Week 2 Unit 3: **SQL Footprints in Your Productive System**

openSAP

SQL Footprints in Your Productive System
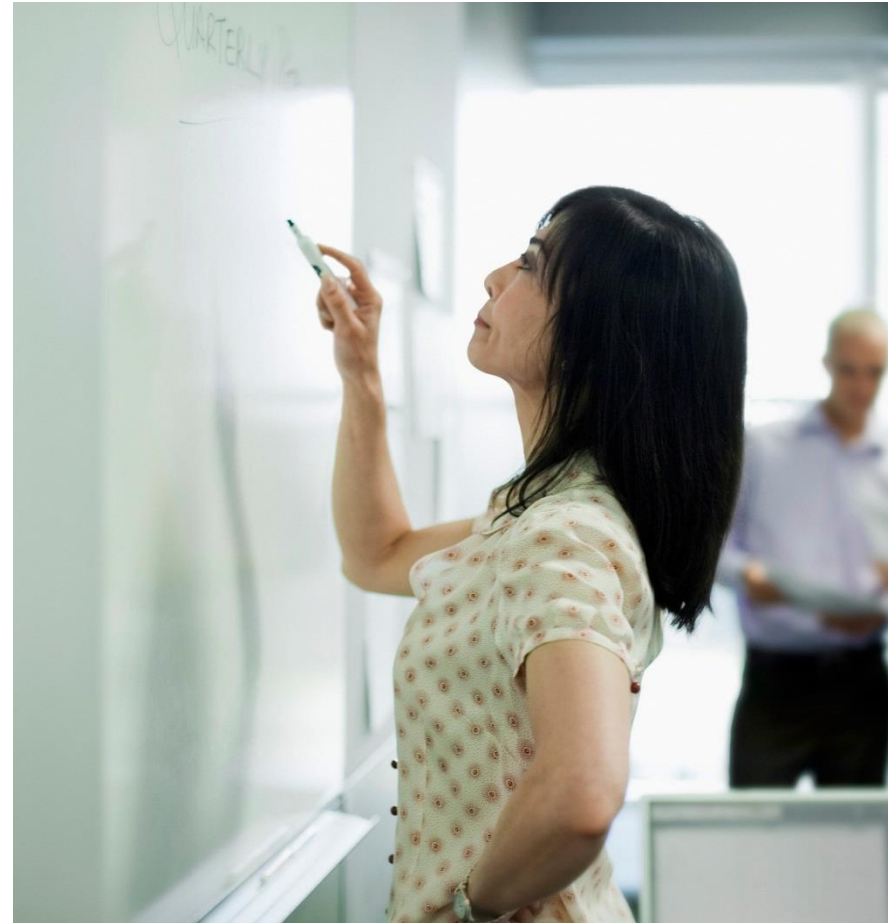## Outline

Content

- Shortcomings of Static Code Checks

- SQL Monitor

- Analysis of SQL Monitor Data
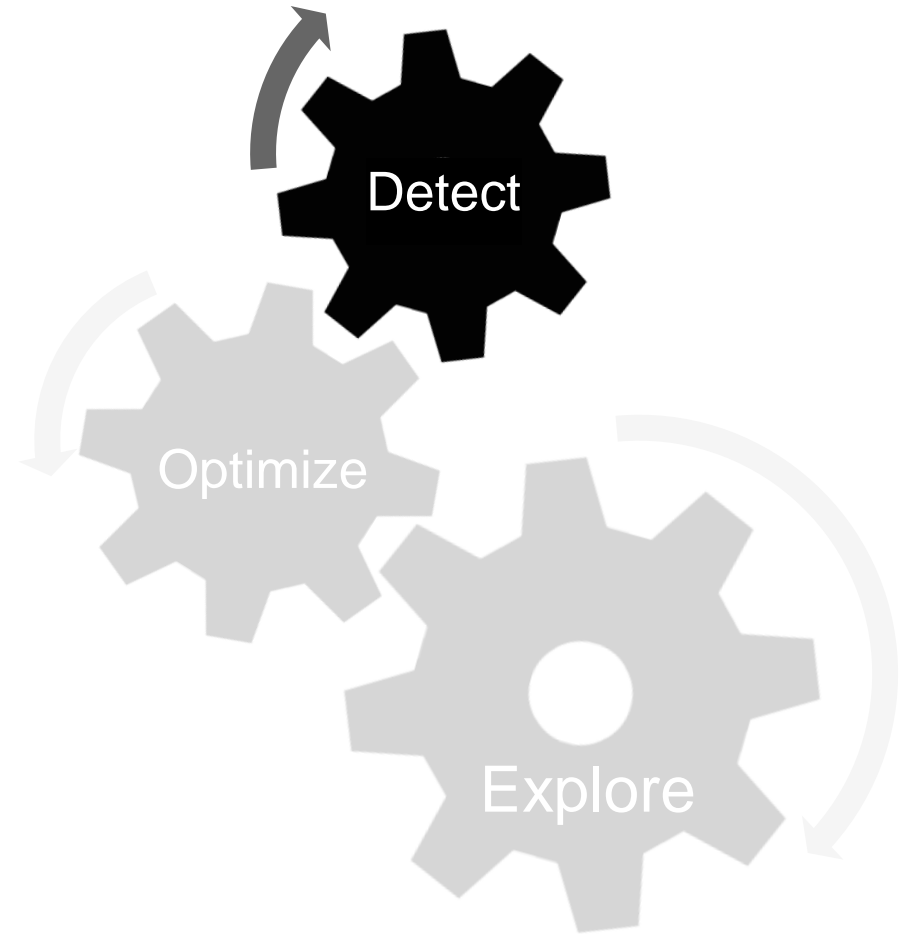
i Additional Material

1. Detect

- Functional correctness
- **Performance optimization potential**

2. Optimize

- Database-oriented programming
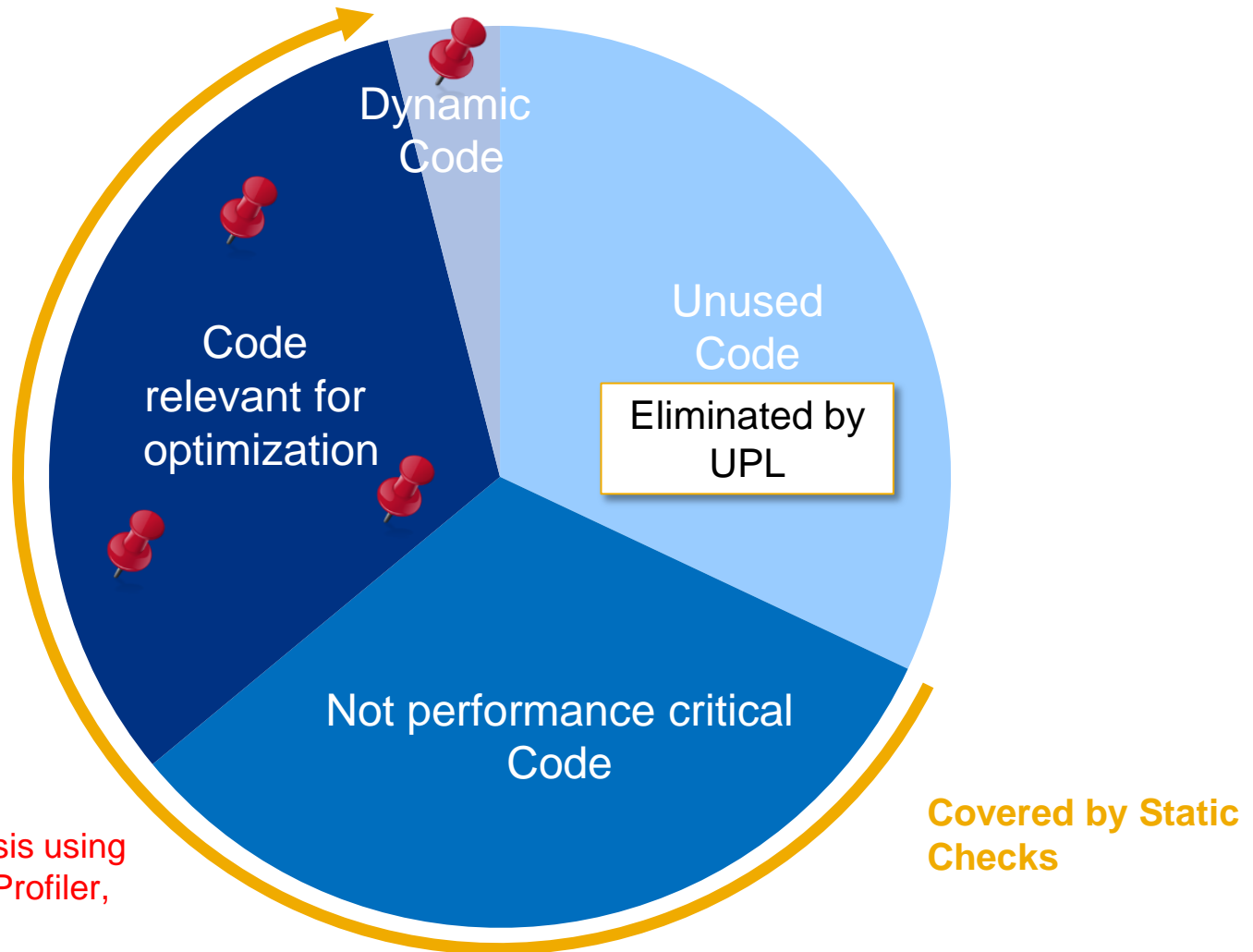
3. Explore

- Use SAP HANA-specific features
- Rethink & innovate

Detect

Optimize

Explore

SQL Footprints in Your Productive System
Static Performance Checks

Dynamic Code

Unused Code

Eliminated by UPL

Code relevant for optimization

Not performance critical Code

Covered by Static Checks

Runtime analysis using SAT or ABAP Profiler, for example

SQL Footprints in Your Productive System
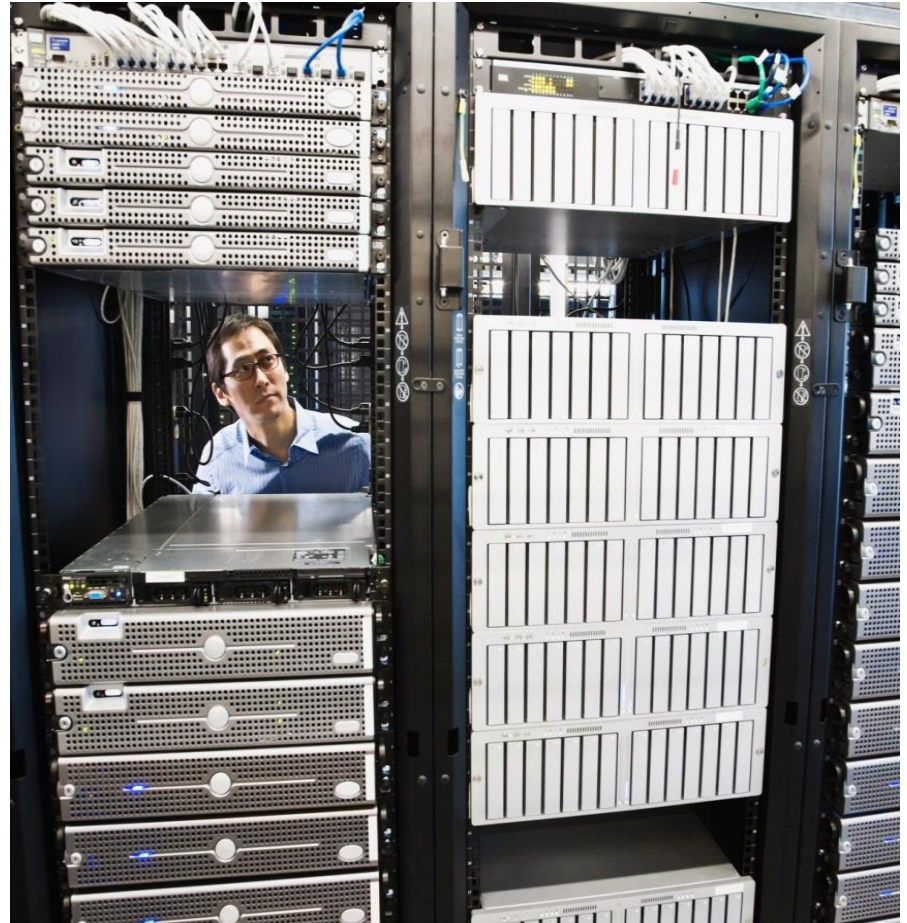## Example of a Productive ERP System

Example: **A productive ERP system with 6000 concurrent users**

Two weeks in this system means:

- 50k different business processes
- 130k different ABAP SQL statements (>15% in customer code)
- 13B SQL requests (~1B / day)
- 140B records (~10B / day) read/changed

→ **Where to optimize?**
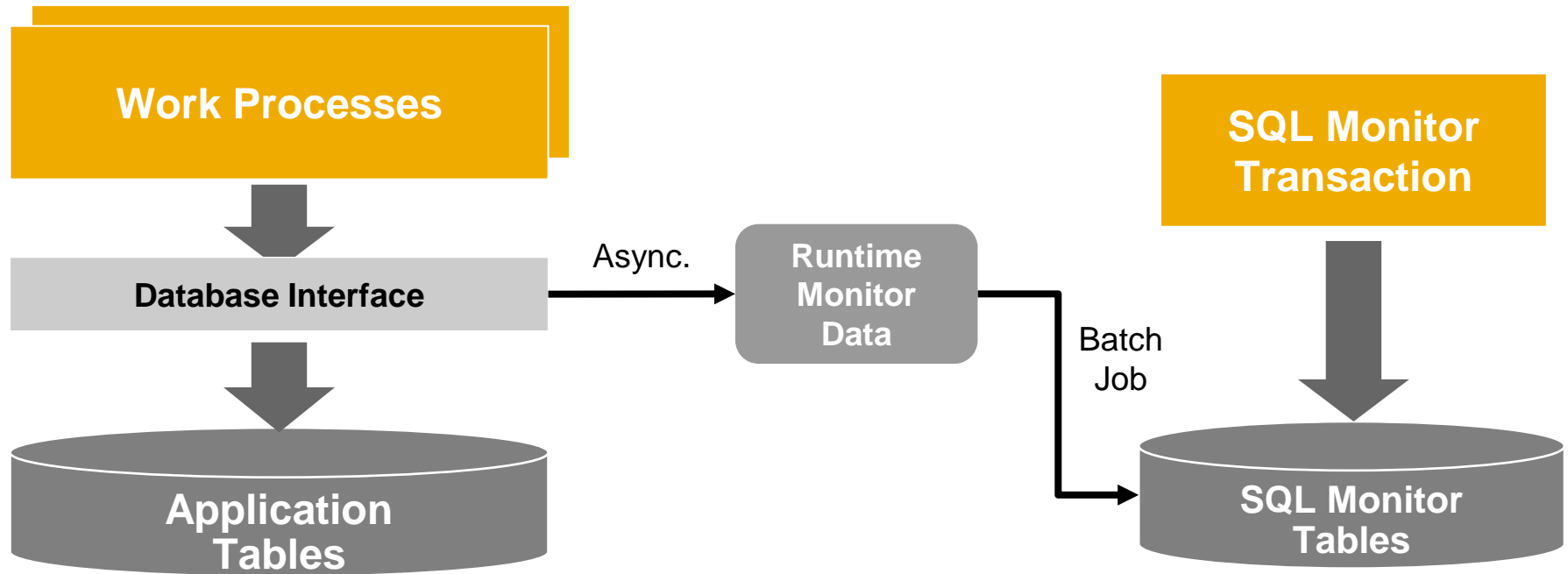
SQL Footprints in Your Productive System
SQL Monitor

Runtime Code Analysis

- SQL profile of productive system

- Find SQL performance optimization potential

- Available with ABAP 7.02 SP12 and above

- More information:
  - SAP Note 1885926
  - SCN Blog SQL Monitor Unleashed

SQL Footprints in Your Productive System
Architecture

Work Processes

SQL Monitor
Transaction

Database Interface

Async.

Runtime
Monitor
Data

Batch
Job

Application
Tables

SQL Monitor
Tables

SQL Footprints in Your Productive System
Administration of the SQL Monitor (1)

Activate/deactivate SQL Monitor via transaction **SQLM**

SQL Monitor can be activated either for **all** application servers or just **selected** ones

Upon activation, an **expiration date** and an **upper limit** of records can be specified

For further information about initial setup (required authorizations, and so on), see http://scn.sap.com/docs/DOC-47444

SQL Monitor

ℹ️ Application Help   🖥️ Servers   📖 Log   👓 Data

State

Number of Records	81.921
Last State Change	11.11.2013 / 12:36:06 (CET) by user BRESCH
Last Data Action	12.11.2013 / 08:21:55 (CET) by user BRESCH (refresh data)
Scheduled Data Refresh Job	Scheduled on Job Event SAP_RTM_COLLECT_ALL_FINISHED
Scheduled Deactivation	18.11.2013 / 11:20:14 (CET) by user BRESCH
Activation State	◯🟩 Active for 3 selected servers including local (3 servers a

Activation / Deactivation

All Servers	Deactivate
Select Servers	

Data Management

Display Data	Delete Data
Export Data	

Snapshots

Display Snapshots	Manage/Create Snapshots

SQL Footprints in Your Productive System
Administration of the SQL Monitor (2)

Transaction **SQLM** offers simple management of SQL Monitor snapshots

Snapshots can be:

- Created based on local data

- Imported from file (from other systems, for example)

- Exported to file

- Removed

To reduce data volume, **basic filter** criteria can be applied before snapshot creation

SQL Monitor: Snapshot Management

Create Snapshot

| Create | Edit / Delete |

General

Description — SQLM Snapshot [#SYSTEM] [#DATE] [#TIME]

i [#SYSTEM], [#DATE], [#TIME] will be replaced with actual values

Data Source

⦿ File Import   Path
◯ Local System

Further Options

Object Set

Package		to	
Object Type		to	
Object Name		to	

Import Only Top Records by

⦿ Total Number of DB Executions
◯ Total DB Execution Time
Maximal Number of Records   --   (Aggregated by Source Position)

SQL Footprints in Your Productive System
Analysis of SQL Monitor Data

To display SQL Monitor data

- Use transaction SQLMD or
- Navigate from transaction SQLM

Specify **filter criteria**:

- Development objects
- Requests
- Database tables

Choose **aggregation** type

Select **initial sorting**

SQL Monitor: Data Display

Application Help

Data Source
- Local System
- Snapshot   Description   --   Select

Objects
- Package
- Object Type   to
- Object Name   to

Requests
- Request Type   to
- Request Entry Point   to

Tables
- Table Name   to

Aggregation
- None
- By Source Code Position
- By Request

Order by
- Total Number of DB Executions
- Total DB Execution Time
- Total DB Records
- Maximal Number of Records   200

Options
- Display Technical Records

SQL Footprints in Your Productive System
SQL Monitor: Demo

SQL Monitor

- Activation / deactivation

- Export / import SQL Monitor data snapshots

- Analyze SQL Monitor data

The ABAP SQL Monitor is available in two (more or less identical) variants:

1. **Out of the box as part of SAP_BASIS (recommended when available)**

   ABAP 7.02, 7.03/7.31, 7.4

2. **As part of the ST-PI add-on (fallback for lower releases)**

   ABAP 7.00 (and above)

Note: ABAP kernel 7.21 is required for releases lower than 7.4

→ Refer to SAP Note 1885926 for all details about availability and necessary preparation steps

SQL Footprints in Your Productive System
Improved Check Coverage

Dynamic
Code

Code
Relevant for
Optimization

Unused
Code

Eliminated by
UPL

Non-Performance-Critical
Code

**Covered by Static
Checks**

**Covered by SQL
Monitor**

Runtime analysis
e.g. using SAT
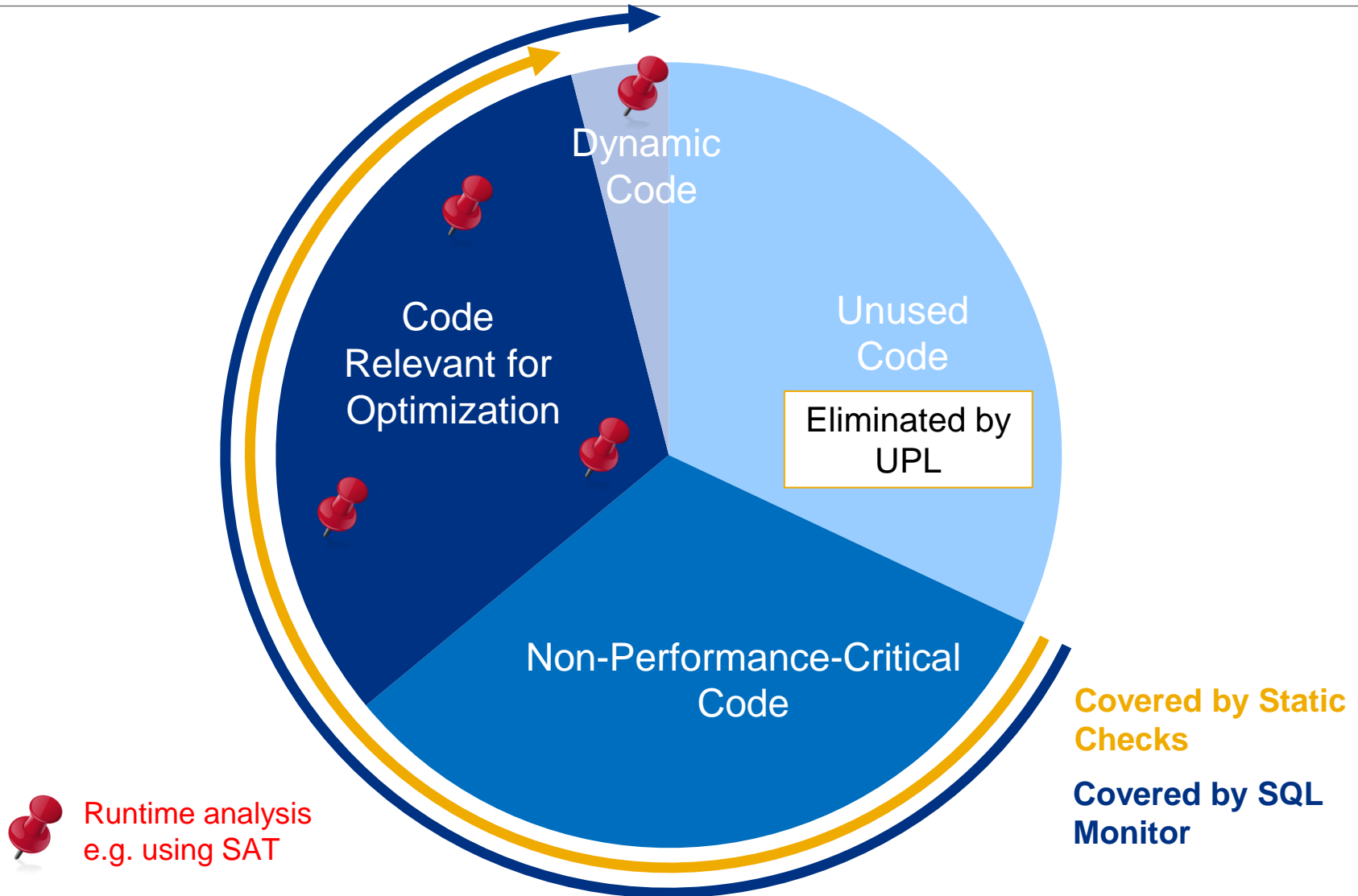
SQL Footprints in Your Productive System
What's Next?

Week 2 Unit 4
Guided Performance Analysis

Thank you

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