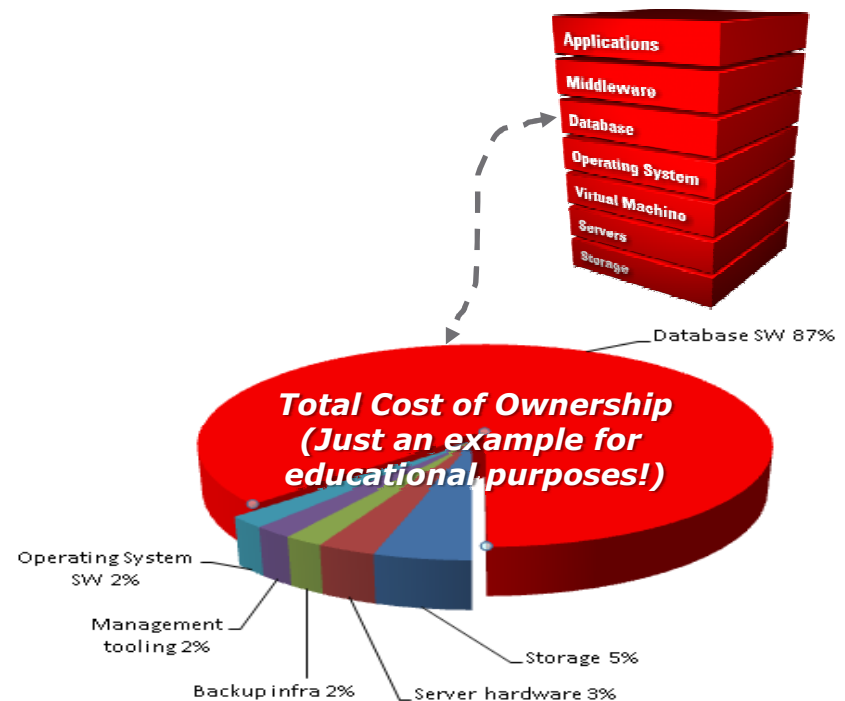# Database replatforming: Goals

1. *Maximize use of license investment*

2. Maintain or (better even) improve performance

3. Reduce downtime / increase SLAs

4. Avoid Vendor lock-in

5. Simplify server & storage refresh cycles

6. Speed up provisioning of new databases

7. Improve security, compliance and auditing

8. Simplify management

EMC²

# Why look at licensing?

- Oracle DB licensing is expensive
  - Midsize server:
    HW ~ $ 50,000
    SW ~ $ 483,000 @ 50% discount
    5Y maintenance ~ $531,000
    (Enterprise Ed + basic options)

- Large part of the TCO of a database infrastructure stack

Applications
Middleware
Database
Operating System
Virtual Machine
Servers
Storage

Database SW 87%

*Total Cost of Ownership (Just an example for educational purposes!)*

Operating System SW 2%

Management tooling 2%

Backup infra 2%

Server hardware 3%

Storage 5%

**If we can save 10% on db licenses...**
**We easily justified 50% more expensive infrastructure**

EMC²

# Validation: Wikibon Research



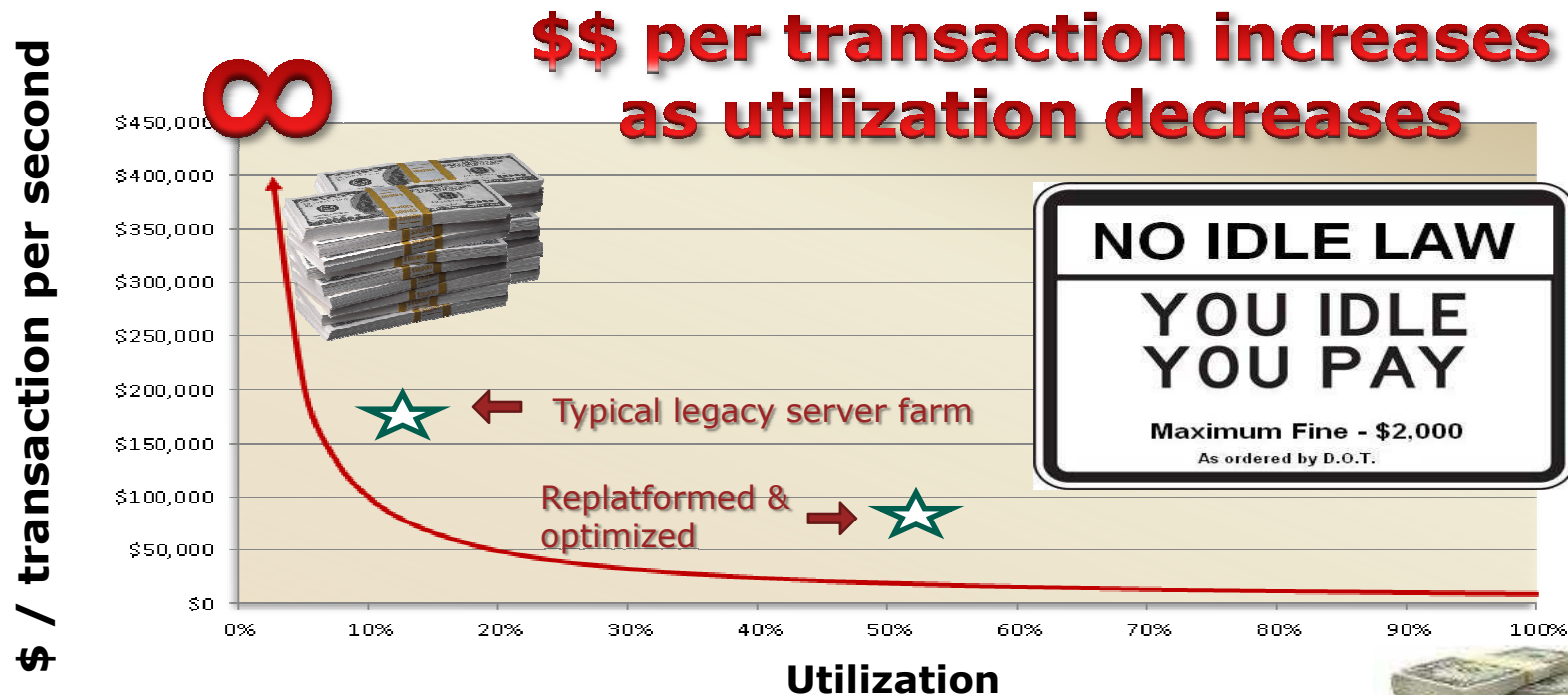**Cost of Typical Traditional Database System Deployment ($/Core, Total Cost $27,716)**

- 3-year Other Maintenance (18%/year), $1,702 , 6%
- Server with Standard Memory, $1,000 , 4%
- Infrastructure Software, $1,000 , 4%
- Primary Storage (20TB), $652 , 2%
- Other Storage (backup, etc.), $500 , 2%
- 2.5-years DB Maintenance (22% List Price/year), $8,113 , 29%
- Oracle Database Enterprise Edition with Partitioning, $14,750 , 53%

**Traditional Database License is 82% of Total System Cost**

*Source: © Wikibon April 2013 - See Table 1 & 2 in Footnotes for Detailed Calculations & Assumptions*

Wikibon Article: Virtualization of Oracle Evolves to Best Practice for Production Systems

# Transaction cost vs. utilization

**$$ per transaction increases as utilization decreases**

∞

**$ / transaction per second** (y-axis)

- $450,000
- $400,000
- $350,000
- $300,000
- $250,000
- $200,000
- $150,000
- $100,000
- $50,000
- $0

← Typical legacy server farm

Replatformed & optimized →

**Utilization** (x-axis): 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%

**NO IDLE LAW**

**YOU IDLE YOU PAY**

Maximum Fine - $2,000
As ordered by D.O.T.

Cost per TPS for a four-node Oracle RAC 11*g* cluster running EE
Software license cost: around $2,200,000
TPS: Around 4,000 at peak utilization

EMC²

**Production**

**Test, Dev, Q&A, R&D, legacy**
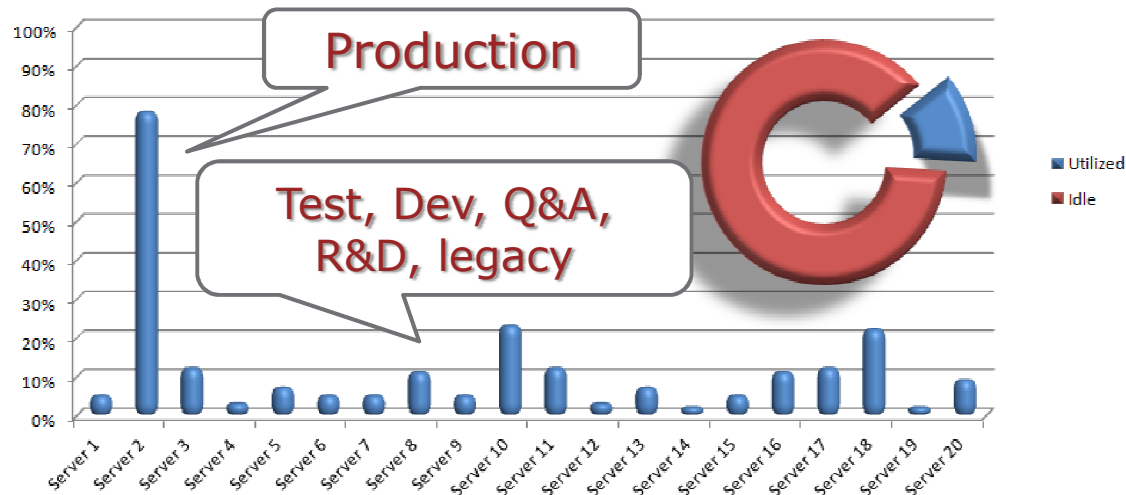
Typical legacy database server farm:

• Physically deployed
• Oversized
• Outdated platforms
• Very poor CPU utilization
• IO & CPU bottlenecks
• Servers running mix of:
    - Apps, middleware & DB
    - Tooling
    - Replication & Backup
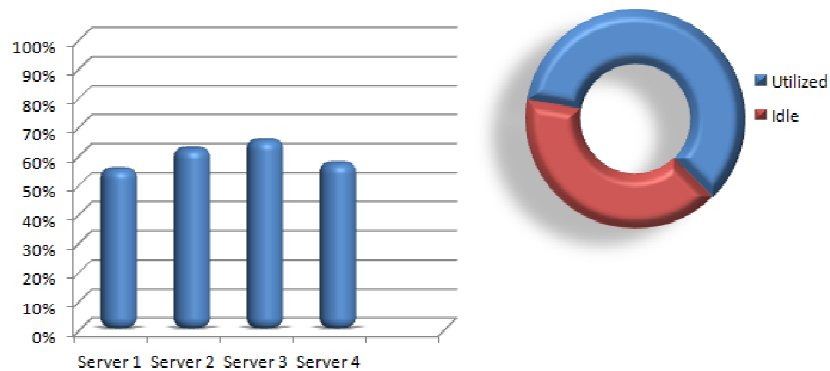
Optimized database server farm:

• Virtualized
• Significantly less CPUs on Modern HW
• High average CPU utilization
• No I/O bottlenecks
• Sized correctly
• Servers running ONLY Oracle
• Minimal required licenses & options

# 5 steps to TCO reduction

Getting the best Return on Investment

1. Replatform for lowest $ / transaction
   – And eliminate I/O problems, backup, etc → **EMC²**

2. Virtualize servers to drive up CPU utilization

3. Remove unnecessary licensed options
   – Or go to different license model (i.e. Standard Edition)

4. Only run DB transactions on licensed CPU

5. Re-negotiate license contracts → **Madora Consulting**
   – Suspend maintenance, etc
   – Avoid non-compliance, audits, support issues, …

**EMC²**

# TCO reduction - other considerations

1. Virtualize servers - beware spreading Oracle indiscriminately across clusters
2. Try Standard Edition
3. Keep Oracle separate from other products
4. Analyse maintenance contracts
5. Consider Software Asset Management Programme to avoid non-compliance, audits and uninvited visits from Oracle