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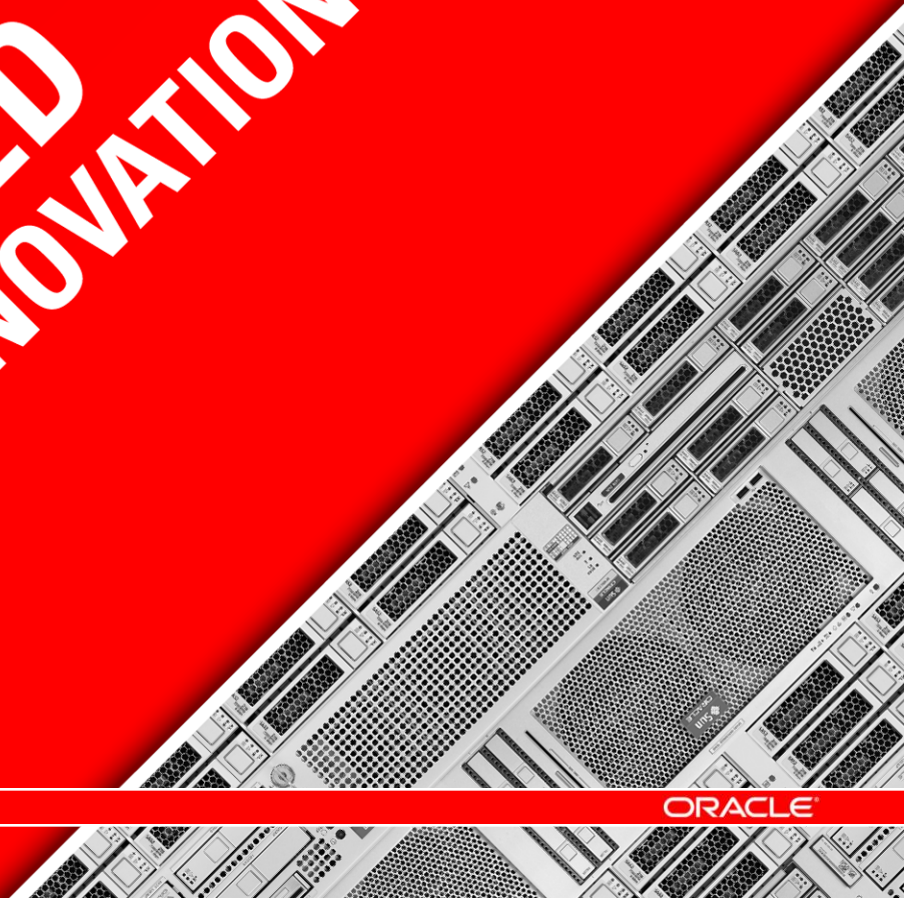
Introducing the New Thin Oracle Data Provider For .NET

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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.

Program Agenda

- **Current ODP.NET Architecture**
- Managed ODP.NET Introduction
- Managed ODP.NET Deployment
- Migrating to Managed ODP.NET
- Timelines and Future Directions



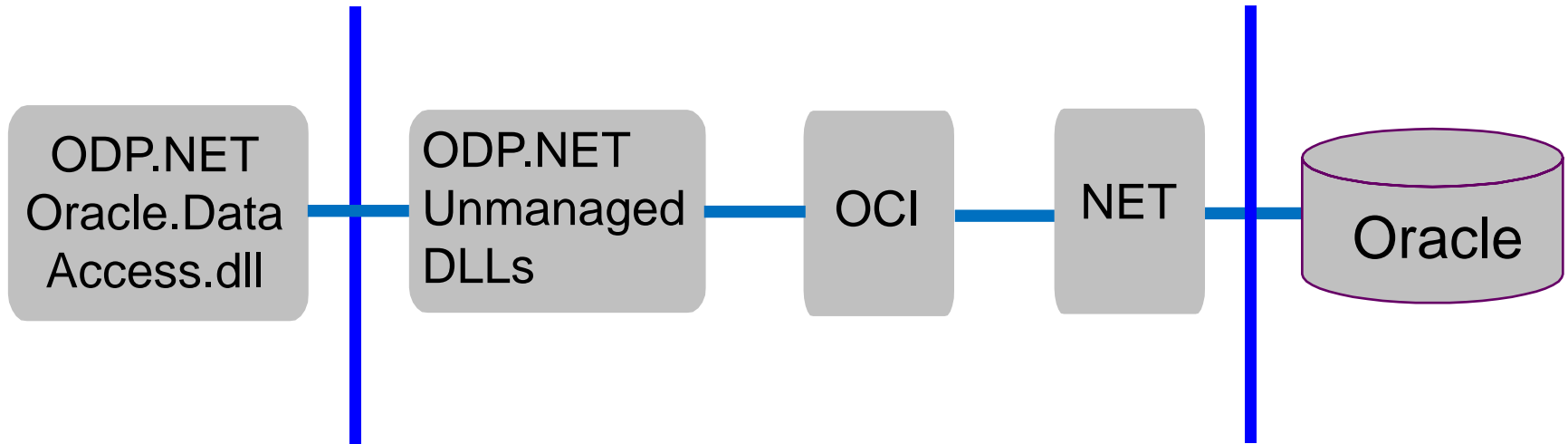
Current ODP.NET Architecture

Managed and Unmanaged

Managed

Unmanaged

Database



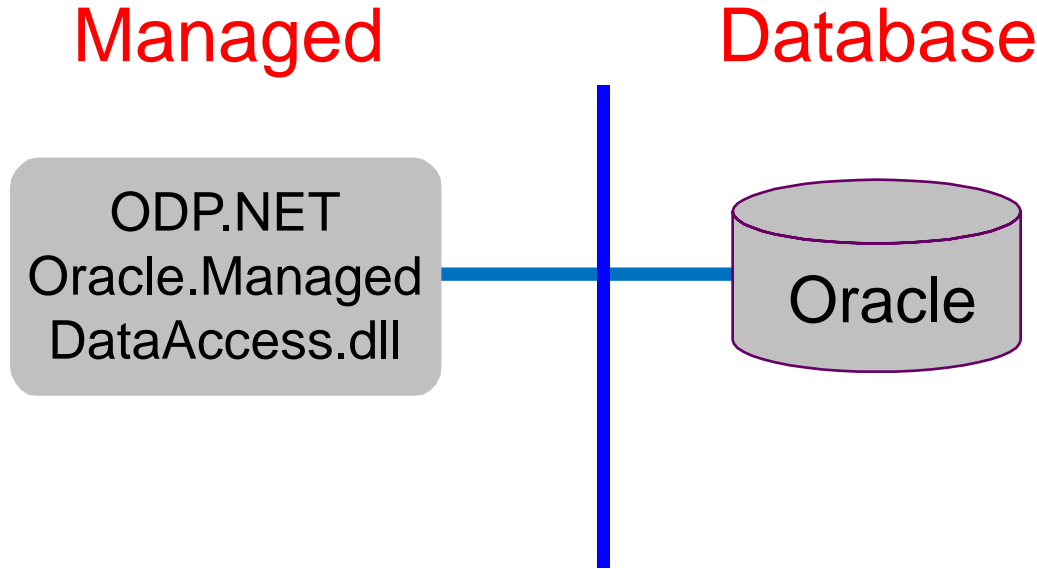
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Forthcoming ODP.NET Architecture

Fully Managed



Managed ODP.NET

- 100% managed provider
- Namespaces
 - Oracle.ManagedDataAccess.Client
 - Oracle.ManagedDataAccess.Types
- Assembly
 - Oracle.ManagedDataAccess.dll

Managed ODP.NET

- 32-bit and x64 Windows
 - .NET Framework 4 and higher only
 - Visual Studio 2010
- Installable via OUI and xcopy
- Supports Oracle DB 10.2 and higher
- Can be deployed side by side
 - With unmanaged ODP.NET
 - With managed ODP.NET



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D E M O N S T R A T I O N

**Hello (Managed)
World**

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Managed ODP.NET Features

- Standard ADO.NET provider objects, methods, and properties
- Visual Studio drag and drop code generation
 - Oracle Developer Tools for Visual Studio
- Full SQL or PL/SQL
- Connection pooling features
 - Min, Max, Timeout, Lifetime, Increment, Decrement
 - Automatic RAC Load Balancing and Fast Connection Failover
 - Performance counters

Managed ODP.NET Features

- Entity Framework
- Native Oracle data types
 - REF Cursor, LOBs, Date, String, Decimal, Binary, TimeStamp, etc.
 - SecureFiles/LOB and LONG retrieval APIs
 - Oracle data types in DataSet
- Multiple Active Result Sets
- Self-tuning

Managed ODP.NET Features

- Security and auditing
 - Proxy authentication
 - Operating system authentication
 - End-to-end tracing with Client Id, Action, and Module
- Distributed transactions
 - Oracle Services for Microsoft Transaction Server
 - Managed: Enlist and commit
 - Unmanaged: Recovery

Managed ODP.NET vs. Unmanaged ODP.NET

Features Unavailable in First Release

- User defined types
- Oracle-specific XML features and data types
- Advanced Queuing
- Client Result Cache
- ...

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Managed ODP.NET Deployment Concepts

- Option 1: single configuration file deployment
 - .NET config file contains TNS and sqlnet.ora settings
 - Machine.config, web.config, app.config
- Option 2: multi-file configuration
 - .NET config file
 - Tnsnames.ora
- No sqlnet.ora
- No Windows Registry settings

Managed ODP.NET Deployment Concepts

- .NET config file
 - Same attribute settings plus TNS and sqlnet.ora settings
 - Child element to <configuration> is TBD
- Tnsnames.ora
 - Same attribute settings



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Managed ODP.NET ClickOnce

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Unmanaged to Managed Migration

- Application migration process
 - 1. Replace Oracle.ManagedDataAccess.dll reference to project
 - 2. Modify namespace(s) to Managed ODP.NET
 - 3. Change .NET config settings for Managed ODP.NET
 - Include sqlnet.ora settings
- Managed ODP.NET APIs same as ODP.NET APIs
 - Initially, Managed ODP.NET will not support all ODP.NET features
 - Plan is eventual feature parity



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Porting to Managed ODP.NET

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**Side by Side:
Managed and
Unmanaged**

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Managed ODP.NET vs. Unmanaged ODP.NET

Advantages

- Easier side by side deployment
- Deploy smaller and fewer binaries
 - Before: 150 MB
 - After: 1 MB
- Easier patching process
- Fully integrated with Code Access Security

Managed ODP.NET vs. Unmanaged ODP.NET

Disadvantages

- Less functionality currently available
- Faster release to customers
- Oracle Developer Tools for Visual Studio requires unmanaged ODP.NET

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Managed ODP.NET Release Timeline

- Public beta 1 on OTN
 - Late 2011 or early 2012
- Release more public betas
 - Depends on customer feedback and additional features
- Production release
 - End of 2012

Managed ODP.NET Future Directions

- Feature parity with ODP.NET
 - Will occur over time
- Support new .NET Framework versions
 - .NET Framework
- Support new Oracle ADO.NET features
- Support new Oracle Database Client features

More Oracle .NET Resources

- OTN .NET Developer Center
 - <http://otn.oracle.com/dotnet>
- For more questions or to join the beta program
 - alex.keh@oracle.com

Q&A

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Hardware and Software

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