

Investigative Architecture

The Data Context Diagram

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Systems Flow & Enterprise Architecture

- Systems Flow, Inc.
 - Small “boutique” professional services & training company
 - Visual Modeling approach for EA is core specialty
- Enterprise Architecture (EA)
 - Ensures technology is sound at macro level
 - Ensures technology aligns to business needs

Why Investigative Architecture?

A foundational skill for an architect is the ability to rapidly assess and document "as is" and proposed solution architectures. The challenge lies in the typical state of enterprise knowledge regarding the systems - a myriad of internal and external information sources at all levels of quality and completeness. Rapidly converting this sea of information into useable knowledge requires a repeatable, structured approach for gathering information from internal stakeholders and documents, as well as performing focused research for publicly-available product and industry information. This is the Investigative Architecture approach.

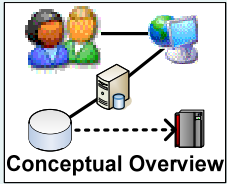
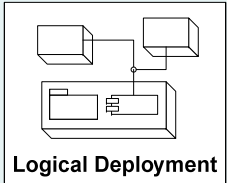
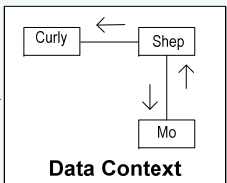
The Challenge

- Information is the lifeblood of business, driving decision-making
- Data in all its electronic forms comprise business information
- A clean, simple method is required to depict the *context* of data in an enterprise composed of systems, people & processes

The Solution

- A formal approach to visualizing data with a notation that
 - Is simple for architects to diagram and stakeholders to understand
 - Captures specific and appropriate data scopes, primarily the enterprise scope
 - Identifies the nature and direction of data flows between key architecture components
 - Supports additional detail as needed for clarity (sequencing, fields)
 - Leverages industry standard notation

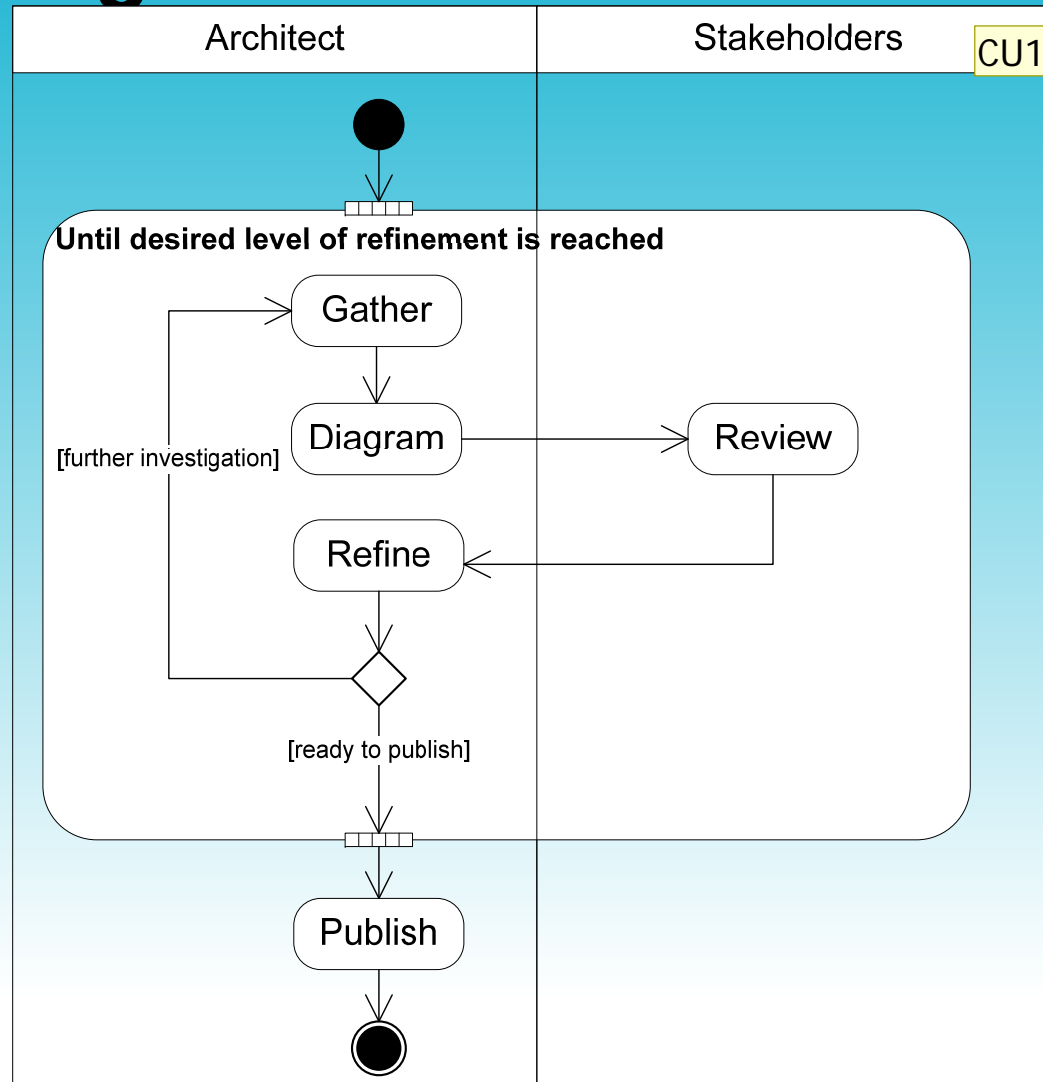
Investigative Architecture Core Diagrams

Diagram	Scope	Notation
 <p>Conceptual Overview</p>	PowerPoint View	Icon-based w/guidelines
 <p>Logical Deployment</p>	System View	UML Component Diagram
 <p>Data Context</p>	Data View	UML Collaboration Diagram

You are here →

See [Leveraging UML as a Standard Notation for Enterprise Architecture](#) and [Investigative Architecture – Making Sense of your Enterprise](#) for additional information.

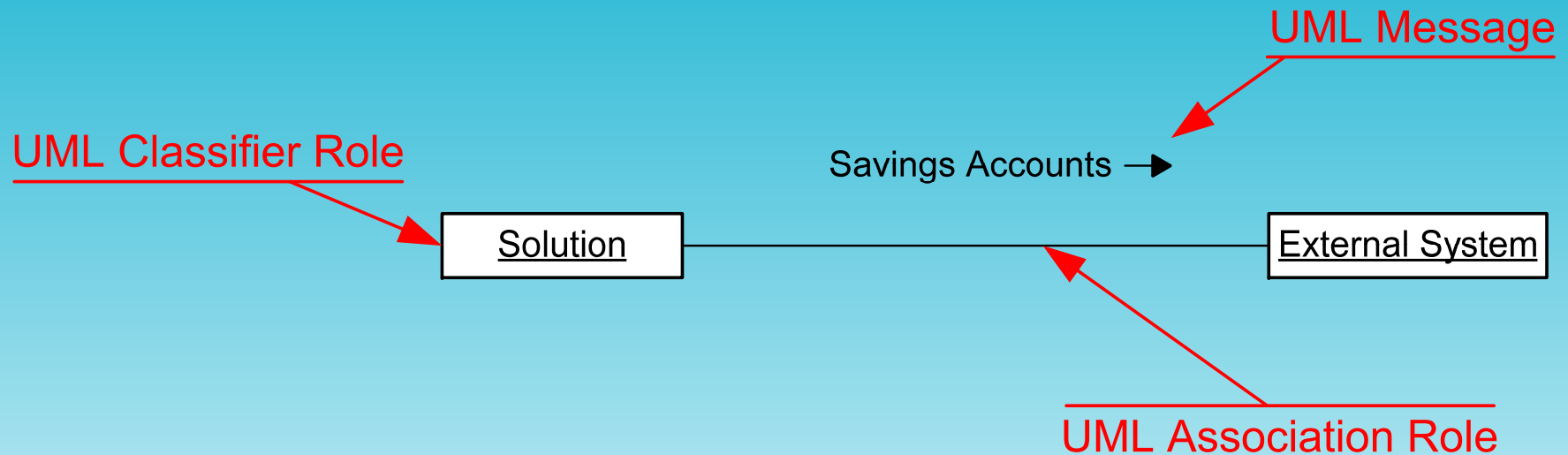
Investigative Architecture Process



Investigative Architecture Sources for Data Context Diagrams (partial list)

Information Source	What to Expect	Target Diagram
Vendor	Product Documentation	<u>Data Context</u> , Logical Deployment
ETL Engineer	Mapping Documents, ETL Specs	<u>Data Context</u>
<i>DB Administrator</i>	<i>Data Model</i>	<u>Data Context</u> , <i>Logical Deployment</i>
<i>Business Line</i>	<i>Requirements Artifacts</i>	<u>Data Context</u> , <i>Conceptual Overview</i>

Data Context Diagram Quick Start

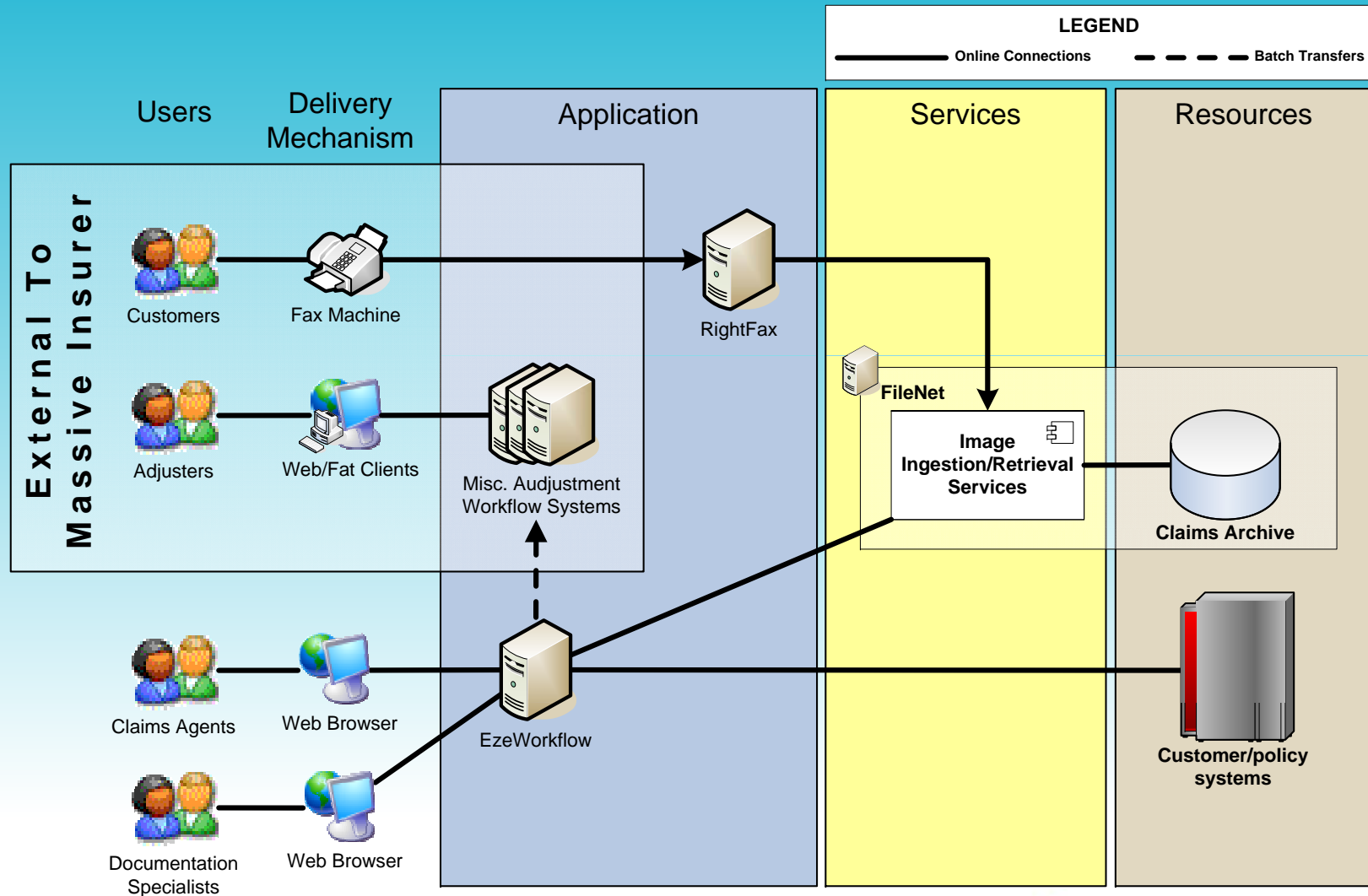


- ✓ Apply descriptive names to components
- ✓ Name components the same on this diagram as they are on other diagrams (map names to/from other diagrams, if scope of the two diagrams aligns)
- ✓ Focus on the important logical interactions and not messaging infrastructure
- ✓ Include only details (e.g., components and interactions, etc.) that are architecturally significant
- ✓ Indicate data being passed at a business level and identify the direction of the data flow
- ✓ Park important info *in another artifact* if it does not fit the scope of your data context

Investigative Architecture Case Study

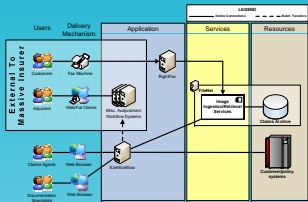
The Company	<i>Massive Insurer, Inc.</i>
The Vendor	<i>EzeDoesIT, Inc.</i>
The Product	<i>EzeWorkflow</i>
The Project	Doing better, but now system interfaces are a concern
The Task	Complete our set of architecture views with a Data Context Diagram of the target solution

Source #1 – our Conceptual Diagram

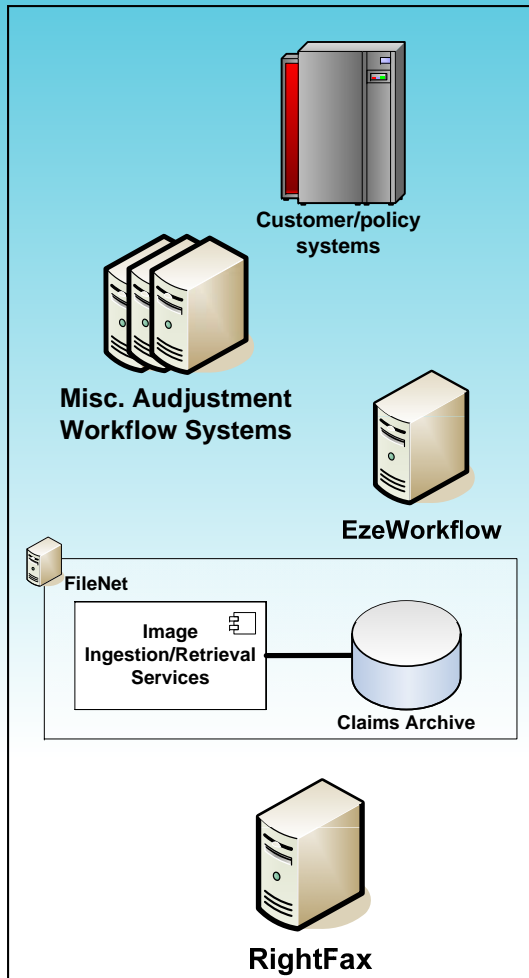


Case Study
(continued)

Stub the Systems



Carry over systems from your Conceptual Diagram that have *apparently* critical roles in data flow



RightFax

FileNet

EzeWorkflow

Customer/Policy Systems

Misc. Adjustment Systems

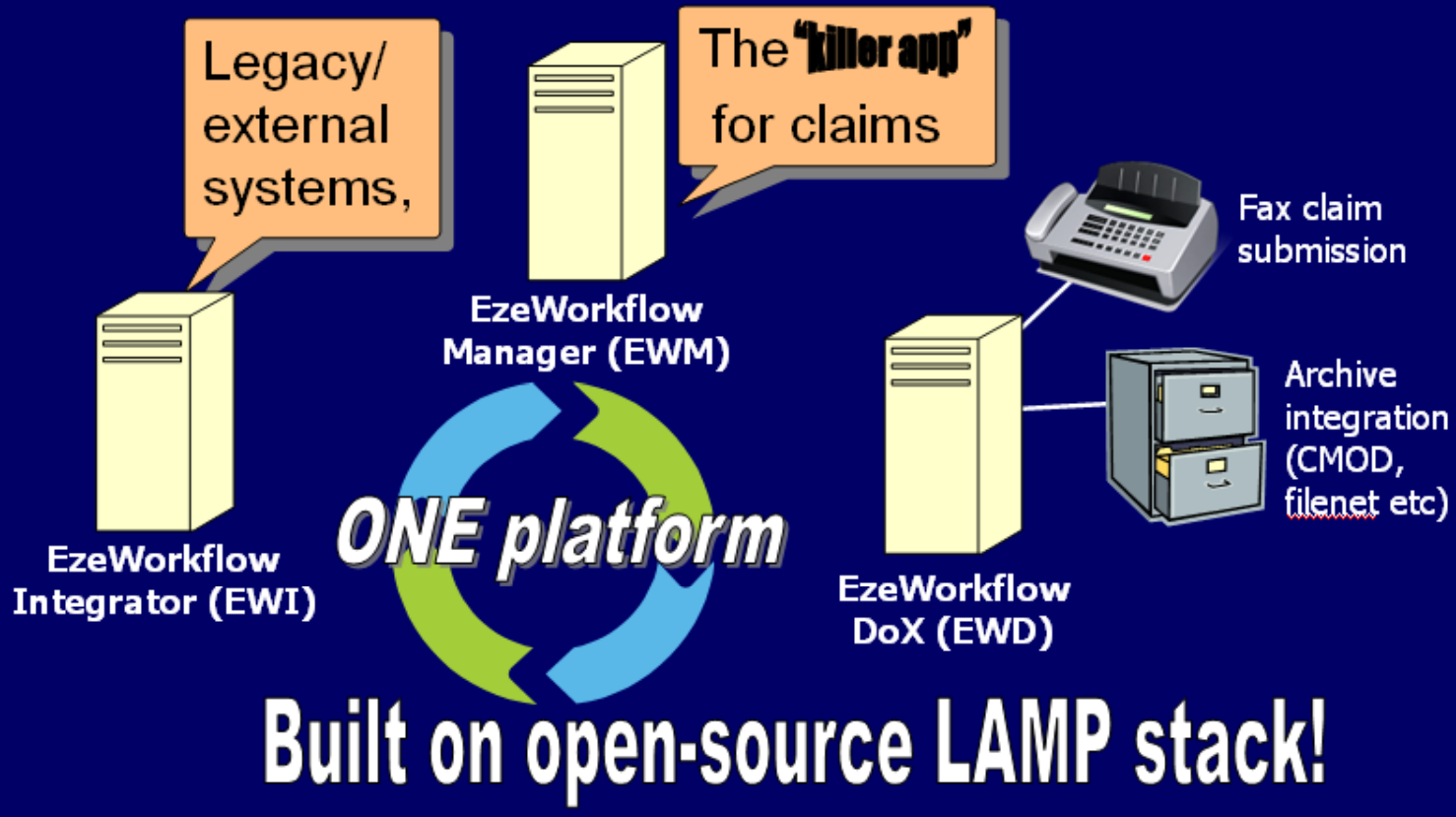
Case Study
(continued)



Input #2 – Vendor “Marketecture”

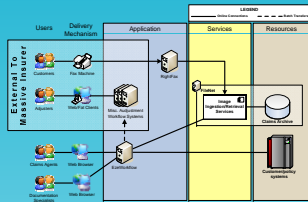
EzeWorkflow – Overall Approach

The proposed solution provides the platform for *Massive Insurer, Inc.* to transform its claims business, providing straight through processing from submission to closure.



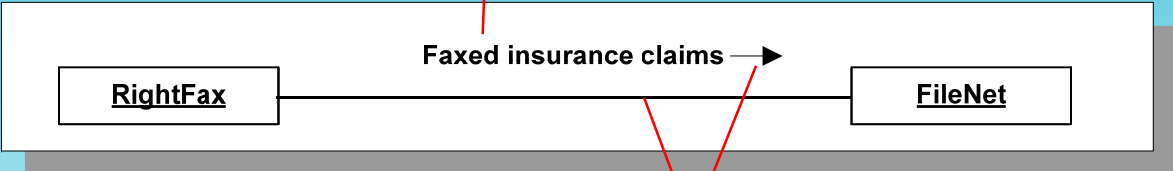
Case Study
(continued)

RightFax → FileNet



"Fax claim submission"

- "submission" is conveyed by the system interaction
- "Faxed" underlines that RightFax is a (duh!) fax system
- "insurance claims" neatly summarizes the data



Retain and amplify your assumptions about system integration – i.e. fact that RightFax & FileNet integrate in the first place, and direction of flow



RightFax

"ingestion" further implies the direction



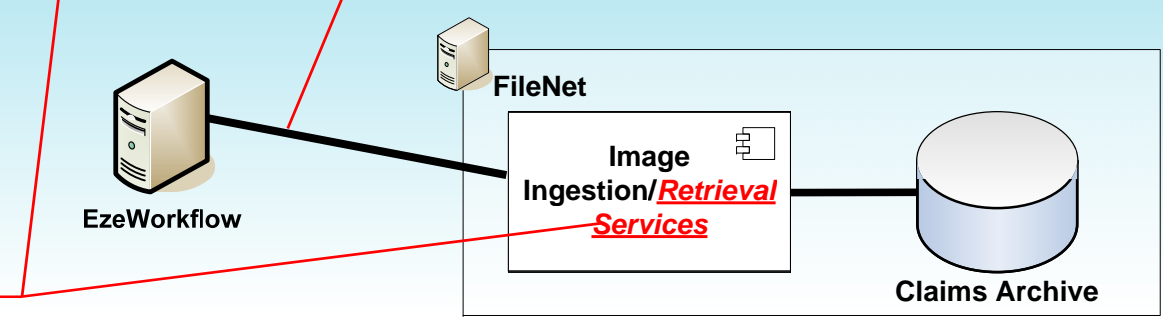
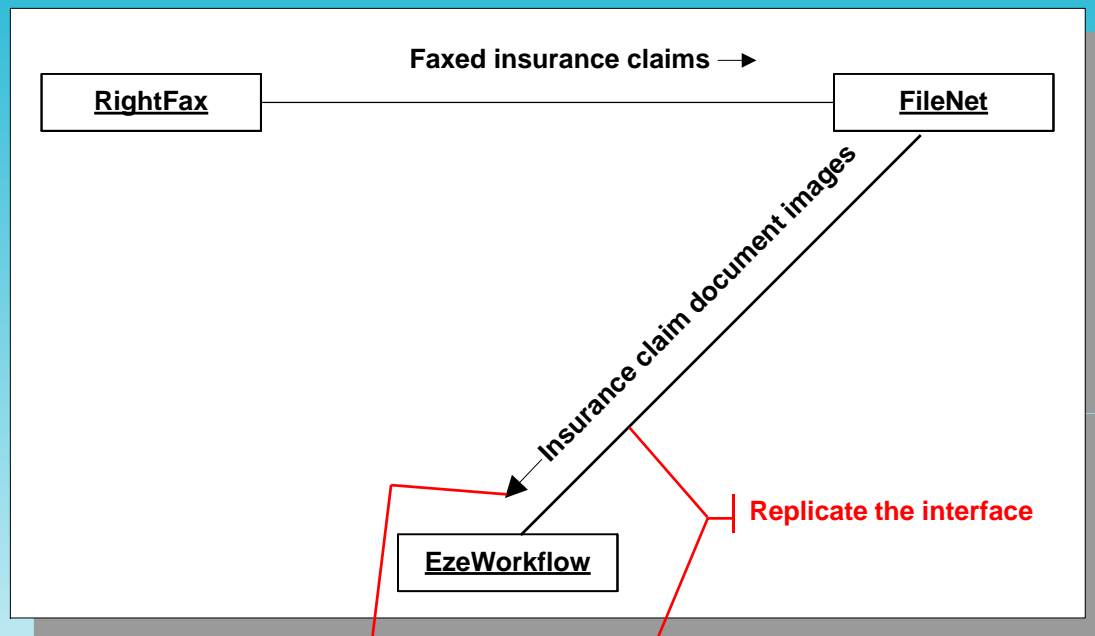
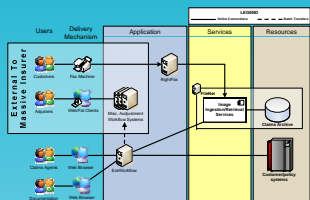
FileNet



Claims Archive

Case Study
(continued)

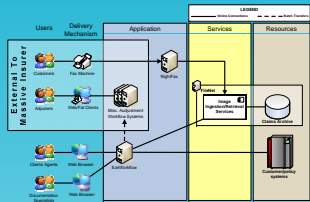
FileNet → EzeWorkflow



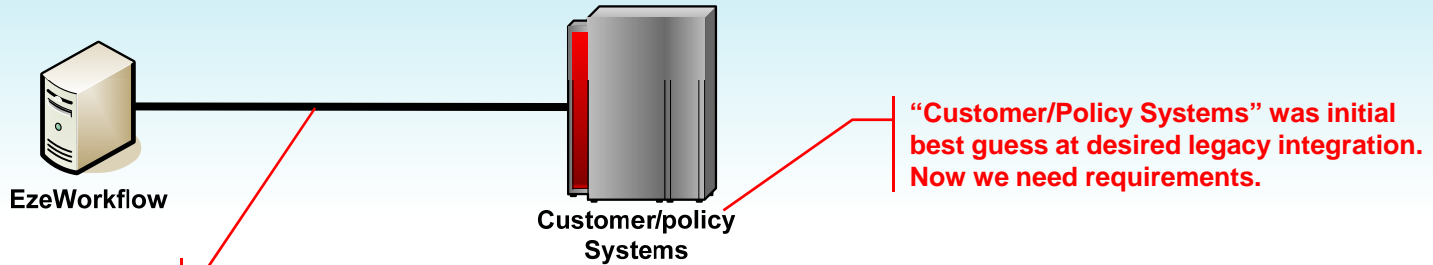
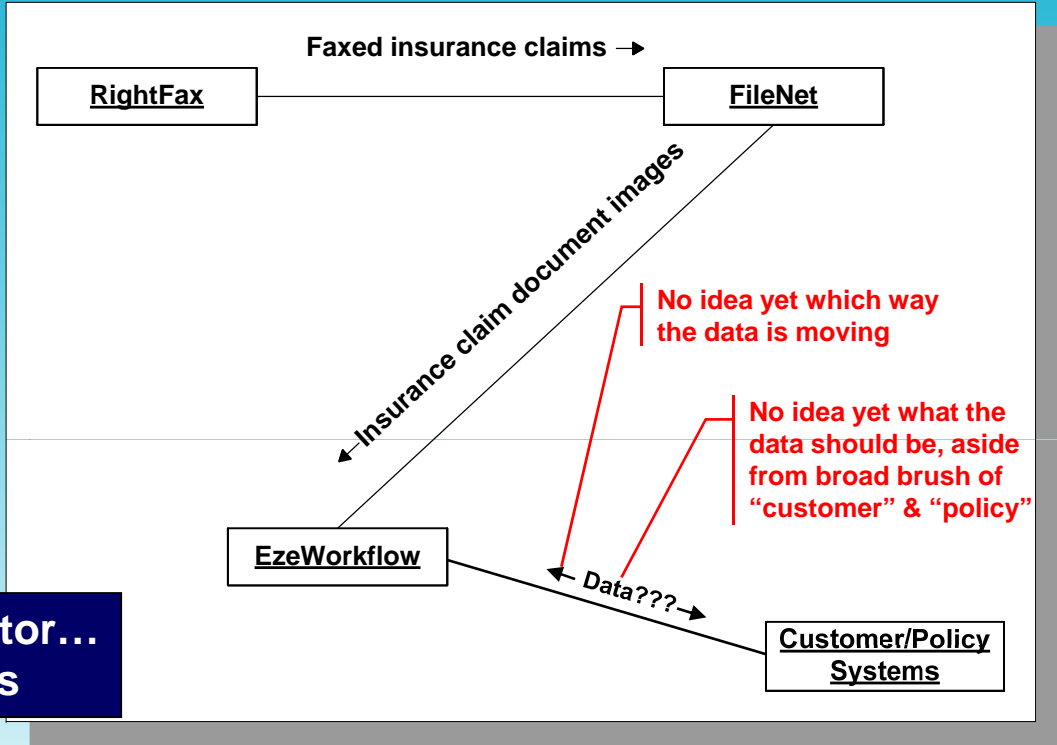
If FileNet performed "ingestion" of faxes from RightFax, EzeWorkflow must perform "retrieval" ...

Case Study
(continued)

EzeWorkflow → Cust/Policy Systems??



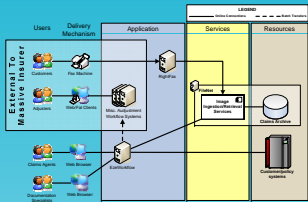
**EzeWorkflow Integrator...
Legacy...systems**



Integration type was a guess also: need to confirm whether objective would be online/real-time or day-end integration



Input #3 – Draft Requirements



EzeWorkflow Implementation Business Requirements Document (BRD)

“amounts” – Mmm... a financial interface?

Settlement Requirements

The system of record for claims should be the new workflow system, though all payout amounts should book to PolicyCenter in order to be reflected in the next business day’s claims settlement report...

...

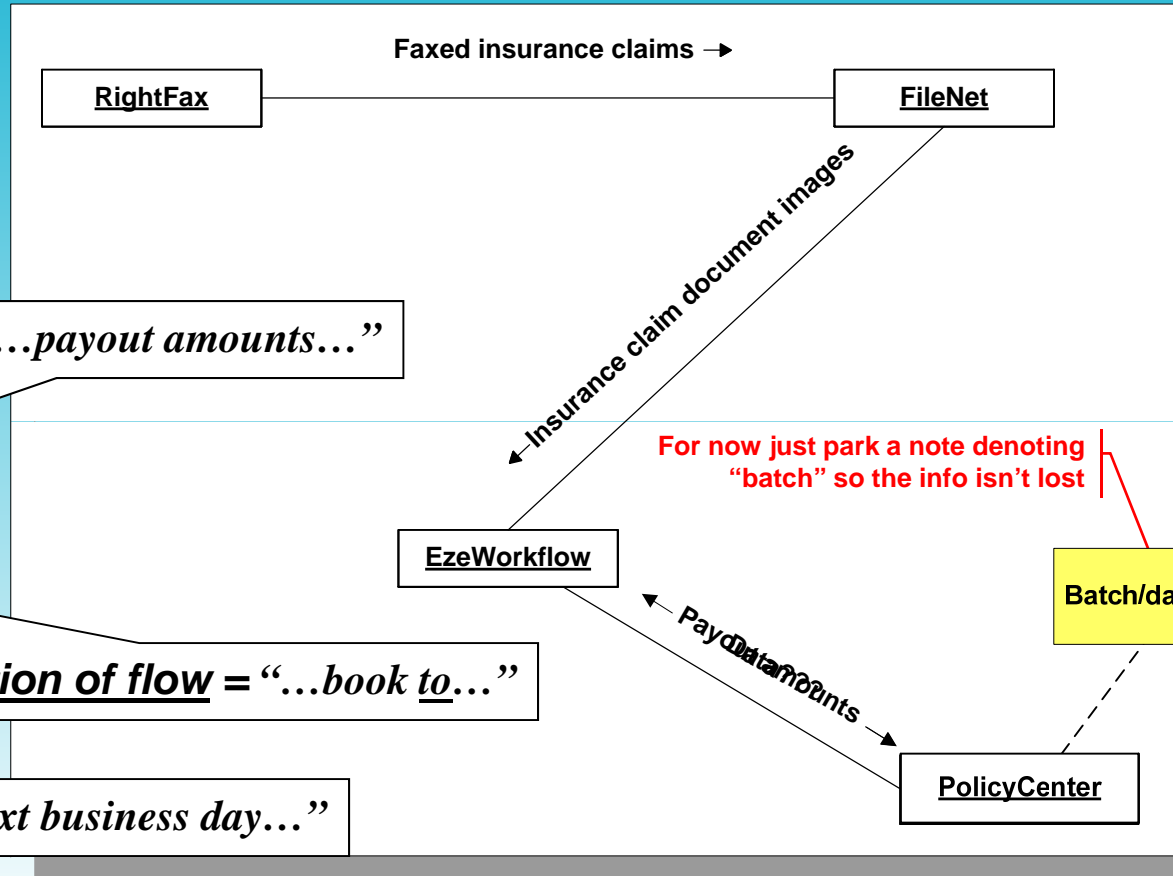
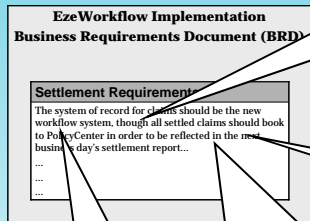
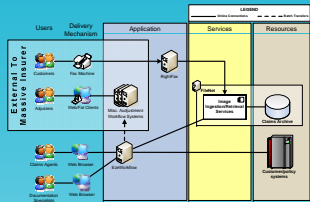
“next day” – i.e. “not necessarily immediately” – a clue to online vs. batch?

...

“...book to...” a ripe action verb – a clue to the data direction...

Aha! “PolicyCenter” is more specific

EzeWorkflow → PolicyCenter



Data = "...payout amounts..."

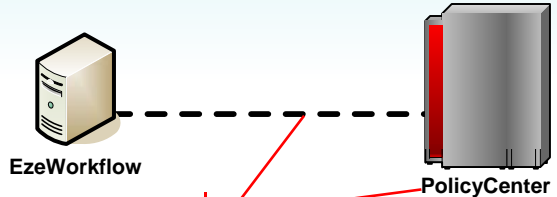
Direction of flow = "...book to..."

Online/Batch = "...next business day..."

System = "...PolicyCenter..."

For now just park a note denoting "batch" so the info isn't lost

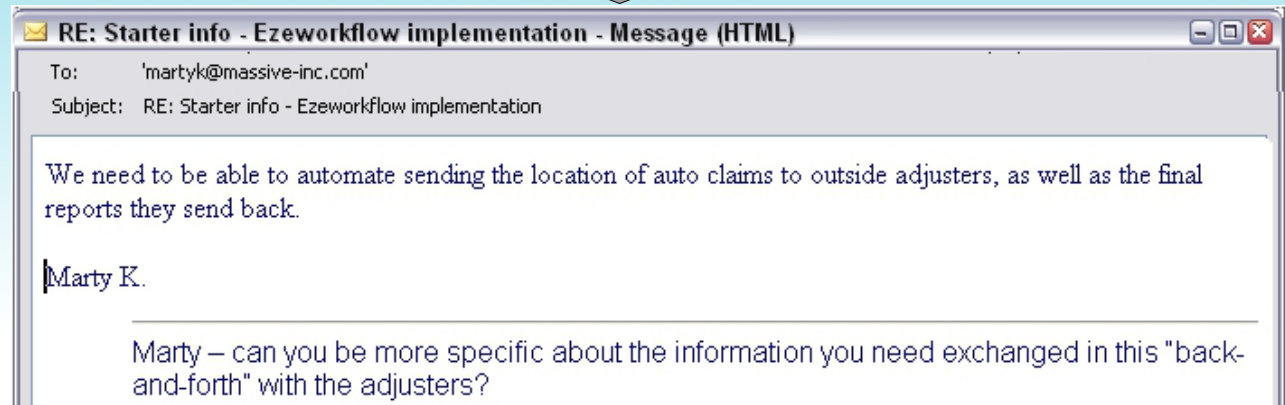
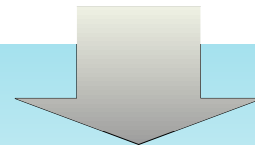
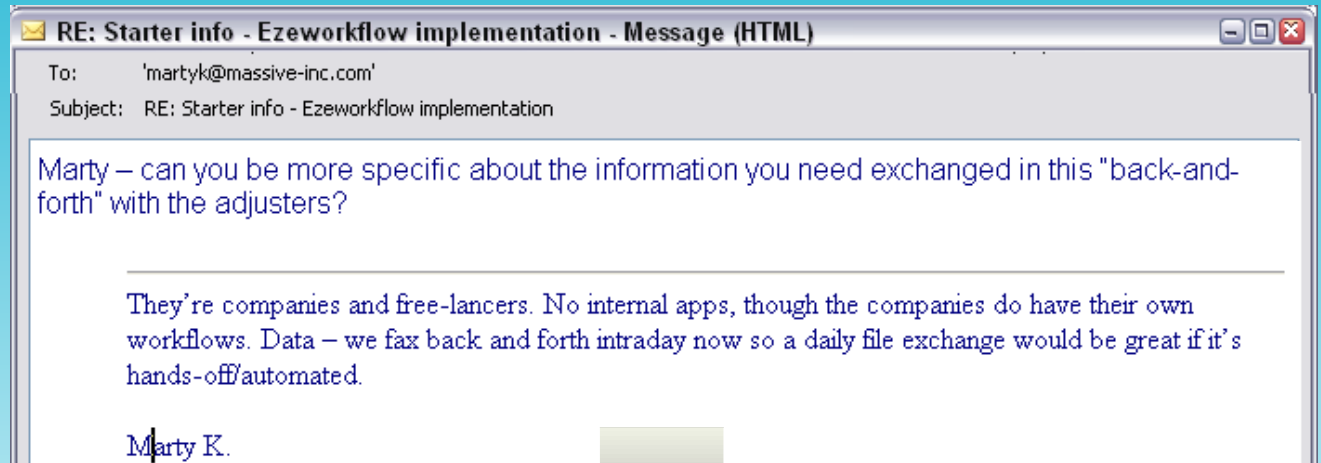
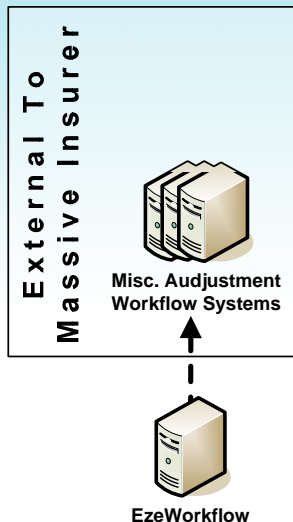
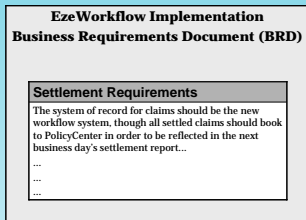
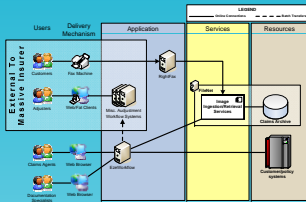
Batch/day-end



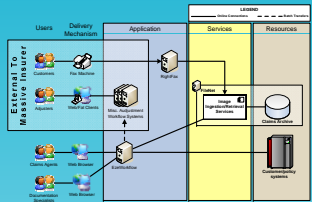
Note to Self: go back and correct Conceptual Diagram to show "batch" not online connection



Input #4 – Follow-up Email on “Misc. Adjustment Systems”



EzeWorkflow → Misc. Adjustment Systems

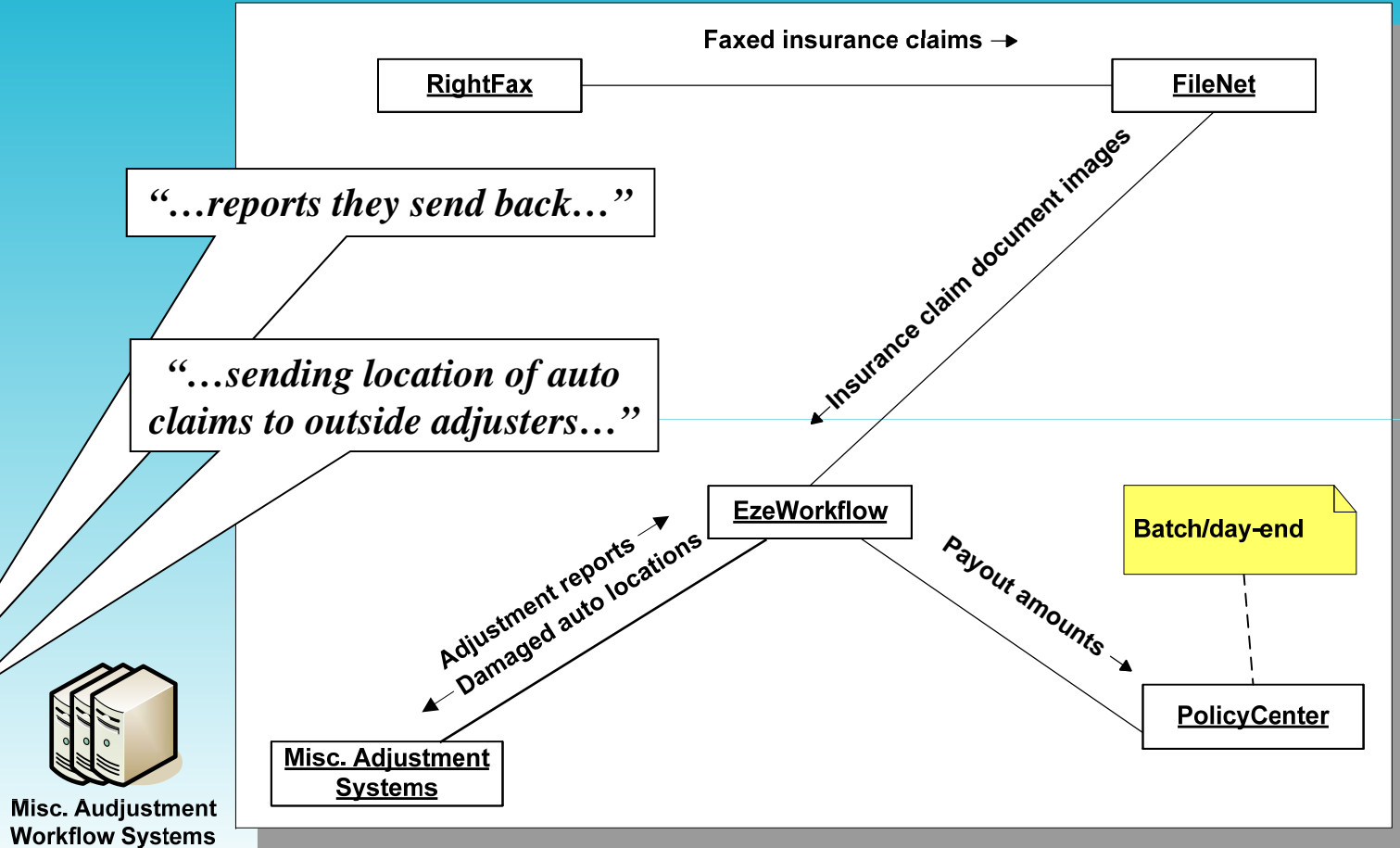


EzeWorkflow Implementation Business Requirements Document (BRD)

Settlement Requirements
 The system of record for claims should be the new workflow system, though all settled claims should book to PolicyCenter in order to be reflected in the next business day's settlement report...

...
 ...
 ...

Marty - can you be more specific about the information you need exchanged in this 'back and forth' with the adjusters?

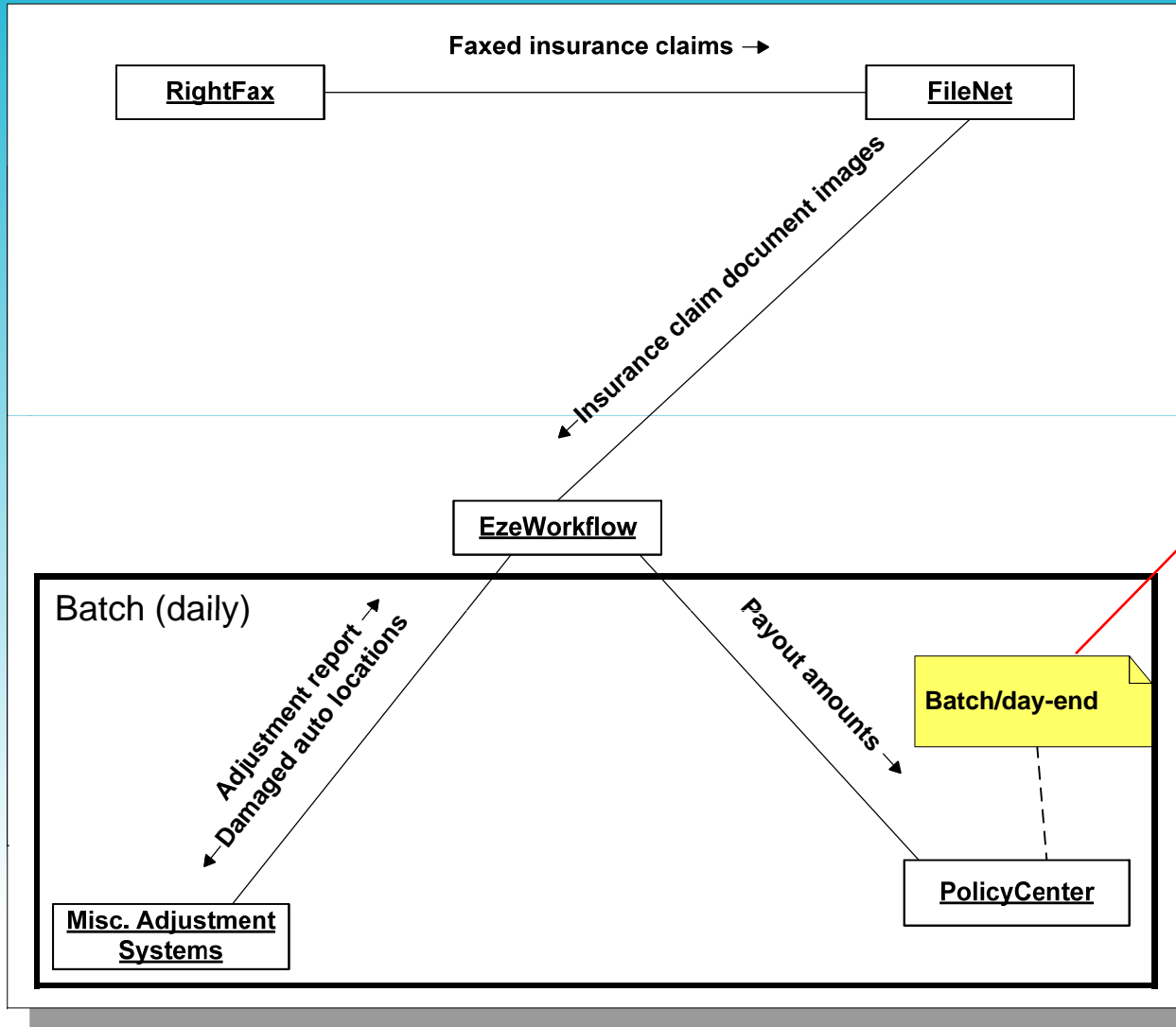


Misc. Adjustment Workflow Systems



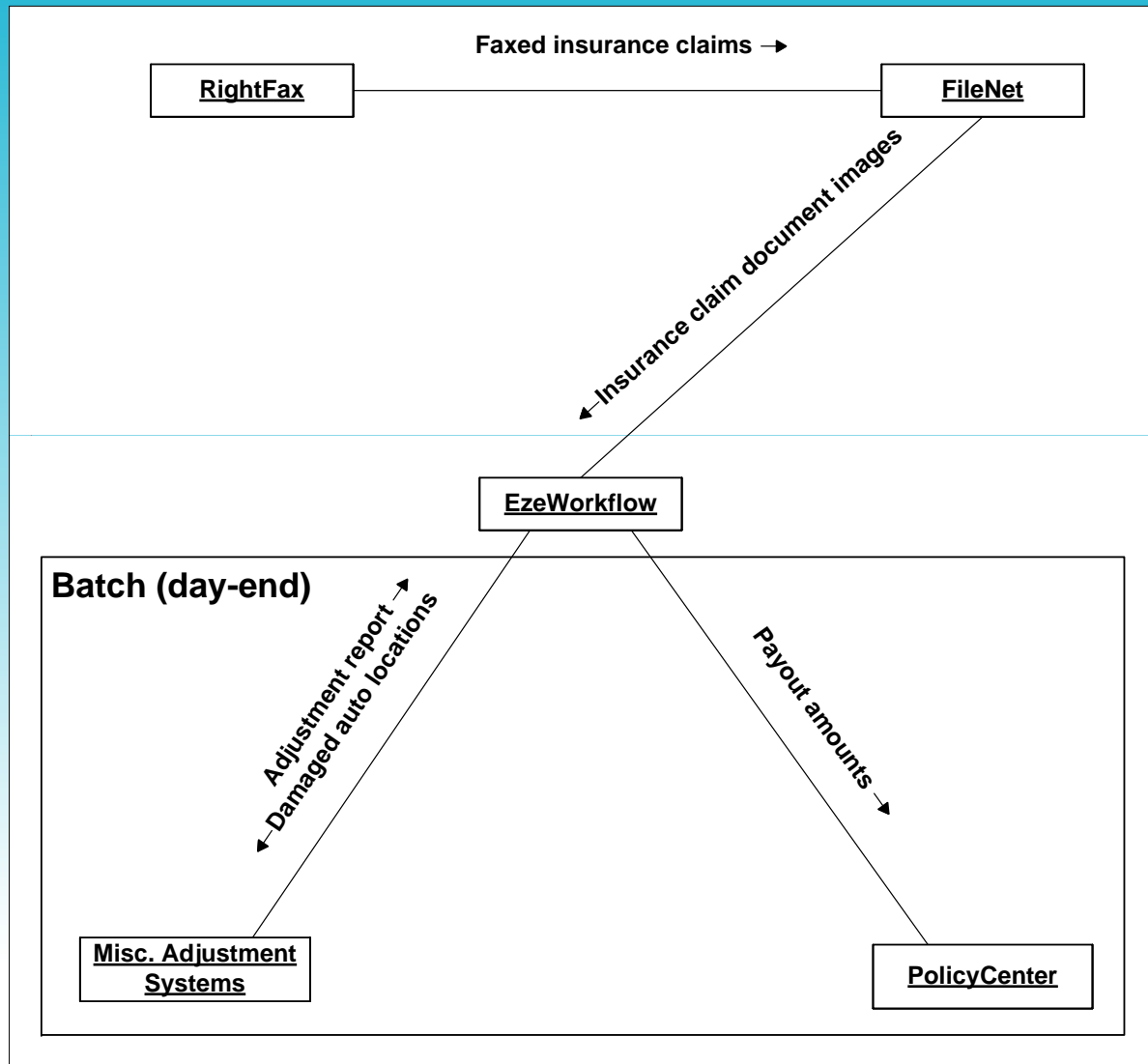
First thing: update Conceptual Diagram to reflect bi-directional interface

Final Touches



Let's cleanly model rather than annotate the fact that we have two batch systems

Final Product



References

- [Systems Flow Whitepapers](#), including:
 - Leveraging UML as a Standard Notation for Enterprise Architecture
 - Other Investigative Architecture Case Studies
 - The Logical Deployment Diagram
 - The Conceptual Diagram

QUESTIONS?

About Systems Flow

Systems Flow, Inc. helps organizations dramatically improve their competitive advantage through practical, effective application of best practices in enterprise architecture and software development.

Each of our consultants has strong client-facing skills, hands-on business experience, broad best-practices experience, deep technical knowledge, and visual modeling expertise. Collectively, our team has decades of “know how” that we bring to bear on client engagements.

Our strategic approach, together with our “boots on the ground” application of tools and methods, offer our clients an organic, practical approach to their specific challenges. We are able to scale our techniques to fit the business need, at both the project and enterprise level, to create effective solutions that reflect the unique identity of an organization.

Our blend of strategic business thinking and practical application builds a climate of confidence and trust among business executives and project implementation teams alike. This climate allows us to foster alignment and achieve positive, value-driven results across the enterprise.



About the Authors

Ben Sommer (ben.sommer@sysflow.com) is a senior consultant at Systems Flow, Inc. His career has spanned network engineering, systems administration, and software development – running the gamut from tools to automate network and systems tasks, to web-based CRM applications, to identity management and provisioning systems, to real-time music synthesis applications. His industry experience includes education, education finance, interactive marketing and banking. Ben is a trained composer and musician.

Dan Hughes (daniel.hughes@sysflow.com) is a principal consultant at Systems Flow, Inc., where he leads the technology services practice. He has 18 years of software engineering experience spanning a broad range of technologies and techniques. Startup to enterprise, he has launched, managed, and executed all aspects of both product and enterprise life cycle, delivering complex, enterprise-scale architectures for clients in the public and private sector, in industries ranging from banking and insurance to international development. Dan holds a Bachelor of Science in Computer and Systems Engineering from Rensselaer Polytechnic Institute.

James Hosey (james.hosey@sysflow.com) is a senior consultant at Systems Flow, Inc. and is currently engaged at Citizens Bank as an enterprise architect providing strategic architectural guidance and project-specific support across the bank's technology portfolio. Over the course of his 18-year career, Jim has managed and executed all phases of the software life cycle and has delivered a wide variety of technology solutions for both commercial resale and internal use in domains that include banking, insurance, warehousing & distribution, marketing, communications, and management training & development. Having worked with organizations of all sizes, Jim can tailor his approach to the specific driving forces within each type of environment. His experience managing his own consulting practice for ten years has provided him with the entrepreneurial experience necessary to work with stakeholders at all levels to achieve results.

