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

Nifi	Couchbase → Snowflake$_{In}$ → Couchbase$_{Out}$ Snowflake Datastore → Ignite NoSql$_{In}$ → Datastore$_{Out}$ Ignite NoSql Ignite NoSql → PostgreSQL$_{In}$ → Ignite NoSql$_{Out}$ PostgreSQL Ignite NoSql → CosmosDB$_{In}$ → Ignite NoSql$_{Out}$ CosmosDB Ignite NoSql → Neo4j$_{In}$ → Ignite NoSql$_{Out}$ Neo4j Ignite NoSql → Hazelcast$_{In}$ → Ignite NoSql$_{Out}$ Hazelcast Ignite NoSql → Snowflake$_{In}$ → Ignite NoSql$_{Out}$ Snowflake Oracle → Cassandra$_{In}$ → Oracle$_{Out}$ Cassandra Oracle → DynamoDB$_{In}$ → Oracle$_{Out}$ DynamoDB Oracle → Datastore$_{In}$ → Oracle$_{Out}$ Datastore Oracle → HBase$_{In}$ → Oracle$_{Out}$ HBase Oracle → Couchbase$_{In}$ → Oracle$_{Out}$ Couchbase PostgreSQL → Cassandra$_{In}$ → PostgreSQL$_{Out}$ Cassandra PostgreSQL → DynamoDB$_{In}$ → PostgreSQL$_{Out}$ DynamoDB PostgreSQL → Datastore$_{In}$ → PostgreSQL$_{Out}$ Datastore PostgreSQL → HBase$_{In}$ → PostgreSQL$_{Out}$ HBase PostgreSQL → Couchbase$_{In}$ → PostgreSQL$_{Out}$ Couchbase SAPA → Cassandra$_{In}$ → SAPA$_{Out}$ Cassandra SAPA → HBase$_{In}$ → SAPA$_{Out}$ HBase SAPA → Datastore$_{In}$ → SAPA$_{Out}$ Datastore SAPA → Couchbase$_{In}$ → SAPA$_{Out}$ Couchbase SAPA → DynamoDB$_{In}$ → SAPA$_{Out}$ DynamoDB
SpotBugs	Datastore → Oracle$_{In}$ → Oracle$_{Out}$ Datastore
Zeppelin	Hazelcast → InfluxDB$_{In}$ → Hazelcast$_{Out}$ InfluxDB Ignite NoSql → MySQL$_{In}$ → Ignite NoSql$_{Out}$ MySQL Ignite NoSql → H2$_{In}$ → Ignite NoSql$_{Out}$ H2 Ignite NoSql → HBase$_{In}$ → Ignite NoSql$_{Out}$ HBase Ignite NoSql → InfluxDB$_{In}$ → Ignite NoSql$_{Out}$ InfluxDB Ignite NoSql → MongoDB$_{In}$ → Ignite NoSql$_{Out}$ MongoDB Ignite NoSql → Neo4j$_{In}$ → Ignite NoSql$_{Out}$ Neo4j MSSQL → Redis$_{In}$ MSSQL$_{Out}$ → Redis MySQL → Redis$_{In}$ MySQL$_{Out}$ → Redis PostgreSQL → Redis$_{In}$ PostgreSQL$_{Out}$ → 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; SAPA stands for SAP Adaptive Server. Firebase stands for Firebase Realtime.