

JAVA DAYS '98



# Secrets of successful Java testing

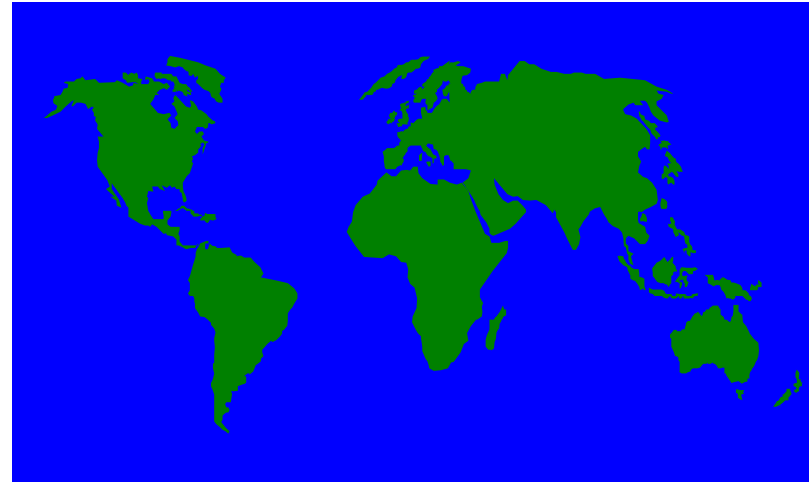
Drew Wagar  
SunTest Europe  
Sun Microsystems





# Corporate Background

- 1982 Sun inc d
- 1990 SunLabs
- 1995 Java
- 1996 SunTest
- 1997 First suite of Java testing tools
- 1997 100% Pure Initiative
- 1998 JavaLoad Performance Testing



# The Advantages of Java

## *Write Once, Run Anywhere*



### Executive

new partners, new channels: strategic advantage

faster post-merger integration

### Management

easier to integrate new devices

lower costs (development time is cut in half)

### Development

easier to deploy applications

run on Unix, PCs, MACs, etc...

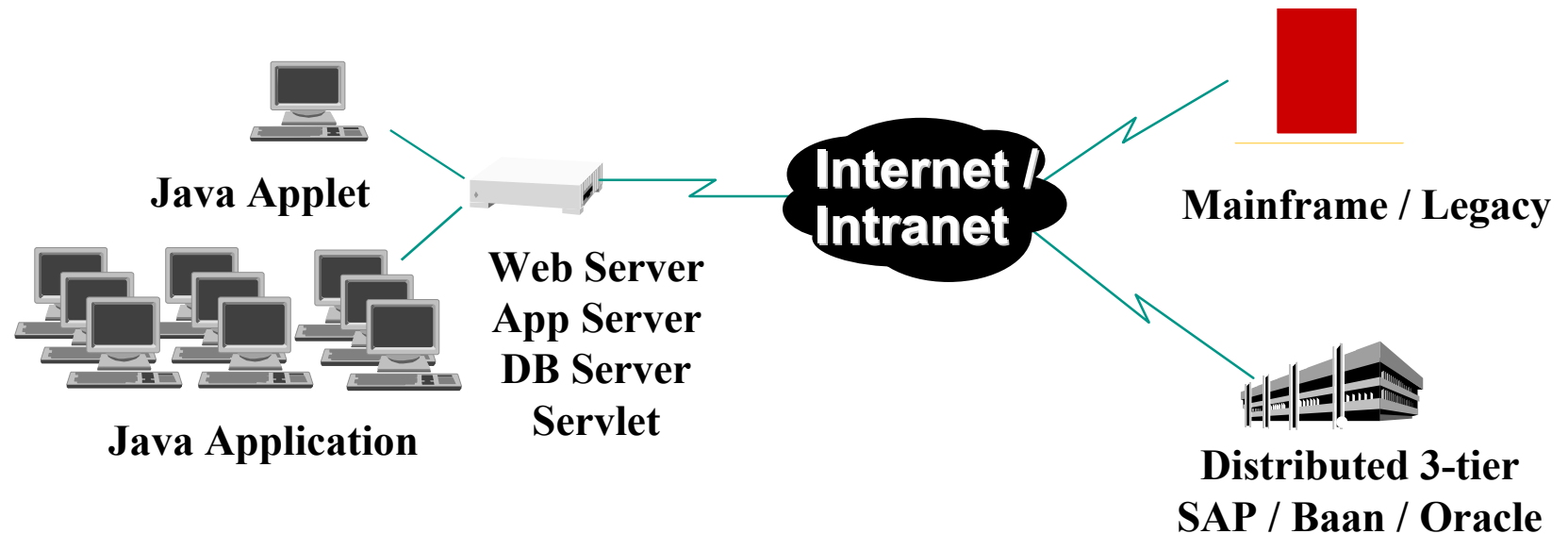


- Java adds testing challenges and advantages
- Need for *both* quality and portability testing





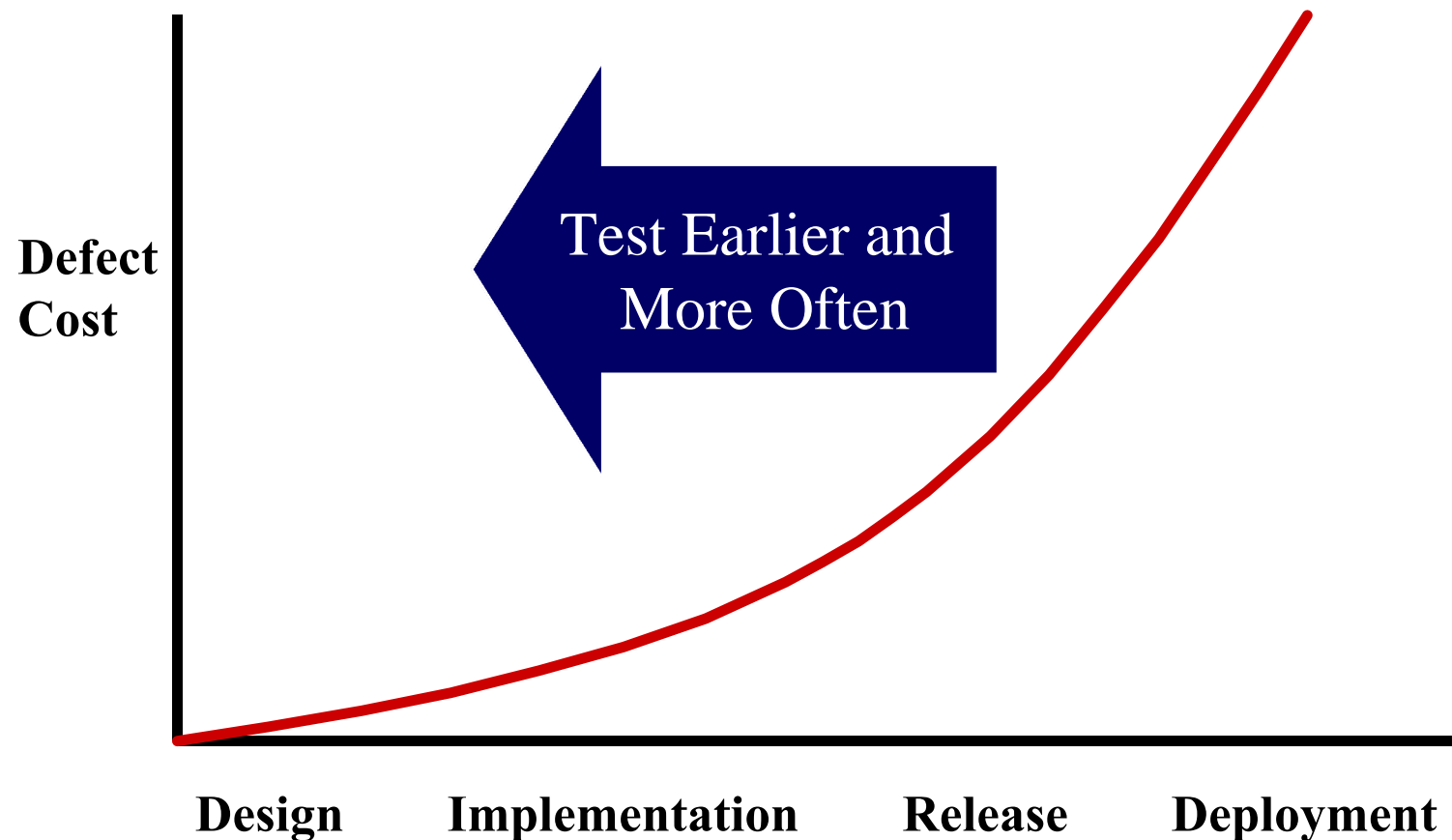
# Leverage All the Power of Java During QA



- Provide Java developers and QA engineers with the most complete, effective set of testing tools ever offered on *any* computer platform. -- SunTest Mission --



# Cost of Software Defects



- The cost of software defects increases rapidly.

# Design Your Java Test Environment to Address the Challenges Unique to Java



## ■ Java cuts development time in half?

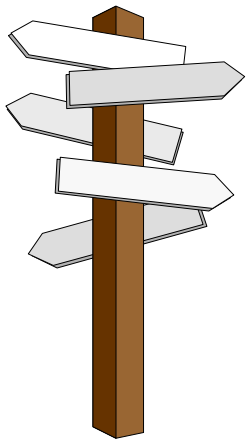
- (1) Integrate testing into every stage of the software lifecycle

## ■ Java provides cross-platform portability

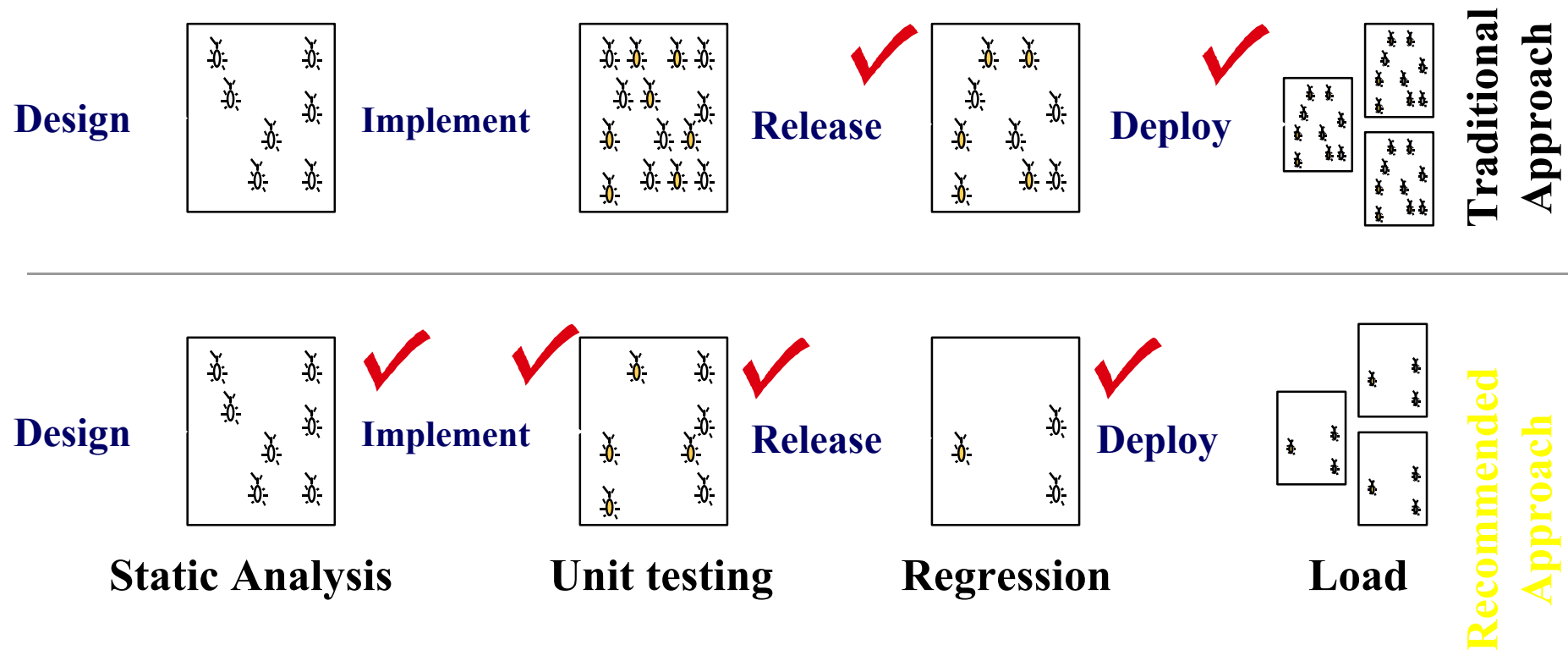
- (2) Incorporate both portability and quality testing

## ■ The JVM is a unique platform

- (3) Leverage the advantages of Java-based test tools



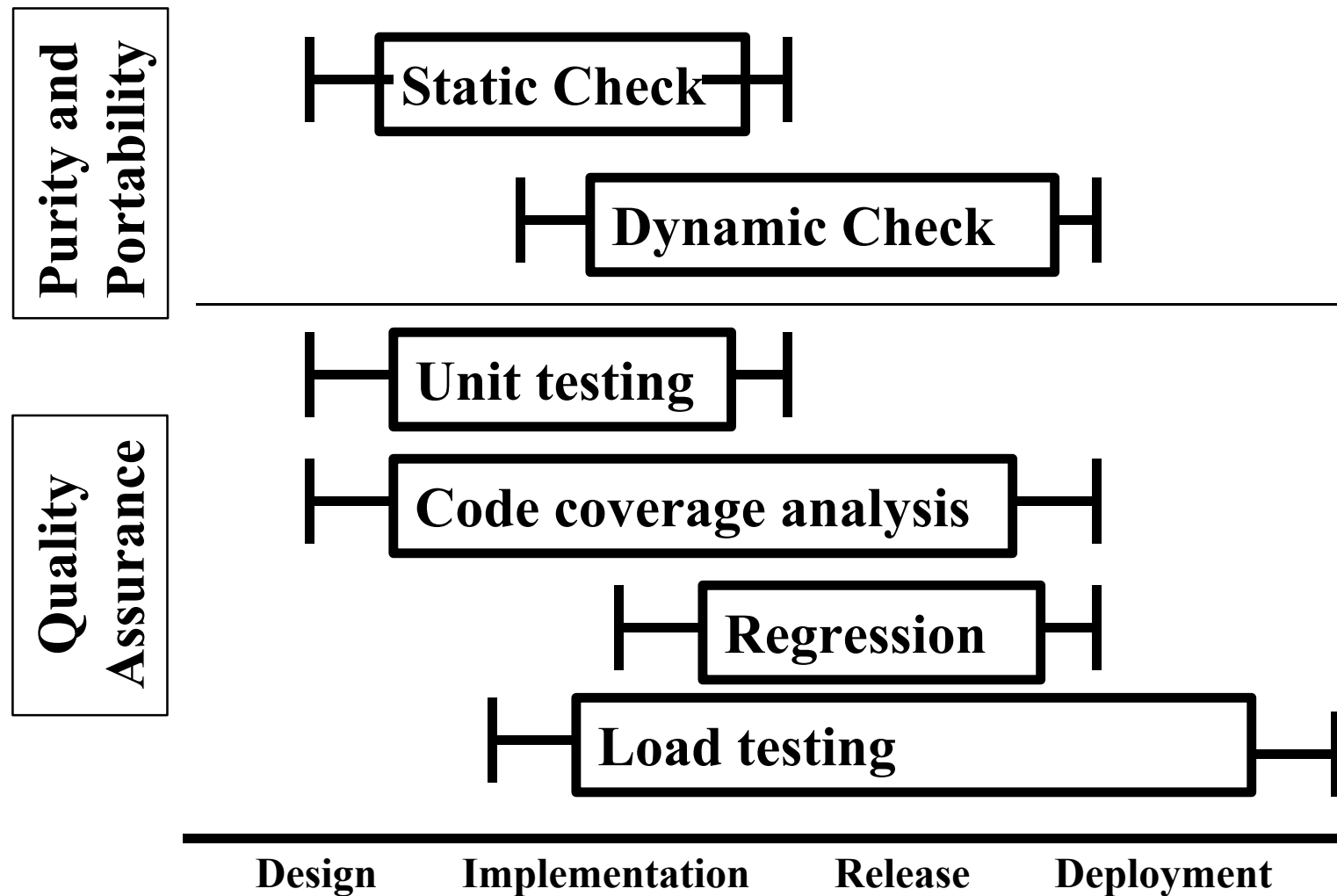
# (1) Integrate Testing into Every Stage of the Software Lifecycle



•Test Earlier and More Often



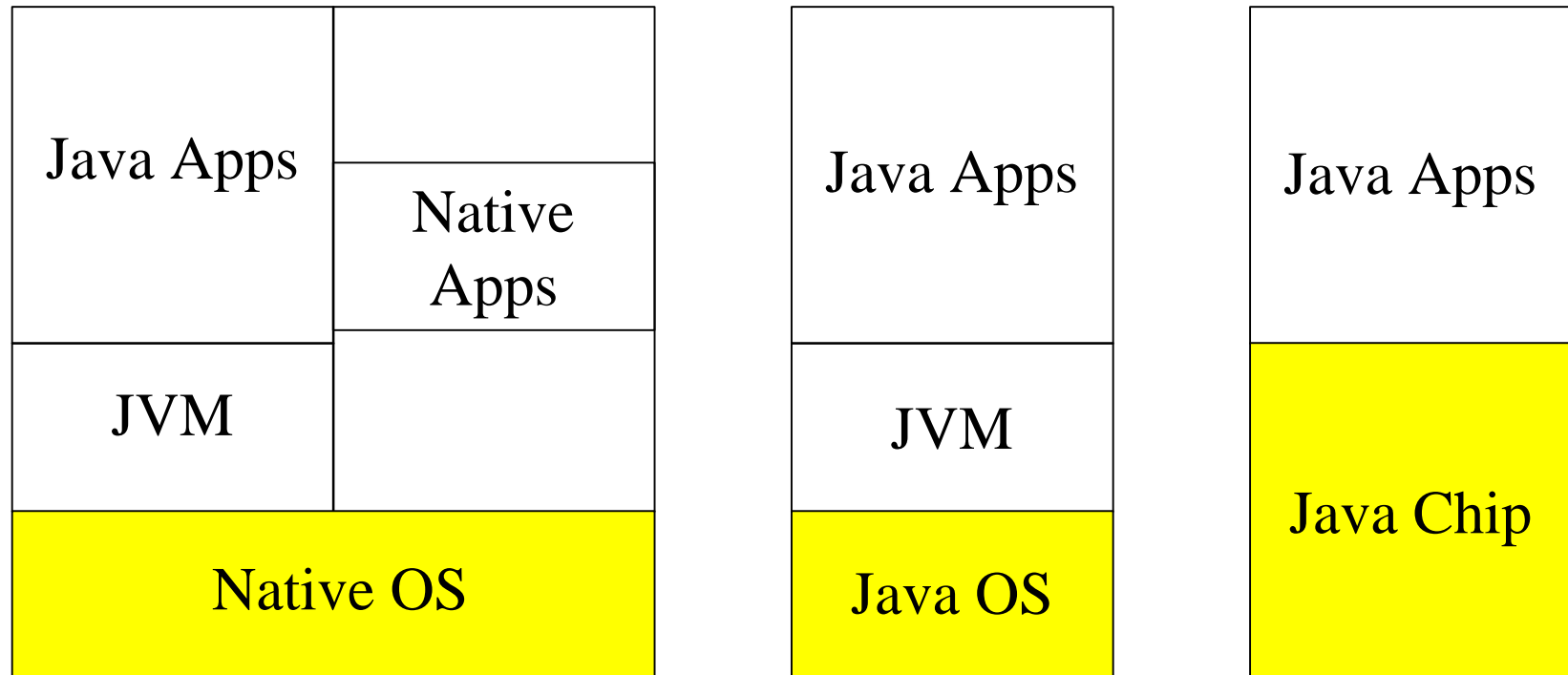
## (2) Incorporate Both Purity Testing and Quality Testing





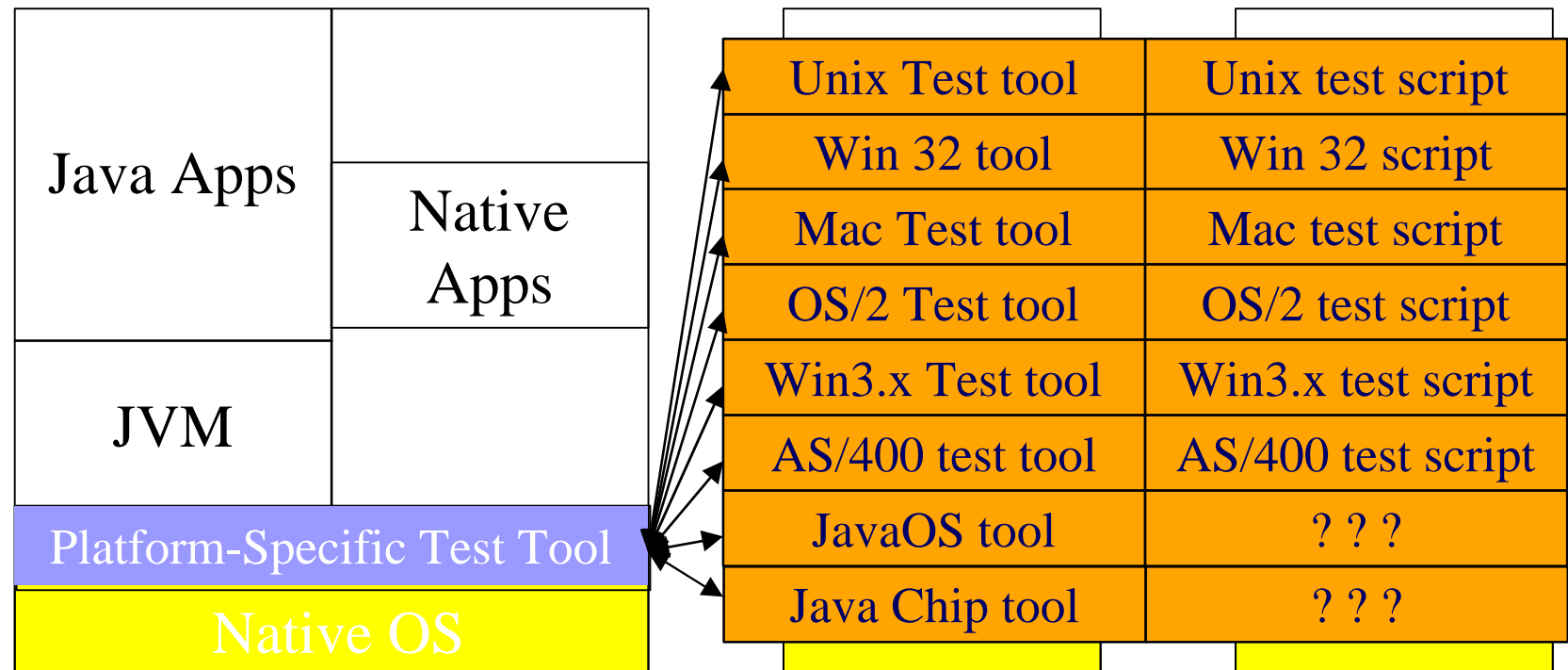


# **(3) Leverage the Advantages of Java Tools across all Java Platforms**





### (3) Platform-specific GUI Test Tools



**Which OS ?**

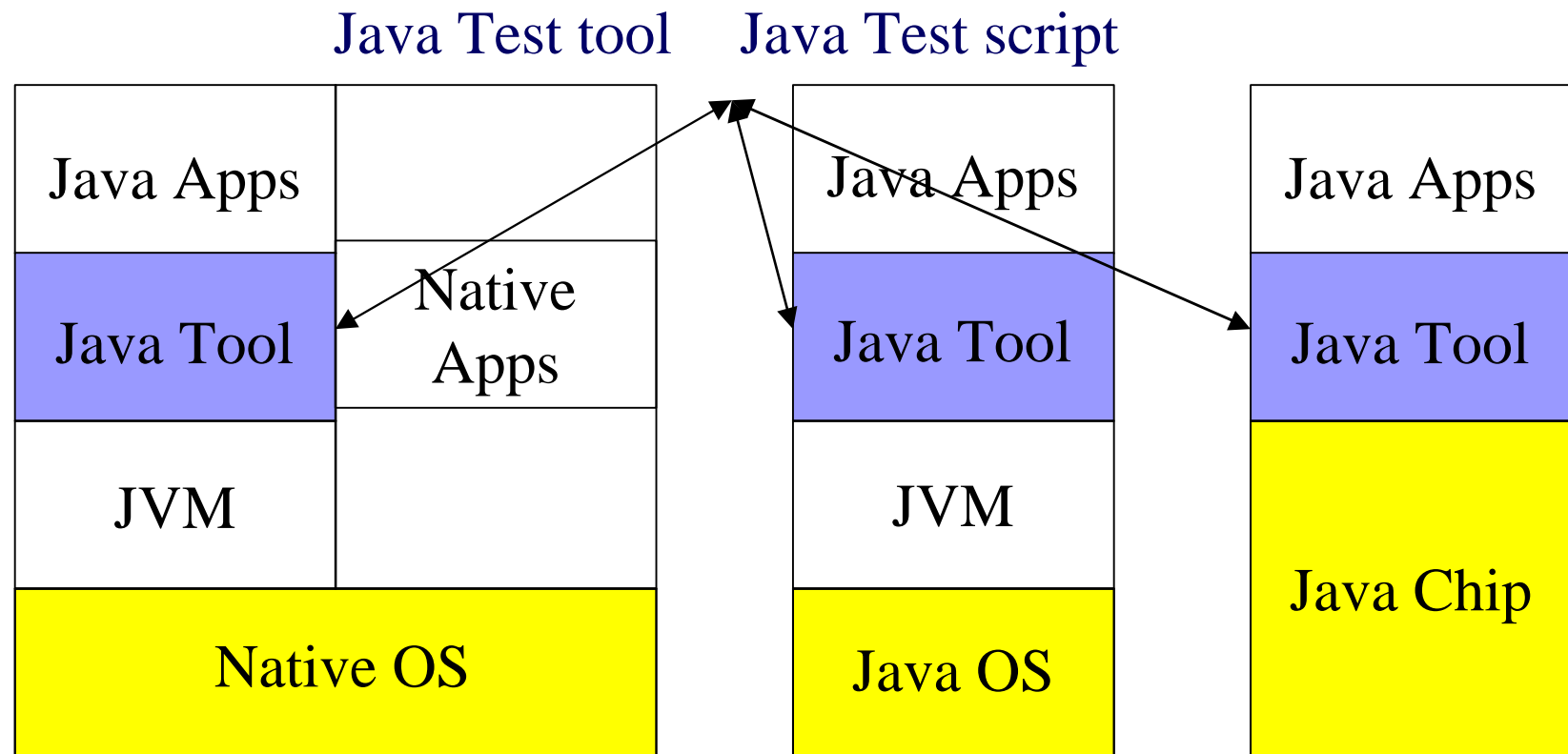
**?**

**?**

Platform-specific tools require **one** test for **each** platform  
 Platform-specific test tools are “blind” to most Java events



### (3) Java Test Tools Run Everywhere



Pure Java testing tools work on all Java platforms

The Java test tool runs in the same process as the application

100% portable tests, “write tests once, run tests anywhere”



### (3) Leverage the Advantages of Java-based Testing Tools

	Java-based	Platform
■ <b>Standard AWT components</b>	✓	×
■ <b>Customized components</b>	✓	×
■ <b>IFC, AFC, JFC components</b>	✓	?
■ <b>Lightweight, Peerless components</b>	✓	×
■ <b>3rd Party components (Bongo, KLG)</b>	✓	?
■ <b>Sync with Java GUI and API events</b>	✓	×
■ <b>Internationalization support</b>	✓	×



### (3) Leverage the Advantages of Java-based Testing Tools

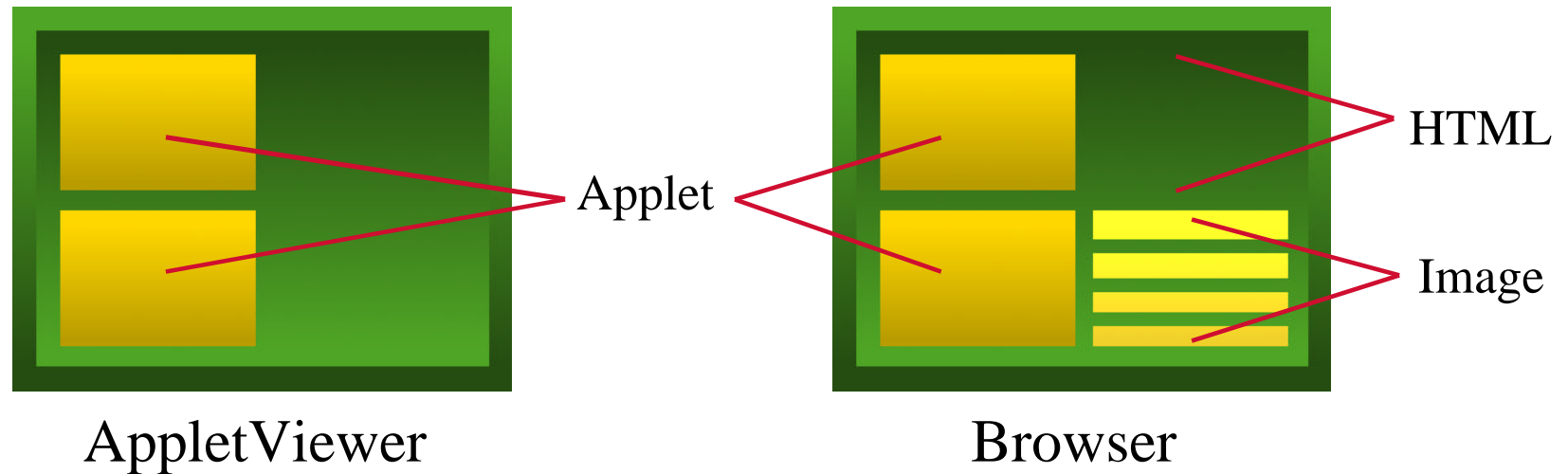


Peerless components are fully visible to Java-based tools

Peerless components are invisible to platform specific tools



# Test Web Applications



- **(1) Test applet functionality in isolation**
  - AppletViewer is the reference implementation
- **(2) Test applet interaction with browsers**
  - Use the Sun Activator technology for full JDK 1.1 compliance
- **(3) Test Servlet**



# Purity and Portability Testing

## ■ Static Testing

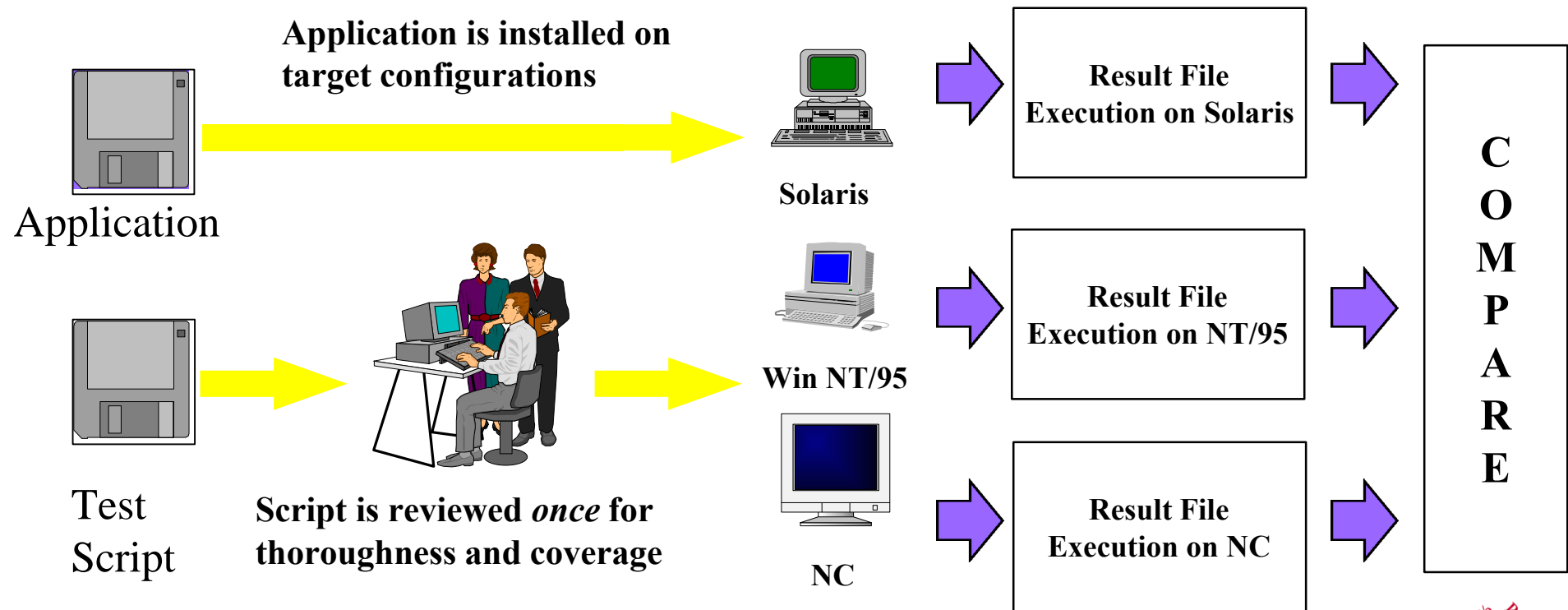
- Analyses class files (native and restricted methods, string constants)
- Answers and raises questions (Errors, Warnings)

## ■ Dynamic Testing

- Exercise and observe the program on a number of relevant platforms.
- Look for similar functionality on all relevant platforms.



# 100% Pure Java Certification Ensures Compatibility



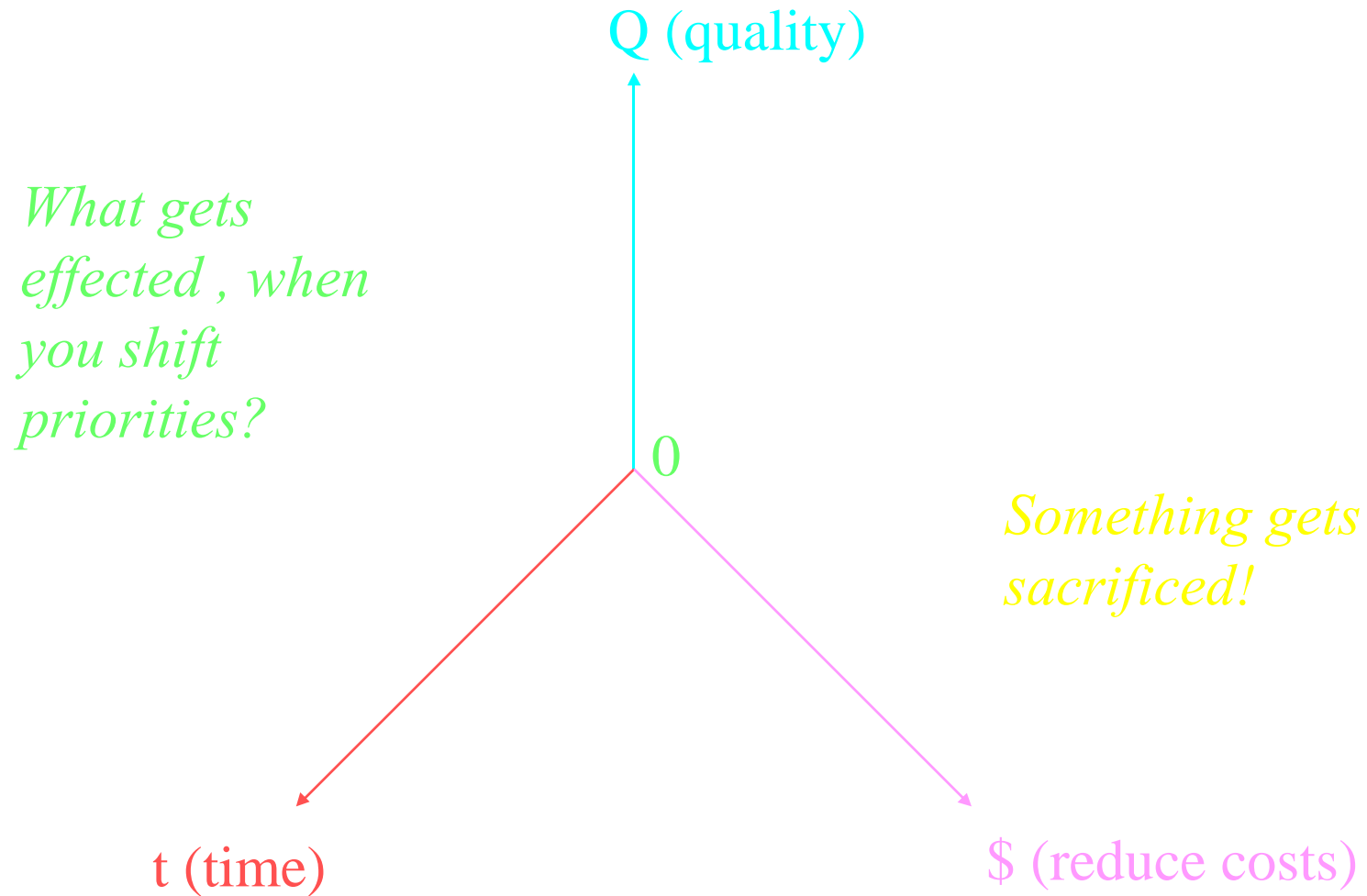
The application and test scripts (or manual instrs) are sent to an independent test lab for execution.







# What is the Highest Priority?

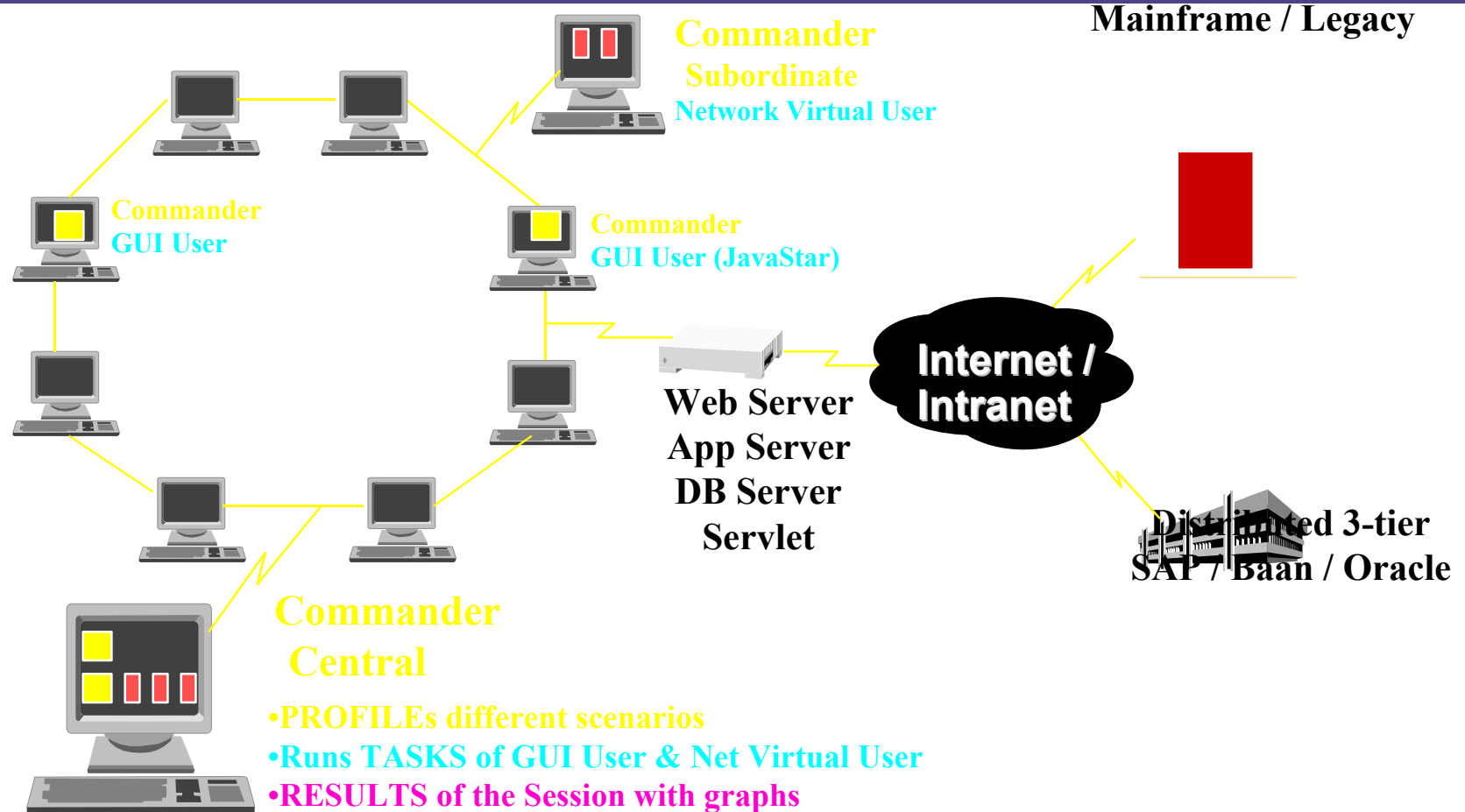




# What Gives?

- Actual radio conversation released by Chief of Naval Operations:
- Ship #1: Please divert your course 15 degrees to the North to avoid a collision.
- Contact#2: Recommend you divert YOUR course 15 degrees to South to avoid a collision.
- Ship #1: This is the Captain of a US Navy ship. I say again, divert YOUR course.
- Contact #2: This is the watch ensign. I say again, you divert YOUR course.
- Ship #1: THIS IS THE AIRCRAFT CARRIER ENTERPRISE.  
WE ARE A LARGE WARSHIP OF THE US NAVY.  
DIVERT YOUR COURSE NOW!
- Contact #2: This is a lighthouse. It's your call!!!!

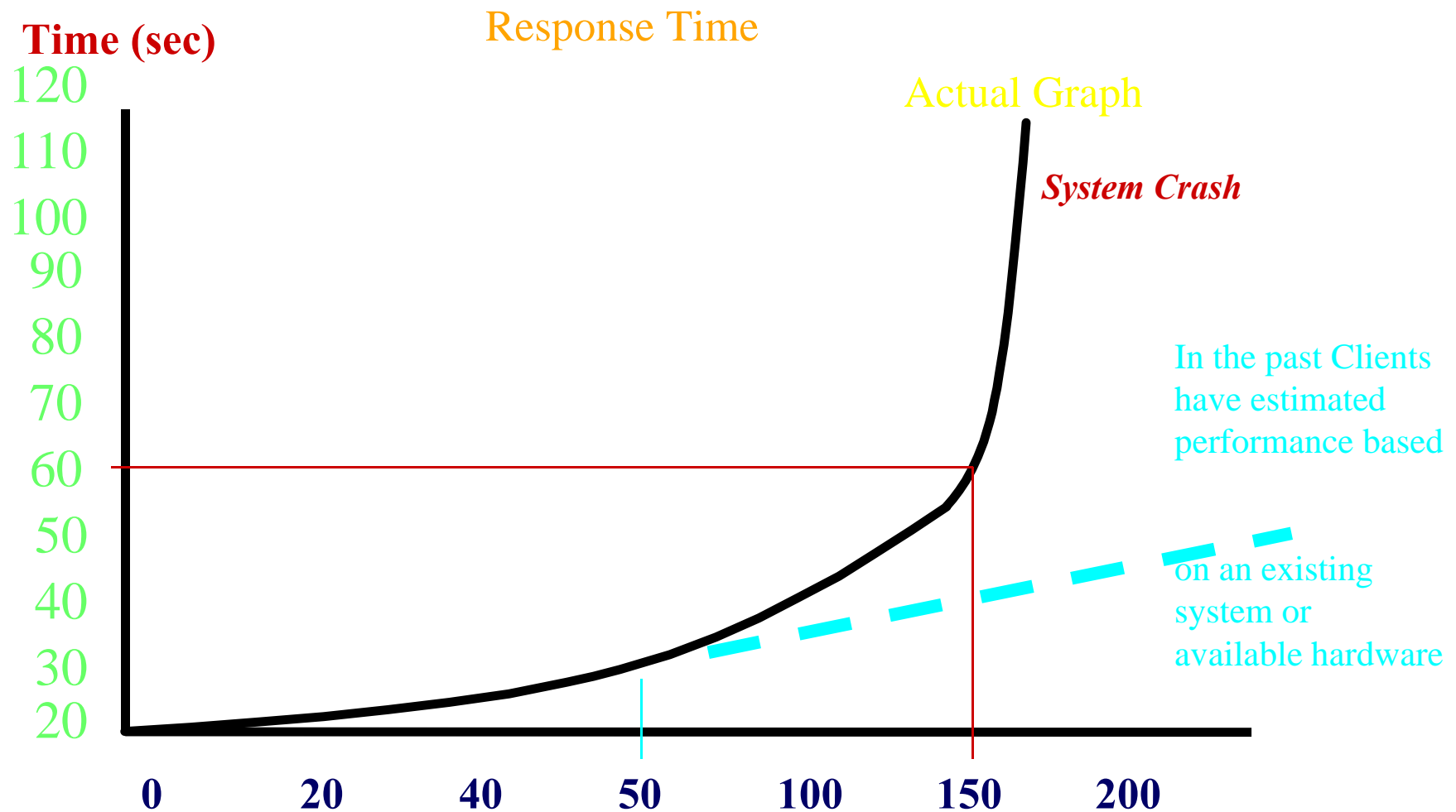
# Network Java Load Testing



- Runs **JavaStar**, Java programs, **HTTP**, **C** programs and operating system commands, supporting **CORBA/IIOP**, **JDBC** or proprietary network protocols



# Load Performance



- This is a typical profile, the question is how many users?



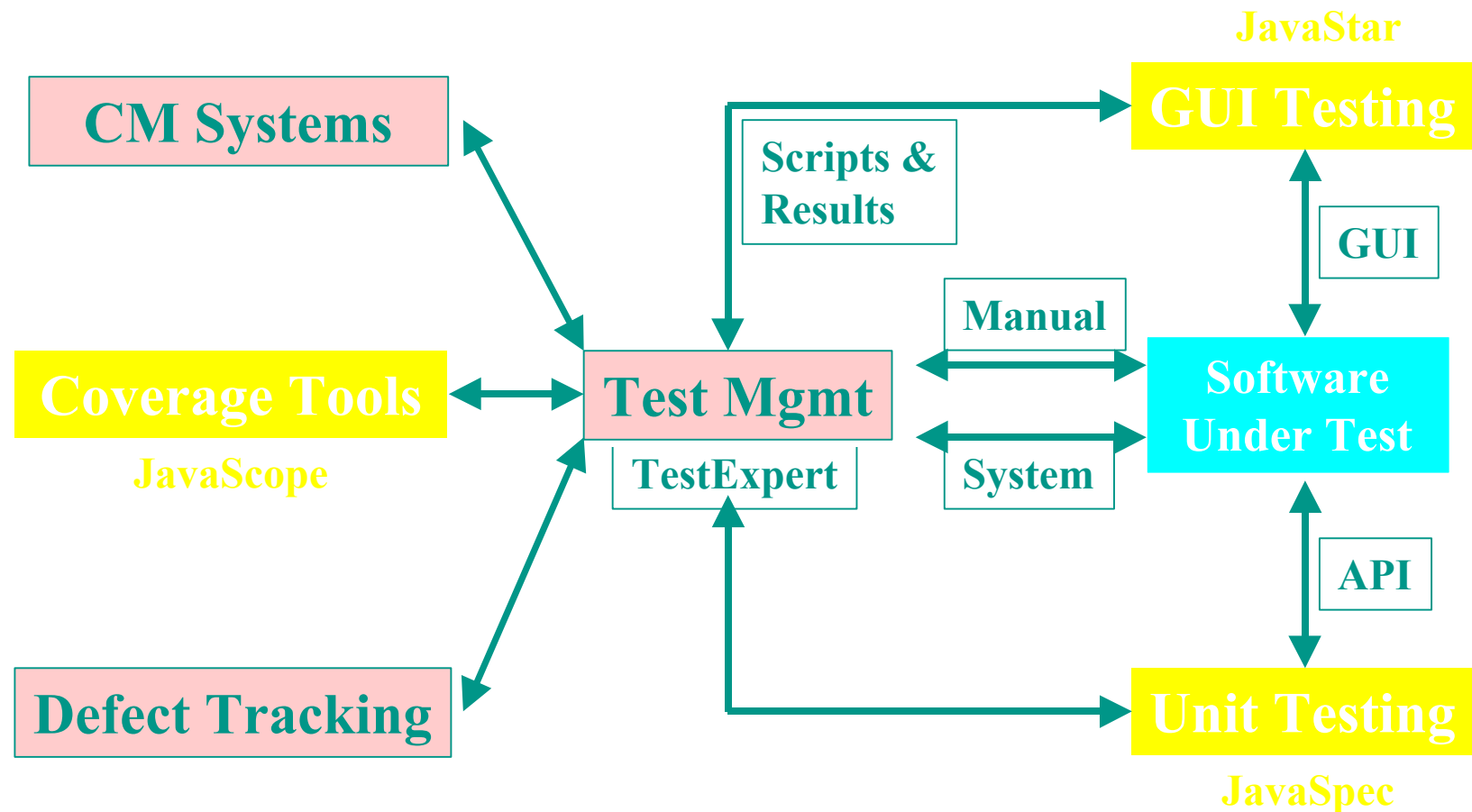
# Making sure it works - Load Testing

*Load Testing one of the most crucial aspects of testing. However, it is frequently left to the last minute, when everyone is trying to squeeze all transactions into under a minute .*

- **Run your system with hundreds of real Java clients**
  - Why run **Virtual** users, when you can run **Real** users?
  - No need for one workstation per user, run many clients from single workstations!
  - Test the system under **real life** conditions
- **Test your distributed object system with a distributed object load testing tool, built with Java!**



# Testing Life Cycle Integrations



- Open APIs enable easy integration with in-house and 3rd party tools

# Java Testers Choice



*We found SunTest tools to be simultaneously easier and faster to use, more thorough and reliable in their capabilities, and less expensive to purchase -- exactly the qualities we need for our large-scale Java development project.*

**Cyrus Golkar**

**Director**

**Intraspect Software**

# Action Plan for Successful Java Testing



- **1) Download evals: [www.sun.com/suntest](http://www.sun.com/suntest)**
- **2) Ask questions - NOW!**
- **3) Contact me**
  - **[drew.wagar@uk.sun.com](mailto:drew.wagar@uk.sun.com)**
  - **+ 44 1634 260700**





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## That was... *Secrets of successful Java testing*

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