

IBM Software



App.Next - The Future of Domino Application Development

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Agenda

- Responsive XPages
- Relational data source for XPages
- Document encryption and signatures
- Open source
- Domino on Bluemix

2014/2015 REVIEW

Notes/Domino/Designer Fixes

- Notes/Domino/Designer 9.0.1 FP 2
 - IE11 support
 - CKEditor 4.3.2 (Domino server)
- Notes/Domino/Designer 9.0.1 FP 3 (yes, delivered in Jan '15 but we wanted you to know :-)
 - iOS 8 support for XPages mobile controls - 9.0.1 FP2 IF1
 - Dojo 1.9.4
 - CKEditor 4.3.2.2 (Domino server & Notes client)
- Critical security fixes
 - TLS1.0 - Patch for Notes/Domino 8.5.1 -> 9.0.1.
 - TLS 1.2 – Patch for Domino 9.0.1 FP3 IF2/IF3 now available (http://www-10.lotus.com/ldd/dominowiki.nsf/dx/TLS_1.2)
 - SHA-2 - Patch for Notes/Domino 9.0.x (requires 9.0 or above)

OpenNTF Releases

- OpenNTF gives IBM a vehicle to deliver features outside of normal releases
 - New features in XPages Extension Library come back to product
- XPages Extension Library
 - 9 releases in 2014
 - Single Page Application Wizard for XPages
 - Other enhancements will be covered in upcoming slides
 - V12 with Responsive enhancements and more just released!
- IBM Domino Update Site for Build Management
 - Package of artifacts needed to build XPages



Application Development Candidates

2015 and Beyond

- Domino applications on IBM Bluemix
- Responsive web design for XPages
- Relational data source for XPages
- Encryption/Signature support in XPages
- Domino Designer productivity enhancements
- Improved application build management
- REST API enhancements
- NSF enhancements
- Enhance integration with Connection

Domino Database (NSF) Enhancements

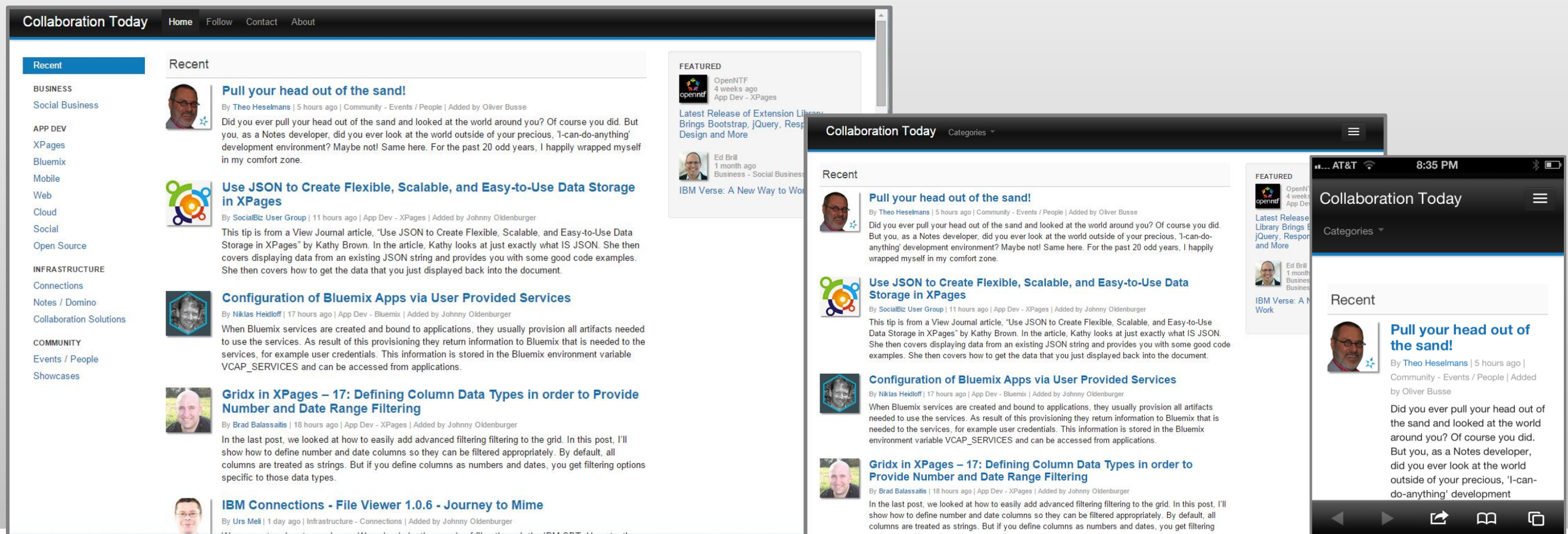
- Live View Refresh
 - Problem: Application performance can be poor when views indexes are being refreshed at the same time when reading/writing to a view.
 - Solution: Providing dedicated background thread for maintaining critical view indexes can dramatically improve performance.
 - Currently available in 9.0.1 FP3
- Store database view indexes (NIF) on disk
 - Store views indexes outside of NSF
 - Views often consume 20% – 40% of NSF storage. Moving indexes outside of NSF frees up more room for application data.
 - View indexes on disk can grow to 1 Terabyte
 - Reduces backup costs because amount of data backed up is reduced.

FUTURES

Responsive XPages

Develop Once For Desktop, Tablet or Smartphone

- Build web applications which automatically adapt to the screen area of a desktop, tablet or smartphone
- Bootstrap makes it easy to build elegant responsive web apps



Responsive Web Design With Bootstrap



- Bootstrap (<http://www.getbootstrap.com>)
 - Web Design framework, Responsive since v2.0 (now on v3.3.0)
- Most popular repository on GitHub
- Bootstrap has grown in popularity in the XPages community
- Bootstrap4XPages project: ~3000 downloads in a year

Born From The Community

- In the beginning – Bootstrap4XPages (B4X) project on OpenNTF
 - Philippe Riand & Mark Leusink
 - Bootstrap 2.3.1, 2.3.2, 3.0.0, 3.1.1, 3.2.0
 - jQuery, Select2, Glyphicons, dbootstrap
 - Themes, renderers, styling
- B4X pulled into the XPages Extension Library
 - New plugin in ExtLib: `com.ibm.xsp.theme.bootstrap`
 - Bootstrap 3.2.0 only, jQuery, Glyphicons, dbootstrap
 - Two themes, more renderers, more styling, more testing!

XPages Theme Combo Contribution

- YOUR themes in Domino Designer !
- New Community Driven Feature ...
 - In the class that implements StyleKitFactory also implement StyleKitListFactory
 - Return a list of themes using getThemelds()

```

/**
 * @author Gary Marjoram
 *
 */
public class MyStyleKitFactory implements StyleKitFactory, StyleKitListFactory {

    @Override
    public String[] getThemeIds() {
        return new String[] {"myThemeId"};
    }
}

```

XPage Properties

Theme Defaults

Application theme: Platform default ▼

Override on Web: Platform default

Override on Notes: Bootstrap3.2.0

Use mobile theme for XPages with mobile devices: Bootstrap3.2.0_flat

Mobile theme: OneUI

Override on iOS: OneUI V2

Override on Android: OneUI V2.1

Debug user agent: OneUI V3.0.2

webstandard

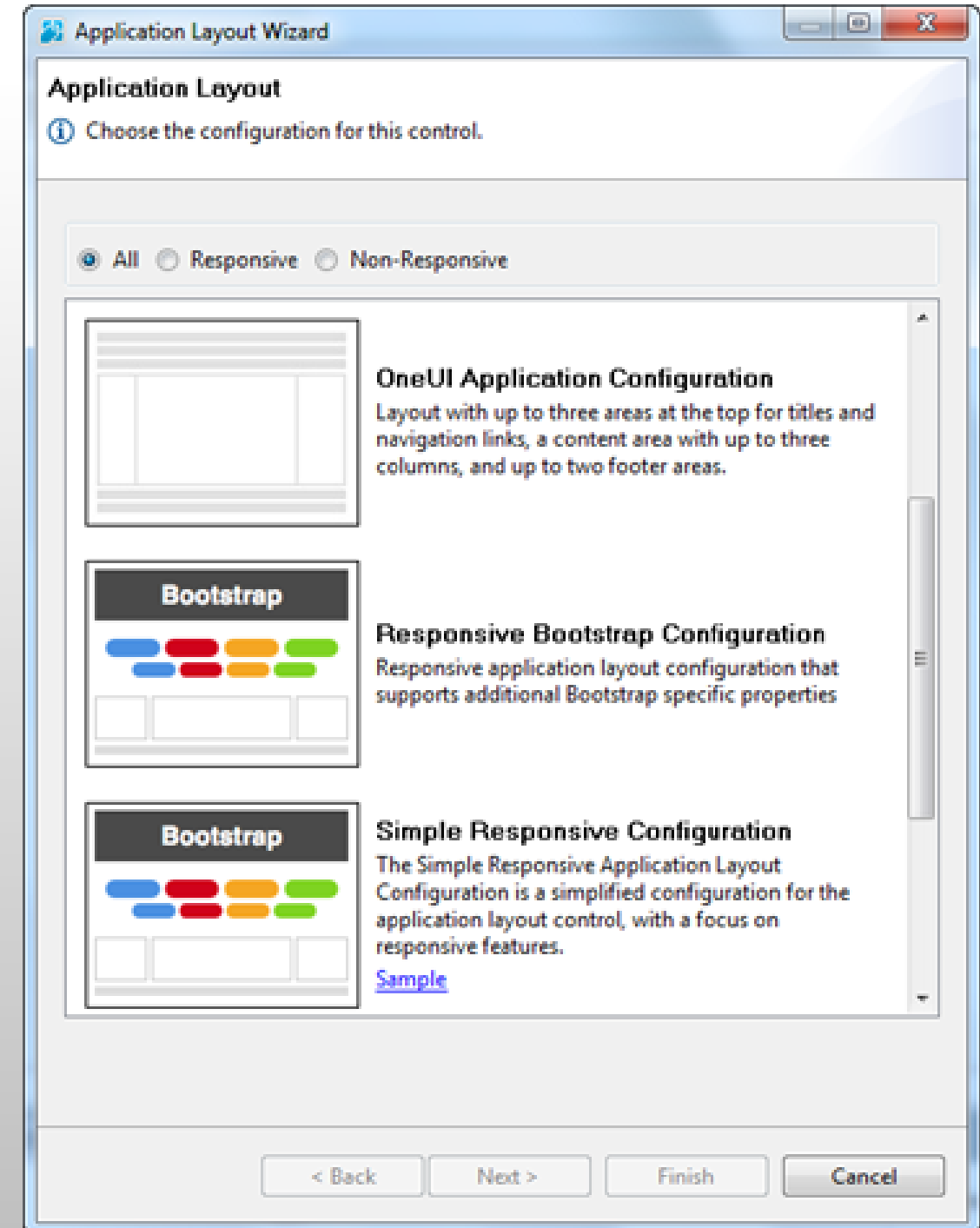
Application default ▼

Application default ▼

▼

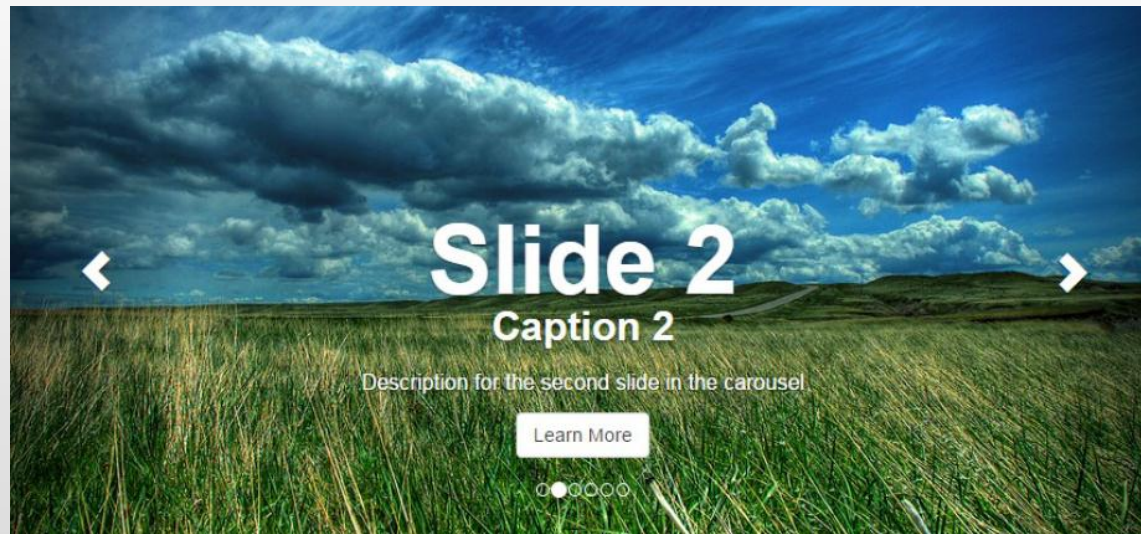
Two Application Layout Configurations

- Responsive Bootstrap Configuration
- Simple Responsive Configuration



3 New Responsive Controls in ExtLIB v12 on OpenNTF

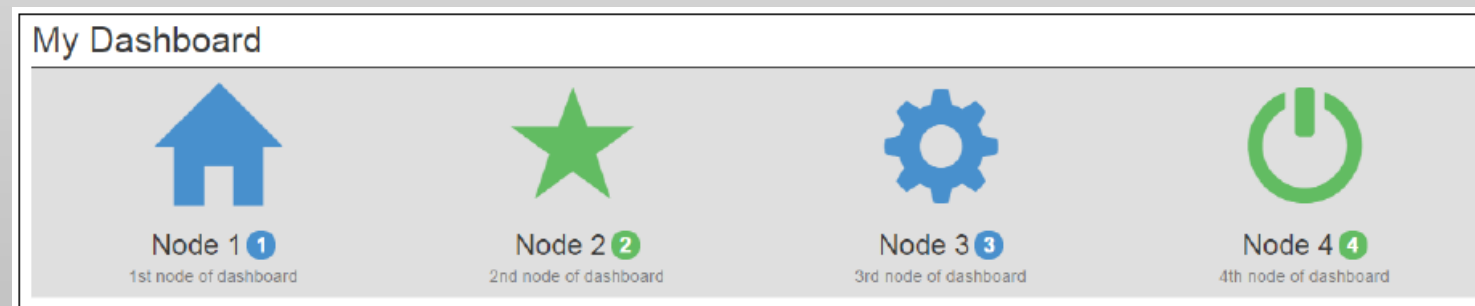
Carousel Control



Navbar Control



Dashboard Control



jQuery

- jQuery v2.1.1 contained in XPages Responsive plugin
- Yes, that now means jQuery will ship with Domino!
 - XPages controls still rely on Dojo
- Multiple ways to use it
 - Use it by leveraging Bootstrap theme
 - OR create a theme that adds it as a resource
 - OR simply add it as a resource to an XPage
 - Use jQuery calls in CSJS of your XPage application

FUTURES

Relational data source for XPages

Improve Productivity By Bringing Data To The User

- Integrate data from relational databases into the context of your collaborative or workflow driven Domino XPages application
- Create dashboards that allow knowledge workers to quickly access data from disparate systems
- Allow developers to easily integrate relational data into XPages applications with Domino Designer



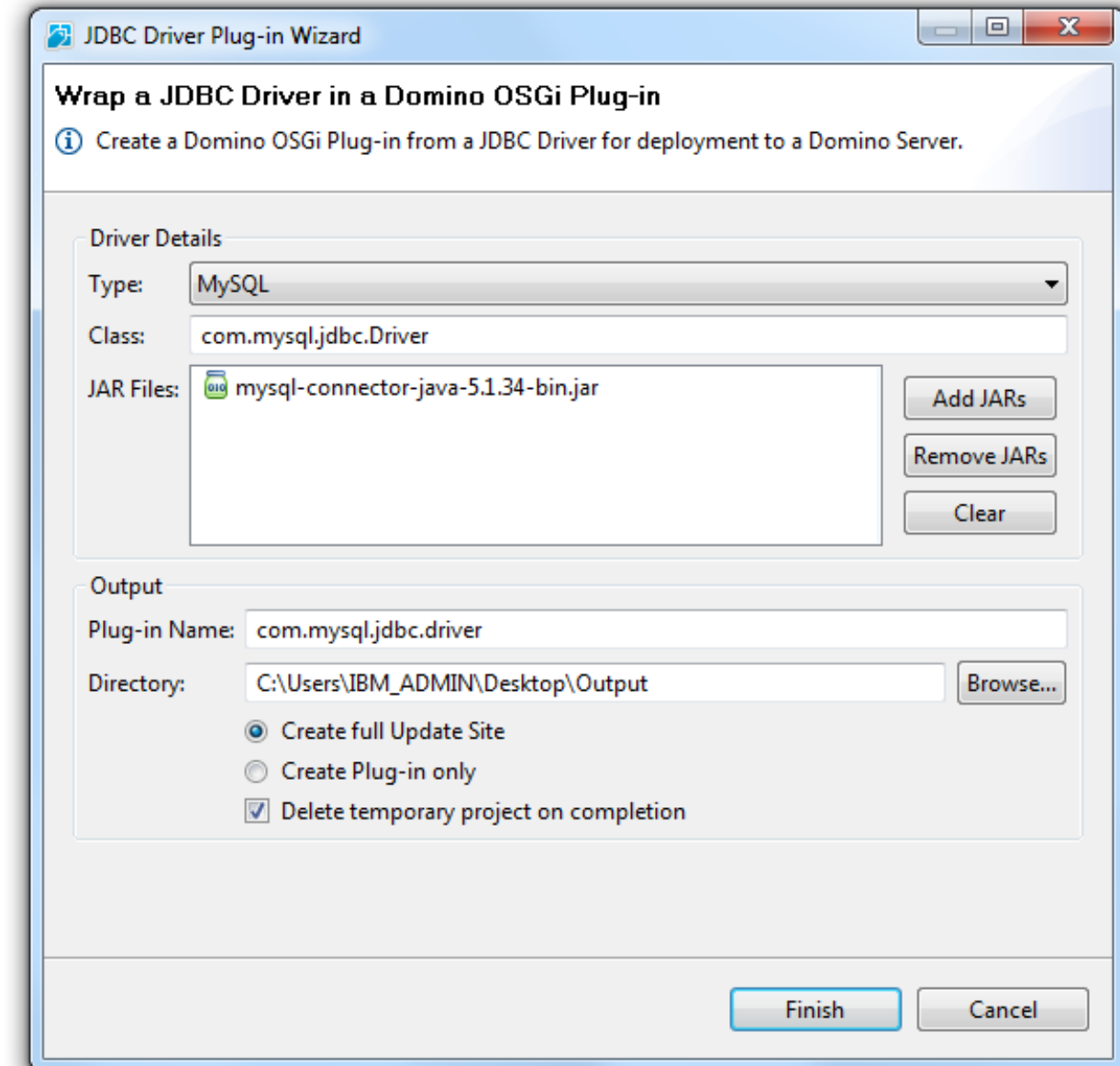
Connection Pooling

- Connection pooling improves application responsiveness by establishing connections prior to request for access to RDB
- XPages RDB support provided simple connection pooling
 - Needed something more robust
- Added Apache Commons DBCP (Database Connection Pooling)
- - Apache DBCP support (v 1.4)

```
db2.jdbc x
1 <jdbc type="simple">
2   <driver>com.ibm.db2.jcc.DB2Driver</driver>
3   <url>jdbc:db2://myDB2server.ibm.com:60005/SAMPLE</url>
4   <user>Administrator</user>
5   <password>password</password>
6
7   <simple>
8     <minPoolSize>1</minPoolSize>
9     <maxPoolSize>3</maxPoolSize>
10    <maxConnectionSize>4</maxConnectionSize>
11    <useTimeout>1</useTimeout>
12    <idleTimeout>300</idleTimeout>
13    <maxLiveTime>0</maxLiveTime>
14    <acquireTimeout>3000</acquireTimeout>
15  </simple>
16 </jdbc>
```

JDBC Driver Plugin Wizard

- Wraps a JDBC Driver in a Domino OSGi Plug-in
- Complements the relational runtime enhancements made in the same release
- Produces an update site or Plug-in which can then be deployed to a Domino Server
- An OSGi Plug-in is the recommended deployment method when accessing JDBC drivers from XPages applications
 - Registration is automatic
 - Driver is shared, ensuring optimum performance

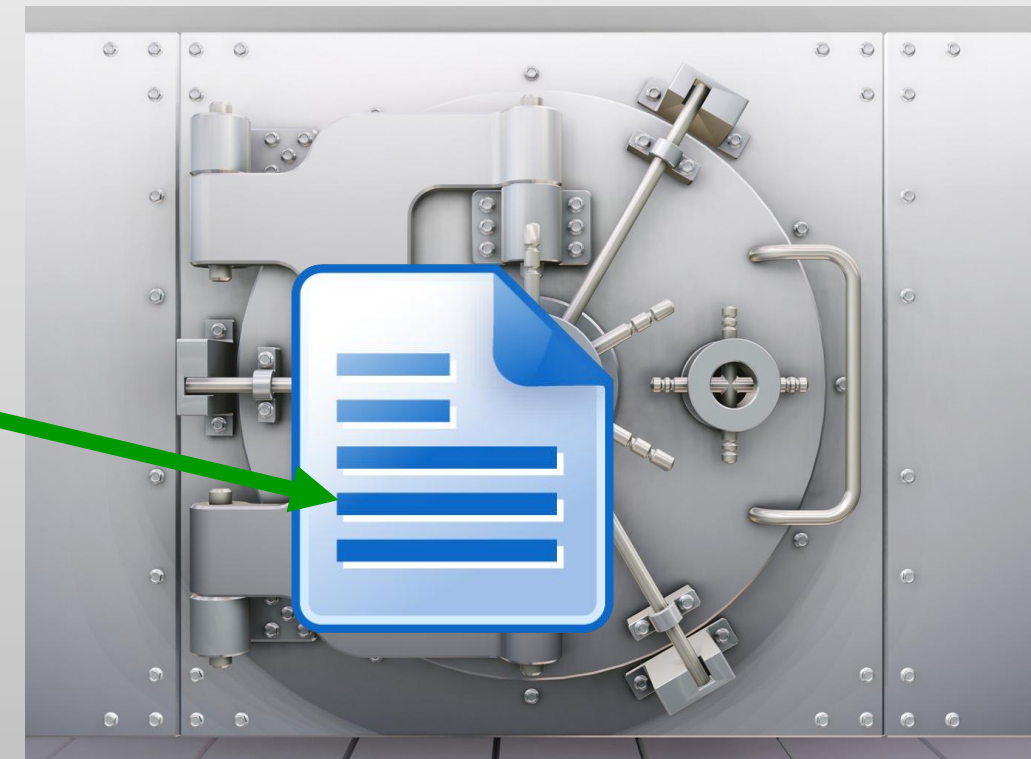
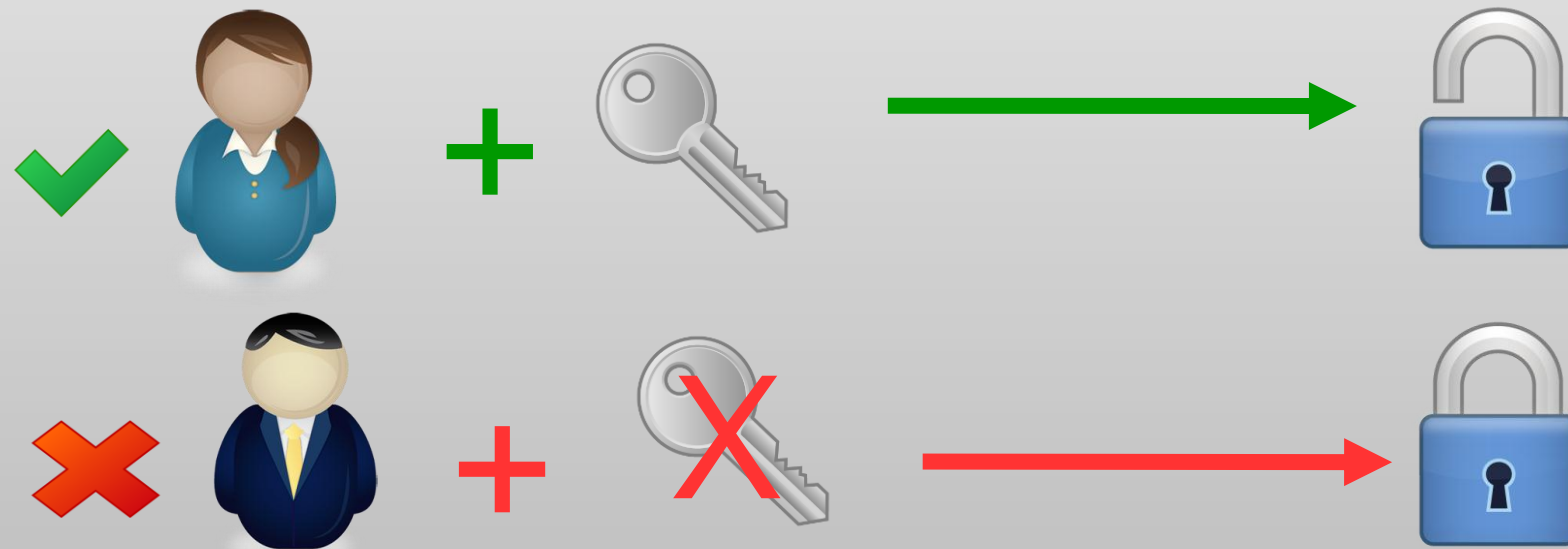


FUTURES

Document encryption & signature support for XPages

Secure Your Data On The Web

- Ensure only the people you want to access the data can access the data using XPages document encryption
- Simplify access using public keys or apply greater control using secret keys
- Ensure authenticity by electronically signing Domino documents from the web



New Features For XPages Encryption & Signature Support

- New Secret Key Picker Control
 - Populates a picker with the secret encryption keys contained in a user id
- New @Functions
 - **@UserSecretKeys()**
 - Extracts secret keys from a user id stored in the Domino ID vault
 - Uses logical default parameter values for quick coding
Current user id and password, current server as ID Vault server
 - All parameters can be explicitly specified, e.g.
 - @UserSecretKeys(server, password, username)
 - **@UserID()**
 - Returns an instance of a UserID object
 - Represents the current user or a specified user

```
<xe:secretKeyPicker id="secretKeyPicker1"  
  for="SecretKeys" pickerIcon="/padlock16x16.png">  
  <xe:this.dataProvider>  
    <xe:simpleSecretKeyPicker  
      secretKeyList="#{javascript:@UserSecretKeys();}">  
    </xe:simpleSecretKeyPicker>  
  </xe:this.dataProvider>  
</xe:secretKeyPicker>
```

Additional Features For XPages Encryption & Signature Support

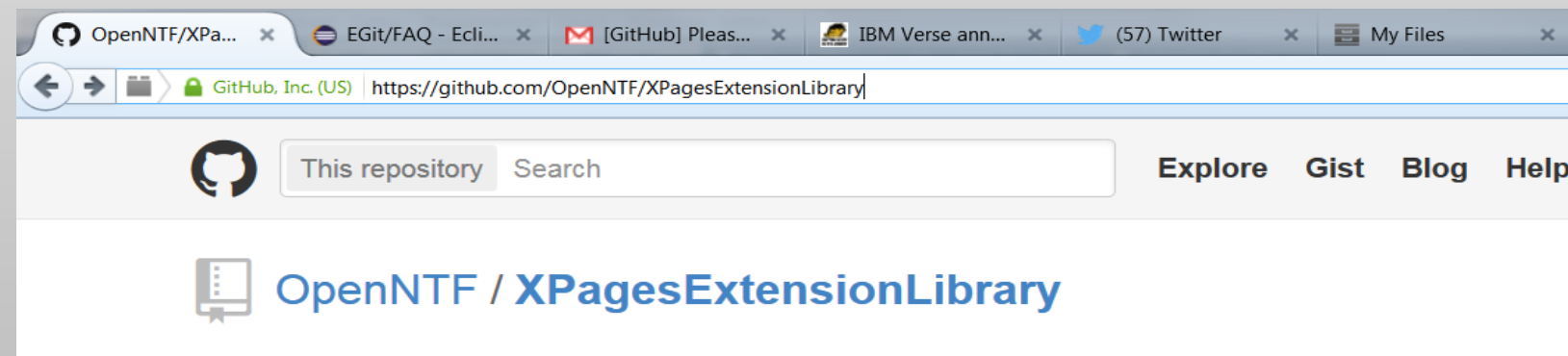
- New backend classes, methods & properties in C, Java & LotusScript
- New IDVault class
 - Methods for working with IDs (Get or put ID, Get username...)
- New UserID class
 - Method for getting encryption keys
- Other Methods
 - Session class: IDVault Session.getIDVault()
 - Database class: Database.setUserIDForDecrypt(UserID uid)
 - Document class: Document.encrypt(Optional UserID uid)

FUTURES

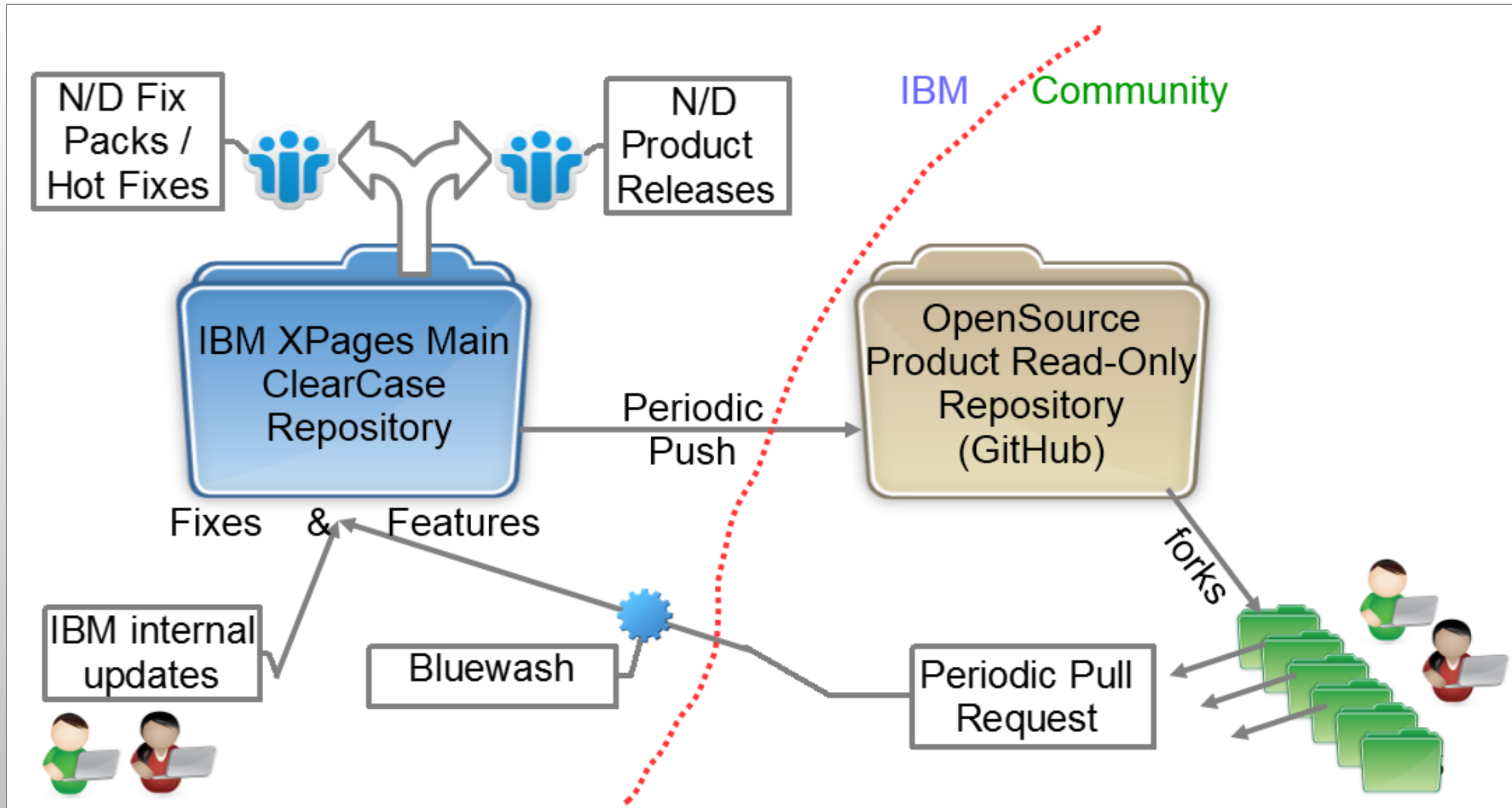
Open Source

XPages ExtLib Source Repository on GitHub

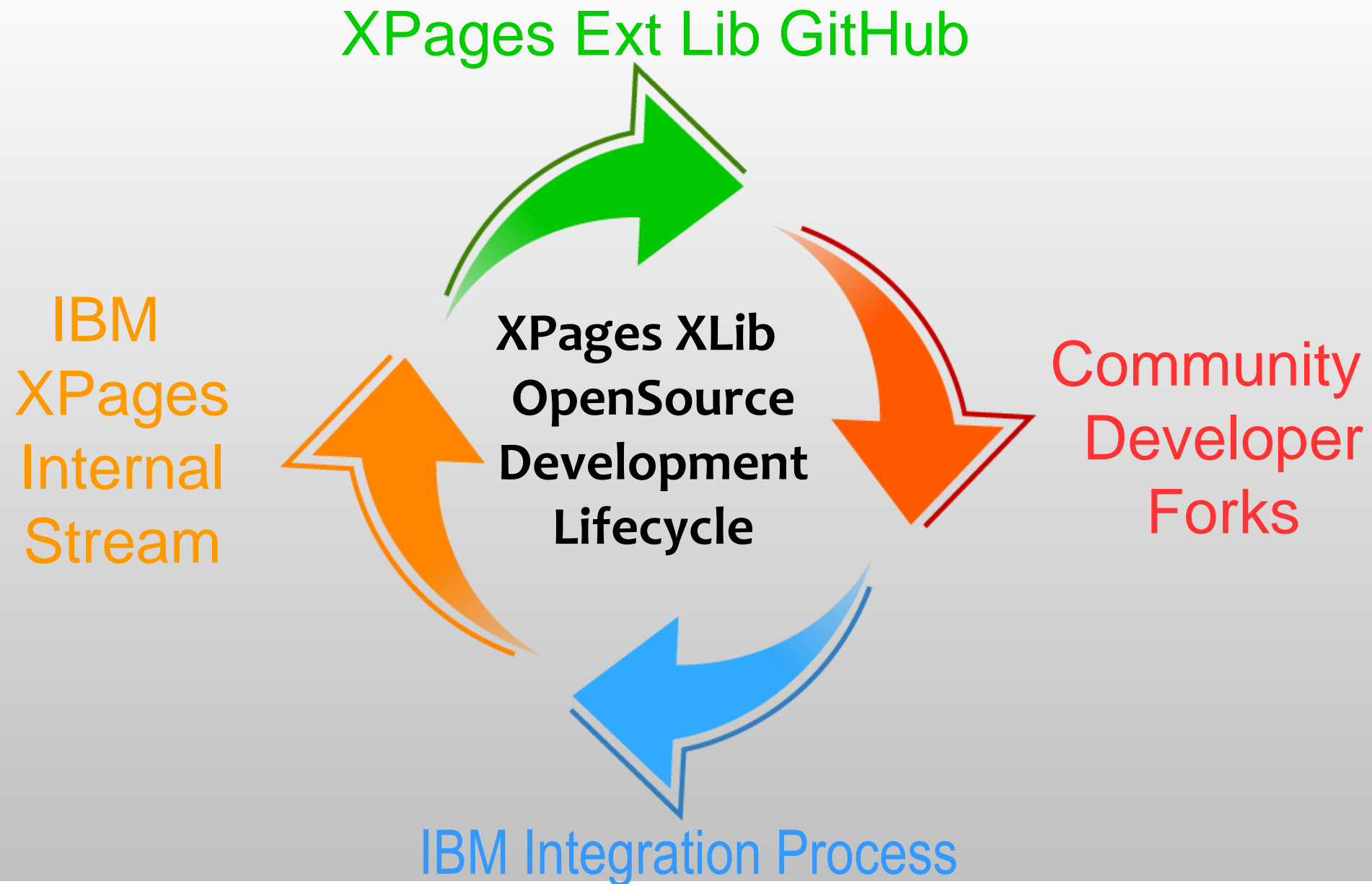
- Empowering Our Development Community
- XPages source has been available on OpenNTF.org since October 2011
 - Only in a zip file packaged with the binary releases
 - Impediment to community collaboration on the project
- ExtLib source repository available!
 - Provides all the ExtLib runtime and designer features and plug-ins
 - Includes tooling to enable building, localization ... and a P2 Update Site



Process for GitHub ExtLib Integration



XPages ExtLib : Community Contribution Process



Integrating GitHub Pull Requests

- Code Standards for the XPages Extension Library
- Code submitted via pull requests are merged into core after a code review
- Certain standards are applied:
 - Code must build properly
 - Passing of JUnit tests
 - Tagging of UI strings for localization
 - Etc
- Everything you need is available
 - On GitHub
 - As OpenNTF projects



IBM Domino Update Site for Build Management

 Download

FUTURES

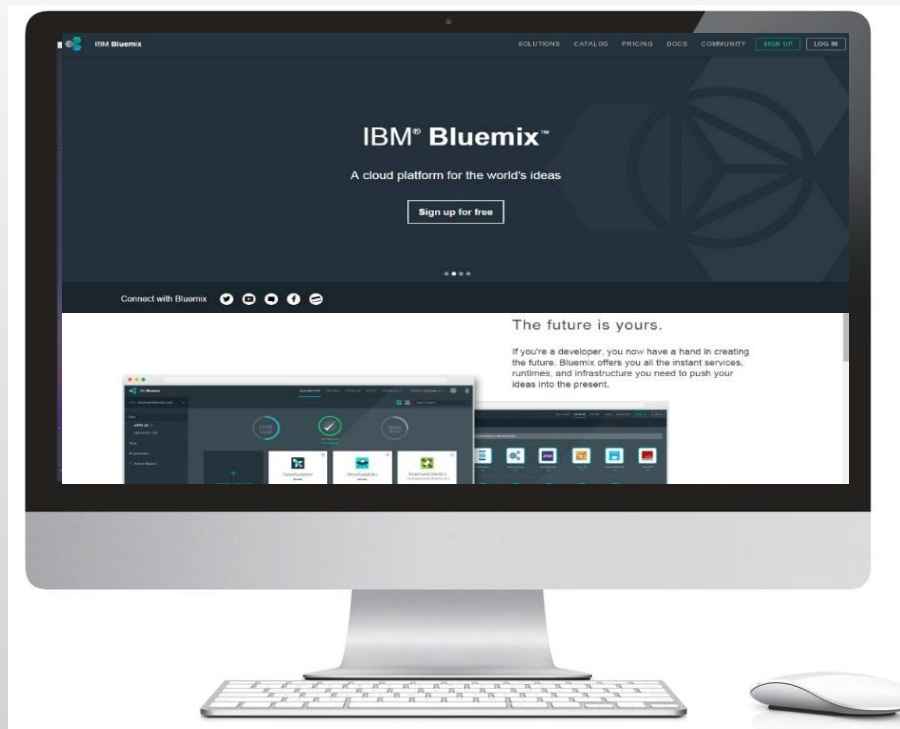
Domino on Bluemix



Bluemix - Create & Deploy apps

About Bluemix

- Run apps in any language
- Built on open standards
- Integration services to systems of record
- Designed for mobile
- Provides DevOps services



Bluemix services include:

- DevOps
- Big Data
- Mobile
- Cloud Integration
- Security
- Internet of Things
- Business Analytics
 - Database
- Web and application



Compose applications
from a rich library of IBM, 3rd party and open source runtimes, services and APIs.



Deploy and scale
new applications and services with infrastructure services from IBM SoftLayer.

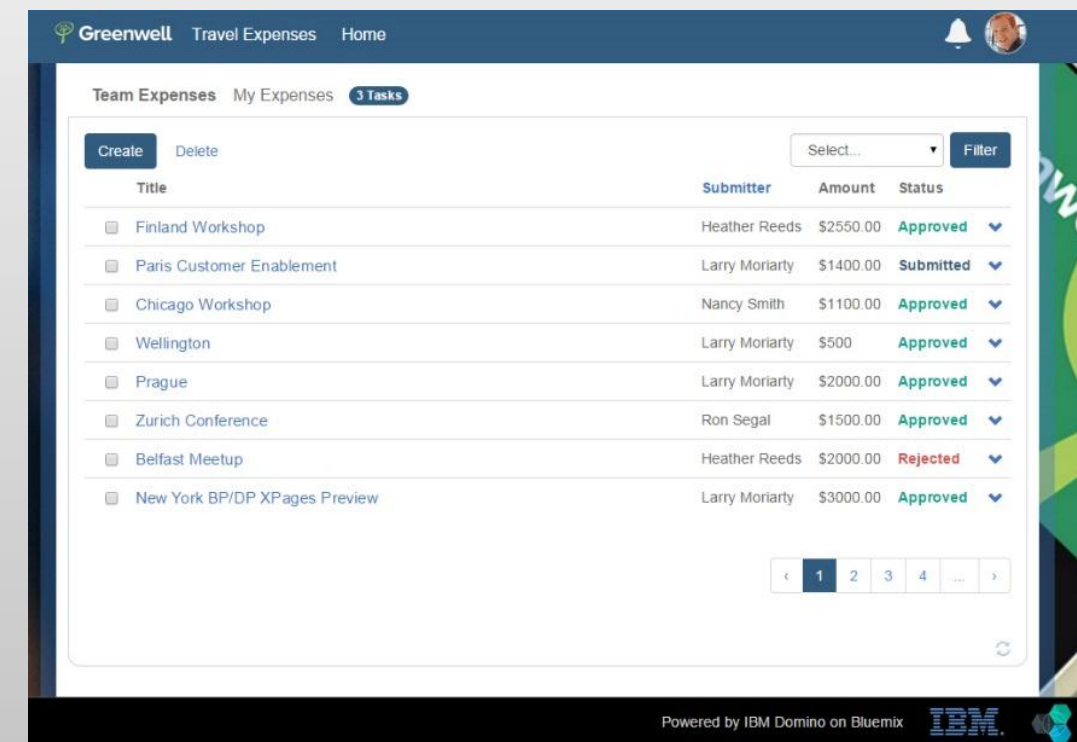


Code with confidence
knowing IBM's cloud platform is built on a foundation of open standards.



Release the Power of Domino on IBM Bluemix!

- Customers realize the next generation of LOB apps
 - Customers can access Domino applications on IBM Bluemix
 - Be more responsive to your changing business requirements
 - App.Next → New types of applications that use services like Watson, mobile, social files and more....
 - Leverage your investment in Notes & Domino apps
 - Easier path to modernized applications
 - Integrate your on-premises applications
- Business Partners benefit from new opportunities
 - New routes to market (IBM Cloud Marketplace)
 - Embrace more of the IBM portfolio and 3rd party services
 - Focus on selling the value of your solution, not the supporting infrastructure





Rapidly Deliver Applications And Services

- Developers Can Focus on Developing
 - Bluemix provides a click-and-play environment to build, manage and run Domino apps
 - XPages runtime allows Domino developers to bring their skills to the cloud
 - Domino NoSQL Database service provides secure data store
 - XPages boilerplate allows developers to quickly get an application up and running
 - Use runtimes like: Node.js or Liberty to build apps against Domino
- Devops - allow the developer to run the entire app
 - Dashboard for monitoring applications
 - Easily scale applications to meet work loads
 - Deliver resilient applications which provide high availability and quickly recover from problems
 - Automate builds with code in RTC or Git

IBM Bluemix DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY REGION: US South

Greenwell Expenses
Routes: gwexpenses.demo.mybluemix.net

INSTANCES: 1 MEMORY QUOTA: 512 AVAILABLE MEMORY: 1.500GB

APP HEALTH: Your app is running. 100% health with 1 of 1 instances running.

SERVICES: Domino Data, Greenwell Expenses (domino-data-boiler)

Domino Apps for Bluemix Architecture



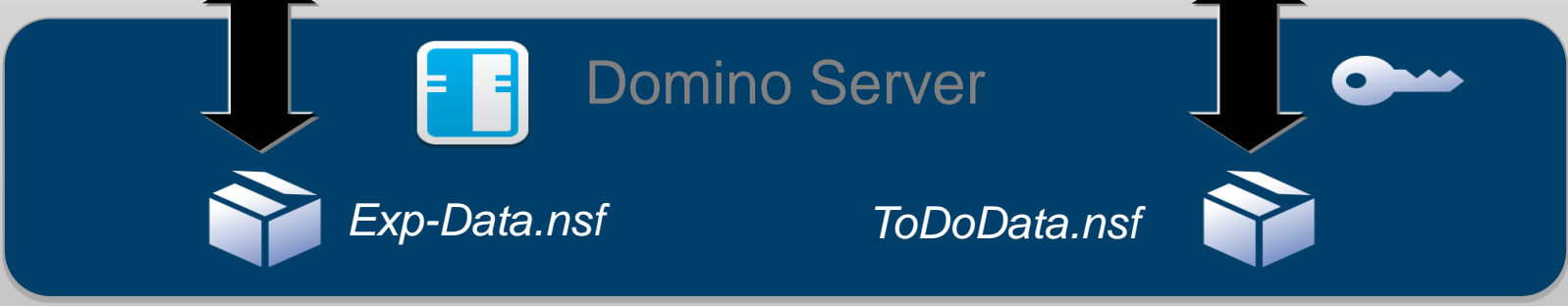
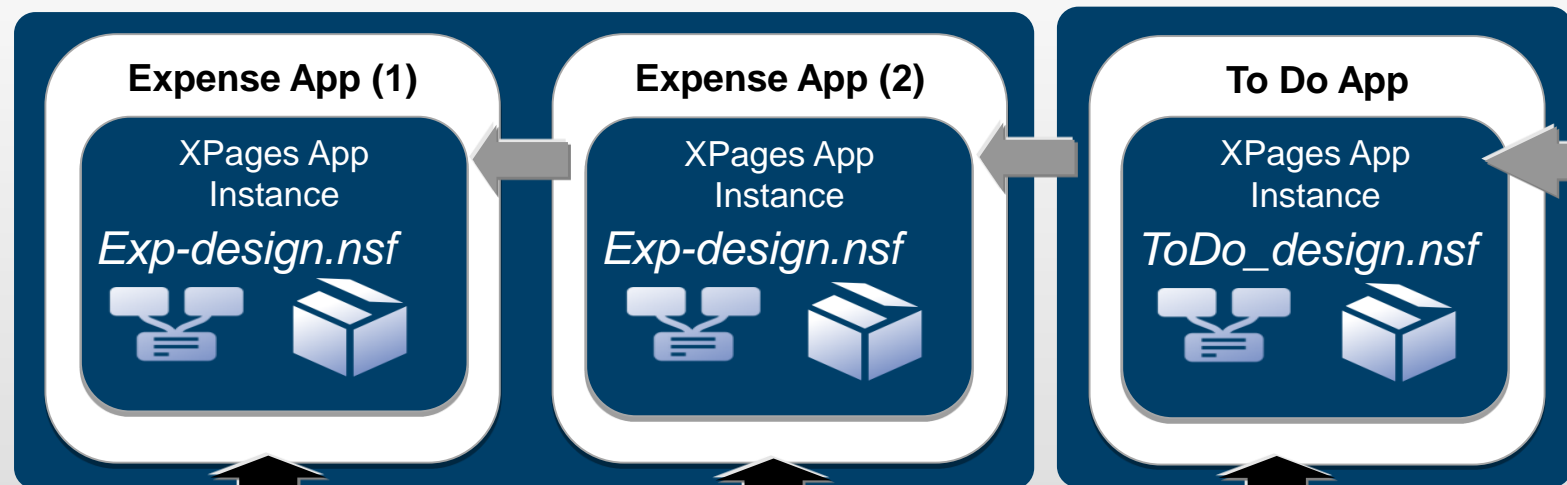
Internet



IBM Bluemix

CloudFoundry

SoftLayer



IDE / DevOps
Designer

Domino on Bluemix 2015 Roadmap Directions



- Bluemix Runtime

- Domino XPages Runtime for dev, test and production



- Bluemix Service

- Domino Data service for dev and test
 - Production ready data service provided by customer, BP or IBM services team



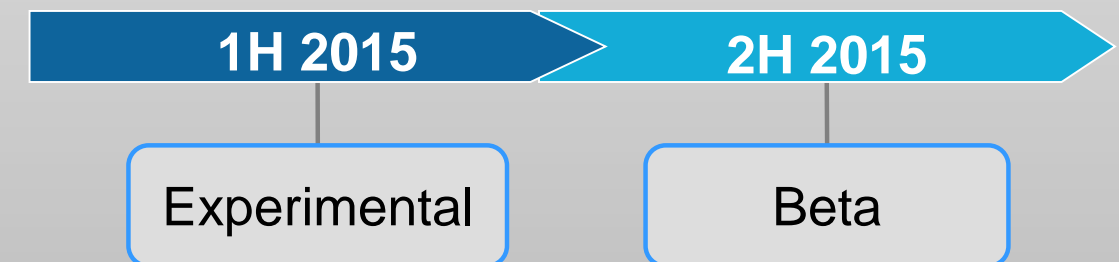
- Bluemix Boilerplate

- XPages/Domino Database starter kit with samples to quickly get up and running on Bluemix



- Domino Designer extensions

- Build applications for Bluemix
- Deploy applications to Bluemix



More Information – Summary

- **OpenNTF** – Open Source Community
 - Code, samples and more: <http://www.openntf.org>
- **Enablement** – Doc, examples, demos
 - Domino Application Development Wiki - <http://www.lotus.com/idd/ddwiki.nsf>
 - NotesIn9 – <http://www.notesin9.com/>
 - Two new Domino application development papers
 - Collaborative and business applications for the connected company → [Link](#)
 - IBM Notes and Domino Applications: A road map for modernization using IBM XPages → [Link](#)
- **Forums** - Got Questions, Need Answers?
 - Stackoverflow - <http://stackoverflow.com/questions/tagged/xpages>
 - XPages Forum - <http://xpages.info/forum>

Questions?

Thank You!



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