

Clearing the Path to IE11 Migration

Overcoming web application compatibility and browser management hurdles





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Browsium eBook

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Overview

Web browsers are a critical component of any modern IT infrastructure, with most line-of-business applications now running in the browser. Because of this dramatic increase in the importance of the browser, web application incompatibilities caused by a browser migration can be catastrophic to a business. Today's rapid pace of innovation in browser technology, combined with compression of the support lifecycle, forces IT to confront browser migrations far more frequently. Enhanced features and improved security in each new browser release often result in complex and costly application compatibility challenges which can significantly stall a migration. Yet the traditional tools to remediate critical web applications and manage browsers have not kept pace. Recently new browser management solutions have been introduced specifically to address these needs.

This eBook will provide an overview of the tools which have been historically used to solve web application compatibility issues, along with two browser management solutions. This material is designed to help IT organizations find the best option to smoothly and cost-effectively achieve web application compatibility and manage web browsers throughout the migration process and beyond.

Mounting Migration Pressures

In August of 2014, Microsoft announced changes to their Internet Explorer (IE) support policy which significantly moved up the timeline to migrate to IE11. As of January 12, 2016, only the most current version of Internet Explorer available for each supported operating system will receive technical support and security updates. This means organizations using Window 7 must have migrated to IE11 or their browser environment is unsupported. The unsupported browsers will continue to work but, because of the large number of critical security vulnerabilities Microsoft has historically patched in its browsers, it is extremely risky to run an unsupported version of Internet Explorer.

Obviously, moving to a supported version of Internet Explorer raises some questions – How can an organization ensure compatibility with IE11 for all line-of-business web applications? Is it really necessary to accelerate the timing of application upgrades simply because of this new policy? How can an organization keep pace with browser technology changes moving forward?

Three Remediation Approaches to Achieve Web Application Readiness for IE11

Each enterprise will likely have unique web application compatibility challenges as they plan their IE11 migration. Some may already be in the process of replacing incompatible applications with new solutions that deliver improved productivity for the business. Others may find that certain incompatible applications are no longer needed, or at least no longer considered critical. But most will find their migration blocked by a number of critical applications that cease to function properly in the new browser. For that large group, a remediation approach must be selected to achieve business application readiness for IE11.

Enterprises typically consider readying incompatible applications with one of two approaches – modifying (rewriting, upgrading, or replacing) the applications or using a virtualization solution. However, a third approach called “browser management” is often the best option. Browser management is easy to deploy in a large organization, is highly cost-effective, provides an exceptional user experience, and can deliver significant value beyond compatibility. This next section will analyze these three approaches: modify applications, virtualization, and remediation via browser management.

Modify Applications

When a web application does not work in a new or upgraded browser, it can be modified to function properly. However, modifying applications just to achieve functional parity (making the application work in the new browser exactly like it did in the old browser) can be expensive and time consuming. Because most enterprises utilize hundreds, if not thousands, of web applications, the cost to rewrite, upgrade, or replace every incompatible application is substantial. Doing this every time the organization migrates to a new operating system or browser will seriously diminish the resources available to improve other IT infrastructure initiatives. Understanding each modification option will help the organization determine whether modifying some, or all, applications is the right path.

Web Application Remediation Approaches

Modify Applications

- ✓ Rewrite
- ✓ Upgrade
- ✓ Replace

Virtualization

- ✓ Operating System
- ✓ Application

Browser Management

- ✓ IE Enterprise Mode
- ✓ Browsium Ion

Rewrite

A legacy web application that has been written by in-house developers can be a candidate for a “rewrite”. In this scenario, the custom, legacy web application’s source code can be rewritten to enable the application to work in a new browser. The amount of resources this requires can vary greatly. If the application is simple, and developers are available to do the work, this can be a great choice. However, doing this may present the following obstacles:

- IT groups often don’t have managerial control over development teams, so IT has limited ability to manage priorities and schedules.
- Rewriting an application requires a detailed understanding of the application, whose original developers may no longer be employed by the organization or may be busy with other projects.
- Committing engineering resources to rewrite legacy applications means there will be fewer engineering resources available to build innovative new applications to improve competitiveness.
- If a third party was used to write the custom application, the supplier may be out of business or the application may rely on technology which is no longer supported.
- Rewriting custom applications can often require a multi-month or multi-year development and test effort.

Upgrade

Buying and deploying a new version of an off-the-shelf application, purchased from a commercial vendor, is another possibility. Software vendors will always prefer their customers do this, as they want everyone running the most recent version. It lowers their support costs and allows them to deliver new features incrementally. However, upgrading off-the-shelf applications may present the following obstacles:



- Software upgrade purchases can be very expensive – particularly if software maintenance has lapsed.
- Installing new software, customizing workflows, reintegrating legacy data, testing all scenarios, and retraining users can be costly and time consuming. It often costs as much, and takes as long, to upgrade the application as it did to buy and customize the application in the first place.
- It’s very difficult and expensive to upgrade an application without causing downtime for end users. Parallel systems must be created and the cutover can be very risky. Data integration challenges make it nearly impossible to perform this cutover with a phased plan, further increasing risk.

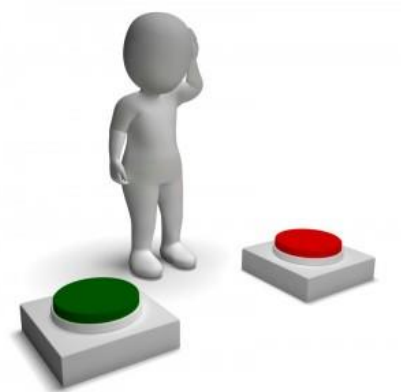
Replace

Retiring (aka “sun setting”) existing, legacy applications and deploying entirely new on-premises or cloud-based solutions is another alternative. While this may seem highly attractive, particularly when the existing application’s usefulness is limited or a replacement date is nearing, these considerations should be taken with this approach:

- Deploying entirely new applications is always an expensive, complex, and exceedingly time-consuming process which should be driven by a business need, not a browser migration.
- If any component of the new application is delayed, it can have a large ripple effect by delaying the entire operating system or browser migration.
- If even one legacy application must be maintained, it can hold back an organization from deployment of modern web applications in any part of the business.

Virtualization

This approach involves running a virtualized legacy environment, in parallel with a modern, native environment to enable legacy applications to continue to function unmodified. Virtualization allows IT complete control over the operating system and browser environment used for each web application. While virtualization can deliver excellent compatibility across a wide range of application scenarios, the cost and complexity of this approach to simply provide legacy web application compatibility alone is excessively high.



There are a variety of virtualization options, including multi-user terminal servers, server-based or client-side virtual operating systems, and application virtualization. These can be simplified into two categories: *operating system virtualization* and *application virtualization*. Here is a look at each of these approaches:

Operating System Virtualization

With this approach, the old operating system and browser run in a virtual environment hosted inside the new operating system. That virtual environment can be tightly controlled so no new software is installed that might break a legacy application. A virtual operating system can be run directly on the client (client-side virtualization), on a server (server-based virtualization), or on a shared, multi-user server (multi-user terminal server). Here are some important considerations about the expense and efficiency of this virtualization approach:

- The virtualized infrastructure needs to run legacy versions of Internet Explorer (such as IE8, IE9, and IE10) which reached end of life on January 2016. So the virtual environment is unsupported, and potentially insecure.
- Both the old operating system and old browser must run in the virtual environment – they must be licensed, supported, maintained, and patched, increasing software licensing and IT staff costs.
- Users must choose from multiple virtual environments for certain applications and the native environment for others, requiring upfront training and increasing helpdesk calls.
- Virtualization creates new challenges to manage and patch double (or more) the number of client machines when each system is running a host and at least one virtual operating system, increasing complexity and IT staffing costs.
- Conversely, virtualized systems may need to block patches and component upgrades to ensure compatibility, further increasing the IT management workload.
- Multiple operating system and terminal server client access licenses (CALs) are required for each user, significantly increasing costs.
- Server-based virtualization does not scale cost effectively for browser-based applications which involve a high memory footprint and large bandwidth, increasing costs. Expensive server hardware must be purchased, powered, cooled, and maintained over many years.
- Client virtualization is resource intensive, often requiring RAM upgrades and multiple core CPUs, increasing hardware costs.

Application Virtualization

The application virtualization approach involves software technology which isolates application software from the underlying operating system on which it is run. A fully virtualized application is not installed in the traditional sense. Instead it behaves at runtime like it is directly interfacing with the original operating system and all the resources managed by it, but the virtualized application can be isolated or sandboxed to varying degrees.

When a browser is running with application virtualization, enough of the original operating system is harvested and inserted into the virtual browser package to allow the browser to function somewhat like it did on the original operating system. However, not everything works as it did before, with challenges often found while printing and interfacing with hardware devices. Some important considerations when selecting application virtualization include:

- Application virtualization may seem attractive, but is not really a viable option for web browsers as **Microsoft's Windows license does not allow components such as Internet Explorer to be virtualized.**
- Users must choose from multiple virtual and native browsers, depending on the application being used, requiring upfront training and increasing helpdesk calls when the wrong selection is made.
- The features of the virtual browser will be different from the native browser, creating further confusion and interruption of end-user workflow.
- Patching a virtual browser to keep up with security updates will require the entire virtual application to be repackaged and redeployed.

Browser Management

The concept behind remediation via browser management is to understand and control the browser environment to enable legacy applications to work in a modern browser. Application remediation actions can range from addressing a simple setting like changing the document mode and user agent string, all the way to injecting new content into the web page to make it function properly. Browser management is easy to deploy and manage in a large organization, is highly cost-effective, provides an exceptional user experience, and can deliver significant value beyond compatibility. There are two browser management solutions available, Microsoft Enterprise Mode and Browsium's browser management suite.



Internet Explorer Enterprise Mode

With the release of IE11, Microsoft introduced its newest tool for web application compatibility, Enterprise Mode (or EMIE for short). It is built into Internet Explorer and designed to address compatibility issues found in static websites and simple web applications found throughout an enterprise. By contrast, mission critical applications, such as ERP, CRM, and HR systems, are typically very complex and highly customized. Applications like these aren't broken simply because of a user agent string or a CSS expression button, which Enterprise Mode is designed to address. They are made up of a variety of productivity applications and reporting tools, and each may be broken by a range of issues that require a different set of changes to fix them. This is where the majority of defects surface in complex applications.

EMIE is useful for less complex intranet and extranet websites, and web applications with minor layout issues. For mission-critical web applications in enterprise IT environments, Enterprise Mode is often insufficient. And without these applications working in the new environment, migration projects cannot proceed. Therefore, a browser migration in a large enterprise requires a more powerful remediation solution.

Browsium's Browser Management Suite

Browsium developed its browser management suite specifically to manage enterprise IT environments from end-to-end. A big part of this process is enabling incompatible legacy IE-dependent line-of-business web applications to run in modern versions of Internet Explorer, such as IE11. Browsium's browser management suite is robust and powerful enough to support the world's largest and most complex enterprise IT environments.

Migrations should start with planning

A smooth path to IE11 migration begins with understanding your browser environment and planning the best way to move forward. Unlike other web application remediation approaches, Browsium's browser management suite provides a complete inventory and analysis of your environment. This includes up-to-date inventory and usage data about web applications, browsers, add-ons, components, and interdependencies presented in easy-to-understand tables and charts. With this granular-level data, departments and application owners can be identified, so importance and priority can be assigned to each application in the environment. Next, a plan can be developed so the migration can be sequenced to minimize disruption of critical components and IT services can continue to run effectively.

How the browser management suite takes action

Once the migration plan is set, the browser management software suite achieves application compatibility by giving enterprise IT granular control of their browser environments, optimizing both legacy and modern web application compatibility and security. The browser management suite goes far beyond Enterprise Mode, enabling IT to change Internet Explorer document modes, inject HTML, CSS, and JavaScript on the fly, set custom registry entries, and swap in the required legacy versions of Java, at the web application or even web page level. This maximizes compatibility for all business-critical applications while simultaneously increasing security for Internet browsing.

This is all done within a single-browser solution that is completely invisible to end-users. By managing the browser environment directly, IT gains control over the timing and sequencing of web application upgrades. Browsium's browser management suite does this by allowing legacy IE-dependent web applications to run in modern versions of Internet Explorer, side-by-side with more current applications. This enables easy migration to the most current release of Internet Explorer on each Windows platform, with confidence that critical business applications will continue to run.

How this compares with other web application remediation approaches

Using this browser management solution enables enterprises to avoid the cost and complexity of virtualization – but the browser management suite can also seamlessly complement virtualization solutions when they're deployed to meet broader IT objectives. In addition, application rewrites, upgrades, or replacements are not required to unblock a browser migration. Ion extends the ROI of already deployed and purchased applications by allowing those applications to run on a modern browser platform with no server-side code changes.

Requirements

Browsium's browser management suite does not require:

- Additional operating system licenses
- Redundant cycles of application software installation, customization, re-testing the entire application, deployment, and user training
- Applications rewrites, upgrades, or replacement to unblock a browser migration

A browser management suite remediation project may require:

- Remediation and testing of web applications in the new browser
- Training of IT staff on browser management suite remediation and deployment, or engagement with 3rd party Browsium systems integration partners

What Browsium's browser management suite does beyond migration

Migrating to a new browser is only one of the many challenges facing enterprises as the new, browser-based IT landscape continues to mature. Browsium's browser management suite delivers an on-going return on investment by providing end-to-end browser management capabilities that desktop and network management tools cannot. Here are the ways the browser management suite enables organizations to discover, plan, and act to in their browser-based IT environment to ensure compatibility and security and avoid wasted resources and money.

Discover

Get crystal-clear visibility into the browser blind spot that your desktop and network management tools leave behind. Specifically, visibility into inventory and usage data for:

- Web applications
- Browsers
- Add-ons
- Operating system components
- Interdependencies

Plan

The granular inventory and usage data discovered enables planning of a proactive browser management strategy. Specifically, the ability to:

- Analyze data
- Map data to group needs
- Identify unneeded software
- Plan a migration strategy
- Conduct a security assessment
- Develop a procurement strategy

Act

Finally, Browsium's browser management suite enables action. Here are just some of the actions enabled:

- Migrate to IE11 without breaking critical legacy web applications or disrupting business workflow
- Support new applications with modern browser requirements
- Run multiple versions of Java side-by-side
- Secure "zero-day" exploits
- Upgrade or replace applications when it will add value to the business, rather than when required by an operating system or browser upgrade
- Keep applications functioning securely as operating system and browser technologies continue to evolve
- Upgrade critical components
- Lock down browser configurations
- Pair web applications with browsers
- Remove unnecessary software

Browser Management and the Future

The rapid evolution of operating system and browser technologies will continue. Browsium's mission is to enable organizations to cost-effectively manage and secure web browsers and web applications at a global scale today and well into the future. Browsium's browser management suite provides enterprises with end-to-end browser management capabilities to help organizations improve IT services and optimize IT decisions.

Clearly, Browsium's browser management suite gives IT the flexibility to granularly understand control the browser and maintain application compatibility as technologies change – in a way that no other solution can. This makes the browser management suite a robust and long-term solution. It meets the needs of any organization with a mission to support legacy web applications while upgrading to the latest version of Internet Explorer quickly and efficiently, with many added browser management capabilities essential to manage today's browser-based IT landscape.

Learn more about streamlining enterprise migration to IE11 with Browsium by downloading the **Browsium Ion Evaluation Kit**. Or email info@browsium.com.

More information about Browsium's browser management suite can be found at <http://www.browsium.com/browser-management-suite/>