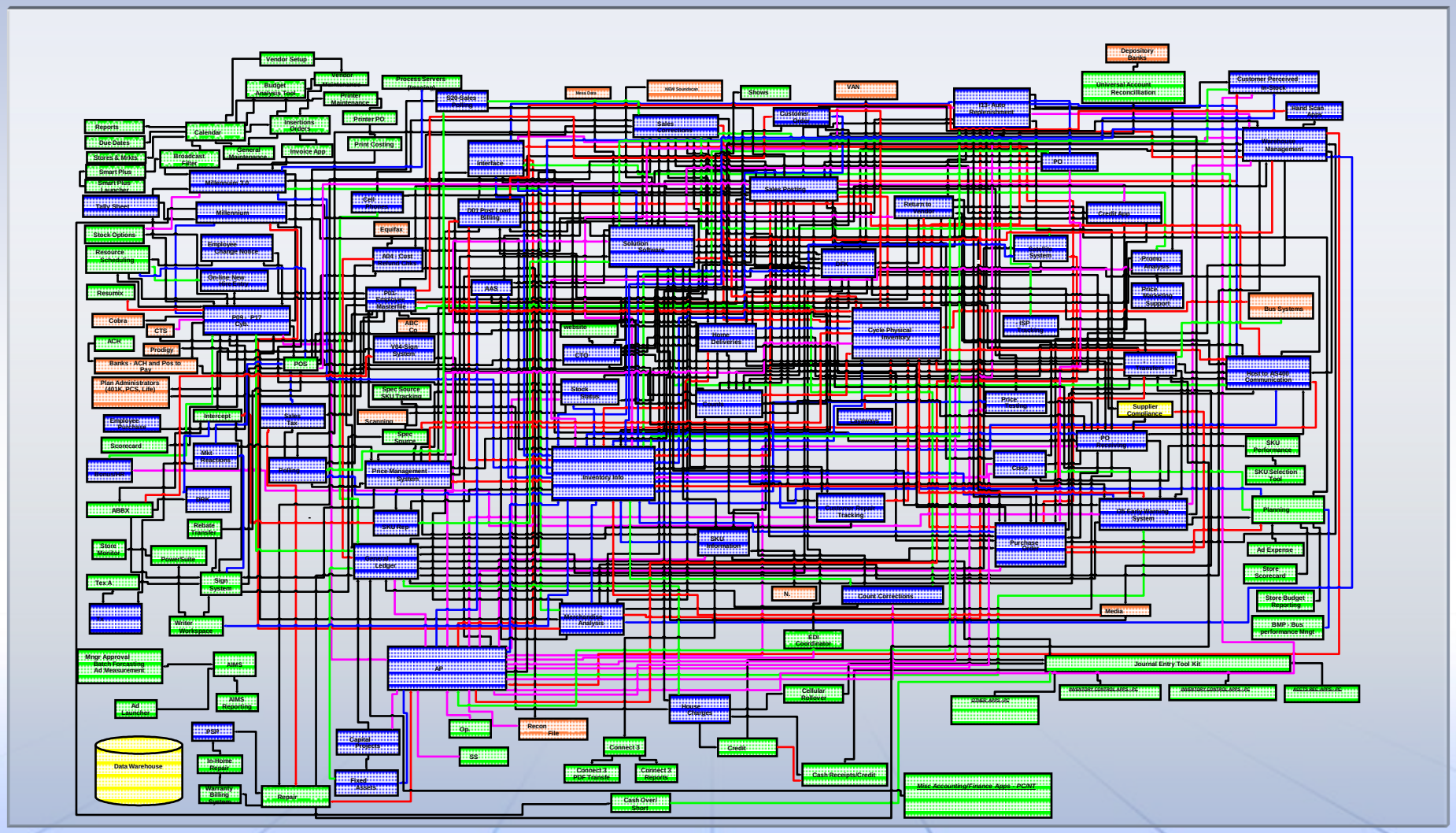
The Challenge of *Delivering Trusted Information* to Service Oriented Computing

Ambuj Goyal
General Manager
IBM Information Management Software

Complexity: Can We Go Back in Time?

Information is Everywhere



What is …..?

… a service?

A **repeatable business task** – e.g., check customer credit; open new account

… service orientation?

A way of integrating your **business as linked services** and the outcomes that they bring

… service oriented architecture (SOA)?

An IT **architectural style** that supports service orientation

… a composite application?

A set of **related & integrated** services that support a business process built on an SOA

SOC: Rapidly Creating Incorrect Results

Exposing The Information Problems Faster

If you put tomfoolery into a computer, nothing comes out of it but tomfoolery.

But this tomfoolery,
having passed through a very expensive machine,
is somehow ennobled and no-one dares criticize it.

Pierre Gallois, French General and Prolific Author, 1911 -

Change And Improvement Have Been Daunting

Service Oriented Computing

Information as a Service is Key

…You will waste your investment in SOA unless you have enterprise information that SOA can exploit…

Industry Analyst, 2005

…An enterprise-wide information architecture increases the chance of success for service oriented architecture efforts by at least 70%...

Industry Analyst, 2006

Inconsistent Master Information is a Major Hurdle

Impacts Revenue, Cost, Agility and Compliance

Coffee Beans GTIN
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Code : 21184

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CZ, LIT, EST, SLOV, RU
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USA
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ISR
Code : 21204

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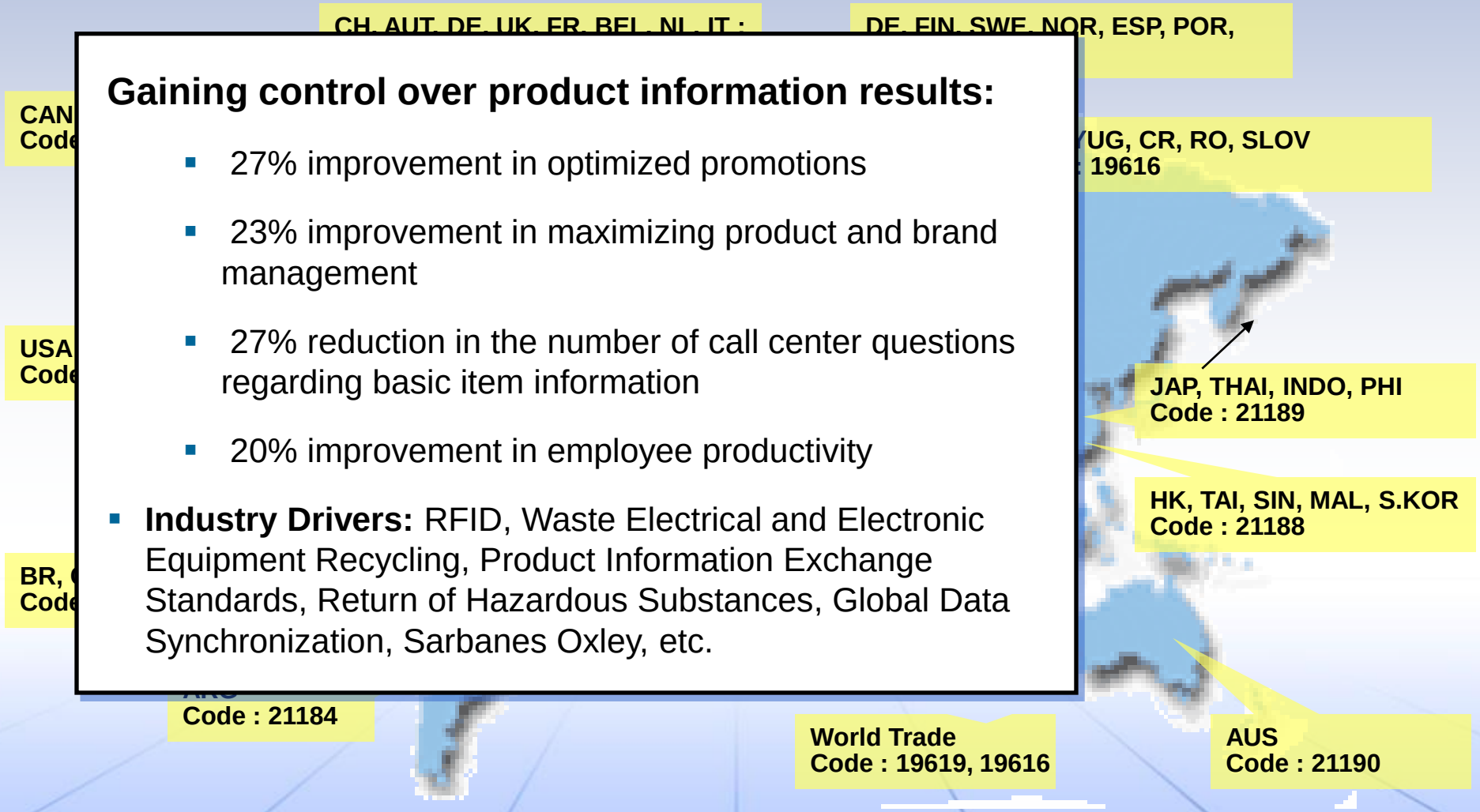
Inconsistent Master Information is a Major Hurdle

Impacts Revenue, Cost, Agility and Compliance

Gaining control over product information results:

- 27% improvement in optimized promotions
- 23% improvement in maximizing product and brand management
- 27% reduction in the number of call center questions regarding basic item information
- 20% improvement in employee productivity

- **Industry Drivers:** RFID, Waste Electrical and Electronic Equipment Recycling, Product Information Exchange Standards, Return of Hazardous Substances, Global Data Synchronization, Sarbanes Oxley, etc.

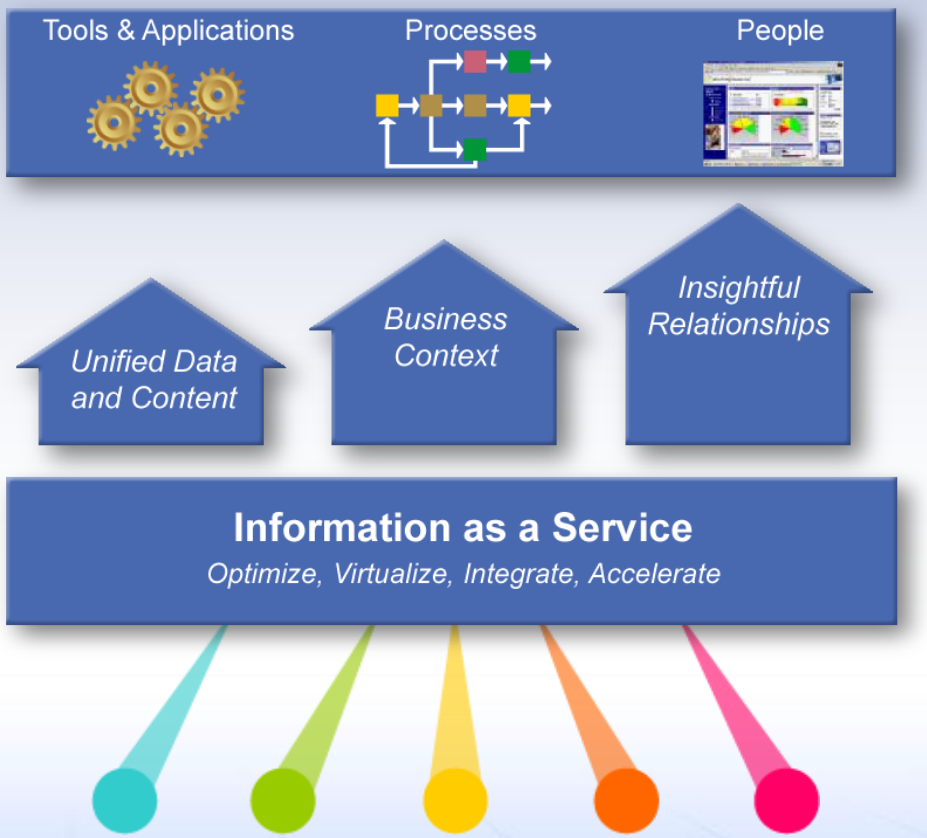


Information as a Service

Moving From a Project-Based to a Flexible Architecture

- ***Deliver Information in Business Context***
  In-context, In Line
  Effectively Governed

- ***Integrate Information***
  Structured / Unstructured
  Timely & Accurate
  Manage Complexity

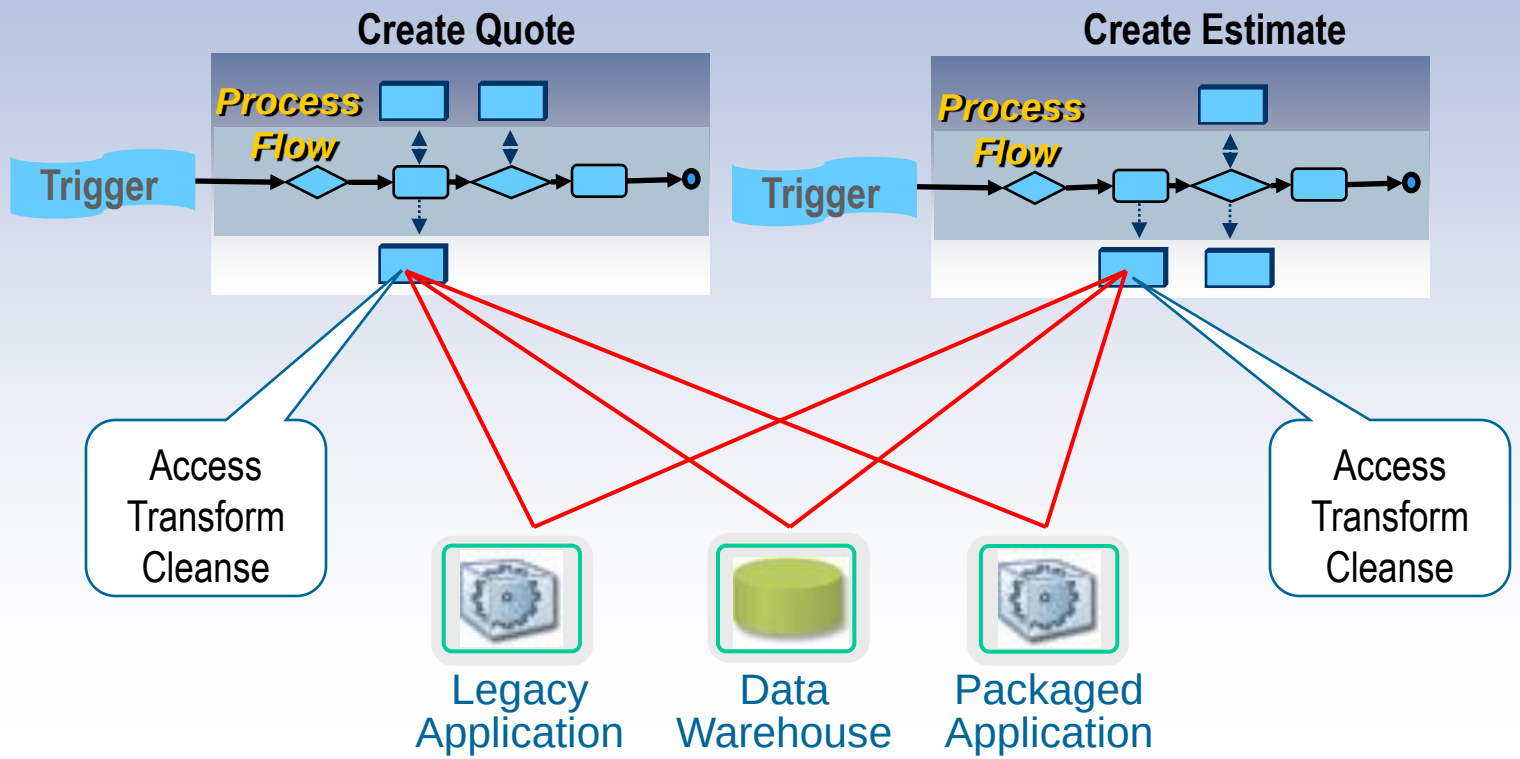


Data Servers & Content Repositories

Three Key Challenges

- ***The Information and Process Separation Problem***
- ***The Semantic Reconciliation Problem***
- ***The Speed Problem***

Tight Coupling of Data to Workflow Locks You In



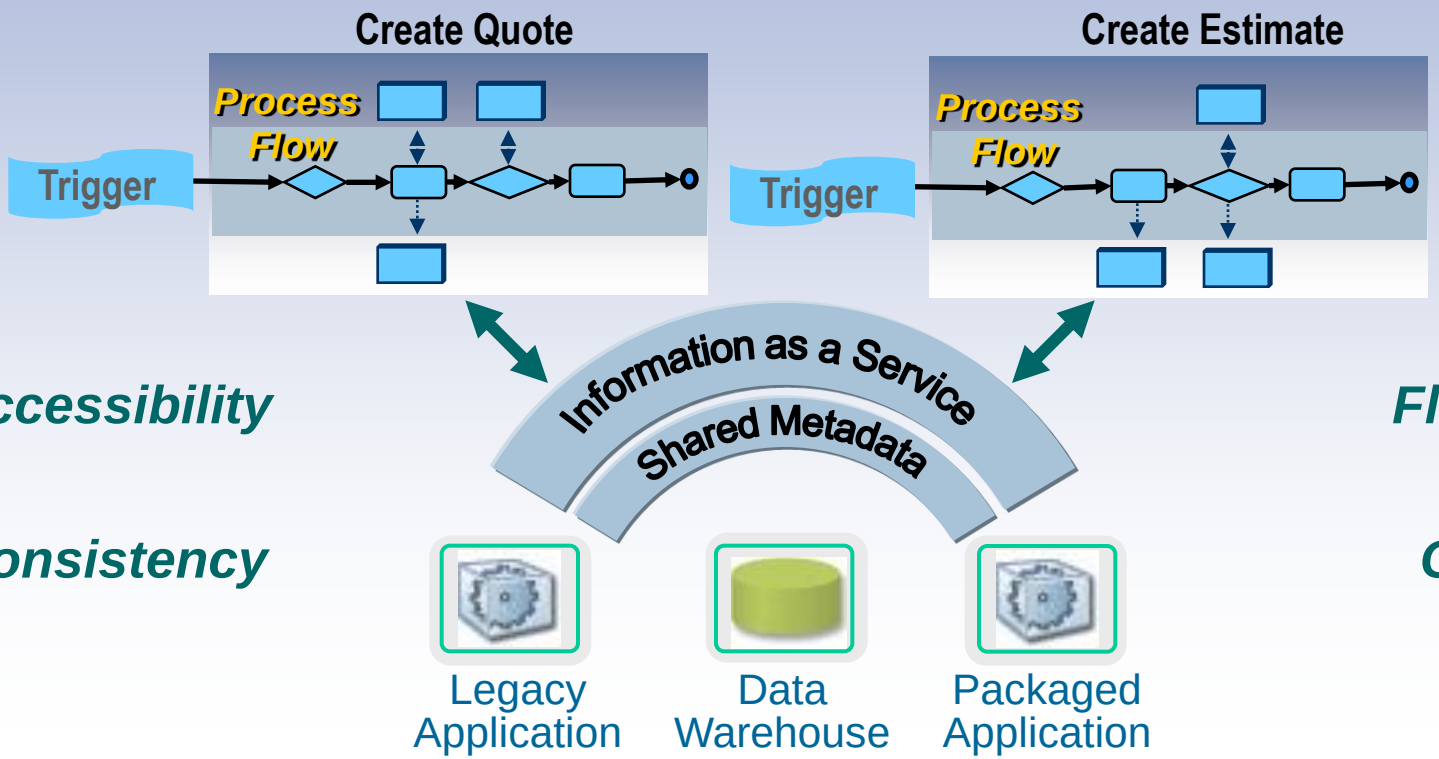
Inconsistency in sources

Inconsistency in how data is derived

Multiple points of maintenance

No flexibility

Creating a Free Flow of Information



Accessibility

Consistency

Flexibility

Control

Trusted view

Consistent rules to data

Centralized control and maintenance

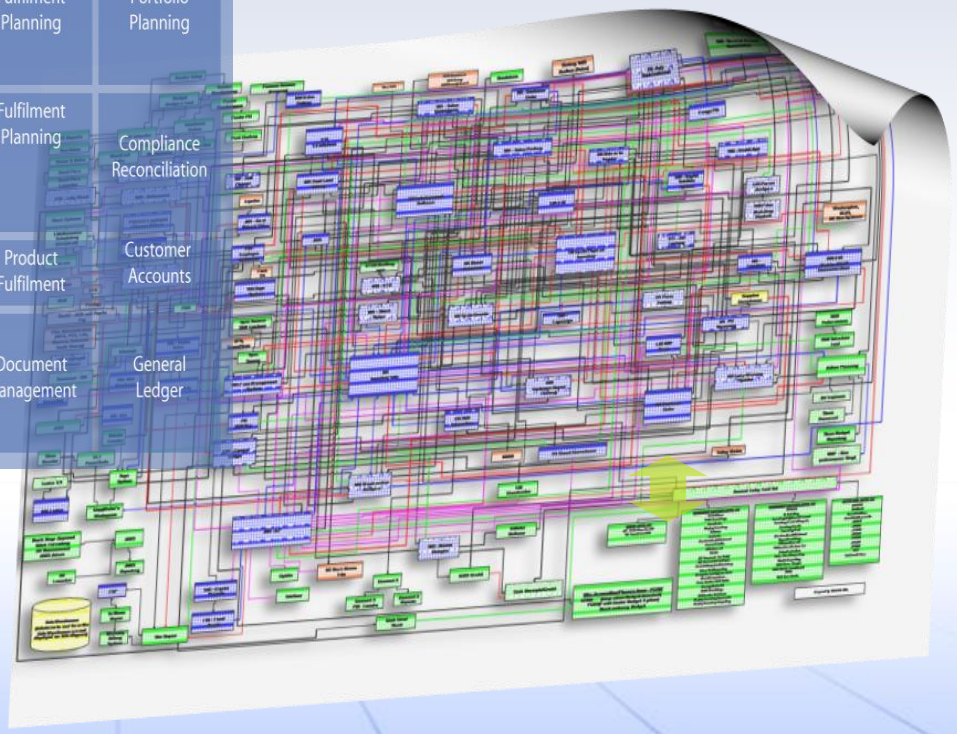
Flexibility to change information structure

Approaching the Challenges of Complexity

Where Do Core Processes Go to Get Information?

Component Business Model

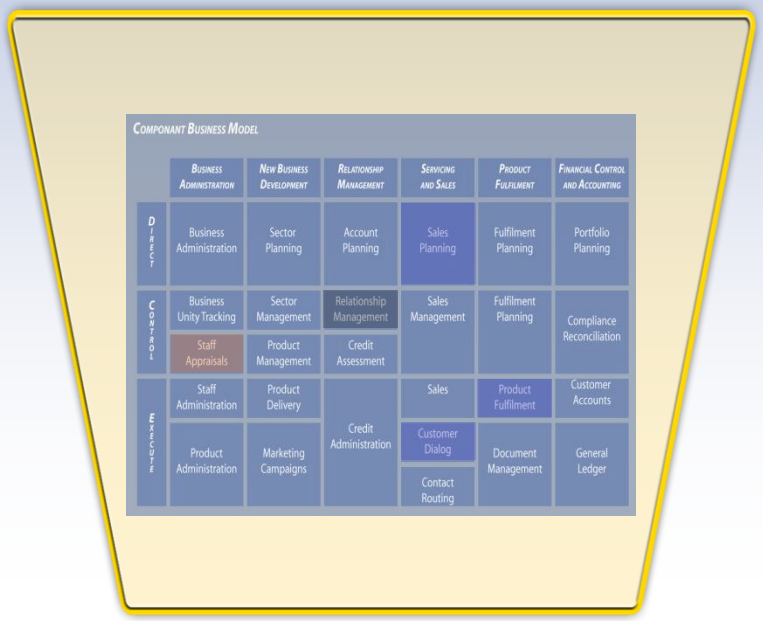
	Business Administration	New Business Development	Relationship Management	Servicing and Sales	Product Fulfilment	Financial Control and Accounting
Direct	Business Administration	Sector Planning	Account Planning	Sales Planning	Fulfilment Planning	Portfolio Planning
Control	Business Unity Tracking	Sector Management	Relationship Management	Sales Management	Fulfilment Planning	Compliance Reconciliation
	Staff Appraisals	Product Management	Credit Assessment			
Execute	Staff Administration	Product Delivery	Credit Administration	Sales	Product Fulfilment	Customer Accounts
	Product Administration	Marketing Campaigns		Customer Dialog	Document Management	General Ledger
				Contact Routing		



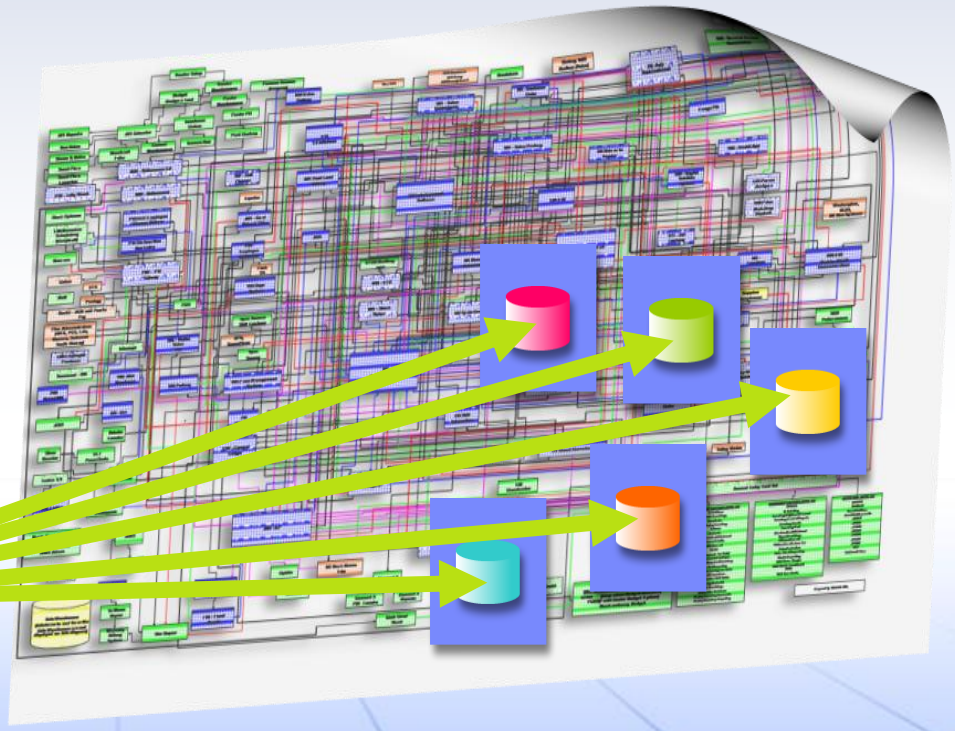
Approaching the Challenges of Complexity

Where Do Core Processes Go to Get Information?

Core Processes



Focus on Priority Processes
Enable Flexibility
Reuse…

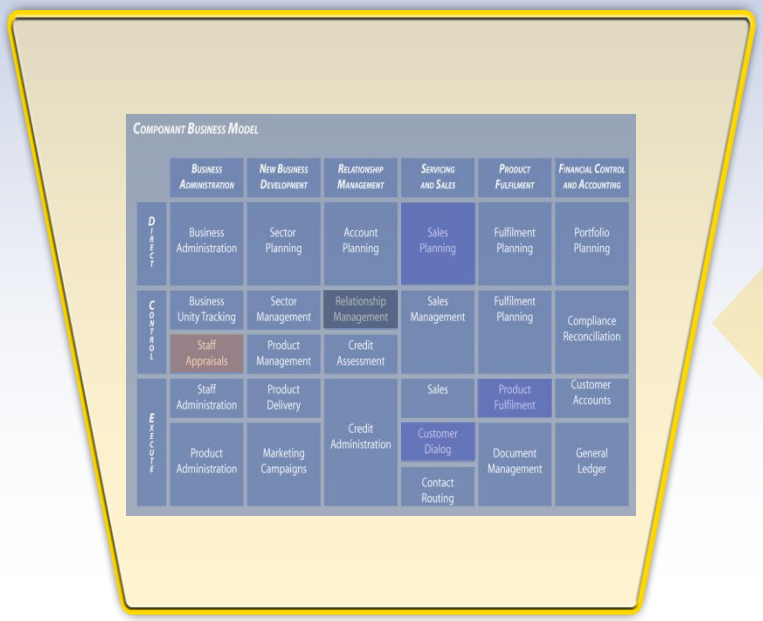


Process Server

Approaching the Challenges of Complexity

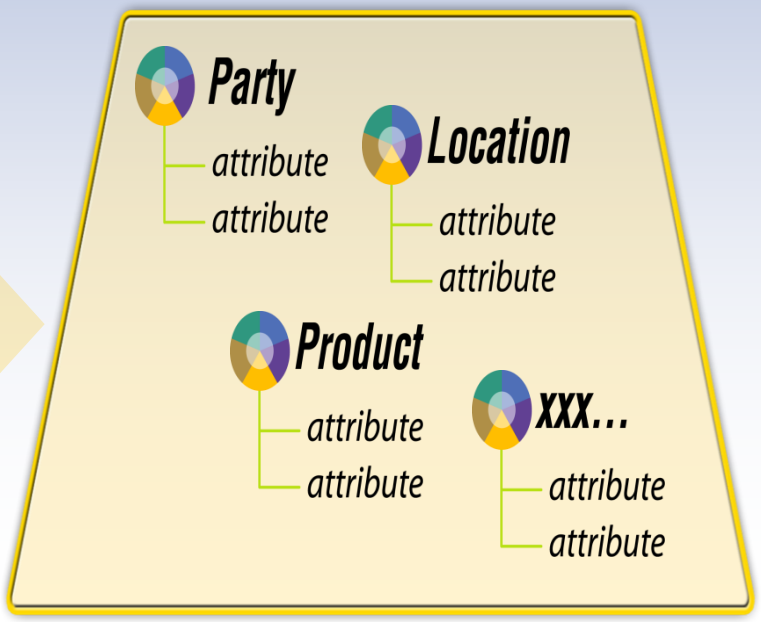
Where Do Core Processes Go to Get Information?

Core Processes



Orthogonal, Complementary

Core Information Entities



Trusted, Reusable

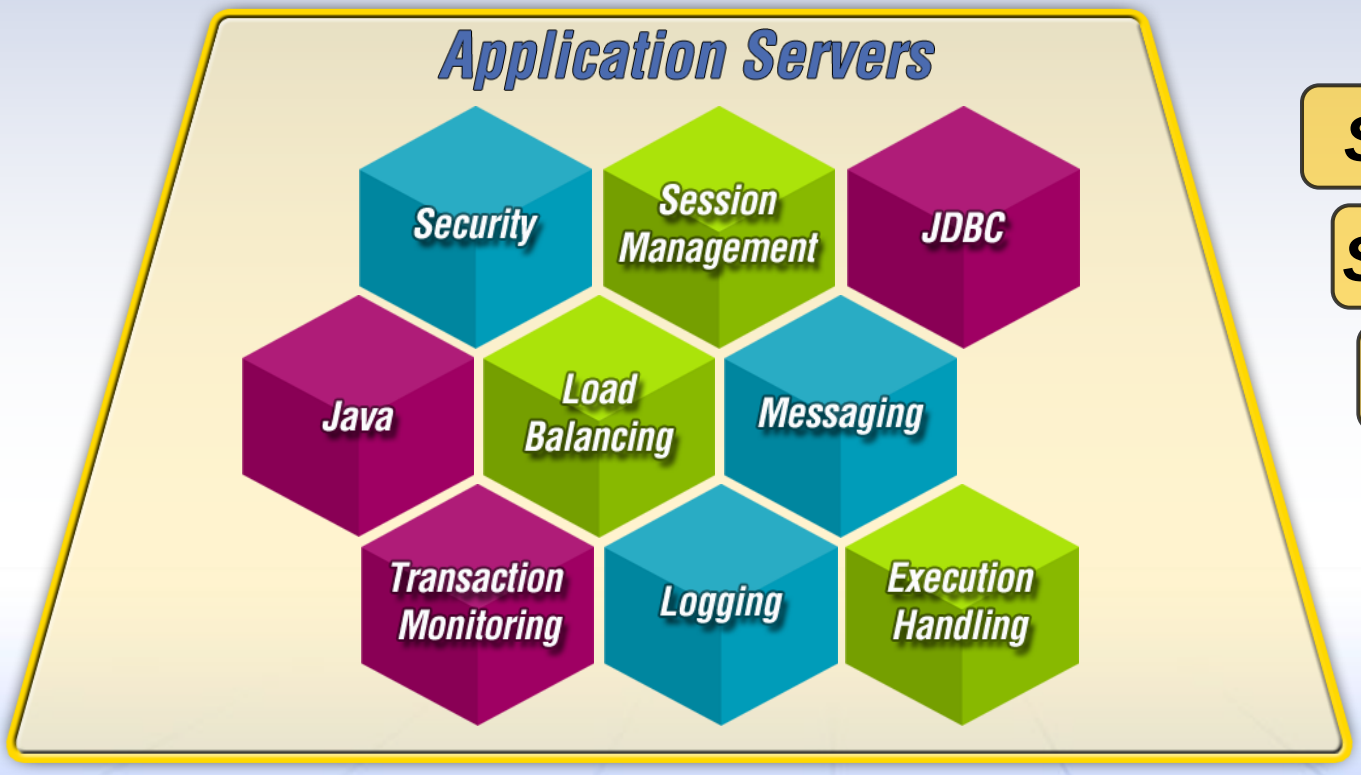
Process Server

Information Server

Business Glossary, Meta Data Driven

Application Servers
A Platform for Applications/Processes

1996… A Historic Inflection Point

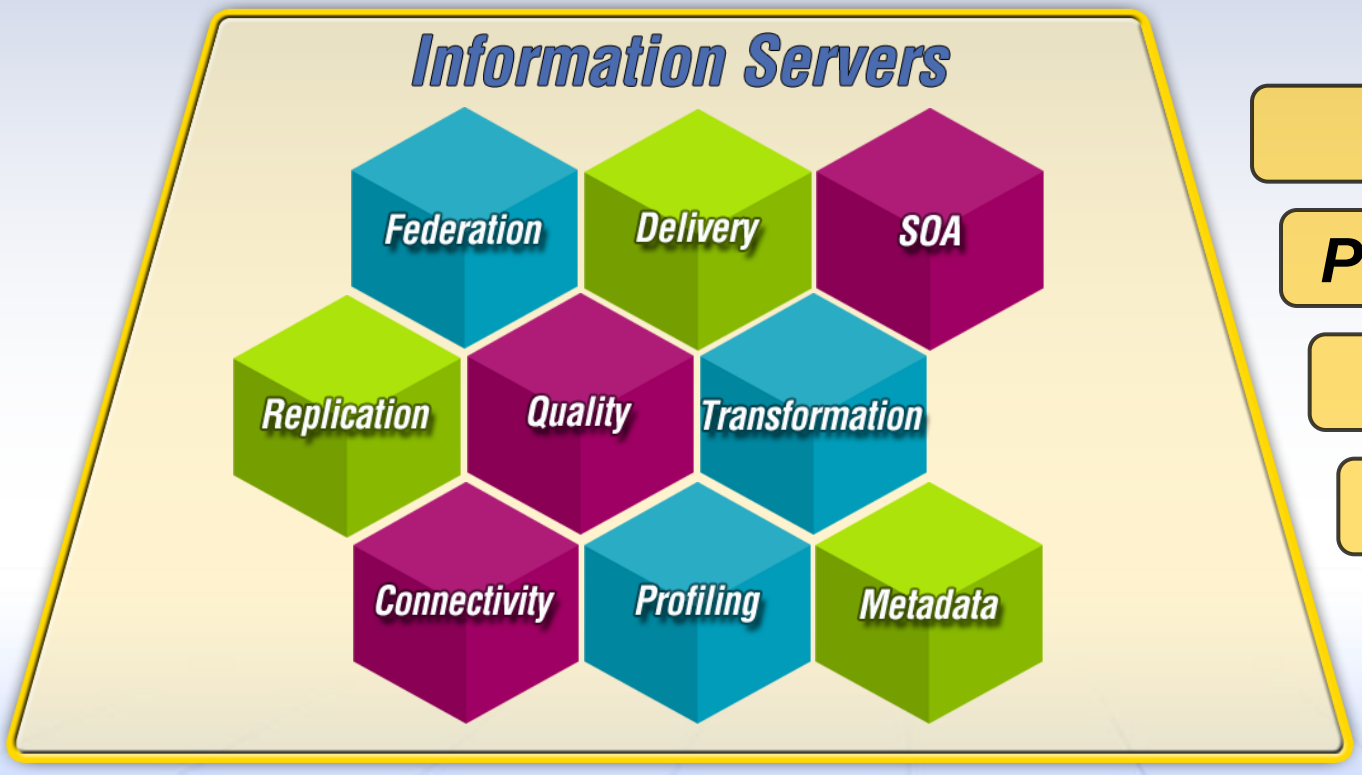


- ***Security***
- ***Scalability***
- ***Reliability***
- ***Reuse***

Information as a Service

Deploying a Platform for Trusted Information

Today's Inflection Point



- ***Trust***
- ***Productivity***
- ***Scalability***
- ***Reuse***

Delivering Information as a Service

Deploying a Flexible Architecture

- ***Needed to integrate across several related businesses with 1,100 Stores & Gas Bars***
  Tire Retail….Tire Financial Svcs…Petroleum
- ***"We need to provide accurate information wherever and whenever it's needed."***

Key to Success

- 100 reusable objects and interfaces to integrate & transform data
- IT staff can evolve data attributes without impacting applications

Result

- Reduced application integration time by up to 85 percent
  - Integration costs are 3-6% of project budget vs. 30% industry average
- Accelerated time to market for new services
- Streamlined compliance and reporting processes

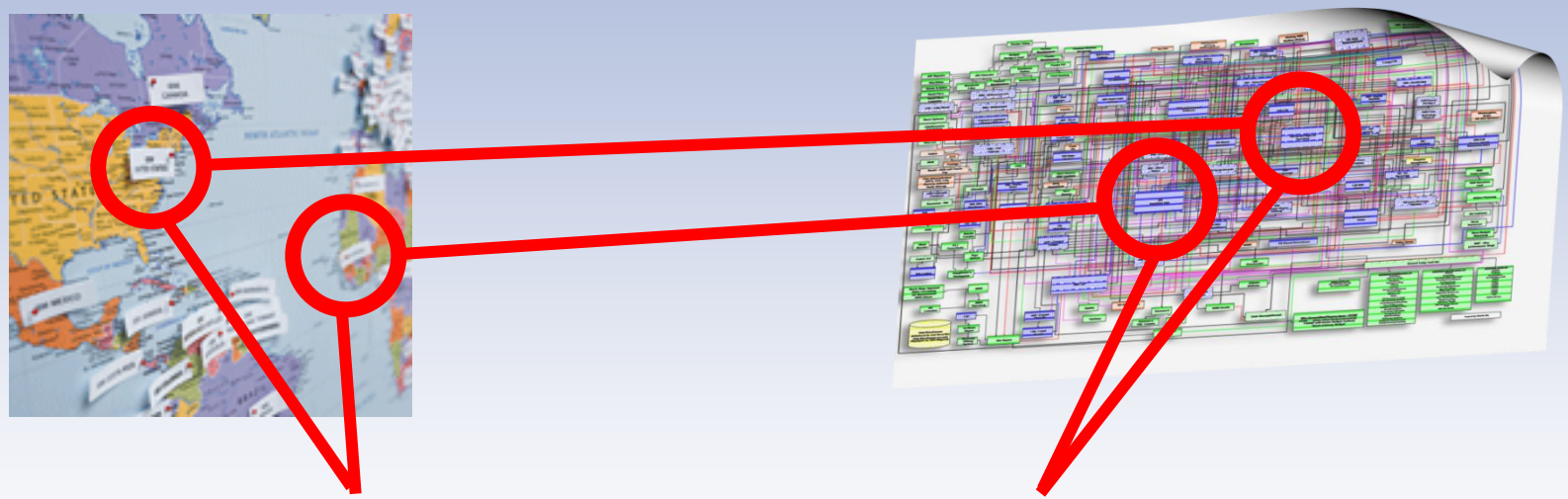
Three Key Challenges

The Information and Process Separation Problem

The Semantic Reconciliation Problem

The Speed Problem

Semantic Reconciliation: Associating Meaning



Business Glossary

- *What are the terms that describe the business?*
- *What do they mean?*
- *How are terms related to each other?*
- *Who is the steward for each term?*

Combined Value

- *What does the data in these systems mean?*
- *How are business terms implemented in these systems?*

Information Analyzer

- *What is the structure of data in these systems?*
- *What kind of data is in these systems? What is the format?*
- *How good is the data quality?*
- *How are these two systems related?*

Cacophony: Same Words, Different Meanings

Misunderstanding Semantics is the Source of Many Errors

How do I know that that I have an accurate view?

Business Users

Subject Matter Experts

How can I actively collaborate with developers?

I want the tools to work the way I do…

Developers

DBAs

Simplify, Administer, deploy, maintain…

What about Governance, Security, Scalability?

Data Analysts

Why aren't my tools more integrated?

Architects

Metadata: a Panacea?

Interoperability, Collaboration and Governance

Business Users

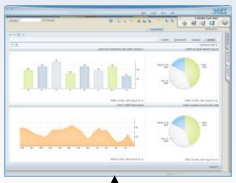
Subject Matter Experts

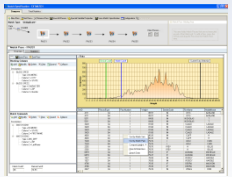
Architects

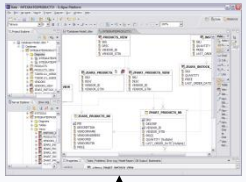
Data Analysts

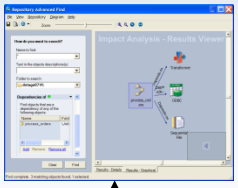
Developers

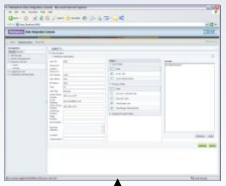
DBAs











Unified Metadata Management

- **Simplify Integration**
- **Facilitate change management & reuse**
- **Increase trust and confidence in information**
- **Increase compliance to standards**

Information Server 8.0 – Generally Available

Semantic Reconciliation: Data Matching

Personal Name	Address Information
Bob Christiansan	416 Columbus Ave #2, Boston, Massachusetts 02116
Kate A. Roberts	4 New York Plaza Floor 23, Manhattan NY, 10036
James Trenton	125-A Washington, Los Angeles, CA 90066

Source 1

Robert Christiansen	Four sixteen Columbus Avenue APT2, Boston, Mass 02116
Katherine Roberts	Four NY Plaza, FL-23, New York New York, 10036
Trenton, James	125 Washington Unit A, LA, California, 90066

Source 2

R.J. Christensen	416 Columbus Suite #2, Suffolk County 02116
Mrs. K. Roberts	4 NY Plaza, LVL23, NYC 10036
Mr & Mrs J.Trenton	One-twenty-five Washington #A, Los Angeles Cnty 90066

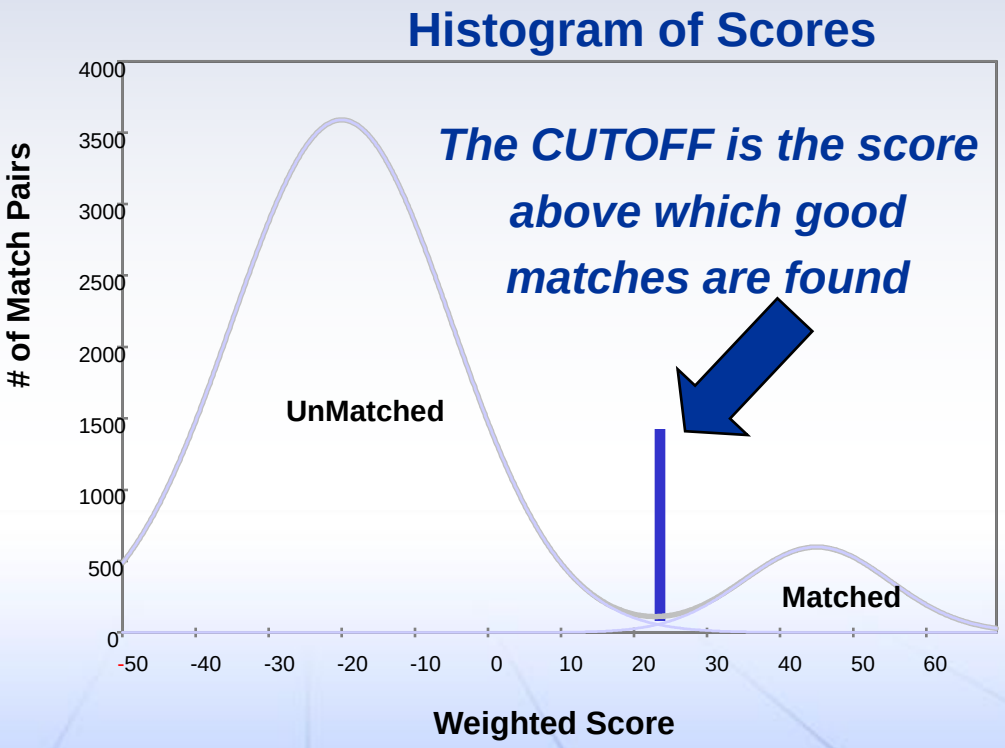
Source 3

Unlimited formats, structures & attributes all within the same meta-labels

The Matching Process: Statistical, Probabilistic Matching

WILLIAM	J	HOLDEN	128	MAIN	ST	02111	12/8/62	
WILLAIM	JOHN	HOLDEN	128	MAINE	AVE	02110	12/8/62	
+5	+2	+14	+5	+4	-1	+5	+11	= 49

The weighted score is a relative measure of the probability of a match; it expresses the amount of information content for all of the fields compared



Matched data can be combined or cross-referenced

Information as a Service

Build Consistent Reusable Services for Trusted Information

- ***Needed to stock inventory and customize leasing program based on unified view of customer profiles***
- ***Optimize supply chain through dynamic sourcing***
- ***Increase effectiveness & efficiency of core functional areas: service, warrantees, monitoring, promotions…***

Key to Success

- Information Flows Directly into Dealer Inventory Systems

Result

- 5,000 Staff days of Reuse in Integration Services Assets
- Automated Inventory and Data Quality Procedures Saves IT $400K Annually
- Optimized Leasing Programs, Tailored to Customer

Information as a Service

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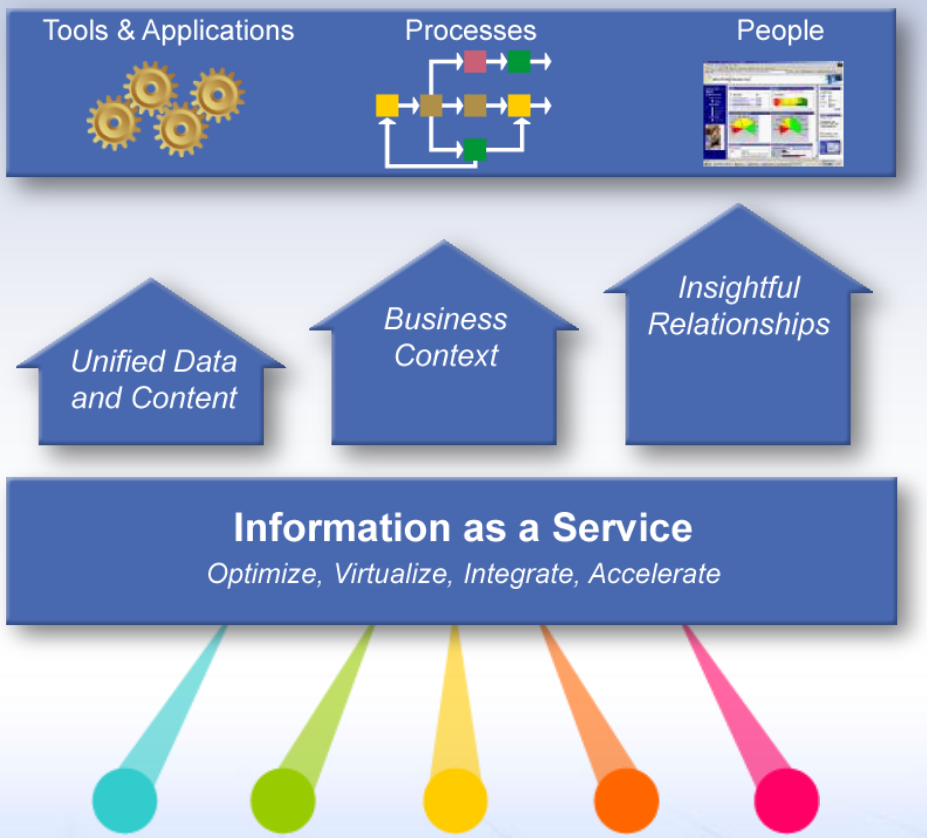
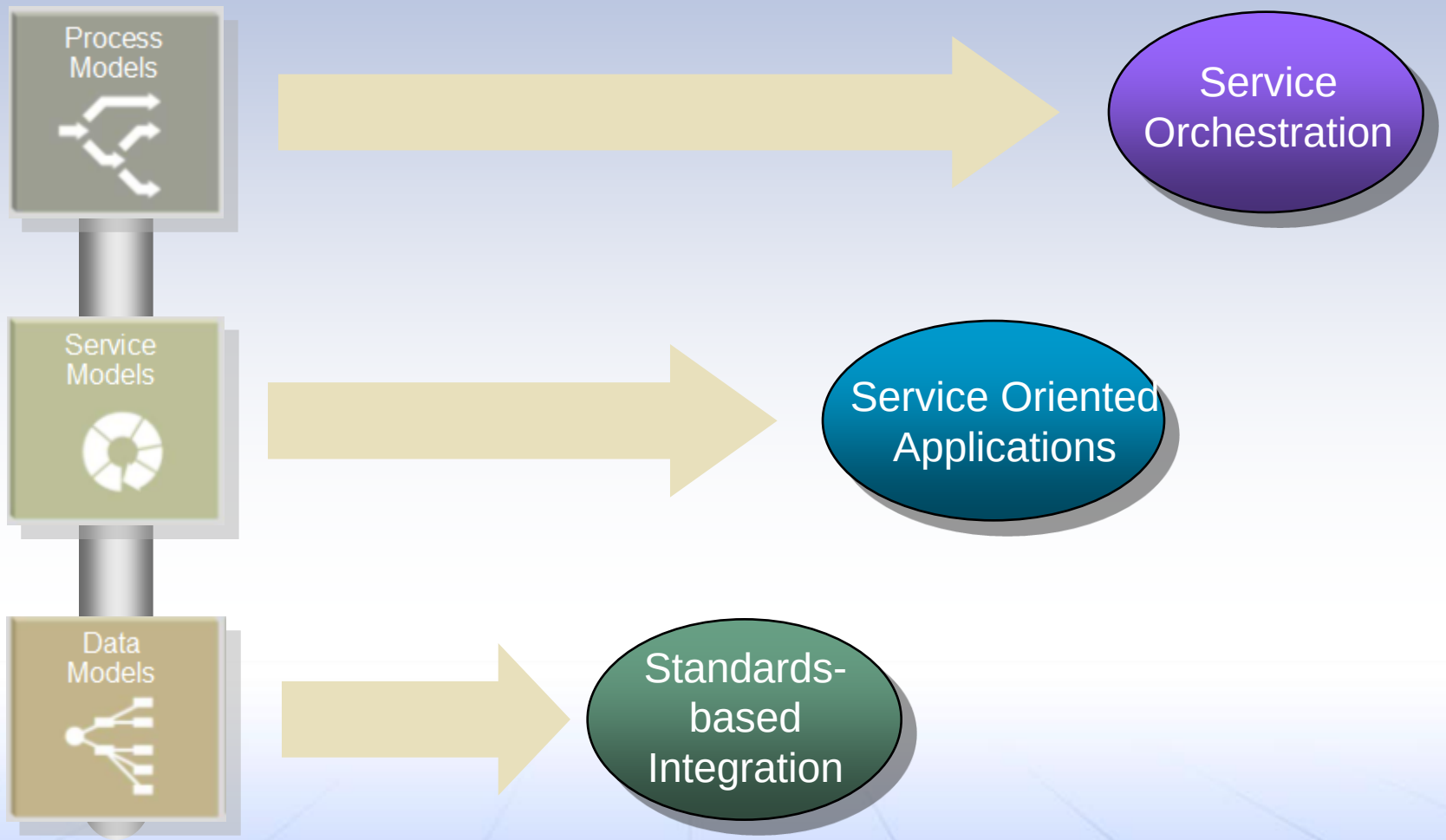
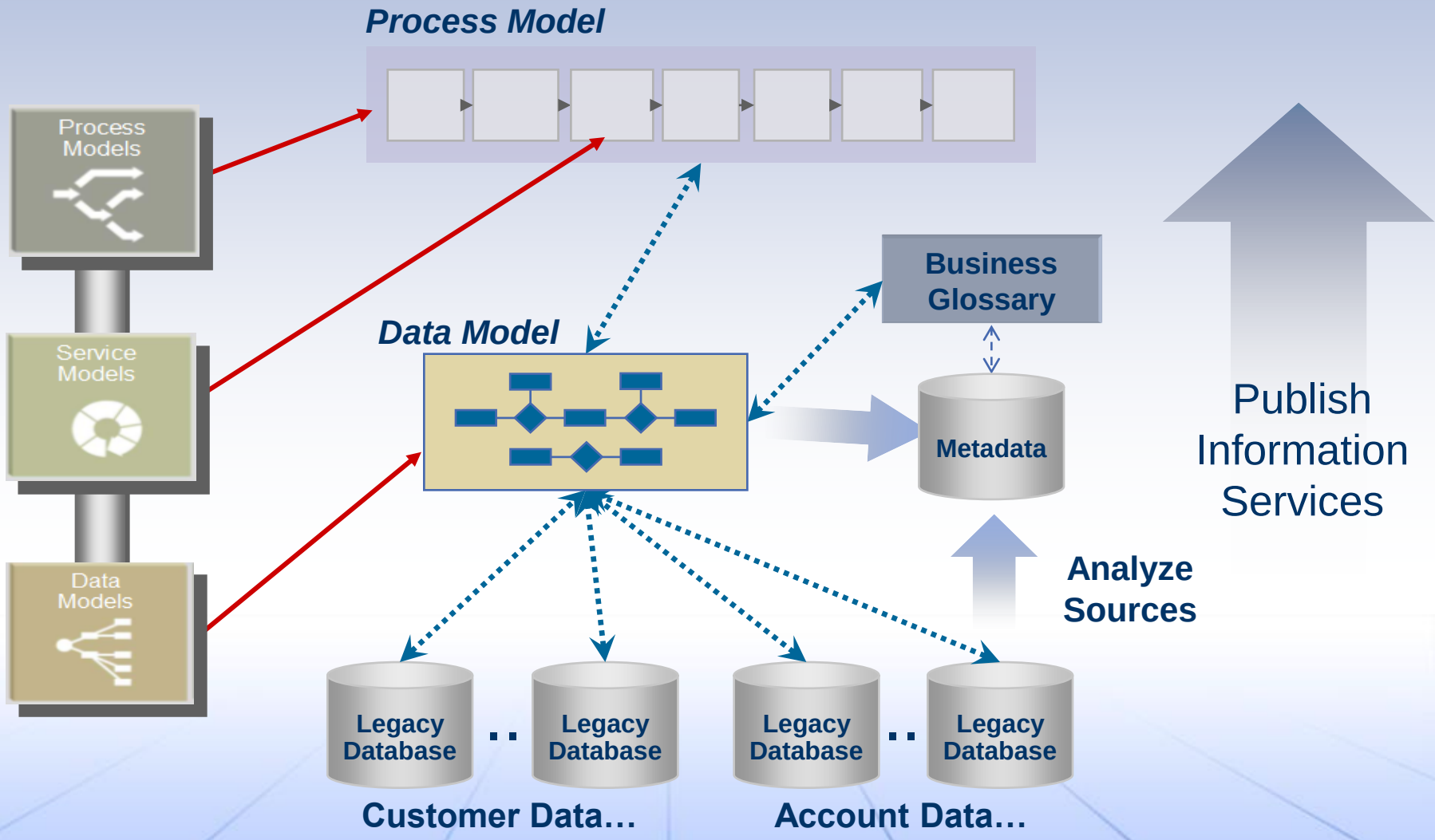


Data Servers & Content Repositories

Industry Models



Process, Service & Data Models Need to Cooperate



Unifying Customer Information Increases Value and Drives Savings

- ***M&A: No unified customer information…***
  Across multiple business units
- ***Disparate technology environments…***
  IBM, FileNet, Mobius….

Key to Success

- Separation of information & process

Result

- 50X increase in requests for unified customer information
- $1M savings per new business unit needing a common view of the client

Three Key Challenges

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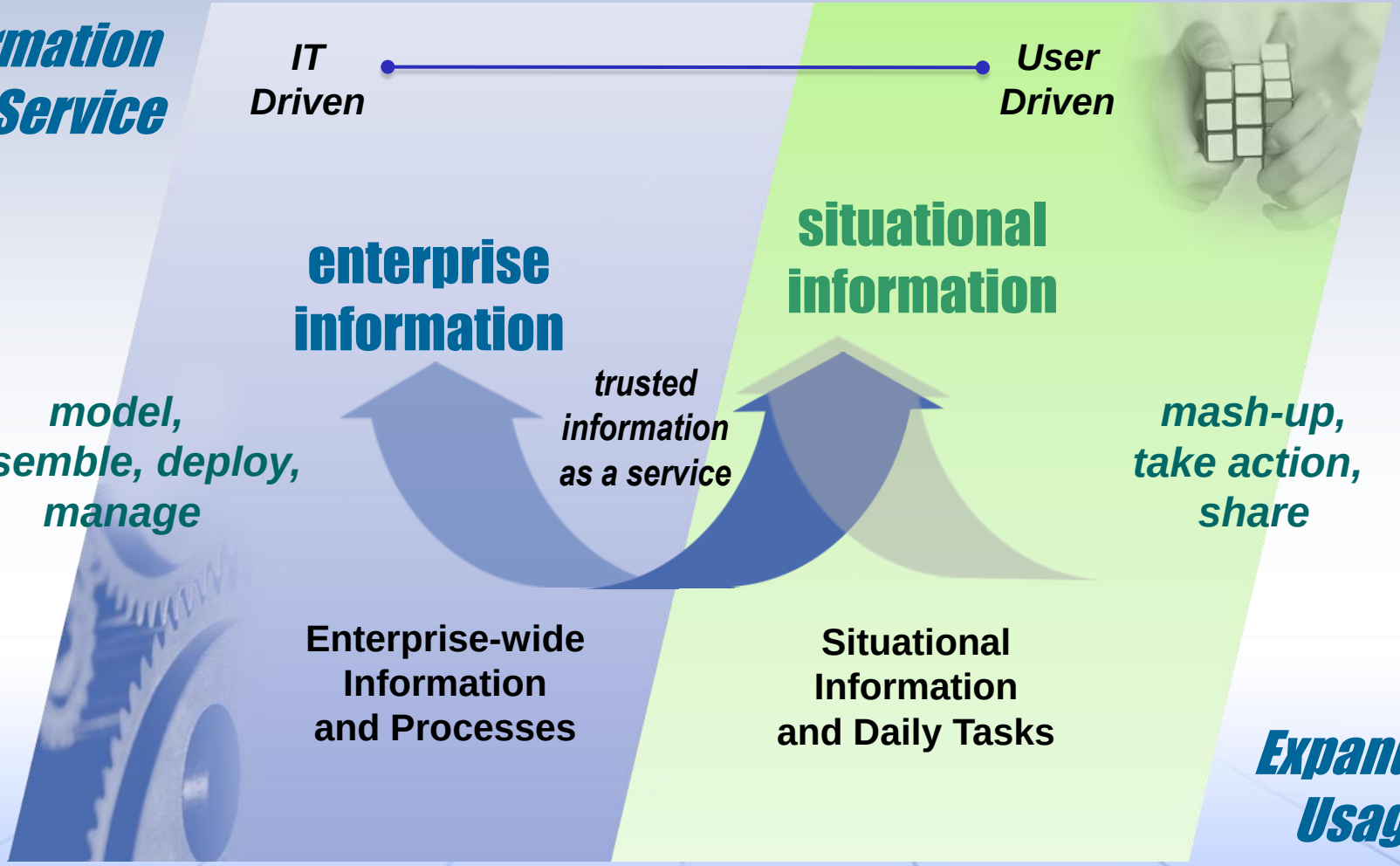
Information as a Service Enables Reuse…

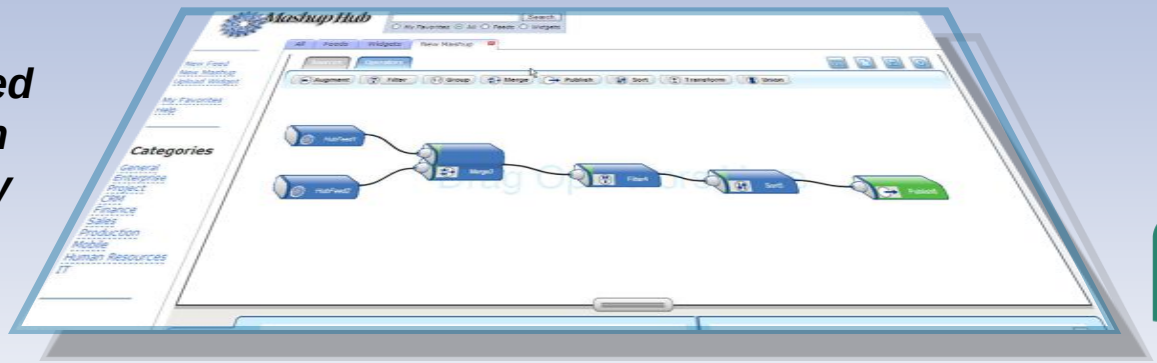
…and Web2.0 will Dramatically Expand Usage Models



Information as a Service

Web2.0 Expands the Need for Service Orientation

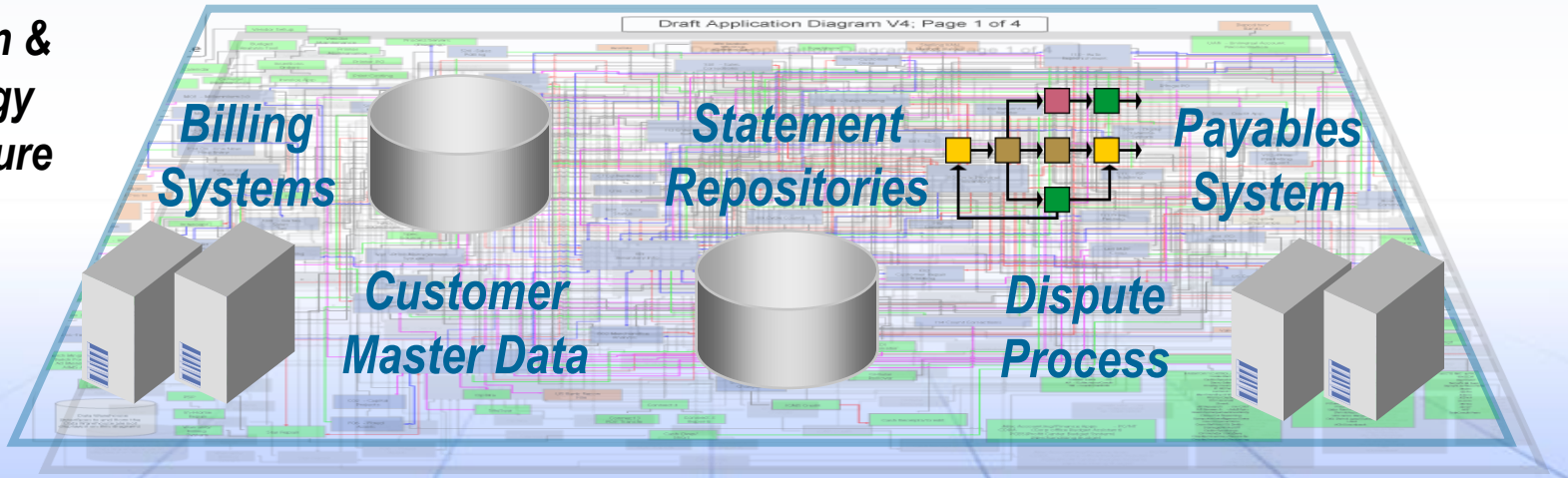
Web2.0 Based User Driven Productivity



Business Users

Business Users Can Easily Leverage IT Managed Systems & Trusted Information

Application & Technology Infrastructure



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Thank You