



Java is a trademark of Sun Microsystems, Inc.



# JavaOne™

TS-5485: Case Study –  
Automating Financial  
Services using a Java™  
Based ESB, Flex and PDF.

Duane Nickull  
Adobe Systems, Inc.  
Sr. Technical Evangelist

# Housekeeping

Before you leave, **please** fill out a survey and hand it to someone before you leave

We **really** want to know what you think!

Please log out of your machine when done

Please look around to make sure you have all of your belongings

The hard copies of the lab guides are yours to keep

# The Domain Problem

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**Business Loan Express**

*[www.blxonline.com](http://www.blxonline.com)*



**In Partnership with:**

SmartDoc Technologies

*[www.smartdoctech.com](http://www.smartdoctech.com)*



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  - The forms and fragments may change on a regular basis and you need a strong architecture to structure the composition of forms

# Model for the old web -> Client Server

Client

Server

1992-2002

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1992-2002

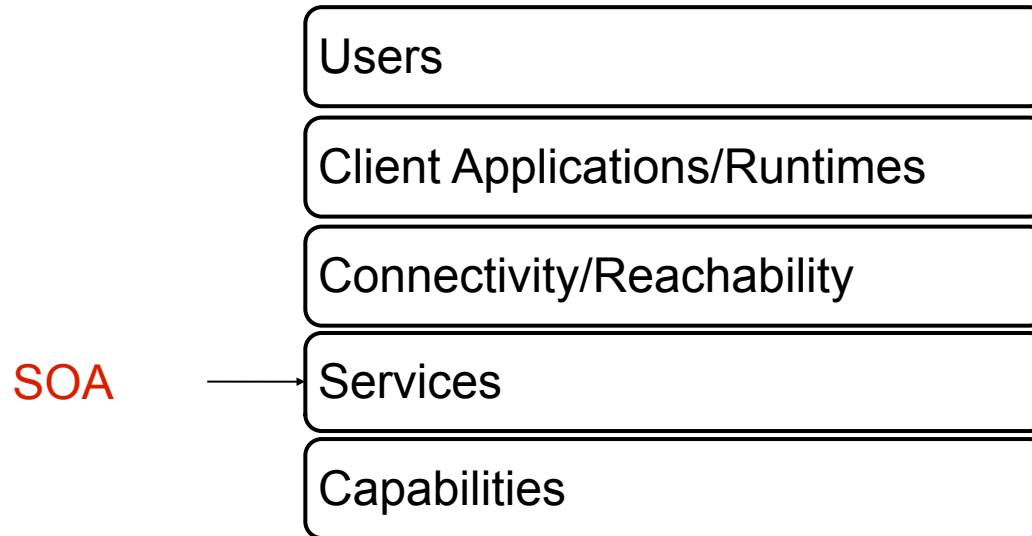
# Model for the old web -> Client Server



1992-2002

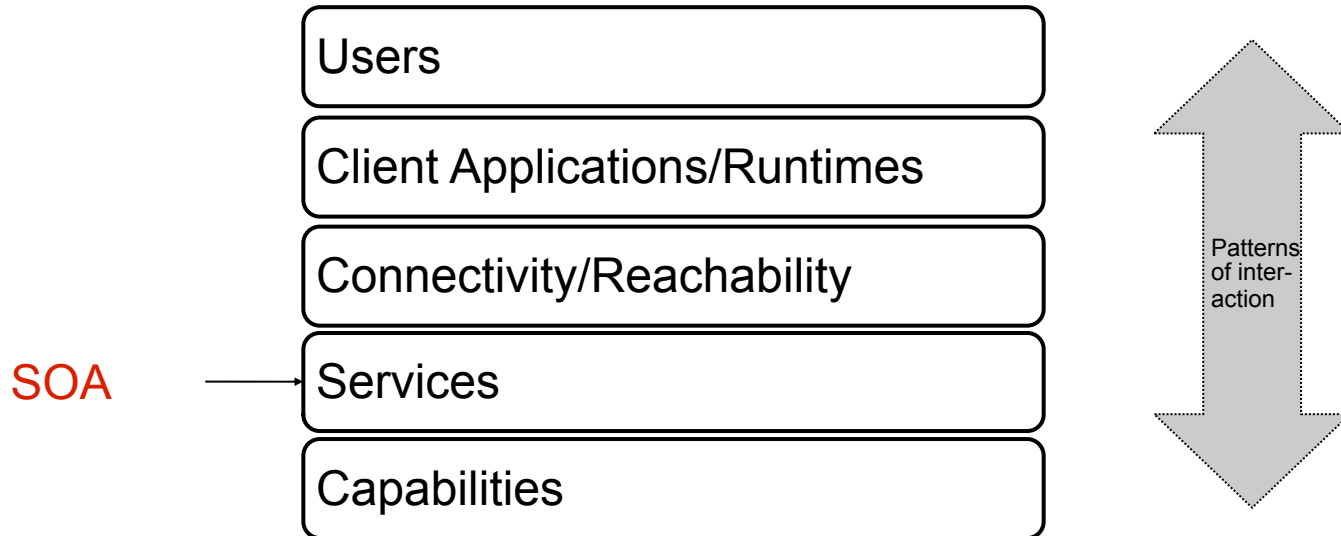
# Abstract Model for Web 2.0

Abstract **Model** for connecting and integrating capabilities and users.



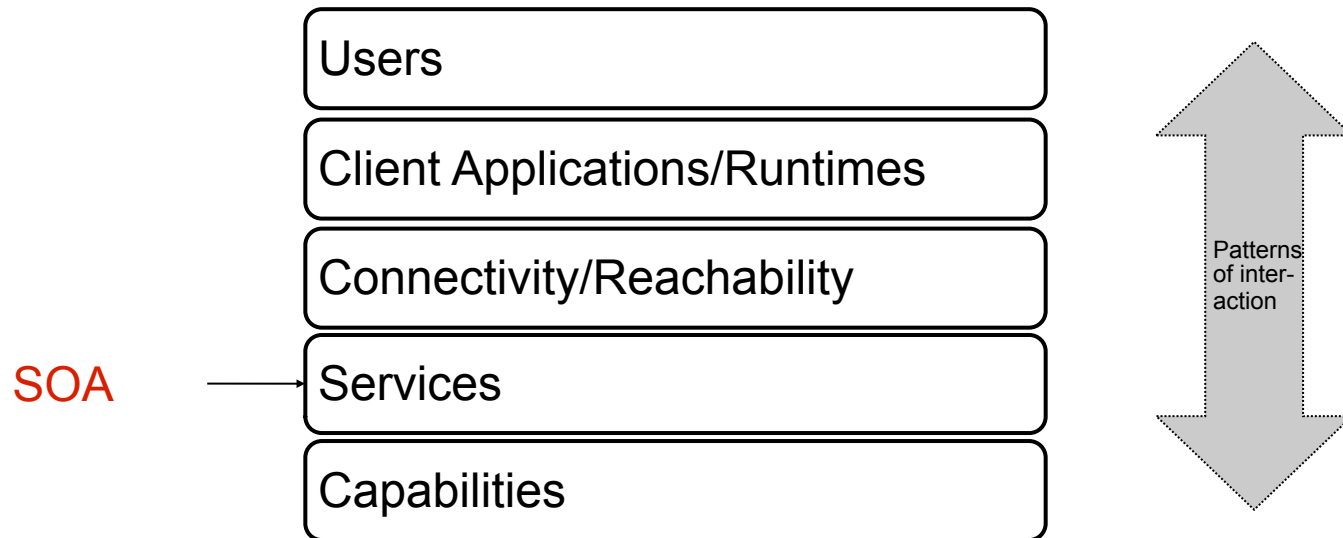
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***Don't treat software as an artifact, but as a process of engagement with your users.***

***- Tim O'Reilly***

Distributors  
& Agencies

Customers  
& Citizens

Suppliers &  
Contractors

## ENGAGEMENT PROCESSES

New account opening, Broker productivity, Grant administration...

## Internal Processes

ERP / ECM / CRM / BPM / Accounting



Distributors  
& Agencies

Customers  
& Citizens

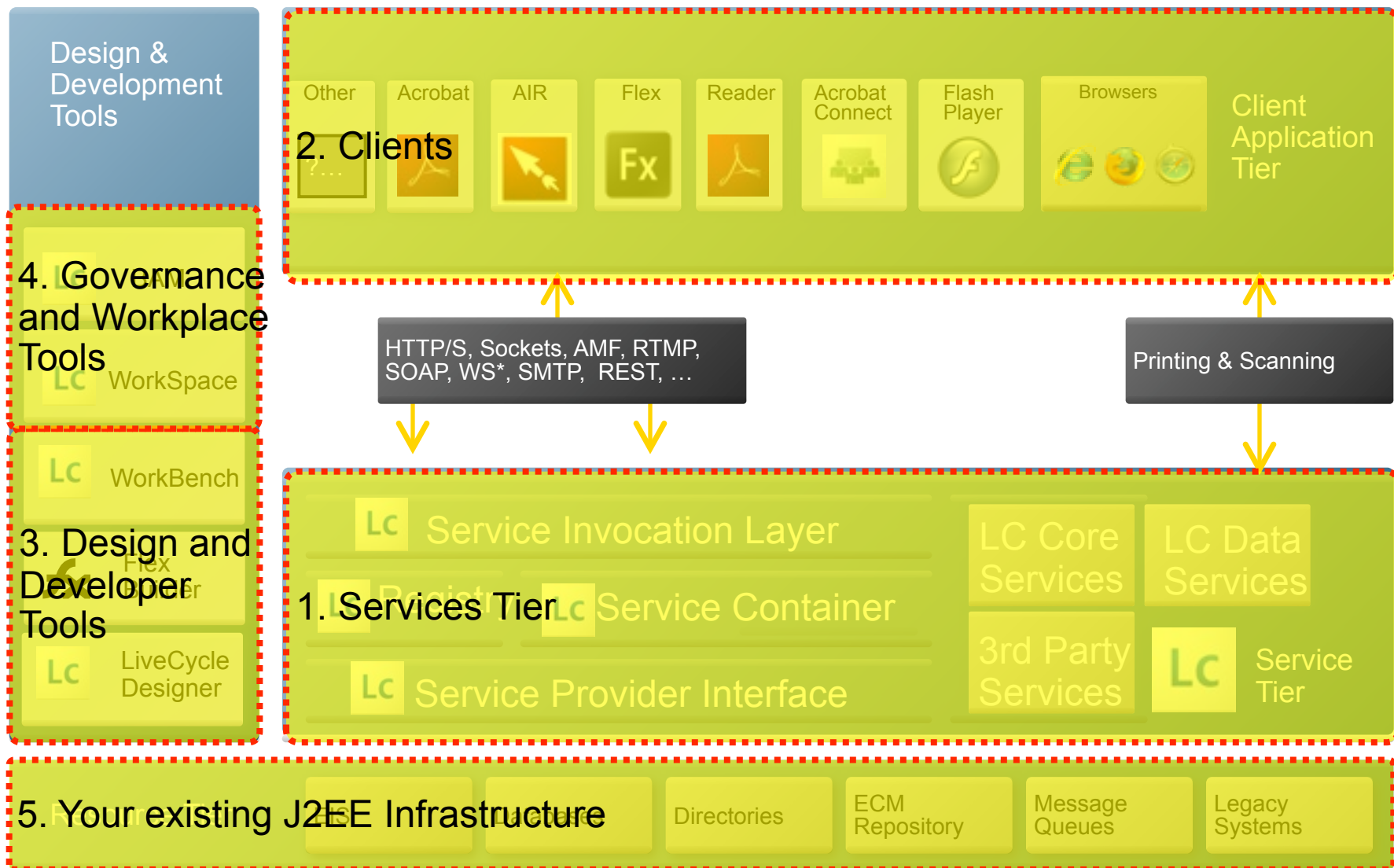
Suppliers &  
Contractors

Microformats Folksonomy S.O.A.  
Trust your users Mashing up content  
Semantics **ENGAGEMENT PROCESSES**  
New account opening, Broker productivity, Grant  
Identity 2.0 administration...  
Rich user Experience Engaging your users!  
Loose coupling RIA  
The long tail.....

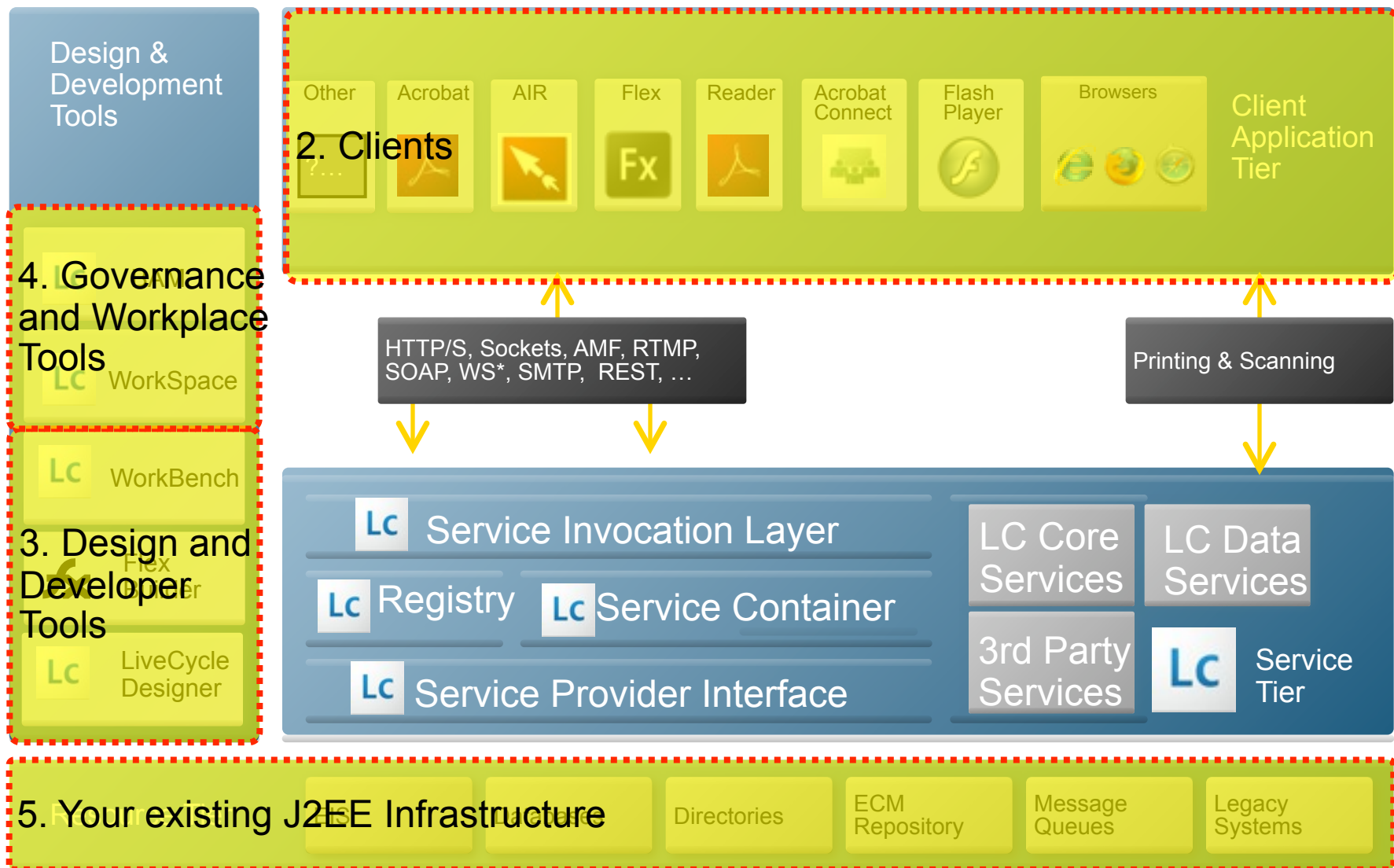
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ERP / ECM / CRM / BPM / Accounting

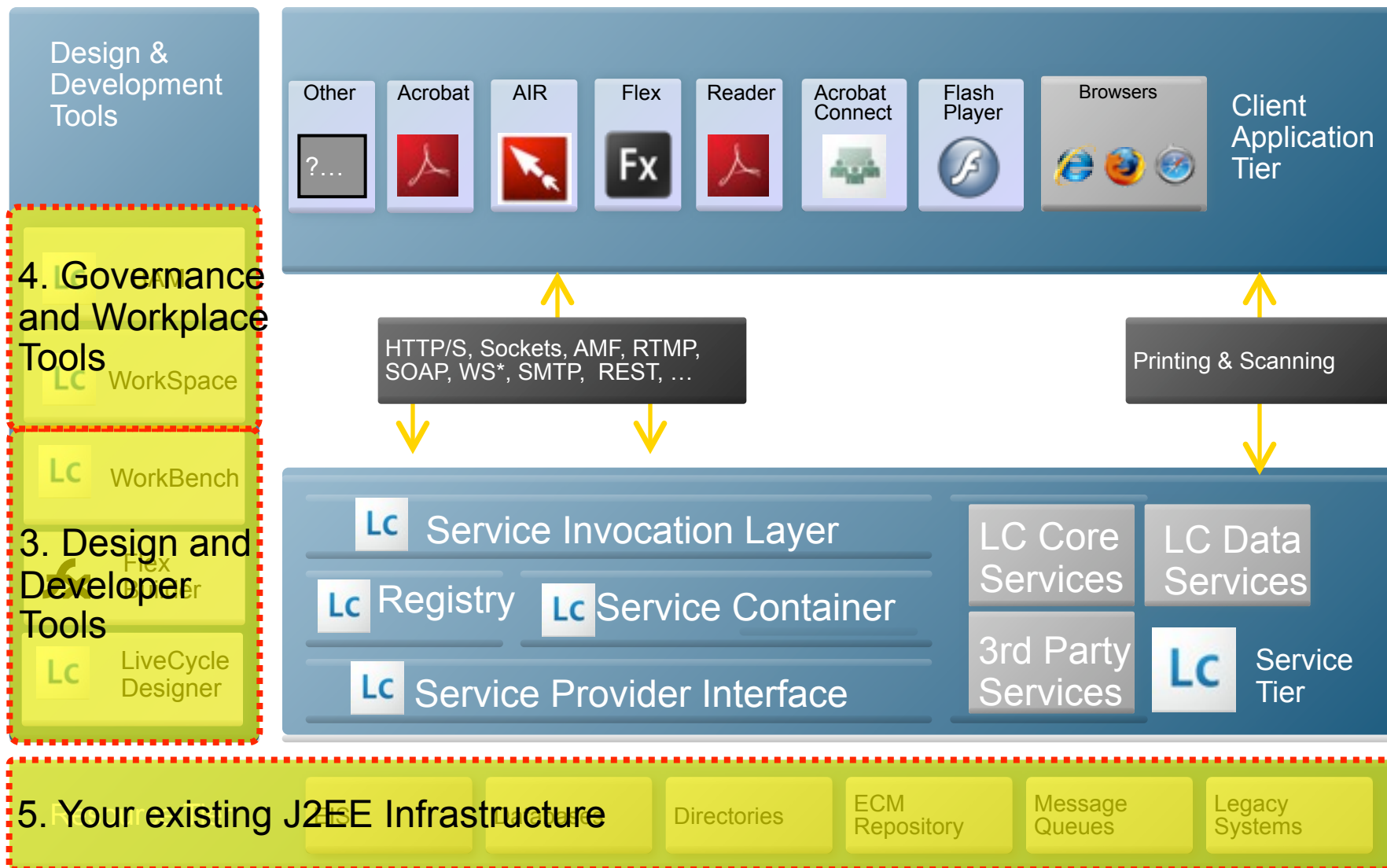
## LiveCycle ES Service Oriented Platform Architecture



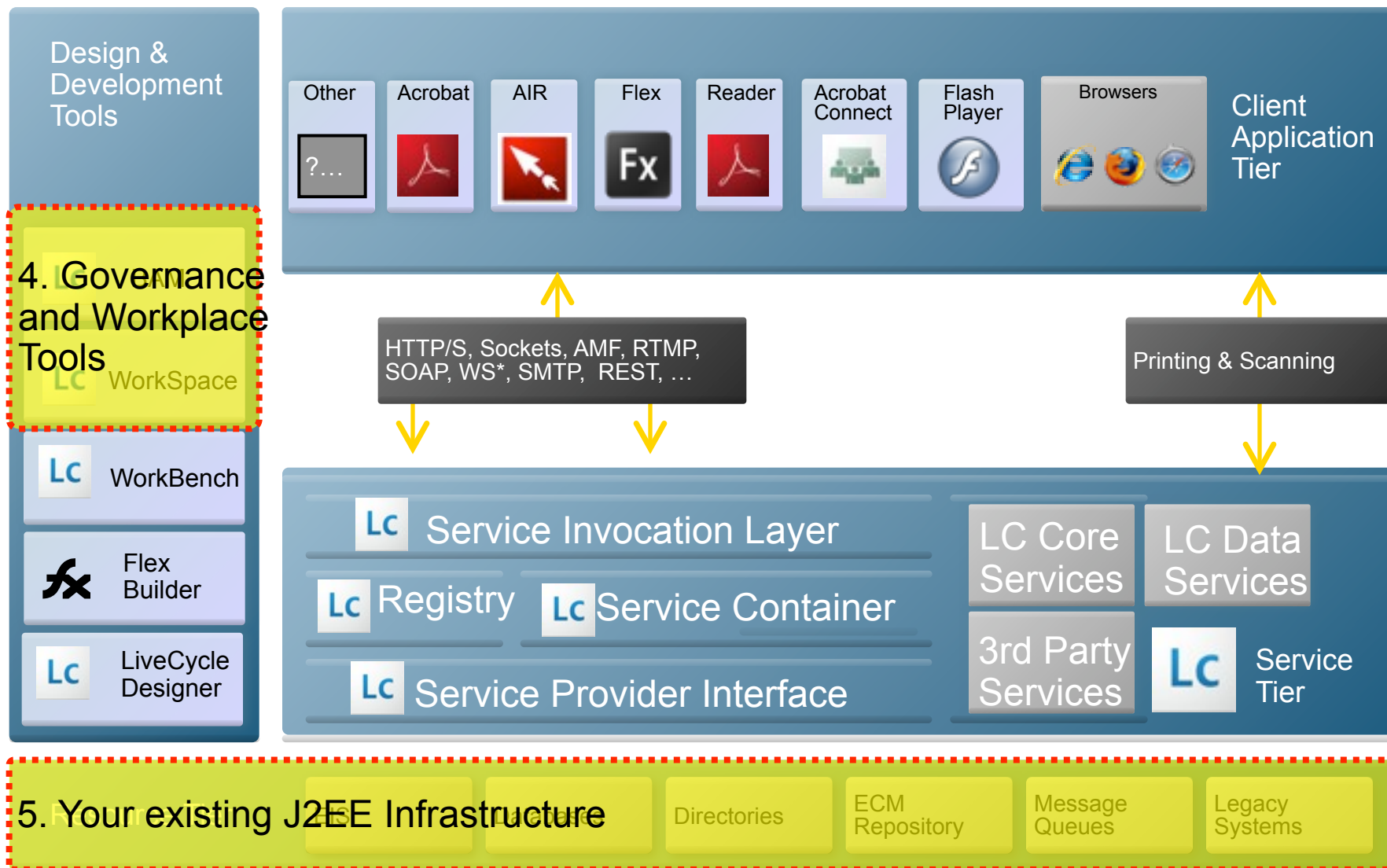
## LiveCycle ES Service Oriented Platform Architecture



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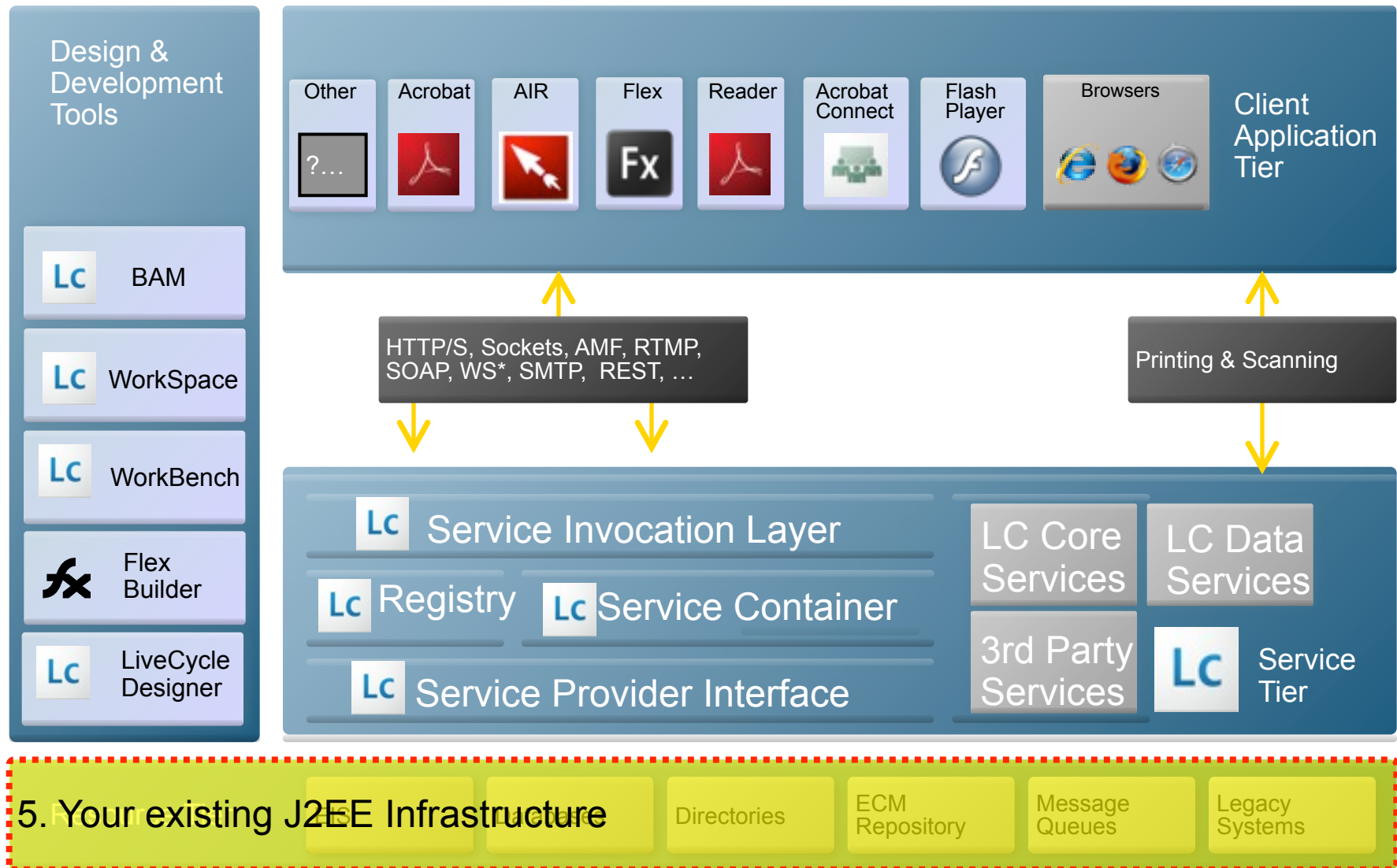


# LiveCycle ES Service Oriented Platform Architecture

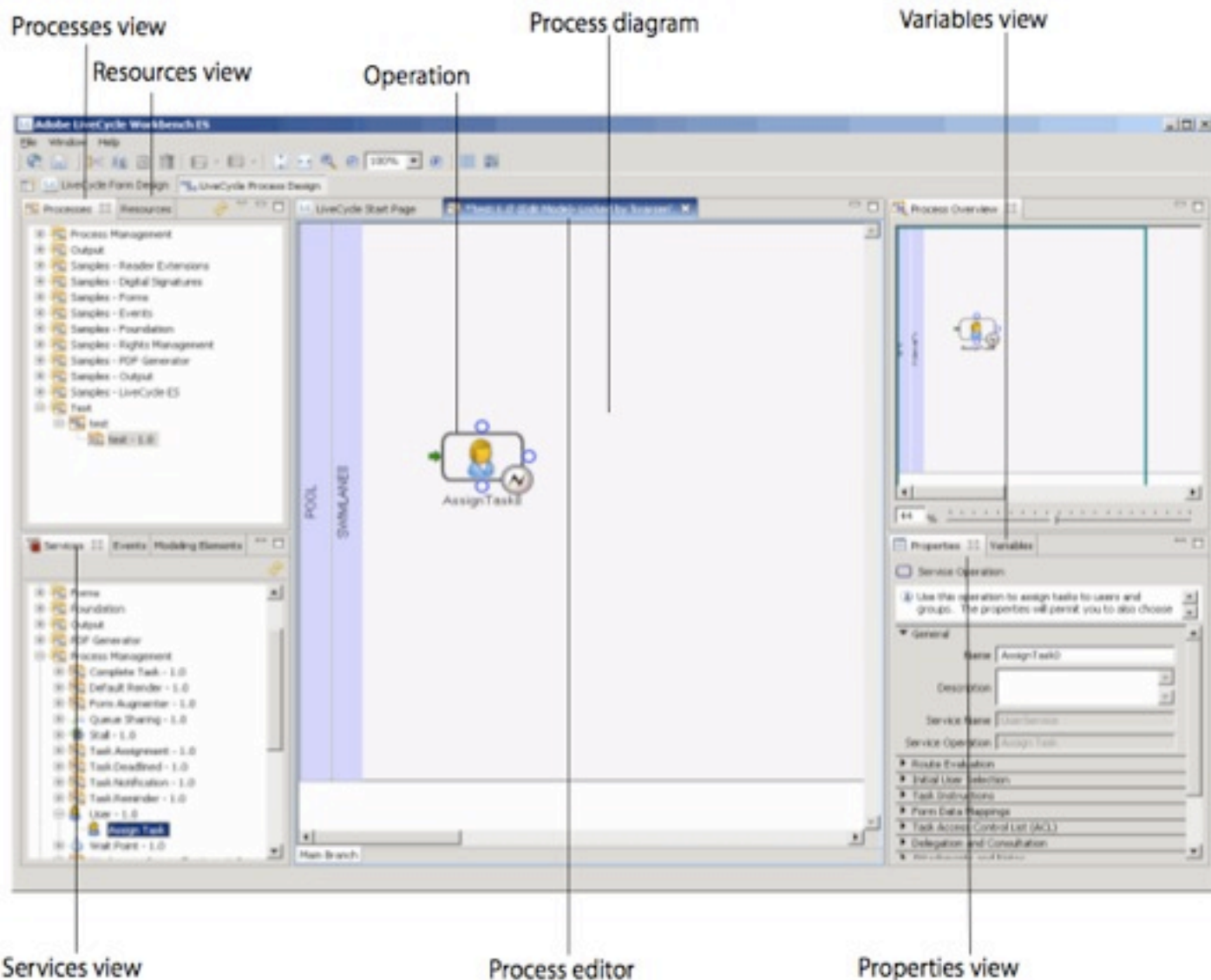




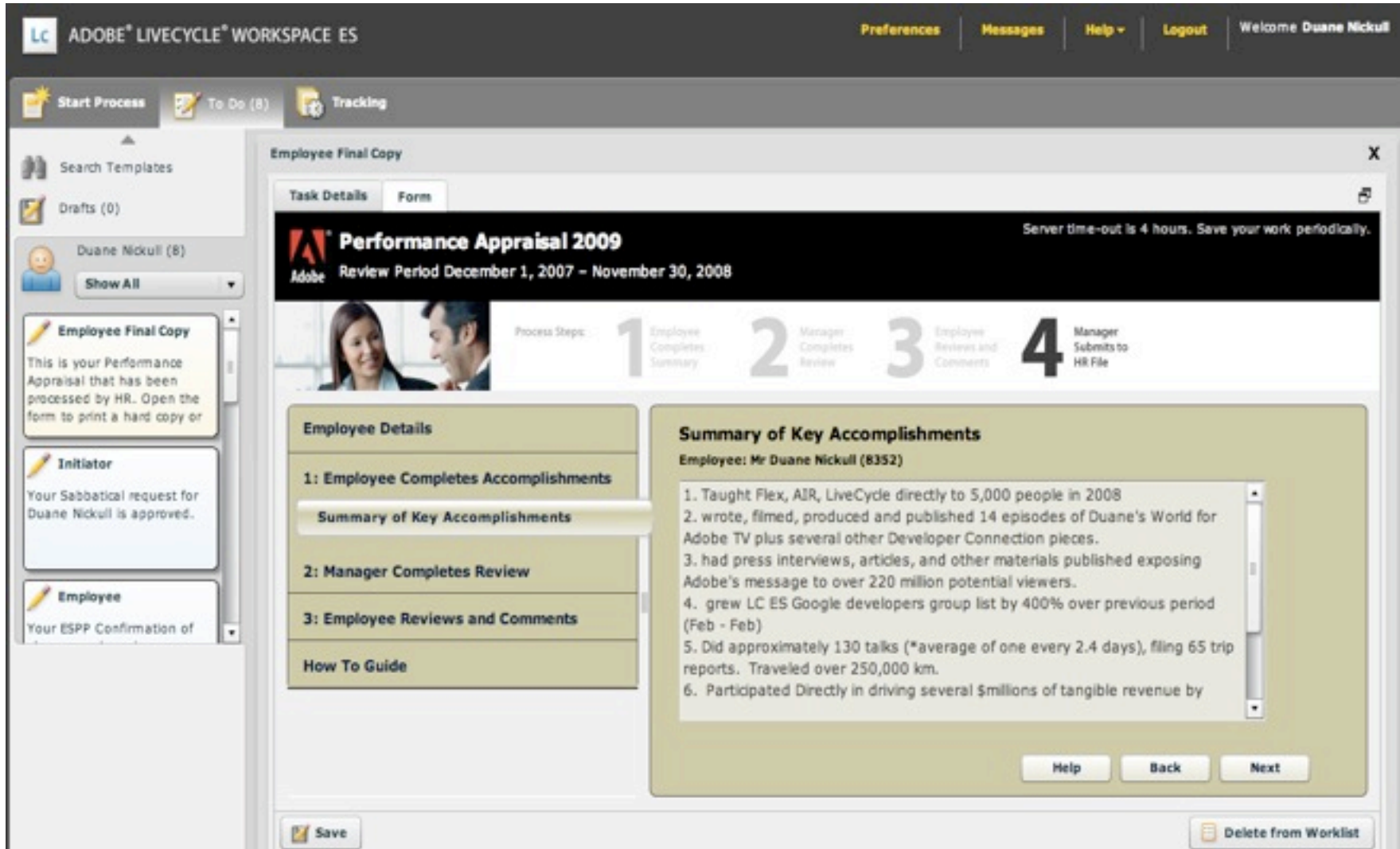
## LiveCycle ES Service Oriented Platform Architecture



## Developer Tooling



# Business User Tooling (Workspace)



The screenshot displays the Adobe LiveCycle Workspace ES interface. The top navigation bar includes links for Preferences, Messages, Help, Logout, and a welcome message for Duane Nickull. The main workspace is titled "Employee Final Copy" and shows a "Performance Appraisal 2009" form for the review period of December 1, 2007, to November 30, 2008. The form is divided into sections: "Employee Details", "Summary of Key Accomplishments", and "How To Guide". The "Summary of Key Accomplishments" section is currently active, displaying a list of achievements for Mr. Duane Nickull (8352). The interface also features a sidebar with navigation options like "Start Process", "To Do (8)", and "Tracking", and a list of tasks including "Employee Final Copy", "Initiator", and "Employee".

ADOBE® LIVECYCLE® WORKSPACE ES

Preferences Messages Help Logout Welcome Duane Nickull

Start Process To Do (8) Tracking

Search Templates  
Drafts (0)  
Duane Nickull (8)  
Show All

**Employee Final Copy**  
This is your Performance Appraisal that has been processed by HR. Open the form to print a hand copy or

**Initiator**  
Your Sabbatical request for Duane Nickull is approved.

**Employee**  
Your ESPP Confirmation of

**Employee Final Copy**  
Task Details Form

**Performance Appraisal 2009**  
Review Period December 1, 2007 – November 30, 2008

Server time-out is 4 hours. Save your work periodically.

Process Steps: 1 Employee Completes Summary 2 Manager Completes Review 3 Employee Reviews and Comments 4 Manager Submits to HR File

**Employee Details**

1: Employee Completes Accomplishments

**Summary of Key Accomplishments**

Employee: Mr Duane Nickull (8352)

1. Taught Flex, AIR, LiveCycle directly to 5,000 people in 2008
2. wrote, filmed, produced and published 14 episodes of Duane's World for Adobe TV plus several other Developer Connection pieces.
3. had press interviews, articles, and other materials published exposing Adobe's message to over 220 million potential viewers.
4. grew LC ES Google developers group list by 400% over previous period (Feb - Feb)
5. Did approximately 130 talks (\*average of one every 2.4 days), filing 65 trip reports. Traveled over 250,000 km.
6. Participated Directly in driving several \$millions of tangible revenue by

Help Back Next

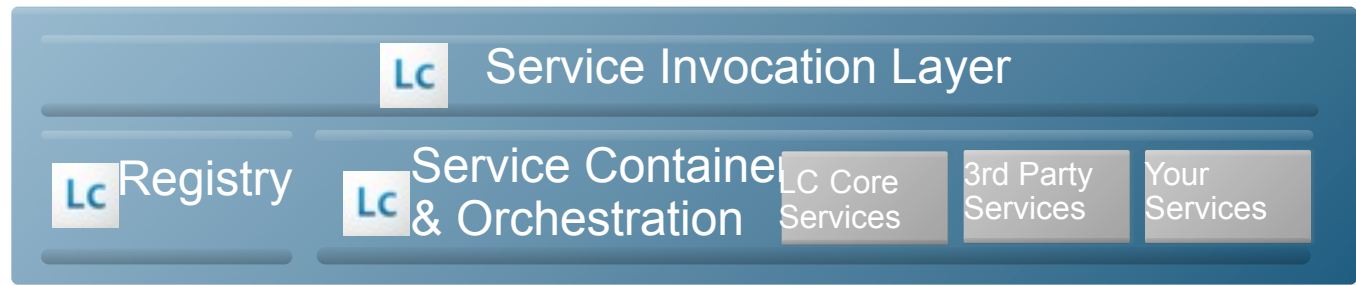
Save Delete from Worklist



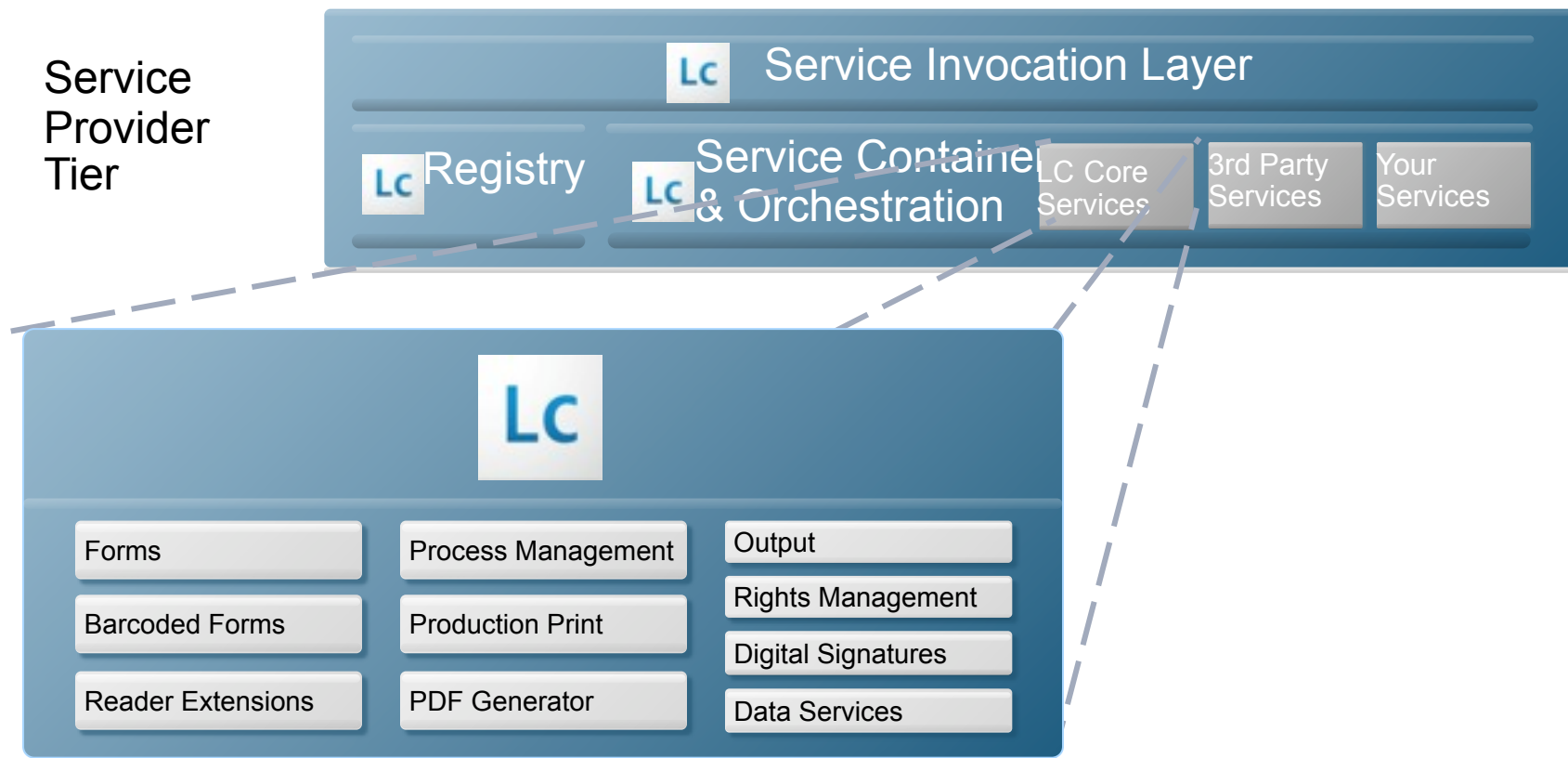
# LiveCycle Core Services (Java™ Platform)

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Service  
Provider  
Tier



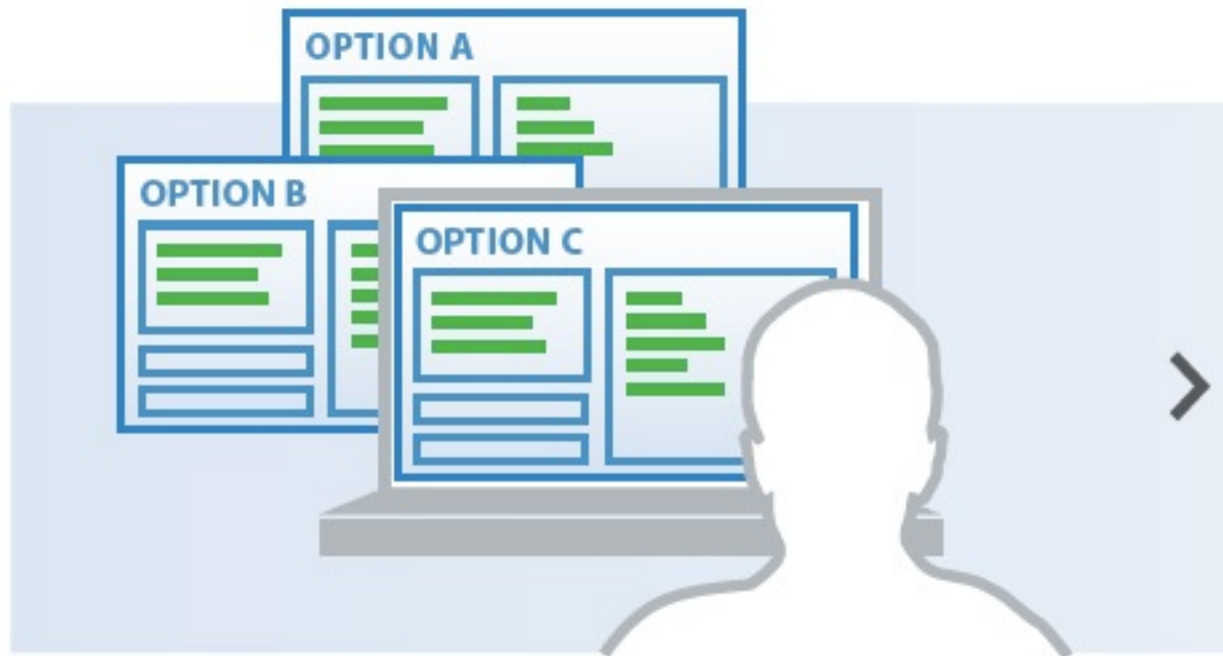
# LiveCycle Core Services (Java™ Platform)



# LiveCycle Core Services (Java™ Platform)



# Solution architecture



Borrower researches loan options via an RIA and selects a product.

## Step 2



Borrower initiates loan application.  
Where possible, information is  
prepopulated for the customer, and  
the remaining required data is provided  
via an easy-to-use interface.

## The forms

Adobe Acrobat Professional - [DLX\_Community\_Express\_Loan\_Application\_4000.pdf]

File Edit View Document Comments Tools Advanced Window Help

This document contains interactive form fields. ☐ Highlight fields ☐ Highlight required fields

### Community Express Loan Application

for loans of \$5,000 - \$50,000

Business Loan Express  
115 Bedford Rd., Suite 200  
Piscataway City Branch, NJ 07050  
800-234-6356

Document ID: DLX\_000  
Document Size: 1014496

#### IMPORTANT INSTRUCTIONS FOR COMPLETING THIS APPLICATION FORM

This version of the Community Express application can be sent to us in one of three ways:

1. You can "mail" your application by clicking the "Submit via mail" button.
2. You can submit your application securely over the Internet by clicking the "Submit via Internet" button.
3. You can fax a printed form to us. Only fully completed applications will be processed so make sure to answer all questions. *Please remember to FAX your work others, and to FAX your application before submitting.*

If you have any additional questions please call 800-234-6356.

**Fax**  
Print and Fax  
You can "Fax" this form and fax it to us at 800-234-6356.

**Email**  
Submit via Email  
Application will be sent to BLX via Email. (outlook, etc.)  
*(Preferred Method)*

**Internet**  
Submit via Internet  
Application will be sent to BLX securely via the Internet.  
*(Preferred Method)*

#### LOAN TERMS

Community Express loans cannot be used to finance the purchase of an existing business.

All Loan drawdowns - \$5,000 will be paid on "Full Draw".  
Full Draw plan is 24.99% for a term of 3 years.

All Loan drawdowns - \$10,000 - \$50,000 will be paid on "Full Draw".  
Full Draw plan is 24.99% for a term of 3 years.

Note: This is a variable rate loan that adjusts according to market.

#### TYPICAL DOCUMENTS NEEDED AT CLOSING

These documents do not need to be submitted with the closing package, they are loan-approved, we will request that they be submitted with the closing package, along with any other documents as required by the loan officer prior to closing.

1. Copy of the Business Plan must be submitted to Technical Assistant prior to funding.
2. Copy of the mortgage or lease for each principal office location.
3. Certified Copy of the Articles of Incorporation (for corporations), Articles of Organization (for LLCs) or Partnership Agreement (for Partnerships).
4. Copy of Business License.
5. Certificate of Good Standing from the State for each company on the LLC list.

Adobe Acrobat Professional - [DLX\_Community\_Express\_Loan\_Application\_4000.pdf]

File Edit View Document Comments Tools Advanced Window Help

This document contains interactive form fields. ☐ Highlight fields ☐ Highlight required fields

#### TECHNICAL ASSISTANCE PROVIDER INFORMATION

It is an IRS requirement that all Community Express applications have a Technical Assistant. BLX is capable of a list of TAs located in your area on request.

Technical Assistance Provider Name  TA E-Mail Address

Street Address or Branch Office  TA Mailing Code  TA Phone Number

#### CURRENT CREDIT REQUESTED

Use the SBA guidelines, a borrower must request 10% of the total capital needs of a startup business (24 months or less of operations). For example: the \$20,000 loan, the minimum cash requirement would be \$2,000. If the borrower requests \$20,000 - \$27,999, the minimum cash requirement would be \$2,799.99. If the borrower requests \$28,000 - \$50,000, the minimum cash requirement would be \$5,000. If the borrower requests \$50,001 - \$75,000, the minimum cash requirement would be \$7,500.10. If the borrower requests \$75,001 - \$100,000, the minimum cash requirement would be \$10,001.00. If the borrower requests \$100,001 - \$150,000, the minimum cash requirement would be \$15,001.00. If the borrower requests \$150,001 - \$200,000, the minimum cash requirement would be \$20,001.00. If the borrower requests \$200,001 - \$250,000, the minimum cash requirement would be \$25,001.00. If the borrower requests \$250,001 - \$300,000, the minimum cash requirement would be \$30,001.00. If the borrower requests \$300,001 - \$350,000, the minimum cash requirement would be \$35,001.00. If the borrower requests \$350,001 - \$400,000, the minimum cash requirement would be \$40,001.00. If the borrower requests \$400,001 - \$450,000, the minimum cash requirement would be \$45,001.00. If the borrower requests \$450,001 - \$500,000, the minimum cash requirement would be \$50,001.00.

Borrower Funds  Loan Amount Requested  Total Funds  Borrower Injection %

#### TELL US ABOUT YOUR COMPANY OR BUSINESS

Business Name  DBA (if different from above)

Please describe the nature of your business

Business Type  Ownership Type  Business Federal Tax ID #  Business NAICS Code

Business Contact Name  Business Contact E-Mail Address  Owner Name

Business Address  Office or Unit #  City  County

State  ZIP Code  Phone Number  Fax Number  Cell Phone Number  Business Email Code

Business Mailing Address (if different from above)  Office or Unit #  City  County

State  ZIP Code



# Signatures – process fork!



Borrower prints application forms containing 2D barcodes and applies a wet signature.

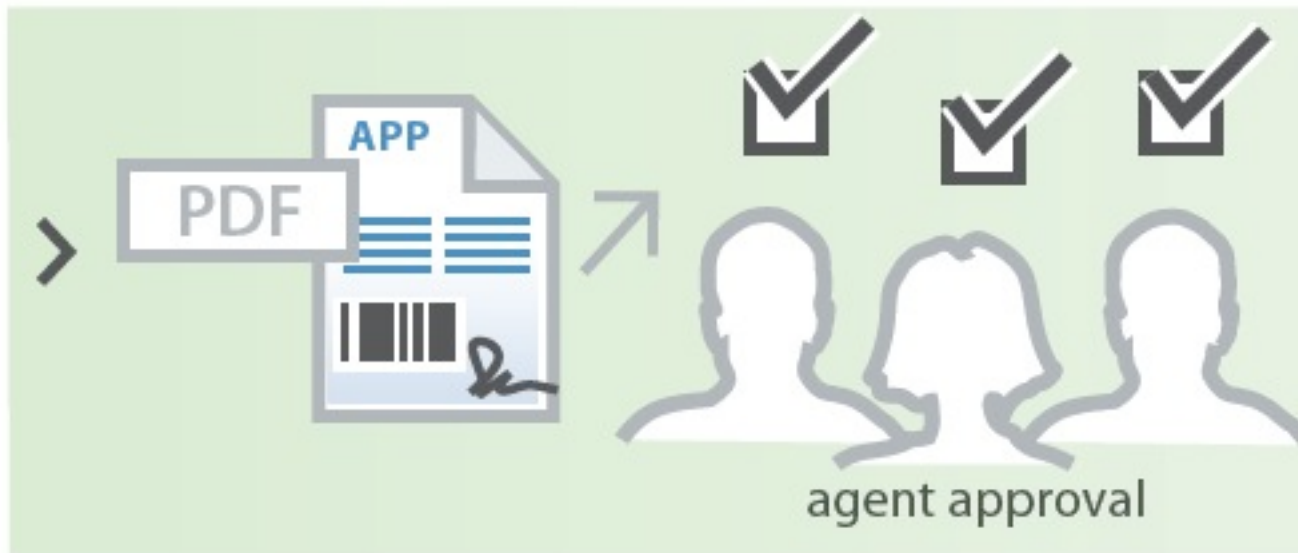
— OR —



Borrower electronically signs application forms and submits for processing.

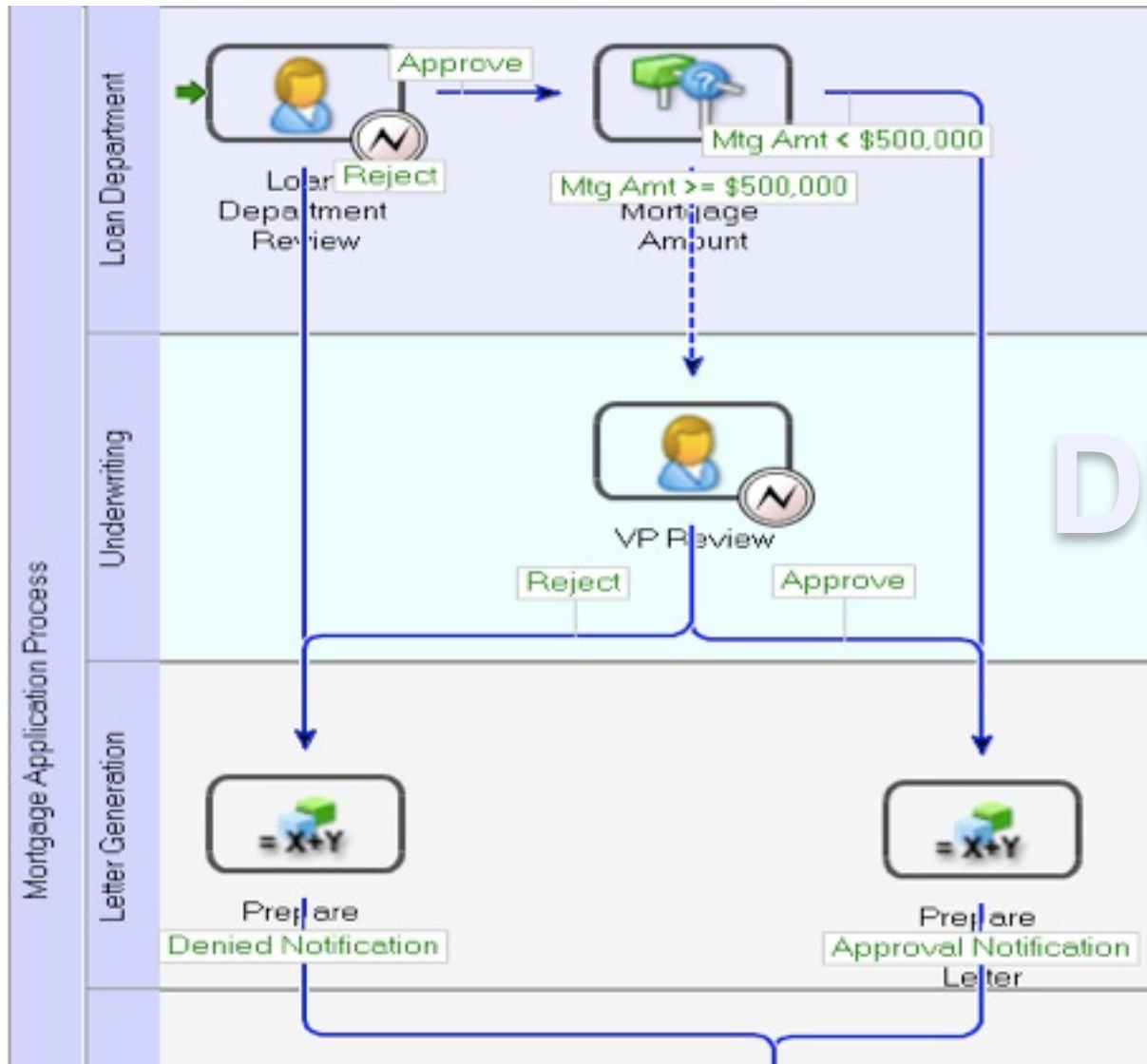


# Integrating the form into the process

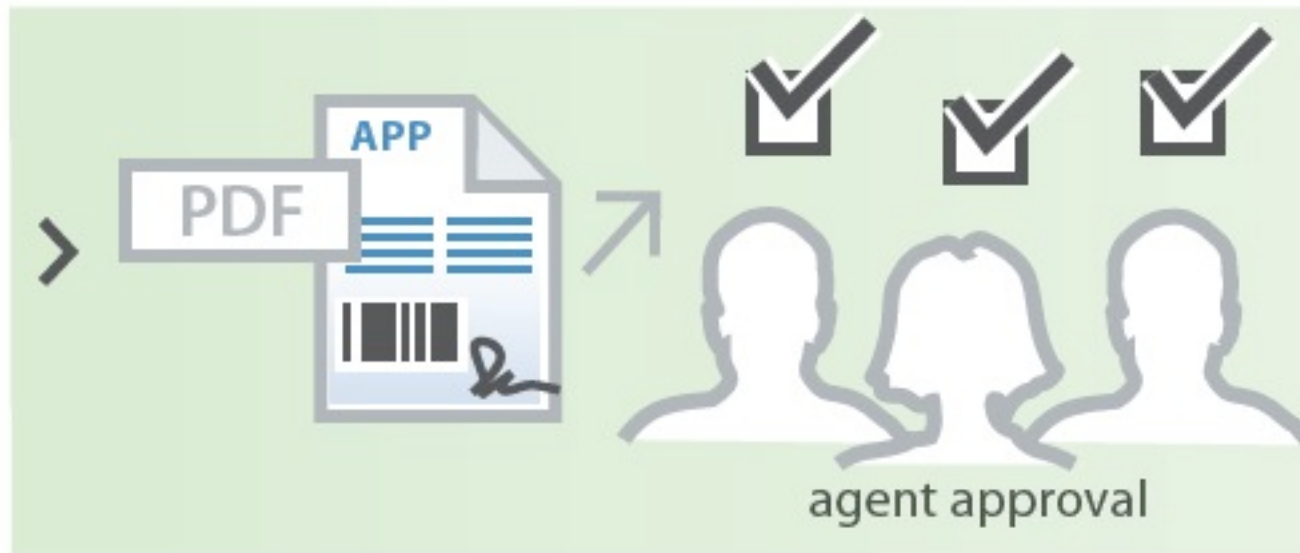


Loan application is routed for review and approval.

# Routing the form via LiveCycle ES



# Signatures – validation



Loan application is routed for review and approval.

# Signatures – adding, validating

## Java API docs:

Document **addSignatureField**(Document inPDFDoc, String signatureFieldName, Integer pageNumber, PositionRectangle positionRectangle, FieldMDPOptionSpec fieldMDPOptionsSpec, PDFSeedValueOptionSpec seedValueOptionsSpec)

Creates a visible signature field within the PDF document.

PDFSignatureVerificationResult **verify**(Document inPDFDoc, String signatureFieldName, RevocationCheckStyle revocationCheckStyle, VerificationTime verificationTime, OCSPOptionSpec ocsOptionSpec, CRLOptionSpec crlOptionSpec, TSPOptionSpec tspOptionSpec, PathValidationOptionSpec pathValidationOptionSpec)

Verifies the signature in a signature field and returns information about the signature.

# Adding a signature field programmatically

```
//Create a PositionRectangle object that specifies
//the signature fields location
PositionRectangle post = new PositionRectangle(193,47,133,12);

//Specify the page number that will contain the signature field
java.lang.Integer pageNum = new java.lang.Integer(1);

//Add a signature field to the PDF document
Document sigFieldPDF = signClient.addSignatureField( inDoc,
                                                    fieldName, pageNum, post, null, null);
```

## addSignatureField()

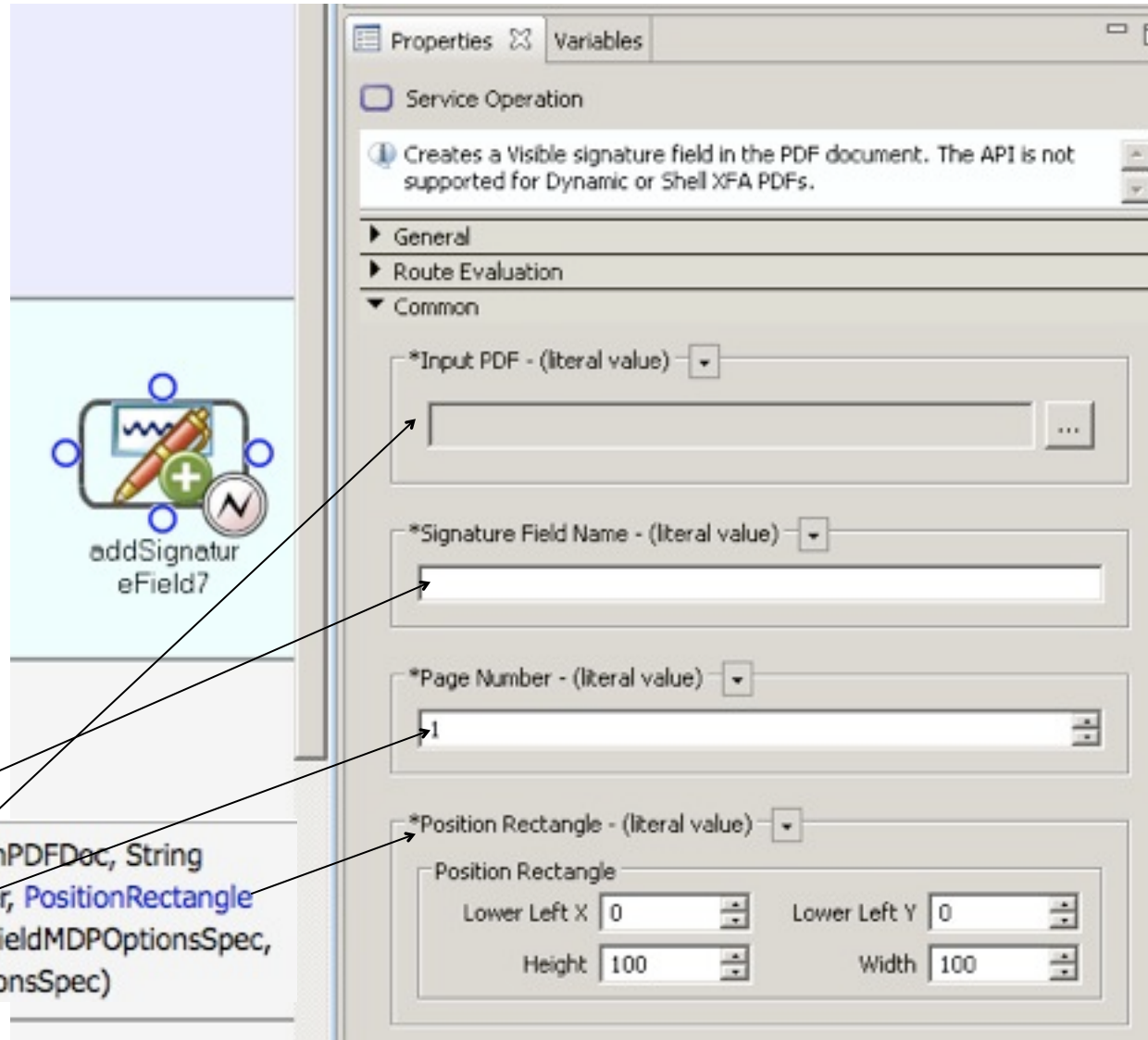
```
public Document addSignatureField(Document inPDFDoc, String signatureFieldName, Integer pageNumber,
PositionRectangle positionRectangle, FieldMDPOptionSpec fieldMDPOptionsSpec, PDFSeedValueOptionSpec
seedValueOptionsSpec)
```

Creates a visible signature field within the PDF document.

# Signatures – adding, validating

Workbench view:

- Maps to underlying Java APIs.
- Coding without coding.



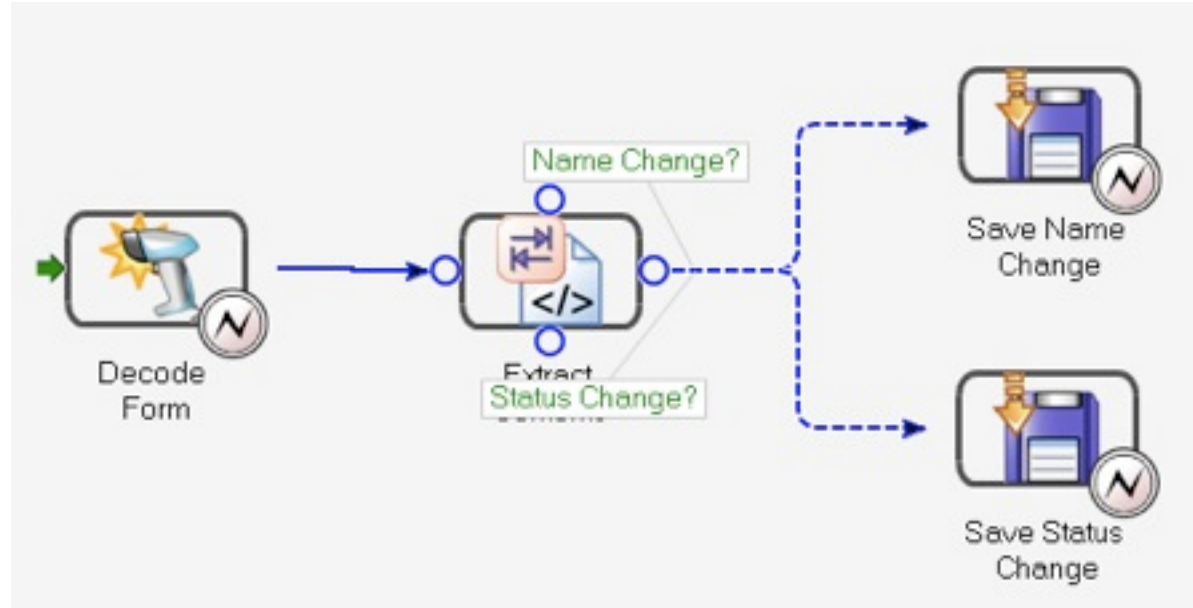
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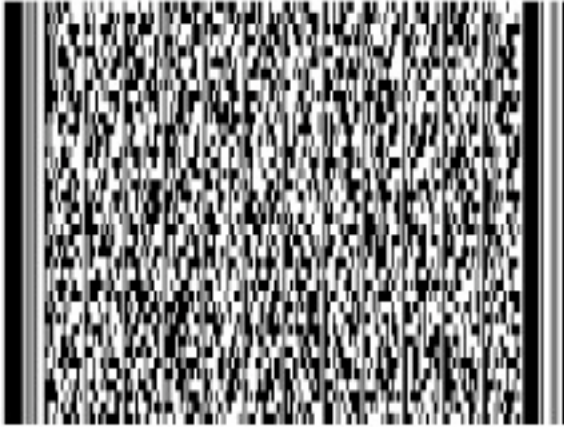

# But what about ink signatures?

- Integration into existing back ends is harder.
- How to reconcile ink signatures with datasets or processes?
- 2D barcodes to the rescue.



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- Integration into existing back ends is harder.
- How to reconcile ink signatures with datasets or processes?
- 2D barcodes to the rescue.

D1. Human Subjects <input type="radio"/> Yes <input type="radio"/> No		D2. If Yes, Comp. Number dsfdsfsdfsdf		E1. Vertebrate Animals <input type="radio"/> Yes <input type="radio"/> No		E2. If Yes, Assurance Number	
F. Support Period (MM/DD/YY) From: Through:		G. Initial Budget Costs Direct Costs: Total Costs:		H. Support Period Costs Direct Costs: Total Costs:			
				I. Type of Organization <input type="radio"/> Public <input type="radio"/> Private <input checked="" type="radio"/> For Profit		J. Organization Code	
						K. Identification Number	
						L. District	
							
				Principal Investigator			
Any reference to company names and company logos in the sample forms included in this software is for demonstration purposes only and is not intended to refer to any actual organization.							



# Final step in process



Upon approval, an automatic notification is created and sent to the customer.

A personalized welcome package, including the required loan documents, is automatically generated and delivered to the customer.

# Results!

- Accelerate loan processing
- Improve margins on loans
- Expand customer base with streamlined loan processes
- Strengthen relationships with brokers and borrowers

*“We’ve found that growing our business and improving services do not have to drain budgets and staff resources”*

Allen Levine,

# On the cloud

ADOBE® LIVECYCLE® EXPRESS BETA

INSTANCES HISTORY BACKUPS DOWNLOADS ABOUT LOGOUT

LIVECYCLE INSTANCE CLOUD ADMINISTRATION

START INSTANCE STOP INSTANCE SHUTDOWN INSTANCE

i-3272f45b

Name: DuanesWorldTest

VM Type: Large (Quad Core/7.5GB)

Location: us-east-1b

Status: Terminated

Ping: 305 ms

CPU: 87% idle

Memory: 0.9 GB free

Runtime: 1d22h44m40s

i-b67ef8ef

Name: name

VM Type: Large (Quad Core/7.5GB)

Location: us-east-1b

Status: Terminated

Ping: --- ms

CPU: ---% idle

Memory: --- GB free

Runtime: 1d21h39m52s

i-c28809ab

Name: DuanesWorldTest

VM Type: Large (Quad Core/7.5GB)

Location: us-east-1b

Status: Running

Ping: 305 ms

CPU: 95% idle

Memory: 2.2 GB free

Runtime: 0d2h55m51s

<https://lifecycle.express.adobe.com/site/dashboard>

☒ SHOW TERMINATED INSTANCES

AMI ID	Instance ID	Instance Name	Instance Description	Instance State	Instance Type	Instance Location	Instance Publ	Instance Start Time
ami-29a24540	i-3272f45b	DuanesWorldTest	This is a test	Terminated	m1.large	us-east-1b	ec2-75-101-...	2009-01-13T15:15:49-08:00
ami-29a24540	i-b67ef8ef	name	description	Terminated	m1.large	us-east-1b	ec2-72-44-3...	2009-01-13T16:20:46-08:00
ami-29a24540	i-c28809ab	DuanesWorldTest	Try to get some real work done	Running	m1.large	us-east-1b	ec2-75-101-...	2009-01-15T11:04:47-08:00

# AIR Client to communicate



## References:

- LiveCycle ES 2D Barcodes - <http://www.adobe.com/products/lifecycle/barcodedforms/>.
- LiveCycle ES Digital Signatures - <http://www.adobe.com/products/lifecycle/digitalsignatures/>
- These slides, come LiveCycle tutorials and other stuff – <http://www.duanesworldtv.org>
- Business Loan Express - [www.blxonline.com](http://www.blxonline.com)
- System Integrator – [www.smartdoctech.com](http://www.smartdoctech.com)



# JavaOne™

# Thank You

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dnickull at adobe dot com

