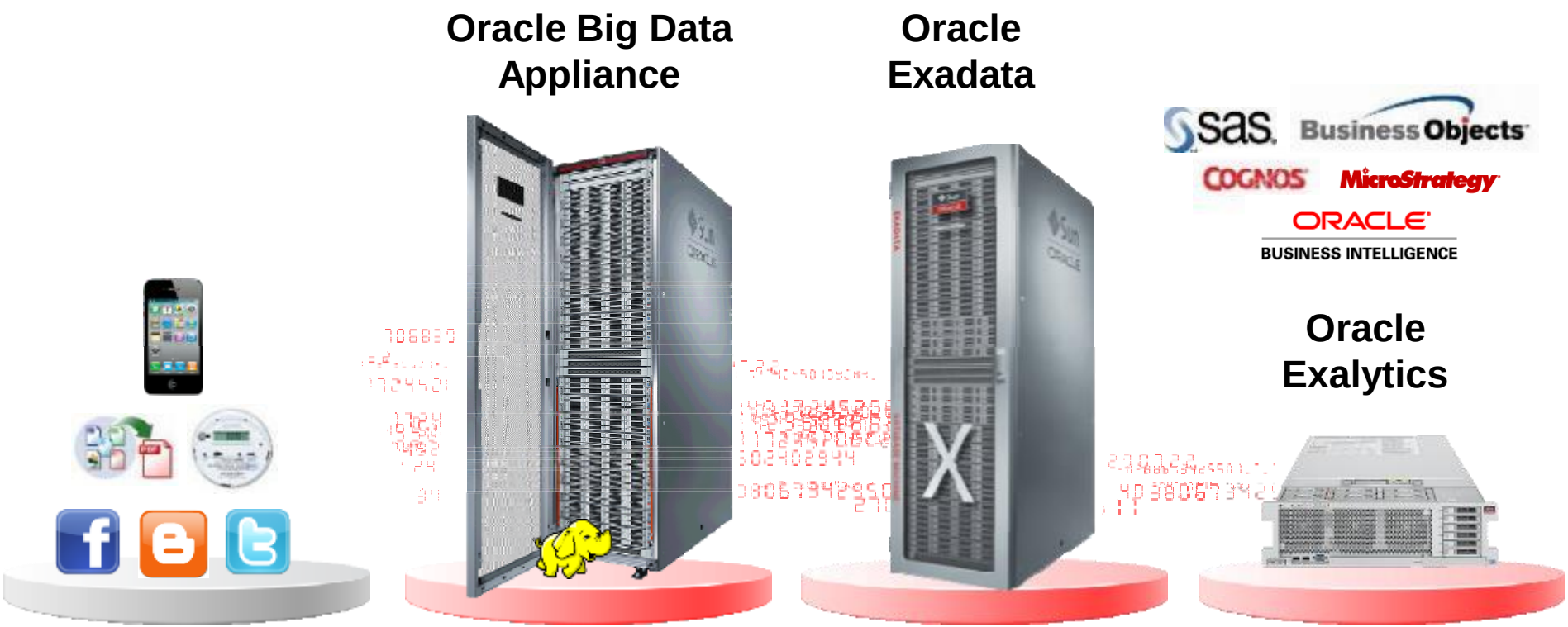
*"With this appliance the database backup process is dramatically simplified, and much **shorter backup** windows."* Global Research Company

Customer Initiatives

Cloud

Big Data

Engineered for Big Data & Data Warehousing



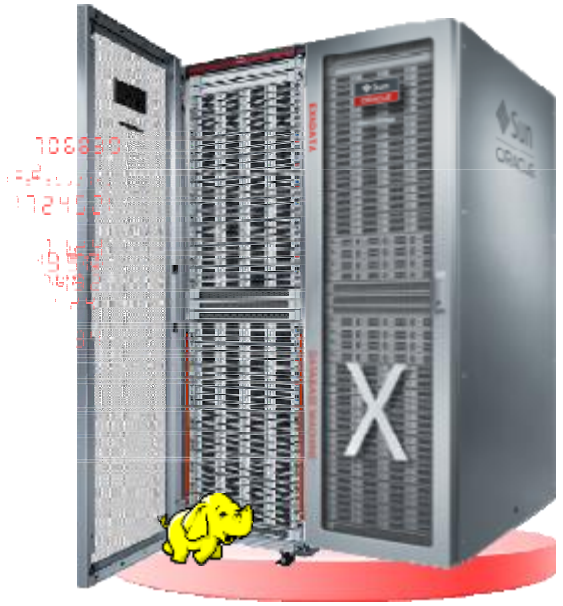
Big Data

Big Data Analytics

Scalable discovery of business events

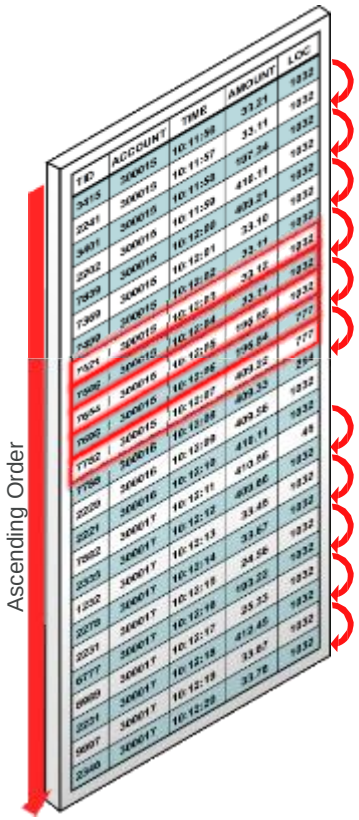
"Find transactions that suggest fraudulent activity"

- Recognize event patterns in sequence
- Simplify and scale analysis of Big Data
- Find answers as quickly as possible



Simplifying Big Data Analytics

SQL Pattern Matching with Oracle Database 12c




```
Select * from
Transactions MATCH_RECOGNIZE (
…
PATTERN(S X{2,4} Y)

DEFINE S AS (type = T),
       X AS (loc =
       PREV(loc)), Y AS (loc
       != PREV(loc))
…
)
```

- Clickstream logs:
  - sessionization, search behaviour
- Business transactions:
  - fraud detection, stock analysis
- Sensor data:
  - Automated observations and detections

Using SQL Pattern Matching

Fewer lines of code required and runs over 50x faster

```
public class AggregateJob extends Configured implements Tool {
    @Override
    public int run(String[] args) throws Exception {
        boolean status = false;

        Configuration conf = this.getConf();


        Job job = new Job(conf, "aggregator");

        job.setJarByClass(AggregateJob.class);
```

650+ Lines of Java Map Reduce

```
select count(*) number_of_occurences, sum(fraudulant_amount) amount_defrauded,
fraud_occured_at_loc
from (select * from transactions)
MATCH_RECOGNIZE
(  PARTITION BY ACCOUNT_ID ORDER BY TRANS_TIME
   MEASURES
    x.trans_time as last_trans_time,
    y.trans_time as time_of_fraud,
    y.amount as fraudulant_amount,
    x.location_id as previous_location,
    y.location_id as  fraud_occured_at_loc,
    ROUND(FRAUD_ANALYSIS.DISTANCE_RATIO(Y.LOCATION_ID, X.LOCATION_ID, Y.TRANS_TIME,
X.TRANS_TIME),2) as fraud_likleyhood
   ONE ROW PER MATCH
```

18 Lines of SQL

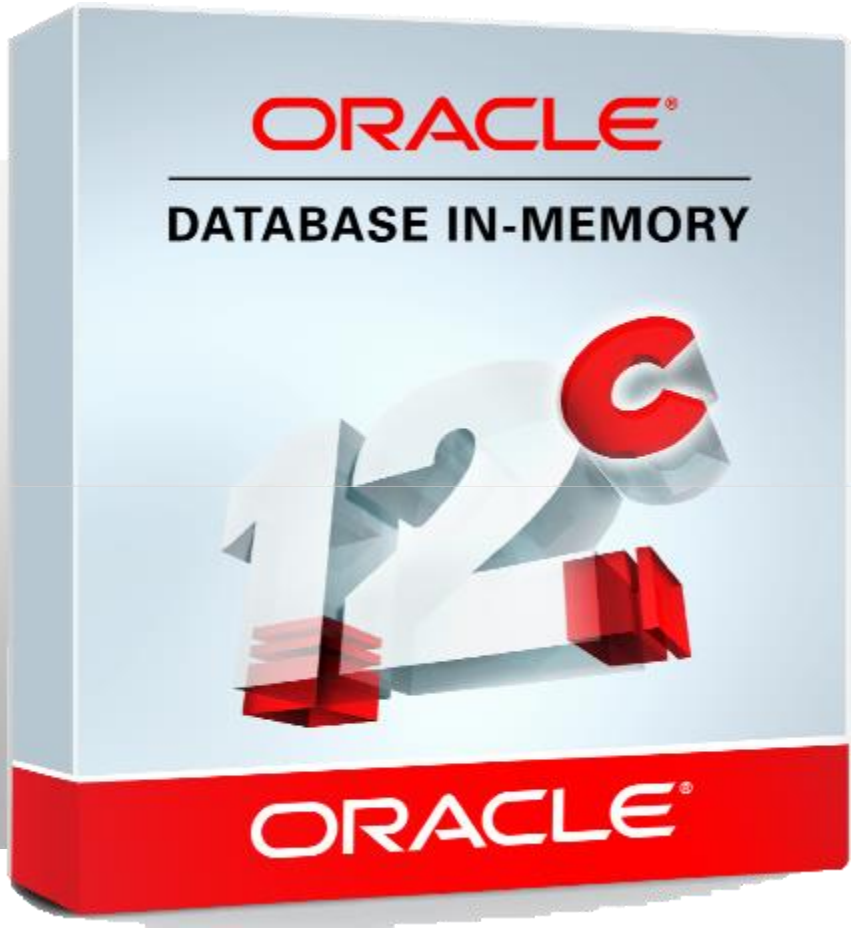
```
        return (status ? 0 : 1);
    }
}
package fraudfinder;

import fraudfinder.locutil.DistanceRatioCalculator;
import java.util.ArrayList;


public class PatternMatcher {
    private ArrayList<PatternElement> patternFifo = new ArrayList<PatternElement>();
    private PatternElement xPE;
    private PatternElement yPE;
    private boolean match;
    private int matchXCount = 0;
    private int maxMatchXCount = Integer.MAX_VALUE;

    public void addPatternElement(PatternElement element) {
        int patternLength = patternFifo.size();
        match = false;
        if (!element.isTransTypeT()) {
            clearPattern();
```


ORACLE



Oracle Database In-Memory

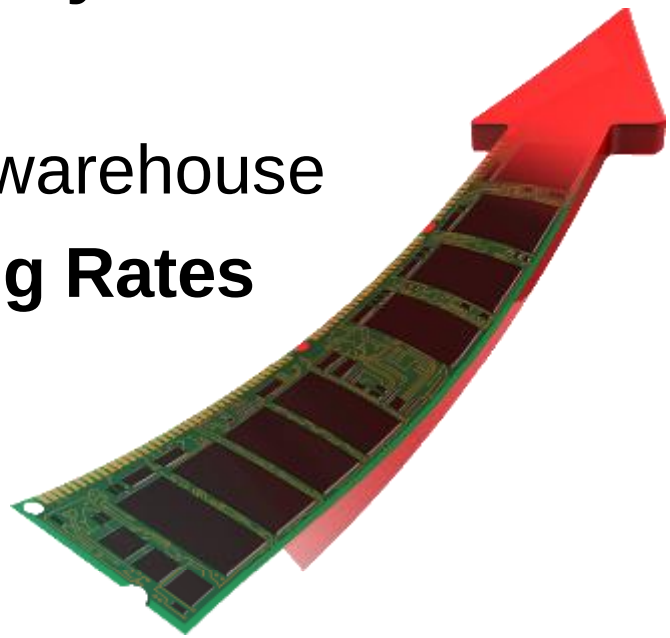
Goals

100X Faster Queries: Real-Time Analytics

- Get instantaneous query results
- Querying OLTP database or data warehouse

2X Increase Transaction Processing Rates

- Insert rows 3 to 4X faster



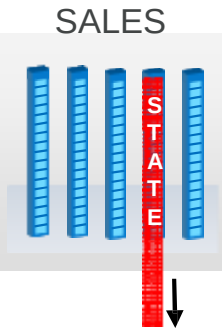
Optimizing Transaction and Query Performance

Row Format Databases versus Column Format Databases

Row

- **Transactions run faster on row format**
  - Insert or query a sales order
  - Fast processing few rows, many columns

Column

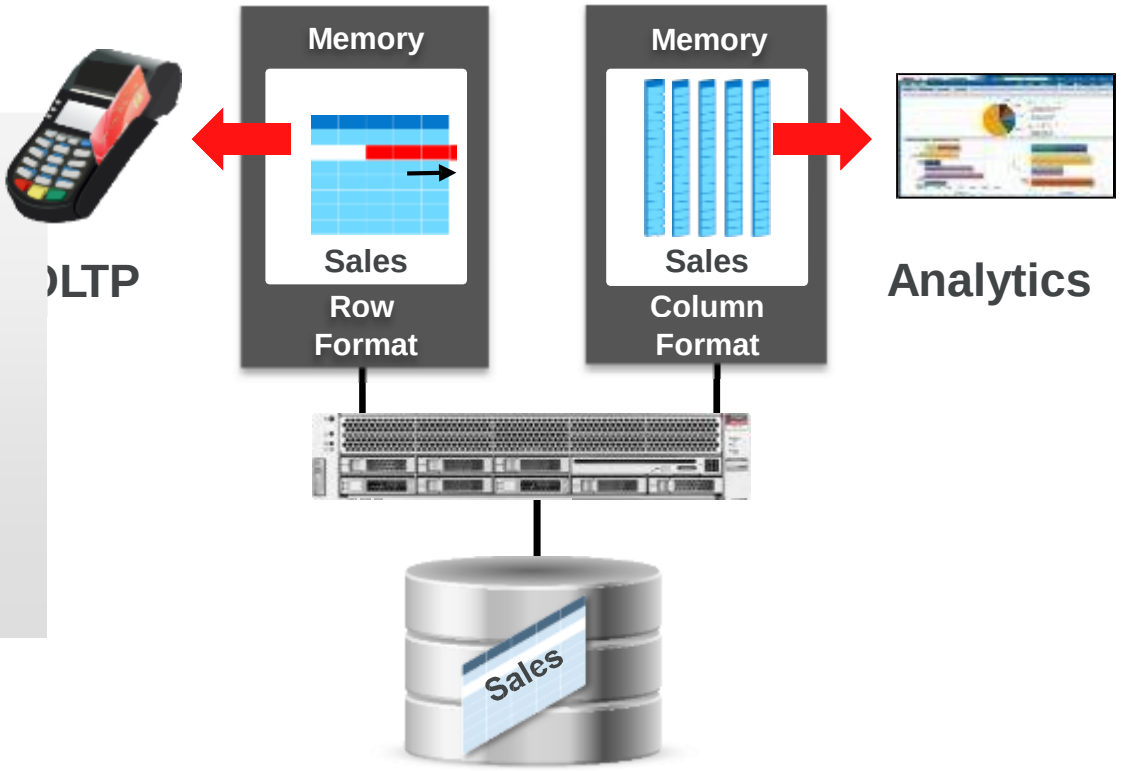


- **Analytics run faster on column format**
  - Report on sales totals by state
  - Fast accessing few columns, many rows

Dual Format In-Memory Database

BOTH row and column in-memory formats for same data/table

- **100X Faster** Analytics & reporting: column format
- **2X Faster** OLTP: row format



Demo

Oracle Database In-Memory

Wikipedia Search Trends: Oracle 12c In-Memory Option

lnd!ex
8 Run Traditional
R u n 12'c ln,Mernory
6i! Parallel

Analyze Common Search Terms Matching: iron man

Traditional In-Memory

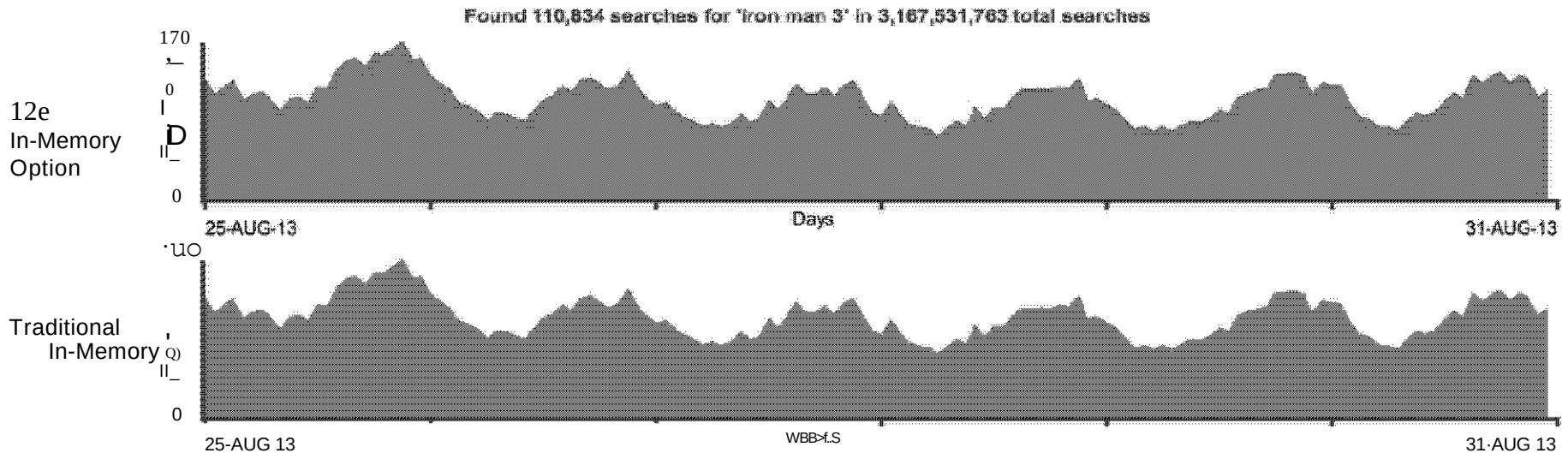
Analysis Rate

12c In-Memory Option

〈 Faster!

180
Million Rows Scanned / Sec

12473
Million Rows Scanned / Sec



Oracle Database In-Memory is Trivial to Deploy

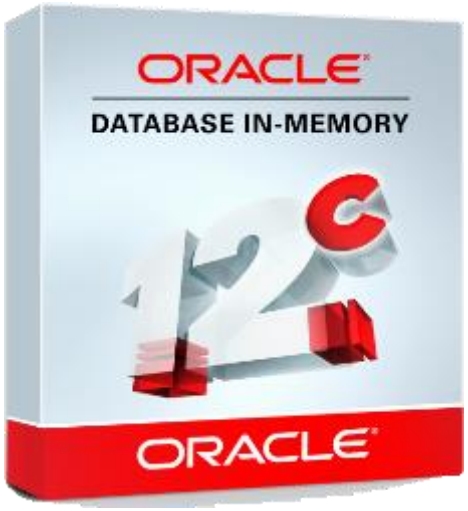
No changes required to existing applications

1. Configure Memory Capacity
   - `inmemory_area = XXXX GB`
2. Configure tables or partitions to be in memory
   - `alter table | partition … inmemory;`
3. Later Drop analytic indexes to speed up OLTP

Oracle Database In-Memory Option

Leading edge In-Memory technology

- Seamlessly integrated into Oracle Database 12c
- Delivers extreme performance for
  - Analytics and ad-hoc reporting on live data
  - Enterprise OLTP and Data Warehousing
  - Scale-up and scale-out
- Trivial to deploy for all applications and customers



Engineered for Clouds and Big Data

Hardware and Software

ORACLE

Engineered to Work Together


ORACLE®