To the Cloud and Beyond:

Nexaweb Application Modernization

Your fastest path to the future

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Breaking Your Legacy Handcuffs

Mature IT organizations have always struggled to balance the investment and maintenance required to support evolving business goals. But two recessions in the last decade have tilted that balance too strongly toward maintenance. Forrester Research's recent analysis of 562 companies in North America and Europe showed that 55% of current IT budgets are dedicated to propping up systems and business processes that are 10, 15 or even 20 years old. Nexaweb's experience with hundreds of companies around the world has shown that percentage can be as high as 80%.

These legacy "handcuffs" are preventing many organizations from investing in new technologies and applications to create competitive advantage, cut costs and increase revenue. Gartner calls this scenario an impending "train wreck" that can only be avoided by funding an application modernization overhaul program focused on retiring older systems.

Nexaweb can transform your growth-limiting legacy applications into modern web solutions that:

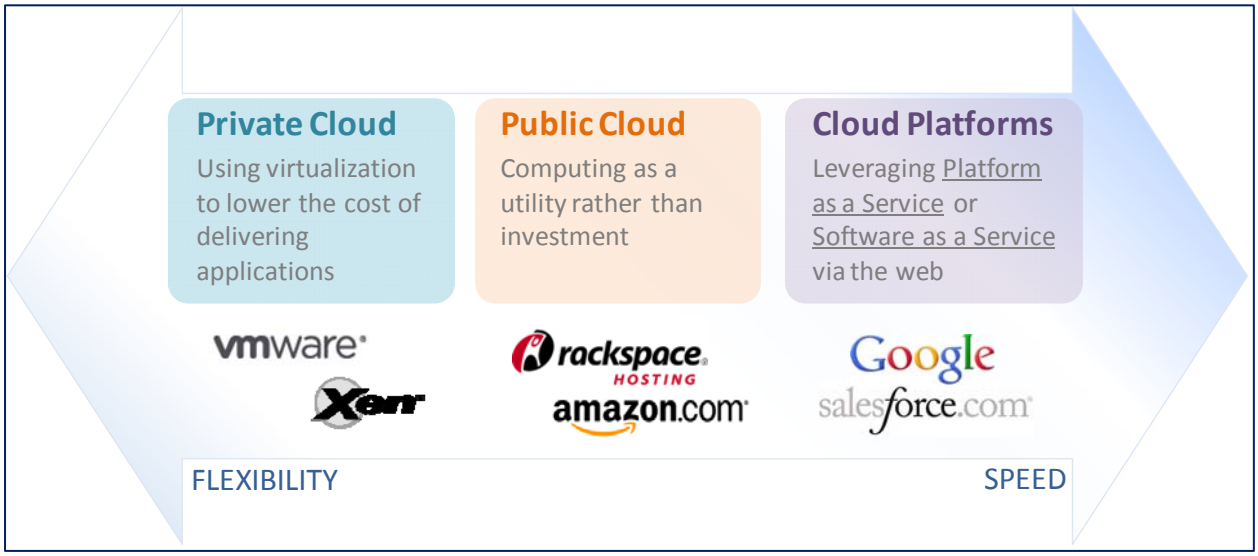
- are accessible to anyone from anywhere,
- reduce data center and maintenance costs,
- and enable new business models that fuel growth and expansion.

Nexaweb's iterative, repeatable approach has successfully transformed more than 450 legacy applications for 200 customers worldwide – including Aflac Japan, PepsiCo, Nokia Siemens Networks, DHL and AT&T. Nexaweb guarantees results with a fixed-price, fixed time engagement, typically generating payback of 1.5 - 3x within 12 months of deployment.

This white paper provides a primer on cloud computing and then goes on to describe the Nexaweb application transformation process and software, and explain how Nexaweb is able to provide a fixed-price, fixed cost cloud transformation solution.

The Cloud Computing Continuum

Wikipedia defines Cloud computing as *'describing a new supplement, consumption, and delivery model for IT services based on the Internet, and it typically involves over-the-Internet provision of dynamically scalable and often virtualized resources. This frequently takes the form of web-based tools or applications that users can access and use through a web browser as if it were a program installed locally on their own computer.'*



Nexaweb views cloud computing as a continuum of leverage, opportunity and benefit.

On one end of the spectrum are ***private clouds*** enabled by virtualization technologies like VMware and Xen. Many organizations are opting for this approach to simply move applications to a much more efficient IT infrastructure. Private clouds dynamically provision computing resources, on demand (by utilizing idle CPUs in the data center), to handle peak usage or to guarantee continuity of service in the case of server failures. VMWare became one of the fastest growing companies in history -- zero to a billion dollars in a little more than four years -- by enabling organizations to distribute CPU usage across their entire network architecture.

The next step is ***public cloud*** – enabled by vendors such as Rackspace, Amazon, Microsoft and Google, all of which offer solutions that leverage their back office infrastructure for storage and run-time. Dedicated or shared CPU and storage resources are hosted, operated and secured remotely. They are provisioned on-demand for a monthly usage fee that depends on the type of hardware provisioned and the usage level (e.g., bandwidth or CPU consumption).

Companies utilizing public clouds give up some control and flexibility (since they do not own the computing resources directly), but gain economic and speed advantages by not having to incur additional in-house data center overhead.

At the other end of the spectrum are ***platform as a service (PaaS)*** -- custom APIs and built-in libraries for quickly building custom applications running on a public cloud infrastructure -- and finally, ***software as a service (SaaS)***, offering turn-key Web-based applications on demand, such as Salesforce.com customer relationship management (CRM) provides.

Why Companies are Moving to the Cloud

Companies are moving to cloud computing for 3 primary reasons:

- **To improve data center economics** - Getting greater return on already-installed computing resources (via virtualized private clouds) by eliminating idle CPU time
- **To deploy applications faster** – Provisioning private or public cloud resources eliminated the weeks or months it often takes to select, purchase, install and configure new data center resources.
- **To support "Green IT" initiatives** – Private and public clouds slow or eliminate the consumption of electricity to power and cool servers in the data center.

Most of the customers Nexaweb is working with today are using private clouds and virtualization as part of their legacy application modernization efforts. Private clouds allow them to leverage existing, in-house computing resources to run new or modernized applications without the cost and delay of buying and installing new hardware. Private clouds are a very practical starting point for cloud adoption; companies want to ensure they're maximizing the use of data center resources they already have installed before paying to provision additional computing resources in public clouds.

Moving Legacy Applications to the Cloud

Legacy applications are particularly good candidates for cloud transformation. In addition to the cloud computing benefits listed above, there are many compelling reasons to modernize legacy applications:

1. The ecosystem of programmers and support personnel with experience in legacy development tools such as COBOL, PowerBuilder or Visual Basic is shrinking rapidly.
2. The hardware that legacy applications run on is difficult and expensive to maintain.
3. The effort and expense required to maintain existing systems prevents them from innovating new business processes, products and services.
4. Modernizing legacy applications to the web can make them available to new groups of users such as customers, partners, off-shore employees and others. This can create new opportunities to improve customer service, cut costs, or increase sales through self-service.

In the July 2010 report by Gartner, Inc., entitled "*Signs Indicate a Train Wreck is Coming Unless You Modernize IT*," CIOs are advised not to continue hiring more programmers to keep old systems running, but rather, "fund an IT modernization/application overhaul program." The consequences of not modernizing are increasing support costs and ultimately, the loss of IT and business agility.

Modernization Results – Nexaweb Customer Case Studies

PepsiCo

A legacy PowerBuilder system was holding back contact center modernization. The system was complex and required extensive user training. The system was also very expensive to deploy to remote locations, which hindered their ability to open geographically remote contact centers in locations with lower labor costs. PepsiCo called on Nexaweb to transform the legacy system into a modern web-based application that could be deployed to anyone, anywhere, over the Internet. Within 9 months, the system had been transformed. The new cloud application was easier to use and cut the average customer service call in half; it also saved PepsiCo hundreds of thousands of dollars in maintenance costs every year. The modernization project paid for itself within 12 months of deployment.

Aflac Japan

Aflac Japan had 10 different IT systems for quoting insurance policy premiums. Having multiple price quotation systems made it challenging to keep rates consistent and incurred high application maintenance costs. Nexaweb consolidated the legacy systems into a single, new web application complete with mobile device access for field agents. The effort increased the speed and accuracy of price quotes to customers and dramatically reduced IT maintenance costs.

Nokia Siemens Networks

Nokia-Siemens builds some of the world's largest telecom networks. Upon receiving a request for proposal (RFP), it would take sales people over a month to complete the request by drawing data from multiple legacy systems. Nexaweb was called on to consolidate 4 legacy systems into a new Web-based solution. Nokia Siemens estimates that the Nexaweb approach and software cut 18 months off their original project estimate. The resulting application is 60% less expensive to administer than the 4 systems it replaced, and sales people now complete RFPs within two hours.

Making Transformations Possible

Nexaweb knows that change is hard. There are lots of reasons why companies delay modernization. “If it isn’t broken, don’t fix it.” "We can't afford it." "We don't understand the code, so we can't risk changing it."

But as Gartner warns…an IT ‘train wreck’ is inevitable unless applications are overhauled.

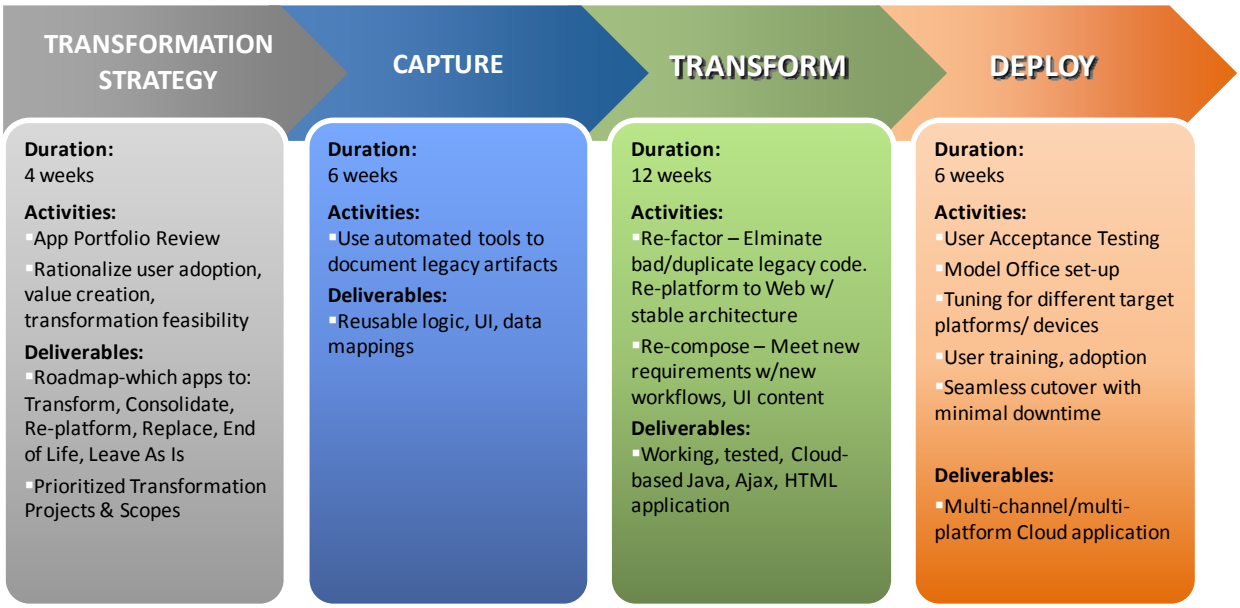
Nexaweb allows companies to put the objections above safely aside and begin the modernization process confidently. Nexaweb has helped over 200 companies modernize 450+ legacy applications, and its application transformation solution features the following:

- **A repeatable approach**
- **Expert project resources**
- **Cloud transformation software**
- **Fixed price, fixed time guarantee**

The remainder of the paper describes these in more detail.

Repeatable Approach

Over the course of 450+ projects, Nexaweb has refined a repeatable methodology for transforming applications from expensive-to-maintain legacy architectures with limited accessibility into highly accessible web applications running on lower-cost cloud platforms.



- **Transformation Strategy:** Nexaweb starts every customer engagement with a legacy application portfolio review. The driving principles behind this phase are to help customers identify areas within the application portfolio where there's the biggest pain and biggest modernization payoff. For each application, we look at user adoption, maintenance costs, value creation, opportunity costs of not transforming, and other factors to help decide what path the application will take into the future…transform, consolidate, re-platform, leave as is or end of life. For those applications you want to transform, we specify how we'll do the actual transformation, and define a fixed-cost, fixed-price transformation project scope and schedule.
- **Code Capture:** Nexaweb has a lot of experience helping companies understand what parts of a legacy application can be reused. We review and profile the code in a workflow environment, figure out whether there are branches, where there are dead-ends, and whether there's code that can be leveraged. We also collect and evaluate screenshots to uncover reusable user interface designs.
- **Transformation:** During this phase, we eliminate unusable old code and re-factor and re-platform reusable legacy code into a cloud-based services-oriented architecture (SOA). Then we create a rich internet application (RIA) interface that consumes the re-factored logic and delivers it to users over the web to any browser on any platform. The RIA is built fast, based on Nexaweb transformation software, which includes RIA development tools, a secure internet messaging bus, proven JAVA, and AJAX application reference frameworks that handle security, UI interactions, and other functions. Nexaweb software eliminates the risk and cost of developing application code that is common across most cloud applications. Finally, we test the application to ensure the transformation is working the way you envisioned.
- **Deployment:** Initially, we typically roll transformed applications out to smaller populations of users in order to get feedback and refine the applications to their liking. This ensures stronger user adoption and more complete achievement of the business goals for the application. Gradually, the application is deployed to larger numbers of users on a variety of mobile and stationary computing platforms.

Nexaweb has followed this approach in hundreds of projects. The outcomes of each cycle are very predictable and allow Nexaweb to bear the risk of cost-overruns and eliminate the risk of delivery failure via its Fixed-Cost/Fixed-Time project guarantee.

Expert Resources

Nexaweb brings a cost-effective mix of on-shore and off-shore project-leadership, design, and development resources to application transformation projects, including expertise in modern and legacy application technologies. Nexaweb can leverage resources with the optimal experience and cost level for every stage of a project. Our iterative, incremental approach also insures your initial Nexaweb team can offer increasing value on subsequent projects.

Application Transformation Technology

Nexaweb also brings patented application transformation and cloud application development software to the process, which further reduces project time, cost and risk. More importantly, the Nexaweb software enables you to transform your legacy systems into rich internet applications that support a wide variety of use cases, including intensive data entry, mobile access, real-time data streaming and more.

The Nexaweb Enterprise Web Suite (Nexaweb EWS) includes the following:

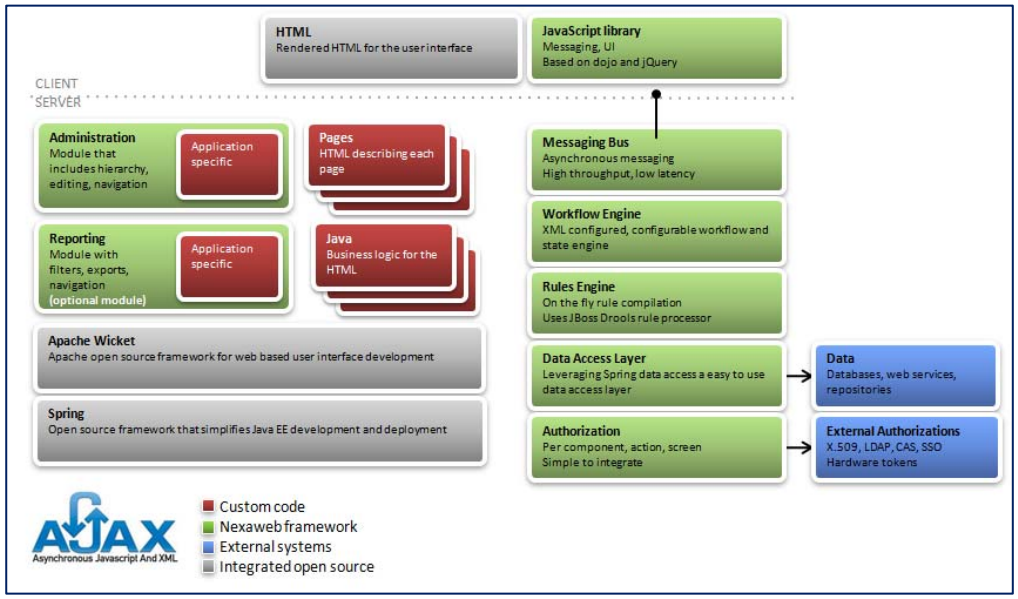
- Legacy code analysis and capture tools
- Pre-built Cloud Application Reference Frameworks for Java and Ajax
- Rich Internet Application (RIA) development
- Zero-install deployment to any browser or device

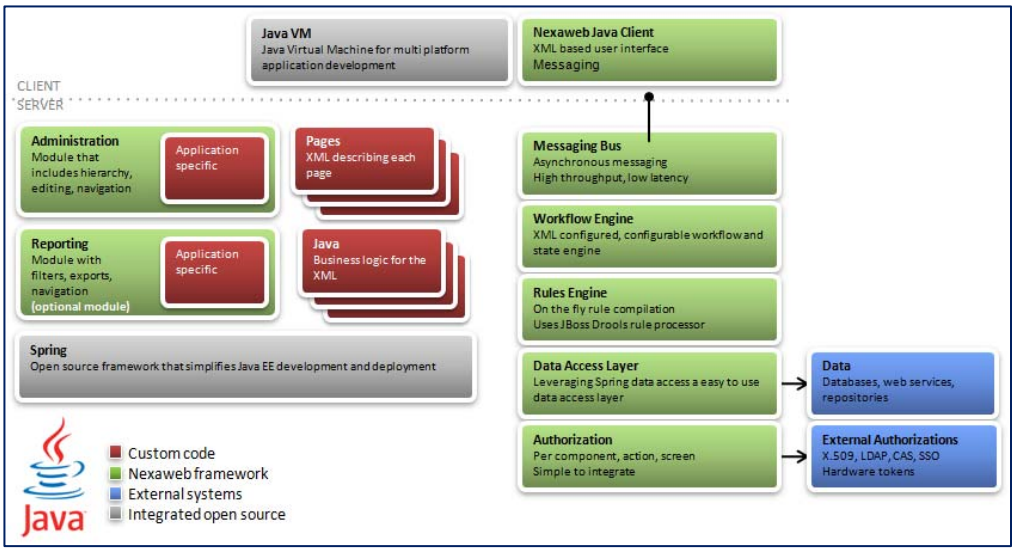
Legacy Code Analysis and Capture Tools

Nexaweb provides tools and processes for application understanding and re-use and forward engineering of legacy systems (such as Natural/Adabas, PowerBuilder, Java Swing, COBOL, Assembler, Visual Basic, and others) to modern languages, architectures and databases. Nexaweb generates system documentation for legacy systems and helps determine which legacy code should be end-of-lifed, re-used or re-factored.

Cloud Application Reference Frameworks for Java and Ajax

The Nexaweb Reference Frameworks, for Java and for Ajax, accelerate the process of modernizing business applications and bringing them to the Web. The Frameworks combine Nexaweb-developed code with open-source components (such as Spring, Struts, iBatis, Hibernate, etc.) to jumpstart your application and improve quality. They handle security, user interface interactions, workflow, SOA access, and other functionality that tend to be found in every cloud application. This allows your team to focus on higher-value added development, including the business logic that is unique to your company. The Frameworks have been shown to reduce manual Java and Ajax coding overhead by as much as 67%.





"The Nexaweb framework reduced the lines of code we needed by 65%, cutting 18 months off our original transformation schedule."

Nokia Siemens Networks

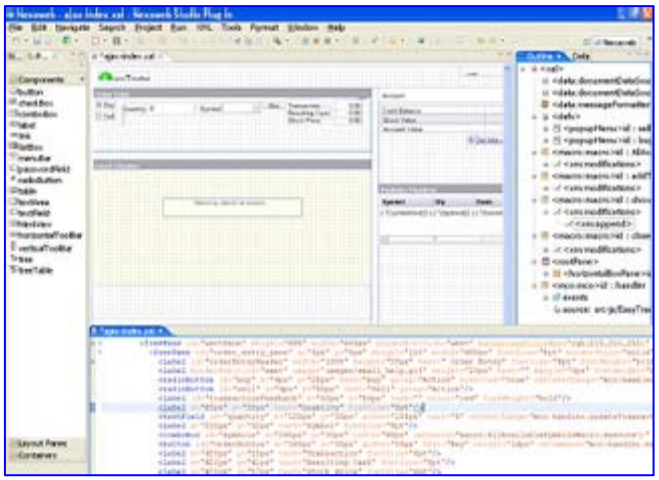
Rich Internet Application (RIA) development – "Desktop in the Cloud"

One of the reasons why many legacy applications have not been modernized to the web is because it's hard to recreate complex mainframe and client-server application user interfaces in a web browser. HTML and web browsers lend themselves well to displaying rich text and multi-media and collecting data through simple forms. Creating anything more complex has historically required hardcore messaging, security, and user interface development in Java.

Nexaweb Rich Internet Application (RIA) tools make it easy to recreate complex legacy user interfaces on the web. We call it creating a "desktop in the cloud." Nexaweb software makes it easy to migrate legacy user interfaces to rich, Web 2.0-style applications, even those that "push" or stream data to clients or support keyboard data-entry intensive workloads. In addition to the Nexaweb Reference Frameworks described above, Nexaweb includes an RIA development environment and a secure real-time messaging engine to enable this.

Nexaweb Studio

Nexaweb Studio is an Eclipse-based Integrated Development Environment (IDE) that enables visual, drag-drop development of rich internet applications (RIAs). It simplifies user interface design, business logic integration with visual wizards, a source editor, syntax validation and UI-to-logic component mapping and more.



Nexaweb Internet Message Bus

The Nexaweb Internet Messaging Bus™ provides reliable, secure, two-way message processing between Web application servers and browser clients. It vastly simplifies the creation of Web 2.0-style web applications that bi-directionally transfer data between the browser and back-end enterprise systems by eliminating the need for developers to create protocols, encode and decode messages, understand cloud topology and the communications and networking intricacies that web-based client/server programming has traditionally required.

The Internet Messaging Bus capabilities include:

- Support for Publish/Subscribe, Server Push or broadcasting messaging
- Optimized message delivery, guaranteed order-of-delivery, and support for in-memory queuing should the connection between client and server be interrupted
- Load balancing and failover for high scalability and high availability
- Easy consumption of SOA services
- Rapid deployment utilizing Eclipse workbench tools

Zero-Install Deployment to Any Browser or Device

The Nexaweb Application Frameworks (described above) include universal clients, which enable your modernized web application to run as a Java or Ajax application in any browser, running on any platform, including mobile devices. Nexaweb's Ajax and Java clients download automatically (in seconds) to a standard Web browser, and intelligently cache data and program components on-demand, to minimize network overhead and optimize response times.

The Nexaweb universal client delivers:

- Rendering of GUI controls
- Data validation for verifying user input
- Support for Section 508 Accessibility
- Automatic caching of data
- The ability to apply client software upgrades in the background
- Support for off-line usage; it will synch updates with the server when reconnected
- An ultra-thin client for desktop-style functionality within any browser

Fixed Cost, Fixed Time, Guaranteed

Nexaweb delivers a turn-key solution -- with a fixed cost, fixed-time guarantee. Our success delivering more than 450 application transformations for 200 companies around the world gives us the confidence to bear the risk of cost over-runs and delivery failure. Nexaweb customers typically achieve a payback of 1.5 - 3x within 12 months of deployment.

Next Steps

If you would like to learn more about Nexaweb application modernization services and software, please visit www.nexaweb.com. There are more white papers, customer case studies and free software downloads to help you learn more.

You can contact us directly to schedule a discussion about your legacy application portfolio and which ones make the best modernization pilot project candidates. To contact Nexaweb, please email us at sales@nexaweb.com or call one of our locations below.

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