Konsolidacija podatkov v oblaku znotraj organizacije

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Oracle
Deployment Models: Private, Public, Hybrid

- **Private Cloud**
  - CapEx & OpEx
  - Control & visibility
  - Not shared

- **Hybrid Cloud**
  - Cloudbursting – overdraft for peak loads
  - Dev/Test & production
  - B2B integration

- **Public Cloud**
  - OpEx
  - Outsourced services
  - Shared by multiple orgs

Exclusive

Shared by multiple organizations
Service Types: IaaS, PaaS, SaaS

Different Users
- IT Professional
- Developer
- Business End User

Key Driver
- Consoliation: Cost Savings
- App Development: Focus
- New Capability: Speed

Service Types:
- IaaS Cloud
- PaaS Cloud
- SaaS Cloud

Consumer
Service Provider
Consolidation at PaaS and IaaS Layers

Consolidate onto standard, shared and elastically scalable PaaS

- Standardized PaaS for all applications reduces heterogeneity, cost and complexity
- Accelerated new application development
- Cost savings from less hardware, power and data center space

Consolidate onto shared IaaS without standardization

- Software stack heterogeneity, cost and complexity persists
- No administration (O&M) cost savings
- Cost savings from less hardware, power and data center space

• Cost savings from less hardware, power and data center space
• Software stack heterogeneity, cost and complexity persists
• No administration (O&M) cost savings
What Are Customers Doing?
Cloud Adoption Is Rising

PaaS Outpacing IaaS

Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)

Private PaaS Examples

**Credit Suisse**
- **Solution:**
  - JAP – Java Application Platform
  - DHP – Database Hosting Platform
  - CHP – Compute Hosting Platform
  - Centralized deployment of 200+ apps
  - Oracle:
    - WebLogic Server 10.3
    - Oracle Database 11g
    - Solaris
    - Sun M-Series/T-Series
- **Benefits:**
  - 35% reduction in operating costs
  - 30% reduction in project costs
  - 44% power consumption avoided in 4 years, while doubling capacity
  - No downtime incidents in 3 years

**Commonwealth Bank**
- **Solution:**
  - “Oracle as a Service” PaaS
  - Consolidate 300 small to medium database environments onto 3 grids
  - Advanced chargeback model for cost recovery
  - Oracle:
    - Oracle Database 11g
    - Exadata
- **Benefits:**
  - 50% operating cost improvement
  - P&L breakeven in Year 1
  - Server utilization: 15% → 80%
  - Elasticity – CPU can be taken from resource pool as needed
  - Operational Stability HA,DR
  - Customer Service

**Deutsche Bank**
- **Solution**
  - Oracle Database as a Service (PaaS) with eGRID
  - Consolidation of >60 applications until now on a standardised platform
  - Standardised environment, process and pricing
  - Attractive price model with very low time to market
- **Benefits**
  - Very fast deployment
  - Very good performance (> increase in all areas)
  - Cost reduction of > 50%
  - GREEN IT: 57% fewer power used
Texas Department of Information Resources (DIR)
Data Center Services – Cloud Consolidation

- The Texas Department of Information Resources (DIR) provides statewide leadership and oversight for management of government information. Supports 125 agencies and 45 education organizations.

- One of its leading programs is the Data Center Services program, which was launched to rationalize and consolidate tens of thousands of information systems throughout the state. The program focuses on shared services and shared platforms based on engineered systems.

- In 2005, the state passed legislation mandating that 28 of the largest agencies in Texas could no longer purchase their own IT.

- In 2007, DIR began to consolidate the 28 largest state agencies into two state data centers.

- In 2010 DIR reposted the DCS contract and began looking for new technology partners. Oracle with Xerox and CapGemini created a design of a private cloud based on engineered systems.

- In September 2011, DIR established a twelve-month pilot-project with three of its customers: the Office of the Secretary of State, the Texas Water Development Board, and the Texas Department of Transportation. The pilot went well, encouraging other agencies to join.
Texas Department of Information Resources (DIR)
Data Center Services – Cloud Consolidation

- In 2012 numerous agencies have signed up to use DIR’s Exadata-based cloud services including the Texas Education Agency, Department of Assistive and Rehabilitative Services, Department of Family Protective Services, Texas Department of Insurance and the Department of Public Safety. In 2013 the doors will be opened to all of the other agencies to join.

- The Texas cloud architecture supports the five essential capabilities defined in the National Institute of Standards and Technology (NIST) cloud reference architecture:
  1. On-demand self-service
  2. Broad network access
  3. Resource pooling
  4. Rapid elasticity
  5. Measured service

- The chargeback model permits state agencies to consume cloud services on a “pay-as-you-go” basis.
Texas Department of Information Resources (DIR)

Services offered

Working with representatives from DIR, Xerox and key stakeholders within state agencies, they identified key cloud services that would be offered, including the following:

1. Database-as-a-Service
2. PeopleSoft-as-a-Service
3. UNIX-as-a-Service
4. Identity-as-a-Service
5. GIS-as-a-Service
6. Infrastructure-as-a-Service

<table>
<thead>
<tr>
<th>Service Level</th>
<th>DB H/A</th>
<th>Business Continuity</th>
<th>Storage</th>
<th>Backup</th>
<th>DR</th>
<th>Outage RTO (estimate)</th>
<th>DR RTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze</td>
<td>Single Node (Primary Site)</td>
<td>N/A</td>
<td>NoMirror</td>
<td>Tape</td>
<td>D4-D3</td>
<td>48 Hr Max</td>
<td>+72 Hr</td>
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<tr>
<td>Silver</td>
<td>Dual-node RAC (Primary Site)</td>
<td>N/A</td>
<td>Mirror</td>
<td>Tape</td>
<td>D4-D2</td>
<td>24 Hr Max</td>
<td>+24 Hr</td>
</tr>
<tr>
<td>Gold</td>
<td>Dual-node RAC (Primary Site)</td>
<td>50% Capacity (Geo Site)</td>
<td>Multi-cell mirror at both data centers</td>
<td>RepStorage</td>
<td>D4-D0</td>
<td>8 Hr Max</td>
<td>+8 Hr</td>
</tr>
</tbody>
</table>
Texas Department of Information Resources (DIR)

High level architecture

[Diagram showing the Texas Cloud Marketplace with connections to various services and data centers including State Consolidated Data Center, Agency Data Centers, Oracle, AT&T, Dedicated Public Clouds, Public Clouds, and others.]
Cost Recovery Model

IT Services Consumer → Cloud Services

Software as a Service → Business Metrics
Platform as a Service → Technology Metrics
Infra as a Service → Operations Metrics

Consumption Metrics

Business Metrics → System Utilization
Technology Metrics → Facilities Utilization
Operations Metrics → Environmental Utilization

Cost Recovery Criteria

Service Bundle A
Service Bundle B
Service Bundle C

Invoice

Operations Labor
Professional Services
Other Labor
Breakeven At 10% Adoption

Potential 5-Yr Benefits

- Net Present Value
  - $0
  - $1
- Reduce Storage Costs
  - $0
  - $1
- Reduce Server Costs
  - $0
  - $0

Assumptions
- # of Databases Located Outside of Consolidated Data Center - 800
- 10% Of Potential Databases (80) Needed For Breakeven
- 100% Adoption Based In Year 1
- Need First Tenant With 40 cores and 10 TB of Oracle
Texas Department of Information Resources (DIR)

Solution Components

Texas DIR Transformer
Solution Components

Infrastructure: Exadata & Exalogic

Business & Technical Service Catalog
- DB-aas / DW-aas
- GIS-aas
- Platform-aas
- Professional Services
- Security-aas / SICAM

IT Service Management

DIR Private Cloud
- Database-as-a-Service
- Data Warehouse-as-a-Service
- Platform-as-a-Service
- GIS-as-a-Service
- SICAM-as-a-Service

Service Catalog

Infrastrucure

Business Support Systems
- Exadata
- Exalogic
- Database + Options
- Fusion Middleware
- Enterprise Manager
- Oracle Virtual Machine

IT Support Systems
- Procurement
- Professional Services Planning
- Backup
- Patching & Tuning
- Installation & Configuration
- Access Control & Logging

ITSM
Monitoring & Securing Clouds
Oracle Enterprise Manager 12c
Full Cloud Lifecycle Management for Full Cloud Stack

1. Plan & Setup the Cloud
   • Capacity & consolidation planning
   • Asset discovery
   • Bare-metal provisioning
   • Policy setup

2. Build, Test & Deploy Apps on the Cloud
   • Packaging apps as assemblies
   • Testing applications
   • Self-service provisioning

3. Manage & Monitor the Cloud
   • Auto-scaling
   • Full stack management
   • End-user, business-level, app monitoring

4. Meter, Charge, Optimize
   • Metering resource utilization
   • Chargeback/Showback
   • Optimize performance, capacity, QoS
Cloud Security
Securing the Cloud Inside Out

- **End-to-End Protection**
  - From Applications to Disk

- **Complete Choice**
  - Open, Standards-based

- **Best of Breed**
  - Integrated and Integratable
Summary
Database As A Service (PaaS)

Core Capabilities

**Self-Service**
End-users can provision, monitor and manage for greater agility

**Service Catalog**
Standardized database services for rapid, error-free deployment

**Metering**
Allows chargeback or showback for cost allocation

**Elasticity**
Support dynamic workloads with minimal excess capacity

**Security**
Defense in depth exceeds organization, industry, and regional requirements

**High Availability**
Reliability through redundancy

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**Did You Know?** 73% of organizations cite reliability as the most important factor in selecting a cloud partner.

*PC Connection, 2013 Outlook on Technology Study*
Evolution to a Private Database Cloud

**Traditional DB Silos**
- Physical
- Dedicated & heterogeneous
- Static with disconnected analytics

**Standardized DB Platform**
- Standardized hardware and software stack
- Standard deployment configuration
- Catalog of database services and service levels

**Optimized DB Platform**
- Shared & secure central data infrastructure
- Dynamic optimizations & resource mgmt
- Automated systems management

**Private Database Cloud Platform**
- On-demand, resilient, and tiered self-service
- Rapid service elasticity and automation
- Metering, automated cost allocation & chargeback

**Hybrid Cloud Platform**
- Fully dynamic and unified resource pools
- IT as cloud broker: arbitration and brokerage
- Secure hybrid cloud integration (vendors, partners, etc.)

**Maturity & Capability**
Hardware and Software
Engineered to Work Together