PL/SQL Code Quality Fundamentals

Objectives

At the end of this session, you will be able to:

- Recognize problems due to poor Code Quality
- Understand Code Quality
- Know the properties of a Good Code Quality
- Understand Readability of a Code
- Know Coding Standards
- Learn how to construct a PL/SQL Program

Agenda

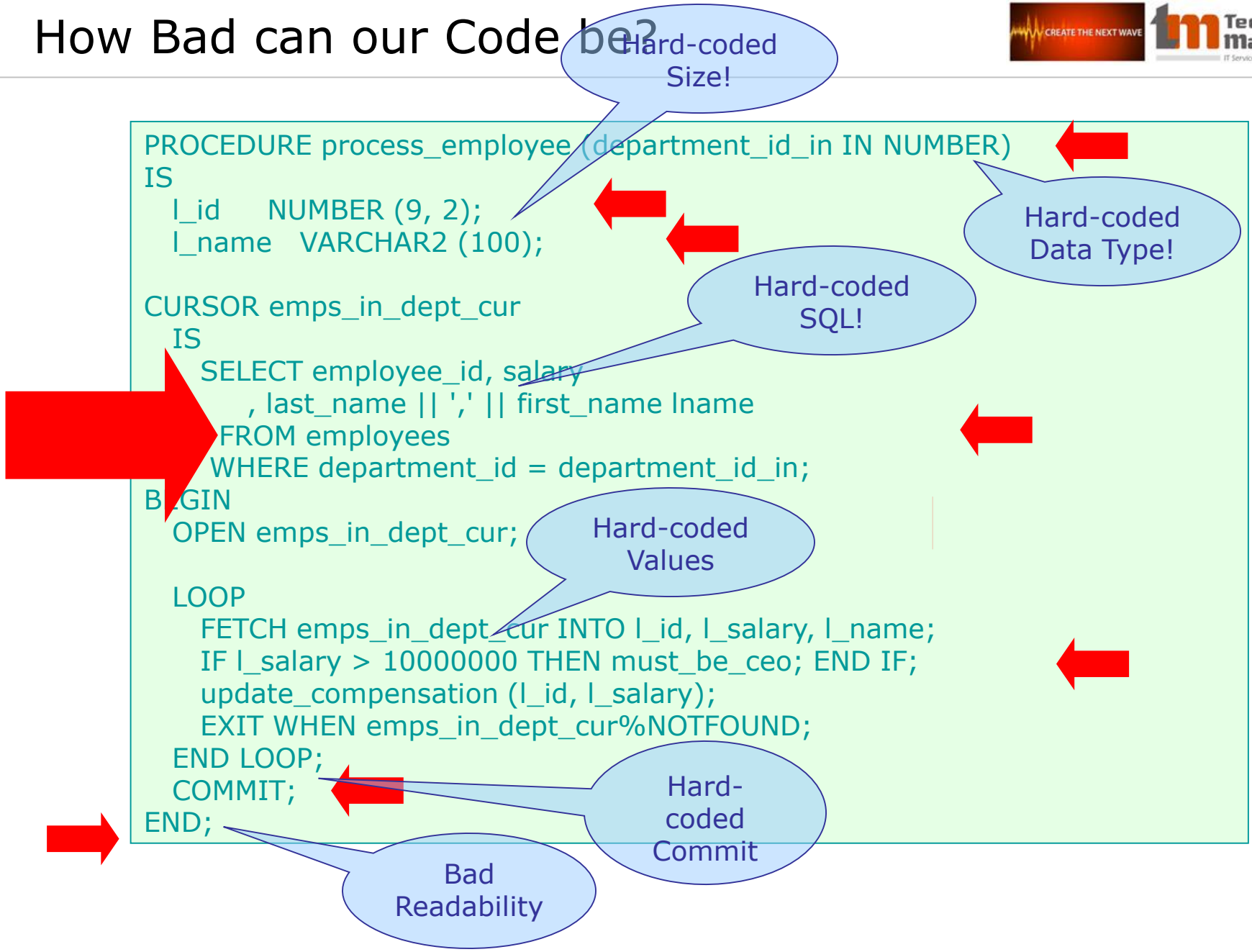
- Problems due to poor Code Quality
- What is Code Quality
- Properties of a Good Code Quality
- Readability of a Code
- Coding Standards
- How to construct a PL/SQL Program

Problems due to Poor Code Quality

- Hard to maintain
- Re-coding required, instead of Code Modification, when requirements change
- No account of Resource Usage

  For example, no caching of information, or creation of new objects even when required
- Lots of waste of resources (man power, time, etc.)

How Bad can our Code be?



What is Code Quality

- Focuses on non-functional properties
- Demonstrates how to meet reliability, security, portability, maintainability and efficiency in time & space
- Quality of the code can be assessed to the need it fulfills, the convenience that it offers in doing so, the defects encountered, the effectiveness and efficiency of the user experience

Properties of a Good Code Quality

- Readability
  - Code should be simple to read, even without comments
  - Class, method & variable names should be expressive and unambiguous
  - Functional intent should be easily understood
- Ease of Maintenance, Testing & Debugging
- Degree of effort to maintain, test and debug an application indicates the Quality of Code and Architecture
- Low Complexity. Most software complexity comes from
  - Poorly designed and implemented code
  - Over analysis of the problem
  - Adding irrelevant functionality
- Low Resource Consumption

Readability of a Code

- Important as programmers spend majority time reading, trying to understand and modifying existing source code, rather than writing new source code
- Unreadable Code leads to bugs, inefficiencies & duplicated code
- A consistent programming style often enhances Readability
- PL/SQL allows us to write very readable, self-documenting and easily maintained code

Readability of a Code (Contd…)

- Readability features that we can use:
  - END Labels
    - For program units, loops, nested blocks
  - SUBTYPEs
    - To create application-specific data types
  - Named Notation
    - Sometimes the extra typing is worth it
  - Local or Nested Modules

Coding Standards

- Aims at ensuring Consistency in code written by entire team

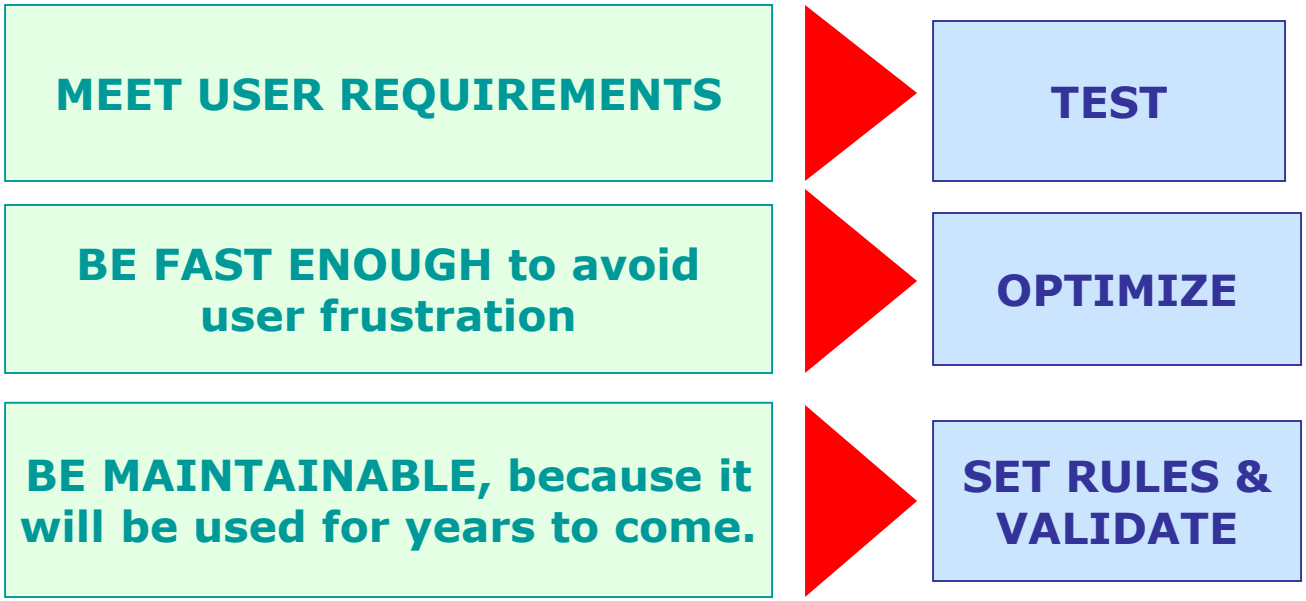
- Coding Conventions - Set the Rules
  - Decide on standard naming conventions for all variables, program names and database objects
  - All program units should be built in a consistent way
    - The same program header comment block
    - Initialization and cleanup "sections"
    - Relying on standard error management

Coding Standards (Contd…)

- Coding Conventions - Systematize and Automate
  - Use code templates to design and make available headers and structures.
    - Build your checklists into these templates
    - Each IDE has its own approach.
  - Use automated formatters at both the individual and team levels.
    - Do not manually format your code. Big waste of time.

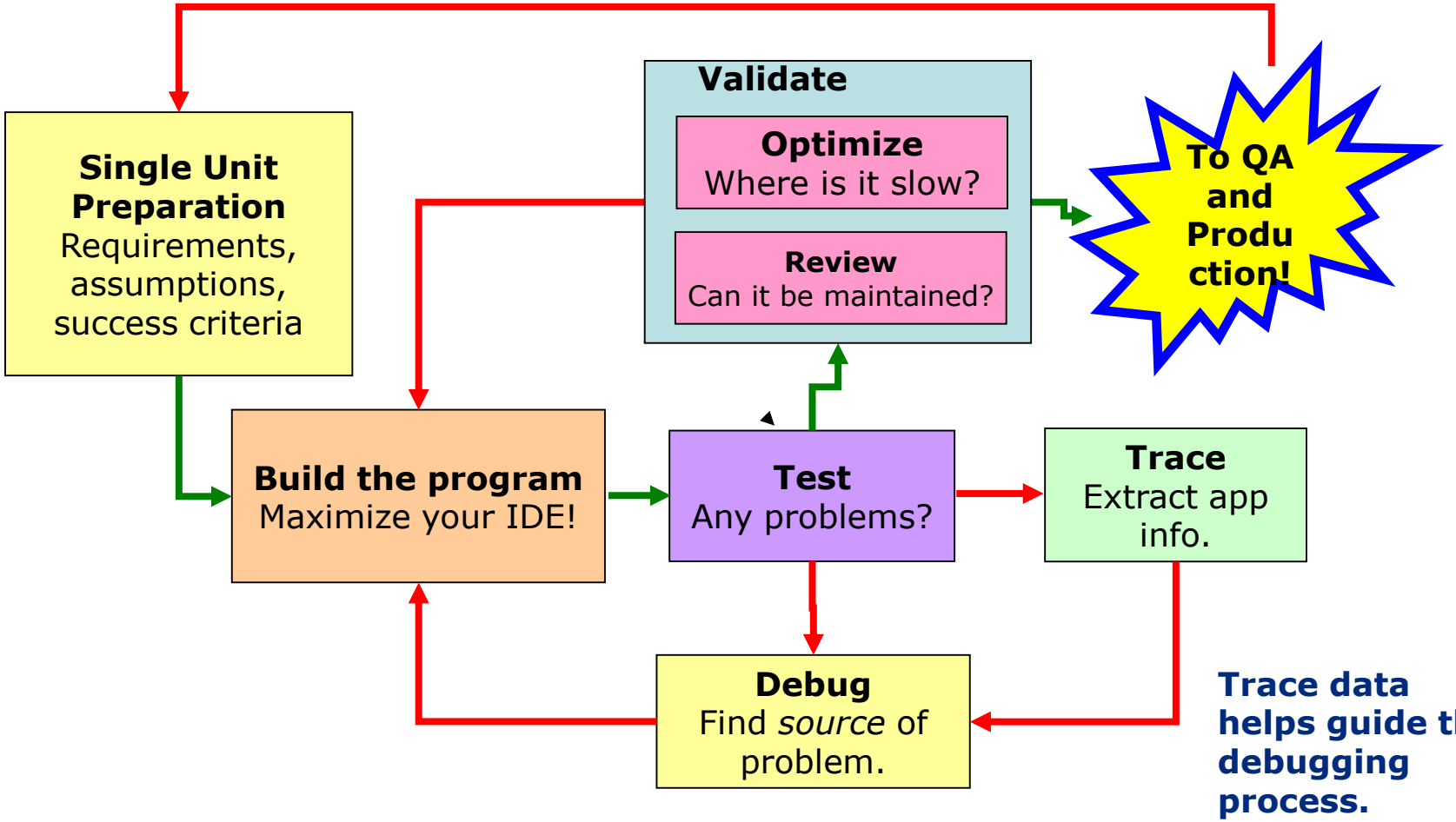
Achieving PL/SQL Code Quality

- Mostly, we follow the "quick and dirty" path, sacrificing code quality to meet deadlines. To be successful, an application must....



Constructing a Program

- Build your code based on standards, careful preparation and the reality of an iterative process



Summary

In this session, we have covered:

- Problems due to poor Code Quality
- What is Code Quality
- Properties of a Good Code Quality
- Readability of a Code
- Coding Standards
- How to Construct a PL/SQL Program

Thank You