Introducing ITIL

Best Practices for IT Service Management

Presentation will begin at 9:00 am
ITIL Overview

Mary Lou Alter, Director
EMC Professional Services
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Agenda

ITIL Basics

A. Purpose & Objectives
B. What ITIL Is & Why It Matters
C. The ITIL Framework
D. ITIL in an ITaaS World
E. Questions & Answers

Appendix: Service Level Management Deep Dive

A. Service Level Management 101
B. Glossary of Terms
Part 1 Purpose & Objectives

• Provide a high level introduction to the ITIL framework to:
  – enable participants to better anticipate and understand processes that affect them
  – understand relationships among deployed processes

• Following this session, attendees will:
  – Know what ITIL is, what it is used for, and how it was developed
  – Understand common ITIL concepts
  – Be familiar with the 5 phases of the ITIL Life Cycle and the processes in them
  – Have a better understanding of how ITIL will affect them and their customers
What is ITIL?

ITIL Defined:

- **Information Technology Infrastructure Library (ITIL)**
- ITIL is a set of efficient, interrelated processes for delivery and support of IT services
- Is documented by a set of books, supporting materials, and training certifications
- Provides a common language for discussing IT services across all IT departments and with customers
- Provides an holistic, integrated view of IT processes
- Is a framework, not a standard
Improving IT Service
Through Process Maturity

• Define and document best practice processes that are:
  • Unified
  • Consistent
  • Repeatable
  • Supported by clear definitions of roles and responsibilities
  • Integrated with related processes

• Establish IT-business partnership
  • Service level objectives/agreements
  • Clearly defined single points of contact for customer engagement

• Process and data management automation
• Performance tracking against process Critical Success Factors
  • Continuous process improvement
  • Service quality reporting
• Decisions supported by analysis of costs and benefits
  • Results tracked
The ITIL Value Proposition

Defined best practice processes with a good supporting IT service management toolset yields tremendous benefits in quality, cost, efficiency and customer satisfaction. **Benefits are derived as depicted below.**

<table>
<thead>
<tr>
<th>Traditional IT Characteristics</th>
<th>ITIL Process Characteristics</th>
<th>Value Proposition</th>
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<tbody>
<tr>
<td>Technology focus</td>
<td>Process focus</td>
<td>Business aligned decisions; cost</td>
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<tr>
<td>“Fire-fighting”</td>
<td>Preventative</td>
<td>Stability; quality of service; cost</td>
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<tr>
<td>Reactive</td>
<td>Proactive</td>
<td>Quality of service; cost of service</td>
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<tr>
<td>Users</td>
<td>Customers</td>
<td>Customer satisfaction</td>
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<tr>
<td>Isolated, silos</td>
<td>Integrated, enterprise-wide</td>
<td>Efficiency; quality; cost of service</td>
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<tr>
<td>“One off”, adhoc</td>
<td>Repeatable, accountable</td>
<td>Efficiency; effectiveness; cost of service</td>
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<tr>
<td>Informal processes</td>
<td>Documented best practices</td>
<td>Scalability; quality; cost of service</td>
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<tr>
<td>IT internal perspective</td>
<td>Business perspective</td>
<td>Customer satisfaction; effectiveness</td>
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<tr>
<td>Operational specific</td>
<td>Service orientation</td>
<td>Customer satisfaction; quality of service</td>
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ITIL History

• Originated by the United Kingdom government to set guidelines for delivering IT services efficiently
• Has become a standard adopted by companies worldwide
• Evolved into a cohesive, integrated set of IT process best practices that outlines the steps needed to:
  – Set policies and deliver effective services from a business perspective around the performance of various IT processes
  – Monitor IT activity for efficiency
  – Establish Service Lifecycles in order to increase efficiency, effectiveness, and cost effectiveness
• Rationalizes and simplifies much of what we already know about how IT gets done
ITIL Tenets

- Service Orientation
- Business Alignment
- Single Points of Contact
- Defined, Documented, Interrelated Processes
- Coordinated Repositories
- Clear Roles & Responsibility
- Performance Measurement
- Continuous Service Improvement
Defining Service

• Service

  A means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks

• Service Provider

  Provides IT services to a customer within a business

• Service Management

  A set of specialized organizational capabilities for providing value to customers in the form of services
Key Roles throughout Service Lifecycle

- Service Owner
- Process
- Process Owner
- Functions
- Role
ITIL has been adopted by more than 95% of Fortune 1000 companies.
ITIL Lifecycle

Process improvement priorities differ based on an organization’s goals & objectives
Service Strategy Snapshot

Objectives:
- Know what is offered and to whom
- Understand the competition
- Offer value
- Service quality
- Allocate resources
- Handle demand

Processes:
- Business Relationship Management
- Strategy Management
- Demand Management
- Service Portfolio Management
- Financial Management

Output:
- Satisfaction
- Provide value
Service Strategy – The Processes

- Business Relationship Management
- Strategy Management
- Financial Management
  - Budgeting
  - Accounting
  - Charging
- Service Portfolio Management
  - Manage the complete set of services offered (Service Portfolio)
    - Future, current & retires service offerings
- Demand Management
  - Control risk (too much capacity creates cost without creating value)
  - Patterns of business activity
Service Design Snapshot

Gather Information

- Business Requirements

The Four Ps

- People
- Processes
- Products
- Partners

Design Activities

- New or changed services
- Service Portfolio (and Service Catalog)
- Technology Architecture Management Systems
- Processes, Roles, Responsibilities, and Skills
- Measurement Methods

Design Results

- Service Solution
- Service Design Package
Service Design – The Processes

Service Catalog Management
- Service Catalog produced
- Negotiates and agrees with the business
- Ensures adequate capacity, cost efficiency, that meets current and future needs of the business

Service Level Management
- Ensures the level of service availability is delivered
- Ensures IT technical and service facilities can be resumed

Capacity Management

Availability Management
- Ensures IT technical and service facilities can be resumed

IT Service Continuity Management
- Aligns IT security with business security

Information Security Management
- Manages the suppliers and the services they supply

Supplier Management
Service Transition Snapshot

Purpose
- Deliver Service Design Package to Service Operations
  - If changes were made, then ST makes modifications
- Implement Services

Goals
- Enable change or integration
- Minimize risk
- Ensure the service can be used

Objectives
- Manage resources
- Minimize impact
- Increase satisfaction
- Proper use of services
- Clear plans

Scope
- Plan
- Build
- Test
- Evaluate
- Deploy
- Retire
- Review
- Close
Service Transition – The Processes

- Change Management
- Service Asset & Configuration Management (SACM)
- Release and Deployment Management
- Knowledge Management
- Service Evaluation
- Service Validation and Testing
- Transition Planning
Important Service Operation Concepts

- **Event** – A change of state
- **Alert** – A warning or failure
- **Incident** – An unplanned interruption
- **Problem** – The unknown cause of one or more incidents
- **Service Request** – A request from a user for information, or advice, or for a Standard Change or for access to an IT Service
Service Operation – The Processes

- Event Management
- Incident Management
- Request Fulfillment
- Problem Management
- Access Management
Service Operation – Functions

- Service Desk
- Technical Management
- IT Operations Management
  - IT Operations Control
  - Facilities Management
- Application Management
Service Operation

Achieving the Right Balance
- Internal IT View vs. External Business View
- Stability vs. Responsiveness
- Reactive vs. Proactive
- Quality vs. Cost

Function
- Service Desk
- Technical Management
- IT Operations Management
- Application Management

Processes
- Event Management
- Incident Management
- Problem Management
- Access Management
- Request Fulfillment
Continual Service Improvement

Goals and Objectives

- Review, analyze, and make recommendations
- Identify and implement activities to improve service quality
- Quality management methods
- Review and analyze Service Levels
- Customer satisfaction

Scope

- Overall Health
- Alignment to Business needs
- Maturity
Questions & Answers
Appendix
Service Level Management Deep Dive
Appendix Contents

Service Level Management Deep Dive

A. Purpose & Objectives
B. Service Level Management 101
The service life cycle includes identifying business needs, mapping to existing service and technology capabilities, developing new services, and finally delivering services at agreed levels.
Defining Business Facing Service Levels

Business Service Agreement

Select Target Business Area
• ID Business Services

Define & Document Service Requirements

Develop Service Level Agreements/ Objectives

Implement

Expand to Other Services

Measure & Report

Service Level Infrastructure

Build Business Service Tiered Model

Define & Document Business & Component Services

Service Catalog

Develop Operating Level Agreements

Expand to Other Services

Measure & Report
Service Portfolio Management

- **Definition**
  The dynamic method for governing and managing service management investments for value. The Service Portfolio describes services in terms of business value.

- **Purpose**
  To maximize the return on IT service investments, while maintaining an acceptable level of risk.

- **Scope**
  - Service Pipeline
  - Service Catalog
  - Retired Services

*Figure 5.17 Service Portfolio process*
The Project Portfolio Management (PPM) process tracks and manages the lifecycle of IT projects.

The Project Portfolio Management (SPM) process monitors and manages the lifecycle of services, considering the business value provided. Examples of services are “Electronic Messaging”, “Desktop Support”, “Data Warehousing and Business Intelligence”, and “Human Resources”.

The Service Portfolio Management (SPM) process may identify internal IT projects that are needed to support or improve IT Services. These projects will be fed into PPM to insure that proper priorities are maintained, based on value to the business.
Service Catalog Management

• **Definition**
The process that ensures that a Service Catalog is produced and maintained, containing accurate information on all operational services and those services that are being transitioned to operational status.

• **Purpose**
To provide a single source of consistent information on all of the agreed services, and ensure that it is widely available to those who are approved to access it.
Elements of a Best Practices Service Catalog

- Services are defined in clear, easy-to-understand language
- All significant services are defined
- Entries define or support SLAs and/or SLOs
- Entries include or link to:
  - service description
  - customer
  - service components
  - levels of service
  - cost
- Accessible by all who use, provide or support services
- Reporting facilitates continuous process improvement through use of KPIs
- Process is linked to other processes:
  - Service Level Management
  - Financial Management
  - Infrastructure Management
  - Capacity Management
  - Configuration Management
Glossary of Service Management Key Terms
Key Terms in Service Level Management

- **Operational Level Agreement (OLA)**
  An agreement between an IT service provider and another part of the same organization. An OLA supports the IT service provider's delivery of IT services to customers. The OLA defines the goods or services to be provided and the responsibilities of both parties. See also Service Level Agreement.

- **Service Design Package (SDP)**
  Document(s) defining all aspects of an IT service and its requirements through each stage of its lifecycle. A Service Design Package is produced for each new IT service, major change, or IT service retirement.

- **Service Improvement Program/Plan (SIP)**
  A formal plan to implement improvements to a process or IT service.

- **Service Level**
  Measured and reported achievement against one or more Service Level Targets. The term Service Level is sometimes used informally to mean Service Level Target.

- **Service Level Agreement (SLA)**
  An agreement between an IT service provider and a customer. The SLA describes the IT service, documents Service Level Targets, and specifies the responsibilities of the IT service provider and the customer. A single SLA may cover multiple IT services or multiple customers. See also Operational Level Agreement.

- **Service Level Management (SLM)**
  The process responsible for negotiating Service Level Agreements, and ensuring that these are met. SLM is responsible for ensuring that all IT Service Management processes, Operational Level Agreements, and Underpinning Contracts, are appropriate for the agreed Service Level Targets. SLM monitors and reports on Service Levels, and holds regular customer reviews.
Key Terms in Service Level Management

• **Service Level Package (SLP)**
  A defined level of utility and warranty for a particular Service Package. Each SLP is designed to meet the needs of a particular pattern of business activity.

• **Service Level Requirement (SLR)**
  A customer requirement for an aspect of an IT Service. SLRs are based on business objectives and are used to negotiate agreed Service Level Targets.

• **Service Level Target**
  A commitment that is documented in a Service Level Agreement. Service Level Targets are based on Service Level Requirements, and are needed to ensure that the IT Service design is fit for purpose. Service Level Targets should be SMART, and are usually based on KPIs.

• **Service Quality Plan**
  The written plan and specification of internal targets designed to guarantee the agreed Service Levels.

• **SMART**
  An acronym for helping to remember that targets in Service Level Agreements (and Project Plans) should be Specific, Measurable, Achievable, Relevant and Timely.

• **Underpinning Contract (UC)**
  A contract between an IT service provider and a third party. The third party provides goods or services that support delivery of an IT Service to a customer. The Underpinning Contract defines targets and responsibilities that are required to meet agreed Service Level Targets in an SLA.
Key Terms in Configuration Management

Configuration Item (CI):
• Any component that needs to be managed in order to deliver an IT service.
  – CIs typically include IT Services, hardware, software, buildings, people, and formal documentation.
  – CI information is stored in a CMDB and is under the control of Change Management.

Configuration Management Database or CMDB:
• A database used to store Configuration records throughout their Lifecycle.

Configuration Management Systems or CMS:
• A set of tools and databases that are used to manage an IT Service Provider's Configuration data.
  – Includes information about Incidents, Problems, Known Errors, Changes and Releases.
  – May contain data about employees, Suppliers, locations, Business Units, Customers and Users.
  – Includes tools for collecting, storing, managing, updating, and presenting data about all Configuration Items and their Relationships.
  – Maintains one or more CMDBs, and each CMDB stores Attributes of CIs, and Relationships with other CIs.
Other Key Terms

• **Access**
  The level and scope of the functionality of a service or data that a user is allowed to use.

• **Event**
  A change of state that has significance for the management of a Configuration Item or an IT Service. This term also is used to mean Alert or notification created by any IT Service, Configuration Item or Monitoring tool.

• **Identity**
  A unique name that is used to identify a User, person or Role. The Identity is used to grant Rights to that User, person or Roles.

• **Rights**
  Entitlements, or permissions, granted to a User or Role. Rights would include the Right to modify certain data, or to authorize a change.

• **Service Request**
  A request from a user for information, advice, a standard change or access to a service. Examples include password resets and provisioning standard IT services to a new user. Service Requests do not require an RFC.

• **Standard Change**
  A pre-approved change that is low risk, relatively common and follows a procedure. RFCs are not required to implement a Standard Change and they are logged and tracked using a different mechanism, such as a Service Request.
Using ITIL Framework for Cloud Projects

Carl A Winchester
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Agenda

• Paradigm Shift
• ITIL Lifecycle From a Cloud Perspective
  – Service Strategy
  – Service Design
  – Service Transition
  – Service Operation
  – Continuous Improvement
• An Agile IT Roadmap
Paradigm Shift

• Managing a network of in-house and external service providers, without suffering a loss of control
• Managing user expectations
• Controlling and eliminating the manual handoffs
• Documenting and verifying compliance with service levels in a multi-vendor environment
Cloud Based Service Strategy

Cloud computing forces an upfront analysis of your portfolio of services:

- You must clearly understand how each particular service adds value to customers and the business.
- Examine the relative level of investment made for each service in relation to its value and determine how to best source it.
- Demand management becomes critical in providing on-demand cloud services.
- Chargeback and allocation of cloud-service costs in a multi-sourced environment need to be handled differently.
Cloud Based Service Design

In the world of cloud computing, service design focuses on integrating services from multiple suppliers (internal and external) into bundled service packages ready for consumption. This implies the need for a renewed effort in supplier management and related processes to enable smooth end-to-end service delivery. Timely reporting and clear, objective contract language helps ensure that terms, conditions, and service level agreements are met.
Cloud Based Service Transition

The cloud, especially in a multi-sourced environment, requires shared responsibility between internal and external service providers. A structured transition planning and support process is critical. The involved parties must coordinate and agree on roles and responsibilities as they all participate in major changes. Cloud service providers need to integrate with key service transition processes like change, release, and deployment management to protect the integrity of the live environment.
Cloud Based Service Operation

In a cloud environment, ensuring the reliability and availability of services and their underlying applications and infrastructure calls for continuous monitoring against agreed service levels and well-defined integrated processes. The goal is to understand and develop practices to cope with the challenges of security compliance, privacy, and access.
Cloud computing done poorly has a tendency to introduce misalignment between business needs and technical capabilities. Establishing key performance indicators (KPIs) and SLAs with cloud service providers helps both parties communicate and agree on mutual expectations concerning time, quality, and cost.
Reducing costs and increasing agility are key IT objectives and drivers for adopting cloud computing. The cloud’s ability to help IT dynamically balance demand with resources results in better resource sharing, utilization, and an increase in savings.
Why It Matters

Traditional IT

Consolidate

Virtualize

Standardize

Shared Resources

Automate

Cloud

Prepare the Infrastructure and business processes
ITIL Supports Agile IT
Questions

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Database-as-a-Service: Transforming the IT Service Delivery Model for the State of Texas

Paul Andres, Enterprise Architect
Oracle Corporation
Leverage Best Practices

- Clarify stakeholders, use cases, and business value
- Structure service lifecycle management
- Leverage ITSM best practices
- Work iteratively
- Continuously improve
Business Needs . . .

- I need to increase my citizen services access, including via mobile technology
- I need to roll out new citizen services, but my budget continues to be reduced
- I need to respond quickly to changes in demand from business users
- I need a more efficient, cost-effective, and secure way to collaborate with other agencies
- Employee productivity is bogged down by slow and outdated applications

. . . Drive and Support the IT Agenda

- I need to increase capacity, elasticity, high performance and efficiency in my infrastructure.
- I need to consolidate and standardize technologies.
- I need to upgrade and replace old technologies.
- I need to automate and simplify the deployment of new IT capabilities.
- I need a secure and highly available architecture.
- I need increased agility while lowering the cost of IT.
Why Database-as-a-Service?

- On Demand, Self-Service Provisioning • Faster Time to Value, Business Agility
- Resource Pooling • Increased Utilization, Efficiency, Lower Costs
- Predefined DB configuration • Quality of Service, Productivity, Lower Risks
- Metering of Usage • Transparency, Predictability
- Standard Technologies & Best Practices • Higher Reliability, Simplification, better Support
- Elasticity • Agility, Rapid Respond to Change, Scalability
Case Study: Texas DIR

**Challenges**
- Legislative Mandate to consolidate and reduce IT Costs
- Hundreds of databases statewide, Multiple Vendors/versions
- New database, Updates, Upgrades requests can take weeks to fill.

**DBaaS Benefits**
- Simplified, consolidated, shared Database Environment
- Easy and fast to deploy, more options available statewide, higher availability and performance. Scalable
- No Capex, lower cost, better support.

**Lessons Learned**
- Plan for Migration from legacy Infrastructure process & tools
- Articulate Value for every stakeholder - Relinquished control may be hard
- Service catalog alignment with business needs
Texas State Govt Capability Model*

BUSINESS
- Driver’s License Issue and Renewal
- Public Transit (Bus, Rail)
- Welfare Payment
- Food Stamp distribution
- Criminal / Corrections
- Voter Registration
- Taxation
- Grants and Subsidies

APPLICATIONS
- Voter Portal
- Income and Property Tax App
- HHS App
- JPS App
- CAPPS – ERP/HCM
- Business Analytics and Reporting
- Metro Portal
- State Content Portal

INFORMATION
- 360-degree view of the citizen
- State Data Model
- Federal Data integration
- EFT Financials data model
- State/Local Financial Data Model

TECHNOLOGY
- Infrastructure-aaS
  - Linux-aaS
  - Solaris-aaS
- Platform-aaS
  - DB-aaS, MW-aaS, IDM-aaS, Content-aaS, GIS-aaS
- Software-aaS
  - PSFT HCM-aaS
  - PSFT Financials-aaS
  - Social Media-aaS

* Partial List
Architecting DBaaS: Considerations

- Organization’s Service Strategy
- Target Consumer Community
- Service Business Requirements
- Financial Strategy, Chargeback Models, Rate Structure
- Engaging Departments/Customers

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- Application
  - Workload characteristics
  - Standards,
  - Access
- Information
  - Integration
  - Security
- Infrastructure
  - Deployment Models
  - Capacity
  - Availability
  - Security and Audit

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- Resource Allocation/Organizational Structure
- Service Development Framework
- Service Management Framework
- Workflow & Repository (i.e. Consumer accounts)

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Service & Operations Management Workgroup
Database-as-a-Service Process Model

1. Capture Demand
2. Define Service Strategy and Design
3. Define Service Catalog
4. Define Resource Configurations
5. Build Deployable Entities
6. Consumer purchase
7. Initiate Service Request
8. Deployable Entity Allocated
9. Deployment
10. Consumer operates Svc
11. Client App Utilizes Svc
12. Monitor performance metrics
13. Utilization Metrics Captured
14. Metrics Applied to SLA & Pricing
15. Perf, Util, & Cost Provided to Consumer
Private Cloud Service Delivery Model

Cloud Consumers
- Citizens
- Texas Agencies
- Business Partners
- IT / SDLC

Texas DIR Enterprise Cloud
- Austin and San Angelo Data Centers
- IT Front Office
- IT Back Office
- Software-as-a-Service
  - PeopleSoft-as-a-Svc
- Platform-as-a-Service
  - Database-as-a-Svc
  - BI-as-a-Svc
  - SICAM-as-a-Svc
  - GIS-as-a-Svc
  - IDM-as-a-Svc
- Infrastructure-as-a-Service
  - UNIX-as-a-Svc
- IT Front Office
- IT Back Office
- Security, Compliance, and Governance
- Performance, Availability, & Elasticity
- Incident Response & Event Management
- Virtualization & Isolation
- System & Change Management
- Provisioning, Metering & Chargeback
- Service Portfolio Management
# DBaaS Service Definitions

## DBaaS Size

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<tr>
<th></th>
<th>Extra Small</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Extra Large</th>
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<td>2</td>
<td>4</td>
<td>8</td>
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<td>Memory</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>32</td>
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<td>Storage Capacity (GB)</td>
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<td>500</td>
<td>1000</td>
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<td>Adders</td>
<td>$ per Core / $ per GB RAM / $ per 500 GB Storage</td>
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## Service Definitions

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<th>Silver</th>
<th>Gold</th>
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<td>Remote Failover</td>
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<td>RTO</td>
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<td>4 hr</td>
<td>2 hr</td>
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<td>RPO</td>
<td>Best Effort</td>
<td>24 hr max</td>
<td>8 hr max</td>
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<td>DB Files Mirror</td>
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<td>Database Backup</td>
<td>Tape / Disk</td>
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<td>DBaaS Service Uptime</td>
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<td>24x7</td>
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<td>DBaaS Service Access (Business Availability)</td>
<td>Shared OS; VM</td>
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<td>Shared / Ded OS; VM</td>
<td>Shared / Ded OS; VM</td>
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<td>Database Deployment</td>
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<td>Database Isolation</td>
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<td>Access Control / Disk, Network, Tape Encryption / Masking / Authentication / Authorization / Audit</td>
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<tr>
<td>Data Retention</td>
<td>1 yr</td>
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<td>Lifetime</td>
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<td>Operating System</td>
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## DBaaS Service Catalog

### Product Catalog

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<thead>
<tr>
<th>Block Size</th>
<th>Cores</th>
<th>RAM (GB)</th>
<th>Storage (GB)</th>
<th>Adders</th>
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<tbody>
<tr>
<td>Small</td>
<td>4</td>
<td>8</td>
<td>500</td>
<td>$ Per Core / $ Per GB RAM / $ per GB Disk</td>
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<tr>
<td>Medium</td>
<td>6</td>
<td>16</td>
<td>1000</td>
<td>$ Per Core / $ Per GB RAM / $ per GB Disk</td>
</tr>
<tr>
<td>Large</td>
<td>8</td>
<td>32</td>
<td>2000</td>
<td>$ Per Core / $ Per GB RAM / $ per GB Disk</td>
</tr>
</tbody>
</table>

### SPARC DB Options

<table>
<thead>
<tr>
<th>DB Version</th>
<th>Solaris Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle 9i</td>
<td>Solaris 9, 10, 11</td>
</tr>
<tr>
<td>Oracle 10g</td>
<td>Solaris 10, 11</td>
</tr>
<tr>
<td>Oracle 11g</td>
<td>Solaris 11</td>
</tr>
</tbody>
</table>

### Service Level Catalog

<table>
<thead>
<tr>
<th>Service Level</th>
<th>Local Primary Instance(s)</th>
<th>Remote Failover</th>
<th>Storage</th>
<th>Backup</th>
<th>DR</th>
<th>Outage RTO (estimate)</th>
<th>DR RPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze</td>
<td>1 Node DB</td>
<td>N/A</td>
<td>Local Disk Mirror</td>
<td>Tape</td>
<td>D4-D3</td>
<td>48 Hr Max</td>
<td>+72 Hr</td>
</tr>
<tr>
<td>Silver</td>
<td>2 Node RAC</td>
<td>N/A</td>
<td>Local Disk Mirror</td>
<td>Tape</td>
<td>D4-D2</td>
<td>24 Hr Max</td>
<td>+24 Hr</td>
</tr>
<tr>
<td>Gold</td>
<td>2 Node RAC</td>
<td>1 Node DB</td>
<td>Remote Replication</td>
<td>Disk</td>
<td>D4-D0</td>
<td>8 Hr Max</td>
<td>+12 Hr</td>
</tr>
<tr>
<td></td>
<td>(50% Remote Site)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platinum</td>
<td>2 Node RAC</td>
<td>2 Node RAC</td>
<td>Remote Replication</td>
<td>Disk</td>
<td>DP-D0</td>
<td>1 Hr Max</td>
<td>+2 Hr</td>
</tr>
<tr>
<td></td>
<td>(100% Remote Site)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DBaaS Deployment Models

Isolated O/S

Partitioned O/S

Shared O/S ("Bare metal")

Pluggable Databases

- Isolated O/S
- Partitioned O/S
- Shared O/S ("Bare metal")
- Pluggable Databases

Design
DBaaS Physical Architecture

DBaaS H/A and Multi-site Failover

DBaaS Server and Storage Resource Pool
- Server Resource Scalability
- Exadata X2-2 Full Rack
- 3 Frames IB Interconnect
- Oracle Active Data Guard
- Redo Transport
- DR Replication Network
- Local HA
- DB RAC Cluster

DBaaS DR Server and Storage Resource Pool
- Exadata X2-2 Full Rack
- 3 Frames IB Interconnect
- Oracle Active Data Guard
- Redo Transport
- DR Replication Network
- Local HA
- DB RAC Cluster

Oracle EM Agent
Oracle RMAN

DBaaS Backup Tier
- Disk to Disk to Tape
- Tape Library

DBaaS Backup and Recovery

Oracle EM Grid Control
Oracle OPS Center
Oracle ASM Software
Oracle RAC Software
Oracle Sun ZFS Storage
Oracle Sun Datacenter InfiniBand Switch
Cisco Catalyst 4948 Ethernet Network
InfiniBand Network

DBaaS Service Management Repository
Oracle EM Agent
Oracle Active Data Guard
Redo Transport
DR Replication Network
Local HA
DB RAC Cluster
Oracle RMAN

Service Interfaces

Oracle Sun ZFS Storage
Oracle Sun Datacenter InfiniBand Switch
Cisco Catalyst 4948 Ethernet Network
InfiniBand Network

DBaaS Service Management Tier
Oracle EM Grid Control
Oracle OPS Center
Oracle ASM Software
Oracle RAC Software
Oracle Sun ZFS Storage
Oracle Sun Datacenter InfiniBand Switch
Cisco Catalyst 4948 Ethernet Network
InfiniBand Network

DBaaS Backup and Recovery
- Disk to Disk to Tape
- Tape Library
- Oracle StorageTek
- Sun Datacenter InfiniBand Switch
- Cisco Catalyst 4948 Ethernet Network
- InfiniBand Network

Service & Operations Management Workgroup
DBaaS Cost Recovery and Chargeback

What services will I sell?

What infrastructure will I need to deliver those services?

What is the cost of delivering those services on that infrastructure?

How many services do we plan on selling for that infrastructure?

How long will it take to sell those services?

How much do I need to price my services to recover my cost and/or meet my financial objectives?
DBaaS Cost Recovery and Chargeback Model
ITIL-Based Governance and Service Management Framework

Governance Board

- Agencies
- DIR, SI

IT Service Management

- Service Strategy
  - Financial
  - Service Portfolio
  - Demand
  - Strategy Generation
- Service Design
  - Service Level
  - Availability
  - Capacity
  - IT Svc Continuity
  - Service Catalog
    - Information Security
    - Supplier
- Service Transition
  - Change
  - Service Asset & Configuration
  - Release & Deploy
  - Transition, Plan, Support
  - Service Validation
    - Testing
- Service Operation
  - Incident
  - Problem
  - Request Fulfillment
  - Access
  - Event
- Continual Service Improvement
  - Service Improvement
  - Service Measurement
  - Service Reporting

Cloud Service Provider

- DIR, SI, Contractors, etc...

Svc Catalogs SLA Contracts RunBooks SMM Etc...

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Service & Operations Management Workgroup
Private Cloud Capability Model

Cloud Service Management and Governance Model

- Cloud Consumers
  - Cloud Consumer Portal
  - Cloud Services
- Cloud Business Operations
- Cloud IT Operations
- Cloud Infrastructure
- Cloud Service Development
- Cloud Security

Transition
Operations
Private Cloud Capability Model

CLOUD SERVICE PROVIDER

Service Development
- Service Development
- SDL Process
- Development Tools
- Site/Site Tools
- Resource Control
- Software Repository
- Service Packaging/Flash
- Service Delivery/Flash

Cloud Security
- Security Management (Audit & Compliance)
- IAM
- Privileged Access Management
- Network Security
- Cloud Security
- Security Governance
- Security Policy
- Cloud Security
- Security Policy
- Cloud Security
- Security Policy

Service Management
- Service Management
- Strategy
- Product Management
- Service Transition
- Service Operations
- Incident Management
- Service Delivery
- Problem Management
- Service Continuity Management
- Service Level Management
- Service Reporting
- Service Improvement

Cloud Provider

Cloud Management Interface

Business Services
- Customer Relations
- Reporting
- Service Desk
- IT Service Management
- Private Cloud Capability Model
- Transition
- Operations

Service Operations
- Business Services
- Service Strategy
- Service Design
- IT Service Management
- Supplier Management
- IT Financial Management
- Service Continuity Management
- Risk Management
- Service Level Management
- Service Transition
- Service Operation
- Change Management
- Service Portfolio Management
- Service Catalog Management
- Service Level Agreement
- Service Delivery
- Service Operations
- Change Management
- Service Continuity Management
- Risk Management
- Release Management
- IT Architecture
- IT Service Management
- Private Cloud Capability Model
- Transition
- Operations

Subscriber Interfaces
- Self-Service Portal & APIs
- Subscriber Registration
- Account Management
- Service Change Requests
- Resource & Policy Controls
- Approvals & Notifications
- Service Desk
- Monitoring & Alerting
- Reports &市场经济 Dashboard
- Billing & Payment

Service Deploments
- Software as a Service
- Platform as a Service
- Infrastructure as a Service
- IT Support Services

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Service & Operations Management Workgroup
Agency Engagement Model

- Present
  - Present services and value proposition
  - White Paper
  - Presentation

- Nominate
  - Select/Submit request for New DBaaS tenant account
  - Technical discovery & assessment of existing Oracle DB footprint

- Assess
  - Tenant Questionnaire
  - Business Justification

- Plan
  - Personalized migration plan & scheduling
  - Assign resources
  - POC
  - Test
  - Validate

- Pilot
  - Migrate data with tools
  - Follow migration methodology
  - Migrate
  - Acceptance Plan

- Go Live
  - Coordinate DNS Switchover
  - Success Story

Support

Operations
- Improvement

Service & Operations Management Workgroup
Summary

✓ DBaaS is Service Delivery Model, not a Product

✓ DBaaS is about People, Process, then Technology

✓ DBaaS must provide Business Value
Ray Rose
Chief Operations Officer

New York State
Office of Information Technology Services
Carol Bentley
Change Management Process Owner

New York State
Office of Information Technology Services
Why is Change Management Important?

- The Change Management process is used to plan and manage changes to the IT Infrastructure or any aspect of IT services to promote business benefit while minimizing the risk to services.

- The primary objective of Change Management is to enable beneficial changes to be made, with minimum disruption to IT Services.

- Change management increases the success of change by applying a structured framework of methods, tools, and processes managing the change.
What We Were

- Disparate groups using multiple Change tools
- Unable to produce meaningful Change metrics
- Unable to successfully communicate on Change across the enterprise

What We’re Becoming

- One cohesive organization
  - Common Change tool – ITSM/ServiceNow
    - Utilized by all EO groups
    - Clusters currently being on-boarded
  - Common process – one EO Change Process
  - Common metrics – Measure IT
How Are We Getting There?

- Setting expectations
  - Documenting processes and responsibilities
  - Common terms and definitions

- Focus on Planning
  - Increasing required lead time on Changes
  - Producing 30, 60, 90 day Change Calendars
  - Shared Business Calendar of maintenance windows, cluster requests for limits on Change

- Vetting and approval of requested Changes
  - Cluster Change Managers participating in EO Change Review meetings
  - Pilot CAB EC meetings
How Are We Getting There? (continued)

- Improving communication with customers and ITS peers regarding Change
  - End user notifications
  - Cluster notifications: cluster change managers, cluster management
  - Service Desk notifications

- Training/Knowledge share
  - ITSM Team providing additional classes on Change Management
  - Video training
  - Cluster Change Managers sharing information and experiences as clusters are on-boarded to ITSM
  - Weekly Change Management process discussions at Pilot CAB EC meetings
Change Management

Benefits Realized

- Fewer Sev 1 incidents caused by Change
- More planning / less reactive (COO teams driving higher quality)
- Communications are improving (cross cluster sharing)
- Communications improving among Operational teams / Service Desk
  (i.e.; Improved change awareness enables Desks to better relate incidents to changes, helping incident resolution)

Next Steps / Continuous Improvement

- Better define Change impacts (Build out CMDB)
- Improve classification of Changes (Common definitions)
- Evaluate the Change approval process (EO CAB, CAB EC)
- Customer Notifications: Define notification types, when needed, correct audience
Azim Ahmed
Service Catalog Development

New York State
Office of Information Technology Services
ITIL Service Catalog:

“Provide a single source of consistent information on all the agreed services, and ensure it is widely available to those who are approved to access it.”
ITS Service Catalog Journey:

**Rationalization**
- IT as Service Provider (Operational Catalog)
- Regulated controls and practice

**Transformation**
- IT as Stake Holder (Partner)
- Governance and Strategic Alignment

**Short-Term**
- IT Consolidation
  - IT as Cost Center (portfolio)
  - Informal and Ad-hoc controls

**Mid-Term**
- Rationalization
  - IT as Service Provider (Operational Catalog)
  - Regulated controls and practice

**Longer-Term**
- Shared Value and Risk
  - Transformation
  - IT as Stake Holder (Partner)
  - Governance and Strategic Alignment

Agencies:
- Agency A
- Agency B
- Agency C
- Agency D
ITIL **Does Not** Tell You How To Succeed

Key Success Factors for Any Initiative

- Clear Strategy
- People (Team Focused on Business)
- Executive Commitment (Resources)
- Execution
Steve Spalten
Director End-User Services

New York State
Office of Information Technology Services
Problem Management

Primary Objectives

- Prevent problems and resulting incidents from happening
- Eliminate recurring incidents
- Minimize the impact of incidents that cannot be prevented
Activities include:

- Diagnose Root Cause of Incident
- Determine the resolution
- Ensure the resolution is implemented with appropriate control procedure (change management for example)
- Update Knowledge Management
5 Why’s

The vehicle will not start. (the problem)

- **Why?** - The battery is dead. (first why)
- **Why?** - The alternator is not functioning. (second why)
- **Why?** - The alternator belt has broken. (third why)
- **Why?** - The alternator belt was well beyond its useful service life and not replaced. (fourth why)
- **Why?** - The vehicle was not maintained according to the recommended service schedule. (fifth why, a root cause)
Q & A