

COMPATIBILITY TESTING

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What is Compatibility Testing?



- ❑ Compatibility testing is testing conducted on an application to evaluate the application's compatibility with the computing environment.
- ❑ It is part of software non-functional testing.
- ❑ Compatibility testing is important as it aims to ensure that an application would provide all users with the same experience despite their computing environment.

Benefit of Compatibility Testing

- ❑ Reduce help desk costs in the future (80% of customer support is on handling compatibility problem cases)
- ❑ Improves the quality of the software.
- ❑ Customer satisfaction is increased.
- ❑ Improves the software's market reputation and makes it more competitive in the market.
- ❑ Helps in improving the software development process through accumulation of knowledge from previous compatibility testing.

Source: "Compatibility Testing", Intetics Co (Corporate Website) , 2007

URL: <http://www.intetics.com/software-testing.html>

An example: A website

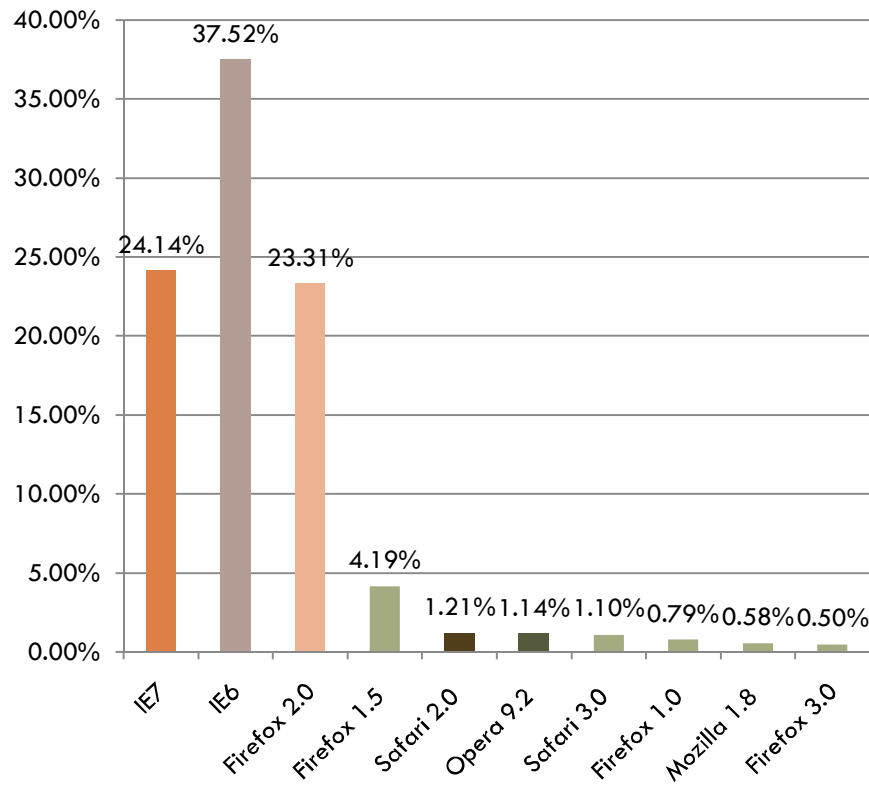


- Why compatibility testing is important:
 - ▣ Designed with lot of effort and money
 - ▣ Visual differences are critical when aiming to increase traffic, accessibility and providing the intended experience for all users

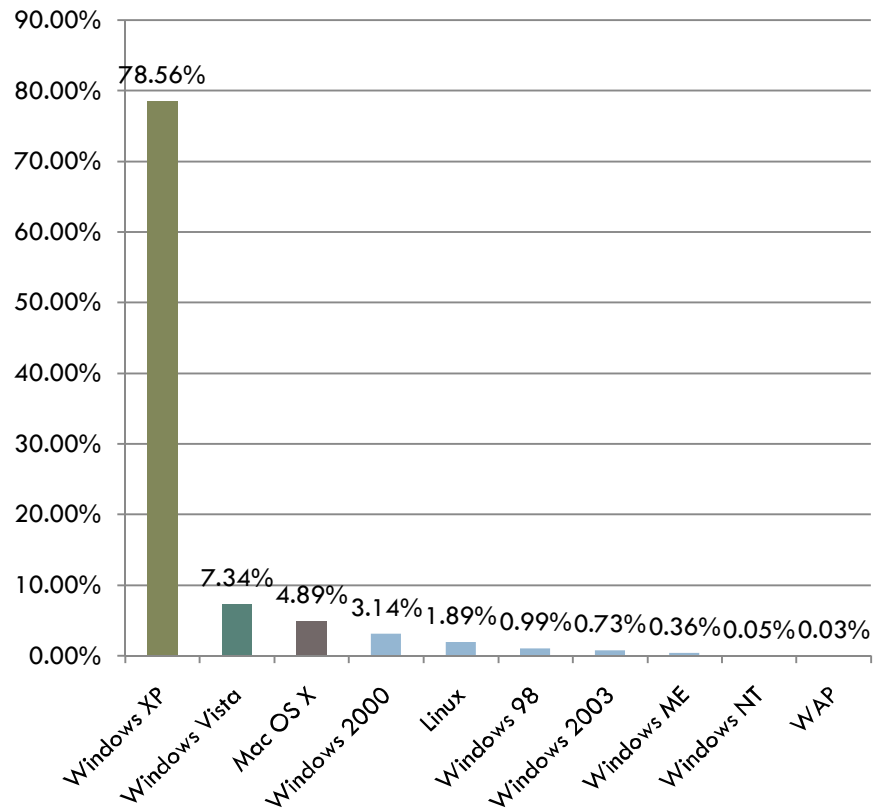
- Challenge
 - ▣ Target users access website through different browsers running on different platforms

Website User Stats: April 2008

Web Browsers



Operating Systems



Source: <http://www.w3counter.com/globalstats.php>

Approaches to compatibility testing



- Typical phases in the compatibility testing process:
 - Evaluation
 - Planning
 - Execution
 - Reporting

- Advantageous if compatibility requirements are identified at early stages of development: enable developers to adopt standards that would help increase application's compatibility

How compatibility Testing fits into the Suite of Testing

- Needs to be done during both functional and other non-functional testing.
- This is because an application's functionality can vary depending on the computing environment the application is run on.

- For example:
 - ▣ Functional: A website might require a secure payment processing system using SSL - this functionality is expected to work for all users who access the website.
 - ▣ Non-functional: There might be a performance requirement for a particular web page's response time, which might vary for different browsers on different platforms

Managing appropriate amounts of testing



- Testing all requirements on all possible configurations is impossible
- However, conducting compatibility testing on a subset of these requirements would provide benefits mentioned before.
- Thus, a compromise has to be made and requirements related to compatibility issues have to be identified.
- Eg: if a website uses Java, test only those pages with Java for different configurations of JVM.

Managing compatibility test environments



- Determining the configurations to test
 - ▣ The types of configurations which will be setup in the test environment depend on the type of software and the scope of testing planned to be done
 - ▣ Usually, software applications are intended to work on a variety of environments which are created from combinations of different hardware and software.
 - ▣ A combination of each of these elements forms a *test configuration*.

Managing compatibility test environments

- Eg: For a website, total number of test configurations:

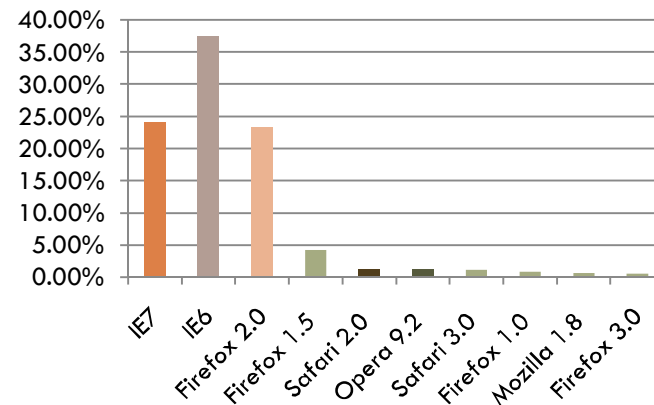
OS	Browsers	Flash	JVM
Windows XP	IE 5	Flash Player 6	Java 1.3
Windows Vista	IE 6	Flash Player 7	Java 1.4
Mac OS X	IE 7	Flash Player 8	Java 1.5
Windows 2000	Firefox 1.5	Flash Player 9	Java 1.6
Linux	Firefox 2.0		
Windows 98	Firefox 3.0		
Windows 2003	Opera 9.2		
Windows ME	Mozilla 1.8		
Windows NT	Safari 2.0		
	Safari 3.0		

OS x Browsers x Flash x JVM

= 9 x 10 x 4 x 4 = 1440 !!!

Managing compatibility test environments

- **Ways of limiting the number of test configurations**
 - Based on minimum specifications of software
 - Restrict it to the most popular configurations.
 - Using help desk data and surveys to determine configurations on which issues were faced most on previous version



Certification Testing



- Certification testing falls under compatibility testing.
- It is the testing done to assure the compliance of standards required for a software application to run on a specific computing environment.

Certification Testing

□ Example: The Microsoft Windows Logo Program

Plan ahead

- Determining the application's eligibility
- Learn about the technical requirements for the certification



Build and pre-test

- Build application
- Check whether the application passes the provided test cases



Submit and get certified

- Submitted to an approved Microsoft testing authority such as LionBridge or Wipro
- After successful testing, a certification will be provided

Legal Implications on Compatibility

- Companies need to be careful when claiming that their software is compatible/interoperable with other software or hardware products as they can have legal and commercial ramifications if the claim is falsely made.
- For example, if a company produces a software which it claims to be compatible with Microsoft Windows Vista, while it really is not, Microsoft or another company competing against the particular software could file charges against that software company.

Thank you 😊



□ Questions ?