Why Security and Compliance need Identity

J. Alberto Yépez
Vice President
Oracle Corporation
Agenda

• About Oracle
• Compliance and Information Trends
• Oracle Strategy
• Differentiation
Louis Vuitton Cup
32nd America’s Cup

• Flight 9 – Match 4
• Date: Monday, May 5th, 2007

• Winner: BMW Oracle Racing
• Total elapsed time 01:24:42
Oracle Corporation

• One of the largest enterprise software vendor
• $14.8 Billion revenue, FY06
• 275,000+ global customers
• >220,000 database customers
• 30,000 middleware customers
• 68,000+ employees; 7,000+ support personnel
• 19,000+ partners
• 9,000+ Independent Software Vendors (ISVs)
• Operating in 145 Countries
Strategic Acquisitions

<table>
<thead>
<tr>
<th>Applications 2005</th>
<th>Database 2005</th>
<th>Middleware &lt;2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>PeopleSoft / JD Edwards (1/05)</td>
<td>TimesTen (06/05)</td>
<td>IronFlare (5/01)</td>
</tr>
<tr>
<td>Retek (4/05)</td>
<td>TripleHop Technologies (06/05)</td>
<td>TopLink (6/02)</td>
</tr>
<tr>
<td>ProfitLogic (7/05)</td>
<td>Context Media (07/05)</td>
<td>Collaxa (1/04)</td>
</tr>
<tr>
<td>i-flex (8/05)</td>
<td>Innobase (10/05)</td>
<td>Phaos Technologies (5/04)</td>
</tr>
<tr>
<td>G-Log (9/05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TempoSoft (12/05)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applications 2006</th>
<th>Database 2006</th>
<th>Middleware 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siebel (1/06)</td>
<td>Sleepycat (2/06)</td>
<td>Oblix (3/05)</td>
</tr>
<tr>
<td>360Commerce (1/06)</td>
<td></td>
<td>Thor Technologies (11/05)</td>
</tr>
<tr>
<td>Portal Software (4/06)</td>
<td></td>
<td>OctetString (11/05)</td>
</tr>
<tr>
<td>Demantra (6/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephony@Work (6/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metasolv (10/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPL WorldGroup (11/06)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applications 2006+</th>
<th>Database 2006+</th>
<th>Middleware 2006+</th>
</tr>
</thead>
<tbody>
<tr>
<td>HotSip (2/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net4Call (4/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sigma Dynamics (8/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunopsis (10/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellent (11/06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyperion (3/07)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Applications Differentiation

- Complete environment
  - Database, middleware, applications, management
- Standards based
- Vertical Solutions
  - Banking, Retail, Communications, Public Sector
- SMB Offerings
- Applications Unlimited / Lifetime Support
  - No forced upgrades
  - No charge for upgrades
Agenda

• About Oracle
• Compliance and Information Trends
• Oracle Strategy
• Differentiation
50% of 1,000 executives polled said that information technology (IT) is the most challenging area in achieving S-O 404 compliance.

Source: KPMG 404 Institute, 2006
What is driving Compliance?

- The need to establish sufficient and sustainable internal controls to:
  - Ensure the efficient operations of the business
  - Demonstrate conformity with laws and regulations
  - Instill confidence in financial performance (reports)
- The ability to do business on a global basis
  - Requirement to comply with local, regional directives, laws and regulations

"In three days, companies traded on the Tokyo exchange have shed roughly $300 billion in shareholder value -- more than the gross domestic product of Norway. Livedoor alone has lost $1.8 billion in market capitalization."
Regulatory Compliance

• Privacy & Security Regulations
  • Safe Harbor laws
  • EU Privacy Directives
  • Gramm Leach Bliley Act (GLB-Act)
  • Datenschutzaudit (PPA)
  • HIPAA
  • 21 CFR Part 11
  • SAS 70

• Financial & Market Regulations
  • Sarbanes-Oxley Act (SOX)
  • Japanese SOX (expected in 2008); Korean SOX
  • Basel II
  • FFIEC
  • UK Companies Act
  • KonTraG
What drives the cost of compliance?

- Definition, documentation, establishment, enforcement, monitoring, review and audit of internal policies, processes and controls
- Training and development of existing organization
- Staffing of internal and external audit functions with specialized resources
- Periodic (often quarterly) review and audit of financial and operational reporting

**Automation** significantly reduces the effort and cost of compliance; making it sustainable
# ISO 17799 and BS 7799-2

## 1. Risk Assessment and Treatment
This section was an addition to the latest version, and deals with the fundamentals of security risk analysis.

## 2. System Policy
To provide management direction and support for information security

## 3. Organizing Information Security
- To manage information security within the organization
- Maintain the security of information and processing facilities with respect to external parties.

## 4. Asset Management
- Achieve and maintain appropriate protection of organizational assets.
- Ensure that information receives an appropriate level of protection.

## 5. Human Resources Security
- Ensure that employees, contractors and third parties are suitable for the jobs they are considered for, understand their responsibilities, and to reduce the risk of abuse (eg theft, misuse)
- Ensure that the above are aware of IS threats and their responsibilities, and able to support the organization's security policies
- Ensure that the above exit the organization in an orderly and controlled manner.

## 6. Physical and Environmental Security
- Prevent unauthorized physical access, interference and damage to the organization's information and premises.
- Prevent loss, theft and damage of assets
- Prevent interruption to the organization's activities.

## 7. Communications & Operations Management
- Ensure the secure operation of information processing facilities
- Maintain the appropriate level of information security and service delivery, aligned with 3rd party agreements
- Minimize the risk of systems failures
- Protect the integrity of information and software
- Maintain the availability and integrity of information and processing facilities
- Ensure the protection of information in networks and of the supporting infrastructure
- Prevent unauthorized disclosure, modification, removal or destruction of assets.
- Prevent unauthorized disruption of business activities.
- Maintain the security of information and/or software exchanged internally and externally
- Ensure the security of e-commerce services
- Detect unauthorized information processing activities

## 8. Access Control
- Control access to information
- Ensure authorized user access
- Prevent unauthorized access to information systems
- Prevent unauthorized user access and compromise of information and processing facilities
- Prevent unauthorized access to networked services
- Prevent unauthorized access to operating systems
- Prevent unauthorized access to information within application systems
- Ensure information security with respect to mobile computing and teleworking facilities

## 9. Information Systems Acquisition, Development and Maintenance
- Ensure that security is an integral part of information systems
- Prevent loss, errors or unauthorized modification/use of information within applications
- Protect the confidentiality, integrity or authenticity of information via cryptography
- Ensure the security of system files
- Maintain the security of application system information and software
- Reduce/manage risks resulting from exploitation of published vulnerabilities

## 10. Information Security Incident Management
- Ensure that security information is communicated in a manner allowing corrective action to be taken in a timely fashion
- Ensure a consistent and effective approach is applied to the management of IS issues

## 11. Business Continuity Management
- Counteract interruptions to business activities and protect critical processes from the effects of major failures/disasters
- Ensure timely resumption of the above

## 12. Compliance
- Avoid the breach of any law, regulatory or contractual obligation and of any security requirement.
- Ensure systems comply with internal security policies/standards
- Maximize the effectiveness of and minimize associated interference from and to the systems audit process
**COSO Framework & Compliance Model**

- **Event Identification**
  - Exception thresholds

- **Risk Response**
  - Corrective Workflows

- **Information & Communication**
  - Approval Workflows
  - Attestation Workflows
  - Exception Notifications
  - Delegated Administration
  - Automated Provisioning
  - Password Reset

- **Risk Assessment**
  - Model Risk assessment around resources with sensitive data – financial, ePHI, NPI
    - Electronic Transactions
    - Application, Application Server, DB, OS
  - Predictive Risk Analysis

- **Control Activities**
  - Entitlement Policies: RBAC, ABAC
  - Separation of Duties
  - Strong Authentication
  - Exception Detection & Remediation
  - Employee termination
  - Policy Retrofits and Revocations

- **Monitoring**
  - Continuous Exception Detection & Monitoring
  - Periodic Reports and Attestations
Information Trends

• 17 billion devices on the Internet by 2012
• Sensors everywhere = huge data volumes
• IP and telephony convergence
  • “SIP is the 3rd great protocol of the Internet” – V. Cerf
  • Nearly 4 billion communication devices
• Networked content continues to increase dramatically
• Social networking techniques maturing
  • Wikis, blogs, RSS are just the start
Transactions And Communications Will Climb Dramatically

- E-mails
- Instant messages
- Telephone calls
- RSS feeds
- RFID reads
- GPS signals
- Telematics

# Transactions and Related Communications
Volume of Data

Terabytes

Source: UC Berkeley Research Projects, How Much Information?, 2003;
IDC, Disk Storage System Quarterly Tracker (as of 2006)
What Executives See on the Horizon

New frontiers
Which of the following strategies will be most important to driving revenue growth at your company over the next three years? Select up to three options. (% respondents)

- Acquiring new customers: 58%
- Developing new products and services: 48%
- Entering new alliance relationships: 31%
- Entering and developing overseas markets: 31%
- Building closer relations with existing customers: 31%
- Performance improvement initiatives: 23%

Source: Economist Intelligence Unit.
IT Challenges

• Flexibility and Adaptability
• Business Insight
• High Availability
• Security
• Lower Cost
Businesses Need To Adapt Quickly

Business Insight:
Visibility into & analysis of business-critical information

Adaptive Processes:
Design & implementation of critical business processes

Strategy

Execution
Security Critical To Business Continuity

1996
- Amateur hackers
- Web site defacement
- Viruses
- Infrequent attacks

2007
- Organized crime
- IP theft
- Identity theft
- Constant threat
Today’s IT Infrastructure Is Complex

- “Silos” limit resource sharing.
- Error-prone manual or semi-automated processes in complex environments.
- Business and IT are not directly linked, inhibiting effective execution.
# How Enterprise Vendors Can Help

<table>
<thead>
<tr>
<th>SMART GROWTH</th>
<th>ENTERPRISE-WIDE INNOVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase customer loyalty for relationship leaders</td>
<td>• Improve coordination to shorten product cycle</td>
</tr>
<tr>
<td>• Squeeze out supply chain costs for price leaders</td>
<td>• Effectively measure &amp; manage business processes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GLOBALIZATION</th>
<th>SECURITY/COMPLIANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Efficiently manage global supply chain</td>
<td>• Build security &amp; compliance into business processes</td>
</tr>
<tr>
<td>• Achieve global visibility into opportunities and threats</td>
<td>• Centrally manage privacy legislation and preference data</td>
</tr>
</tbody>
</table>
Agenda

• About Oracle
• Compliance and Information Trends
  • Oracle Strategy
• Differentiation
Enterprise Identity Management

Identity Management Services
- External
  - SOA Applications
  - Delegated Administration
  - Customers
  - Partners
- Internal
  - IT Staff
  - Employees
  - SOA Applications

Access Management
- • Authentication & SSO
- • Authorization & RBAC
- • Identity Federation

Identity Administration
- • Delegated Administration
- • Self-Registration & Self-Service
- • User Group & Roles Management

Workflow and Orchestration

Directory Services
- • LDAP Directory
- • Meta-Directory
- • Virtual Directory

Identity Provisioning
- • Who, What, When, Where, Why
- • Rules and Access Policies
- • Integration Framework

Monitoring and Management

Applications
- ERP
- CRM

Infrastructure
- OS (Unix)
- HR
- Mainframe
- NOS/Directories

Physical Assets
- Cell Phone
- Physical Access
Oracle – The Information Company

SOA Applications

Enterprise Manager

Fusion Middleware

Business Applications

Databases

Business Intelligence
Oracle’s Identity & Security Strategy

- Complete, unified solution
  - Coherent and comprehensive security
  - “Cross-silo” integrated identity & security
- Application-centric
  - Protecting business processes and web services (SOA)
  - Identity & security as infrastructure, not bolt-on layer
- Hot-pluggable
  - Standards-based
  - Heterogeneous
  - Best-of-breed components as well as integrated IAM suite
# Identity & Access Management

## Access Control
- Authentication & Authorization
- Single Sign-On
- Federation
- Web Services Security

## Identity Administration
- Identity Lifecycle Administration
- Role & Membership Administration
- Provisioning & Reconciliation
- Compliance Automation

## Directory Services
- Virtualization
- Synchronization
- Storage

## Audit & Compliance
- Audit Data
- Attestation
- Segregation of Duties
- Controls

## Management
- Service Levels
- Configuration
- Performance
- Automation

[ORACLE Logo]
Complete, Unified Security

- Application security
  - Fine grained access control across applications
  - Integrated with packaged enterprise applications
- Middleware security
  - Comprehensive Identity Services Framework
  - Integrated security with application server and SOA framework
- Data security
  - Data security at rest, in transit and in archive
  - Consolidation of management and security of auditable data
- Physical security
  - Integrated logical and physical security
# Oracle I&AM Products

## Access Control
- Oracle Access Manager
- Oracle Enterprise Single Sign-On
- Oracle Identity Federation
- Oracle Web Services Manager

## Identity Administration
- Oracle Identity Manager

## Directory Services
- Oracle Virtual Directory
- Oracle Internet Directory (with Directory Integration Platform)

## Audit & Compliance
- Oracle Identity & Access Management Suite

## Management
- Oracle Enterprise Manager for Identity Management
Data Privacy

Ensure Data Privacy at All Levels
Protect from Insider Threat
Safeguard Personally Identifiable Information (PII)
Efficiently and Effectively Meet Regulatory Requirements

Database Vault
Secure Search
Label Security
Advanced Security
Content/Record DB
Audit Vault

Multi-factor DBA Controls
Authorized Search
Data Classification
Encrypted Data
Unstructured Data Mgmt
Monitor, Alert, Consolidate
Application Centric Security

• Comprehensive security for applications
  • Single sign-on and federated access
  • Fine grain authorization
  • Roles and entitlements management
  • HR and identity management process integration

• Identity Services Framework
  • Identity services as infrastructure
  • Rapid-integration enabled security platform
  • Abstracted identity storage
  • Centralized policy enforcement and compliance monitoring
### Oracle IdM-App Integration Offerings

#### Features

- Agent-less integration framework
- Application-centric and technology-centric OOTB connectors
- Abstraction of functional layers
- Componentized architecture
- N-tier J2EE architecture
- Deploys on wide range of J2EE application + DB servers
- Highly customizable and extensible

#### Oracle Application Integrations

- Oracle e-Business Suite
- PeopleSoft
- Siebel
- JD Edwards
- Oracle Retail (H1 2007)
- PeopleSoft Campus (2007)
- Telecom/Portal (2007)
- Oracle Clinical Solutions (2007)

#### SAP & Other Application Integrations

- SAP R/3, Basis, CUA
- SAP HRMS
- SAP Certification (2007)
- Lawson (2007)
- other tier-2 applications
- SCT Sungard Banner (2007)
- Cerner (2007)
- McKesson (2007)
Identity Services Framework

Oracle IAM Suite with Identity Services Framework

Service Interfaces
- WS-*, SPML, SAML, XACML, CARML

Identity Services
- Authentication
- Provisioning
- Identity Provider
- Authorization
- Administration
- Role Provider
- Audit
- Federation & Trust

Enterprise Identity Management Infrastructure
- Policy & Orchestration
- Virtualization & User Store

Oracle Fusion Applications & Middleware
- Business Functions

3rd Party ISF Aware Applications
- Business Functions

Custom Developed ISF Aware Applications
- Business Functions

Legacy Applications
- Business Functions
- User Management
- Authentication
- Authorization
- Federation
- Legacy Integration Interface Connectors, Agents
Hot Pluggable & Open Strategy

• Deploy on heterogeneous platforms
  • Application, web, DB, directory servers
  • Operating systems

• Work with competition’s products
  • Business apps, Identity Management, system management

• Leverage open standards
  • Use, drive and innovate

• Standardized on J2EE architecture
Heterogeneous Support
Sample Integrations

Portals

Applications

Groupware

Directories

Operating Systems

ACF-2 & TSS
RACF
Standards Support

• Contribute and lead
  • SSTC (SAML Working Group) - Co-Chair
  • Liberty Alliance - President, Board Member
  • WSS, WS-SX (Web Services Security) - Author
  • SPML - Author
  • XACML – Voting member

• Implement
  • Accelerate product development
  • Simplify product integration & minimize TCO

• Innovate
  • Enable Identity Governance Framework: CARML, AAPML
  • Standards for end-to-end security
Identity Governance Framework

- Launching open initiative for identity governance across enterprise systems
- A set of declarative contracts between suppliers and consumers of identity-related information.
  - Declarative policy model for authorities that provide attributes
    - AAPML ("aap-mull"): Attribute Authority Policy ML
  - Declarative model for use of attributes by applications
    - CARML ("kaar-mull"): Client Attribute Requirements ML
- Complements
  - SAMLv2, WS-Trust, Cardspace, OSIS, Higgins, Open-Id
Submission of IGF to Liberty

Identity Governance Framework submitted to Liberty

• In Liberty business requirements gathering process now
  • Validation from enterprise customers and government bodies

• Oracle has released IP rights and made royalty free
  • Helps ensure broadest possible industry support

• Desired target ratification in 2008
Agenda

• About Oracle
• Compliance and Information Trends
• Oracle Strategy
• Differentiation
Oracle – The Information Company

- SOA Applications
- Enterprise Manager
- Identity & Security
- Fusion Middleware
- Databases

- Business Applications
- Business Intelligence
Compliance: Visibility and Control

Dashboards

Real time
Historical
Temporal
Digitally Signed
Encrypted

Standard Reports

Extract
Transform
Load

Log
Aggregation
Rationalization

ORACLE | PeopleSoft.

ORACLE | SIEBEL

SAP
Visibility: Business Intelligence

Real Time Decisions
Sophisticated Analytics and Reporting
Manage and Mine Large Amounts of Data

Analytic Server
Q&A, OLAP

Data Integration

Dashboards

Reporting

Alerts & Workflows
Control: Process Automation

Develop and Deploy Business Process Automation
Composite Applications: Leverage Existing Investment
Integrate within and Across Enterprise

Analysis & Design  Enterprise Service Bus  BPEL Process Manager  Activity Monitoring  B2B & RFID Integration
Oracle Database Security
30 Years of Innovation

Oracle Audit Vault (Beta)
Oracle Database Vault
DB Security Evaluation #19
Transparent Data Encryption
EM Configuration Scanning
Fine Grained Auditing (9i)
Secure application roles
Client Identifier / Identity propagation
Proxy authentication
Enterprise User Security
Global roles
Virtual Private Database (8i)
Database Encryption API
Strong authentication (PKI, Kerberos, RADIUS)
Native Network Encryption (Oracle7)
Database Auditing

1977 Government customer

2007
Customer Advisory Board

Customer Advisory Board (CAB)

• Quarterly meetings
• Monthly newsletters
• Knowledge sharing
• Roadmap prioritization
• Product design validation
Industry Recognition

Leader in Enterprise Identity Provisioning

“(Oracle’s) IAM Roadmap looks the best of all vendors”

Gartner
2006 Gartner UP MQ

Leader in Web Access Management

“(Oracle) Access Manager ranks as one of the more fully featured WAM products”

Gartner
2006 Gartner WAM MQ

“Oracle can now be viewed as a Premier Provider of Identity and Access Management Technology”

**

“...move Oracle to the shortlist of enterprise customers looking to deploy a full suite of applications with secure identity management capabilities across their ever-changing IT landscapes”(*)

IDC
Analyze the Future
“Oracle is currently the IdM vendor to beat”
- VantagePoint 2007: Identity and Privacy Trends in Enterprise IT
Partners: ISV Ecosystem

Strong Authentication
- Authenx
- ARcot
- Giesecke & Devrient
- RSA
- PortWise
- passlogix
- Entrust
- BIO-key International

Physical Access
- LENEL
- Tyco

Network Access
- Identity Engines
- F5
- FORUM
- Layer 7 Technologies

Role Management
- Bridgestream
- VAAU

Healthcare
- Cerner
- McKesson
- Empowering Healthcare
Partners: System Integrators

Deloitte
EDS
accenture
KPMG
BT
PriceWaterhouseCoopers
Wipro
Capgemini
Kogit
Dictao
Mphasis
Sena
dns
nextiraOne
TECIA
Whitbread
Entology
Sopra
ilantus
Protiviti
Oracle
Key Oracle Differentiators

- Complete suite of best-of-breed products
  - Complete & best integrated identity management suite
  - Includes compliance, virtualization and system management
  - Market leadership validated by press and analysts
- Proven for large scale deployments
  - Large, complex, and award winning deployments
  - Broad customer base and use cases
  - Large referenceable customer base
- Best long-term investment
  - Strong support of open standards and hot-pluggable strategy
  - Pre-integrated with Oracle products – DB, middleware, apps
  - Pre-integrated with over 50 applications and infrastructure
  - Underpins Oracle’s next generation of Fusion Applications
SAP Integration

- Integration with
  - MySAP
  - SAP/R3 – CCS, CRM, CUA
  - Basis
  - SAP HR

- World leading organizations are using Oracle’s Identity Management Solution to manage SAP and Microsoft Identities
  - Leading SAP Systems Integrators have standardize in the use of OIM to manage SAP Instances

- In process of obtaining SAP Certification