

# The Oracle Advantage

Why "NOLOCK" is an Anti-Pattern in Oracle Database





# Part I

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## The Burden of Legacy Engines



# Common Concurrency Struggles

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## Shared Locks (S-Locks)

In many databases, reading a row requires a Shared Lock. If a writer is holding an Exclusive Lock (X-Lock), the reader must wait, causing application-wide bottlenecks.



## Lock Escalation

When too many row-level locks are acquired, engines like SQL Server may escalate to a Table Lock, completely freezing operations for all other users.

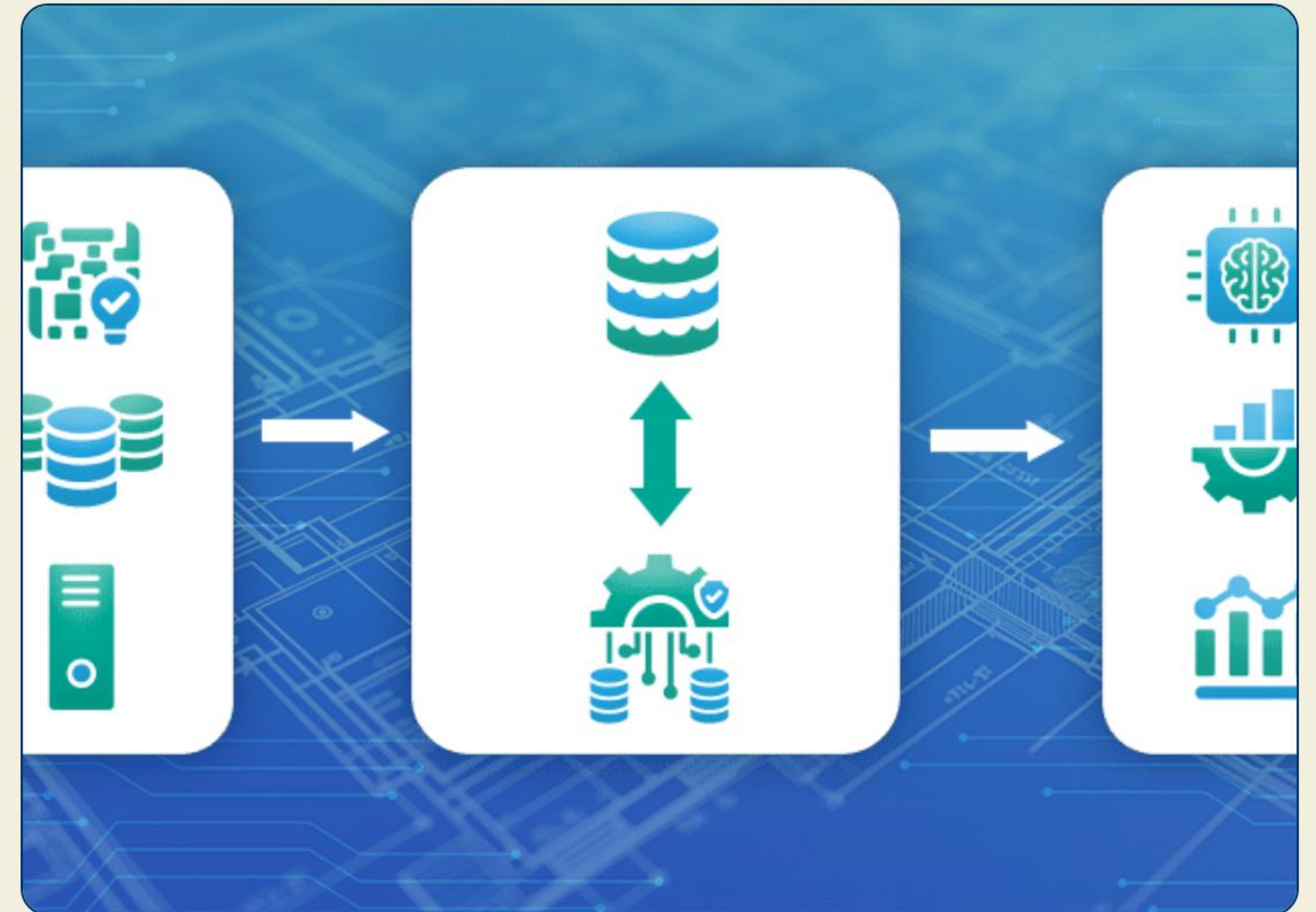


# The Solution: MVCC Engine

## Multi-Version Concurrency

Oracle utilizes **Multi-Version Concurrency Control** to manage simultaneous access. Instead of blocking access to a row being modified, Oracle maintains multiple versions of the data.

- ✓ Readers never wait for Writers
- ✓ Writers never wait for Readers
- ✓ Consistent data without locking overhead





# The Undo Secret

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## Undo Segments

When a writer modifies data, the original version is copied to the **Undo Tablespace**. If a reader queries that row before the commit, Oracle transparently retrieves the "before image" from Undo.

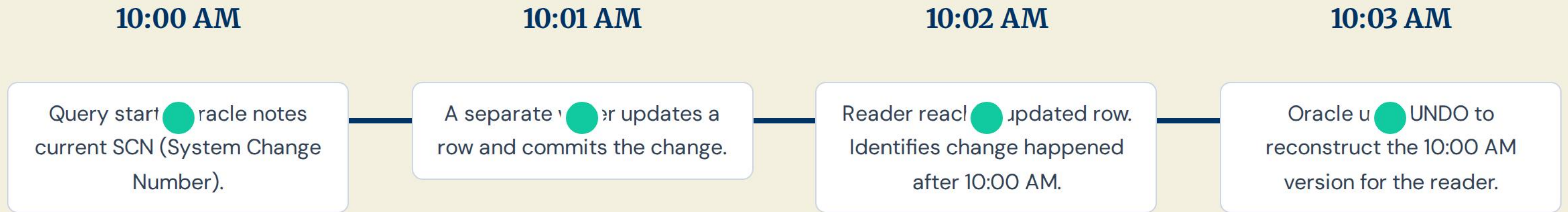
This architectural decision is what makes manual NOLOCK hints redundant and technically impossible to implement in Oracle.





# Read Consistency Flow

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# Architecture Comparison

| Feature          | Legacy (SQL Server / MySQL) | Oracle Database           |
|------------------|-----------------------------|---------------------------|
| Default Behavior | Readers blocked by Writers  | Never Blocked             |
| Isolation Method | Locks (Shared/Exclusive)    | MVCC & Undo Segments      |
| Dirty Reads      | Allowed via NOLOCK (Risky)  | Impossible                |
| Lock Storage     | Lock Manager (Memory)       | In Data Block (Scale-out) |



# Performance Benchmark

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100%

**ZERO READER BLOCKING**

## Scalability Without Limits

In high-concurrency environments, Oracle's throughput remains linear. Because readers do not compete for locks, the cost of a "read" remains constant regardless of how many writers are active on the same table.

**Zero configuration needed. Zero hints required.**



# The Dangers of NOLOCK

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**Dirty Reads:** Reading uncommitted data that might eventually roll back. This results in "ghost data" that never truly existed.



**Inconsistent Results:** Reports running on NOLOCK can double-count or miss rows that moved between data pages during a split.

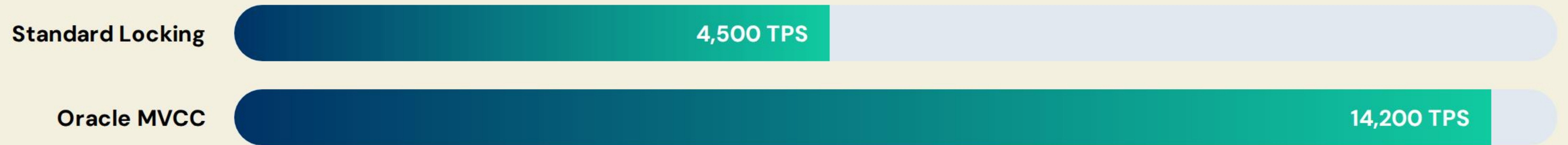


**Developer Overhead:** Forcing developers to manually manage hints creates technical debt and brittle codebases.



# Throughput Scalability

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*Transactions Per Second (TPS) as user sessions increase from 10 to 500.*



# The Verdict

"In Oracle, read-consistency is not a feature you turn on; it is an architectural fundamental that cannot be turned off."

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Stop adding hints. Trust the engine.



# Q & A

Thank you for your time.

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# Image Sources

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[https://media.istockphoto.com/id/2183037647/photo/modern-server-room.jpg?s=612x612&w=0&k=20&c=a5pXttyAq\\_uuvXTn\\_5OaZs8o9WI3LynizmoEq7Muel8=](https://media.istockphoto.com/id/2183037647/photo/modern-server-room.jpg?s=612x612&w=0&k=20&c=a5pXttyAq_uuvXTn_5OaZs8o9WI3LynizmoEq7Muel8=)

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