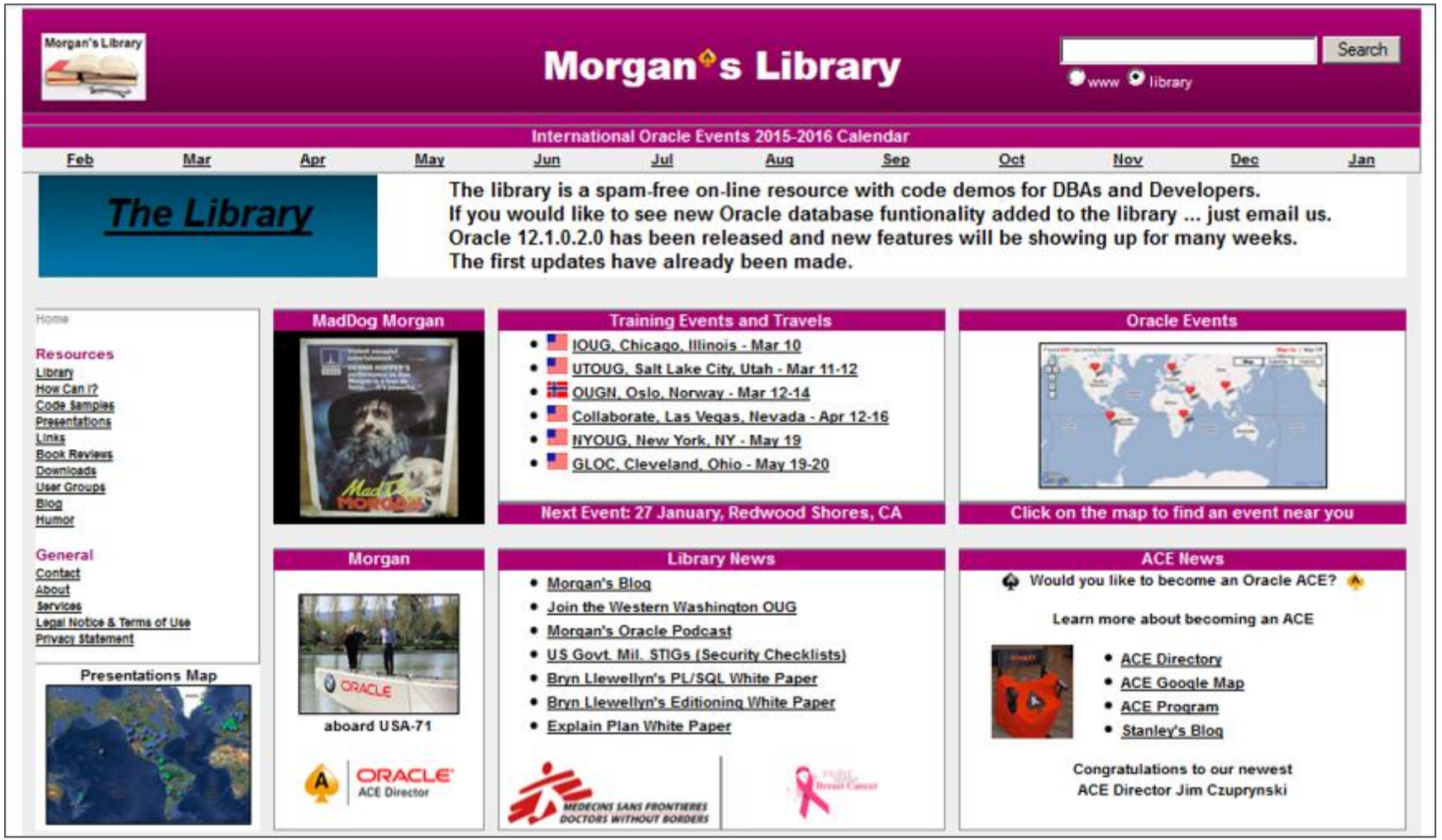
Oracle DBaaS Migration Road Map

Daniel Morgan

- Oracle ACE Director
- Educator
  - Wrote Oracle curriculum and primary program instructor at University of Washington
  - Oracle Consultant: Harvard University
  - University Guest Lecturers
    - APAC: University of Canterbury (NZ)
    - EMEA: University of Oslo (Norway)
    - Latin America: Universidad Latina de Panama and Technologico de Costa Rica
- IT Professional
  - First computer: IBM 360/40 in 1969
  - Oracle Database since 1988-9
  - Beta Tester 10g, 11g, 12c, TimesTen, GoldenGate
  - The Morgan behind www.morganslibrary.org
  - Member Oracle Data Integration Solutions Partner Advisory Council
  - Co-Founder International GoldenGate Oracle Users Group
- Principal Adviser: Forsythe **Meta7**

System/370-145 system console

My Websites: Morgan's Library



www.morganslibrary.org

Forsythe Technology, Inc.

- Founded in 1971 ... a 45 year record of success
- One of the largest independent IT integrators in North America
- Second largest security integrator in North America
- Employee owned

In the past year, Forsythe has worked with 20 of the Fortune 100 companies.

Forsythe has 1,000 employees.

- 500 Engineers and Consultants
- 2,500 Industry Certifications
- 15+ avg. years of experience

Our Technology Evaluation Center is an independent, multi-vendor test bed for 150+ technologies from more than 40 leading manufacturers and vendors.

Our 2014 Revenue. Profitable for 44 consecutive years.

Forsythe's migration capabilities.

- 1,400 data center migrations
- 150 per year
- 325,000 workload migrations

Forsythe is one of the largest security integrators in North America.

Forsythe serves 1,000 clients. Retention rates: 100% for the top 50 clients and 97% for the top 200 clients.

What Meta7 Brings To The Party

- We are the Forsythe division dedicated exclusively to the Oracle Red Stack
- Our focus is on business solutions

What makes Meta7 different

Others	Meta7
Staff Augmentation	Proven Product Based On "Best Practices"
Figure It Out At The Customer Site	Lab Tested Solutions
Broadly Focused	Oracle Red Stack Only
Can open an SR	Direct access to Support Mgmt & Developers
Non US Team Members	100% US Based

GoldenGate for Oracle DBAs
Zero Downtime Migrations

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Tuesday: September 29, 2015

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Technical Briefing:
How Do You Safeguard the Database Against Today's Cyber Threats?

October 21, 2015

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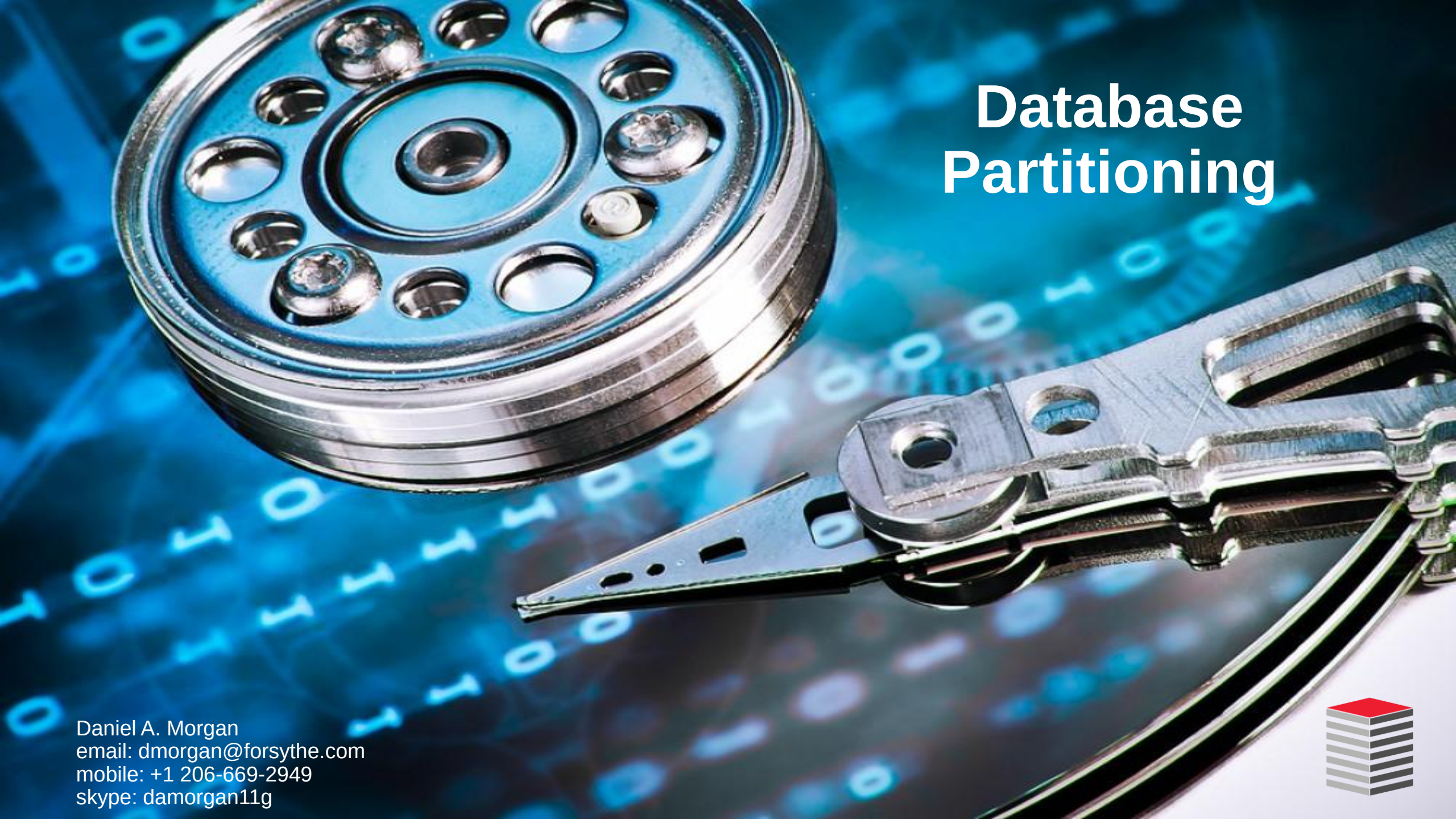
Database Partitioning



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IT Fire Fighting

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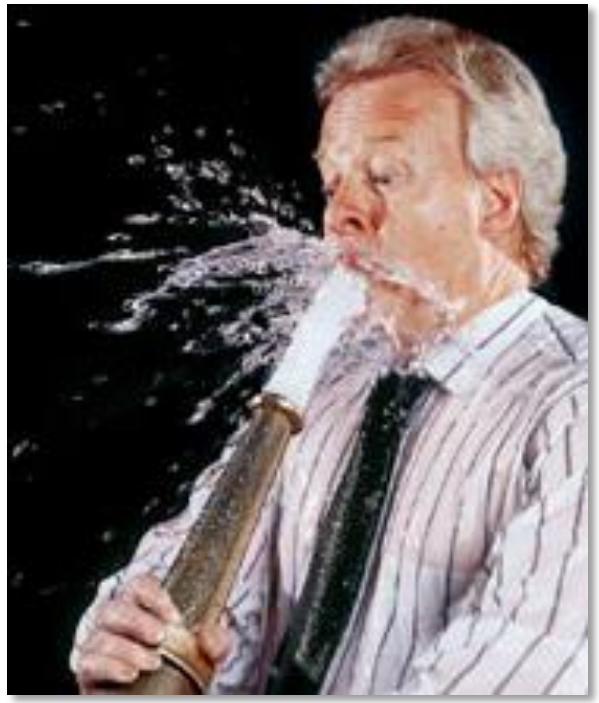
Travel Log: 2014

Travel Log: 2014

Content Warning

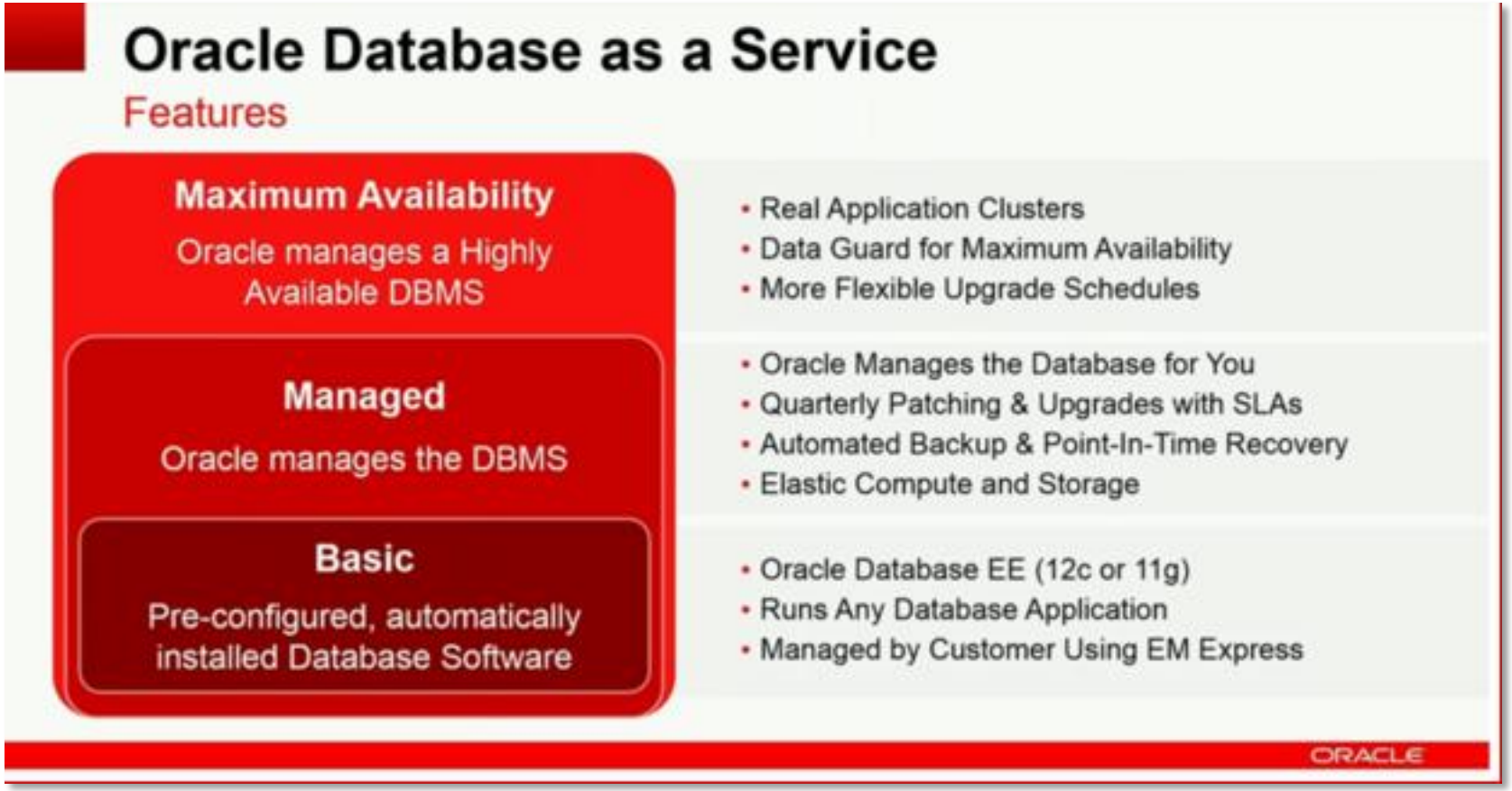
Content Density Warning



Take Notes ... Ask Questions

The #1 DBaaS Migration Strategy

DBaaS: What IT Management Sees (1:2)



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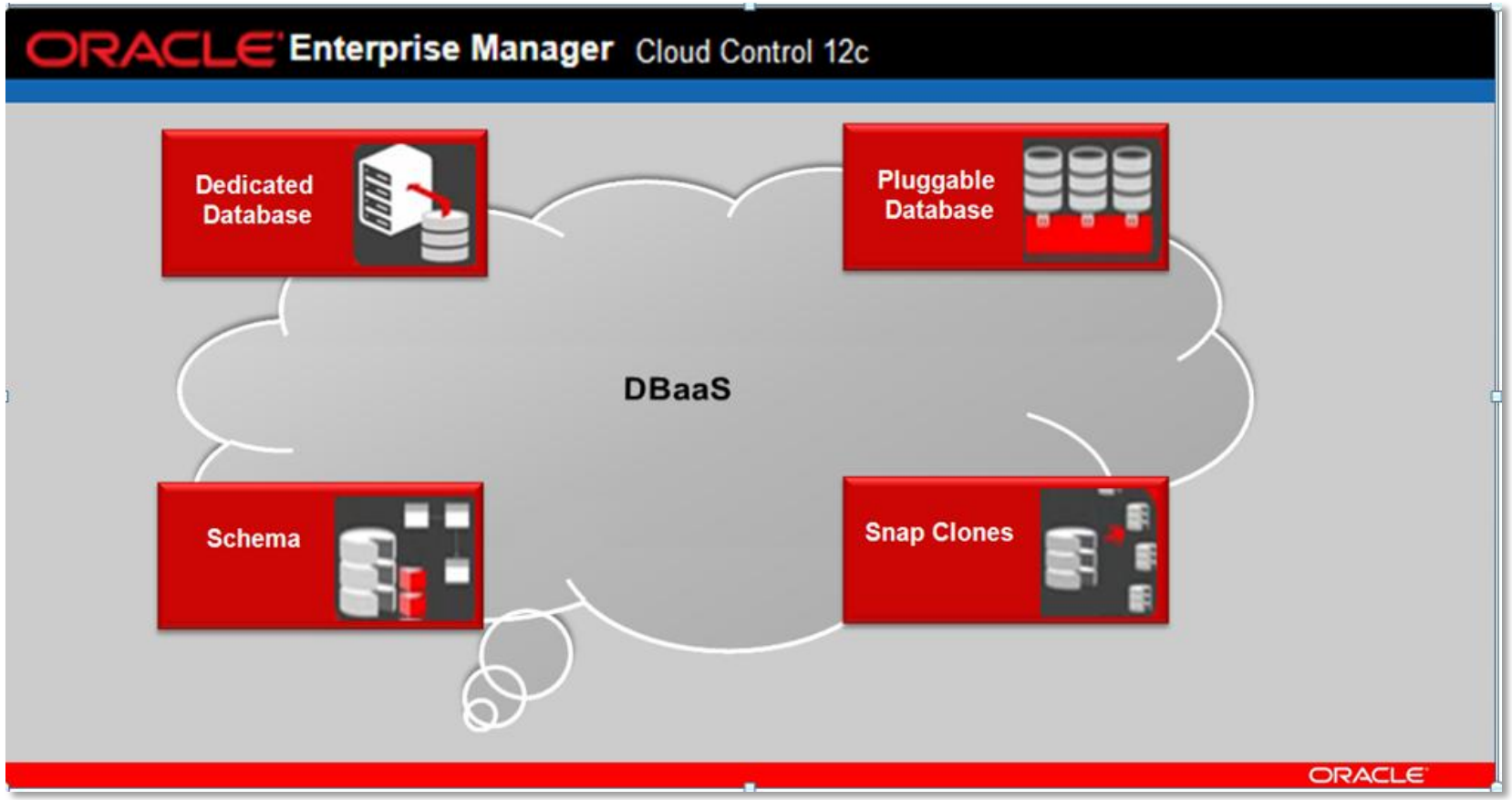

DBaaS: What IT DBAs See

Discovery

The single most important part of lowering TCO when migrating to the cloud is discovery and planning

This is equally true whether you are migrating to a private cloud, a hybrid cloud, or to Oracle's PaaS we call Database as a Service

DBaaS Migration Goals

- Migrating to DBaaS can bring great value to an enterprise
  - Lower Total Cost of Ownership (TCO) achieved by eliminating data center space, overhead, and infrastructure as well as reducing the number of expensive FTEs and contractors
  - Increased stability helps to achieve Service Level Agreement goals
  - Increased security supports regulatory and governance requirements
  - Increased performance leads to more responsive applications and web sites and the satisfaction of both internal and external customers
- The difference between achieving moderate improvements and substantive improvements results from performing the necessary discovery to maximize the benefits
- The following information is based on moving all of an enterprise's databases: production was well as upstream systems such as dev and test
- In most cases organizations choose to move only dev and test and a subset of the detailed materials that follow is sufficient for their purposes

What We Are Searching For (1:2)

- Consolidation opportunities
  - The ability to consolidate currently separate databases to achieve better resource utilization
- Migration dependencies
  - Systems that should be migrated as part of a single block-point, or in a specific order, to minimize or eliminate migration downtime
- APIs and dependencies
  - When a database is migrated to the cloud dependencies such as imports, exports, reporting tools, application servers, and other activities are seamlessly migrated with them
- Resource requirements ... both current and future
  - Determine the optimum configuration for cpu, memory, storage, and networking
- Security and Auditing
  - Identify regulatory and governance requirements such as Advanced Security licensing

What We Are Searching For (2:2)

- SLA, RPO, and RTO
  - Identify systems that would benefit from utilization of Oracle RAC, Data Guard, Active Data Guard, Snapshot Standbys, and GoldenGate replication
  - Determine Mean Time To Recover (MTTR) requirements
- Replication using Streams and third-party technologies
  - Identify systems that would benefit from GoldenGate, ODI, and other replication technologies
- Storage
  - Identify opportunities to reduce customer costs through the use of data tiering with Automatic Data Optimization (ADO) a.k.a. Information Lifecycle Management (ILM)
- Memory
  - Identify databases with performance issues that would benefit from the use of In-Memory technologies such as In-Memory Database, In-Memory Aggregation, and In-Memory Column Store
- Catalog upstream pre-production systems and the maturity of the organizations processes and procedures

What We Collect (partial listing 1:2)

- Systems Inventory
  - System name
  - Utilized server and storage infrastructure
  - Operating system and virtualization if in use
  - Resource requirements (cpu, memory, IOPS, space)
  - SLA, RPO, RTO
  - Database edition and version
  - Catalog all Oracle licensing specific to the system (Partitioning, Advanced Compression, Advanced Security)
  - High Availability requirements (RAC, Data Guard)
  - DR strategy
  - Regulatory and governance requirements (encryption, auditing)
  - Usage pattern (daily, monthly, holidays, seasonal)
  - Capacity planning information (positive or negative: in storage, users, and transactions)
  - Replication requirements including imports and exports

What We Collect (partial listing 2:2)

- Systems Inventory
  - Migration considerations (for example applications with vendor support limitations)
  - Patching considerations (for example applications with vendor support limitations)
  - Identify APIs and interface that can and cannot be easily migrated
  - Identify anticipated API requirements where implementation is planned or in-progress
  - Identify connections to third-party tools
  - Identify connections to application servers
  - Identify dependencies on other databases such as database links
  - Identify dependencies on other databases requiring that they be moved as part of a single block-point
  - Number of users per unit of time
  - Number of transactions per unit of time
  - System usage such as OLTP, DSS, or Data Warehouse
  - System with current security and/or audit issues
  - Systems with current performance issues
  - Systems with current stability issues

What We Do With The Discovery Data (1:2)

- Create a master plan with one or more sub-plans
- The master plan organizes the project from the original discovery phase through the sub-plans each of which corresponds to a block point at which one or more databases will be migrated from their current infrastructure to a DBaaS service
- The sub-plan will define the following in both business and technical terms
  - The QoS target and how it will be achieved
  - The MTTR target and how it will be achieved
  - The HA target and how it will be achieved
  - The DR target and how it will be achieved
  - Migration milestones and their delivery dates
  - The DBaaS resources that must be procured and scheduled prior to DBaaS deployment
  - The configuration details for each existing API that will be dropped, modified, or migrated
  - A project plan showing start dates, target completion dates, and dependencies
  - The resources, procedures, and processes that will be utilized to perform the migration

What We Do With The Discovery Data (2:2)

- Existing Oracle licenses that will be transferred to the DBaaS environment
- New Oracle licenses that may be required to meet SLA, security and governance needs
- Cron jobs that will need to be rewritten or converted into DBMS_SCHEDULER jobs
- Pluggable databases that will co-exist within the same container environment based on future patching and upgrade requirements

Plan Approval

- The master plan, and its associated sub-plans are reviewed by Meta7 program management and technical teams and once approved internally reviewed with the customer
- Upon receiving customer approval Meta7 will work with Oracle Corp. to schedule and implement the approved plan

Conclusions

- Anyone can fork-lift a database from a server in one data center to a server in another data center
- To realize a measurable lowering of TCO requires that you engage in
  - Requirements gathering
  - Planning
  - Consolidation
  - Optimization
- The Oracle DBaaS cloud offers a lot of value to those that engage in the required planning and preparation

Thank You

META7™

A Division of Forsythe

Solutions for the Red Stack

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