

Beyond High Availability– Replication's Changing Role

Wednesday, November 19th, 2014

Susan Wong

SharePlex Solutions Architect



Agenda

- Replication becomes Mainstream
- Dell's approach to replication solutions
- Architecture of SharePlex
- Logical vs. Physical Replication
- Use cases of replication



Replication becomes mainstream

September 2007

- Data Mirror



IBM

< 2007

Explaining replication

October 2009

- GoldenGate



Oracle

2007-2013

Awareness increasing

September 2012

- Quest



Dell

2014+

Sophistication surges

3 Premiere IT solution providers adopt replication in 5 years

The conversation changed from being an edge case component to an expected approach in infrastructure design.



State of the replication market

“ Replication needs to be part of every Data Protection plan, to ensure agility for recovery – and often to increase the overall usability/ROI of one’s data protection infrastructure by enabling additional ways to leverage the secondary/tertiary data copies. ”

*Jason Buffington
Senior Analyst
ESG-Global
July 2014*



Core service



Often high volume



Across the enterprise



**Risk mitigation providing
high availability & scalability**

- Commonly a Core part of infrastructure
- Ever increasing data volumes
- Slow convergence in data integration of:
 - EAI
 - ETL
 - Replication
- Heterogeneous database support is expected
- Often, replication is part of mission critical application services, ie business continuity plan

Logical replication: mix and match

Operating system migrations

- Change hardware vendor
- Migrate to new servers (e.g. Solaris to Linux)
- RAC or virtualized environments

Oracle database migrations

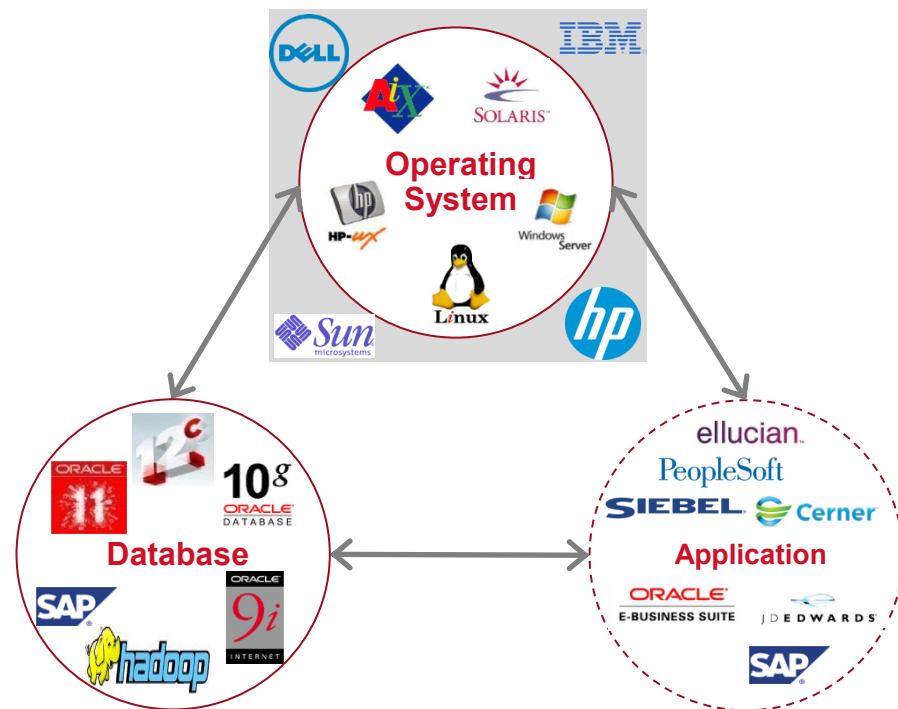
- Expired support on old versions cost prohibitive
- Need new features in newer versions

Storage migration

- Replace with newer/faster disc array

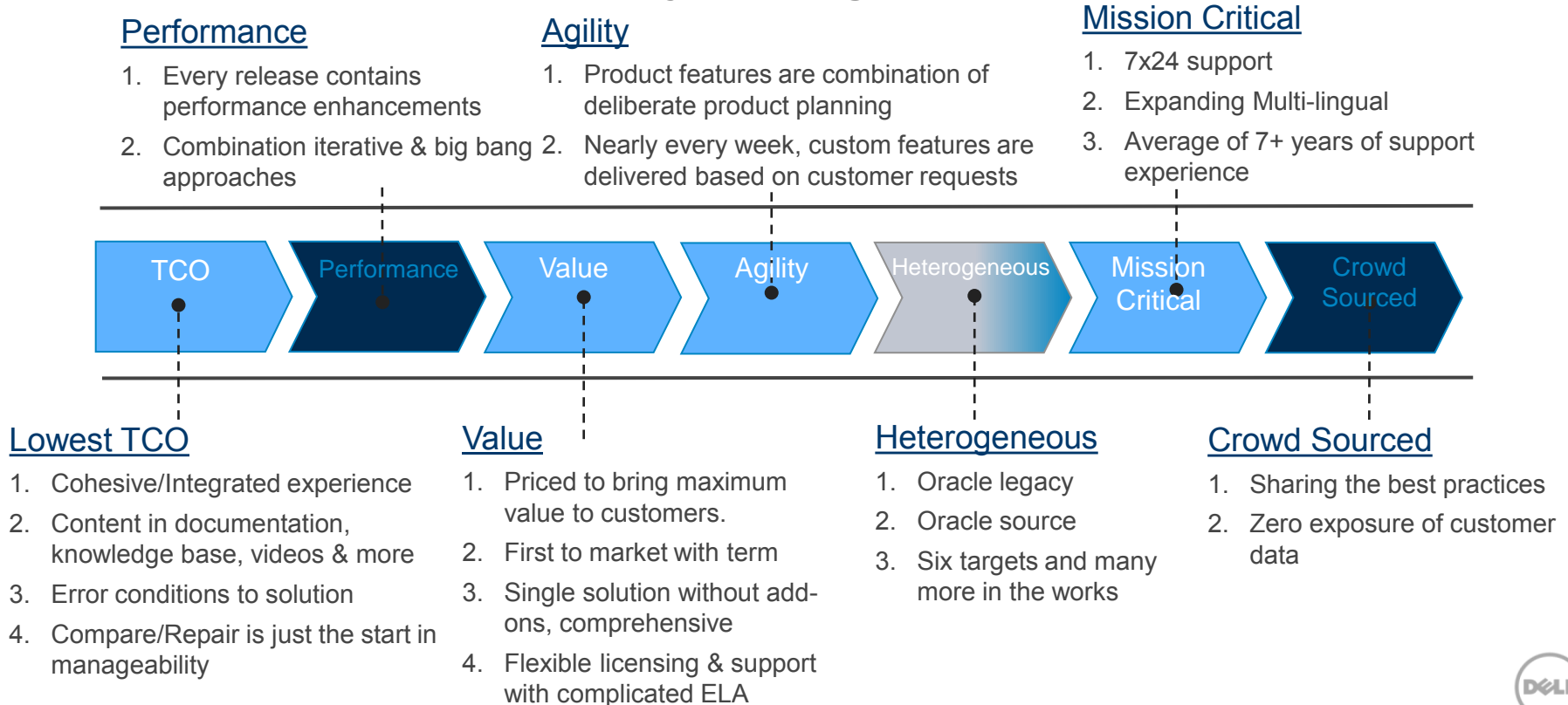
Application migrations

- Upgrade the application to a new version
- Coincides with a hardware and or DB upgrade
- Real-time copy to a different platform



Dell's Approach to Database Replication

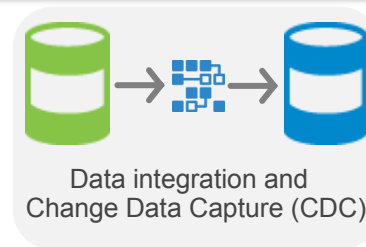
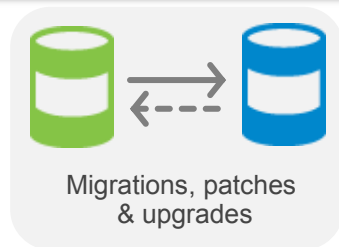
Past, Present & Future: **continually evolving** to meet and exceed market demands



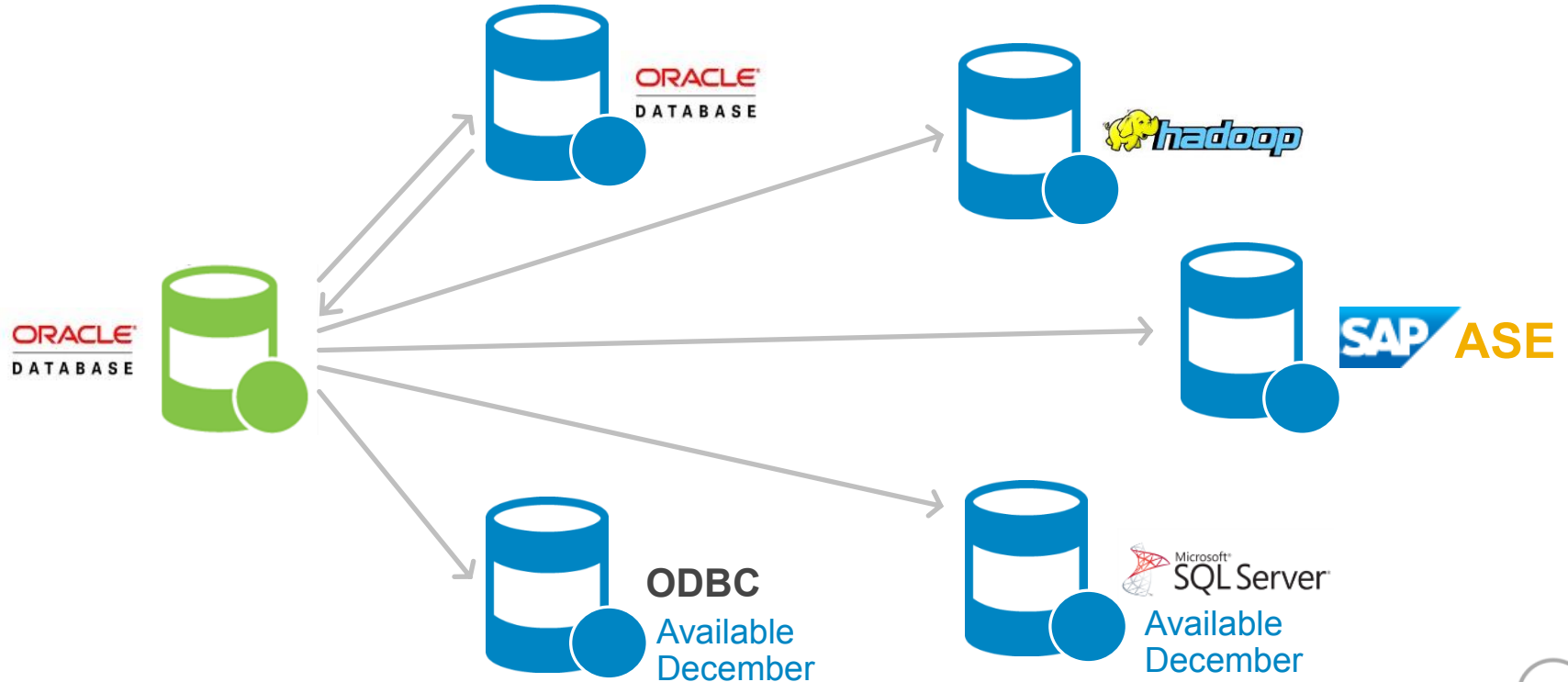
SharePlex database replication: scalability, availability and near real-time data integration

Affordably replicate Oracle data on-premises, remotely or in-the-cloud for special purposes:

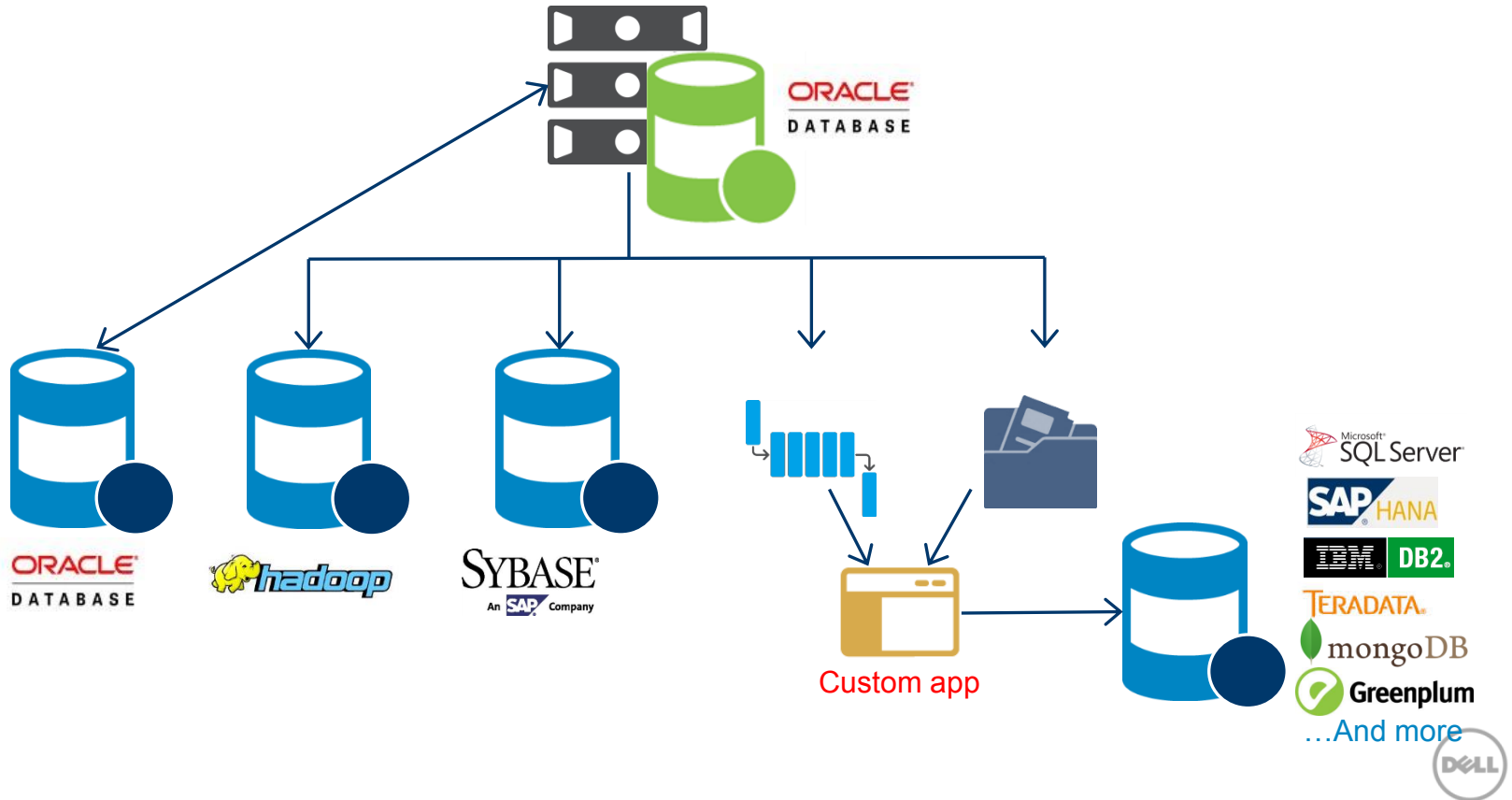
- Ensure high availability and disaster recovery
- Minimize risk and downtime associated with migrations and upgrades
- Improve performance of OLTP systems
- Harness real-time reporting and data warehousing
- Optimize analytics and the use of business intelligence applications



Empower your **real-time enterprise** with 24-hour operations and **dynamic business adaptability**

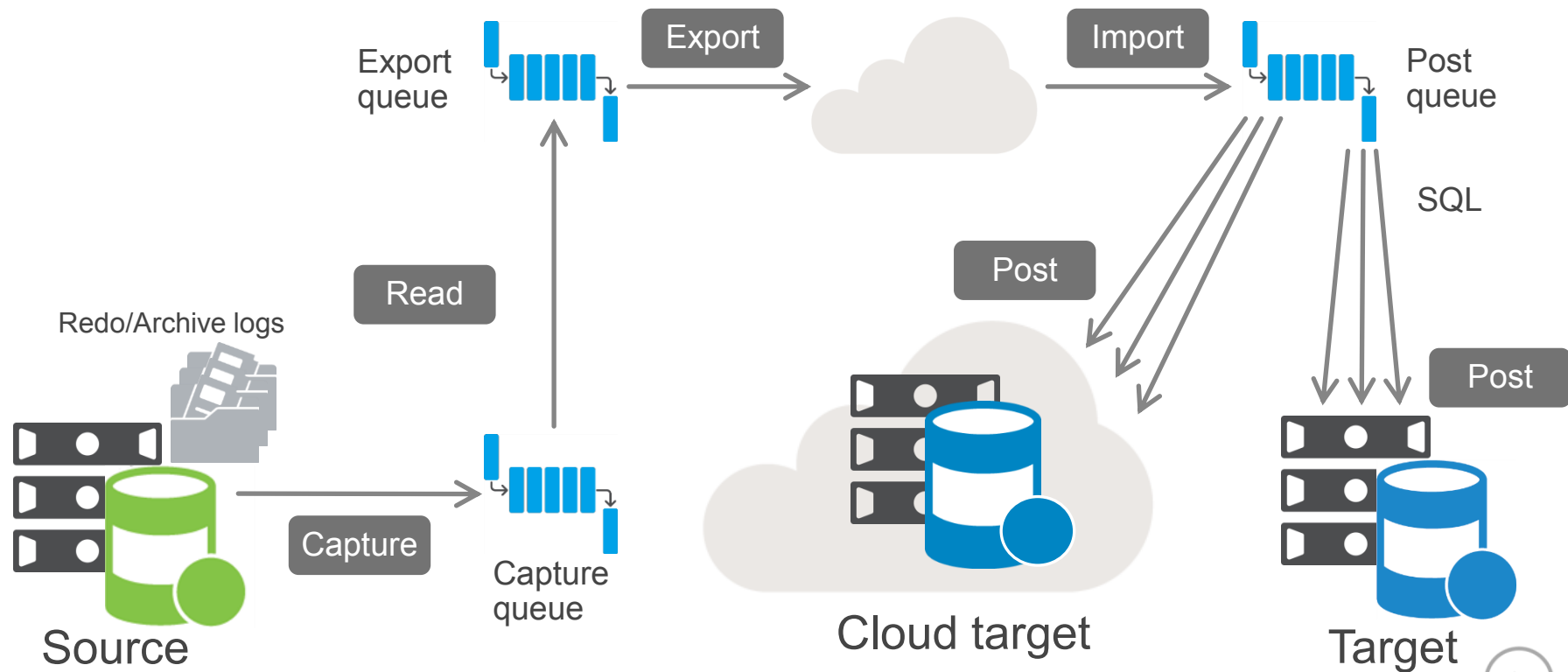


SharePlex “Open Target” - real-time data replication & integration

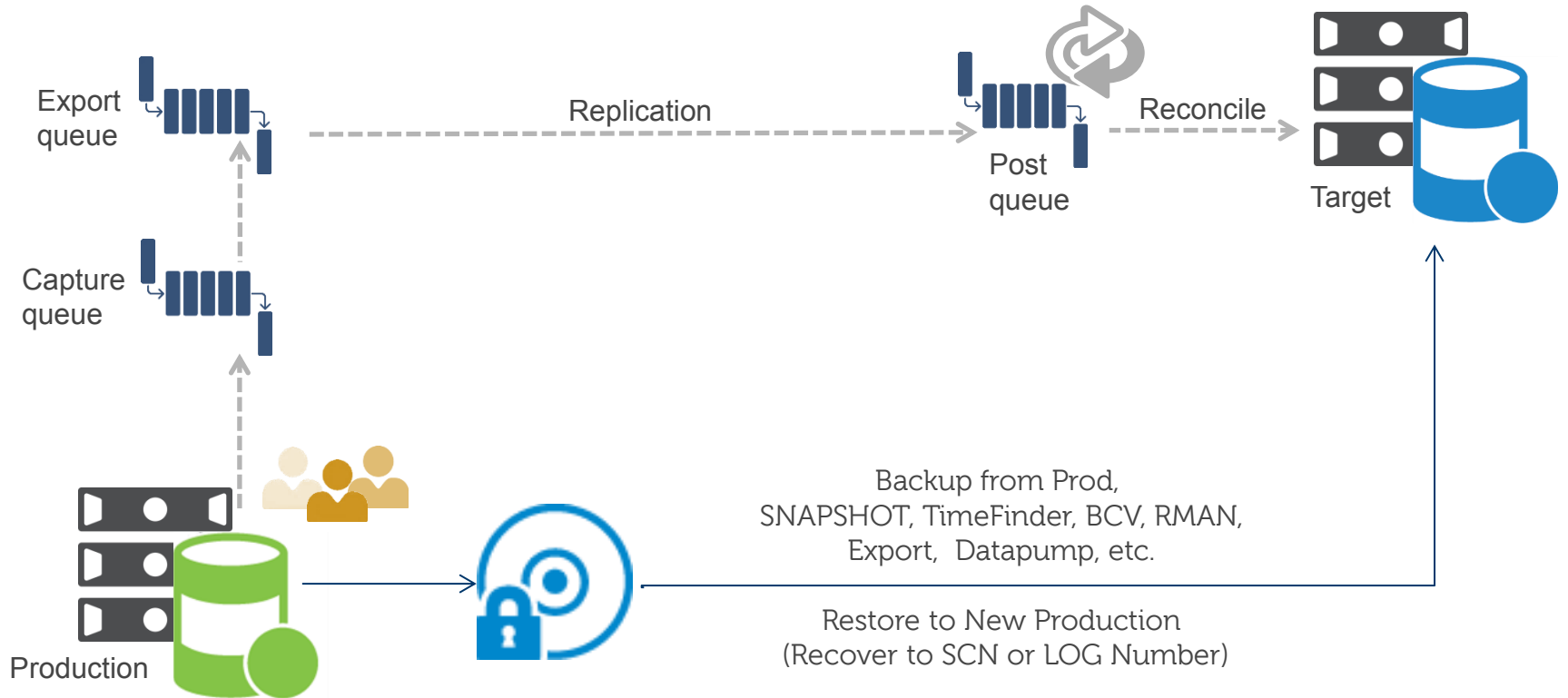


SharePlex product architecture

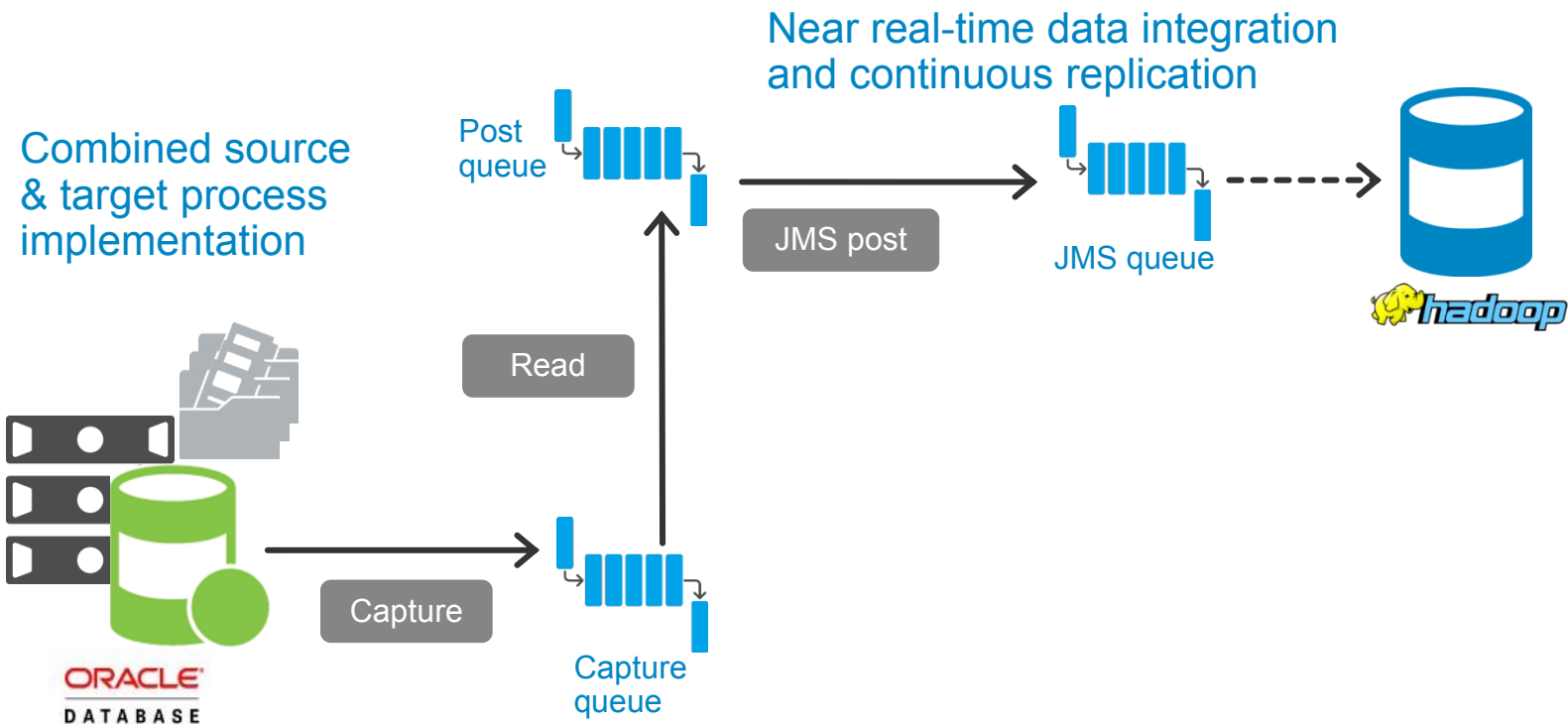
On-premises, remote, or in-the-Cloud



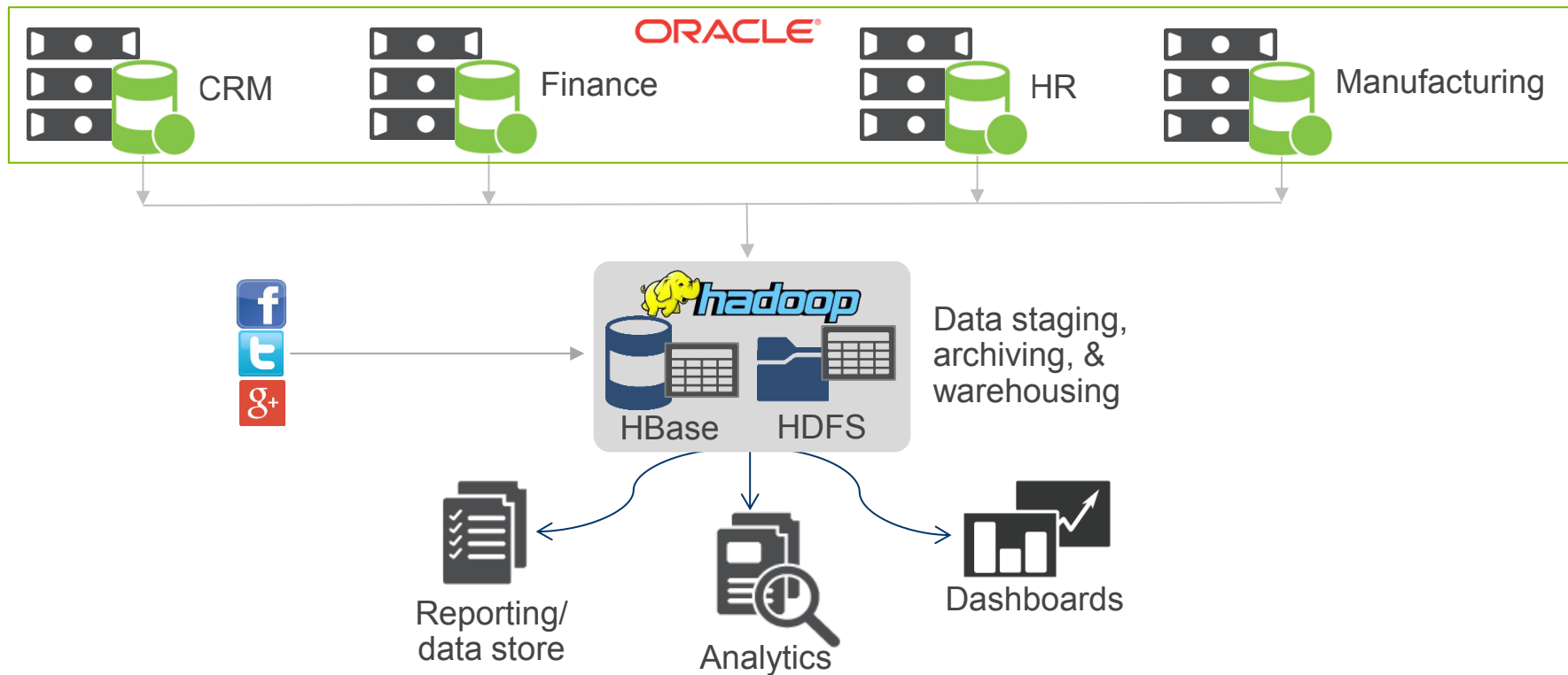
SharePlex replication process



SharePlex Connector for Hadoop

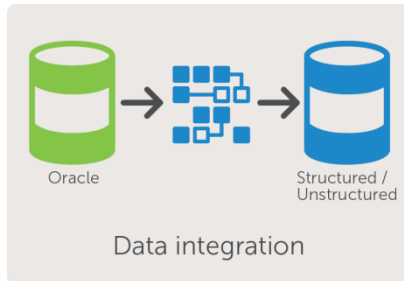
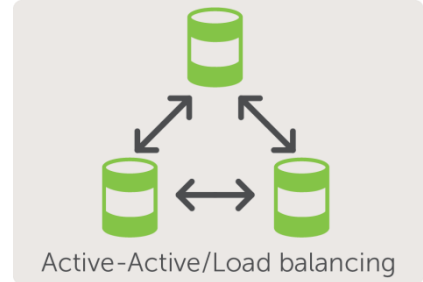
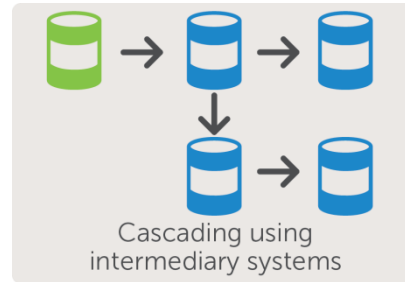
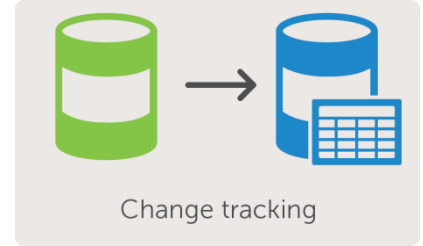
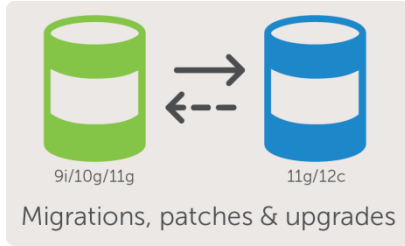


Near real-time application integration – Oracle to Hadoop



Replication use cases – SharePlex™

On-premises, remote, or in-the-cloud



Offload operational reporting for better performance



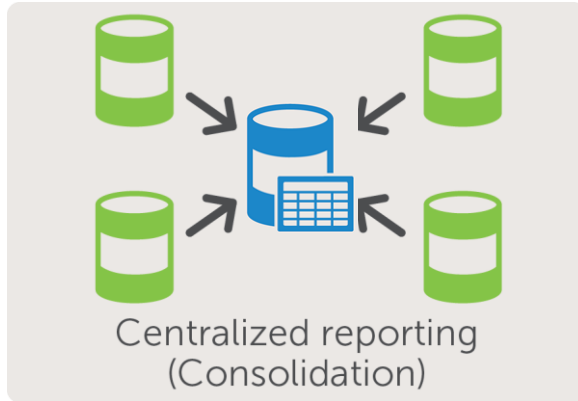
- Load isolation provides more consistent response time experience than possible with any vertical upgrade
- Selective down to:
 - Object
 - Columns
 - Rows
- Optimized reporting environment with different tablespaces, indexes, partitioning, block sizes and more.
- Archive systems allow the OLTP to run lean with high performance

Reliable data distribution and distributed processing



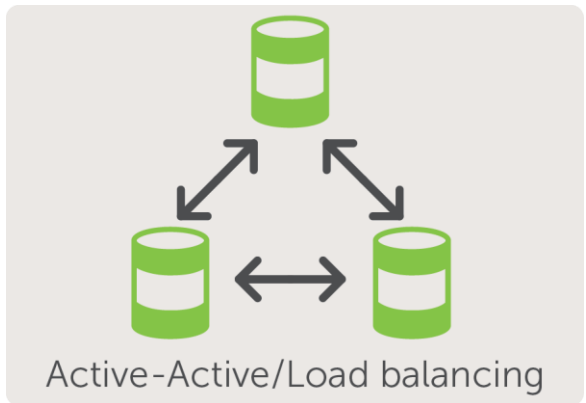
- Unlimited number of targets and scaling
- Provides local copies to:
- Provide better response times
- Lower network costs
- Provide only the data required in the select locations

Effective and efficient **centralized reporting and consolidation with auditing**



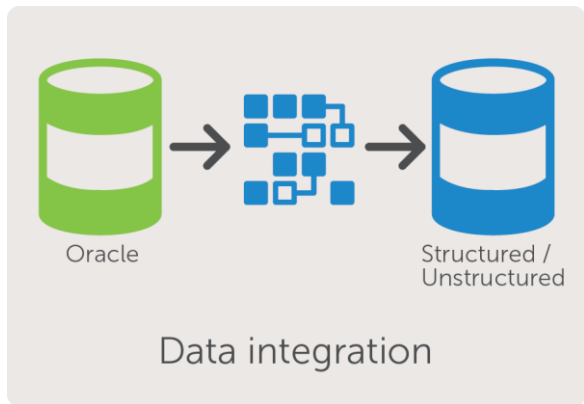
- Simple consolidation to supply downstream extract processing
- Can be combined with zero overhead auditing capability to supply:
 - Environment: Host, Oracle Database,
 - Who/When: User & Timestamp
 - Audit: Type of operation (I/U/D)
Before / After images, complete audit trail
 - Much more.. Sequence ID, SCN, USN, Slot, etc

Active-active replication and scalability through load balancing



- Data replication in place of Real Application Clusters (RAC)
- Bi-directional replication: active-active, master-to-master, peer-to-peer, multi-master configurations
- Applies conflict resolution as required by the circumstance and as defined by your business rules and needs.
- Provides the fastest possible fail over time that can be achieved using any technology in a WAN environment.
- Copies can all be different database versions & indexed differently (useful for reporting scenarios).

Near real-time integration with change data capture (CDC)



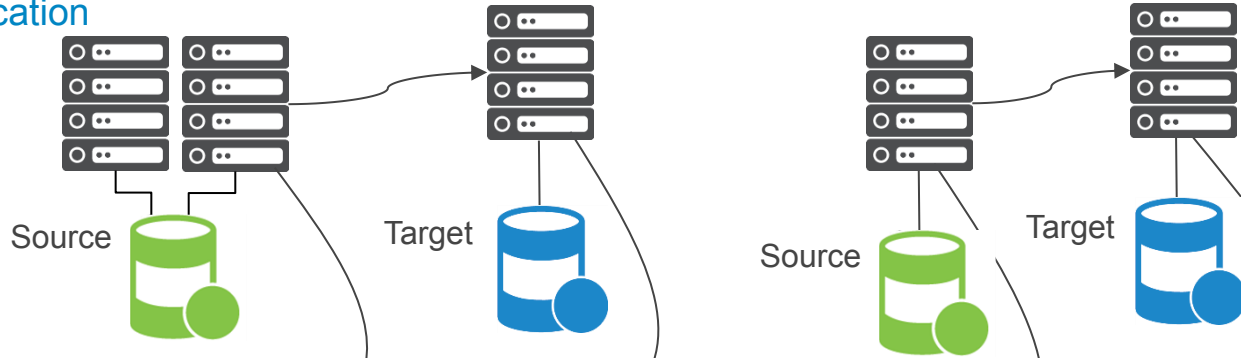
- Near real-time data integration using change data capture to Hadoop, SAP ASE, JMS Queue, Files
- Custom applications reading JMS queues, SQL/XML Files to nearly anything:
 - SQL Server, DB2, Teradata, Netezza, Greenplum, and more)
 - Structured
 - Unstructured
- Separates operational and analytical systems without impacting performance
- Provides near real-time access to accurate information
- Migrate Oracle databases to modern platforms
- Allows enterprises to leverage new data warehousing and business intelligence technology as it is made available
- Cost effectively grow and expand infrastructure as needed

SharePlex Manager - Monitoring and Administration Console

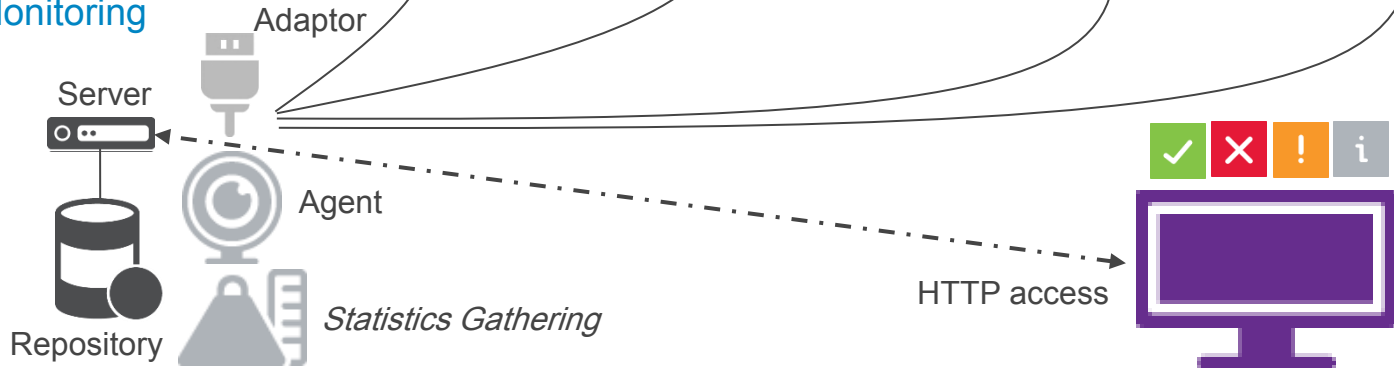


SharePlex Manager (GUI) architecture diagram

SharePlex Replication



SharePlex Monitoring



Discovery #1

- After installation, discover a SharePlex Infrastructure at first time.

Replication Overview > SharePlex Administration > **Manage Monitoring**

Welcome

Define Replication Model

Discovery

Manage View

Finished

Welcome

The Discovery Wizard is used to identify a replication model in your SharePlex infrastructure.

You will begin by specifying the connection properties instance. The Discovery Wizard will then identify the instances of that stream and then the instances of any that may be connected to it.

If the instance specified has not been activated, you will have the option to create a new replication stream.

Make sure that SharePlex is properly installed and run the option to begin the discovery process.

Next >

Replication Overview > SharePlex Administration > **Manage Monitoring**

Welcome

Define Replication Model

Discovery

Manage View

Finished

SharePlex Instance Connection Properties

Enter the connection properties of the SharePlex source instance that you want to use as the starting point of the discovery process.

* Hostname: SP_SYS_HOST_NAME

* Port: SP_COP_TPORT

* Username:

* Password: OS USER/PASSWORD

Use as default credentials

Next >

Instance Overview

- Rate
- Time Remaining

Investigate - SharePlex Manager - Microsoft Internet Explorer

Address: http://10.1.12.176:8080/console/page/monitor/system:shareplexoverview.33/7

Monday, November 26, 2007 12:05 PM - New 4.0 hours view - help

Status	Stream Name	Instance Name	Rate	Time Remaining	Events
	irvgasu12.quest.com:8404	irvgasu12.quest.com:8404	. 0	0.0 min	
	irvgasu12.quest.com:8404	irvgasu11.quest.com:8404	. 0	0.0 min	
	irvgasu11:8404	irvgasu11:8404	198	3.6 min	
	irvgasu11:8404	irvgasu12.quest.com:8404	54	1.0 min	
	irvgasu11:8404	irvgasu19.quest.com:8404	. 0	0.0 min	

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Local intranet



Instance Detail

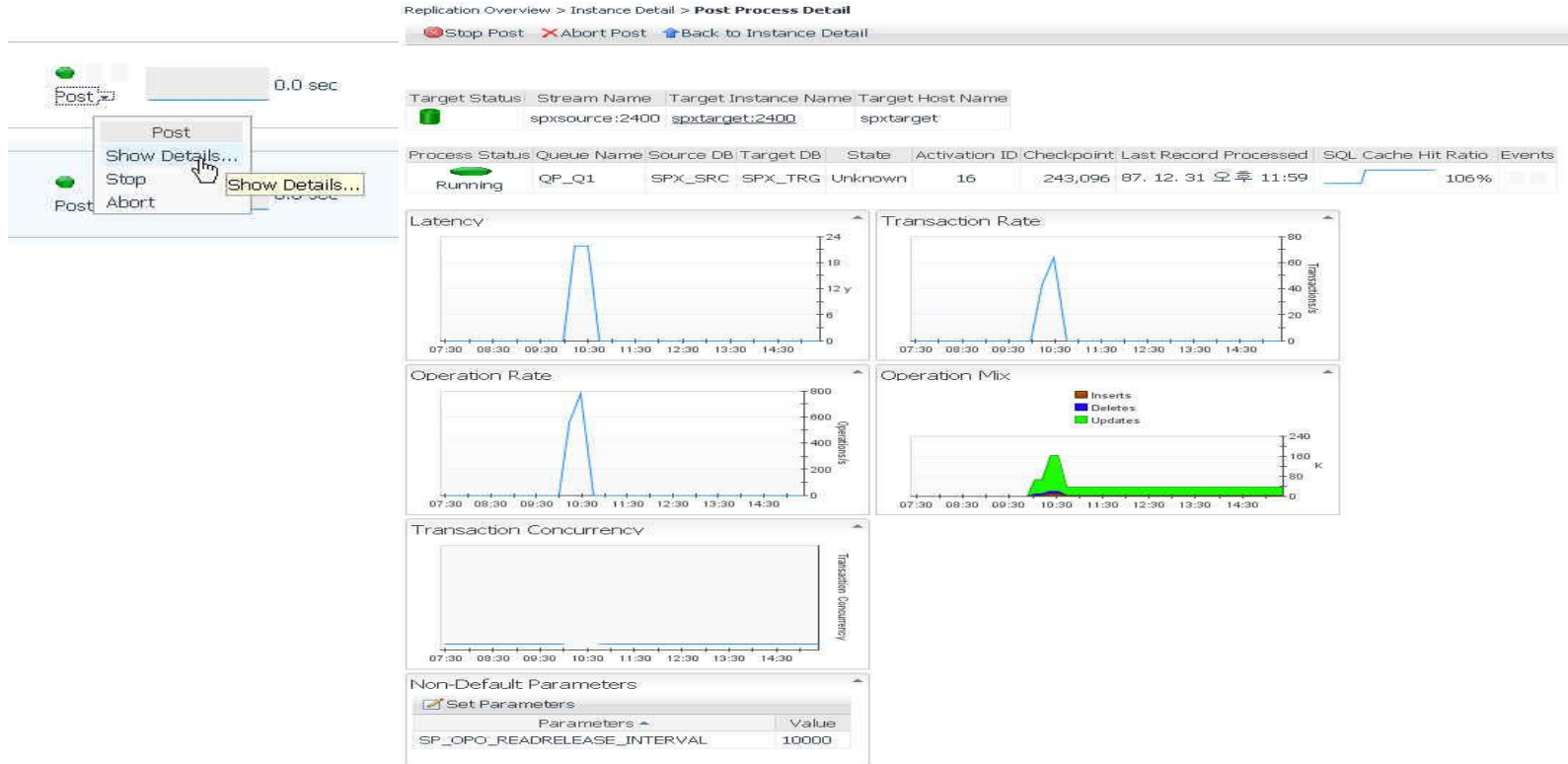
- Processes
- Queues
- How replication is set

The screenshot displays the 'Instance Detail' page in the SharePlex Manager web interface. The browser address bar shows the URL: `http://10.1.12.176:8080/console/page/monitor/system/shareplexoverview.33/6`. The page title is 'Investigate - SharePlex Manager - Microsoft Internet Explorer'. The navigation menu includes 'Organize', 'Investigate', and 'Configure'. The main content area shows the 'Replication Overview > Instance Detail' for instance 'irvqasu11:8404' on host 'irvqasu11' with source DB 'o920v64a'. The status is 'OK'. Below this, there are performance metrics for 'Capture' (1.0 sec) and 'Read' (3.8 min). A table lists four targets (test1, test2, test3, test4) with their respective replication types (Export, Import, Post) and target details. The table columns are: Target, Instance Name, Target Host Name, Target DB, Target Events, Target Status, Instance Name, Target Host Name, Target DB, Target Events.

Target	Instance Name	Target Host Name	Target DB	Target Events	Target Status	Instance Name	Target Host Name	Target DB	Target Events	
test1	Export	Import	test1	Post	3.8 min	OK	irvqasu12.quest.com:8404	irvqasu12.quest.com	a102a64f	OK
test2	Export	Import	test2	Post	0.0 sec	OK	irvqasu12.quest.com:8404	irvqasu12.quest.com	a102a64f	OK
test3	Export	Import	test3	Post	0.0 sec	OK	irvqasu12.quest.com:8404	irvqasu12.quest.com	a102a64f	OK
test4	Export	Import	test4	Post	0.0 sec	OK	irvqasu12.quest.com:8404	irvqasu12.quest.com	a102a64f	OK



Monitoring Instance Detail > Show Post Detail



Manage Monitoring Instance Detail > Manage Monitoring

Status	Instance Name	Host Name	Source DB	Events
	spxsource:2400	spxsource	SPX_SRC	

Replication Overview > Instance Detail > Manage Monitoring

- Instances
- Streams
- Views
- Permissions
- Discovery
- Setup Replication Stream
- Return to Monitoring

To make a new config

SharePlex Instance

spxsources:2400

Connection Information

Host: spxsources
Port: 2400
IP Address: 10.30.104.220
Datasource: SPX_SRC
Username: splex3
Password: *****

Configurations

Filename	Datasource	Date Activated	State
test_config_1	o.SPX_SRC	Sep 28, 2009 10:04:33 AM	Active
test_config	o.SPX_SRC	-	Inac

Previous Connection to this Instance

Date: Sep 28, 2009 11:35:54 AM
SharePlex Version: 7.0.0.30
Connection Status: Connection Validated

Can see the status or can do activate/deactivate

SharePlex Configuration File Property

test_config_1

Date Activated: Sep 28, 2009 10:04:33 AM
Datasources: o.SPX_SRC
SharePlex Instance: spxsources:2400

#	datasource:o.SPX_SRC		
1	#source tables	target tables	routing map
2			
3	TESTUSER.C_ITEM	TESTUSER.C_ITEM	spxsource
4	TESTUSER.C_ORDER_LINE	TESTUSER.C_ORDER_LINE	spxsource
5	TESTUSER.C_CUSTOMER	TESTUSER.C_CUSTOMER	spxsource
6	TESTUSER.C_NEW_ORDER	TESTUSER.C_NEW_ORDER	spxsource
7	TESTUSER.C_DISTRICT	TESTUSER.C_DISTRICT	spxsource
8	TESTUSER.C_STOCK	TESTUSER.C_STOCK	spxsource
9	TESTUSER.C_WAREHOUSE	TESTUSER.C_WAREHOUSE	spxsource
10	TESTUSER.C_ORDER	TESTUSER.C_ORDER	spxsource
11	TESTUSER.C_HISTORY	TESTUSER.C_HISTORY	spxsource
12			
13			
14			



Alarms Administration > Rules & Notifications > Manage Rules

foglight | Operations | Help

Home Agents Data Schedules Rules & Notifications Cartridges Setup & Support Users & Security

Rules & Notifications

Manage Rules(Filter By Cartridge: SharePlexManager)

Filter: By Cartridge

Showing rules 1 - 23 of 23 Show rules per page

<input type="checkbox"/>	<input type="checkbox"/>	<u>Rule Name</u>	<u>Rule Scope</u>	<u>Cartridge Name</u>					
<input type="checkbox"/>	<input type="checkbox"/>	Capture RAC Status	SharePlexCaptureProcess	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Events	SharePlexInstance	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Instance Not Monitored	SharePlexInstance	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Source Capture Process	SharePlexCaptureProcess	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Source Connection Status	SharePlexSource	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Source Export Process	SharePlexExportProcess	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Source Reader Process	SharePlexReadProcess	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Target Connection Status	SharePlexTarget	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Target Import Process	SharePlexImportProcess	SharePlexManager					
<input type="checkbox"/>	<input type="checkbox"/>	Halogen Target Post Process	SharePlexPostProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Capture Process Latency	SharePlexCaptureProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Capture Process Time Remaining	SharePlexCaptureProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Capture Queue	SharePlexReadProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Export Process Time Remaining	SharePlexExportProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Export Queue	SharePlexExportProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Post Process Latency	SharePlexPostProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Post Process Time Remaining	SharePlexPostProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Post Queue	SharePlexPostProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Read Process Latency	SharePlexReadProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Read Process Time Remaining	SharePlexReadProcess	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Replication Stream Latency	SharePlexStream	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Source Instance Time Remaining	SharePlexSource	SharePlexManager					
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SharePlex Target Instance Time Remaining	SharePlexTarget	SharePlexManager					



Alarms Administration Rule Definition

The screenshot displays the 'Rules & Notifications' section of the Foglight interface. The top navigation bar includes 'Home', 'Agents', 'Data', 'Schedules', 'Rules & Notifications', 'Cartridges', 'Setup & Support', and 'Users & Security'. The 'Rules & Notifications' section is active, showing a 'Rule Summary' tab for the rule 'SharePlex Capture Process Latency'. The 'Conditions, Alarms & Actions' sub-tab is selected, displaying the rule's configuration. A red arrow points to the 'Rule Summary' tab with the text 'Click here'.

Rules & Notifications ⓘ **Rule Summary** ⓘ

Edit Rule - SharePlex Capture Process Latency ⓘ

Rule Definition | **Conditions, Alarms & Actions** | Schedules | Behavior | Rule Variables

Conditions, Alarms & Actions

Rule Name: SharePlex Capture Process Latency
Rule Type: Multiple-Severity Rule
Successfully saved the changes

<input checked="" type="radio"/> Fatal	
<input checked="" type="radio"/> Critical (Not active)	
<input checked="" type="radio"/> Warning	
<input checked="" type="radio"/> Normal	
<input type="radio"/> Undefined (Not active)	

Dashboard Report

Foglight®

foglight | Sign Out

Performance View

2009, 12, 21 - 2009, 12, 23 2.0 days

Capture's Operation

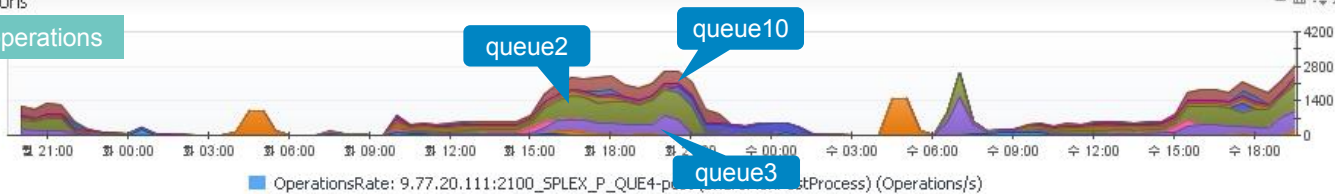
Operatio...

Capture operations



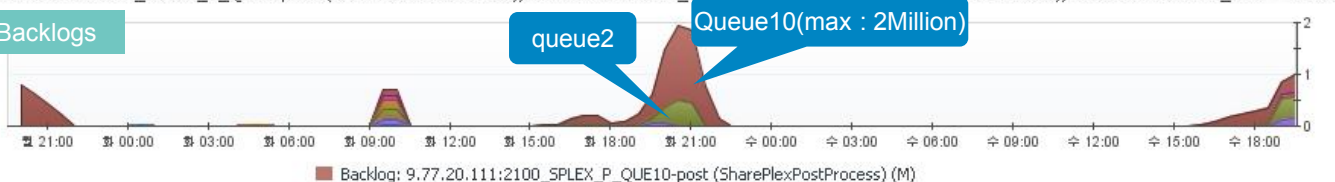
Post's Operations

ALL Post operations



Metrics for: 9.77.20.111:2100_SPLEX_P_QUE4-post (SharePlexPostProcess),9.77.20.111:2100_SPLEX_P_QUE8-post (SharePlexPostProcess),9.77.20.111:2100_S...

ALL Post Backlogs



What makes SharePlex different?

- **Fully automated and easiest to use**
 - Cohesive approach, i.e SharePlex 8.6 extends the existing replication experience
 - Download, install and **test** in just 15 minutes (**5:39 actual time to replicate prior to install**)
 - Expedite staff learning curve with 5 minute how-to videos
 - Learn from the experts 24x7 in the SharePlex Community with online forums & blogs
- **Agile Development Organization**
 - Our capabilities are introduced into the product by product management & customers
 - Turn around is typically in days, often a couple of days.
- **World Class Support – Award winning**
 - Awards are the norm and consistent
 - Sophisticated support systems with KB suggests
 - Multi language
- **Compare/Repair – Continuously improved**
 - In flight
 - Manages a spectrum of resource usage from light to fast
 - Sophisticated picking the optimum method
- **Comprehensive Solution**
 - Replication / Management / Monitoring, all in one
 - Best value in the market place, invented term licenses in the replication market





Online matches made in heaven

Business need

To deliver the best personalized services for subscribers and help them make a lasting match, eHarmony needs to replicate and analyze data from its production database in real time.

Solution

The dating site replaced complex, legacy replication technology from Oracle with SharePlex from Dell Software, which is reliable, stable, fast and easy to use.

Benefits

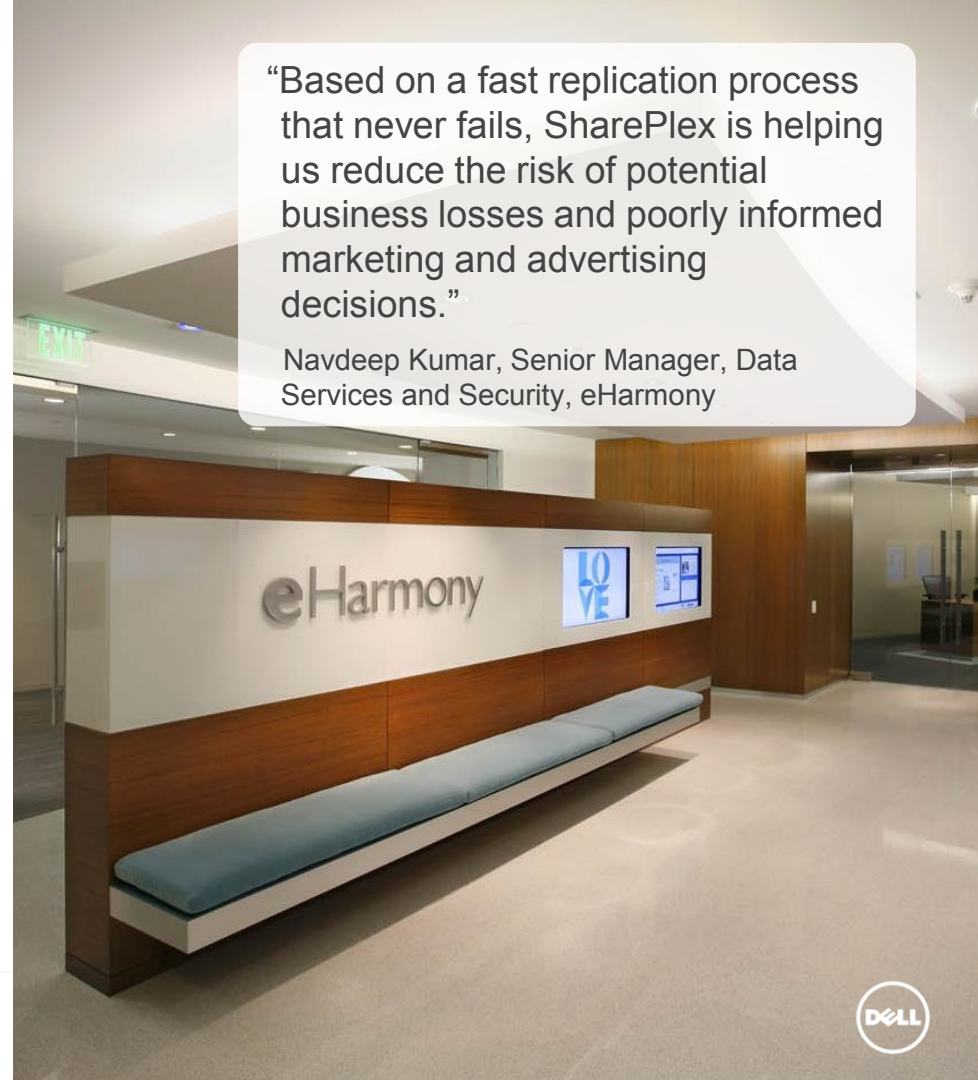
- Improved decision making and customer-facing services
- Fast data replication at a third of the cost of Oracle GoldenGate
- Reliable, robust, well-documented solution

[Read the full case study >](#)

Published: May 2014

“Based on a fast replication process that never fails, SharePlex is helping us reduce the risk of potential business losses and poorly informed marketing and advertising decisions.”

Navdeep Kumar, Senior Manager, Data Services and Security, eHarmony



A high-angle photograph of a group of approximately 25 students sitting on a paved surface. They are arranged in a large circle, with some students in the foreground and others further back. The students are dressed in a variety of casual and semi-formal attire, including jackets, sweaters, and blouses. The ground is a light-colored, textured pavement. The word "Questions" is written in a large, white, sans-serif font on the left side of the image, partially overlapping the circle of students. The lighting is bright, casting distinct shadows of the students onto the pavement.

Questions

Next steps



Visit the SharePlex webpage

www.software.dell.com/SharePlex

- Datasheets, videos, case studies, white papers, technical briefs, events, webcasts, etc.

Schedule a Proof of Concept (POC)

- Download 30-day Trial Software (SC and Support Assistance)
- On your own test environment
- Dell Cloud Sandbox

Join the SharePlex Community

<http://en.community.dell.com/techcenter/information-management/shareplex/>

- Beta's, discussions, blogs, expert advice, demo's, technical documents, etc.



Thank you.





The power to do more