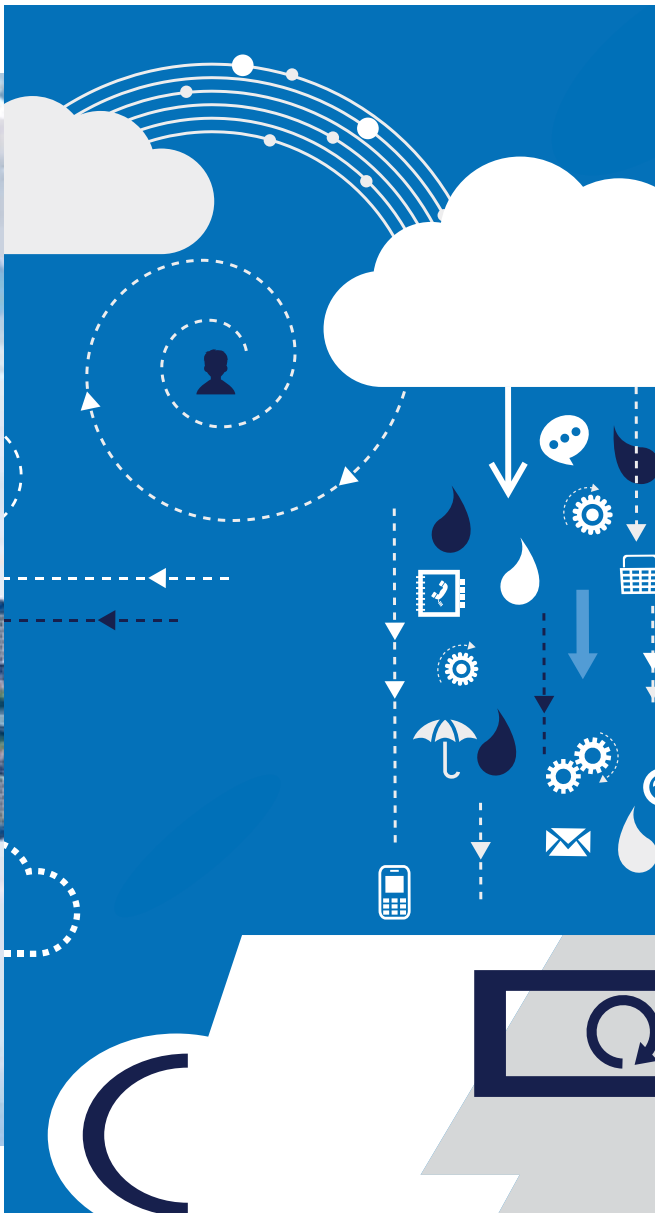


TIBERO

# The RDBMS of choice

A highly compatible relational database management system  
that's a drop-in replacement for legacy systems



**TmaxSoft**

TIBERO

# The RDBMS of choice



An innovative architecture geared toward a **highly virtualized environment**



**Highly compatible with major competitive databases** including Oracle



## WHY TIBERO

Tibero is designed for today's software-defined datacenters (SDDC)

Tibero 6's multi-thread architecture lets the enterprise get the most performance out of its applications.

1.



**Active Clustering technology** provides unsurpassed reliability

3.



Provides **robust security**

2.



Guarantees **compatibility without modifying applications**

4.



Installed in enterprises with **large data lakes and data warehouses**



## Tibero is the RDBMS of choice for a wide range of sectors

- Over 600 companies and 1,560 projects in Korea and overseas
- More than 200 TAC\* projects (as of Dec 2015)
  - \* **TAC (Tibero Active Cluster)**: Tibero was the 2nd in the world to apply DB cluster technology. Previously only provided by Oracle RAC.

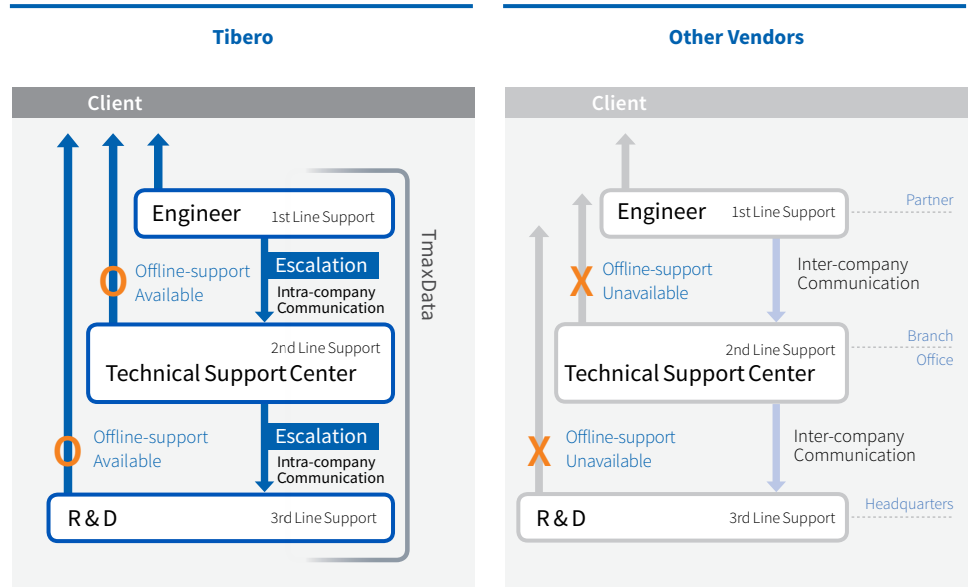
### Representative Clients

<b>Finance</b>			
<b>Manufacturer</b>			
<b>Public &amp; Government</b>			
<b>Telco &amp; Media</b>			



## Tibero guarantees superior technical services

- Fixes to client issues are added to the product roadmap
- TmaxData provides dedicated technical support services

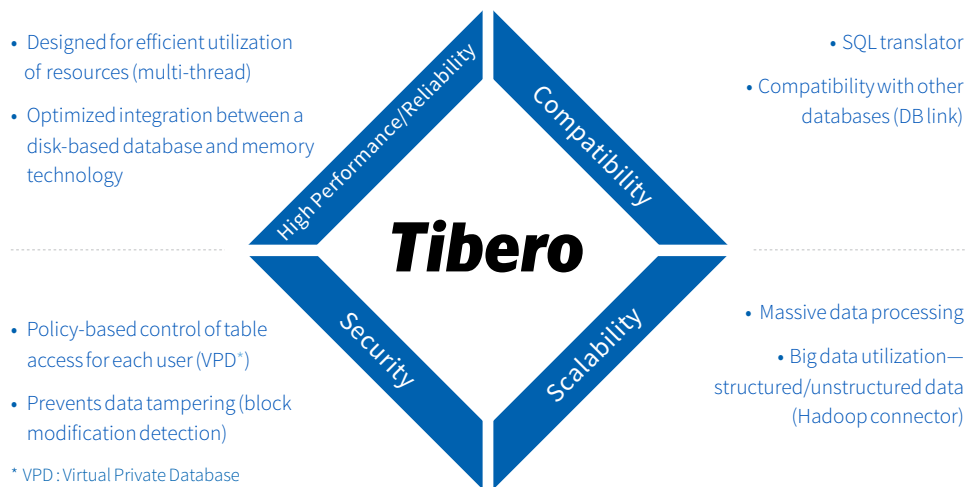


### Superior Technical Service

- R&D-level product development for client requests
- Fast and accurate technical support
- Rapid resolution of issues thanks to intra-company communication

## Tibero 6—the most efficient DBMS

- Provides an efficient architecture for analyses as well as core tasks
- The ideal choice for large-scale operating environments by providing security, high performance, compatibility and scalability





## Tibero's architecture offers maximum efficiency

- Provides a new but simple conceptual database server architecture
- Supports reliable and efficient management by preventing potential issues

### Process Integration, Simple Structure

[Major Processes]

BMP	Tibero Manager Process
AGNT	Agent Process
LSNR	Listener Process
FWP	Foreground Worker Process
BWP	Background Worker Process
TBCM	Tibero Cluster Manager

### Improved Communication and Input/Output Performance

[Major Features]

**Hyper Thread Architecture**  
Dramatically improved performance for processing massive data

**DBWR AIO**  
DB Writer's improved asynchronous input/output

### Improved Memory Utilization

**Shared Memory Management**  
Variable expansion support for shared memory

**Improved Memory Allocation**  
Error prevention and improved management

### SQL Contention Minimization

**Data Dictionary Lock Free**  
DML/DDL contention minimization

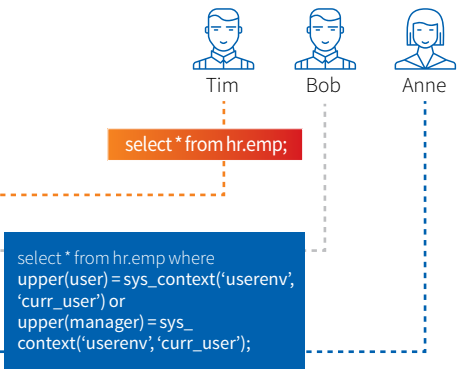


## Tibero provides robust security

- Table row access control (by user)
- Fine grained audit, encrypted data tampering prevention, and country-specific encryption algorithms support

Emp Table

ename	title	manager	deptid	salary
Bob	Manager	-	1	10000
Alice	Engineer	Bob	1	8000
Tim	Engineer	Bob	1	7000
Eve	Analyst	Bob	1	7500
Anne	Manager	-	2	10500
Denis	Engineer	Anne	2	9000
Jack	Engineer	Anne	2	9500





## Tibero provides a monitoring and management tool for operations and management

- Monitors transaction processing and resource status in real time
- Provides an embedded GUI-based management tool (backup, recovery, security, schema management, etc.)



## Tibero was developed with massive data processing in mind

- Technology**
- New architecture** Efficient processing of massive data
  - TAC and TAS** Availability and scalability in large-scale database environment
  - Various partitioning, advanced parallel processing technology**
  - Reliable and efficient operations for massive data
  - Hadoop connector support for big data (HDFS, Hbase support)**
  - Integrated analysis for semi-structured data support
  - TPR\*, ASH\* support** VLDB performance analysis support

- Cases**
- AA federation** 40TB
  - Large-scale communication company's NMS** 30TB
  - KEPCO, Meter Data Management System**
  - Academic Administration for the National University of Science and Technology, Yonsei University** Course registration system successfully completed

\* Tibero Performance Repository / \* Active Session History

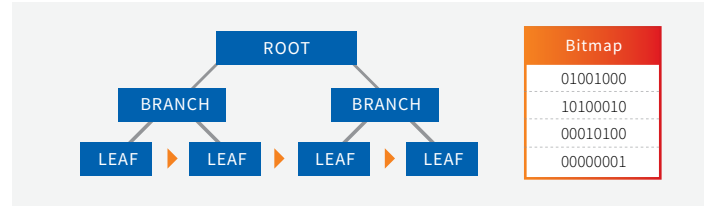


## Tibero provides specialized features commonly used by DW

- Uses bitmap indexes to save storage space and improve performance
- Supports interval partitions, eliminating the need to create partitions in advance by a DBA

### Bitmap Index

Saves a range value as a bitmap.  
Appropriate for an OLAP environment in which many duplicate values exist.



### Interval Partition

Automatically creates a partition when data is inserted into a database.  
E.g., Automatically creates hour/day/month/year partitions.

### Star Transformation\*

Optimizes a join query that includes a large volume of tables.

\* Supports transformation that is specialized for the star schema, which is commonly used by DW

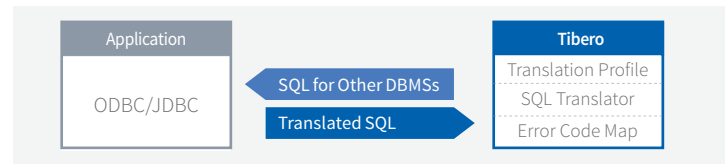


## Tibero provides compatibility without modifying applications

- An existing database can be migrated or used concurrently with Tibero
- Improved compatibility with Windows

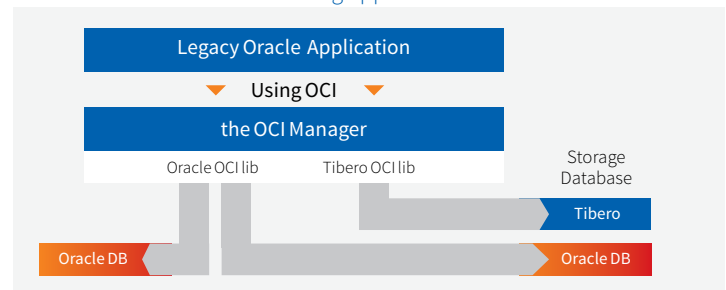
### Existing SQL Automatic Translation

Applications written for other DBMSs can be used in Tibero without modification.



### Oracle Compatibility

Tibero can be used for the existing applications that use Oracle OCI\*



### Windows Compatibility

ODP.NET compatibility

\*OCI: A non-standard internal interface used only by Oracle



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