Using Blobs, Clobs and CallableStatements

USING JDBC TO STORE AND READ CLOB AND BLOB DATA

Richard Monson-Haefel
SR. SOFTWARE ENGINEER

@rmonson   www.monsonhaefel.com

Overview

Store and Read CLOBs and BLOBs

JDBC CallableStatement & Stored Prodedures

BLOBs

Using JDBC Store and Read CLOB and BLOB data

CLOB

Character encoding must be the same

BLOB

Encoding is not relavent

Using the JDBC CallableStatement

Pros and Cons of Stored Procedures

Pros

- Database experts write them
- Better at preventing injection attacks
- More secure in terms of authorization

Cons

- More work for the database
- Depends on DBA to implement
- Not as portable as SQL

Summary
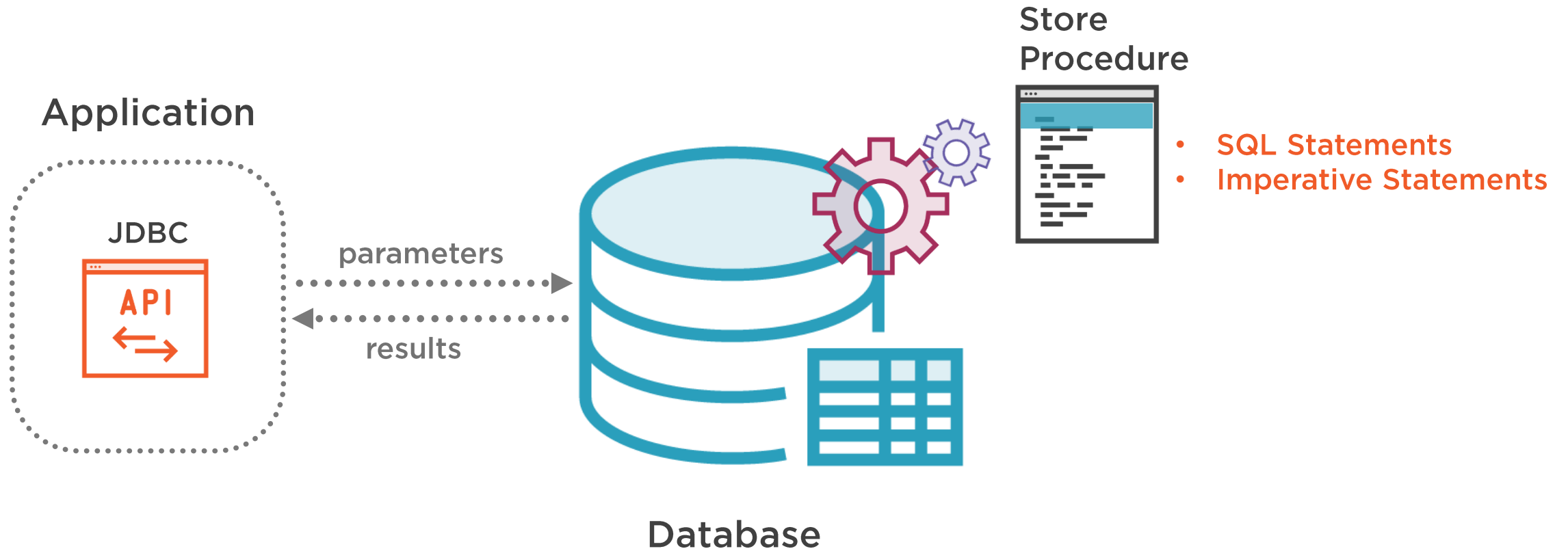
Pros and Cons of Stored Procedures

Pros

- Database experts write them
- More to injection attacks then PreparedStatements
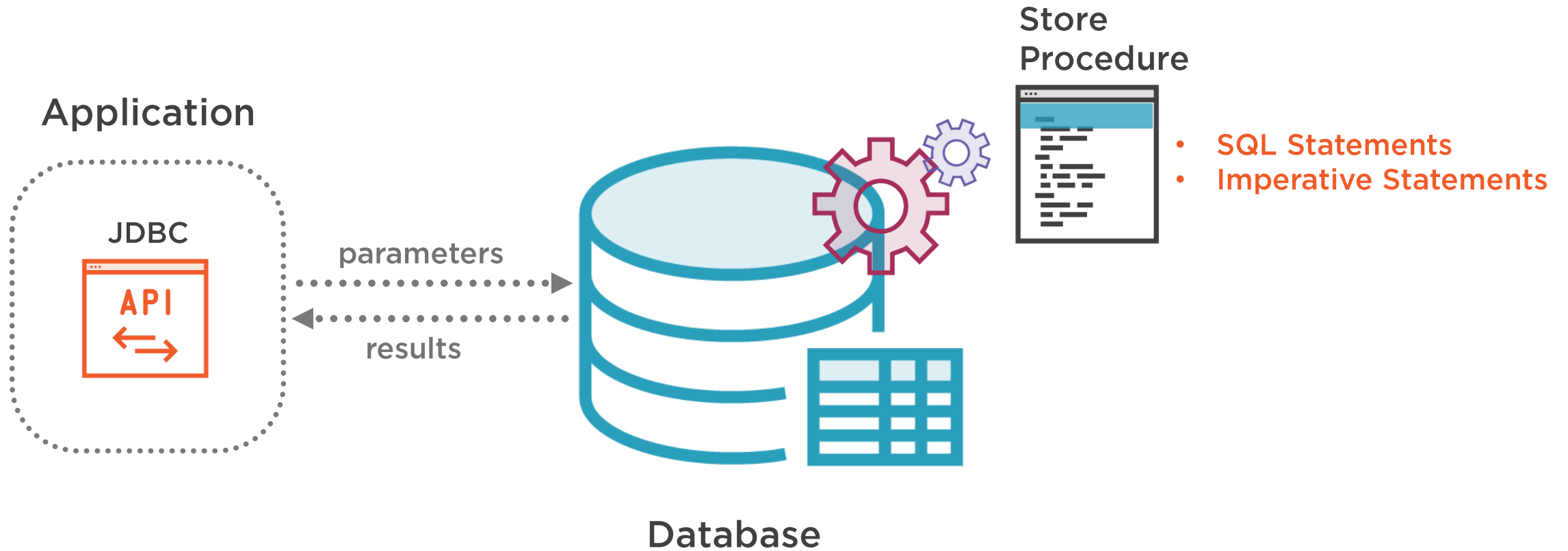- More secure in terms of authorization

Cons

- More work for the database
- Depends on DBA to implement
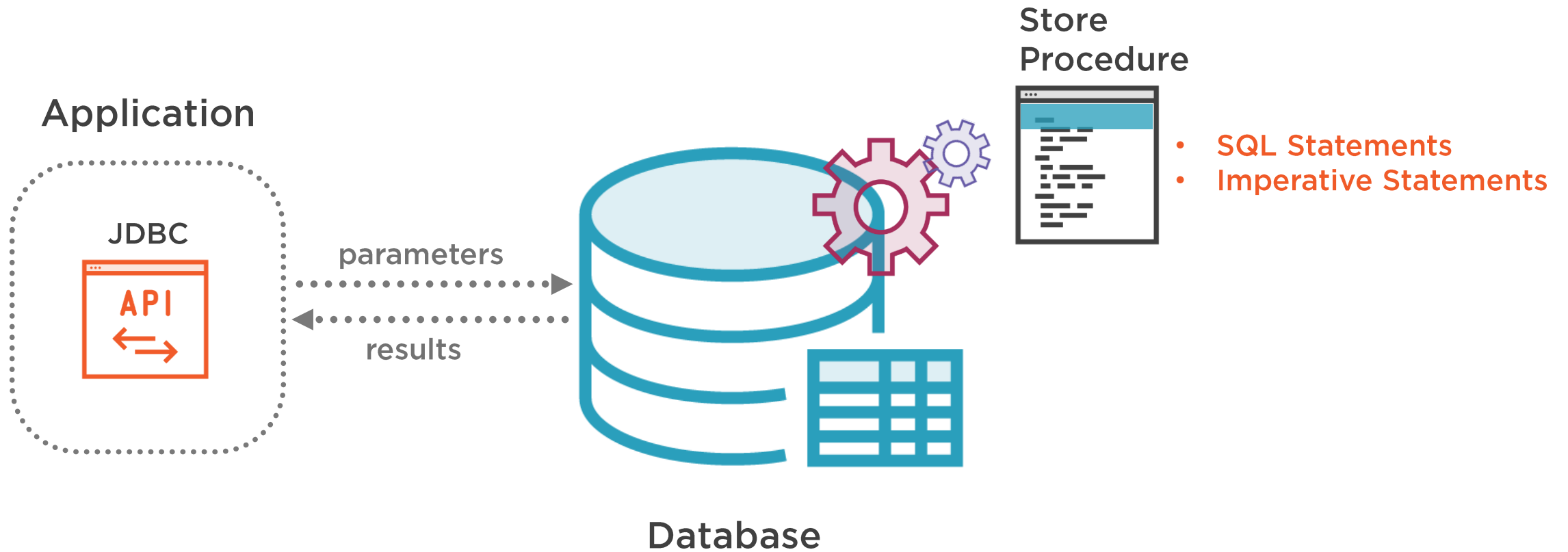- Not as portable as SQL

Stored Procedures

Application

JDBC

API

parameters →

← results

Database

Store Procedure

- SQL Statements
- Imperative Statements

Stored Procedures

Store Procedure

Application

JDBC

API

parameters →

← results

Database

- SQL Statements
- Imperative Statements

Stored Procedures

Application

JDBC

API

parameters →

← results

Database

Store Procedure

- SQL Statements
- Imperative Statements

Stored Procedure Languages
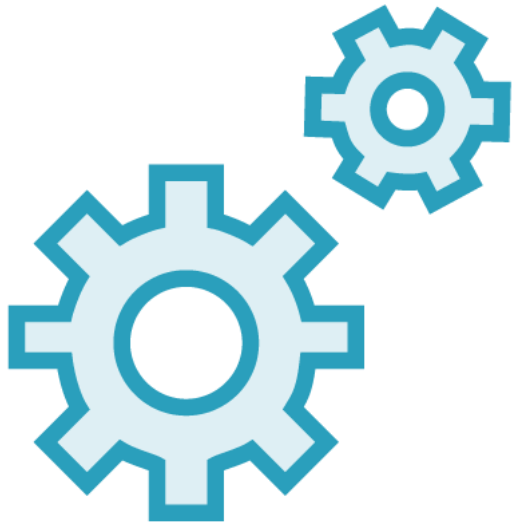
Database	Stored Procedure Language
MySQL	MySQL SPL
Oracle	PL/SQL or Java API
SQLServer	Transact-SQL
DB2	SQL PL or Java API
Informix	Java API
SAP HANA	SQLScript or R
Sybase ASE	Transact-SQL
Firebird	PSQL
PostgreSQL	PL/pgSQL, PL/Perl or PL/PHP

Stored Procedure Languages
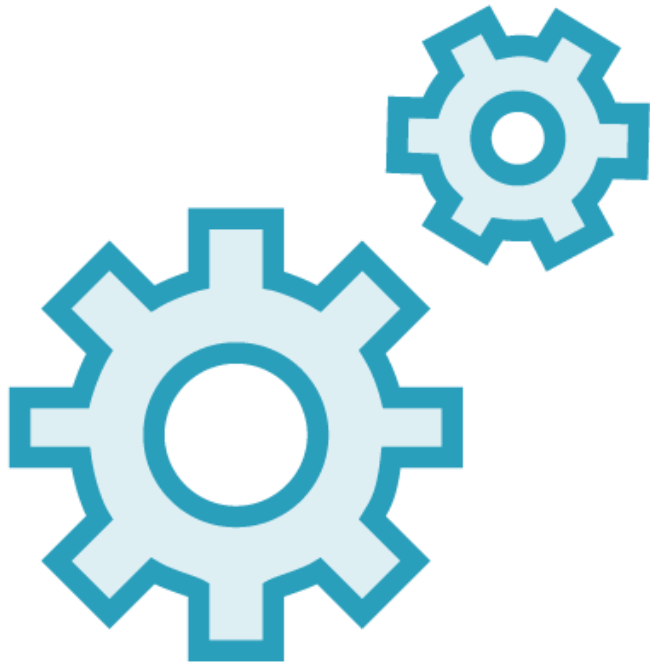
MySQL – MySQL SPL

Oracle - PL/SQL or Java API

SQLServer - Transact-SQL

DB2 - SQL PL or Java

Informix – Java

PostgreSQL - PL/pgSQL, PL/Perl, PL/PHP

IN, OUT, and INOUT Parameters

IN parameter is the default. It goes in but doesn't come out.

OUT parameter is like a return value. It doesn't go in, but it does come out.

INOUT parameters acts like both an IN and and OUT parameter. Values goes go in and new values come out.

Data Type Conversions

JDBC Type	Java Type
CHAR	String
VARCHAR	String
LONGVARCHAR	String
NUMERIC	java.math.BigDecimal
DECIMAL	java.math.BigDecimal
BIT	boolean
BOOLEAN	boolean
TINYINT	byte
SMALLINT	short
INTEGER	int
BIGINT	long
REAL	float
FLOAT	double
DOUBLE	double

Summary

CLOBs and BLOBS

- CLOBs for text data and Blobs for Binary
  - For CLOBs, make sure the character sets used in the database match the character set of the text

CallableStatement

- IN, OUT, and INOUT parameters
- Pros
  - Reduce network traffic
  - Improved security
- Cons
  - Additional strain on the database
  - Business logic in the database