



IBM Software

IBM Forms 4.0

Solution Architecture

An IBM Proof of Technology



Objectives

- Describe the core components found in an IBM Forms solution architecture
- Identify architecture considerations
- Explain components found in the lab machine image



Agenda

- Forms Solution Architecture
- Considerations
- Lab Image



Flexible Architecture

- Client
 - ▶ How will you deliver forms to the client?
- Forms Storage
 - ▶ Where will your blank and submitted forms be stored?
- Forms Workflow
 - ▶ What workflow engine will you be using to process submitted forms?
- How will you handle the presentation layer?
 - ▶ UI for listing blank forms, filling out forms, processing submitted forms, searching for forms
 - ▶ Web application or portal interface? Integration with existing web site?



Typical Use Cases Involving Multiple Components

- User access a web page containing a list of blank forms
 - ▶ Web page is a portlet or servlet which queries repository (i.e. ECM) for list of forms user has access to
- User clicks on blank form
 - ▶ Servlet or portlet retrieves selected XFDL form from repository
 - ▶ If client has IBM Forms Viewer Client installed, XFDL form sent as is to browser. Otherwise, servlet (or portlet) uses IBM Forms Webform Server to convert form to DHTML before sending to browser
- User completes form and clicks submit
 - ▶ Servlet or portlet processes submitted form and saves to repository (i.e. save form to FileNet)
 - ▶ Servlet or portlet also starts form on workflow process
- User returns at a later time to check status
 - ▶ Servlet or portlet displays information on where form is on the workflow process

The screenshot displays the IBM Forms 4.0 PoT web interface. At the top, there is a navigation bar with tabs for 'USAFPOC', 'Testing', 'FCMP', 'OERA', and 'Help'. The main content area is divided into several sections:

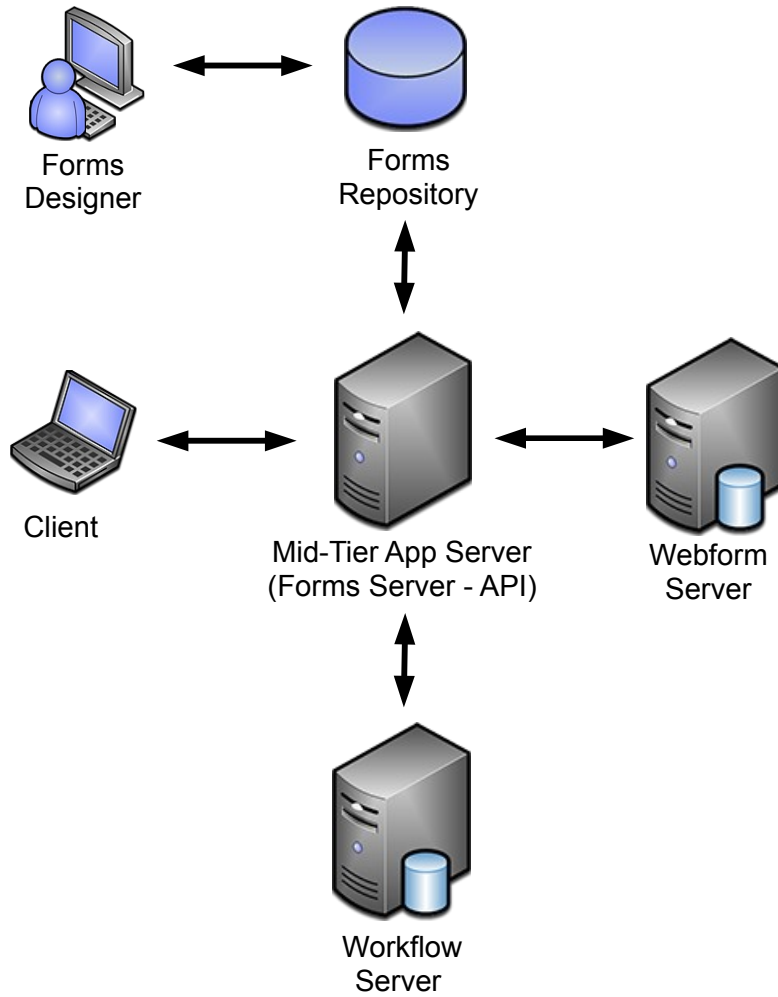
- FCMP - Awaiting:** A section with the text 'No Forms found.' and a 'Refresh' button.
- FCMP - Favorites:** A table listing various forms with columns for 'Form No.', 'Title', and 'Form Date'.

Form No.	Title	Form Date
DA FORM 137-1	Unit Clearance Record	2004-03-10
DA FORM 137-2	Installation Clearance Record	2004-03-08
DA FORM 260	Request for Publishing	2004-03-08
DA FORM 31	Request for Authority for Leave	2004-03-08
DA FORM 2425B	Readiness and Deployment Checklist	2004-03-08
DD FORM 1381-2	Travel Voucher and Sub Voucher	2004-03-08
DD FORM 1610	Request and Authorization for TDY Travel of DOD Personnel	2004-03-08
VA FORM 60	Interagency Cross-Servicing Support Agreement	2004-04-20
VA FORM 60A	Life Safety Inspection Report	2004-04-20
- FCMP - Working:** A table listing forms in progress with columns for 'Form No.', 'Document Name', and 'Updated'.

Form No.	Document Name	Updated
DD FORM 1381-2	Rater, Jo Travel Voucher	2004-03-10 15:10
DA FORM 137-1	Rater, Joe, N Clearance	2004-03-10 15:49
DA FORM 260	Rater, Joe, N Publishing	2004-03-10 16:06
- FCMP - Tracking:** A table listing forms in the tracking stage with columns for 'Document Name', 'Owner', and 'Suspense Date'.

Document Name	Owner	Suspense Date
Support Agreement	Joe SRater	2004-06-01
- FCMP - Completed:** A section with the text 'No Forms found.'

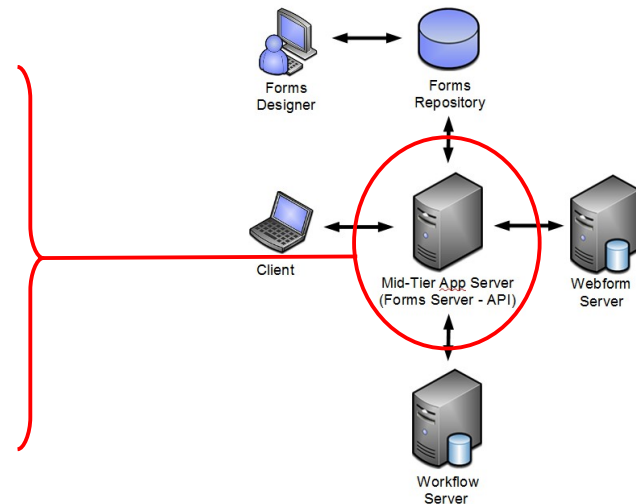
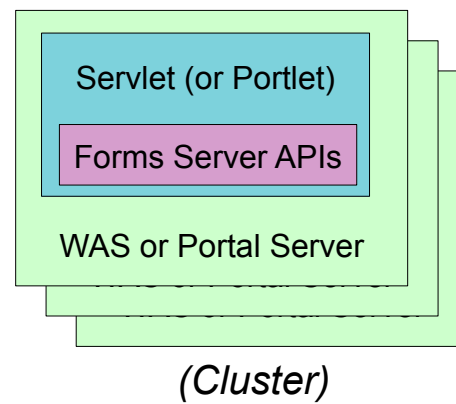
High Level Architecture



- **Forms Designer**
 - ▶ Creates forms and stored in forms repository
- **Forms Repository**
 - ▶ Stored blank and/or submitted forms
 - ▶ Database, file system, ECM server, etc.
- **Mid-Tier Application Server**
 - ▶ Handles forms requests and form submissions
 - ▶ Works with Webform Server for zero-footprint
 - ▶ WebSphere App Server (or Portal Server)
- **Webform Server (Optional)**
 - ▶ Not needed if clients will have the IBM Forms Viewer Client installed
 - ▶ Translates forms to/from HTML
- **Workflow Server**
 - ▶ Handles workflow process for submitted forms
 - ▶ Multiple options: Forms Workflow, FileNet P8 BPM, WebSphere Process Server, etc

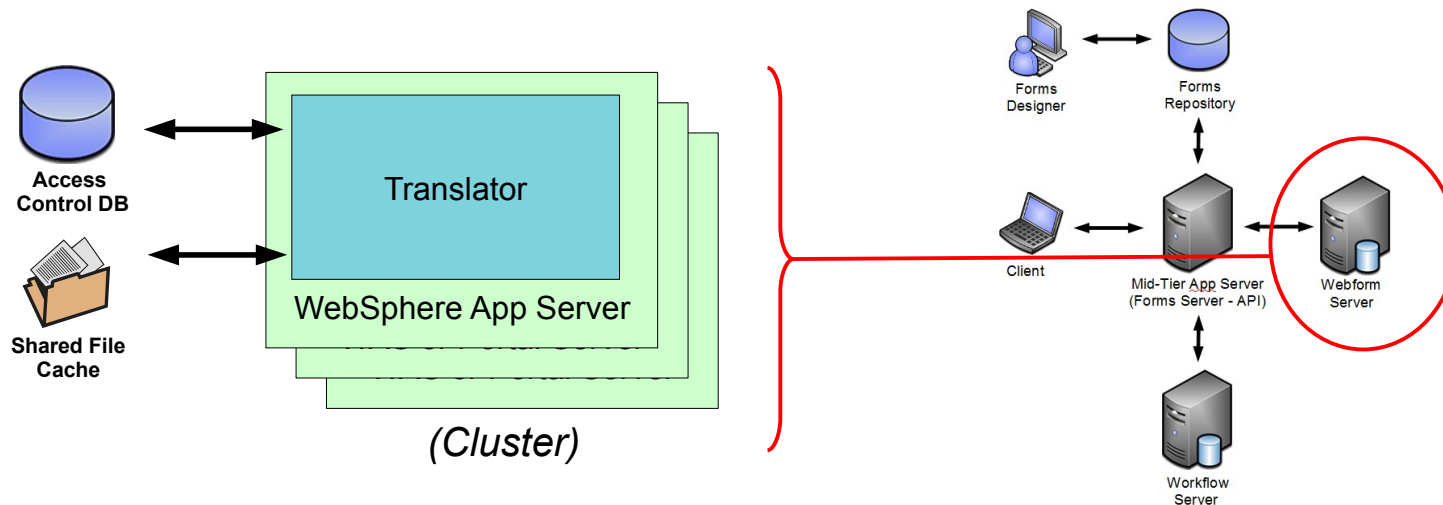
Deeper Look: Mid-Tier Application Server

- Customer servlet (or portlet) to handle form requests and submissions
 - ▶ IBM Forms provides servlets and portlets but is typically customized
 - ▶ Uses respective connectors to retrieve and store forms to/from repository
 - ▶ Uses Forms Server APIs for form manipulation (i.e. pre-population of data, extracting data, etc)
- Uses Webform Server framework for zero-footprint solution
 - ▶ Transparently handles the conversion to/from XFDL and HTML
- Leverage full capabilities of underlying WAS infrastructure
 - ▶ Horizontal and vertical clustering



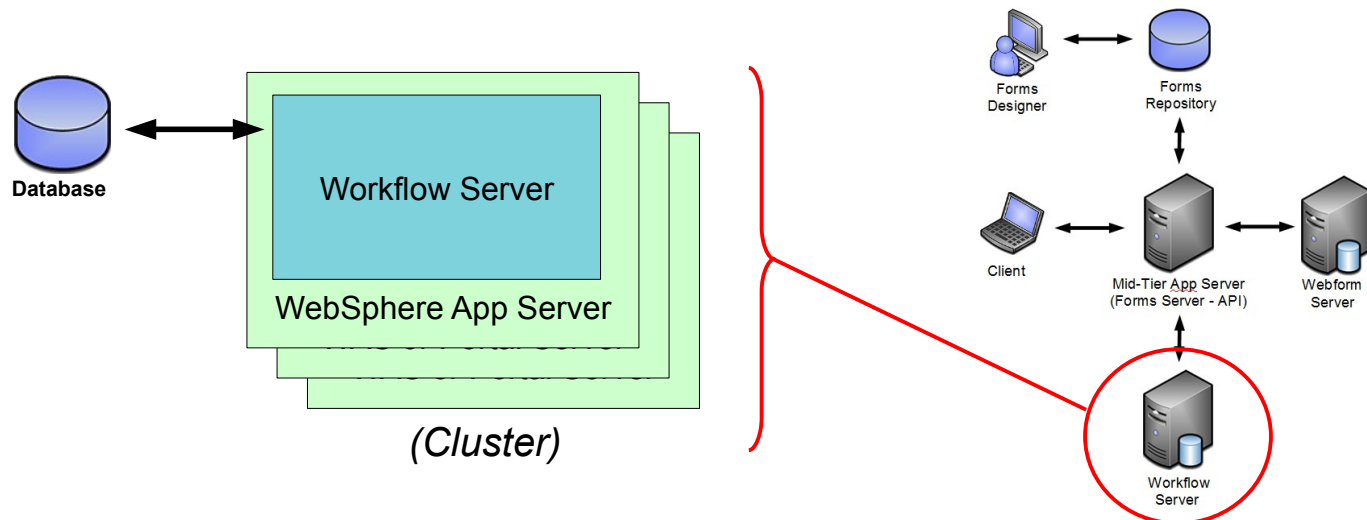
Deeper Look: Webform Server

- Used in zero-footprint solution
 - ▶ Client uses web browser to view forms (IBM Forms Viewer Client not required)
- Webform Server runs on WebSphere Application Server
 - ▶ Installs an access control database (DB2 or Oracle)
- Leverage full capabilities of underlying WAS infrastructure
 - ▶ Horizontal and vertical clustering

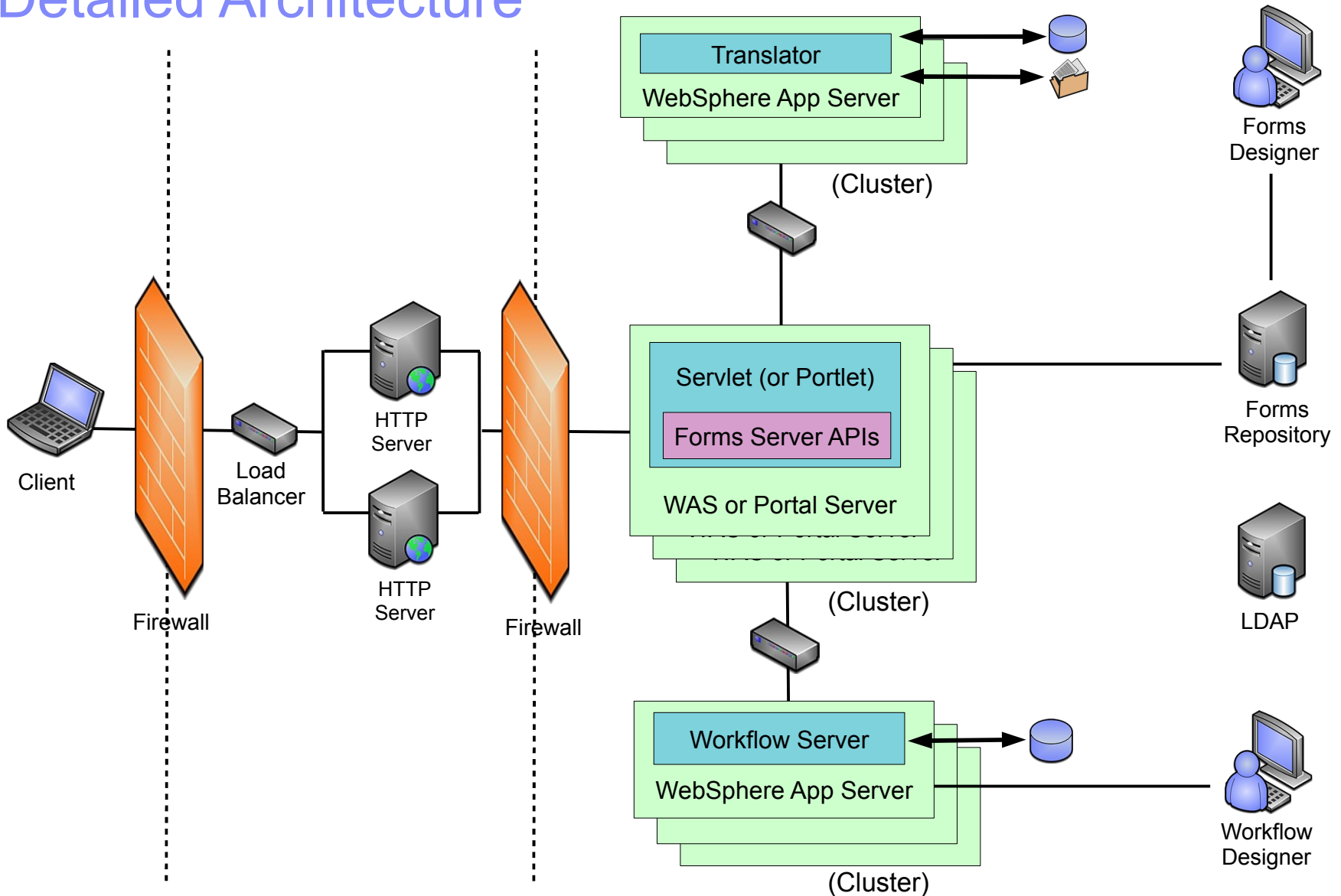


Deeper Look: Workflow Server

- Flexible options for workflow
 - ▶ Forms Workflow (Tasica Workflow), FileNet P8 BPM, WebSphere Process Server, etc.
 - ▶ May also integrate customer's existing workflow system
- Forms Workflow Server runs on IBM WebSphere Application Server
 - ▶ Workflow processes are created via the Workflow Designer
- Leverage full capabilities of underlying WAS infrastructure
 - ▶ Horizontal and vertical clustering

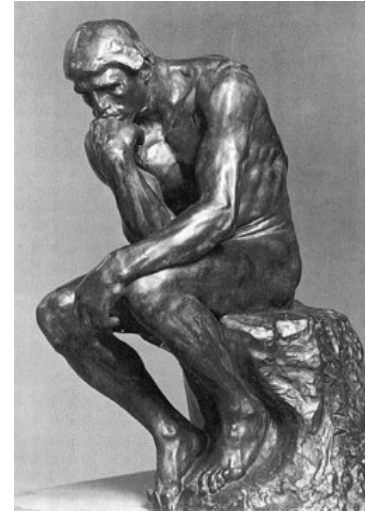


Detailed Architecture



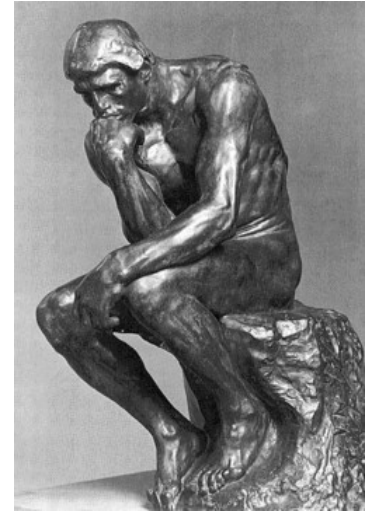
Considerations

- Multiple platforms supported for servers
 - ▶ AIX, IBM i, Linux, Mac, Solaris, Windows
- Performance varies depending on platform
- Components may be combined onto same server
 - ▶ Typically done for testing and PoC
 - ▶ Separate servers recommended for production
- OS memory allocation limitations mean that vertical scaling may be required
 - Without vertical scaling, full CPU utilization may not occur → lower throughput



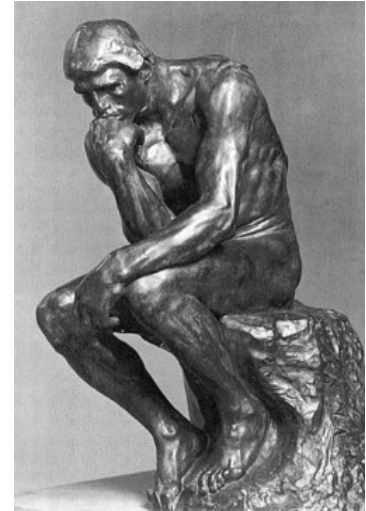
Considerations (cont)

- Architecture and resource required can be affected by how your forms are designed
- As forms increase in size, performance generally decreases proportionally
 - ▶ “Size” can refer to # pages, size of form in ‘lines of XML’, size of data model.
 - ▶ Large numbers of items negatively impact form performance
- Large XForms / XML Data Models cause forms to take longer to render and increase server memory load
- Poorly designed forms perform much worse than well designed forms
 - ▶ Form design can impact for form load, page-flip times 2-5x (or more!)
 - ▶ Refer to best practices guide provided as part of the documentation.
 - ▶ Use API flags (such as server speed flags) whenever possible.



Considerations (cont)

- Webform Server
 - ▶ Use DB2 for Access Control Server for any significant deployment
 - Provides better performance
 - Eliminates single point-of-failure
 - ▶ For DB2, use of a shared data instance is suggested
 - A number of H/A disk options (Shark, Centera, etc)



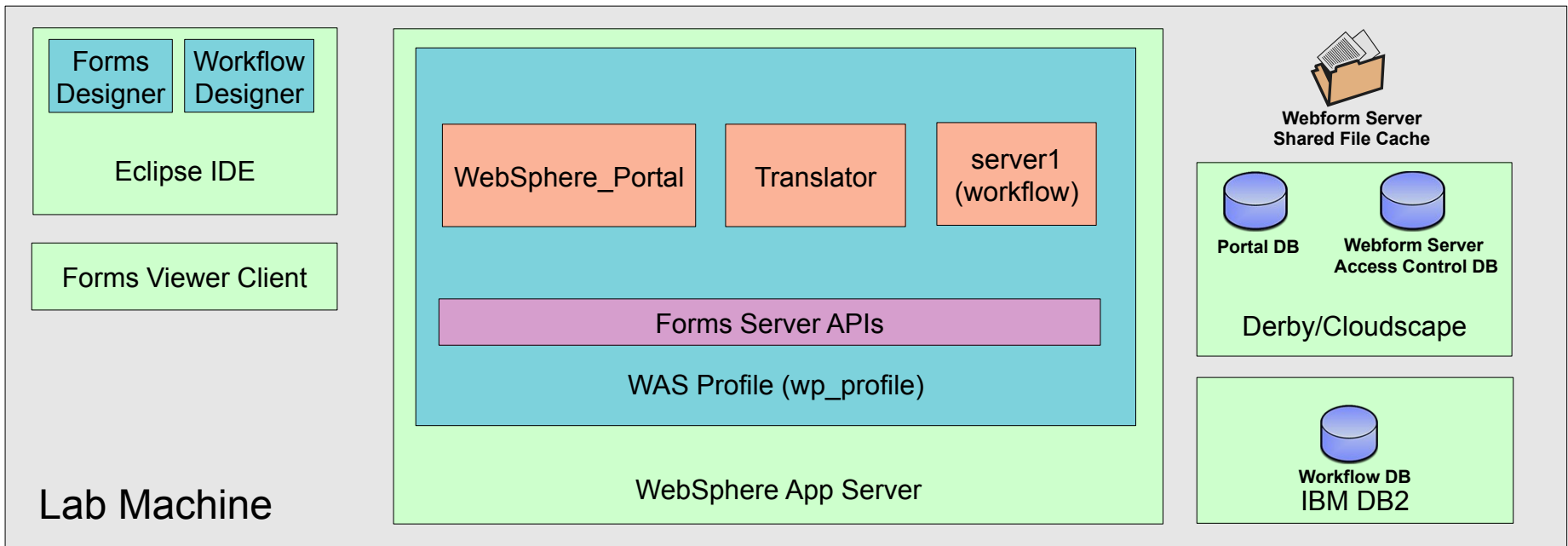
Sizing a Forms Solution

- How large of an architecture does one need?
 - ▶ Depends on how many forms will be handled and how many users will be served
 - ▶ Other factors also include form complexity, SSL, and if Webform Server will be used
- Methodology exists for properly sizing a forms solution architecture
- Questionnaire for obtaining form parameters and user base
 - ▶ ie) Number of forms, average number of pages per form, peak number of concurrent users, etc.
- Sizing report provides architecture details on the type(s) of machines necessary to meet workload demands



Lab Image Configuration

- All software installed on single machine
 - ▶ IBM Forms Designer, IBM Forms Viewer Client, IBM Forms Webform Server, IBM Forms Workflow (Tasica Workflow)
 - ▶ IBM WebSphere Application Server, IBM DB2, IBM WebSphere Portal Server
- Portal Server installed WAS. Used same WAS install for IBM Forms Webform Server (Translator) and IBM Forms Workflow (server1)
 - ▶ Reduced footprint for dev/testing. Not recommended for production
- Used Derby for the Portal and Webform Server DB (less resources needed). Used IBM DB2 for the IBM Forms Workflow DB.
 - ▶ Use of Derby not recommended for production



Summary

- Forms Solution Architecture
- Considerations
- Lab Image



Questions



Reference materials

- Detailed system requirements for IBM Forms
 - ▶ <http://www-01.ibm.com/support/docview.wss?uid=swg27015581>
- IBM Forms Trials and Demos
 - ▶ <http://www14.software.ibm.com/webapp/download/search.jsp?pn=Lotus+Forms>
- IBM Forms Wiki
 - ▶ <http://www-10.lotus.com/ldd/lfwiki.nsf>

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