Solutions for real-time data integration and transfer

X-LOG

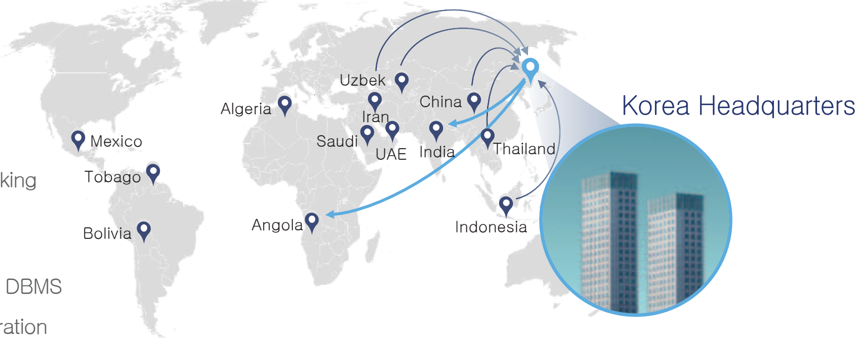
Case 01 Real-time Data Integration Solution

Purpose of Implementation

- Establish data integration for distributed business operations or DBMS systems
- Enable real-time synchronization for immediate decision-making System Configuration

System Configuration

- Real-time replication setup between heterogeneous OS and DBMS
- N:1 real-time data warehouse (DW) data replication configuration


Uzbek
Algeria
Iran
China
Mexico
Saudi
UAE
India
Thailand
Tobago
Bolivia
Angola
Indonesia
Korea Headquarters

Case 02 Real-Time Disaster Recovery (DR) Solution

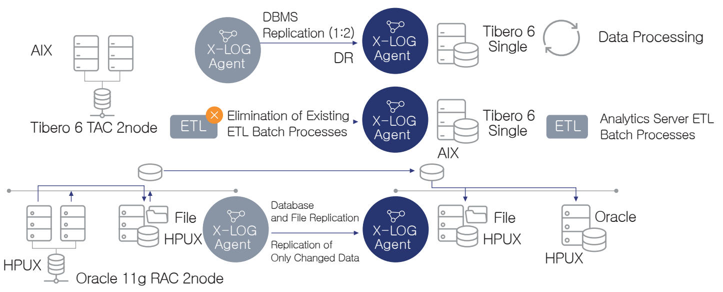
Purpose of Implementation

- Establish a real-time DR (Disaster Recovery) system to ensure real-time synchronization of databases and files
- Distribute the load on the operational system

System Configuration

- Real-time data replication with a 1:2 partial synchronization setup
- Offloading ETL batch processes to the DR analytics server to distribute the load on the statistics system

Source | Primary Data center | Target | Disaster Recovery (DR) center


AIX
Tibero 6 TAC 2node
X-LOG Agent
DBMS Replication (1:2)
DR
X-LOG Agent
Tibero 6 Single
Data Processing
ETL
Elimination of Existing ETL Batch Processes
X-LOG Agent
Tibero 6 Single
ETL
Analytics Server ETL Batch Processes
AIX
File
HPUX
X-LOG Agent
Database and File Replication
Replication of Only Changed Data
X-LOG Agent
File
HPUX
Oracle
HPUX
HPUX
Oracle 11g RAC 2node

Case 03 Zero Downtime Migration

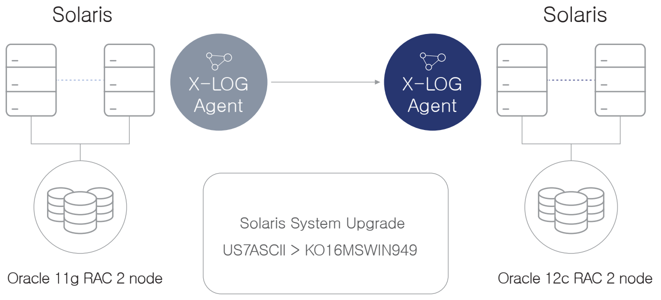
Purpose of Implementation

- Zero downtime migration for systems where service where service interruptions are not permissible
- Minimize service downtime during server replacements and OS/DB version upgrades

System Configuration

- Implementation of column mapping and transformation replication methods for normal real-time data replication when versions or types differ.
- Fast and accurate data integrity verification within minimized service downtime

Source | legacy server | Target | new system


Solaris
X-LOG Agent
X-LOG Agent
Solaris
Oracle 11g RAC 2 node
Solaris System Upgrade
US7ASCII > KO16MSWIN949
Oracle 12c RAC 2 node

Case 04 Cloud System Migration

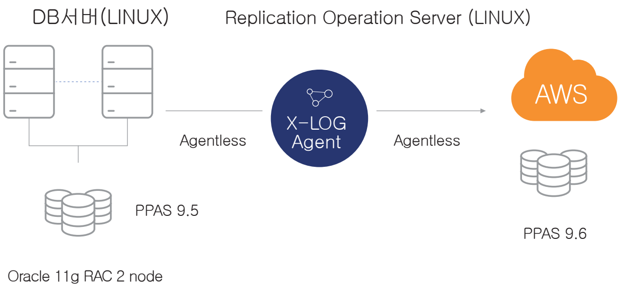
Purpose of Introduction

- Enable global business connectivity through bidirectional replication.
- Establish and operate a real-time bidirectional replication system across different versions.

System Architecture

- Manage device firmware through bidirectional replication between the ICT Center PPAS DB and AWS PPAS DB.
- Operate an agentless replication system by installing X-LOG Agents on a dedicated replication server.

Source | operational server | Target | AWS of China region


DB서버(LINUX)
Replication Operation Server (LINUX)
Agentless
X-LOG Agent
Agentless
AWS
PPAS 9.5
PPAS 9.6
Oracle 11g RAC 2 node

X-LOG is fully compatible with all cloud environments, including AWS, Azure, NCP, and KT.

X-LOG
Solution Line-Up

The data replication solution X-LOG safely and quickly extracts and replicates data to maintain data integrity during system integration and migration processes.

Real-time DB Replication	CDC	Real-time DB replication solution that extracts and replicates transactions from Redo log files that record all changes made from the database.
Heterogeneous computing Data Transfer	IDL	IDL (Initial Data Loader) can transfer heterogeneous computing data through software agent without using additional storage
Data life cycle Maintenance	ILM	ILM (Information Lifecycle Mgmt) manages different data storage types per data life cycle to improve efficiency of data capacity with cost saving.
Enterprise-wide CDC Monitoring Solution	MOM	MOM (Master of Master) allows enterprise-wide management of S/W agents for the real-time replication solution X-LOG for CDC, providing comprehensive monitoring that gives an overview of the replication status for the entire group at a glance.

Application Areas

Data Integration in real time

- Supporting immediate service for managing data integrity of multiple consolidated system data.
- Optimizing system performance in Big Data and Cloud computing

Heterogeneous Data Replication

- Moving away from Oracle Open DB to domestic open DB for cost efficiency
- Providing optimized system for transferring DB, Cloud, etc..

Workload Distribution System

- Improves system performance through real-time replication of data for queryable data operation.
- Costs are reduced by distributing data from an expensive main computer system to a low-cost system.

DR system in real time

- Building Active-Active structure of Disaster Recovery system
- Minimizing interruption of service with auto synchronization for system error.

Zero-downtime Migration

- Minimizing downtime of real time replication of ERP, CRM system transfer
- Minimizing downtime of upgrading data base replication in real time.

Certifications and Patents

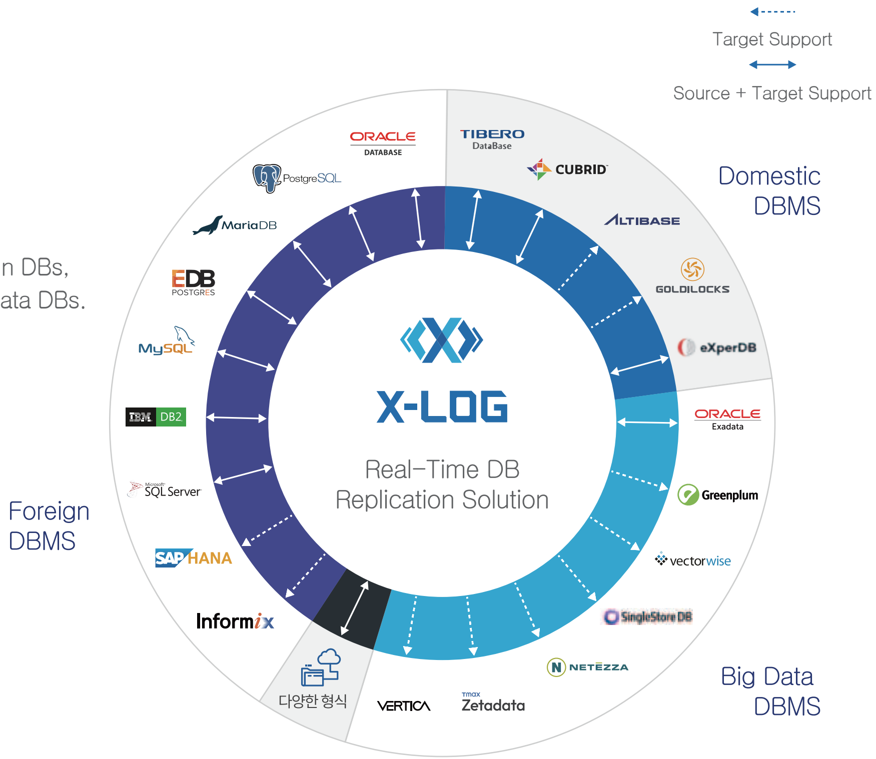
Certification		Patent	
Good Software Certification	Registration in the Korea On-line E Procurement Shopping Mall	Patents	Title of Invention
Product Name : X-LOG for CDC v6.0 Certification Number : Grade 1(Highest Grade) Certification Number: 20-0271		Patent No. 10-1788655	DBMS log-integrated management system for real-time data backup
		Patent No. 10-1374533	Data backup method using transaction logs for real-time data
		Patent No. 10-1804822	Management system for replicated memory structure for DBMS real-time operation

Database Compatibility Certification		ISO Certification		Various Certifications			
TIBERO	· ALTIBASE	· ISO 9001	· ISO 14001	· Certificate of copyright registration	· Certificate of trade	· Service mark registration	· Direct production certificate

Core Functionality 01

Diverse Heterogeneous DBMS Replication

- Supports various databases, including foreign DBs, domestic DBs, open–source DBs, and big data DBs.
- Enables real–time replication between different DBMS, ensuring perfect replication using standard SQL syntax.

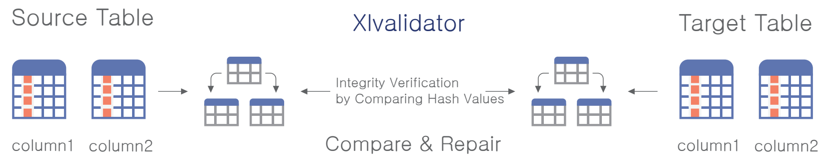

Target Support
Source + Target Support
Domestic DBMS
Foreign DBMS
Big Data DBMS
X-LOG
Real–Time DB Replication Solution
ORACLE DATABASE
TIBERO DataBase
CUBRID
ALTIBASE
GOLDILOCKS
eXperDB
PostgreSQL
MariaDB
EDB POSTGRES
MySQL
IBM DB2
SQL Server
SAP HANA
Informix
다양한 형식
ORACLE Exadata
Greenplum
vectorwise
SingleStore DB
NETEZZA
Tmax Zetadata
VERTICA

Core Functionality 02

Data Integrity Verification Tool

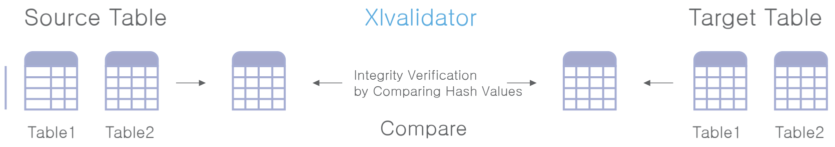
- Row–level and table–level integrity correction and automatic correction features.
- Provides data integrity functionality as a standard feature, typically offered as a paid service by expensive third–party providers.Core Functionality 02

Row–Level Integrity Verification


Source Table
Xlvalidator
Target Table
Integrity Verification by Comparing Hash Values
Compare & Repair
column1
column2
column1
column2

- Integrity verification is possible at both the row level and the table level.
- Row–level verification is performed through the Xlvalidator module, which provides both validation and automatic correction features.

High–Speed Table–Level Integrity Verification


Source Table
Xlvalidator
Target Table
Integrity Verification by Comparing Hash Values
Compare
Table1
Table2
Table1
Table2

- Table–Level Data Integrity Verification Feature
- Row–level verification can be performed quickly when dealing with large volumes of data.

Core Functionality 03

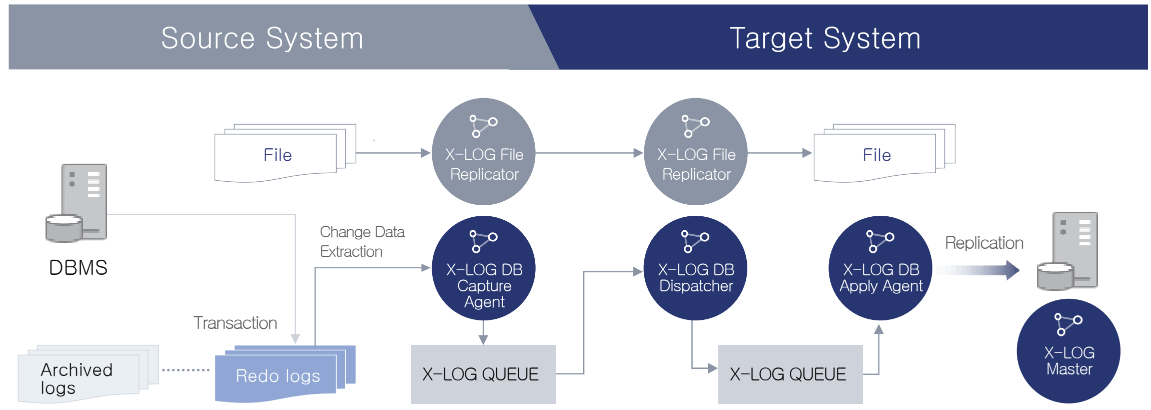
Web–Based (GUI) Management Tool

- Provides an easy–to–use feature for policy configuration through a web–based management console.
- Enables real–time monitoring of replication status, agent status, and more, along with various report formats and Excel export functionality.

Convenient Web–Based Management Console

Real–time monitoring and reporting functionality.

System Architecture



Module Name	Functionality
X-LOG DB Capture Agent	Extracts changed data for the target replication tables from the redo log of the source DBMS.
X-LOG DB Dispatcher	Distributes the extracted data to target policies based on the replication policy.
X-LOG DB Apply Agent	Converts the transmitted data into standard SQL syntax and applies it to the target DB.
X-LOG File Replicator	Replicates file changes from the source system to the file system of the target system.
X-LOG Master	Manages replication policy information for X-LOG through a catalog and provides an integrated GUI monitoring module.

Key Features

Real-Time DB and File System ReplicationD

Provides real-time replication capabilities through Change Data Capture (CDC) based replication techniques.

High-Performance Replication Technology

Utilizes a multi-threaded distributed parallel approach to process large volumes of transactions at high speed.

Data Compression Transmission Feature

Minimizes network resource usage through compression options that reduce the volume of data transmitted.

Disaster Recovery Reliability

Manages replication points to ensure continuous operation after recovery from system failures, without any data loss.

Support for Various Heterogeneous Platforms

Supports a wide range of operating systems, including AIX, HP-UX, Solaris, Linux, and Windows.

Scalable Replication Environment Configuration

Offers flexible scalability through various configurations, including 1:1, 1:N, N:1, and N:M setups.

Scheduler Functionality

Provides a scheduling feature that allows for data extraction at specified times down to the minute.

Replication Condition Configuration Feature

Provides various processing and replication capabilities, including column mapping replication, conditional replication, and transformation replication.

Real-Time Monitoring and Reporting

Enables monitoring of replication status, agent status, and DDL statements, along with the ability to generate reports.

Reasons for Selection

Market Leader in Domestic Market: #1 Market Share

Most References in the CDC Sector

Interoperability Certificate

Technical Verification
by DBMS Manufacturers

Ease of Use

Provides configuration
features through
a user-friendly GUI.

Operational Convenience

Offers web-based
monitoring functionality.

Clients

SAMSUNG
삼성생명
SAMSUNG 삼성코닝정밀소재
SAMSUNG 삼성엔지니어링
SK planet
SK 하이닉스
국립중앙도서관
국토교통부
GS칼텍스
HF 한국주택금융공사
건국대학교병원
posco 포스코케미칼
HYUNDAI STEEL
충청북도교육청
HYUNDAI
olleh kt
Interflex
롯데멤버스
LG유플러스
한국폴리텍대학
NH투자증권
국민건강보험
보험개발원
금융결제원
하나생명
OSB저축은행
KISTI 한국과학기술정보연구원
결핵연구원
UBASE
kpc 한국생산성본부
SB 저축은행중앙회
대법원
ex 한국도로공사
해양수산부
KB국민은행
KB저축은행
질병관리청
한국전력공사
국립환경과학원
KOMSCO 한국조폐공사
창업진흥원
아모레퍼시픽
KEITI 한국환경산업기술원
BNK금융그룹
CJ ENM
보건복지부
행정안전부
대한민국 국방부
SAMSUNG 삼성물산
서울의료원
건국대학교
KIC 한국투자공사
한국토지신탁
KIBO 기술보증기금
FINEVO
DGB생명
중소기업유통센터
신협
서울시설공단
국가정보자원관리원
한국원자력환경공단

Database Partners

EDB POSTGRES
Enterprise DB,
EDB Korea

CUBRID
Open Source DBMS,
CUBRID

ALTIBASE
Enterprise Grade DB,
Altibase

TIBERO DataBase
Database management system,
TmaxTibero

VERTICA
Big Data Analytics Platform,
Microfocus

Greenplum
Data Warehouse,
VMware

MariaDB
Maria DB

bitnine
Bitnine

FUJITSU
FEP DB

INZENT
exper DB

에이플랫폼
Singlestore DB

Singdata
Data lake house DB

Distributors

TSCIENTIFIC
Enterprise License/
Technology Distributor,
Tscientific

DSTi
Public distributor,
DST International

Manufacturers

X-LOG

X-LOG

Contact
070-7732-3536

Email Contact
xlog@xlog.co.kr

Website
www.xlog.co.kr