# The Testing Sweet Spot in Your eBusiness

## Introduction

There has always been the demand for reliable and efficient systems, but stability was much more controllable when access to these systems was limited to users within the enterprise. With the market changes to ebusiness and Internet access, all elements of computer application(s), data, and network infrastructure are changing in the explosion of:

· Volume of data access points
· Amount and types of data, applications and platforms
· Speed of change to meet customer demands
· Business dependence on IT

Netting it out - the risk and cost of downtime to business is unacceptable.

The solution is test automation: certification that critical business processes still work, and that the infrastructure continues to provide reliable and available service as users and volumes explode.
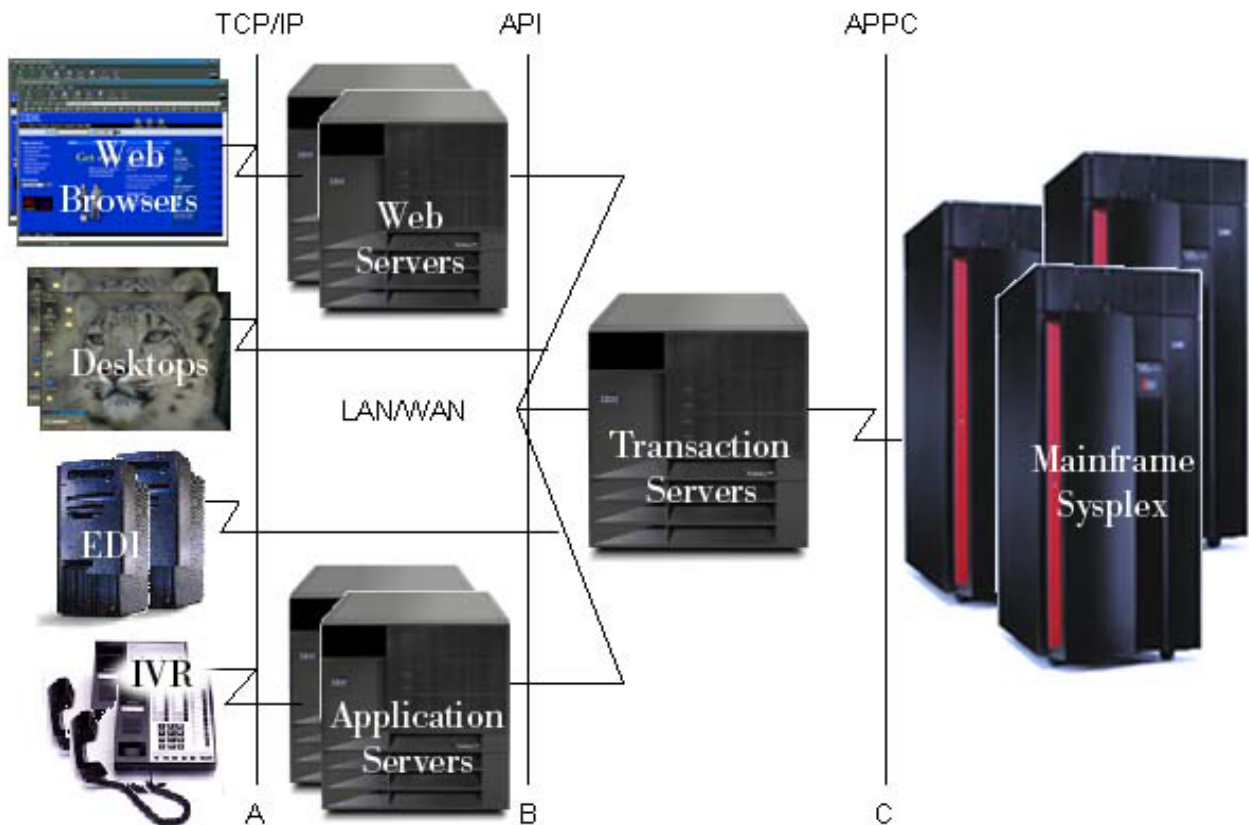
See Figure 1 below for a typical architecture.



Figure 1.

This architecture shows that there are a number of types of input channels and with internet access and web browsers the numbers have no upper limit.  There may be slightly different configurations or protocols, but in the end the incoming and outgoing data is converted into mainframe transactions, usually CICS.

Testing the infrastructure as business uses it can be accomplished by test automation through simulating traffic at various points in transaction flow. The problem with using stress testing tools that emulate browser sessions (point A in figure 1) is that only a few hundred user sessions can be supported on an NT platform, which doesn't begin to approach production volumes.  Tools that emulate Web traffic or Web servers (point B in figure 1) do not take into account other channels such as Interactive Voice Response (IVR), customer desktop or EDI access.

Thus, the 'sweet spot' to testing the capacity of the enterprise system is at the input point of consolidation (point C in figure 1), where all transactions ultimately arrive.  This means the traffic is most efficiently generated as API calls and responses. It also means that as new access point types are added or changes are made in the mainframe or front end processing, the test automation remains intact and can be leveraged regularly to ensure reliability and service agreements.

## Certify/API
The difficulty with testing at the API level is that there is no user interface, thus requiring programs to be written for testing that are expensive and time-consuming to develop and maintain.

Certify changes this by providing its own friendly object oriented front end for creating and verifying API calls and responses. The output of Certify is then converted to STL scripts so TPNS can scale the volume to production levels.

As seen in Figure 2, below, the Certify editor allows API calls and responses to be developed in a user-friendly front end.  Just map the API call and response sequences and operating cycles in Certify, and the Certify Execution Engine will transform them into an STL script so TPNS can convert them into volumes that profile production.
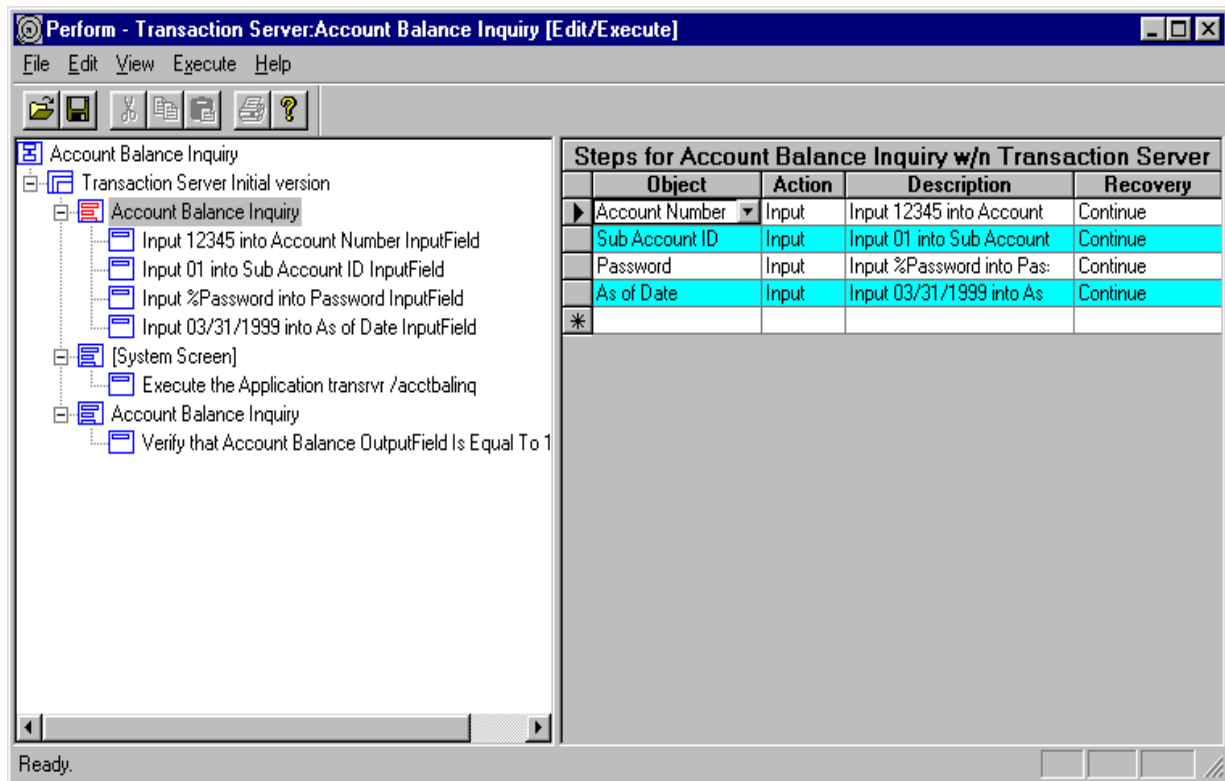


Figure 2.

This Execution Engine is customized for the API set under test. Certify ™ supports the automation across multiple APIs and Execution Engines within a single process or repository.
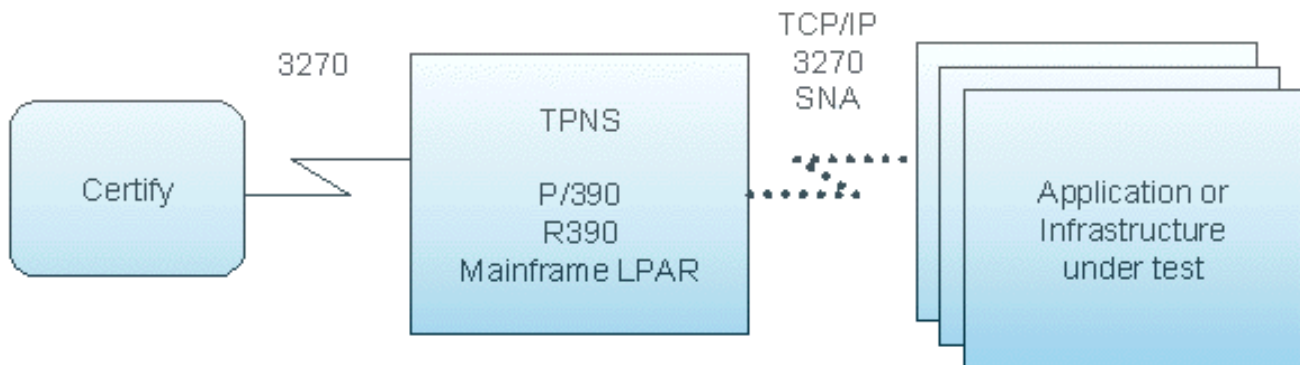
## Certify /TPNS

WorkSoft, Inc. and IBM are jointly developing an interface between the Certify ™ test automation product and Teleprocessing Network Simulator (TPNS), IBM's load testing product.  TPNS is a time proven solution that utilizes the scalability of the 390 platform to simulate multiple workloads and devices as if there were real people using the environment under test.

Certify, through its powerful but simple user interface, allows domain experts to concentrate on verifying business functionality and analyzing test results, leaving the execution of the automation and load generation to TPNS. The solution architecture will comprise:

| Company/Product | Component |
|---|---|
| WorkSoft/Certify™ | Test planning, development, maintenance<br>API transactions/TPNS STL scripts<br>Network and load definitions<br>Results reporting |
| IBM/TPNS | STL script execution<br>Network/Device simulation<br>API load generation<br>Result download to Certify™ |

This solution can execute on any of the 390-based platforms and can generate any of the TPNS supported protocols.



## Summary

If you have a business critical application and infrastructure, the combination of Certify ™ and TPNS provides a simple and efficient means of generating realistic loads and operating profiles to stress test large scale systems supporting multiple input channels through API level interfaces.