

Brief Introduction to Java Technology

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Topics

- Historical background
- What is Java technology?
- Types of Java platforms
 - > Java SE (Focus of this course)
 - > Java EE
 - > Java ME
- Where does Java fit in?

Historical Background

When and Who Created Java?

- Java was created in 1991 by James Gosling of Sun Microsystems.
- It was initially called *Oak*, named after the tree outside Gosling's window, but its name was changed to *Java* because the name *Oak* was already taken by someone else as a trademarked name

Why Java was created?

- The original motivation for Java was to create a platform independent language that could be used for writing applications for the consumer devices like toasters and refrigerators
 - > This motivation was never realized, however
- At about the same time, the Web was gaining popularity. Gosling realized that Java could be used for Internet programming
 - > The “platform independent language” and “platform independent programs” perfectly fit the need of the internet at the time where programs can be downloaded to different type of browsers – they are called “applet”, which is still a popular way of using Java

What is Java Technology?

What is Java Technology?

- The Java technology is all of the following
 - > (1) A programming language
 - > (2) A development environment
 - > (3) A runtime environment (A runtime platform)

(1) Java Technology: Programming Language

- As a programming language, Java can create all kinds of applications
 - > Desktop applications such as word processing application (via Java SE)
 - > Enterprise applications such as inventory management systems (via Java EE)
 - > Mobile applications that run on mobile devices such as phones and tablets (via Java ME)
 - > Internet applications that can run inside browsers (Applet)
 - > Even tiny applications that run on credit-card like devices (via Java Card)
 - > Big data analysis application (via Hadoop)

(2) Java Technology: A Development Environment

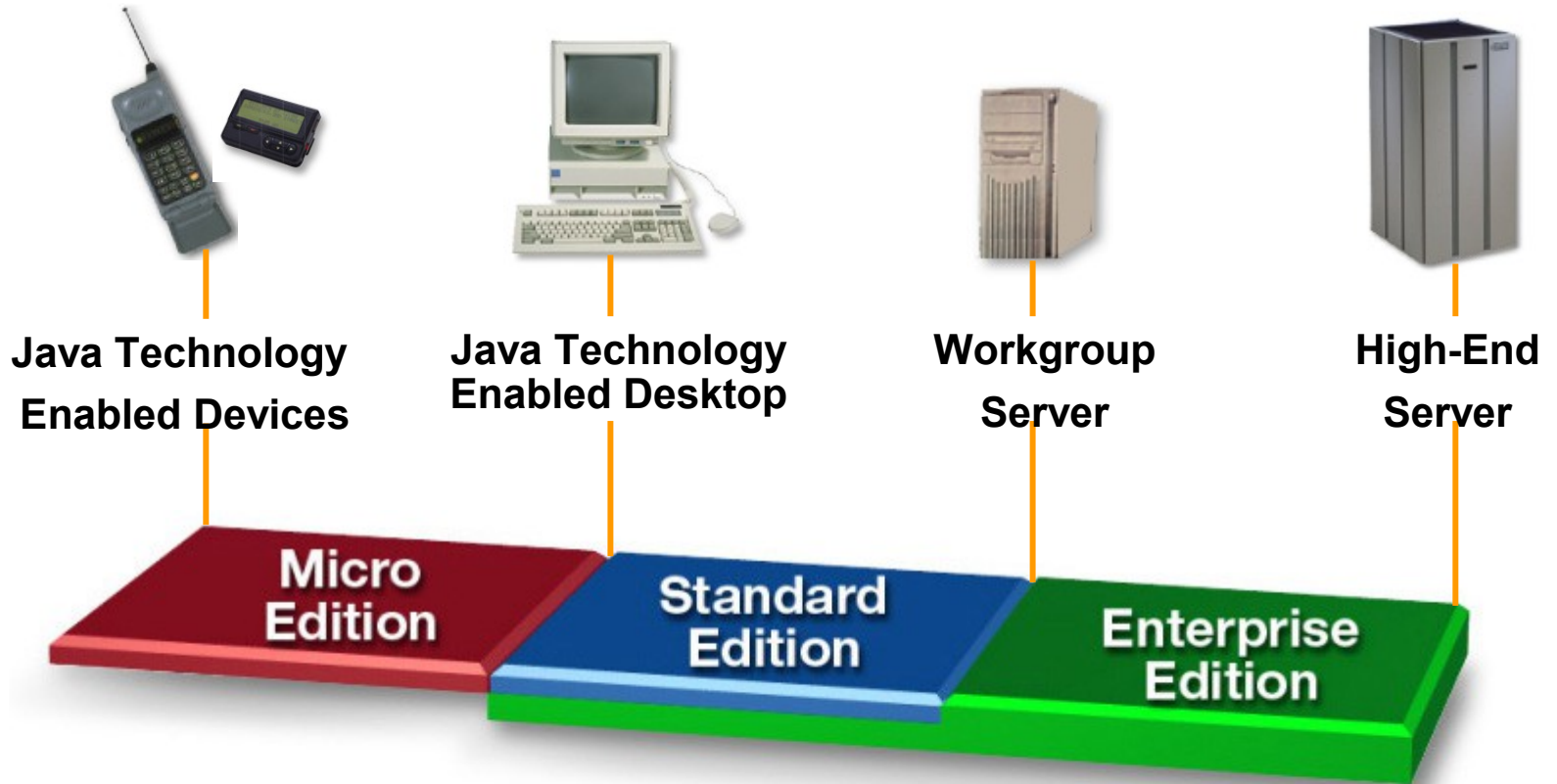
- As a development environment, Java technology provides you with a set of tools
 - > A compiler (javac)
 - > A runtime platform (java)
 - > A documentation generator (javadoc)
 - > A set of libraries (*.jar files)
- JDK (Java Development Kit) provides all of the above
 - > You download JDK from Oracle website
- There are many Java IDE's that provide integrated development environments (JDK plus more)
 - > Eclipse, NetBeans, IntelliJ IDEA, etc

(3) Java Technology: A Runtime Environment

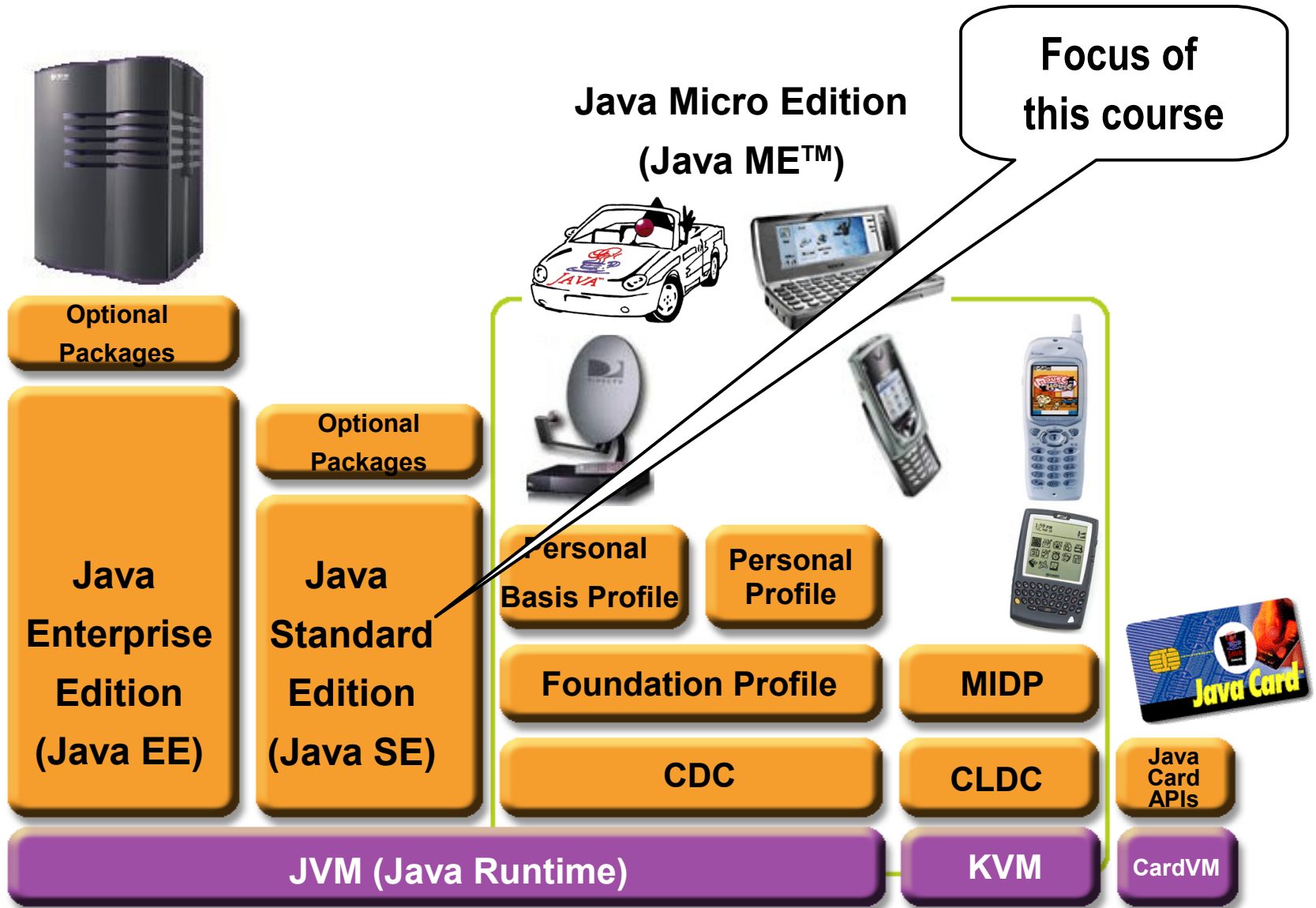
- Java applications runs over Java Runtime Environment (JRE)
 - > JRE is also called Java Virtual Machine (JVM)
- JRE examples
 - > JRE over which a desktop application runs (java.exe)
 - > JRE is built inside a browser (so that it can run applet)
 - > JRE that comes with server (Tomcat, GlassFish)
 - > JRE on mobile device platforms (built in a device)
- It is these JRE's of all these diverse set of platforms that provides the common runtime environment for Java programs
 - > “Write once Run everywhere”

Types of Java Platform

The Java™ Platform



The Java™ Platform



Where Does Java Fit in?

Java Stack

Java Application

Java Runtime (Java Virtual Machine)

Operating System (Windows, Linux, Mac OS)

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