



# NEXAGE

MOBILE ADVERTISING.  
DEMAND MORE.

## MOBILE SSP & ADVERTISING PROGRAMMATIC MARKETPLACE

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NEXAGE is the leading premium mobile advertising exchange, creating a highly efficient and liquid market for advertising buyers and sellers alike.

AOL acquired the company in 2015, and Nexage was rebranded into ONE by AOL Mobile.

Nexage Exchange provides a range of programmatic markets to enable buyers and publishers to accelerate their businesses by choosing how they want to buy and sell including public, private exchanges and programmatic markets – and supports an ever-growing volume of rich media and video ad units. Business controls, filters, real-time reporting, and data enrichment capabilities plus the ability to integrate advanced solutions through Nexage Connect give customers visibility, controls, and tools to accelerate their businesses. Nexage Connect delivers integrated 1st and 3rd party data, including behavioral, contextual, enriched location and privacy data to enhance targeting and retargeting. Administrative application is the central component of Nexage system. It contains a number of internal and consumer-facing features, including setup and configuration, reporting, monitoring of ads flowing through the system, and more. The application is developed using Adobe Flex.

Nexage has partnered with Kanda to upgrade and modernize existing Flex-based Administrative Application to create a more scalable and tablet-friendly solution.

## TECHNOLOGY

- Java Enterprise
- Frameworks: Spring Framework, MVC, Spring Web Flow
- Protocols: RESTful
- UI/UX: HTML5, Ajax, JQuery
- Server side: Apache HTTP server, Spring Source tc Server, Apache Maven
- Java Architecture for XML Binding (JAXB)

# SOLUTION

To successfully complete this project Kanda has separated development workflow in three phases:

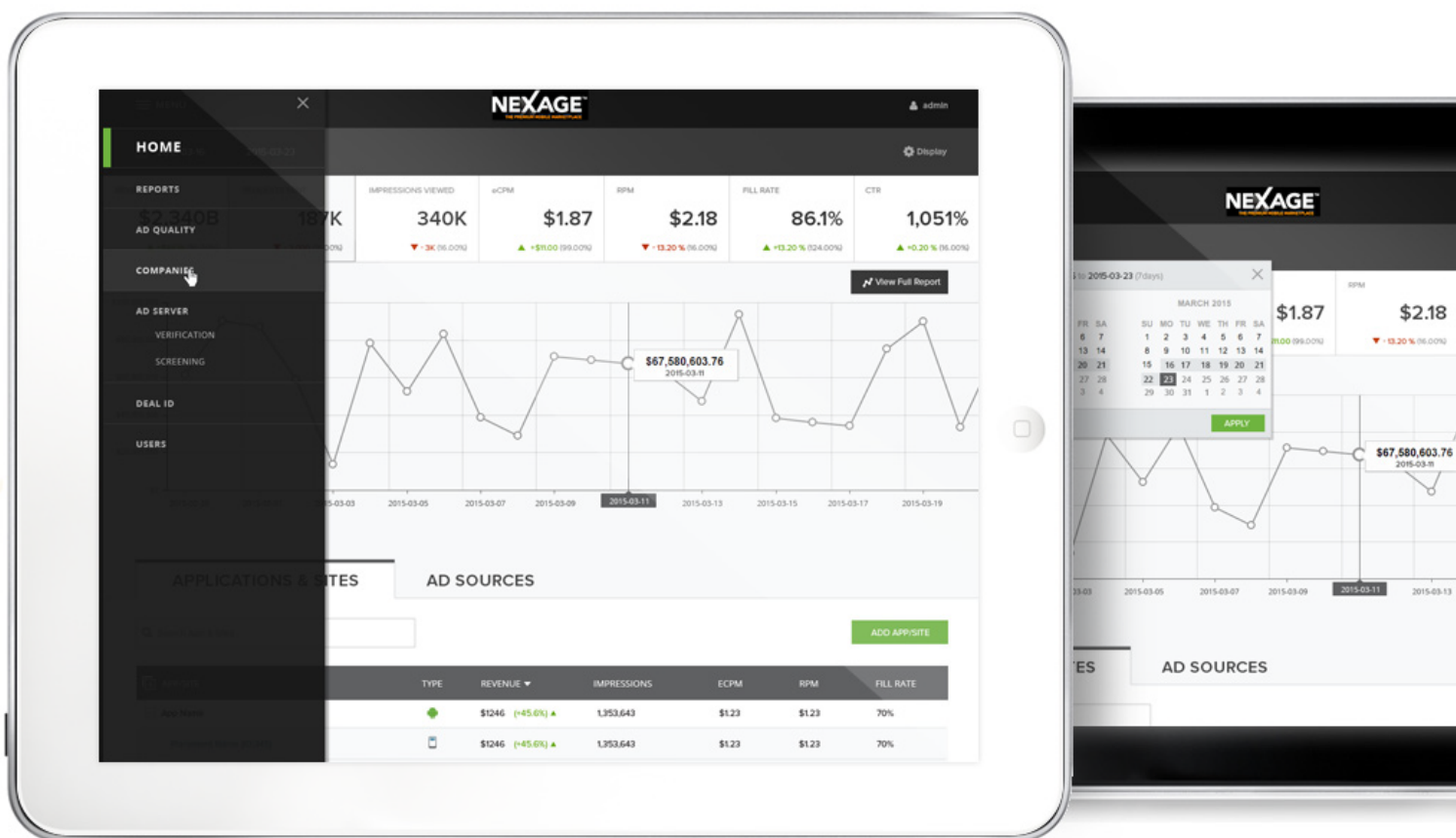
**TRANSITION** – maintain and enhance existing solution while the new version is designed and coded

**CONVERSION** – design, code, test, and rollout new Administration Application, replacing the existing one for all of Nexage’s clients and partners

**MAINTENANCE AND SUPPORT** – maintain and enhance the new Admin

To successfully accomplish the project within the timeframe Kanda Software has utilized Agile Methodology with 2-week sprints. The first 4 sprints were focused on Administration Application analysis, finalizing technical architecture, creating a “clickable prototype” to illustrate web UX concepts, gathering and specifying detailed requirements. All the other sprints were focused on design, coding, testing and delivery of the Nexage administration application features. Each sprint had its own delivery plan and goals.

## Project Architecture and UI/UX requirements:



- New user interface has to support all the features offered by Nexage to its customers and partners at that time.
- The new UI implementation should not unduly burden the business logic, data repository, and downstream functionality dependent on the configurations accomplished in the administration application.
- The implementation should be done rapidly and allow for rapid modifications/enhancements in the future.
- Design of web interface should be easily extensible and maintainable, and based on modern web UI technologies.
- The Application has to be lightweight and should not introduce and perform new business logic algorithms or calculations.
- All necessary data sets will be retrieved from backend server.
- Support for multiple user interface languages.
- Security and Integration with backend server should occur only through secure exchange channels and protected by firewall to ensure safe operations with sensitive data
- Tools and technologies utilized should be industry standard with sufficiently wide pool of qualified developers and reputable providers of any third party library or component.
- Development and Deployment best practices should be utilized to minimize time and resources spent on recurrent activities.

## APPLICATION OVERVIEW

Nexage Administration application contains multiple important components used by both Nexage customers and internal Nexage staff to configure and monitor the ads flowing through the system and report on the supply and demand of mobile advertising, as well the metrics to measure their effectiveness.

**Nexage supports multiple models for ad trading as well as several sub-types of ad buyers and sellers.**

Each combination of the model/seller/buyer requires in-depth configuration with several “moving parts” resulting in a system that is by necessity robust and complex, yet has to be scalable, pleasant and easy to use as well as support.

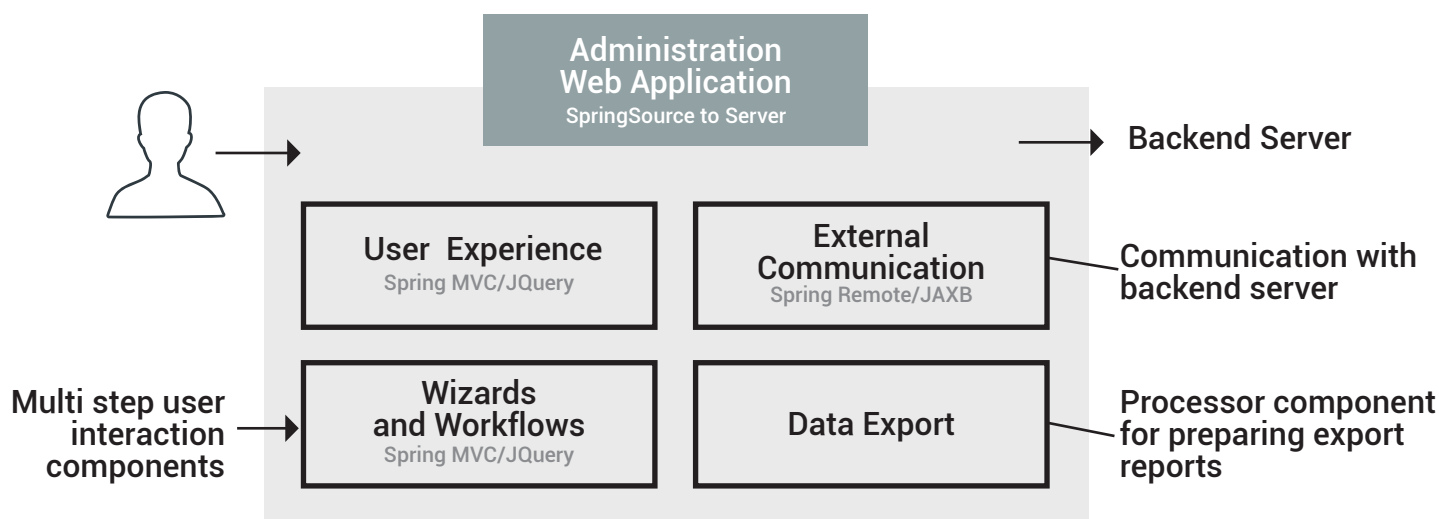
Administration Application provides all the parameters to Nexage Engine required make trading between Sellers and Buyers frictionless and efficient by creating a liquid and efficient market. Nexage, utilizing the Administration Application, provides the tools and capabilities for the developers and publishers to get to revenue quicker, while at the same time enabling very fine granularity of criteria to the Buyers to target their ads to a particular audience, specifying geography, target platform, content audience, etc.

The customer has the capability to screen the flow of ads and to allow or block particular ads from being run. The engine utilizes these and such additional parameters for real-time bidding as effective cost per thousand impressions, or eCPM (Automatic or Manual) and Revenue per Site and RTB fees. Mediation rules define where the ad is to be run – position, Buyer Tag and Tier. There are also capabilities to define Nexage’s revenue model parameters, for example Revenue percentage or flat fee, share of RTB fees, per site.

In addition to serving as a market platform, Nexage provides capabilities to Publishers to run ads on their own properties through a separate module Campaigns. Nexage Administrative Application functionality is outlined in Appendix 1.

# ARCHITECTURE APPROACH

Taking into account Nexage technical and strategic requirements, Kanda team has developed a following architecture for Administration Application:



# The system can be represented as four major components:

- **USER EXPERIENCE** – graphical representation of User Interface that are utilized both by internal Nexage staff and customers for configuration, reporting, and monitoring of ads flowing through the system.
- **WIZARDS AND WORKFLOWS** – advanced user experience components that provide flexible workflow-based layouts and models. In essence the workflow-based interactions are used for user activities that require “State saving” before the actual data submission.
- **EXTERNAL COMMUNICATION** – common communication component responsible for establishing connection with the backend server. For sharing the same communication language, this component performs processing of conversation format both ways (XML from / to Object).
- **DATA EXPORT** – additional business logic part that processes data from back-end server presenting it as CSV files. Actual data stored in the file may be filtered / transformed using dynamic selection criteria.

The proposed technology choice for each component of Administration Application system was made based on Kanda’s experience with similar domain solutions. Kanda development team has considered the most frequent obstacles encountered during development and maintenance phase: time spent on infrastructure changes, extensibility of functional parts, security level required for user’s private data and long-term reliability during production phase.

We recommend developing a Java-based system augmented with open source licensed components.

# NEW UX/UI DEVELOPMENT APPROACH

The original impetus for upgrading the interface was the lack of future support of Flex by Adobe.

Nexage has also determined that a more user-friendly and interactive interface will be widely appreciated by existing clients. In the course of the UI development Kanda has proposed HTML5/Ajax as a main technology to meet the expectations of the users. Additionally, several design criteria were taken into account:

## Fresh Look

Kanda has preserved Nexage's Administration application style while refreshing the overall look and making it more universal. A sample design is shown in the picture below:

The screenshot displays the Nexage Administration application interface. At the top, there is a navigation bar with a 'MENU' icon, the 'NEXAGE' logo, and a user profile 'admin'. Below the navigation bar, there are date filters for '2015-03-16' and '2015-03-23', and a 'Display' icon. The main content area is divided into two sections: 'ALL APPS' and 'MEDIATION OF AD SOURCES'. The 'ALL APPS' section shows a table with columns for 'App Name (ID: 23487)', 'REVENUE', 'IMPRESSIONS', 'ECPM', 'RPM', and 'FILL RATE'. The 'MEDIATION OF AD SOURCES' section is further divided into 'Your Active Ad Sources' and 'Unassigned Ad Sources'. Both sections contain tables with columns for 'AD SOURCE', 'REVENUE', 'IMPS', 'ECPM', and 'RPM'. The 'Your Active Ad Sources' section has a '1' in a circle next to it, and the 'Unassigned Ad Sources' section has a '2' in a circle next to it. A green 'ADD AD SOURCE' button is located in the top right corner of the 'MEDIATION OF AD SOURCES' section.

ALL APPS	REVENUE	IMPRESSIONS	ECPM	RPM	FILL RATE
App Name (ID: 23487)	\$12,146	1,353,643	\$1.23	\$1.23	70%
Placement Name 1	\$12,346	1,353,643	\$1.23	\$1.23	70%

### MEDIATION OF AD SOURCES

Your Active Ad Sources 1

AD SOURCE	REVENUE	IMPS	ECPM	RPM
RTB Nexage Exchange Nickname_Ad source Descr Targets: [Globe] [Phone]	\$12,146	20,305k	\$4.06	\$1.23 Price Floor: \$3.65
Direct Nexage Exchange Nickname_Ad source Descr	\$12,146	20,305k	\$4.06	\$1.23 Price Floor: \$2.35
Med Nexage Exchange Nickname_Ad source Description Lorem Description Millennial. Media text Targets: [Globe] eCPM Override: \$2.35	\$12,146	20,305k	\$4.06	\$1.23

Unassigned Ad Sources

AD SOURCE	REVENUE	IMPS
RTB MI Exchange Nickname_Ad source Descr	\$12,146	20,305k
Direct Nexage Exchange Nickname_Ad source Descr	\$12,146	20,305k
Med Nexage Exchange Nickname_Ad source Descr	\$12,146	20,305k
Med Nexage Exchange Nickname_Ad source Descr	\$12,146	9,305k
RTB Nexage Exchange Nickname_Ad source Descr	\$12,146	20,305k
Med Nexage Exchange Nickname_Ad source Descr	\$12,146	5,305k
Med Nexage Exchange Nickname_Ad source Descr	\$12,146	20,305k



# Tablet Support

**Tablets are gaining ground as a wide spread work device. Nexage has determined that mobile audience represents a significant and growing portion of their user base.**

Taking into account client needs and requirements Kanda established that native mobile app development wasn't the optimal choice for this project. Instead, HTML5 was used to deliver superior user experience and design to tablets and, potentially, mobile phone users.

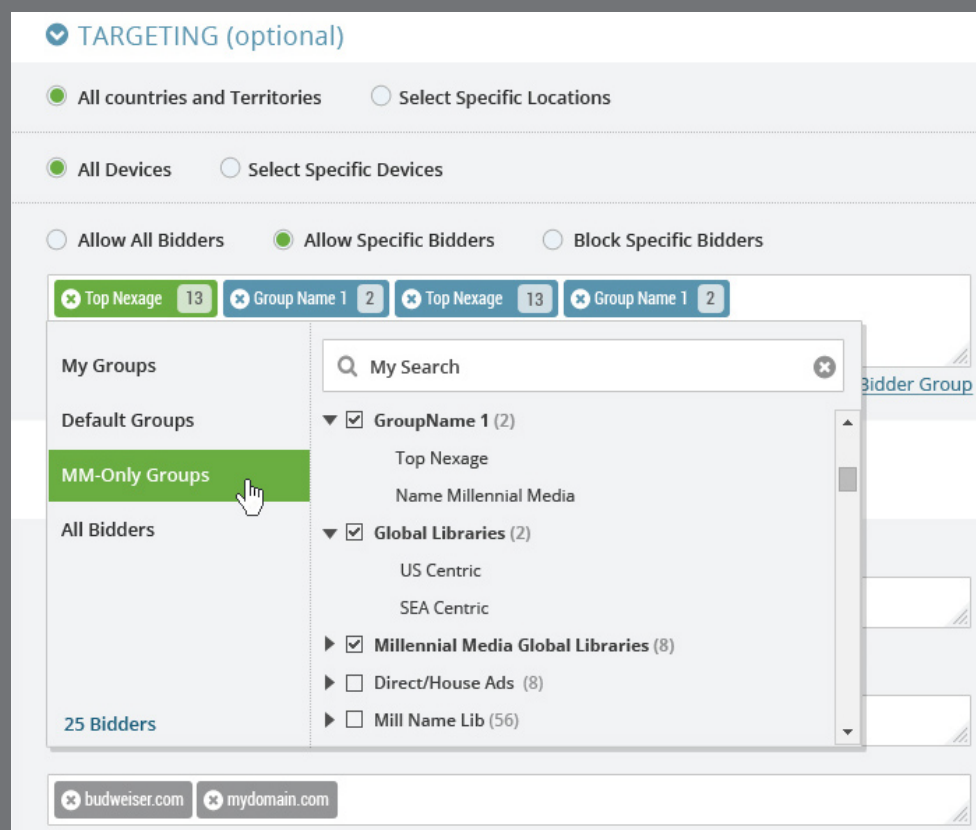
# Dynamically Displayed Pages

Kanda has identified several areas of Administration application user interactions that could have been simplified using dynamically displayed pages.

Much of the power of AJAX and more recently HTML5 is contained in being able to display an uncluttered page that shows more information/details specifically directed at the user's current needs.

A simple example of a dynamic page expansion based on a mouse-over is illustrated on the right.

By hovering the mouse-pointer over a particular record the user can see the details of that record without any clicking – and then see the details of another record simply by moving the pointer.





A user can edit those details in-line before moving on, thus, significantly reducing both the total number of clicks and the number of pages downloaded/used for a particular activity.

Flex is a development environment that supported Client/Server style interface implementation within a browser. While there are advantages to the desktop-style approach, the overwhelming majority of Browser interfaces today are AJAX-based and users have certain expectations.

Feature-by-feature redeployment of Flex-based UI in HTML/AJAX would be unnecessarily costly and, additionally, was likely to reduce user acceptance rates.

Kanda recommended that the following “desktop-style” interactions would be replaced by more common web approaches:

- **Multi-Tab Wizards**
- **Grids with Large Number of Records**
- **Very Long Lists - Companies, Clients, etc.**
- **Double lists drag-drop**

## RESULTS

Kanda software has successfully completed Administration Application modernization meeting and exceeding Nexage’s expectations. Kanda’s dedicated software development team continues to work with the company on maintenance and support of Administration Applications as well as other projects crucial for Nexage’s success.

The new Administration Application has proven to achieve required scalability and was highly praised and accepted by internal staff and Nexage customers for its design user-friendly design.

In 2014 Nexage, a mobile programmatic pioneer, was acquired by Millennial Media and became a core of MM’s Platform business. In 2015 Millennial Media was acquired by AOL.

# FUNCTIONALITY: Appendix 1

## 1. LANDING PAGE/MY ACCOUNT

Sign in/Sign out  
Contact us  
My Account  
Change Password

## 2 DASHBOARD

Requests  
Clicks  
Total Revenue  
Full Rate  
eCPM  
RPM  
CTR

## 3. REPORTS

Basic report page layout and logic

### Buyer Reports

CPI Conversations  
RTB Bidder Performance  
RTB Site Distribution  
RTB Subscription Data Usage

### Seller Reports

Revenue  
Traffic  
Analytics  
Ad Server  
RTB Revenue Performance  
Impression Groups

### Nexage Finance Reports

Ad Serving Revenue  
Mediation & RTB Revenue  
RTB Bidder A/R  
Publisher Settlement  
Finance Metrics by Site  
Finance Metrics by Site

### Nexage Internal Reports

CPI Analytics  
RTB Data Providers  
RTB Exchange Performance  
RTB Bidder Activity  
RTB Bidder Distribution

## 4. AD SCREENING

Ad Screening

## 5. COMPANIES

### Buyers

Grid page  
Company Setup  
Bidder Configuration  
Users

### Sellers

Grid page  
Company Setup

### Sites Dashboard

Dashboard  
Basic Site Wizard Page

### Site Setup

Site Info  
Types & Categories  
Status & Control  
Revenue Settings  
IDs & Profiles  
Parameter Config  
SDK Settings

### RTB Profiles

List  
Add Profile

### Tags

General  
eCPM & Revenue  
Targeting  
Buyer Overrides

### Positions

Position Setup  
Default Pos. Setup  
Impression Groups

### Mediation Rules

Add / Remove tier  
Manager positions and tiers

Users

Nexage

### Nexage Connect Partners

Connect partners list  
Add / Edit partners

## 6. USERS

Users. Create / Remove User

## 7. CAMPAIGNS

Campaigns grid page

### Create Campaign

Basic Site Wizard Page  
General Info  
Creatives/Targeting/Deployment  
Review

# CONTACT US

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