# Oracle Coherence & Extreme Transaction Processing (XTP)

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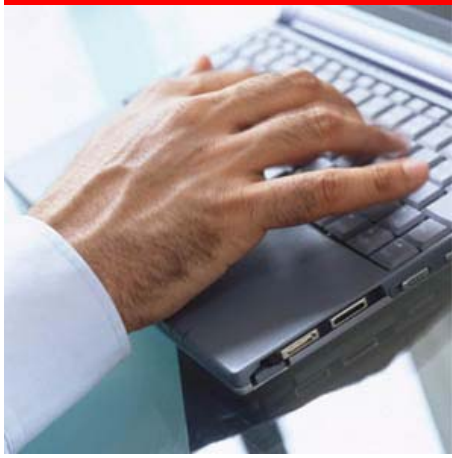
Oracle Coherence – Solution Specialist

# Extreme Transaction Processing



- What is XTP?
- Introduction to Oracle Coherence
- Coherence Technical Overview

# XTP Defined

*An application style aimed at supporting secure, large-scale, high-performing transactions across a distributed environment on commodity hardware and software*

Gartner Group

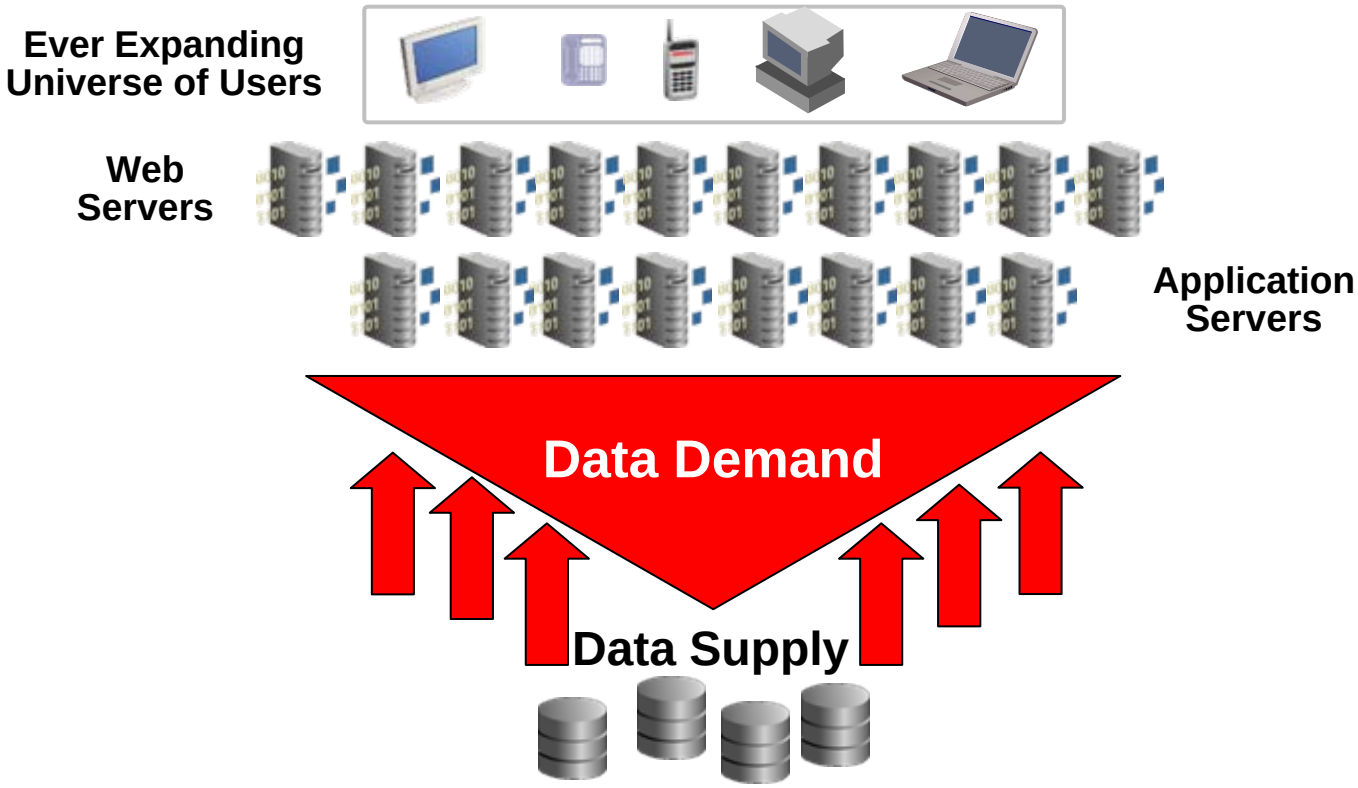
# XTP & Oracle Coherence

Coherence was designed for:

- Brokering supply and demand of data and processing capacity between the application tier and backend data sources
- Massive scale out of the middle tier
- Reliable transaction processing at any load
- Continuous availability to ensure business continuity

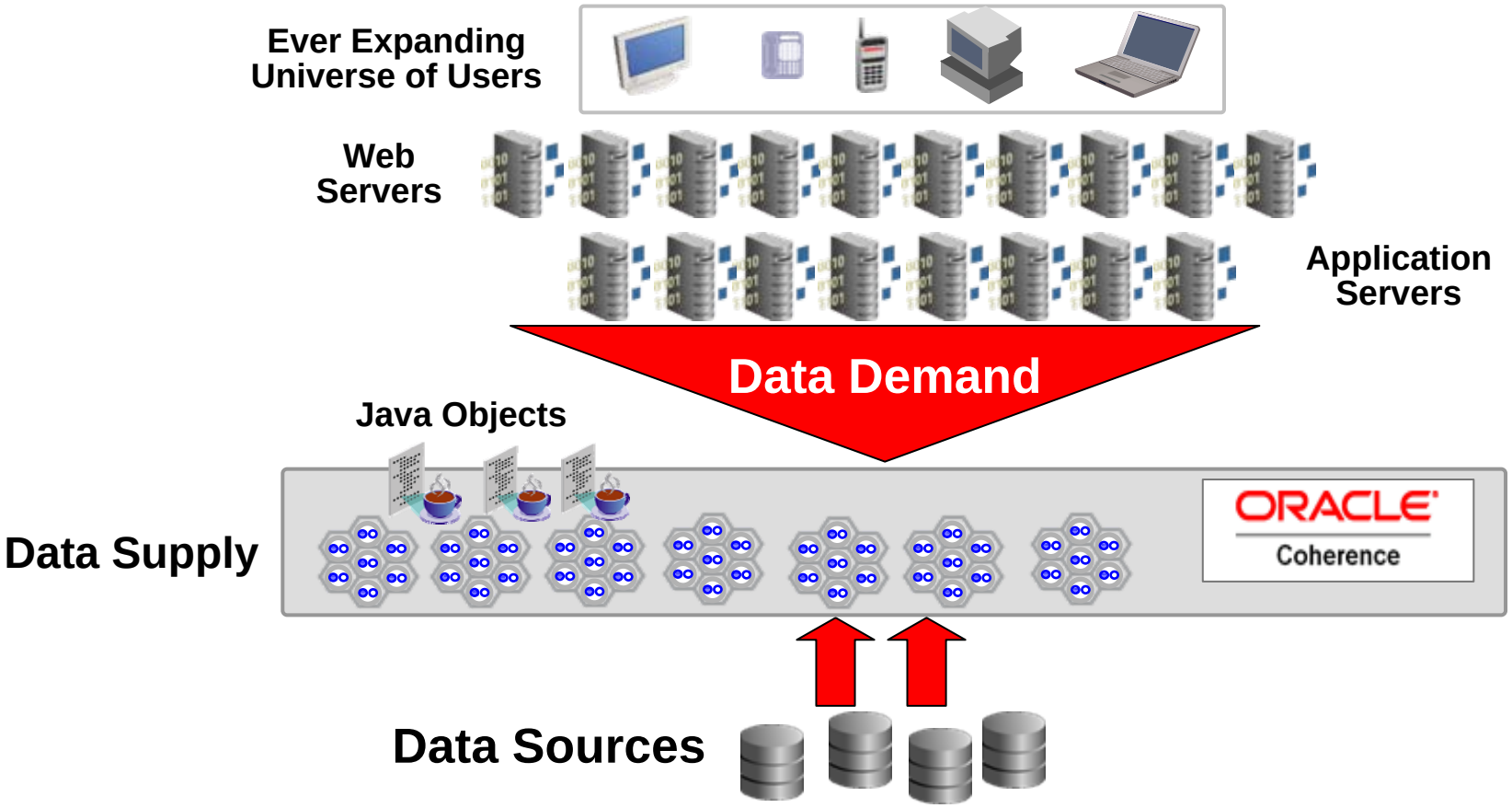
# Oracle Extreme Transaction Processing (XTP)

- Data Demand outpacing Data Supply
- Rate of growth outpacing ability to cost effectively scale applications

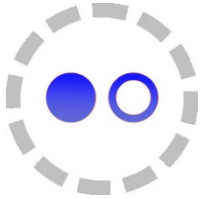


# Oracle Extreme Transaction Processing (XTP)

- Oracle Coherence brokers Data Supply with Data Demand
- Scale out Data Grid in middle tier using commodity hardware



# Data Grid Uses



**Caching**

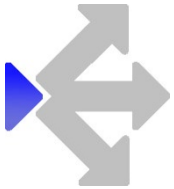
Applications request data from the Data Grid rather than backend data sources

**Analytics**

Applications ask the Data Grid questions from simple queries to advanced scenario modeling

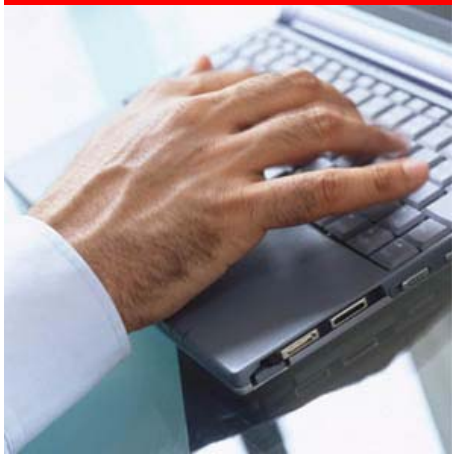
**Transactions**

Data Grid acts as a transactional System of Record, hosting data and business logic



**Events**

Automated processing based on event



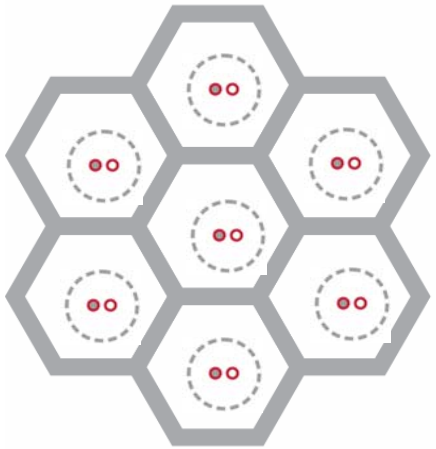
# Oracle Coherence Technical Overview

# Architectural Integration Approaches

- Architect Solutions with Coherence
  - Simple Java programming API for J2EE
  - .NET integration using C#
  - Read-Through / Write-Through / Write-Behind or Cache Aside
- Plug into Existing Applications
  - Hibernate/TopLink Integration
  - Session state scaling with Coherence Web
    - .NET or Java EE session state
- Pluggable Integration with Oracle (roadmap)
  - SOA Suite
  - WebCenter
  - Business Intelligence
  - Content Management
  - …

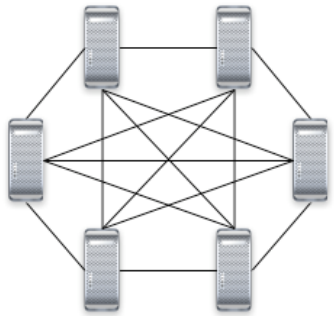
# Universal Access & Management

- All data in the Data Grid is accessible from any single node
  - Single System Image = Simple programming paradigm
  - Automatic data partitioning and redundancy
- Optimizes data locality in Grid based on usage or access
  - Move state or behavior
- Parallelizes data loading, data queries, data managed in grid
- Database integration
  - Blocking write-through  (Synchronous)
  - Reliable write-behind (Asynchronous)



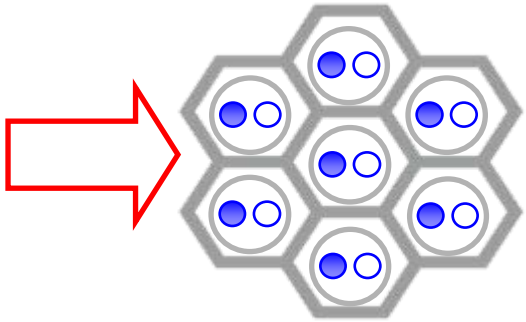
# Coherence: A Unique Approach

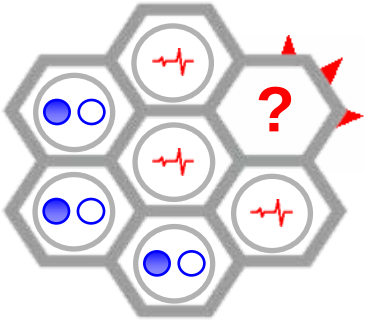
- In Coherence…
  - Members **share** responsibilities (health, services, data…)
  - Completely Peer-to-Peer
  - No Single Points of Bottleneck (SPOBs)
  - No Single Points of Failure (SPOFs)
  - Linearly scalable to thousands of servers by design
- Servers form a full “mesh”
  - No Masters / Slaves etc.
  - Data Grid members work together as a team
  - Communication is almost always point-to-point
    - Designed for commodity switched infrastructures
    - Scalable throughput up to the limit of the backplane



# How Does Oracle Coherence Data Grid Work?

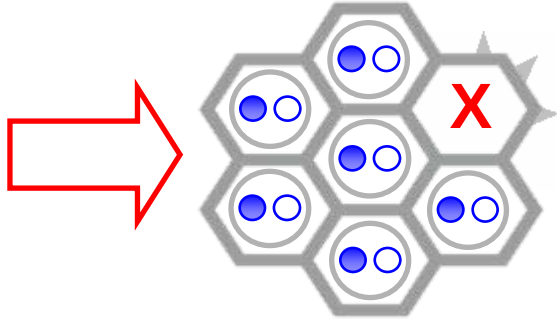
- Data load-balanced in-memory across a cluster of servers
- Data automatically and synchronously replicated to at least one other server for continuous availability
- Single System Image: Logical view of all data on all servers






- Servers monitor the health of each other
- In the event a server fails or is unhealthy, other servers cooperatively diagnose the state

- The healthy servers immediately assume the responsibilities of the failed server
- Continuous Operation: No interruption of service or loss of data due when a server fails



# Additional Features

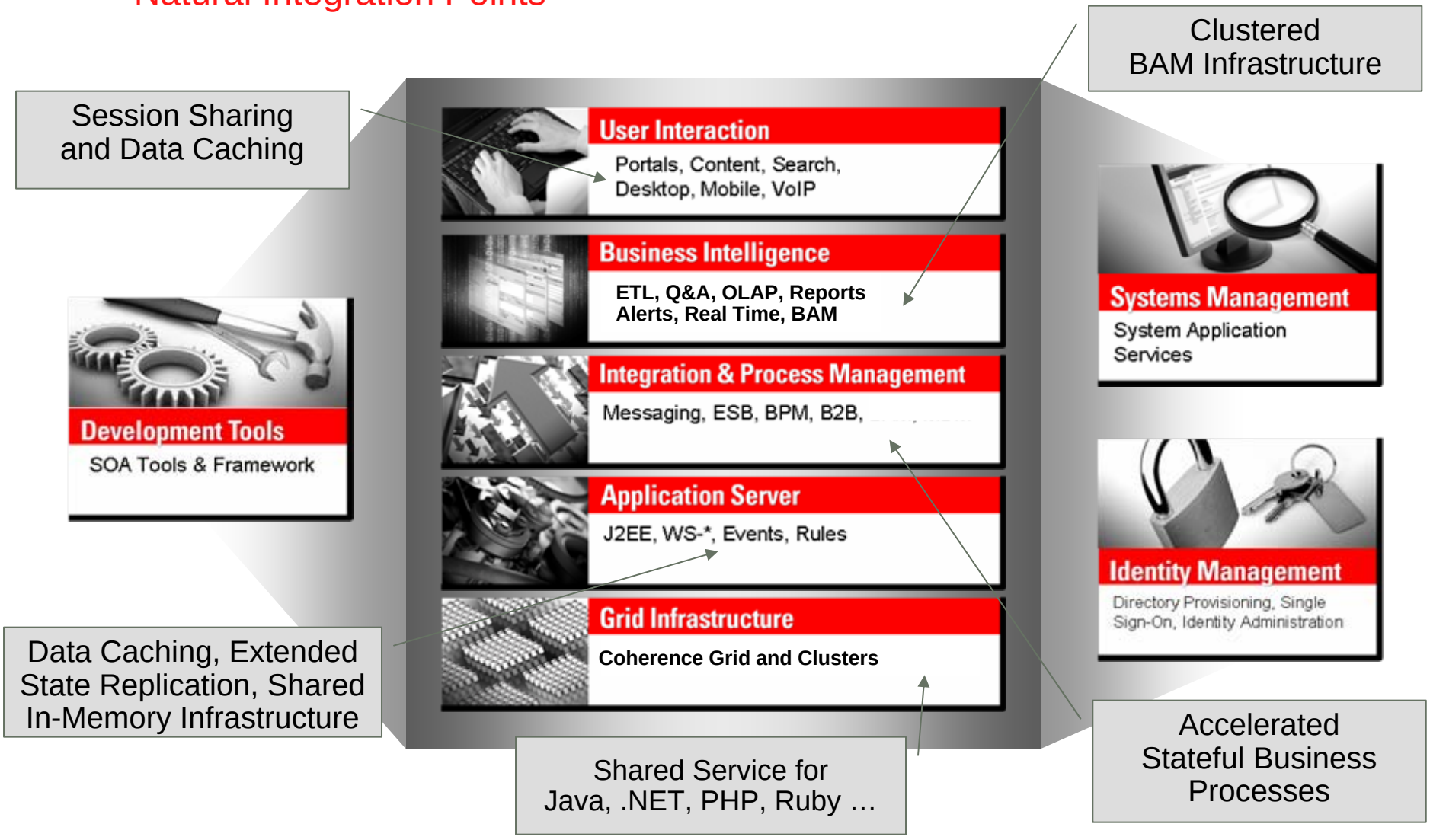
- Database integration – Cache-through data access
- Parallel Query including continuous query
- Distributed data processing (move processing to the data) EntryProcessors and Aggregators
- Cluster-wide event notification
- Clustered management and monitoring framework (JMX)
- Native .NET support includes ability to share data between Java and .NET apps
- Security Framework

# Coherence*Extend

- Supports “fat client” real-time applications such as trading desks, as well as other server tiers
- Provides near caching capability within “fat client” app, and other server tiers connected to the cluster remotely (through firewall)
- Multi-site data replication for business continuity
- Connection to the cluster is over TCP
- Continuous query can be used to maintain real-time query results on the desktop!

# Oracle Fusion Middleware

## Natural Integration Points



# Oracle Coherence broad integration

- **Hot pluggable**
  - Broad support for leading App Servers: Oracle Websphere, Weblogic JBoss, Sun, ect…
- **Helps any back end DB environment**
  - Oracle, Sybase, DB2, SQL Server
- **Any vertical, Any application**
  - (Java, .NET, soon C++) that needs **Predictable Scalability**

# Oracle Coherence  Advantage

- **Protect the Database Investment**
  - Ensure DB does what it does best, limit cost of re-architecture
- **Scale as you Grow**
  - Cost effective: Start small with 3-5 servers, scale to hundreds of servers as business grows
- **Enables business continuity**
  - Providing continuous data availability


QUESTIONS
ANSWERS