

# Disaster Recovery Strategies for Oracle Standard Edition



[www.dbvisit.com](http://www.dbvisit.com)

**ORACLE** Gold  
Partner



# Introduction

Arjen Visser

Founder and CTO of Dbvisit Software Limited

Creators of **Dbvisit Standby** and **Dbvisit Replicate**

Past Experience:

- DBA / Technical Director
- Team leader/Unix admin/project manager
- Datawarehouse developer/programmer
- Speaker at OOW 2009, 2010, 2011, NZOUG, CLOUG, RMOUG11

# Overview

1. Who is Dbvisit Software?
2. Business Drivers for Disaster Recovery
3. Oracle licensing options
4. What is a Standby Database ?
5. Overview of Dbvisit Standby
6. Components and Concepts
7. Operations - Basic and Advanced
8. Benefits

# Who is Dbvisit Software ?

- Oracle Software Product Developer
- The leader in DR solutions for Oracle SE
- Customers in over 60 Countries
- In business 5 years
- Growing at >100%



# Some of Dbvisit customers



# World #1 alternative to Data Guard

Used by DBAs and companies over 60 countries

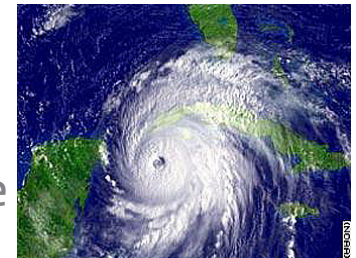


# Why Disaster Recovery ?

- Most businesses view it in terms of risk vs. cost
  - 43% of business impacted by disaster never reopen<sup>1</sup>
  - 72% of business impacted by disaster do not exist within 3 years from the disaster<sup>1</sup>
  - 93% of businesses that suffer significant data loss are out of business in 5 years<sup>2</sup>
- Regulated industries view it as a requirement
  - Financial, Healthcare, Government, etc,



Japan



Hurricane  
Katrina



Sarbanes Oxley

<sup>1</sup> US National Fire Protection Agency

<sup>2</sup> US Labor Dept







Christchurch Civil Defence Office





# Your Critical Business Asset



PRIMARY  
SOURCE DB

- Must be protected against disasters
- Why? to ensure business continuity
- Who is responsible the - DBA
- Protect your database **AND** your business with a **Standby Database**



# Ranking Data

## Ranking Digital Information by Loss and Time

Application	Importance	Sensitivity
Order Management	High	High
CRM	High	Medium
Financials	High	Low
eMail	Medium	High
Shared File System	Medium	Medium
and more	Medium	Low
and more + 20	Low	High
and more + 50	Low	Medium
and more + 100	Low	Low

Mission Critical



# Recovery Considerations

- **RTO - (Recovery Time Objective)**

Maximum amount of time before systems are up and running again.

- **RPO - (Recovery Point Objective)**

Maximum amount of data loss (measured in time) acceptable in the event of a disaster.

Tier	RPO	RTO	Cost
I	No data loss	<30 min	\$\$\$\$\$\$\$\$\$\$
II	< 30 min	< 1 hour	\$\$\$
III	24+ hours	48+ hours	\$\$
IV	7+ days	3+ days	\$

# Oracle Licensing Options

- FREE

- + Backup
- + Failover (Only for 10 Days)
- + SE RAC

- PURCHASE

- + Standby. Mixing editions is possible (EE -> SE, SE -> SE1 etc)
- + Remote Mirror (Except RAC)
- + Same metric as PRIMARY
- + Do not forget Names User Plus (NUP)
- + Amazon Cloud an Option
- + Oracle Applications RUNTIME Backup only

Always check with your Oracle account manager



# What is a Standby Database?

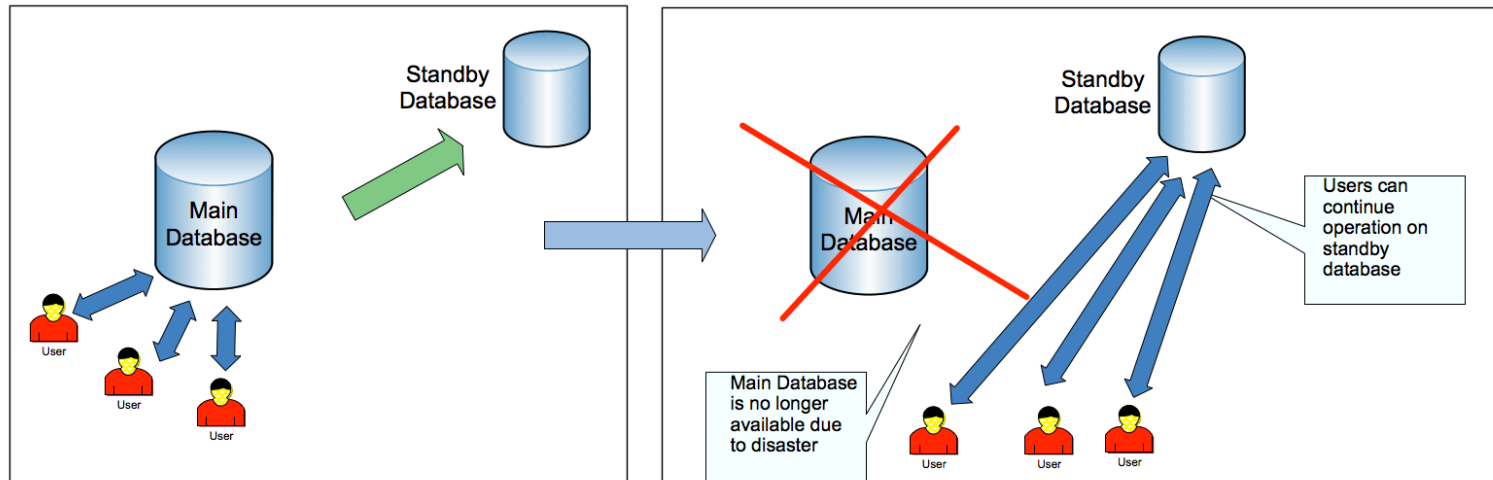
- **Primary Database** - Contains production data that must be protected against any kind of loss
- **Standby Database** - Copy of production database that can be brought online to become the production database





# Standby Database Purpose

- Users can be transferred to the standby database (with limited downtime) when main database has a major outage



# Two Types

- Physical Standby
  - A copy of a primary database but in a permanent state of recovery
  - If the primary database fails then the standby database can be opened (or activated) and be ready for use
- Logical Standby
  - Independent to primary but kept in sync by replication mechanism. A Logical standby is available at all times



# Differences Logical & Physical

- Physical standby database is a binary copy - applies redo
- Logical standby database is a logical copy - applies SQL
  
- Analogy: Keeping a standby copy of a word document in sync:
  - **Physical** → Use rsync to synchronise
  - **Logical** → Cut and paste the changes



# Disadvantages of Logical

- Not a binary copy (not 100% guaranteed to be correct)
- Not all data types are replicated
- Conflict resolution needs to be setup
- Complex to administer
- DBA needs to understand data and application with conflicts
- Performance implications

Logical standby databases generally not recommended for DR

Better suited for replication - data distribution



# Physical Standby

- Relatively easy to setup and maintain
- Less overhead
- 100% guaranteed to be correct (best practice)
- DBA's are more familiar with them
- Off load backups, fast recovery

PHYSICAL STANDBY IS THE BEST SOLUTION FOR DR





# Standby Database options

## Standby Database $\neq$ Data Guard

- Data Guard is Oracle's solution to keeping the standby database up to date
- Data Guard manages this process
- Only for Oracle Enterprise Edition (EE) users

There are other solutions for XE, SE, SE1.....



# You can try DIY but

- Robust/secure enough. Can it recover from all outages and glitches, good locking and transport mechanism?
- Solid notification?
- Tested under all scenarios, minimal data loss?
- Covers all Oracle errors and exceptions?
- What will happen when you change, upgrade or patch Oracle?
- What happens when you rebuild or refresh the standby database?
- What happens after activation?
- Does it support RAC, OMF and ASM?
- Comprehensive support and documentation?
- Will other DBA's be comfortable using it?



# What is important

- High reliability, robust and proven solution
- High resilience
- Support for RAC, OMF and ASM
- Creates standby database
- Low noise (only tells you when things go wrong)
- Fast to setup, easy to use, short learning curve
- Low Total Cost of Ownership (TCO)
- DBA's feel comfortable using it



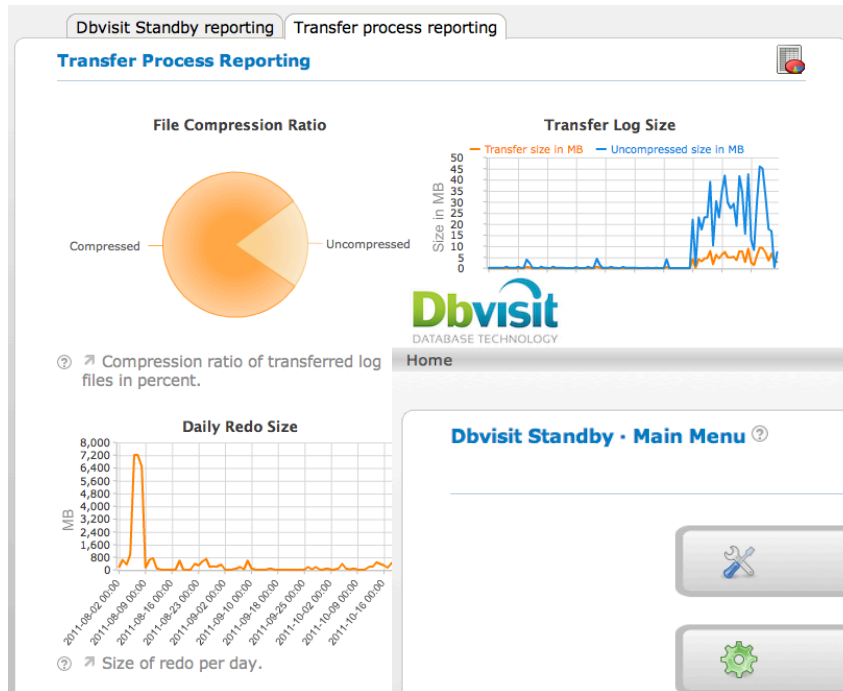
# Overview of Dbvisit Standby

A fully featured DR solution for Oracle SE

- Failover
- Graceful Switchover
- Creation of Standby Database
- RAC
- ASM, OMF
- Compression, Secure, Monitoring, Encryption



# Command line or web based



```

=====
Dbvisit Standby Database Technology (6.0.02.5856)
http://www.dbvisit.com

Dbvisit Database setup
Default values will be shown in []

Options:
1) New Dbvisit Database setup (combines options 2,3,4)
1a) New Dbvisit RAC Instance setup (combines options 2,3,4)

2) New Dbvisit Database configuration (DDC) file setup
3) New Dbvisit Archive Management Module (AMM) setup
4) New Dbvisit Database repository (DDR) setup

5) Manage Dbvisit Database repository (DDR)
6) Update Dbvisit Database configuration (DDC) file

7) Create Standby Database (and template)

9) Uninstall Dbvisit Database repository (DDR)
E) Exit

=====
Please enter choice : █
  
```





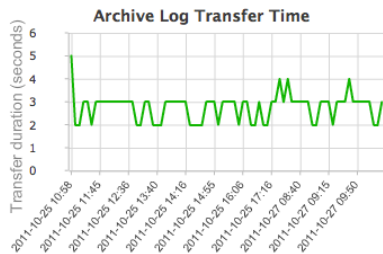
# Web based interface

**Databases** Please specify the Dbvisit Database Configuration (DDC) to work with.

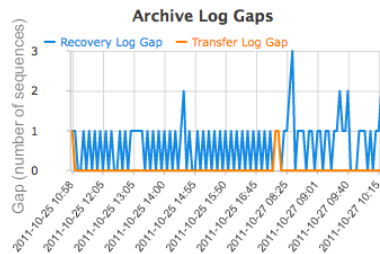
w112f

Dbvisit Standby reporting **Transfer process reporting**

## Log Gap & Transfer Time Reporting



Duration of log transfers between primary and standby database.



Archive log gaps for recovery and transfer logs.

Start Date	End Date	Charts	Images
27 Jul 2011	27 Oct 2011	Update	Download

## Dbvisit Standby - Create Standby Database

### Primary Database Information

Database Name	Oracle Version	Size	Transfer ETA
w112f	11.2.0.1.0	1.16GB	7 minutes

### Direct Copy

Copy directly to standby server?

Yes  No

### File Compression

Use SSH compression on database files during transfer?

Yes  No

### Customise Standby Oracle Parameters

Set to "No" if all Oracle database parameters for the standby database should have the same values as for the primary. Set to "Yes" if you want to change the value of one or more Oracle database parameters for the standby database.

Please note: the parameter "db\_name" will always be set to the name of the primary database. Hence, this parameter is not available in the table below.

Yes  No

### Use Standby Spfile

Set to "Yes" if you want the standby database to use a spfile.

Set to "No" if you want the standby database to use a pfile. If unsure, set to "Yes".

Yes  No

### Save Template

Save information provided on this page as new template? Please note: if there is an already existing template present for this database, then it will be overridden.

Yes  No

**Databases** Please specify the Dbvisit Database Configuration (DDC) to work with.

w112f

Primary Server **Standby Server**

## Run Schedule

### Schedules

Status	Interval	Minute	Hour	Day	Month	Week Day	Dbvisit Standby Command	Action
<input checked="" type="radio"/>	5	None	All	All	All	All	Default	Enable
<input checked="" type="radio"/>	10	None	All	All	All	All	Log Gap Report	Enable

### Autostart

Status	Dbvisit Standby Command	Action
<input type="radio"/>	Start Database	Disable

### Command Log File Status

Status	Last Updated	Log File Actions
<input checked="" type="radio"/>	Today 10:20:49	<a href="#">View</a>   <a href="#">Errors</a>   <a href="#">Clear</a>

Save Schedules

# Dbvisit Standby Compatibility

## Oracle Databases

- 8i to 11gR2 32 & 64 bit

## Operating Systems & Storage

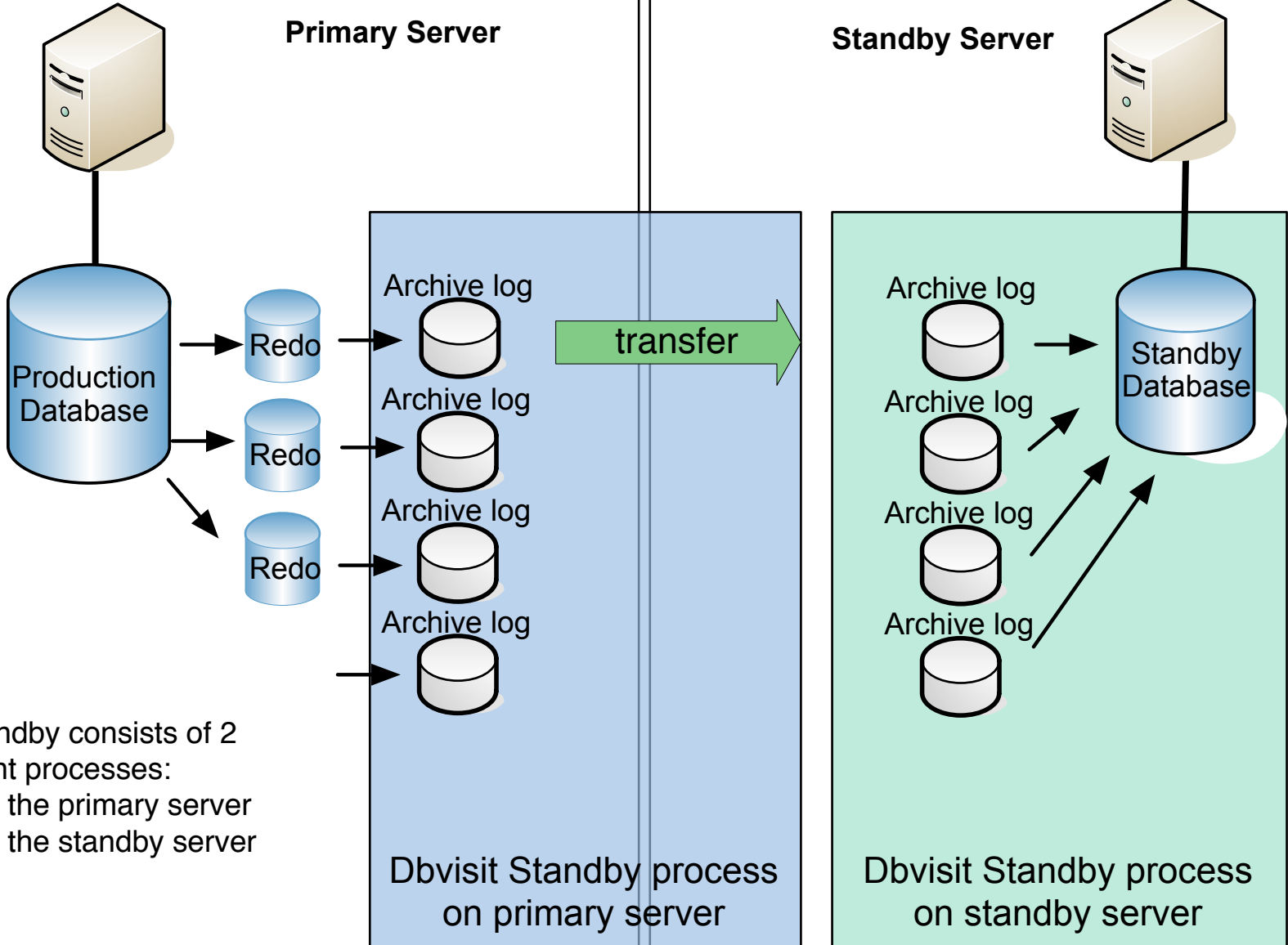
- Windows: 2000-2008
- Linux: Intel, AMD, Itanium & PPC
- Solaris, HPUX, AIX, Open Solaris
- ASM, Oracle Flash Recovery Area



# Architectures Supported

- XE
- Standard Edition One
- Standard Edition
- Standard Edition with RAC
- Enterprise Edition
- Cloud Deployment





Dbvisit Standby consists of 2 independent processes:

- On the primary server
- On the standby server

# Components and Concepts

## Primary Server

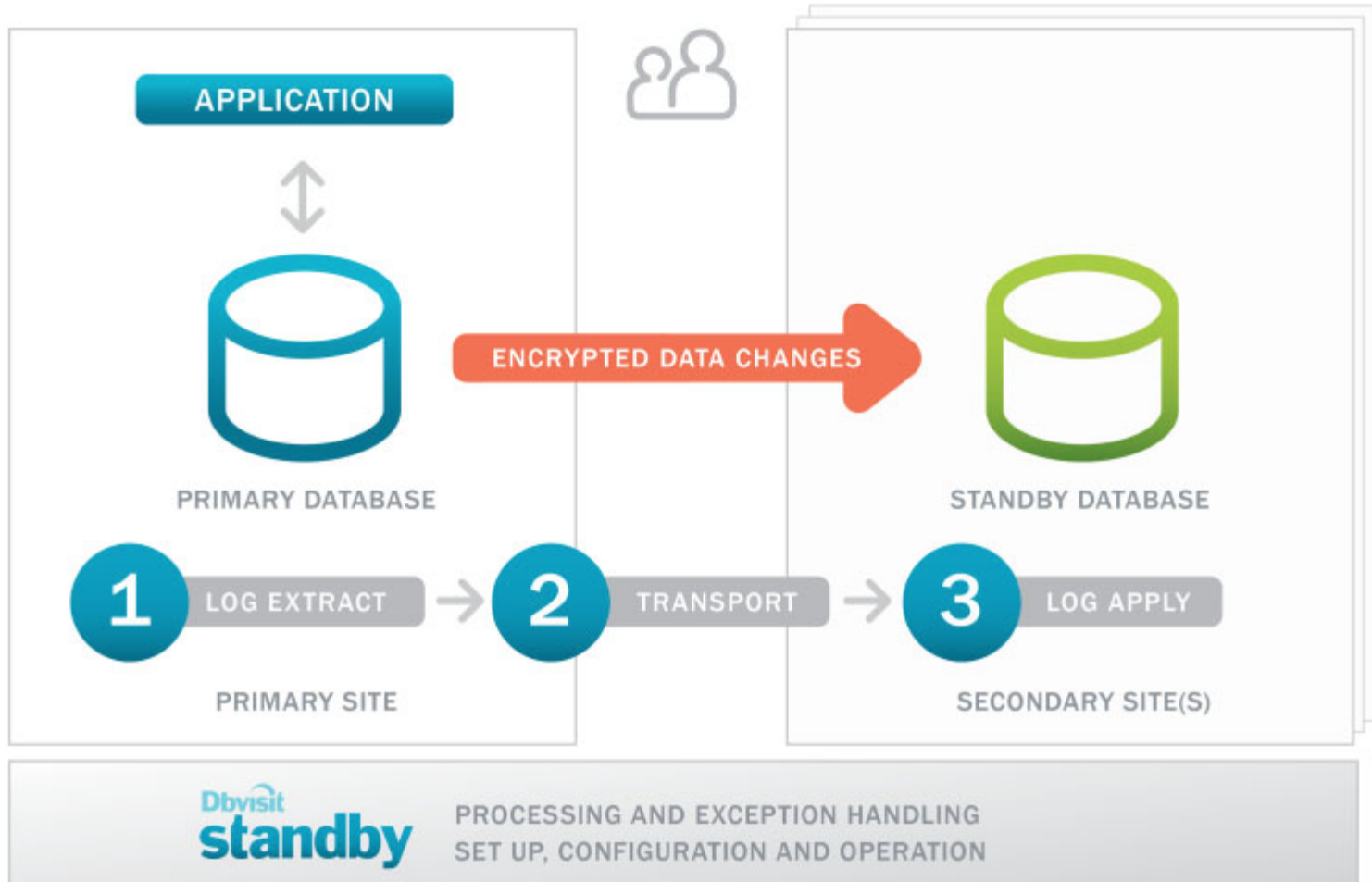
- Log Extract
- Log Transport
- Processing, notify & exception handling
- Trace files/log files
- Schedule

## Standby Server

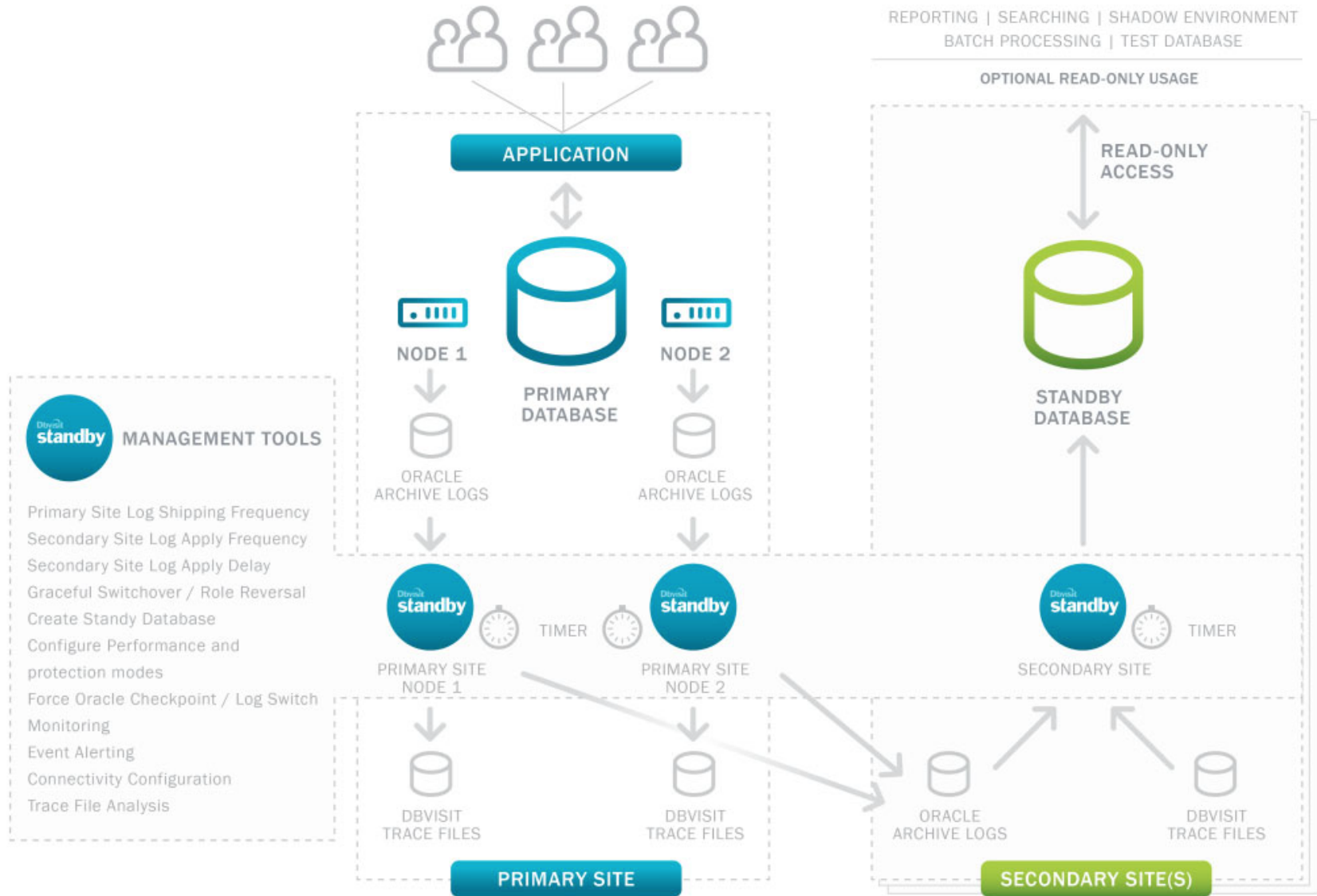
- Log Apply
- Processing, notify & exception handling
- Trace files/log files
- Schedule



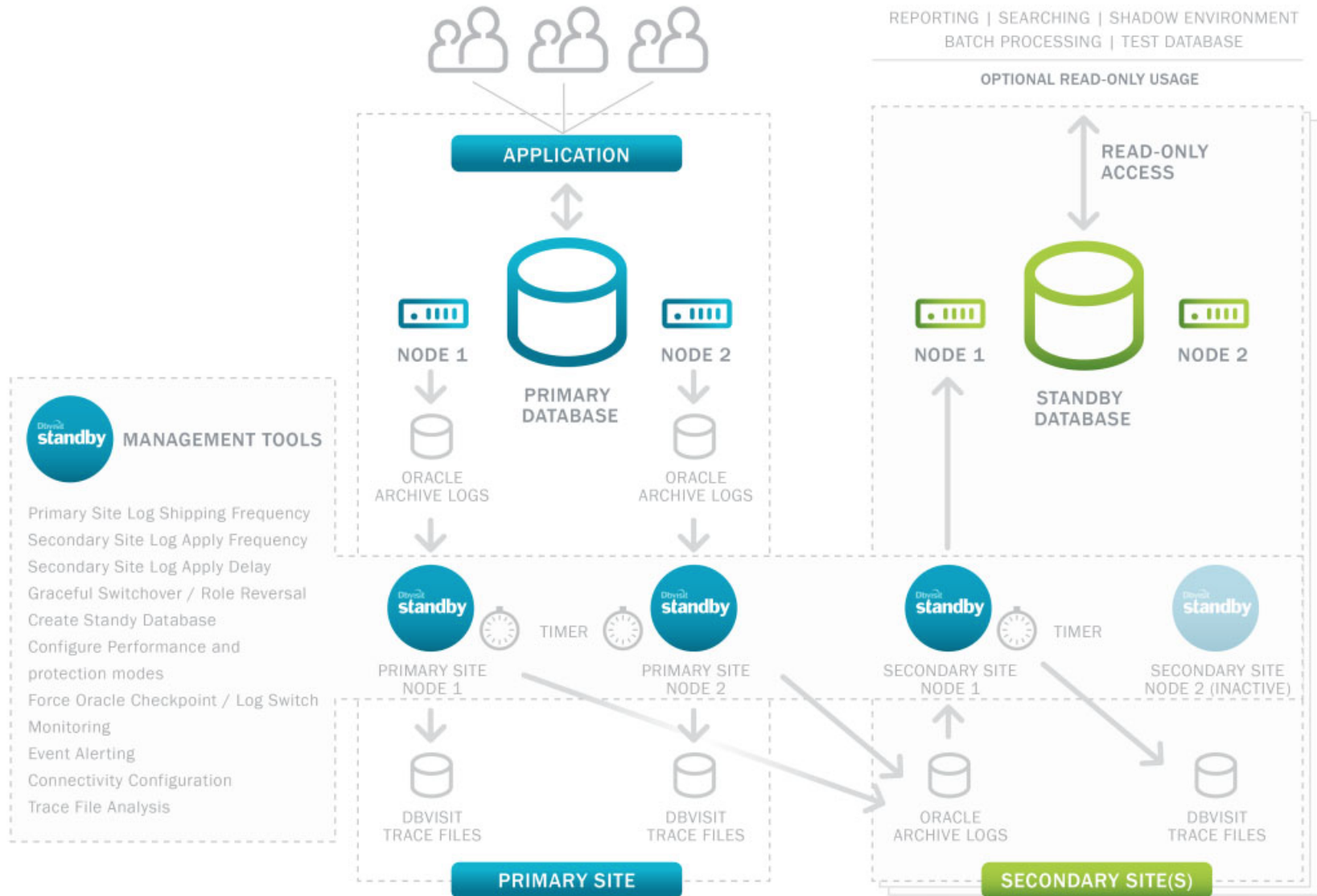
# Process overview



# Rac to single instance



# Rac to RAC





# What is important for business

- Low Total Cost of Ownership (TCO)
- Highly reliable
- Proven solution
- High resilient
- Fast setup, easy to use
- Ability to test DR
- Your DBA's feel comfortable using it
- Gives total peace of mind



# What is technically important

- Automatic recovery from small outages
- Managed Failover
- Managed Graceful Switchover
- Creation of standby database
- Multiple Standby databases supported
- Low noise (Alerts)
- Support for RAC, OMF and ASM
- Expert technical support



# Other uses for the Standby

What else can I use my standby database for ?

- Reporting Database - Offset load on primary
- Shadow environment - Bug investigation etc
- Test environments - Capture snapshots for testing
- Offload backups - Offload backups to standby
- Planned outages - Minimise downtime during maintenance



# Summary

- Databases are a critical business asset
- DR is critical in many circumstances
- Physical Standby solutions are the best
- There is a solution for Oracle SE users
- Test DR on a regular basis

# Thank you - Questions?



**“We chose Dbvisit  
because we could trust  
it to perform every time.”**

Alex Gorbachev  
Chief Technology Officer at Pythian

## CUSTOMER CASE STUDY

# Pythian

### DBVISIT PUT TO THE TEST

Multiple tests were performed to ensure Dbvisit Standby worked every time, and that a switchover could be generated on short notice with the highest level of confidence in its success. Gorbachev says “It took surprisingly little effort on our part before we realized just how well Dbvisit worked – and with all databases, platforms and versions.” He added that the operational processes were unparalleled. “In the event of a disaster, we were 100% certain that the system would work and that it would be easy to test and verify on an ongoing basis.” As he wryly notes, “When a decision to switch over is made, the last thing you need is to wonder whether it will work or not.”



The logo for Dbvisit features the word "Dbvisit" in a bold, sans-serif font. The "Db" is in a green-to-yellow gradient, and "visit" is in a blue-to-teal gradient. A blue arc is positioned above the "i".

**Dbvisit**

THE SMART ALTERNATIVE

[www.dbvisit.com](http://www.dbvisit.com)

