

MAXIMIZING THE PERFORMANCE OF SOFTWARE APPLICATIONS AND IT SYSTEMS

Organizations worldwide invest millions of dollars annually in an effort to keep their complex production applications operating at their peak.

The problem

- 75% of business managers perceive IT to be failing or lacking credibility** (Meta Group)
- 90% of all IT projects are delivered late** (Aberdeen)
- 50% of all applications fail to meet business objectives** (Gartner)
- 50% of all IT projects are delivered over budget** (Gartner)
- 40% of IT projects fail to deliver intended return** (Harvard Business School Press)

Industry experience suggests the main reason business IT system implementation projects fail is because the performance of the system failed to meet the users' expectations. Although a technical design may 'look' good on paper it may not perform well in a production environment.

Despite pre-deployment testing, applications commonly experience performance problems in the production environment. Unable to isolate the cause of these problems, many IT groups resort to a trial-and-error approach to tuning, which involves purchasing additional software licenses and hardware in an attempt to solve elusive performance problems. However, this approach rarely pays off.

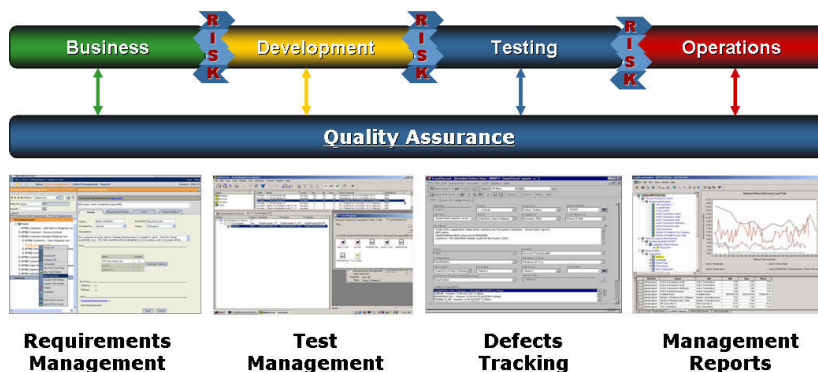
The solution

IPCS streamlines the testing process— from requirements management through planning, scheduling and running tests to defect tracking.

Functional testing

Our professional services team captures, verify and replay user interactions automatically, identify application defects and ensure that business processes, which can span across multiple applications and databases, work flawlessly the first time and remain reliable using automated functional, regression, and user-acceptance testing tools for Windows-based, Web, ERP/CRM, .NET, and Java/J2EE applications.

Companies with mission critical applications cannot afford to have them poorly performing. With systems upgrade, application patches and upgrades - this complexity increases, making applications increasingly likely to encounter performance issues. Applications have to be able to face a great number of users with unpredictable load variations. Poor performance means reduced profits, lower customer satisfaction and a loss of brand equity.



- **Unit / Functional testing** – confirm whether or not a software application contains any errors, defects or bugs and ensures that business processes work flawlessly (functionality). Verifies the interaction between objects, the proper integration of all components of the software, that all requirements have been correctly implemented. Identifies and ensures defects are addressed prior to the end of the deployment life cycle of the software.
- **Code testing** - identifies and analyzes coding errors, inefficient instructions or inappropriate use of one or more languages within a .NET application, making sure code components work correctly separately and together
- **User Acceptance testing (UAT)** - Involves the end users performing final testing of an application prior to its release to production. The focus is on whether or not the application meets user requirements and produces correct results.
- **Compliance testing** - Involves test cases designed to verify that an application meets specific criteria, such as processing four-digit year dates, properly handling special data boundaries and other business requirements.

Optimizing IT Performance

- **External interface testing** - Involves test cases designed to verify that an application is properly processing data received from or sent to another application or external entity. This most often involves the testing of electronic data interchange (EDI) interfaces between external corporate or government agencies.
- **Integration testing** - Involves test cases designed to validate that two or more application components are properly working together. Integration testing usually follows or is conducted in parallel with unit testing.
- **Requirements testing** - Verifies that the application processing results are functionally correct measured against user requirements, design specifications and compliance to policies and standards. If technical changes are made within an application program that does not alter the processing results, then regression testing should be performed.
- **Web check** - tests the quality of even the largest web sites, automatically scans a web site for more than 50 potential types of problems.

Load testing with the goal to accurately and optimize system behaviour and performance. Load testing is the measure of an entire IT system's ability to sustain a number of simultaneous users and/or transactions, while maintaining adequate response times. Because it is comprehensive, load testing is the only way to accurately test the end-to-end performance.

- **Application Load tests** deal with tests for the entire application and are end-to-end performance tests that emulate the anticipated product environment and situation. An application must successfully execute all business processes, best before end-users find its problems / bottlenecks. After all, a corporation's business success depends on it. Application testing represents the bulk of the testing done projects.
- **Failover tests** demonstrate what happens when a primary system fails under load.
- **Durability / Stress tests** validate system performance under heavy load for an extended period of time and deals with the quality of the application in the environment. The idea is to create an environment more demanding of the application than the application would experience under normal work loads.
- **Infrastructure tests** deals with testing a IT system or network as a whole. This tests the interaction of many functions, and isolates different components in the infrastructure tier to identify bottlenecks.
- **Performance tests** determine end-to-end timing for the system under low load with production-size database; this helps set the "best case" for end user timing.
- **Scalability tests** determines how much a system and application can be scaled before the system slows down, an important insight for any IT manager planning future investment requirements for increasing systems capacity.

Performance Tuning is part of our performance testing, optimizes the entire system, yields a higher performing of production systems, prevents downtime, and increases performance of the existing infrastructure. With tuning, we proactively find the exact location, isolate and resolve performance problems in the production environment. Tuning can reduce IT costs by identifying excess or redundant hardware capacity for possible redeployment, thereby delaying or preventing the need for upgrades. Tuning means finding and relieving bottleneck conditions (any hardware or software component that significantly slows down or impedes the progress of a transaction) that cause performance or availability problems.

Bottlenecks can occur during peak production periods due to such factors as heavily used hardware, inefficient software, or logical ceilings and limitations. When IT groups receive an alert indicating that a performance problem has impacted users, the biggest challenge is determining what part of the complex, network system is the actual cause of the problem. Time is of the essence in finding and fixing these problems in order to minimize the impact on the business. Correlating end-user problems with the performance of specific system components allows you to identify the most likely causes and to get the right people involved to fix the problem. Automating this process takes you to the next level of problem resolution, by speeding this diagnostic process and dramatically reducing the mean time to repair.

The benefits

IPCS offers the technology, expertise, and proven track record to help companies...

- manage their business of IT with digitized processes and best-practice applications from demand to production
- accelerate software application deployment through functional and code testing, identify performance, load and scalability issues prior to going-life
- prevent revenue losses due to poor an/or unsecured application/end-user performance
- deploy applications that meet business objectives and assist in application development documentation and change management
- realize more value from your existing IT investments

IPCS Group

IPCS Ltd.

• 13/F, Silver Fortune Plaza
1 Wellington Street, Central, Hong Kong
Tel: (852) 2525 7718 Fax: (852) 2140 6833

IPCS Group, Inc.

• Unit 12C, 12/F, Goldland Tower, 10, Eisenhower St.,
Greenhills, San Juan, 1503 Metro Manila, Philippines
Tel: (63 2) 27235771, 3961061 Fax: (63 2) 6473499

BICS Sdn. Bhd.

• 8.01, Level 8, AMODA Building,
22, Jalan Imbi, 55100 Kuala Lumpur, Malaysia
Tel.: 60 3 2144 7000 Fax.: 60 3 2144 8959

