



IBM SOA Technology Summit

IBM Workplace Forms

Enabling Business Processes with Forms in an SOA Environment

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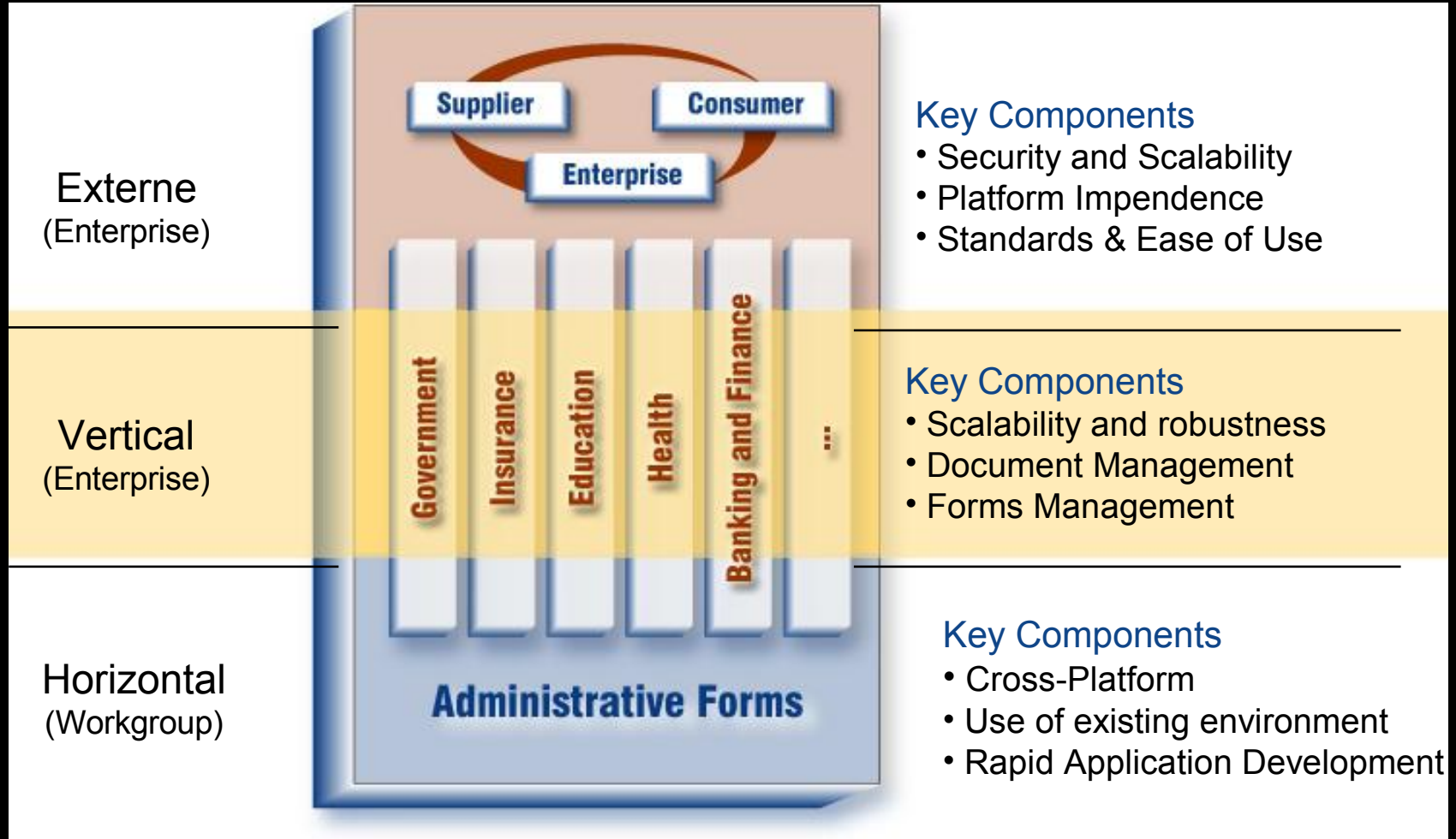
SOA on your terms and our expertise



What We'll Cover Today

- The E-Forms Marketplace
- Workplace Forms Overview
 - Components
 - Architecture
- Workplace Forms examples
- What's new in Workplace Forms 2.6?
- Success Stories

E-Forms are Everywhere



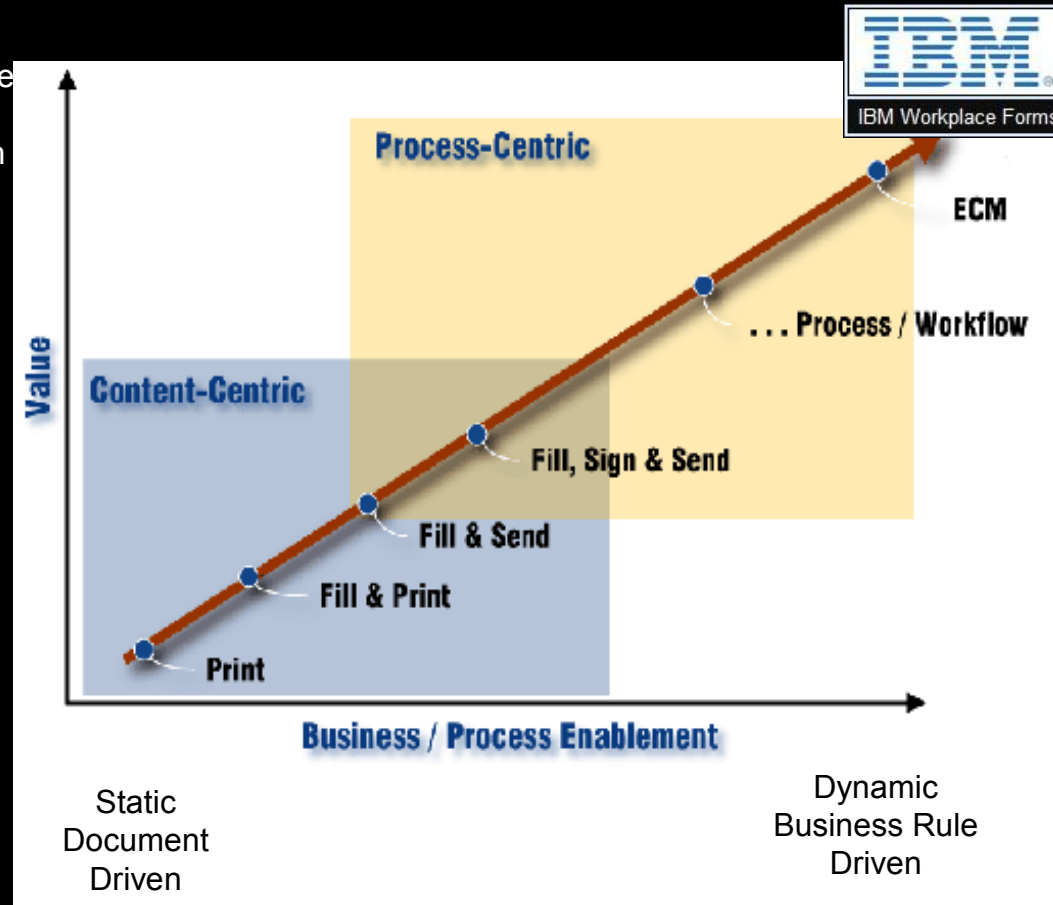
The Spectrum of E-forms Usage

Gartner Quotes:

- “Enterprises are seeking **electronic process enablers, not just forms on the web**”
- “The real value of electronic forms lies in its **ability to reduce the bureaucracy associated with paper forms** rather than simply replicating it”
- “**e-forms based on XML architecture will become the standard** for web-based form input and document delivery”

Compliance
Security
Integration
Records

Data
Capture



Key technology drivers; XML, XForms, Web Services, digital signatures

Key business drivers: compliance, productivity, signing/approvals

Benefits

Provides high-value industry forms automation solutions proven in many industries enabling organizations to...

- Reduce costs
- Increase efficiencies
- Enhance customer service
- Reduce paper use
- Minimize data entry errors
- Streamline forms-based processes

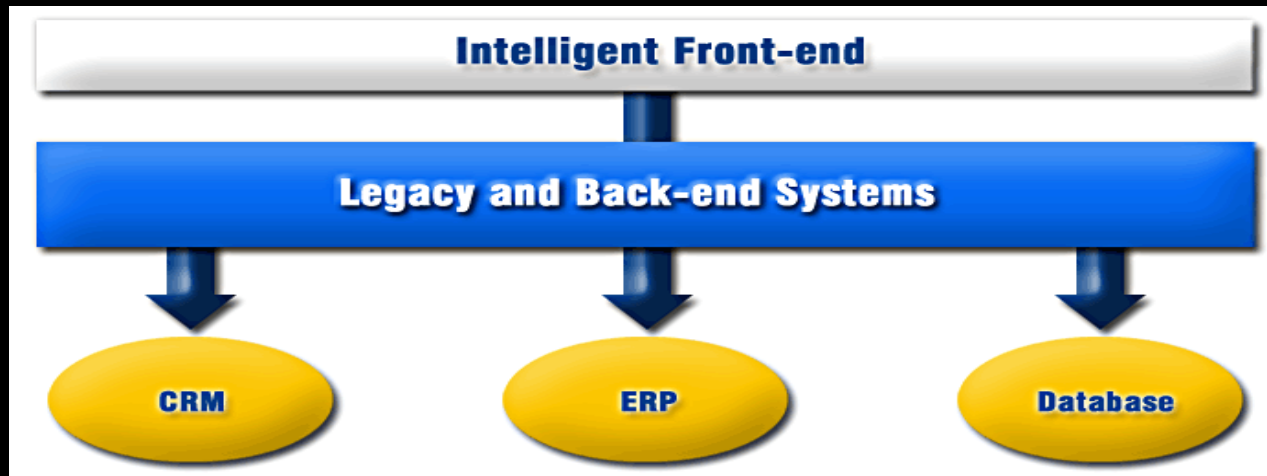
Offers numerous proven integration points/solutions

- Leverages open standards and with XML to make streamline integration efforts
- Supports service-oriented architectures
- Standards-based integration

What is Workplace Forms?

Workplace Forms provides a dynamic, intelligent front-end to applications and back-end systems.

- Automates business processes that are “forms-based”.
- Collects data easily, accurately and completely, with straight through integration to one or more back end systems.
- Enables true “Innovation” within organizations.



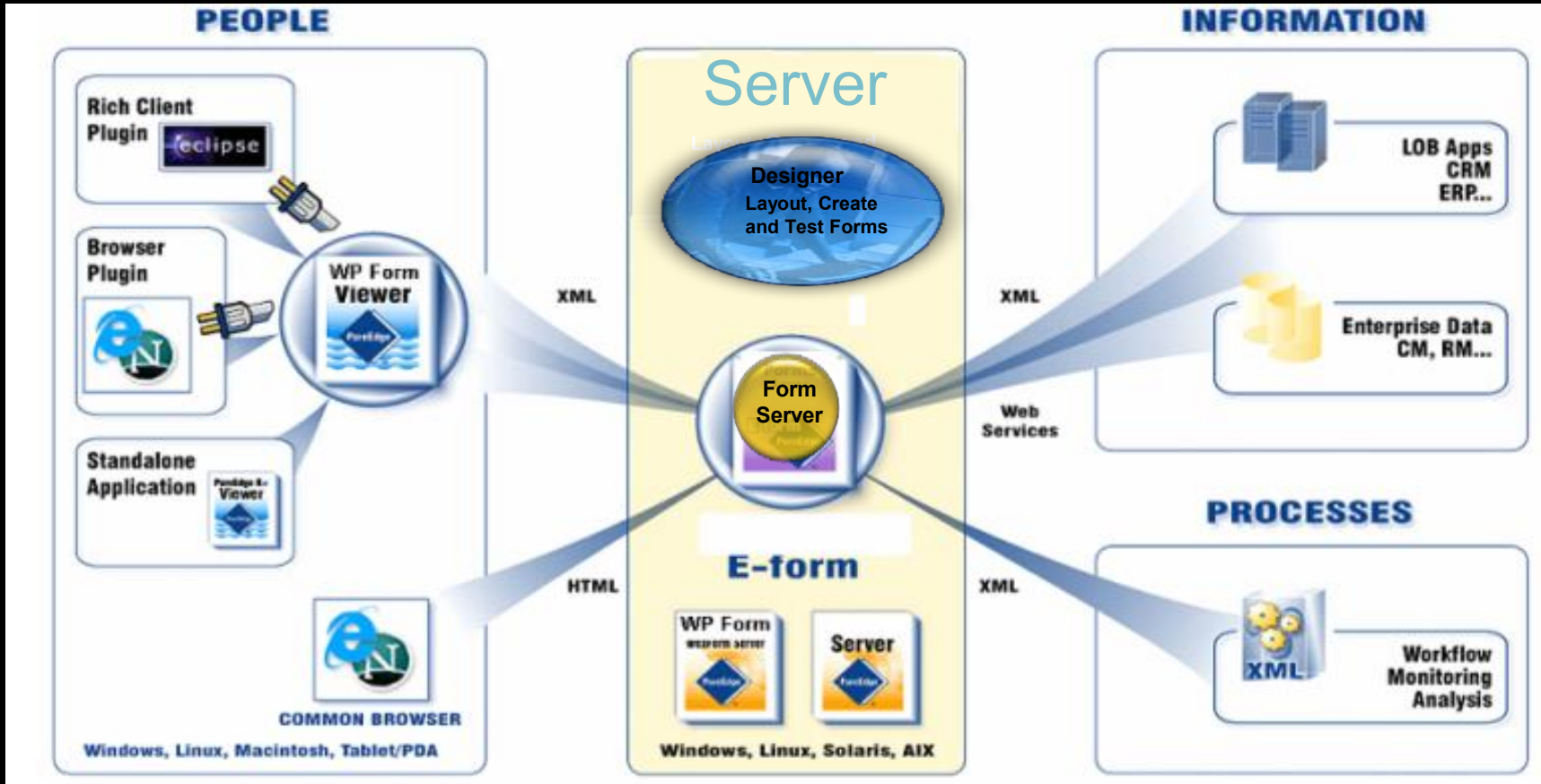
“An advanced XML based user Interface that happens to do forms exceptionally well”

USAF AFDPO Chief Architect

Positioning

- *Leading Open-standards e-form Vendor*
 - 100% XML – superior integration capabilities, promotes interoperability, and limits vendor lock-in
 - Contributing editor for W3C XForms standard
- *Strongest transaction record for Business Compliance*
 - Provides precision replication of paper functionality for legal and regulatory compliance
 - Document centric architecture encapsulates presentation, business logic, and data into a single XML record
 - Multiple, overlapping digital signatures ensure e-form, document, and front-end integrity
- *Highly dynamic and flexible user interface*
 - An integrated computational engine whose capabilities provide the ability to create a dynamic, interactive and simplified user interface
- *Unique hybrid rich and thin-client architecture*
 - Single form template supporting three access methods:
 - Standalone rich client, supporting off-line use
 - Browser-embedded rich client, supporting highly dynamic user experience
 - HTML thin client, supporting zero-footprint outreach applications, and native portal integration

Workplace Forms Solution Suite



Connecting People with Processes and Information

IBM Workplace Forms – Key components

- **Workplace Forms Viewer**: A standalone or browser-based application to present, manage, interact with, integrate, digitally sign and submit Workplace Forms XML e-form and process-wizard front-ends.
- **Workplace Forms Designer**: Powerful, easy to use WYSIWYG design environment to create secure XML e-form and process wizard front-ends
- **Workplace Forms Server**:
 - **API**: Enables the creation and delivery of forms applications. It provides a common, open interface to Workplace Forms that enables e-forms data integration with server-side applications.
 - **WebForm Server**: Provides real-time page-by-page conversion of Workplace Forms XML e-forms into HTML and JavaScript for rendering within a common web browser. Enables zero-footprint viewing of Workplace Forms
 - **Deployment Server**: Deploys rich client and forms in a lightweight manner

Workplace Forms: E-Form Components

Brokerage Account Application

INVESTMENTS
Check Writing Account? Yes No Portfolio Account? Yes No

Account Type Check one
Office: CA-32 Age: 9999 Account #: 00000

Individual Estate* Partnership* Custodian for a Minor Collateral Additional Documents Required
 Joint Tenants Trust* Corporation* Charitable Organization* Investment Club

Applicant Information Required by MSRB Rule G-9(a)(ii) and NASD Rule 2310

First Name Richard	<small>Initial</small> RS	Last Name Smith	<small>SSN</small> 999-99-9999	<small>Date of Birth</small> 04-15-1964	<small>Business Phone</small> () -
<small>Mailing Address</small>					
123 Electric Form Ave		Springfield	MA	01111-1234	
<small>Legal (Street) Address (Required in address P.O. Box)</small>					
123 Electric Form Ave		Springfield	MA	01111-1234	
<small>Employer</small>					
PureEdge Solutions		Springfield	MA	U.S.	

<small>Are you or joint applicant employed by a member firm of a stock exchange, a municipal securities dealer or other securities broker or dealer?</small>	<small>Are you or joint applicant a director, 10% or greater shareholder or policy making executive officer of a publicly traded company?</small>	<small>I want my name, address, and securities positions disclosed to companies in which I own securities that are registered in nominee or street name.</small>
<input type="checkbox"/> Yes, Co <input type="checkbox"/> No	<input type="checkbox"/> Yes, CUSIP <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Financial Information

<small>Years of Experience</small>	<small>Tax Bracket</small> %	<small>Beneficial Account Owner</small>	
<small>I have the following investment objectives:</small>			
<input type="checkbox"/> Preservation of Capital <input type="checkbox"/> Speculation		<small>Liquid Assets (in \$1,000s)</small>	
<input type="checkbox"/> Capital Appreciation <input type="checkbox"/> Tax-Advantaged Income		<small>Net Worth with Residence (in \$1,000s)</small>	
<input type="checkbox"/> Income (Bonds, Mortgage Backed Securities)		<small>Risk Tolerance</small>	
		<small>Time Horizon</small>	

Instructions for Payments & Safekeeping

<small>Securities Settlement Instructions</small>	<small>Money Settlement Instructions (pick one option only)</small>
	<input type="checkbox"/> Money Market Fund Sweep <input type="checkbox"/> Regular taxable MMF

Banking/Brokerage Reference

<small>Bank or Brokerage Firm</small>	<small>City</small>	<small>State</small>	<small>Account #</small>

T.I.N./Backup Withholding Certification Please READ the following before entering into any transaction regarding this agreement.

<small>(Cross out item (2) if subject to backup withholding.)</small>	<small>I acknowledge that the attached form of application contains a substitute Form W-9 as well as the terms and conditions under which my account will be managed.</small>
<small>Under penalties of perjury, I certify:</small>	<small>I further acknowledge that the Internal Revenue Service does not require my consent to any provisions of the attached application other than the certification required to avoid backup withholding.</small>
<input checked="" type="checkbox"/> (1) that the number shown on this form is the correct taxpayer identification number (T.I.N.) and	
<input checked="" type="checkbox"/> (2) that I am not subject to backup withholding unless because I have not been notified that I am subject to backup withholding as a result of failure to report all interest or dividends, as the Internal Revenue Service has notified that I am no longer subject to backup withholding.	

To: Mountain-Sure Investments
In consideration of your opening this brokerage account, I (we) hereby acknowledge that:
(1) I (we) have received, read, understood and agree to the terms set forth above and in the Customer Agreement printed on the reverse of this application, including the pre-dispute arbitration clause as found in paragraph 10.
(2) I (we) authorize the manual or automatic transfer of funds between accounts on this application. All persons must sign if this is a joint account.
(3) Mountain-Sure Investments (MSI) is a member of the NASD & SIPC.
(4) mutual funds, annuities and other investment products are "not FDIC insured," not deposits or obligations of or guaranteed by any bank, and may involve investment risk, including possible loss of the principal amount invested.
(5) Brokerage services and products are offered through Mountain-Sure Investments.

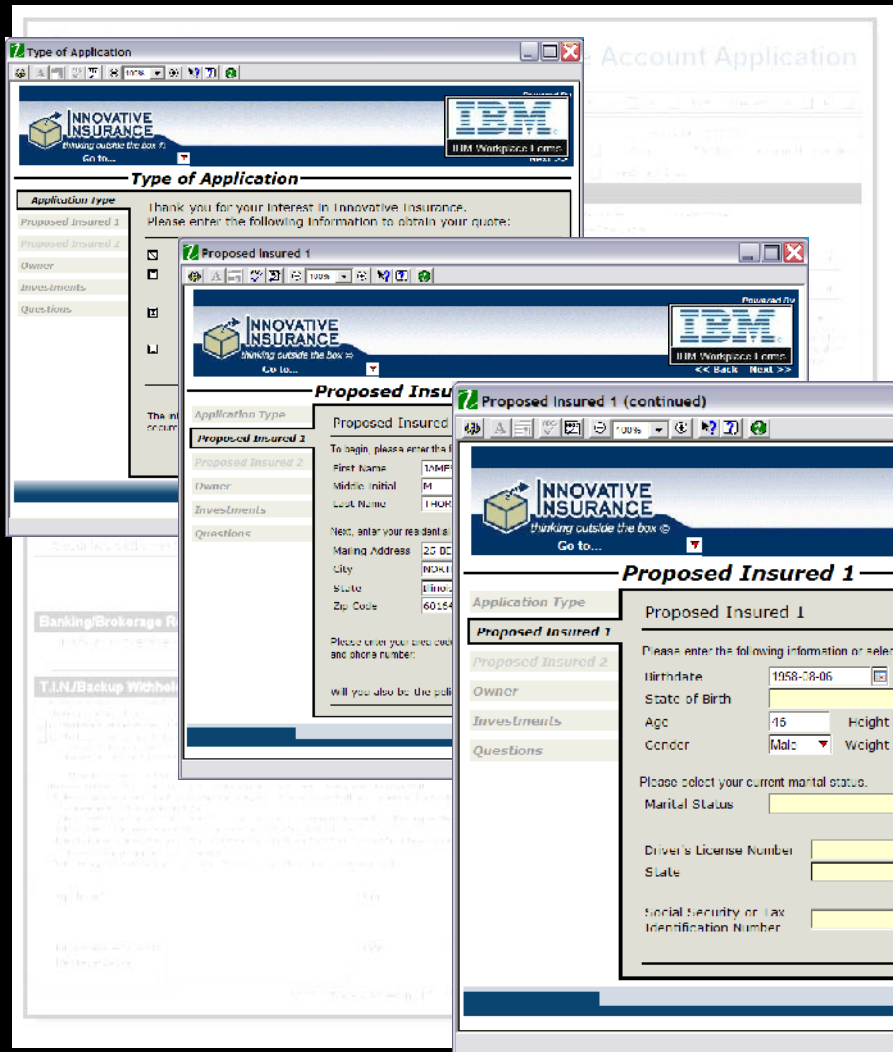
<small>Applicant</small>	<small>Date</small>	<small>Joint Applicant</small>	<small>Date</small>
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<small>Brokerage Accounts Representative</small>	<small>Date</small>	<small>Approving Principal</small>	<small>Date</small>
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

Account are carried by MSI. Member NYSE/NASD/SIPC

Presentation Layer

- Pixel-perfect Resolution for duplicating paper forms

Workplace Forms: E-Form Components



Presentation Layer

- Guided-interview process option (Wizard driven)

User Interface Flexibility

- Multiple “views” on the same data
- Data/Rules-driven “views”

Dynamic Behavior

- Declarative Rules instead of scripting dynamic behavior
- Enables much more complex dynamic behavior without deep programming

Workplace Forms: E-Form Components

The screenshot shows a web form for a Brokerage Account Application. The form includes sections for Account Type (Individual, Estate, Partnership, etc.), Applicant Information (Name, SSN, Date of Birth, Address), and a checkbox for 'Check Writing Account?'. Below the form is a flowchart illustrating the application logic. It starts with a decision point 'User Changes Account Type'. If 'Yes', it leads to 'Application Requires Docs' (do / show attachments button, do / pop up instructions dialog). If 'No', it leads to 'Application Needs No Docs' (do / hide attachments button). The flowchart also shows a state transition from 'Unsigned' to 'Signed' under the 'Approving Principal Signature Enabled' state, and a note that users can switch between application types.

Presentation Layer

Business Logic

- Capture forms processes in the form
- Integrate business process workflows

Business Rule Flexibility

- Client side or Server Side Application of Forms "logic" to fit requirements

Workplace Forms: E-Form Components

Mountain-Sure INVESTMENTS Brokerage Account Application

INVESTMENTS Check Writing Account? Yes No Portfolio Account? Yes No

Account Type Individual Estate* Partnership* Custodian for a Minor Collateral *Additional Documents Required

Applicant Information Required by MSRB Rule 6-B(XXI) and NASD Rule 2316

First Name: Richard, Last Name: Smith, SSN: 999-99-9999, Date of Birth: 04-15-1964, Business Phone: () -

Mailing Address: 123 Electric Form Ave, Springfield, MA 01111

Legal (Street) Address (Required in addition to P.O. Box): 123 Electric Form Ave, Springfield, MA 01111

Employer: PureEdge Solutions, Occupation: Doctor, City: Springfield

Are you or joint applicant employed by a member firm of a stock exchange, a municipal securities dealer or other securities firm? Yes, Co.

Financial: Yes, Co.

Flow Diagram:

- Start: Application for Estate, Partnership, Trust, Corp. or Charity
- Decision: User Changes Account Type
- Path 1: Application Requires Docs (do / show attachments button do / pop up instructions dialog)
- Path 2: Application Needs No Docs
- Path 3: Approving Principal Signature Disabled
- Path 4: Approving Principal Signature Enabled
- Path 5: Unsigned

XML Data Instances:

```

<name>PureEdge Solutions</name>
<address>
  <zip>011111234</zip>
  <city>Springfield</city>
  </legalAddress>
  <state>MA</state>
</address>
<employer>
  <name>PureEdge Solutions</name>
  </employer>
</applicant>
</xfoms:instance>
</instances>
<bindings>
  <bind>
    <occupation>Doctor</occupation>
  </bind>
  <boundoption>BAA.FirstName.value</boundoption>
  <ref xmlns:xfoms="http://www.w3.org/2001/XMLSchema-instance" href="#BAA.FirstName.value">
    <ssn>999-99-9999</ssn>
  </ref>
</bindings>
    
```

Presentation

Business Logic

Data Instances

- Based on W3C XForms specification
- Multiple XML payloads for integration
- Validate against external XML Schemas

Multiple Schema and Standards Support

- Client side or Server Side validation
- Only product to support multiple schemas within form
- Only production ready product to support W3C XForms standard

Workplace Forms: E-Form Components

Mountain-Sure INVESTMENTS Brokerage Account Application

INVESTMENTS Check Writing Account? Yes No Portfolio Account? Yes No

Account Type Individual Estate* Partnership* Custodian for a Minor Collateral Additional Documents Required
 Joint Tenants Trust* Corporation* Charitable Organization* Investment Club

Applicant Information Required by MSRB Rule 0-8(a)(3) and NASD Rule 2316

First Name: Richard, Last Name: Smith, SSN: 999-99-9999, Date of Birth: 04-15-1964, Business Phone: () -
 Mailing Address: 123 Electric Form Ave, Springfield, MA 01111
 Legal (Street) Address (Required in addition to P.O. Box #): 123 Electric Form Ave, Springfield, MA 01111
 Employer: PureEdge Solutions, Occupation: Doctor, City: Springfield

Are you or joint applicant employed by a member firm of a stock exchange, a municipal dealer or other securities firm?
 Yes, Co. No

Financial: Yes No

Flowchart:

- User Changes Account Type
- Application Requires Docs (do / show attachments button, do / pop up instructions dialog)
- Application Needs No Docs
- Approving Principal Signature Disabled
- Approving Principal Signature Enabled
- Unsigned

XML Data:

```

<name>PureEdge Solutions</name>
<address>
<zip>011111234</zip>
</legalAddress>
<city>Springfield</city>
<state>MA</state>
</address>
<employer>
</employer>
<name>PureEdge Solutions</name>
<occupation>Doctor</occupation>
</applicant>
    
```

Attachments:

- Bylaws of the American Institute of Organbuilders
- Certificate of Live Birth

Presentation Layer

Business Logic

Data Instances

File Attachments

- Capture complete transaction
- Supplemental or associated e-forms
- MS Office, videos, faxes, etc.

Workplace Forms: E-Form Components



Presentation Layer

Business Logic

Digital Signatures

- Sign multiple, overlapping sections or complete form
- Use built-in signing, digital certificates or signing pads
- Significantly smaller file sizes compared to proprietary binary formats

Data Instances



File Attachments

Workplace Forms: E-Form Components

Signatures

eEnvelope

```

<address>
</address>
<city>Springfield</city>
</legalAddress>
<state>MA</state>
</address>
</applicant>

```

Bylaws of the American Institute of Organbuilders
as amended October 10, 2001

Article I
Name
The name of this organization shall be: American Institute of Organbuilders (AIO).

Article II
Objectives
The objectives of this organization shall be: to advance the science and practice of research, experiment and other means, to disseminate knowledge regarding pipe organs, to establish an organized training group, and to publish and exchange of degree of proficiency.

CERTIFICATE OF GOOD STANDING

Presentation Layer

Business Logic

Data Instances

File Attachments

Benefits of Workplace Forms Components

Mountain-Sure INVESTMENTS Brokerage Account Application

INVESTMENTS Check Mailing Account? Yes No Portfolio Account? Yes No

Account Type Individual Estate* Partnership* Custodian for a Minor Collateral Additional Documents Required Joint Tenants Trust* Corporation* Charitable Organization* Investment Club

Applicant Information Required by MSRB Rule 3-B(XX)(3) and NASD Rule 2310

First Name: Richard, Middle Initial: Smith, Last Name: Smith, SSN: 999-99-9999, Date of Birth: 04-15-1964, Business Phone: () -

Mailing Address: 123 Electric Form Ave, Springfield, MA 01111

Legal Street Address (Required in addition to P.O. Box #): 123 Electric Form Ave, Springfield, State

Employer: PureEdge Solutions, Occupation: Doctor, City: Springfield

Are you or joint applicant employed by a member firm of a stock exchange, a national securities dealer or other securities organization? Yes, Co. No

Financial: Yes, Co. No

Flowchart states: Application Requires Docs (do / show attachments button do / pop up instructions dialog), Application Needs No Docs, Approving Principal Signature Disabled, Approving Principal Signature Enabled, Unsigned.

```

<name>PureEdge Solutions</name>
<address>
<city>Springfield</city>
</legalAddress>
<state>MA</state>
</address>
<occupation>Doctor</occupat
</employer>
</applicant>
    
```

Bylaws of the American Institute of Organballs
Article I Name
Article II Objectives

CERTIFICATE OF LIVE BIRTH

- Treating forms as XML objects allows us to:
- Maintain presentation and logic with data
- **Save** a form and **work offline**
- **Route** a form using any available transport mechanism (e.g. workflow, web, email, FTP, etc.)
- **Archive** a form into a database
- **Pre-fill** a form with data and **Extract** data from a form
- **Sign** and make a form tamperproof
- **Integrate** a form with other technologies (i.e., workflow, EAI, document/content management, etc.)
- **Parse** the XML data at any appropriate time in the form's lifecycle

Typical Architecture

Client Layer



Navigator/Viewer Client PC

Application Layer

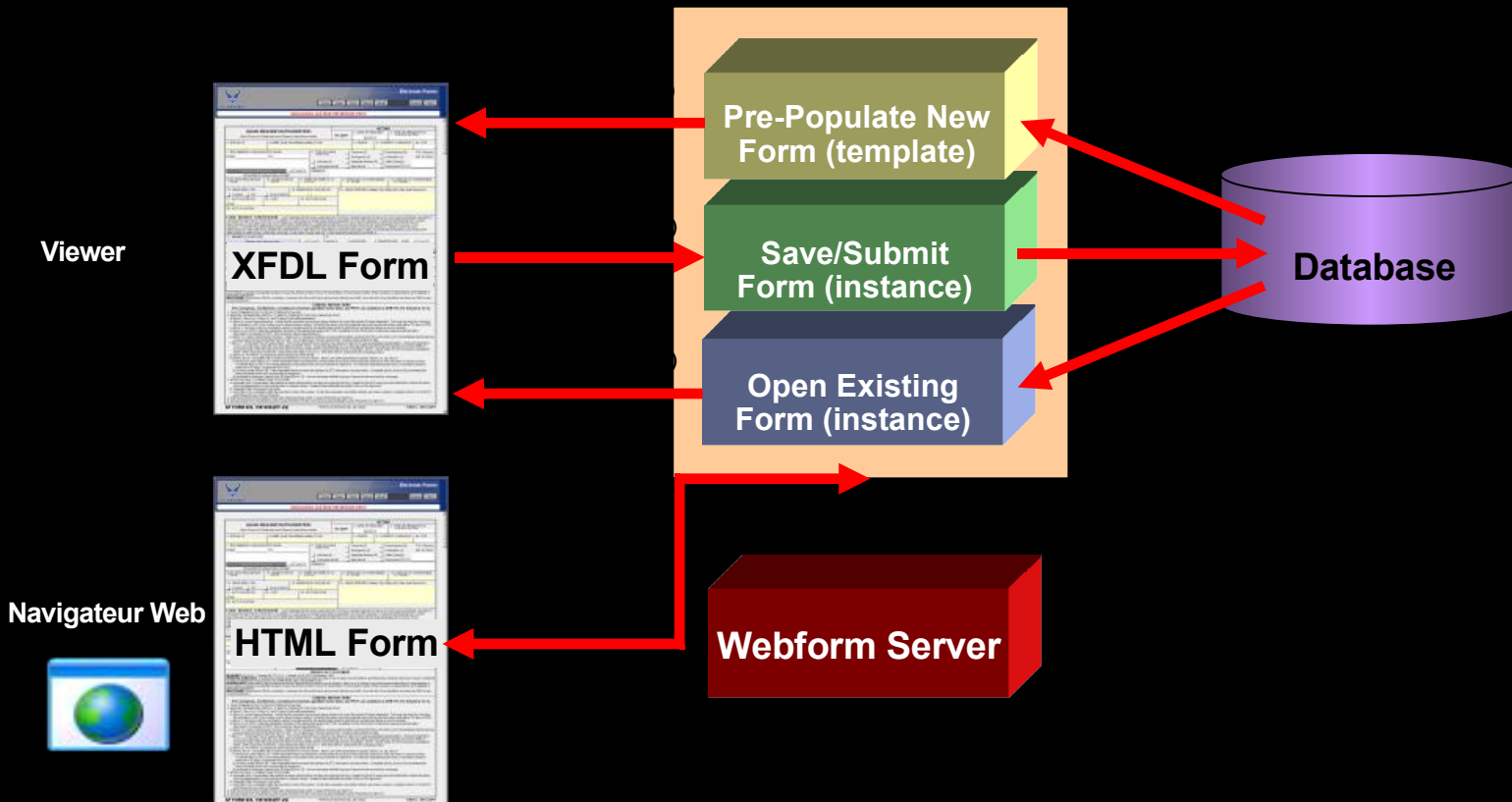


Web/Application Server

Database Layer

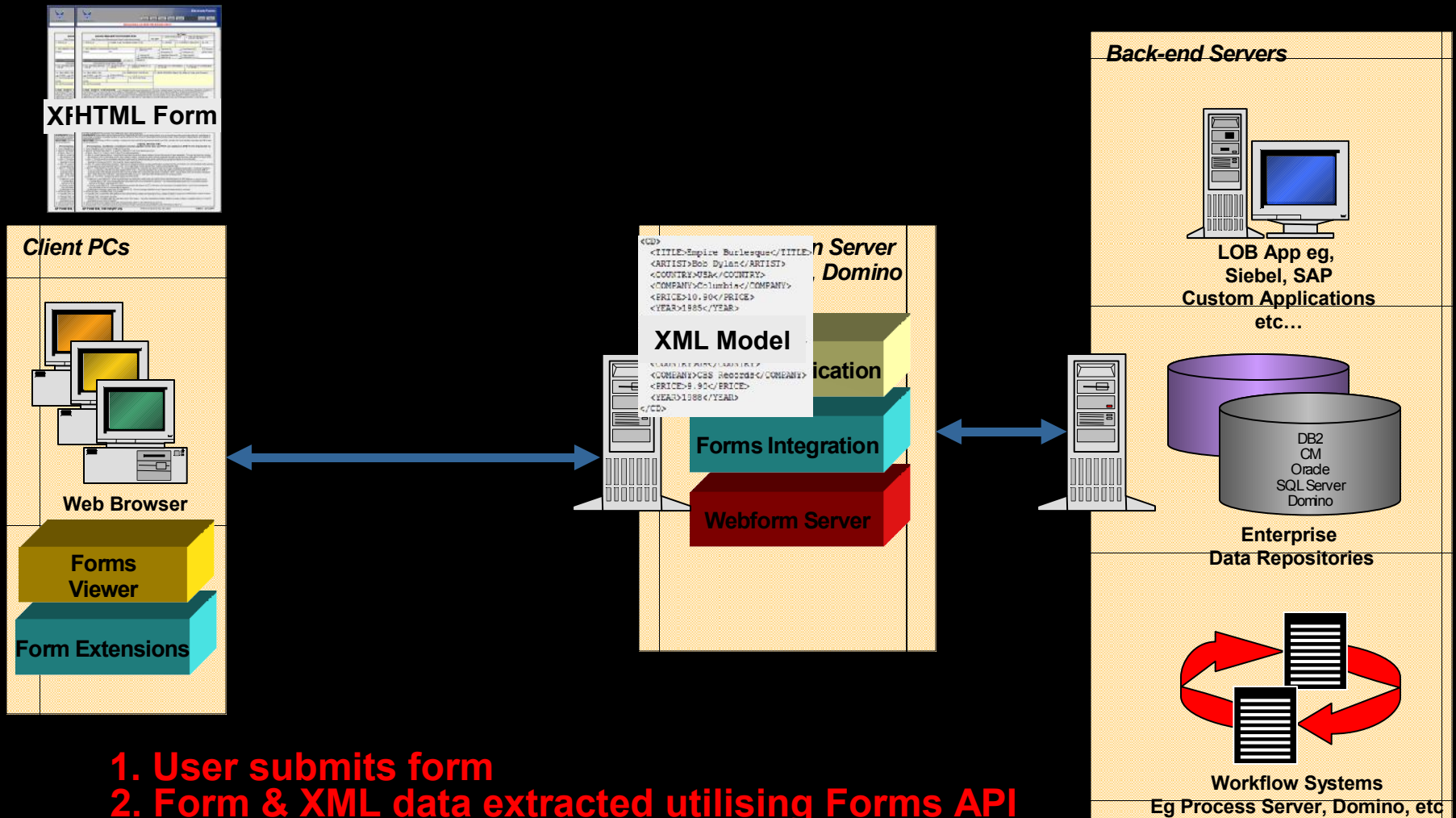


Database Server



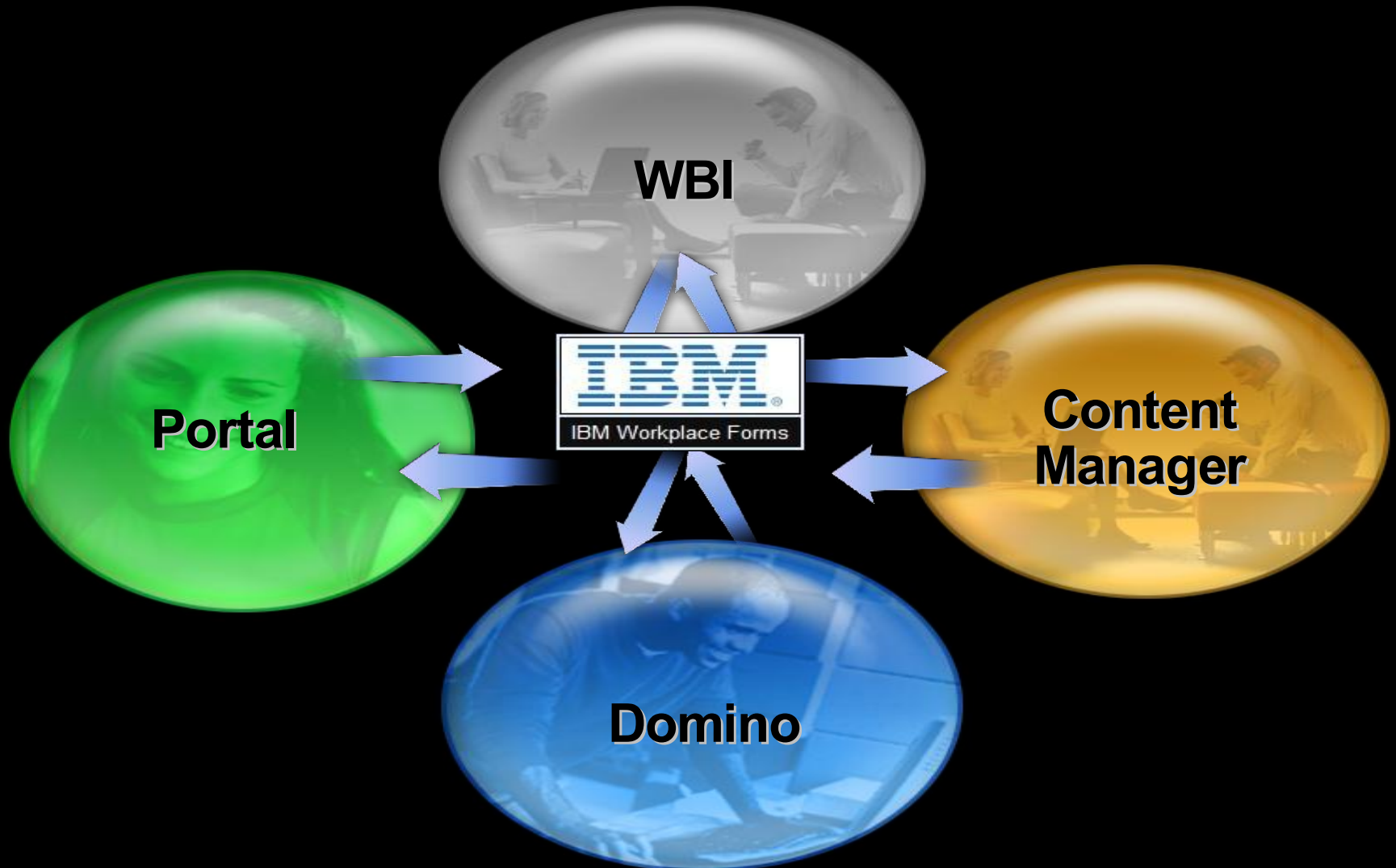
This slide should be viewed in Slide-Show mode

Example Workplace Forms Deployment



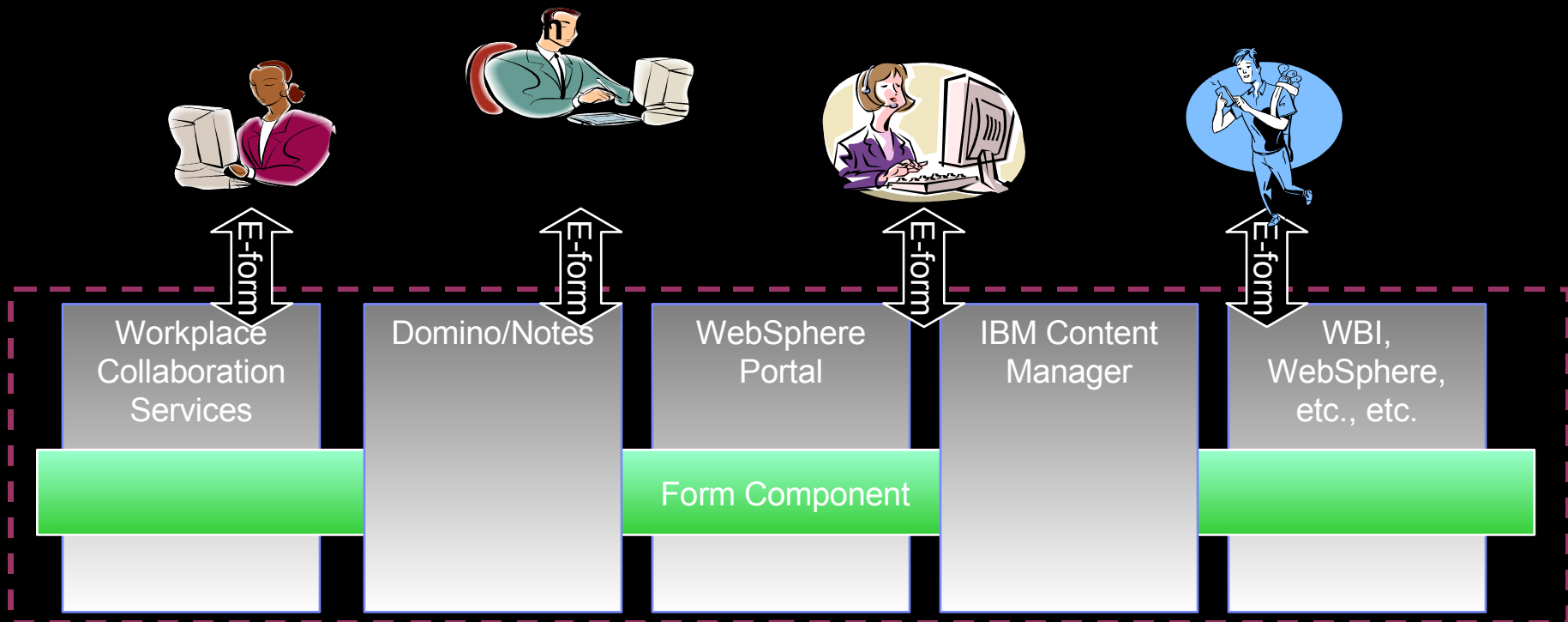
1. User submits form
2. Form & XML data extracted utilising Forms API
3. Form stored in repository
4. Data provided to LOB applications

Where Does Workplace Forms Fit?



Workplace Forms Integrate Across the IBM Software Portfolio

E-forms technology varies from simple (print-and-fill, Webforms) to advanced (digital signatures, offline storage). Advanced e-forms are a critical component of Industry Solutions due to their broad applicability to a variety of business processes. E-forms provide a common front-end to many different IBM software products.



Your Special Bid Stalled
[Fix Stalled Purchase Order](#)
[Fix Your Scorecard Metric](#)



Your Process Monitor

■ Author **Tim Thorne**
Lorem Ipsum, or Lipsum for short, is simply dummy text of the printing and typesetting industry. Lipsum has been the industry's standard dummy text ever since the

People Finder
Search Type
Entire Profile
Search For
[Advanced Search](#)



▼ Special Bid Request - Jones	eForm	Fix Problem
▲ Sales Targets - Milejanic	eForm	Fix Problem
▲ Adverse Situation - O'Neill	eForm	Review and Sign
▲ Compliance - Welch	eForm	Completed
▲ Receivables 2 - Connor	eForm	Completed
▲ Sales Targets - Miahaila	eForm	Completed
▲ Adverse Situation - Carson	eForm	Archived
▲ New Hire - Fleagle	eForm	Archived

Search sources of Content

- Intranet
- eForms Central**
- Manager Workflows
- Company Web Content
- Teamspace and Quickplace
- Meetings, Events, Webinars
- Open Internet

[Advanced Search](#)



Step 1

Step 2

Step 3

Complete

Special Bid Request Stalled

Approver Does Not Answer

Choose New VP to Approve

- Martin
- Renee
- Sarita
- Alert Original



[Chandor, Pam](#) [Todat Forecast D](#)
[Lechleiter, Jeff](#) [Today Policy Chan](#)
[TEA Auditor](#) [Today Air Ticket re](#)

Core Executives

- Martin
- Renee
- Randall

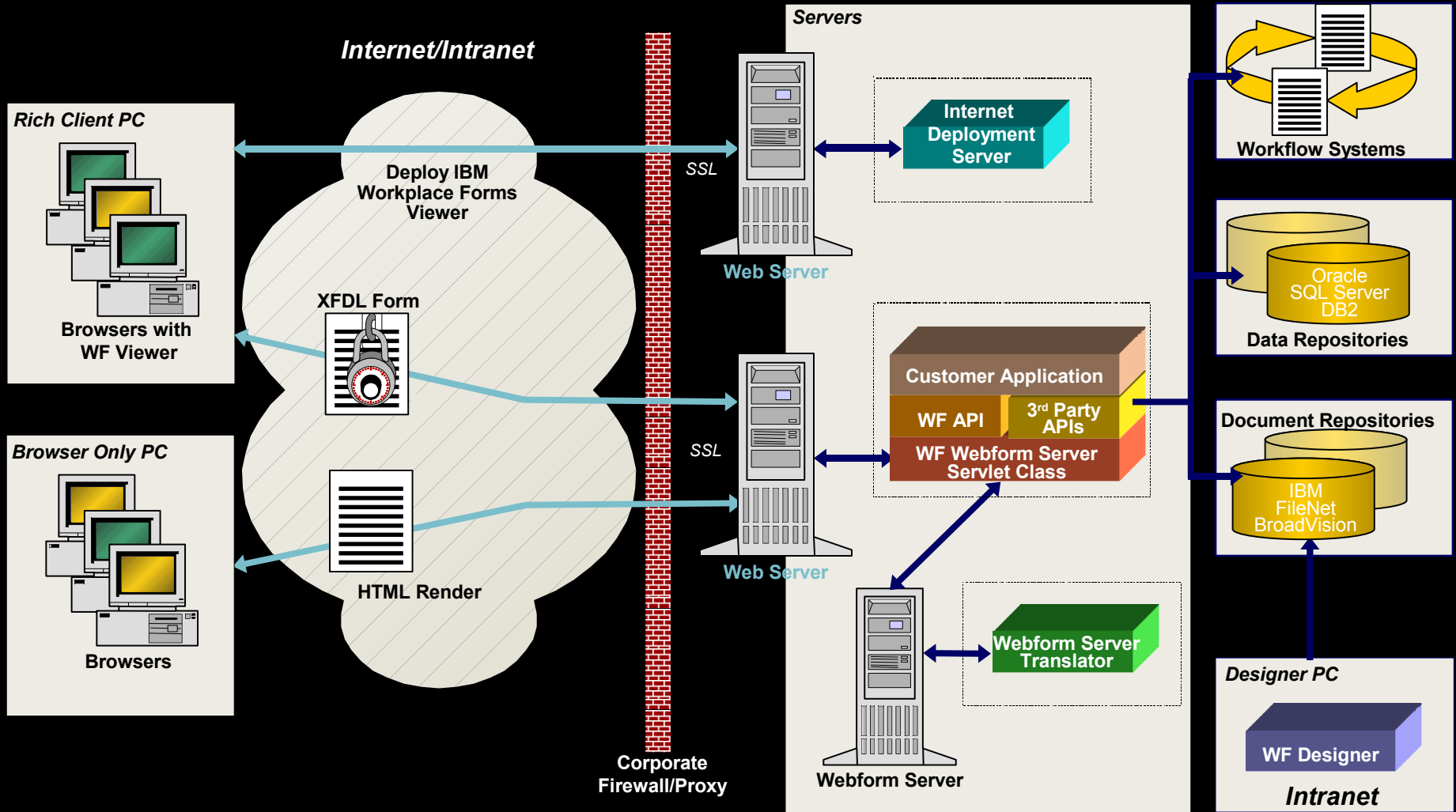
Special Bid Team

- Jones
- Greg
- Sarita

- [Project Scope Change](#)
■ Owner
- [Forecast Shortfall](#)
■ Owner

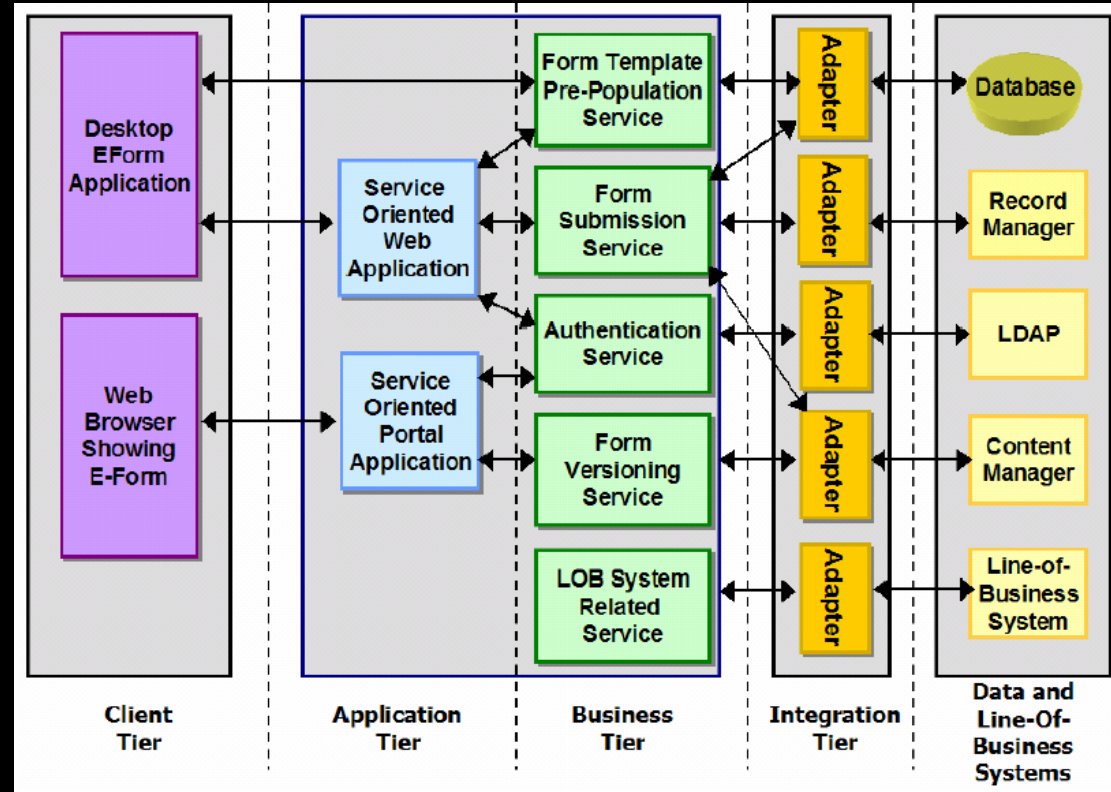
[My eForms in Progress](#)
[My Draft eForms](#)
[Document Mgr](#)

IBM Workplace Forms (WF): Suite Architecture



XForms as an Extension of SOA

- **Server-side form pre-population** (i.e., the merger of an empty form template with data using “click-to-action” in a portal environment)
- **Submission of a form into a Content Management system** at various stages of process or workflow
- **Presentation on mobile devices** of a form to users both in online and offline modes. (laptops, tablet, or handheld devices)
- **Storage of form data into one or more databases** (Often for reporting or for use by other systems)
- **Transmission of form data** into one or more Line-of-Business (LOB) systems
- **Validation of Digital Signatures** as part of an approval process at multiple levels
- **Support for Bar Code technology** to capture data at various stages of the process, or workflow



IBM Workplace Forms v2.6 Objectives

Build on Existing Product Strengths

Marketplace Needs

- Visually precise/compliant forms
- Ability to integrate business rules that relate back to a business process in the form.
- Work with multiple integration scenarios
- Different views tailored to a process

Workplace Forms Strengths

- Pixel Precise Forms
- Sophisticated rules to govern form filling experience online or offline
- Native XML Architecture simplifies integration
- Multiple role or state-based views of a form; Wizards

IBM Workplace Forms v2.6 Objectives

Meet Additional Market Needs

Marketplace Gaps

- Expand/Fit in Global Markets
- Forms applications are built by Teams – business & IT
- Forms can be slow & difficult to build across these teams
- Forms rarely interoperate across platforms & environments
- Forms support with SOA is difficult to implement and maintain
- Industry Associations & Government want a Forms Std
- Expensive Named User Pricing in certain account scenarios

Workplace Forms v2.6 Goals

- Expand support to 26 languages!
- Support Team Collaboration paradigm
- Support Component based design and reuse
- First to market with robust support of W3C Standard XForms
- Increase SOA Support via XForms capabilities to support real-time form updates
- XForms support provides a market advantage
- Forms-based Pricing

New Web Based Form Technology Based on Web 2.0 and Ajax Technologies

- Delivers nearly the identical user experience as a stand alone e-forms client
- Minimal round tripping to server (based on Ajax)
- Local save
- Look and feel of a paper document
- Pixel compliant printing
- Based on XFDL and XForms

The screenshot shows a Microsoft Internet Explorer browser window displaying a web form titled "Mountain-Sure INVESTMENTS Brokerage Account Application". The browser's address bar shows the URL "http://localhost:8080/Investment/Transaction.aspx". The form has a navigation bar with buttons for "SUBMIT", "SAVE", "PRINT", and "CANCEL".

The form is divided into several sections:

- INVESTMENTS**: Includes checkboxes for "Check Wrong account?" and "Penny account?".
- Account Type**: A dropdown menu for "Account Type" and a "Check one" section with radio buttons for "Individual", "Joint Tenants", "Trust", "Partnership", "Corporation", "Charitable Organization", "Custodian for a Minor", "Co-tenant", and "Investment Club".
- Applicant Information**: A section with sub-headers "Individual" and "Business". It contains fields for "First Name", "Last Name", "SSN", "Date of Birth", "Business Phone", "Mailing Address", "City", "State", "ZIP Code", "Legal (Street) Address (Required in most States B.O. Etc)", "City", "State", "ZIP Code", "Employer", "Occupation", "City", "State", and "City/State".
- Employment and Affiliation**: Two columns of questions with "Yes/No" options. The first asks if the applicant is employed by a member firm of a stock exchange, a municipal securities dealer, or other securities broker/dealer. The second asks if the applicant is a director, 10% or greater shareholder, or policy making associate/officer of a publicly traded company. A third question asks if the applicant wants their name, address, and securities positions disclosed to companies in which they own securities.
- Financial Information**: Includes "Years of Experience", "Tax Bracket" (with a percentage dropdown), "Beneficial Account Owner", "Annual Income" (with a dropdown), "Liable Assets", and "Net Worth with Residence".
- Investment Objectives**: A section with checkboxes for "Preservation of Capital", "Capital Appreciation", "Speculation", "Income & Bonding", and "Tax-Advantaged Income".

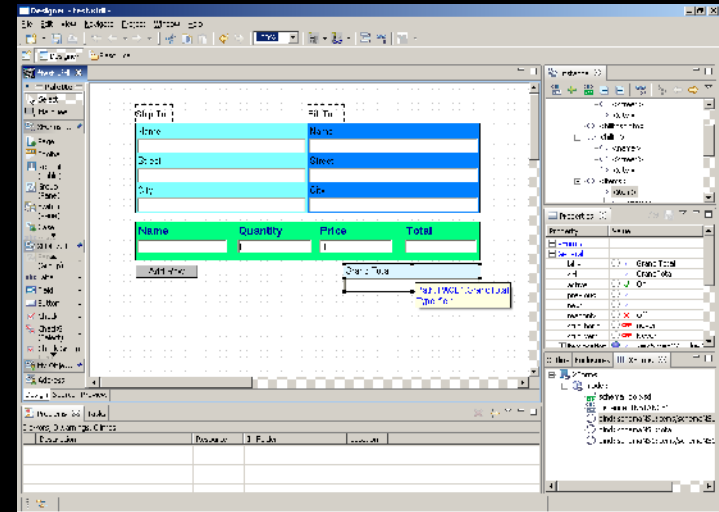
Workplace Forms Designer 2.6 - A team approach to form creation

State of the Art Development Environment

- Forms professionals now have access to the industry leading Eclipse development environment and ecosystem of plug-ins and partners.

Role Based:

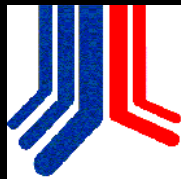
- Forms Designer/Professional** - creates presentation layer
- Business Analyst** - creates the business rules appropriate to the workflow/process as required - could also be the Forms Designer
- Data Analyst** - IT interface to get the XML Schemas necessary to integrate information with Back End systems



- Support for XForms Standard
- Model Driven Design
- Advanced Layout Functionality
- Component Re-usability
- Dynamic Tables
- Run-Time Preview
- Design Once, Render Many

Workplace Forms Momentum

- Form as Intelligent Document introduced in 1996, XML format in 1998
- Leadership within standards community
 - W3C, American Bar Association, IETF, NACHA, etc.
- Over 5M users across 300,000 end user organizations



Securities Exchange Commission

Social Security Administration

Woodmen of the World



United States Office of Government Ethics

City of Los Angeles

RCMP



Benefits of the Workplace Forms

- **Dynamic User Experience**
 - *Real-time “wizards”, sophisticated business logic extensions*
- **Customized Forms Functionality to meet Unique Requirements**
 - *Extend functionality by embedding Java functionality in a form or by dynamically extending the IBM Workplace Forms Viewer.*
- **Support for Multi-Approval Workflows with Digital Signatures**
- **Compliance and Document Integrity**
 - *Transaction records cannot be repudiated*
- **Performance - File Sizes**
 - *Scalable, lightweight architecture*
- **Fit with Enterprise Architecture**
 - *Straight through integration with native XML, XForms and open standards support (Eclipse, JSR standards) with portals, content management systems and back-end systems.*