

URL: [www.ipass.com](http://www.ipass.com)  
 Industry: Telecommunications  
 Country: USA



## iPass

Micro Focus helps iPass achieve high quality standards to thrive in a complex market

### Challenge

For iPass, the complex and expanding testing landscape for enterprise mobility services made pure manual testing unfeasible. With increasing requirements to support new OS versions, languages, Network Interface Cards and network service partnerships, striking the right balance between manual and automated testing was a significant challenge, as was defining innovative automation test procedures and approaches for use in real and live network mobility scenarios.

### Solution

- > SilkTest®
- > SilkPerformer®

### iPass

Since its formation in 1996, iPass has been changing the economics of enterprise mobility and revolutionizing the customer experience. In a world where mobile technology advances have primarily been geared to the demands of the consumer, iPass strives to be the voice of the enterprise in the mobility space. It provides services for enterprise customers that openly facilitate access from any device on any network while giving the enterprise essential visibility and control.

End users of iPass services can connect to more than 500,000 Wi-Fi hotspots and Ethernet venues in more than 160 countries worldwide; as well as to mobile broadband services, 2G and 3G, and dial-up networks. Access services provided by iPass also extend to the cloud, through a cloud-based service delivery system which gives iPass customers the choice and flexibility to implement a mobility strategy, mixing and matching networks to meet their economic and business objectives. The cloud-based infrastructure handles over a quarter of a million transactions a day through seven data centers around the world, service gateways at hundreds of service providers and thousands of enterprise customers.

Alongside the support for any network, the iPass Open Mobile Platform delivers a broad range of device support – from Windows PCs and Macs to iPhone, Blackberry, Nokia and others. The platform already supports over 140 3G devices, and iPass customers and partners can integrate new devices in a matter of hours.

### Highlights

- > Extends competitive advantage
- > Ensures accuracy of routing and billing
- > Accelerates time to market

“We get great benefit from the object data driven approaches that we’ve developed on Silk. These allow us to rapidly organize the combinations of OS, architecture, language, network and device that our QA process requires. Once defined and organized into functional component plans within Silk, we can now add new networks or new devices easily – and SilkTest does the rest.”

**Blair Bullock**

Director of Technology Integration,  
iPass

Ensuring that iPass customers receive excellent levels of service in the face of massive complexity falls to the company's Automation Testing QA team, headed up by Blair Bullock, Director of Technology Integration.

iPass has been a long-term user of Silk, a key part of Micro Focus' integrated software quality approach which embeds quality at every stage of software development.

**Enormously complex integration challenge**

"As you can imagine," explains Blair Bullock, "providing enterprises with real-time cost, security and policy enforcement at the point of connection means that there is always enormous complexity right across our environment. Our solutions act as an agent in front of the enterprise network to aggregate all of the networks used in roaming. This involves coordinating personal, private and public networks etc. rolled into a single client interface so the user only sees one, and doesn't see the joins."

The services that iPass provides to the enterprise involves managing all the routing and billing complexities to deliver the right product at the right price. As Blair says, "Nothing stands still in this industry. There are new networks and new devices continuously being developed, and we have to not only ensure that our products work with the existing technologies, but that we keep ahead of any competition by offering new products and features to take our own business forward. We're evolving with the technology." This adds constant pressure to their Quality Assurance programs.

**"Putting a little effort into automation technology up-front helps us obtain large savings at the back-end as complexity grows. We adopted SilkTest to help us do just that."**

**Blair Bullock,**  
Director of Technology Integration, iPass

iPass uses SilkTest to automate many labor-intensive aspects of its Software Quality Assurance regime; for example, testing every splash page in every language or each time there is a change to a technology integration. As Blair says, "There are hundreds of screens and cases multiplied by three OSES in nine languages, over 32-bit and 64-bit architectures over scores of networks

and devices, etc. The iterations run into many tens of thousands. Testing manually, we'd only be able to cover a fraction of what we need to in a development cycle, putting our business, customers and reputation at considerable risk."

An important challenge for iPass lay in getting the automation and traditional QA to complement each other during an "agile" software development lifecycle. Deploying automated testing alongside traditional QA as a complementary function has enabled iPass to meet crucial operational challenges. "We've achieved significant efficiencies by leveraging the best aspects of each approach to QA. Automation is Iterative and Quantitative. Humans are Intuitive and Qualitative. It requires both approaches to get it right", says Blair. Using SilkTest to automate certain aspects in the software release cycle, such as build validation before deployment or Material Acceptance into QA, releases valuable human resources to test the new features which are not yet mature enough for automation. Then the finished automation plans fully regress accepted QA builds in the vast combinations of cases which humans alone cannot test in the scheduled timeframe.

**Parallel testing for cross-platform client and online service delivery features**

Blair Bullock and his team consider their use of SilkTest to be an exemplar – using it precisely as intended. "It delegates tests over a carefully designed IP network to dedicated agents, organized by our object data driven approach," he explains, "to operate our two products, the Open Mobile Portal and Mobility Client." The test cases drive the portal that controls the enterprise's specific policies – VPN, Firewall policies etc. through an online dashboard – and are then used to produce and drive the individualized software packages it produces. These profiles are in turn used to functionally validate the output of the portal by actively driving the resulting software on any object combination we choose. The issue arises from the complexity of the product and the variables involved in each test. As Blair says, "Simple Yes-and-No testing isn't the end of the story. The real story lies in the moving parts and in what we produce as a test is run. It must be real and end-to-end."

Alex Yusupov, QA Automation Manager at iPass goes on to explain, "At iPass we have cross-platform client and online service delivery features which require parallel testing. The Micro Focus suite supports our mixed environment – WMI, WPF, .NET, Flex and HTML – requirements and allows iPass Automation to test and report on both our web-based and windows-client products within a single common framework."

The testing scenario for iPass is made more complex as effective testing demands that the technical functions are actual network connections and authentications – they can't be simulated. However, testing live and real activities delegated by SilkTest over IP on dynamic network connection either impacts the network activity itself – and throws out the results of the test, or the network traffic being tested will sweep away SilkTest's ability to delegate it. Creative behind the scenes networking has been adopted to overcome this effect, using the remote execution architecture of SilkTest delegated over IP, to enable agents to participate in different network scenarios in order to verify the accuracy of connections and network states. This ensures that SilkTest's absolute control over the delegation to get it right and return accurate results is not compromised. Testing leveraging various live iPass network use cases can take place from within this creative 'IP Tethering' scenario without being affected by it.

Silk offers further value to iPass in the testing of combinations of operating systems architectures and languages. This used to be carried out on physical stations, with large numbers of machines required to run each OS and language combination; running a variety of WiFi, dial-up and 3G adapters. Even with disk imaging, maintaining so many physical systems in combination with the incumbent drivers and prerequisites required for the devices and adapters, made Asset and Systems management for the QA process a major challenge. iPass overcame this by running virtual systems using ESXi by VM Ware running in a modulus of 8-16 hosts. "By virtualizing the OS, language and architecture on VMs and enabling them with device 'pools' over IP, we now delegate Silk automations over IP in virtually limitless device and network combinations in an extensible, modular manner," explains Blair. "We balance our SilkTest licenses and systems modules so that we're always running at full-speed. Not only can we test any combination in parallel, it's managed centrally and there are far fewer points for failure. Doubling our capacity for test is as simple as building a new module."

**SilkTest enables greater focus on innovation**

The business advantages that SilkTest provides iPass are felt right across the company's operations. As Blair says, "It has been instrumental in bringing together the test automation and QA organizations and has enabled us to move away from 'playing at automation' to using automation as a critical tool for business." This has delivered greater agility across testing and QA, accelerating time to market for high quality new products and features – especially as regression testing

is automated by Silk and human testers can focus on the new innovations that drive competitive advantage.

"We've been working with Silk's product people for a considerable time and have both made a contribution to and benefited from key product developments, such as support for Microsoft's WPF and Flex in SilkTest – which works great for us."

**Blair Bullock,**  
Director of Technology  
Integration, iPass

Silk is the cornerstone of iPass's test automation capabilities and has enabled the company to assure the quality of its highly complex solution to enterprise customers. A final word goes to Blair Bullock, "We believe that we are using Silk as it is intended to be used - while it does require some investment up front, Silk enables us to create an iPass-centric solution to our testing and quality assurance. Just because it is complex doesn't mean it has to be complex to the end-user ... or a QA engineer."

**About Micro Focus**

Micro Focus, a member of the FTSE 250, provides innovative software that allows companies to dramatically improve the business value of their enterprise applications. Micro Focus Enterprise Application Modernization, Testing and Management software enables customers' business applications to respond rapidly to market changes and embrace modern architectures with reduced cost and risk.

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