

Project	DBMS Replacement Patterns
Activiti	Hazelcast \rightarrow HyperSQL _{In} \rightarrow Hazelcast _{Out} HyperSQL HyperSQL \rightarrow PostgreSQL _{In} \rightarrow HyperSQL _{Out} PostgreSQL MSSQL \rightarrow HyperSQL _{In} \rightarrow MSSQL _{Out} HyperSQL
CAS	Couchbase \rightarrow InfluxDB _{In} \rightarrow Couchbase _{Out} InfluxDB Couchbase \rightarrow PostgreSQL _{In} \rightarrow Couchbase _{Out} PostgreSQL Couchbase \rightarrow CosmosDB _{In} \rightarrow Couchbase _{Out} CosmosDB Couchbase \rightarrow Cassandra _{In} \rightarrow Couchbase _{Out} Cassandra Couchbase \rightarrow DynamoDB _{In} \rightarrow Couchbase _{Out} DynamoDB Couchbase \rightarrow H2 _{In} \rightarrow Couchbase _{Out} H2 Couchbase \rightarrow MSSQL _{In} \rightarrow Couchbase _{Out} MSSQL Couchbase \rightarrow Firebase _{In} \rightarrow Couchbase _{Out} Firebase Couchbase \rightarrow Firestore _{In} \rightarrow Couchbase _{Out} Firestore Couchbase \rightarrow Firestore _{In} Couchbase _{Out} \rightarrow Firestore CouchDB \rightarrow H2 _{In} \rightarrow CouchDB _{Out} H2 CouchDB \rightarrow Firebase _{In} \rightarrow CouchDB _{Out} Firebase CouchDB \rightarrow CosmosDB _{In} \rightarrow CouchDB _{Out} CosmosDB CouchDB \rightarrow InfluxDB _{In} \rightarrow CouchDB _{Out} InfluxDB CouchDB \rightarrow Firestore _{In} \rightarrow CouchDB _{Out} Firestore PostgreSQL \rightarrow Hazelcast _{In} \rightarrow PostgreSQL _{Out} Hazelcast PostgreSQL \rightarrow Oracle _{In} \rightarrow PostgreSQL _{Out} Oracle PostgreSQL \rightarrow Redis _{In} PostgreSQL _{Out} \rightarrow Redis PostgreSQL \rightarrow MongoDB _{In} PostgreSQL _{Out} \rightarrow MongoDB PostgreSQL \rightarrow Couchbase _{In} PostgreSQL _{Out} \rightarrow Couchbase
CommaFeed	Redis \rightarrow H2 _{In} \rightarrow Redis _{Out} H2 HyperSQL \rightarrow Redis _{In} \rightarrow HyperSQL _{Out} Redis HyperSQL \rightarrow SAPSQL _{In} \rightarrow HyperSQL _{Out} SAPSQL HyperSQL \rightarrow SAPA _{In} \rightarrow HyperSQL _{Out} SAPA HyperSQL \rightarrow H2 _{In} \rightarrow HyperSQL _{Out} H2
JMeter	MySQL \rightarrow PostgreSQL _{In} MySQL _{Out} \rightarrow PostgreSQL
ModelDB	PostgreSQL \rightarrow H2 _{In} \rightarrow PostgreSQL _{Out} H2 SQLite \rightarrow MongoDB _{In} \rightarrow SQLite _{Out} MongoDB SQLite \rightarrow PostgreSQL _{In} SQLite _{Out} \rightarrow PostgreSQL SQLite \rightarrow MySQL _{In} SQLite _{Out} \rightarrow MySQL SQLite \rightarrow MSSQL _{In} SQLite _{Out} \rightarrow MSSQL
Ngrinder	SQLite \rightarrow H2 _{In} \rightarrow SQLite _{Out} H2
Nifi	Cassandra \rightarrow PostgreSQL _{In} \rightarrow Cassandra _{Out} PostgreSQL Cassandra \rightarrow Hazelcast _{In} \rightarrow Cassandra _{Out} Hazelcast Cassandra \rightarrow CosmosDB _{In} \rightarrow Cassandra _{Out} CosmosDB Cassandra \rightarrow Neo4j _{In} \rightarrow Cassandra _{Out} Neo4j Cassandra \rightarrow Snowflake _{In} \rightarrow Cassandra _{Out} Snowflake Couchbase \rightarrow PostgreSQL _{In} \rightarrow Couchbase _{Out} PostgreSQL Couchbase \rightarrow CosmosDB _{In} \rightarrow Couchbase _{Out} CosmosDB Couchbase \rightarrow Neo4j _{In} \rightarrow Couchbase _{Out} Neo4j Couchbase \rightarrow Hazelcast _{In} \rightarrow Couchbase _{Out} Hazelcast

Nifi	Couchbase \rightarrow DynamoDB _{In} \rightarrow Couchbase _{Out} DynamoDB
	Couchbase \rightarrow Snowflake _{In} \rightarrow Couchbase _{Out} Snowflake
	Datastore \rightarrow Ignite NoSql _{In} \rightarrow Datastore _{Out} Ignite NoSql
	Ignite NoSql \rightarrow PostgreSQL _{In} \rightarrow Ignite NoSql _{Out} PostgreSQL
	Ignite NoSql \rightarrow CosmosDB _{In} \rightarrow Ignite NoSql _{Out} CosmosDB
	Ignite NoSql \rightarrow Neo4j _{In} \rightarrow Ignite NoSql _{Out} Neo4j
	Ignite NoSql \rightarrow Hazelcast _{In} \rightarrow Ignite NoSql _{Out} Hazelcast
	Ignite NoSql \rightarrow Snowflake _{In} \rightarrow Ignite NoSql _{Out} Snowflake
	Oracle \rightarrow Cassandra _{In} \rightarrow Oracle _{Out} Cassandra
	Oracle \rightarrow DynamoDB _{In} \rightarrow Oracle _{Out} DynamoDB
	Oracle \rightarrow Datastore _{In} \rightarrow Oracle _{Out} Datastore
	Oracle \rightarrow HBase _{In} \rightarrow Oracle _{Out} HBase
	Oracle \rightarrow Couchbase _{In} \rightarrow Oracle _{Out} Couchbase
	PostgreSQL \rightarrow Cassandra _{In} \rightarrow PostgreSQL _{Out} Cassandra
	PostgreSQL \rightarrow DynamoDB _{In} \rightarrow PostgreSQL _{Out} DynamoDB
	PostgreSQL \rightarrow Datastore _{In} \rightarrow PostgreSQL _{Out} Datastore
	PostgreSQL \rightarrow HBase _{In} \rightarrow PostgreSQL _{Out} HBase
	PostgreSQL \rightarrow Couchbase _{In} \rightarrow PostgreSQL _{Out} Couchbase
	SAPA \rightarrow Cassandra _{In} \rightarrow SAPA _{Out} Cassandra
	SAPA \rightarrow HBase _{In} \rightarrow SAPA _{Out} HBase
	SAPA \rightarrow Datastore _{In} \rightarrow SAPA _{Out} Datastore
	SAPA \rightarrow Couchbase _{In} \rightarrow SAPA _{Out} Couchbase
	SAPA \rightarrow DynamoDB _{In} \rightarrow SAPA _{Out} DynamoDB
	SAPSQL \rightarrow Datastore _{In} \rightarrow SAPSQL _{Out} Datastore
	SAPSQL \rightarrow HBase _{In} \rightarrow SAPSQL _{Out} HBase
	SAPSQL \rightarrow Cassandra _{In} \rightarrow SAPSQL _{Out} Cassandra
	SAPSQL \rightarrow Couchbase _{In} \rightarrow SAPSQL _{Out} Couchbase
	SAPSQL \rightarrow DynamoDB _{In} \rightarrow SAPSQL _{Out} DynamoDB
SpotBugs	Datastore \rightarrow Oracle _{In} \rightarrow Oracle _{Out} Datastore
Zeppelin	Hazelcast \rightarrow InfluxDB _{In} \rightarrow Hazelcast _{Out} InfluxDB
	Ignite NoSql \rightarrow MySQL _{In} \rightarrow Ignite NoSql _{Out} MySQL
	Ignite NoSql \rightarrow H2 _{In} \rightarrow Ignite NoSql _{Out} H2
	Ignite NoSql \rightarrow HBase _{In} \rightarrow Ignite NoSql _{Out} HBase
	Ignite NoSql \rightarrow InfluxDB _{In} \rightarrow Ignite NoSql _{Out} InfluxDB
	Ignite NoSql \rightarrow MongoDB _{In} \rightarrow Ignite NoSql _{Out} MongoDB
	Ignite NoSql \rightarrow Neo4j _{In} \rightarrow Ignite NoSql _{Out} Neo4j
	MSSQL \rightarrow Redis _{In} MSSQL _{Out} \rightarrow Redis
	MySQL \rightarrow Redis _{In} MySQL _{Out} \rightarrow Redis
	PostgreSQL \rightarrow Redis _{In} PostgreSQL _{Out} \rightarrow Redis

Table 1: DBMS usage patterns for the projects in our sample. MySQL stands for MySQL or MariaDB; PostgreSQL stands for PostgreSQL or CockroachDB; MSSQL stands for MS SQL Server or Microsoft Azure SQL Database; Firestore stands for Google Cloud Firestore; Datastore stands for Google Cloud Datastore; CosmosDB stands for Microsoft Azure CosmosDB; SAPSQL stands for SAP SQL Anywhere; SAPA stands for SAP Adaptive Server. Firebase stands for Firebase Realtime.