

# Valence Modernization Suite for IBM i

Copyright 2017 CNX Corporation

# What is Valence?

- Valence is a Suite of Development and Runtime Software designed to handle all modern application needs for IBM i.
- Valence is native to the IBM i - all functionality is controlled by Valence-specific web services written predominantly in RPG.
- Valence requires no external servers - just install Valence to your IBM i at V6R1 or higher and navigate to the url to log in.

# Valence User Interface Examples

The image displays three overlapping screenshots of the Valence user interface. The top-left screenshot shows the 'App Usage' page with a bar chart of active sessions for various applications. The top-right screenshot shows the 'Active Sessions' page with a table of active sessions and a user profile sidebar. The bottom screenshot shows the 'Edit App "CNX"' configuration page with various settings and a color/icon selection panel.

### App Usage

From: 2015-10-01 To: 2015-10-19

Top 5 Top 10 Top 15

App	Active Sessions
Active Sessions	11
Nitro AutoCode	12
Nitro File Editor	12
Portal Admin	34
Nitro Query	37

### Active Sessions - All

User Name	User ID	Initial Login	Last Activity	Environment
<input type="checkbox"/> Security Officer	QSECOFR	4 minutes ago	0 seconds ago	Live
<input type="checkbox"/> Valence Administrator	VVADMIN	2 hours ago	1 hour ago	Live

User Profile: QSECOFR  
Name: Security Officer  
Initial Login: 4 minutes ago  
Last Activity: 0 seconds ago

### Edit App "CNX"

1 Basics 2 Settings 3 Groups 4 Translations

Name: CNX Description: Go to CNX Web Site  Enabled

App Type: Web Page (URL) Path: http://www.cnxcorp.com

Choose Color: [Color palette]

Choose Icon: [Icon grid]

18RFILES 67013460CE6... 701000 511000

NEXT

# How Valence Works

- Valence runs as a “single page” app in the browser or as an app on iOS or Android.
- The user interface is designed with Ext JS, an advanced JavaScript framework for developing enterprise business applications.
- Actions on the user interface trigger calls to web services written in RPG.
- The design methodology with Valence on IBM i is similar to that of the best apps on non-IBM i systems.

# What's Included with Valence?

## Most Important Features

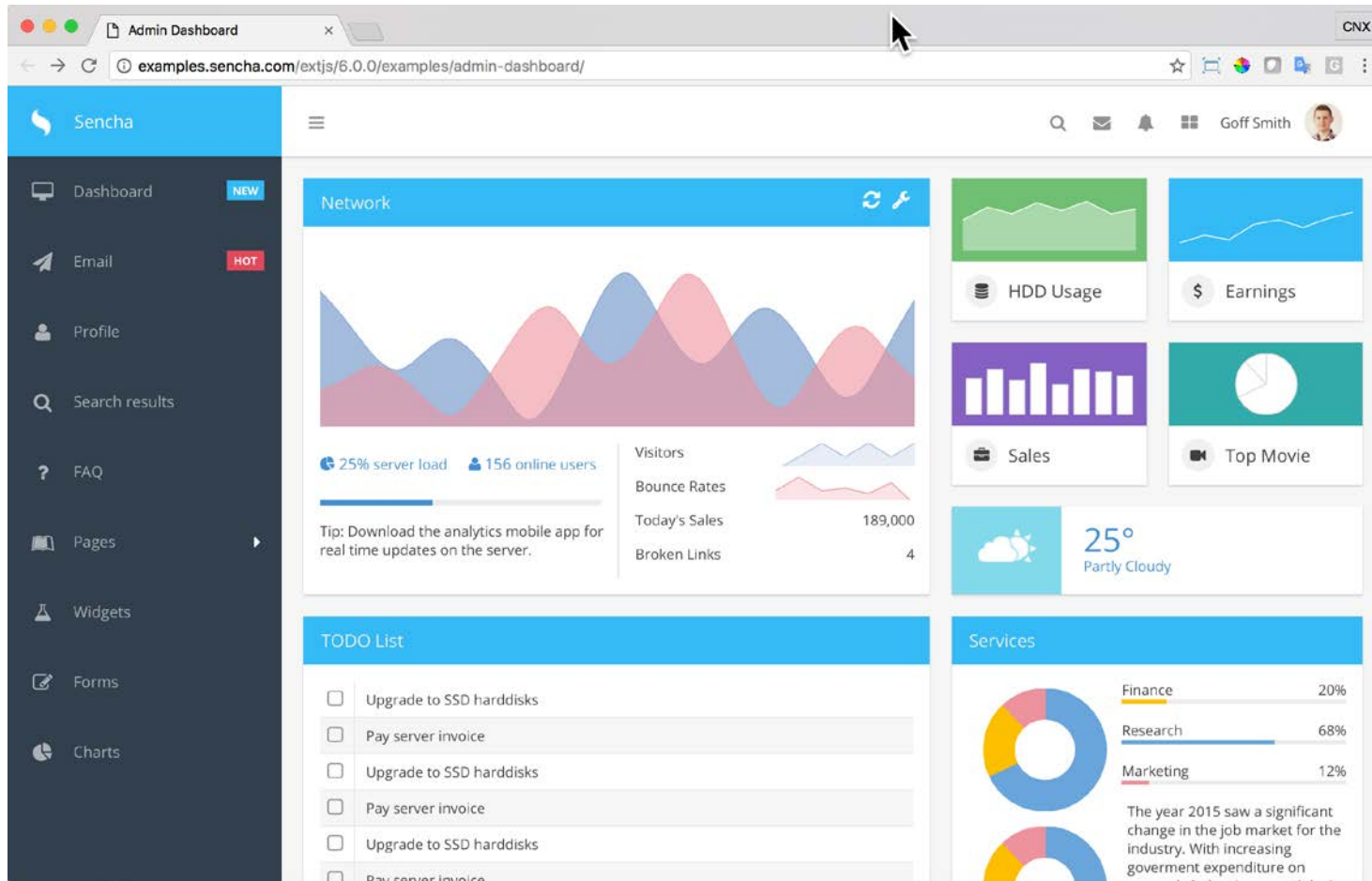
- Sencha Ext JS
- Valence Portal
- Valence RPG Toolkit
- Nitro Query
- Nitro AutoCode
- Nitro iAdmin
- Nitro File Editor
- Nitro Source Editor

# Sencha Ext JS

- Advanced JavaScript framework for a *truly* modern user interface
- Designed for Enterprise Business Apps
- Complete framework - no need for other UI plugins
- Cross-browser, desktop, tablet, smartphone capable - design once, deploy anywhere
- Adheres to the true spirit of all-inclusive IBM i
- Commercial product fully supported by Sencha
- IBM i customers can follow chain of support responsibility (customer → CNX or CNX Partner → Sencha)

# Sencha Ext JS

## Example of User Interface Components



# Valence Portal

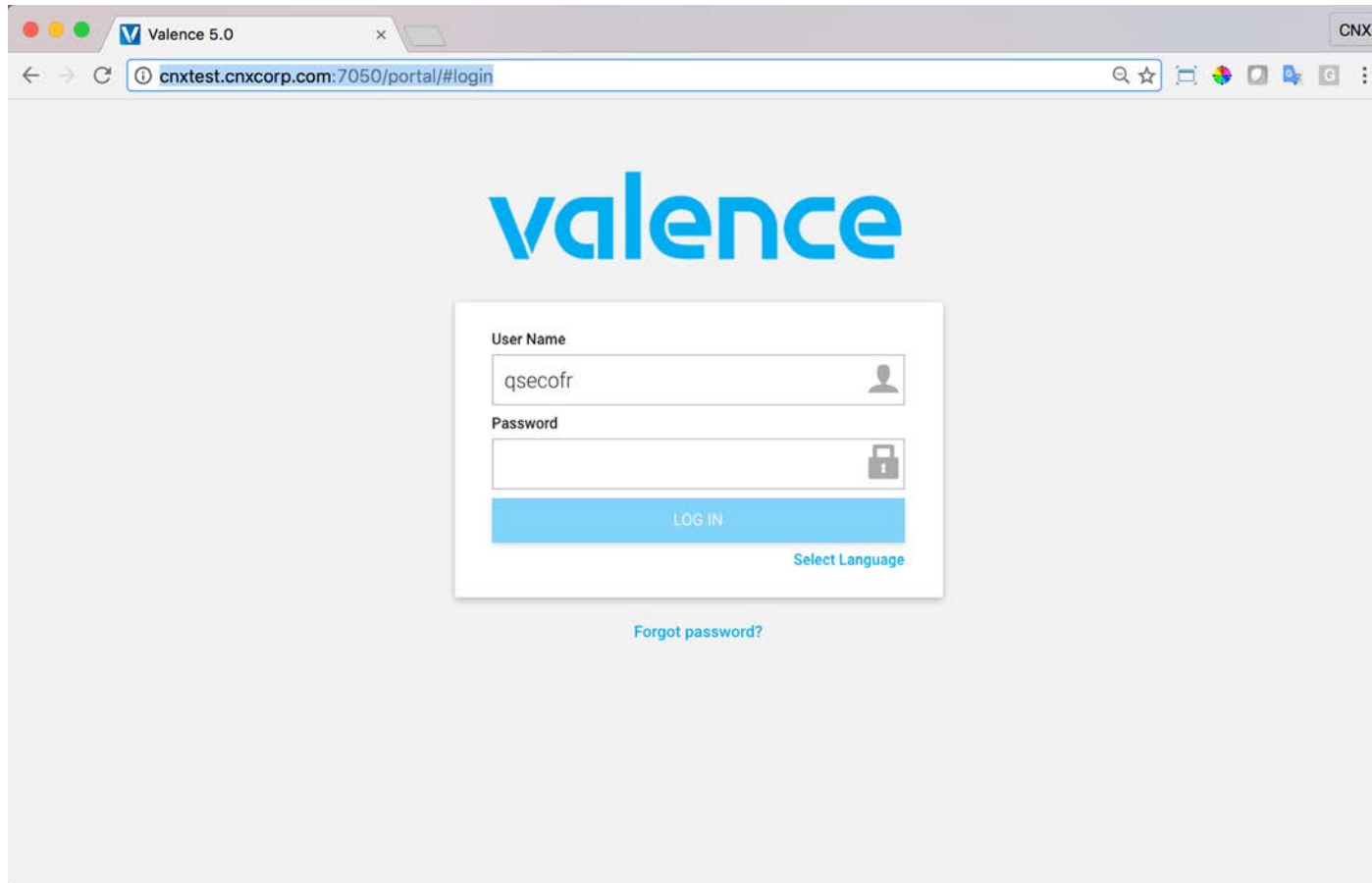
## Overview

- Manages All Aspects of User Access
  - Login to IBM i
  - Session Management
  - Menu system in the form of a “launch pad”
  - App access based on individual or group authority
  - Available in nine languages
- Multiple User Interface Modes
  - Desktop browser
  - iOS app available on Apple App Store
  - Android app available on Google Play



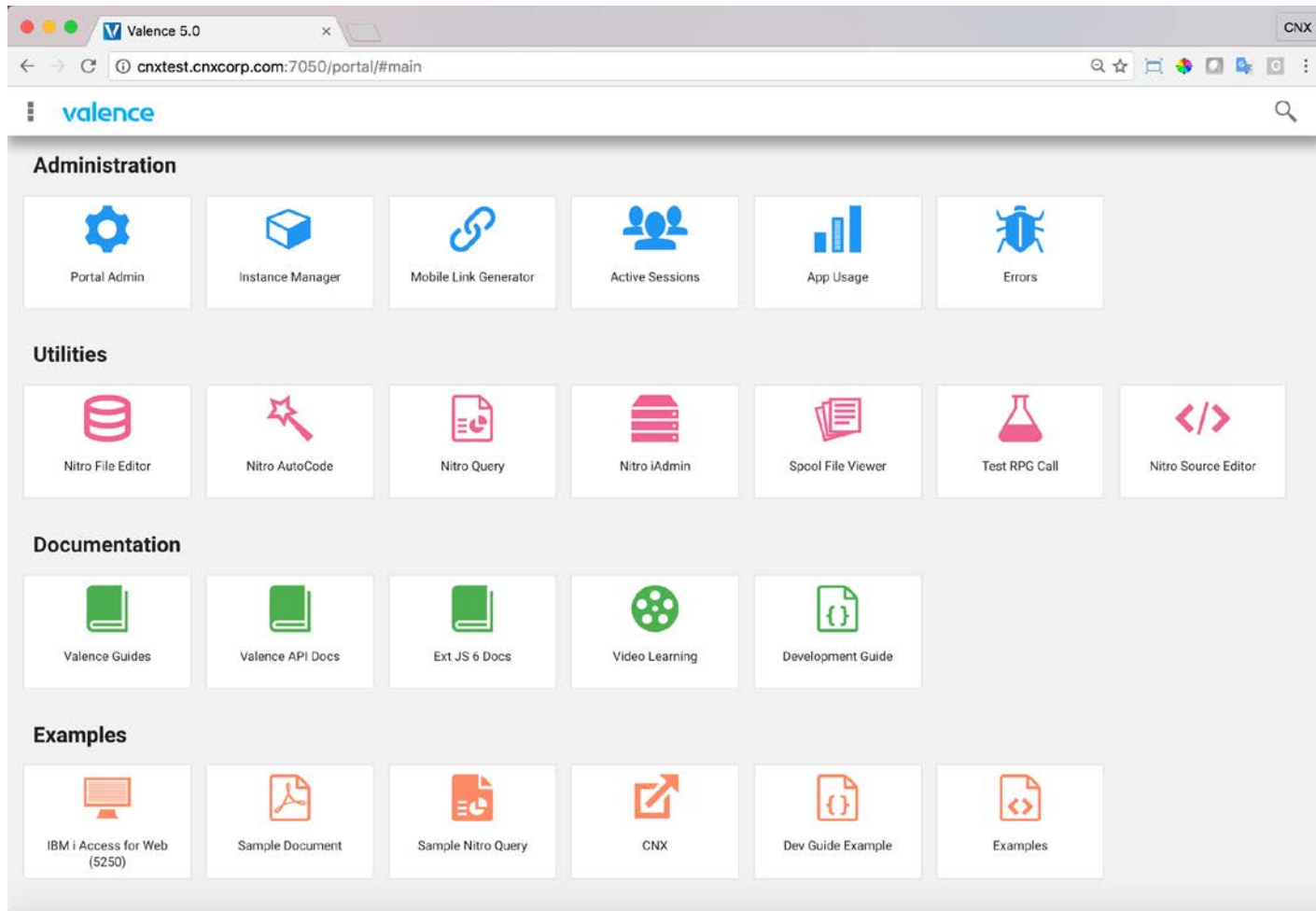
# Valence Portal

## Desktop Login

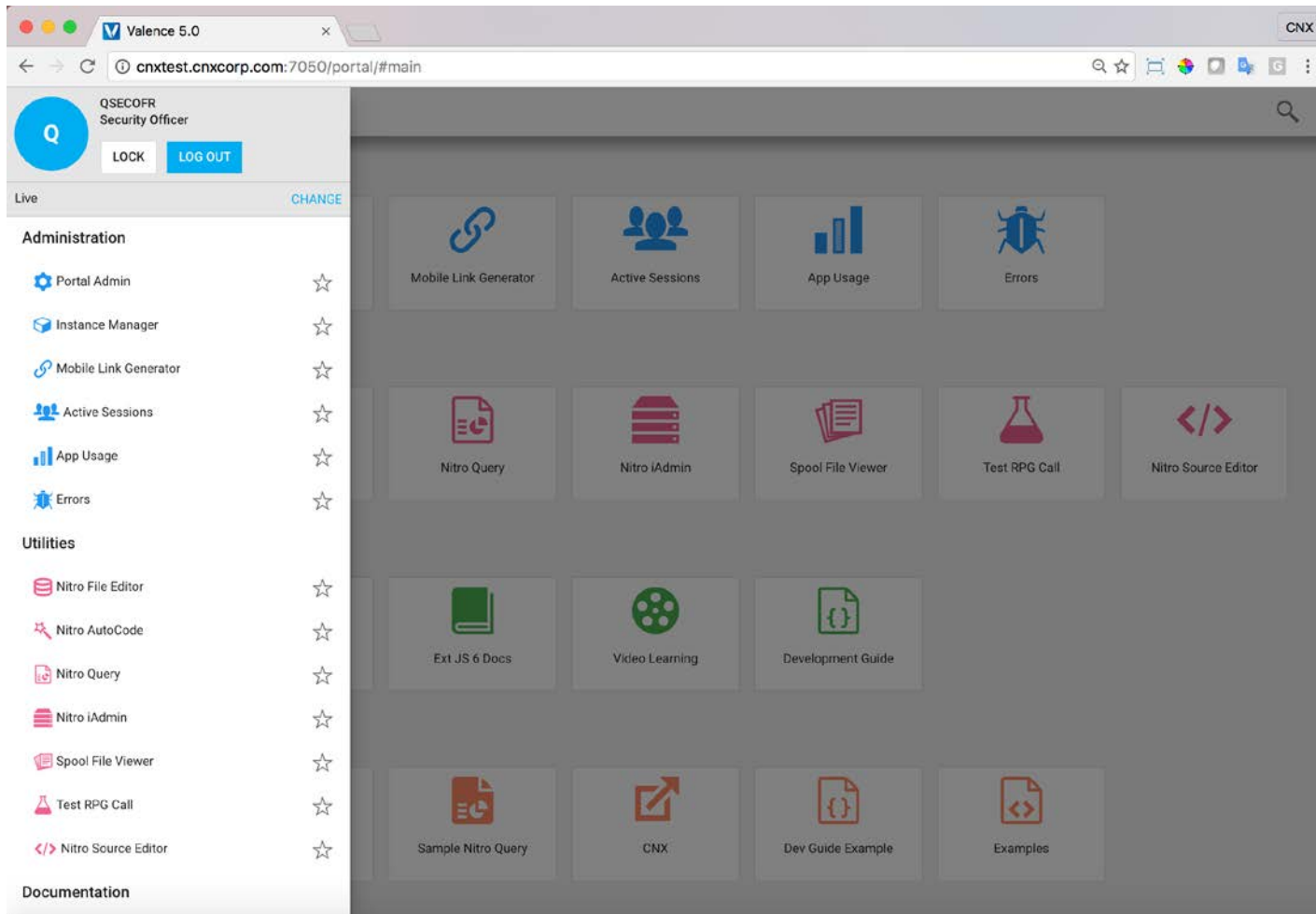


(All graphics and themes can be customized to match corporate identity)

# Valence Portal Desktop Launch Pad

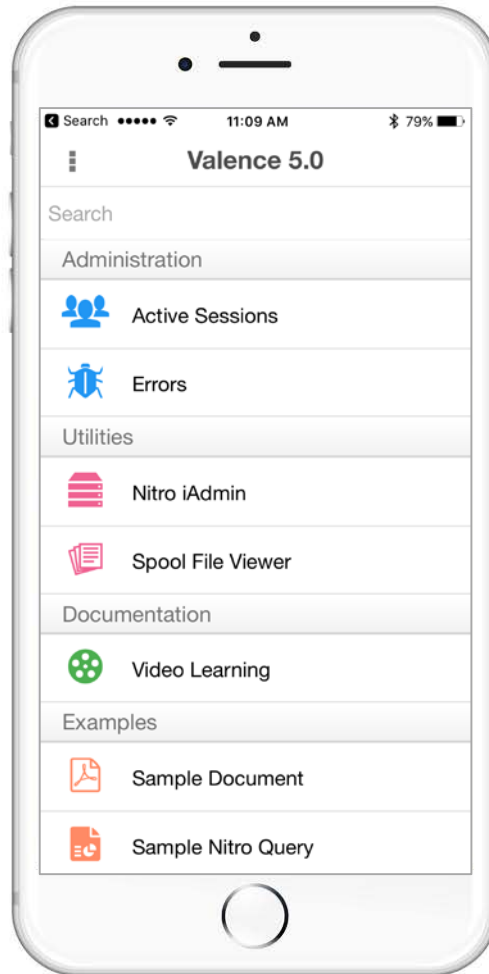


# Valence Portal Desktop App Drawer



# Valence Portal

## iOS App Launch Pad on an iPhone 6

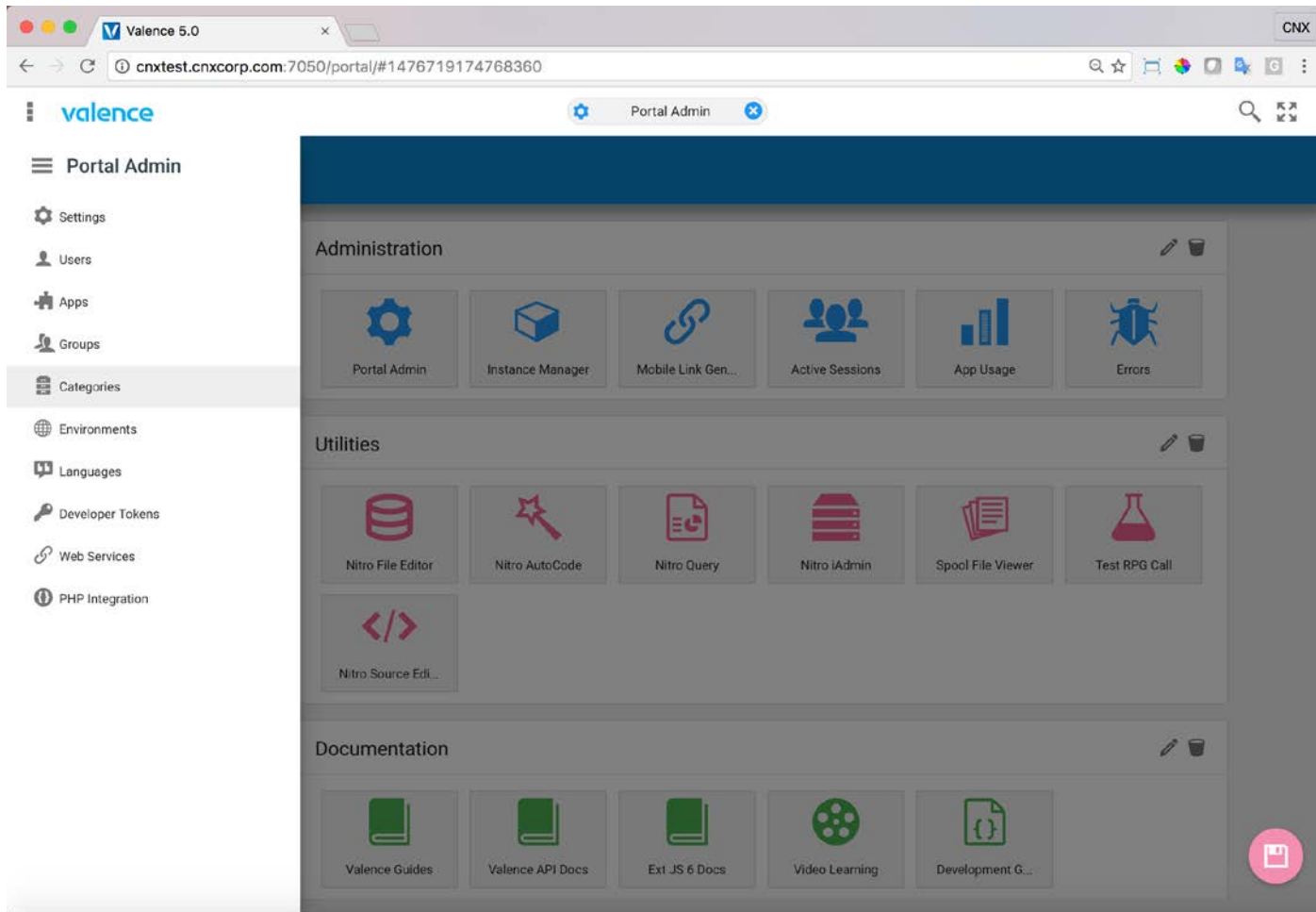


# Valence Portal

## Administration

- Use Portal Admin to Manage:
  - General Valence Settings
  - Users and Authorities
  - App Definitions
  - Groups (used to manage authority)
  - Categories (arrangement of the launch pad)
  - Environments (library lists)
  - Languages
  - Other technical settings

# Valence Portal Administration



# Nitro iAdmin

## Primary Features

- Manage IBM i Operations
  - View active jobs, analyze subsystems and work with job queues
  - Answer jobs in MSGW status, or put misbehaving jobs on hold
  - Drill into job logs, call stacks and open files on any active job
  - Manage output queues and reroute, hold or delete spool files
  - Active or deactivate user profiles
  - View and answer QSYSOPR messages
  - Works from both desktop browser or iOS/Android

# Nitro iAdmin

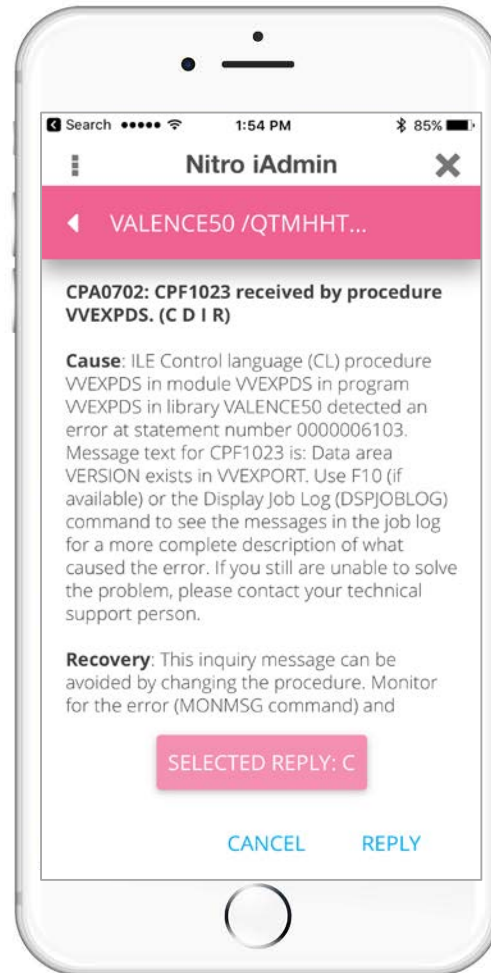
## Desktop View—Message Wait Example

The screenshot shows a web browser window with the URL `cnxtest.cnxcorp.com:7050/portal/#14769804505731901`. The browser tab is titled "Valence 5.0". The page header includes the "valence" logo and a "Nitro iAdmin" tab. The main content area displays a table with columns: Name, Number, User, SubSystem, and Started. A modal dialog box is open, displaying a message from "VALENCE50 /QTMHHTTP/103174" dated "2016-10-12 16.42.24". The message text is: "CPA0702: CPF1023 received by procedure VVEXPDS. (C D I R)". The dialog provides a "Cause" section explaining the error: "ILE Control language (CL) procedure VVEXPDS in module VVEXPDS in program VVEXPDS in library VALENCE50 detected an error at statement number 0000006103. Message text for CPF1023 is: Data area VERSION exists in VVEXPORT. Use F10 (if available) or the Display Job Log (DSPJOBLOG) command to see the messages in the job log for a more complete description of what caused the error. If you still are unable to solve the problem, please contact your technical support person." It also includes a "Recovery" section: "This inquiry message can be avoided by changing the procedure. Monitor for the error (MONMSG command) and perform error recovery within the procedure. To continue, choose a reply value." Below this, there are "Possible choices for replying to message:" listed as C, D, I, and R. A "Respond:" field is present with a dropdown menu currently showing "C". The dialog has "CANCEL" and "OK" buttons at the bottom right.



# Nitro iAdmin

## Mobile View—Message Wait Example



# Nitro File Editor

- Main Features
  - View and edit any IBM i database file directly
  - Sort by any column or multiple columns
  - Add, update, delete records
  - Filter records or position to a specific record by key
  - Choose which columns to view
  - Save views for convenient reuse again
  - Download records to Excel

# Nitro File Editor

## Example of DEMOCMAST File View

The screenshot shows a web browser window with the URL `cnxtest.cnxcorp.com:7050/portal/#14767280948251005`. The page title is "Nitro File Editor". A blue header bar contains the "valence" logo and a search icon. Below the header, there is a breadcrumb trail: `*LIBL/DEMOCMAST`. A "Sort" dropdown menu is set to "Cust# asc". A table lists customer information with columns for Cust#, Customer Name, Cust Addr: Line 1, Cust Addr: Line 2, City, State, and Country. The table contains 10 rows of data. At the bottom, there is a pagination control showing "Page 1 of 1" and a status message "Displaying 1 - 214 of 214".

Cust#	Customer Name	Cust Addr: Line 1	Cust Addr: Line 2	City	State	Country
1	Lowe's of Chicago-Brickyard	2630 N Narragansett Avenue		Chicago	IL	USA
3	Office Depot, Inc	782 Linden		Elmhurst	IL	USA
8	CNX Corporation	217 N. Jefferson St.	Suite 450	Chicago	IL	USA
40	Consolidated Pipe & Supply Co.	5300 W. Main Street		Birmingham	AL	USA
42	ABC Healthcare	1001 Main St		Madison	WI	USA
1004	Network Imaging LLC2	122 Spring St. B-3		Southington	CT	USA
1005	Heath Scientific	1 Algebra Way		Cedar Hill	TX	USA
1006	American Airlines	4255 Amon Carter Blvd, MD 2400	Suite 123	Fort Worth	TX	USA
1008	United Airlines	1200 E. Algonquin Rd		Elk Grove Township	IL	USA
1016	Adobe Systems Incorporated	345 Park Ave		San Jose	CA	USA

# Nitro Source Editor

- Main Features
  - Excellent for managing files on the IFS (create, copy, paste, delete, move files and folders)
  - Conveniently transfer files between your PC and the IBM i IFS
  - Edit compatible source files directly on the IFS
  - Advanced JavaScript syntax checking
  - Full UTF-8 compatibility—handles all characters

# Nitro Source Editor Example

The screenshot displays the Nitro Source Editor web application. The browser window title is "Valence 5.0" and the address bar shows the URL "cnxtest.cnxcorp.com:7050/portal/#14769805138468563". The application header includes the "valence" logo, a "Nitro Source Editor" tab, and a search bar labeled "Find in source".

The main interface is divided into two sections. On the left is the "IFS Explorer" showing a file tree with folders like "QOpenSys", "QSR", "QTCPTMM", "tmp", "usr", "valence-4.1", "valence-4.2", "valence-5.0", "build", "desktop", "autocodeApps", and "examples". The "examples" folder is expanded to show "CustomerMaintenance", which contains an "app" folder. The "app" folder is selected, and its contents are listed: "app.js", "app.json", "bootstrap.css", "bootstrap.js", "build.xml", and "classic".

The main area is a code editor for "app.js". The code is as follows:

```
1- /*
2-  * This file is generated and updated by Sencha Cmd. You can edit this file as
3-  * needed for your application, but these edits will have to be merged by
4-  * Sencha Cmd when upgrading.
5-  */
6- Ext.application({
7-   name: 'CustomerMaintenance',
8-
9-   extend: 'CustomerMaintenance.Application',
10-
11-   // Loading the app main view will be handle by the Valence Login Package in the Application.js file
12-   // This file is required by Ext and will initiate the creation of the application.
13-   //
14-   requires: [
15-   ]
16- });
17-
```

# Valence RPG Toolkit

## Overview

- RPG Service Program Capabilities
  - Input from the user interface
  - Output to the user interface
  - Convenient access to DB2 database
  - Powerful JSON formatting utilities
  - Email
  - PDF generation
  - Security and Utility functions
  - Full documentation located at <http://service.cnxcorp.com/valence50/rpg>

# Valence RPG Toolkit

## Overview

```
A - 1:CNX Test
File Edit View Communication Actions Window Help

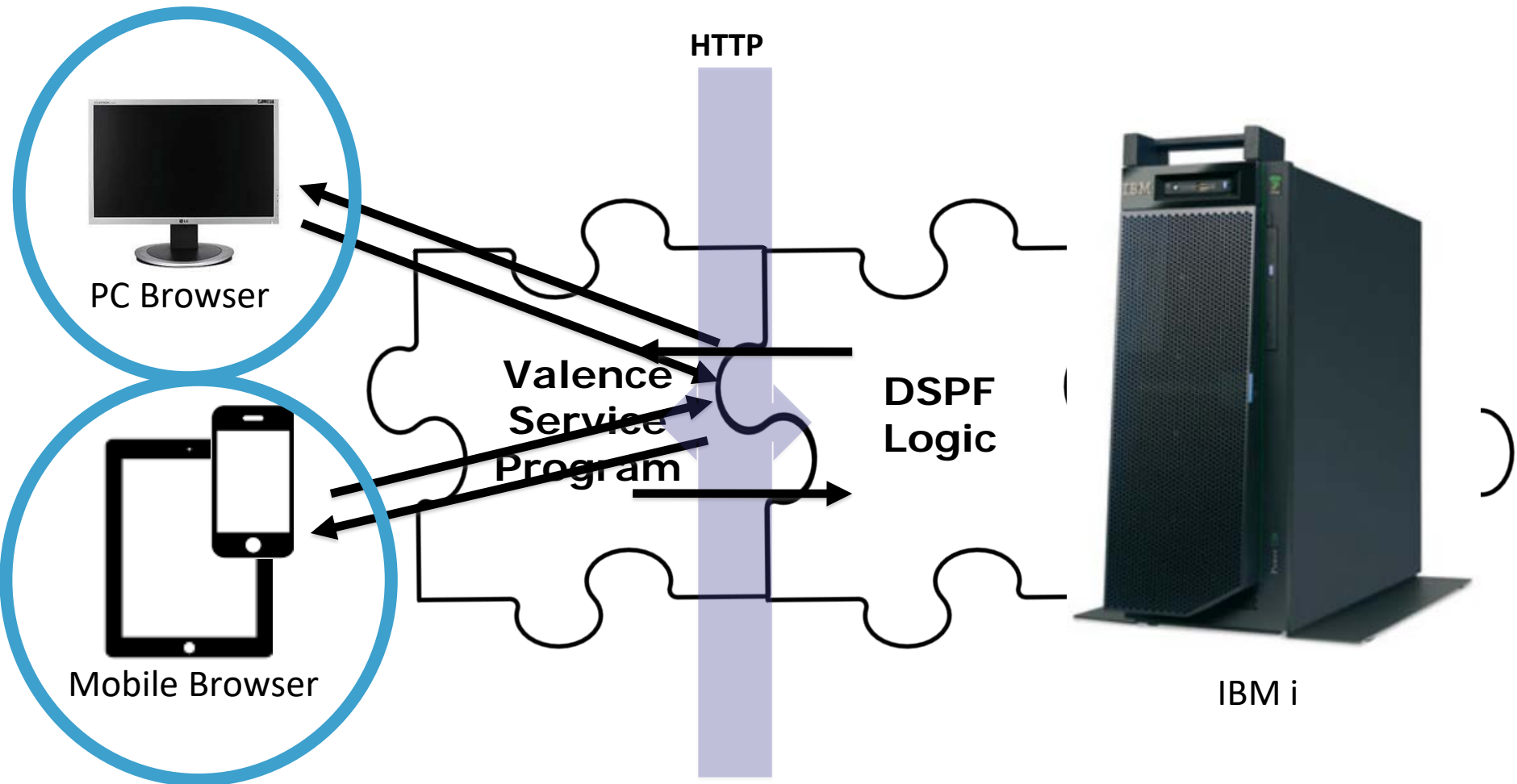
Work with Active Jobs
                                03/21/17 20:06:34  CNXTEST
CPU %:      8.1      Elapsed time: 00:00:04      Active jobs: 244
Current
Opt  Subsystem/Job  User      Type  CPU %  Function      Status
---  ---
VALENCE50  QTMHHTTP  QTMHHTTP  BCH   .0     PGM-QZHBMAIN  SIGW
VALENCE50  QTMHHTTP  QTMHHTTP  BCI   .0     PGM-QZSRLOG   SIGW
VALENCE50  QTMHHTTP  QTMHHTTP  BCI   .0     PGM-QZSRLOG   SIGW
VALENCE50  QTMHHTTP  QTMHHTTP  BCI   .1     PGM-QZSRHTTP  SIGW
VALENCE50  SWANSON   SWANSON   BCI   3.3    PGM-QZSRCGI   RUN
VALENCE50  QTMHHTTP  QTMHHTTP  BCI   .0     PGM-QZSRHTTP  DEQW
VALENCE50  QTMHHTTP1 QTMHHTTP1 BCI   .0     PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1 QTMHHTTP1 BCI   .0     PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1 QTMHHTTP1 BCI   .0     PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1 QTMHHTTP1 BCI   .0     PGM-QZSRCGI   TIMW

====>
F21=Display instructions/keys

MA  A
                                Bottom
                                06/002
```

# Valence RPG Toolkit

## Overview



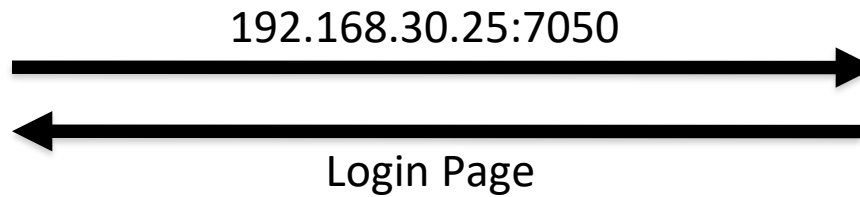


# Valence in Action

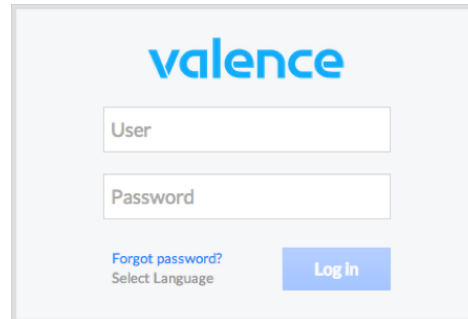
## Overview



Browser



IBM i



valence

User

Password

[Forgot password?](#) [Log in](#)

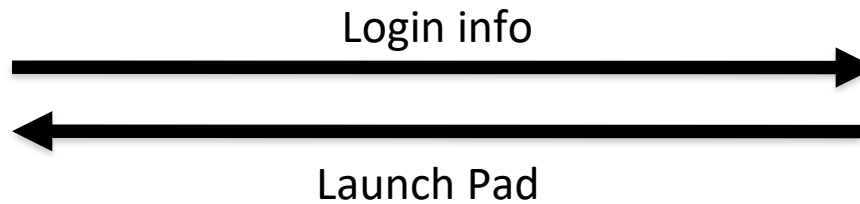
[Select Language](#)

# Valence in Action

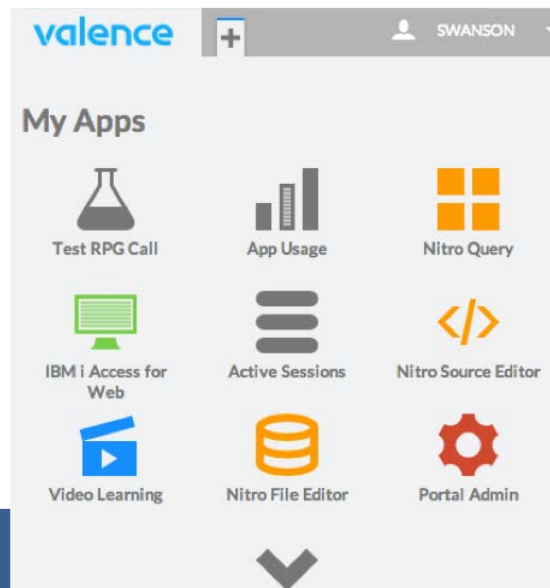
## Overview



Browser



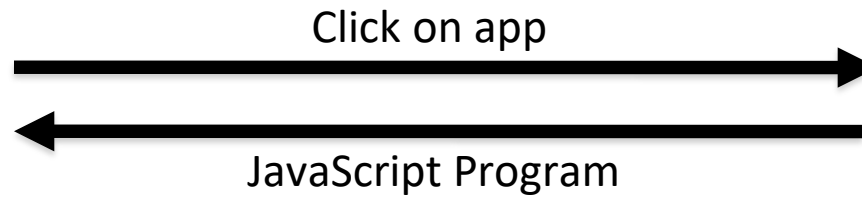
IBM i



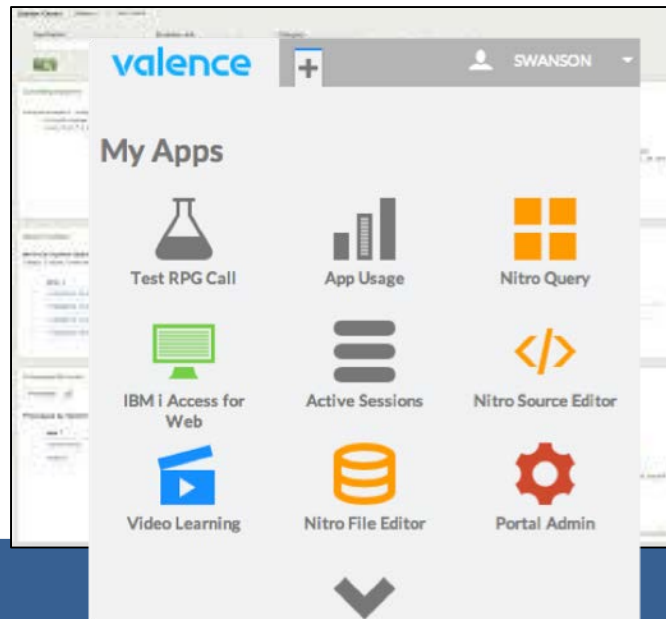
# “Web 2.0” / Asynchronous App



Browser



IBM i



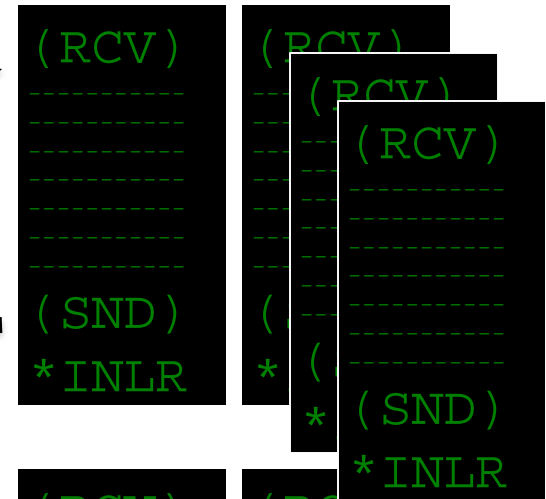
# "Web 2.0" / Asynchronous App

```
rpgPgm='CM1000';  
action='getCustData';  
cusno=12758;
```



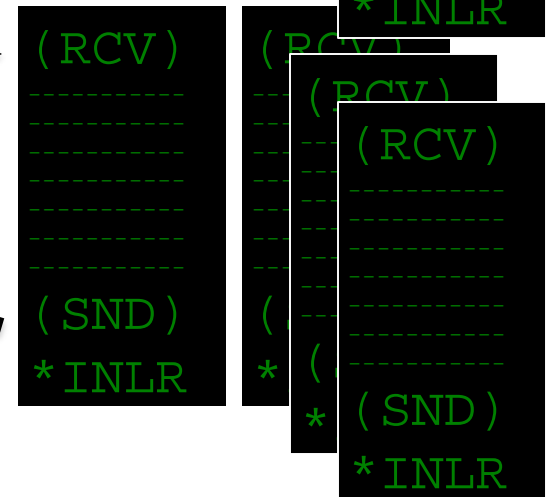
Post Data

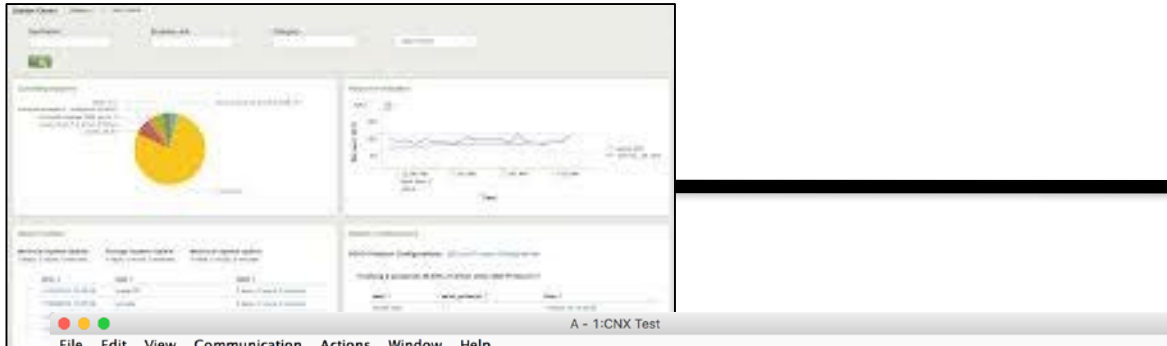
JSON



Post Data

JSON





# valence

Validate Data  
 Check Security  
 Call RPG  
 Override User  
 Set LibList

```

Work with Active Jobs                                CNXTEST
                                                    03/21/17 20:06:34

CPU %:      8.1    Elapsed time: 00:00:04    Active jobs: 244
Current
Opt  Subsystem/Job  User      Type  CPU %  Function      Status
---  ---
VALENCE50  QTMHHTTP        BCH       .0    PGM-QZHBMAIN  SIGW
VALENCE50  QTMHHTTP        BCI       .0    PGM-QZSRLOG   SIGW
VALENCE50  QTMHHTTP        BCI       .0    PGM-QZSRLOG   SIGW
VALENCE50  QTMHHTTP        BCI       .1    PGM-QZSRHTTP  SIGW
VALENCE50  SWANSON         BCI       3.3   PGM-QZSRCGI   RUN
VALENCE50  QTMHHTTP        BCI       .0    PGM-QZSRHTTP  DEQW
VALENCE50  QTMHHTTP1       BCI       .0    PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1       BCI       .0    PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1       BCI       .0    PGM-QZSRCGI   TIMW
VALENCE50  QTMHHTTP1       BCI       .0    PGM-QZSRCGI   TIMW

===>
F21=Display instructions/keys

MA  A
06/002
  
```

```

In_char('action');
'getCustData';
In_num('cusno');
no cmast100 CMds;
act = 'cmast100';
SON(vvOut:%addr(CMds);
  
```

# Developing Apps with Valence

## Three Approaches

METHOD	SPEED OF DEVELOPMENT	AMOUNT OF TRAINING REQUIRED	WHO CAN DEVELOP	TYPES OF APPS
1) Use Nitro Query or AutoCode	FAST	None / Minimal	Anyone with knowledge of the database	Good for basic inquiries, dashboards, file maintenance and other basic apps
2) Use Sencha Architect for UI and RPG for server side	MEDIUM (faster for experienced developer)	2 weeks typical	Developer trained to use Ext JS and Sencha Architect	Best for smaller apps where Nitro Query isn't usable
3) Pure Ext JS development for UI with RPG for server side	May start out slow but faster with experience	3 weeks typical	Developer trained to use Ext JS	Advanced apps with many views and complex requirements

# Nitro Query

## Overview

- Primary Capabilities
  - Create queries with charts, lists, forms, maps and other components (collectively, “Widgets”) with NO PROGRAMMING
  - Build dynamic dashboard apps with full color charts and graphs
  - Define an unlimited number of Widgets in each query
  - Specify “behaviors” to allow the end user to filter and navigate the query Widgets
  - Easily allow users to download data to Excel
  - Create queries that allow users to UPDATE data

# Nitro Query

## Nitro Query Designer Example

The screenshot displays the Valence 5.0 Nitro Query Designer interface. The browser address bar shows the URL `cnxtest.cnxcorp.com:7050/portal/#14767218395396066`. The application title is "valence" and the current query is "Nitro Query".

The main dashboard is titled "Customer Order Count Information" and contains two widgets:

- Top 5 Customers:** A bar chart showing the number of orders for the top 5 customers. The Y-axis is labeled "Orders" and ranges from 0 to 100. The X-axis is labeled "Customer".
- Customers:** A table listing customers, their cities, and the number of orders.

The table data is as follows:

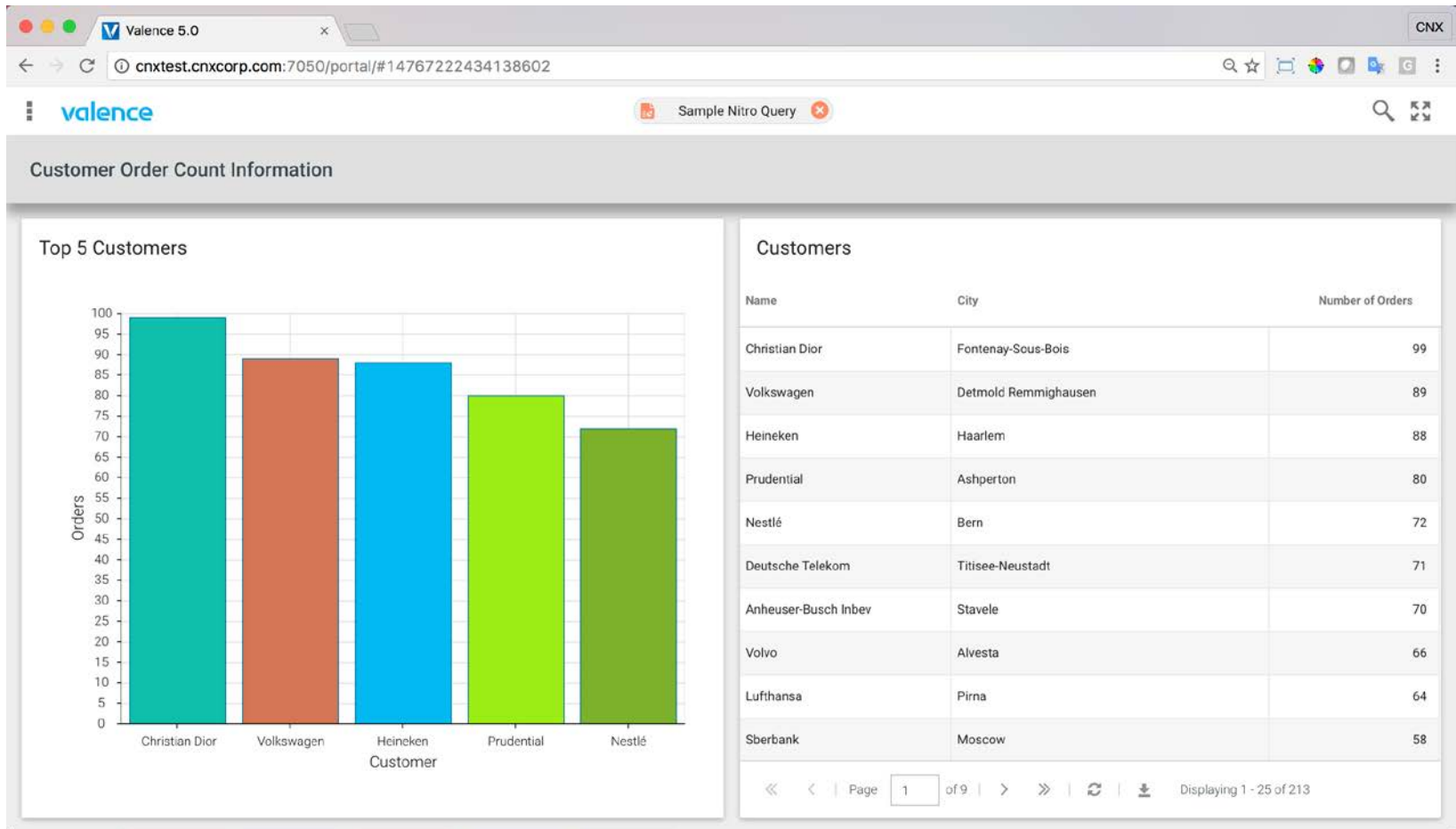
Name	City	Number of Orders
Christian Dior	Fontenay-Sous-Bois	99
Volkswagen	Detmold Remmighausen	89
Heineken	Haarlem	88
Prudential	Ashperton	80
Nestlé	Bern	72
Deutsche Telekom	Titisee-Neustadt	71

The interface also includes a "Settings" panel on the left with options for "Appbar Title" (Customer Order Count Information), "Specify Heights", and "BEHAVIORS". The "App Sections" panel shows "Main" selected. At the bottom, there are buttons for "ADD TAB" and "ADD WIDGET", and a "LIST - SAMPLE WIDGET" indicator.



# Nitro Query

## Nitro Query Run Time Example



# Nitro AutoCode

## Primary Features

- **Generate Inquiry and File Maintenance Apps**
  - Wizard asks user a series of questions, then instantly generates all client-side and server-side source code
  - App can then be further customized in RPG (server side) and/or through Sencha Architect or any other source editor (client side)
  - Provides developers with an easy way to start new Valence apps, with generated source

# Nitro AutoCode Wizard Example

Valence 5.0

cnxtest.cnxcorp.com:7050/portal/#14769802978488332

valence Nitro AutoCode

Nitro AutoCode - Desktop File Maintenance

1 Data Source 2 Columns 3 Add / Edit 4 Configure 5 App Generation

Include	Searchable	Column	Label	Length	Type
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CUSNO	Cust#	6	Numeric
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CNAME	Customer Name	40	Character
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CADDR1	Cust Addr: Line 1	40	Character
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CADDR2	Cust Addr: Line 2	40	Character
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CCITY	City	25	Character
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CSTATE	State	2	Character
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CCOUNTRY	Country	20	Character

INCLUDE SEARCHABLE

PREVIOUS NEXT

# Nitro AutoCode

## Example of a Generated App

The screenshot shows a web browser window with the title 'Valence 5.0' and the URL 'cnxtest.cnxcorp.com:7050/portal/#14769804003069290'. The browser's address bar also shows a tab for 'DEMOCMAST File M...'. The application interface features a blue header with the 'valence' logo and the title 'DEMOCMAST File Maintenance'. Below the header is a search bar with a magnifying glass icon and a close button. The main content is a table with columns for 'Cust#', 'Customer Name', 'Cust Addr: Line 1', 'Cust Addr: Line 2', 'City', and 'State'. The table contains 16 rows of data. At the bottom of the page, there is a pagination control showing 'Page 1 of 9' and a status message 'Displaying 1 - 25 of 214'.

Cust#	Customer Name	Cust Addr: Line 1	Cust Addr: Line 2	City	State
1	Lowe's of Chicago-Brickyard	2630 N Narragansett Avenue		Chicago	IL
3	Office Depot, Inc	782 Linden		Elmhurst	IL
8	CNX Corporation	217 N. Jefferson St.	Suite 450	Chicago	IL
40	Consolidated Pipe & Supply Co.	5300 W. Main Street		Birmingham	AL
42	ABC Healthcare	1001 Main St		Madison	WI
1004	Network Imaging LLC2	122 Spring St. B-3		Southington	CT
1005	Heath Scientific	1 Algebra Way		Cedar Hill	TX
1006	American Airlines	4255 Amon Carter Blvd, MD 2400	Suite 123	Fort Worth	TX
1008	United Airlines	1200 E. Algonquin Rd		Elk Grove Township	IL
1016	Adobe Systems Incorporated	345 Park Ave		San Jose	CA
1020	Canon Corporate Headquarters	30-2, Shimomaruko 3-chome	Ohta-ku	Tokyo	XX
1021	American Airlines	3200 E Airfield Dr		Dallas	TX
1022	Northrop Grumman Corporation	1840 Century Park		East Los Angeles	CA
1023	Pixar Animation Studios Inc.	1200 Park Ave		Emeryville	CA
1024	Ahold	Sellersmaat 35		Zevenaar	

# Nitro Query

## Pros and Cons

- Pros
  - Fast and easy - be successful with Valence quickly
  - Intuitive designer works from the browser
  - No programming required
  - Easiest to upgrade to new Valence versions
  - Consistent look and feel
- Cons
  - May not be ideal for large scale apps
  - Not every type of component available

# Sencha Architect

## Pros and Cons

- Pros
  - Visual canvas for designing the app user interface
  - Most Ext JS components available to use
  - Minimal effort required to upgrade to new releases
  - Less manual coding required
- Cons
  - Need to install to PC or Mac
  - Some manual coding required
  - Latest versions always lag behind new Ext JS features
  - Can be cumbersome to use with larger apps or advance app structures

# Ext JS Development

## Pros and Cons

- Pros
  - Ability to use all Ext JS components and features
  - Allows for use of advanced app structure
  - Access to Valence packages
  - Easily override, extend and reuse components
  - Best option for multi-developer environment
- Cons
  - Highest learning curve
  - Needs manual coding which can be slow for inexperienced developers

# What Makes Valence a Great Choice

Compared to Other Modernization Solutions?

- Valence takes a “user experience first” approach to applications, resulting in better apps overall
- Apps created with Valence are as good or better than *any* apps on *any* platform, not just “better than a green screen”
- Valence apps are *truly* modern—other solutions mostly look and work like apps from years ago
- The Valence Modernization Suite contains everything in one comprehensive package at a reasonable price



Let's have a look...

# Licensing Valence

- Valence Community Edition
  - Will allow five concurrent logins
  - Good for trialing and testing Valence
  - Not intended for deployment of production apps
  - No cost
- Valence Enterprise License
  - Intended for companies that would like to use Valence to develop and deploy apps for their own purposes
  - \$14,995 for one IBM i, one partition
  - \$22,495 for one IBM i, two partitions
  - \$29,995 for one IBM i, unlimited partitions
  - Includes one Ext JS Pro 5-pack
- Valence Commercial License
  - Intended for software companies using Valence technology in their commercial applications
  - Contact CNX or your Valence partner for pricing

# Coming this May: Valence 5.1

- Query widgets can call RPG programs
- Edit data sources w/ multiple files
- Pull data from external servers



# Additional Information

- CNX Website  
<http://www.cnxcorp.com>
- CNX Sales Contact  
[sales@cnxcorp.com](mailto:sales@cnxcorp.com)
- Videos  
<https://www.cnxcorp.com/valence/videos/>
- Download Valence  
<https://secure.cnxcorp.com/downloads>