JBoss WORLD
CHICAGO 2009

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JBoss WORLD CHICAGO 2009

Turning Lead into Gold

Chris Creel
Knowledge Management Director
DST Health Solutions
7/27/2009

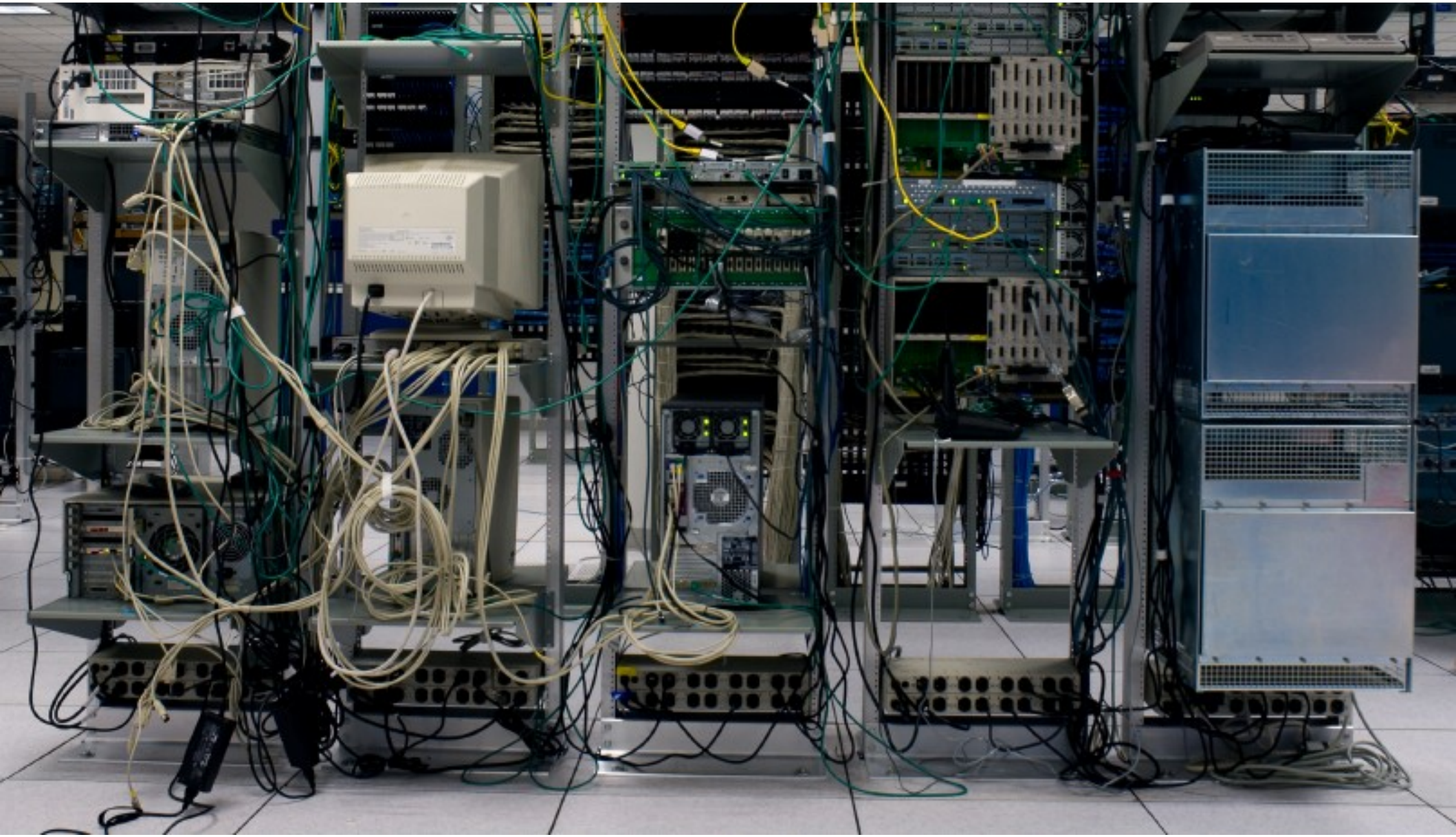
presented by

What we do – Business Process Outsourcing

The Goal – Transparency

The Problem – Rich Mix of Old and New

What it feels like...

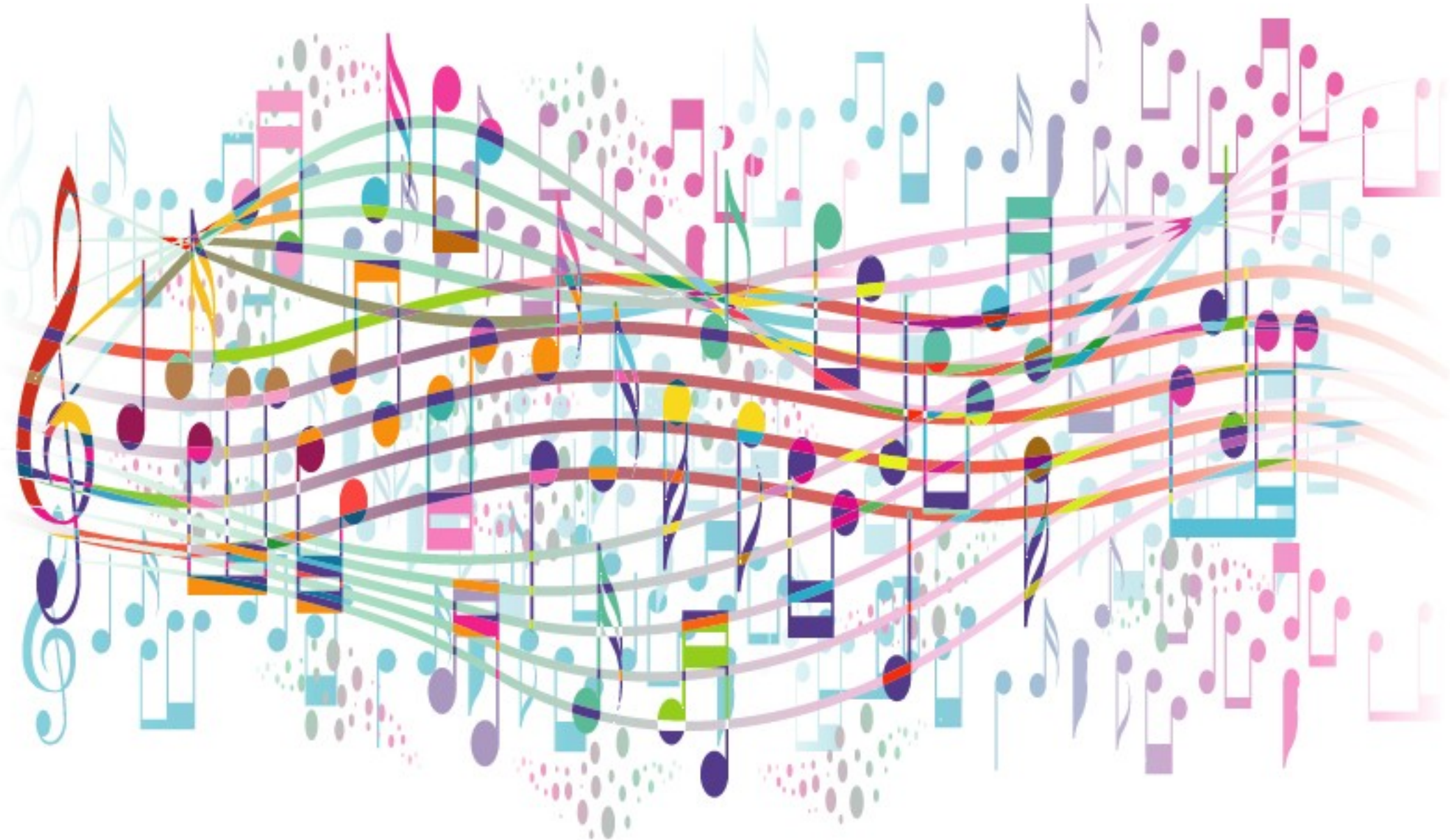


The Result – Manual Reconciliation & Reporting...

... and Really Frustrated Executives & Clients

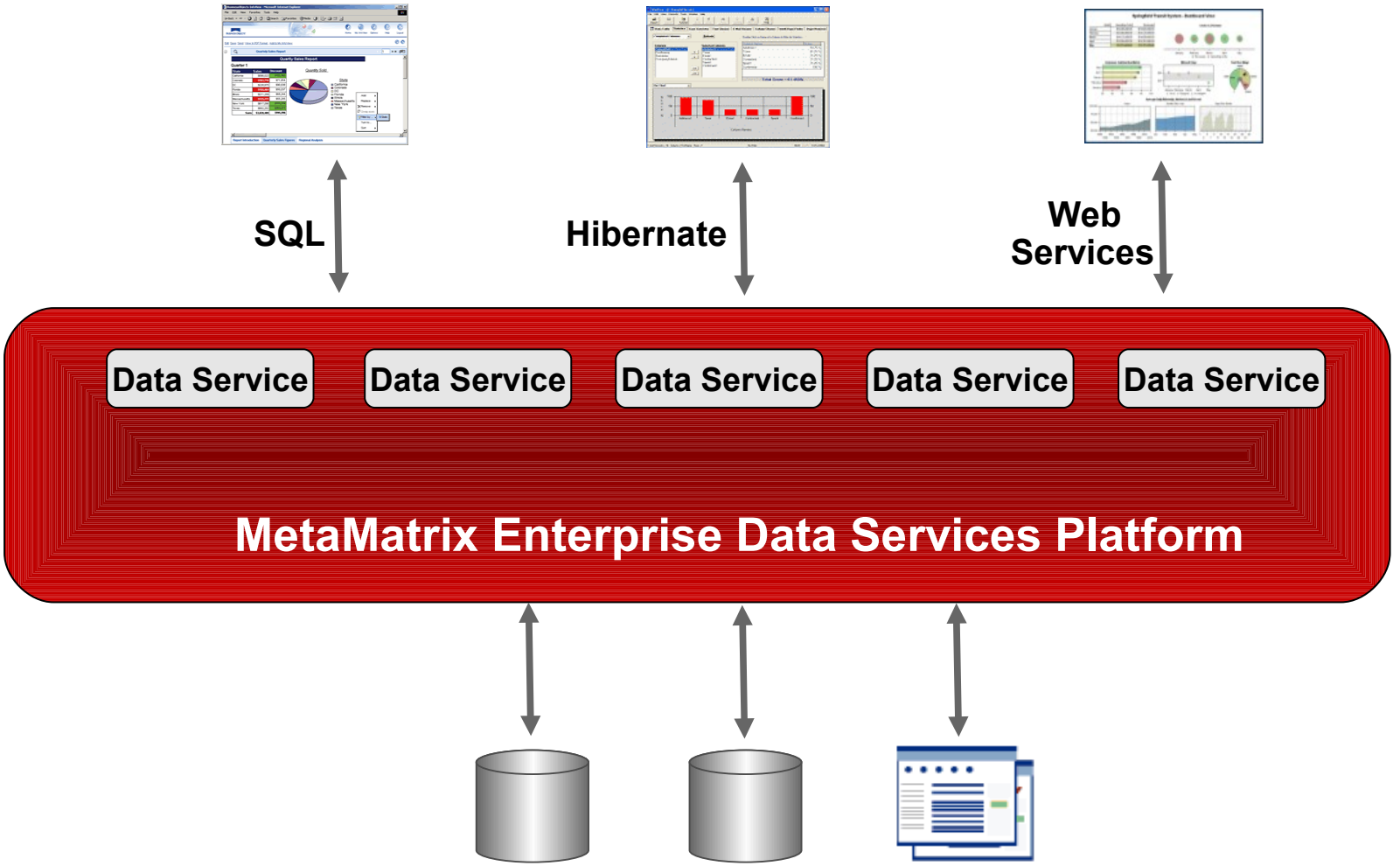
What it Should Feel Like

MetaMatrix by Redhat



What MetaMatrix Does for Us

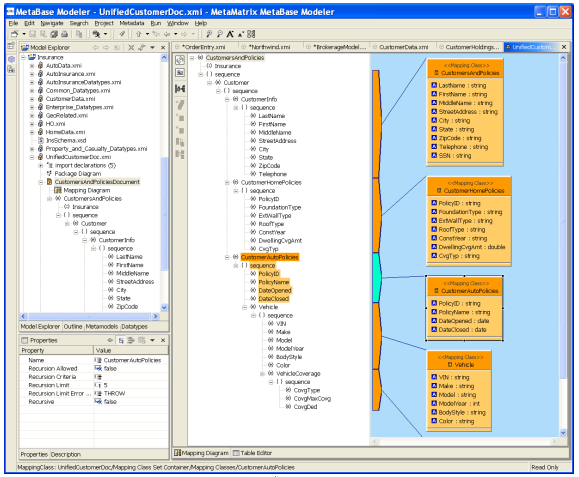
MetaMatrix Enterprise Data Services Platform

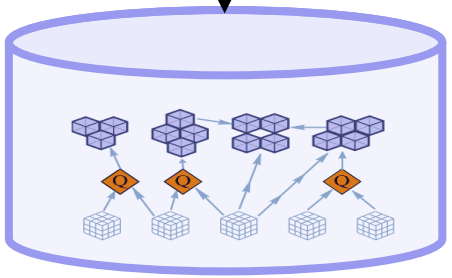


Turn the Data You Have Into the Information You Need

Data Services Platform Architecture

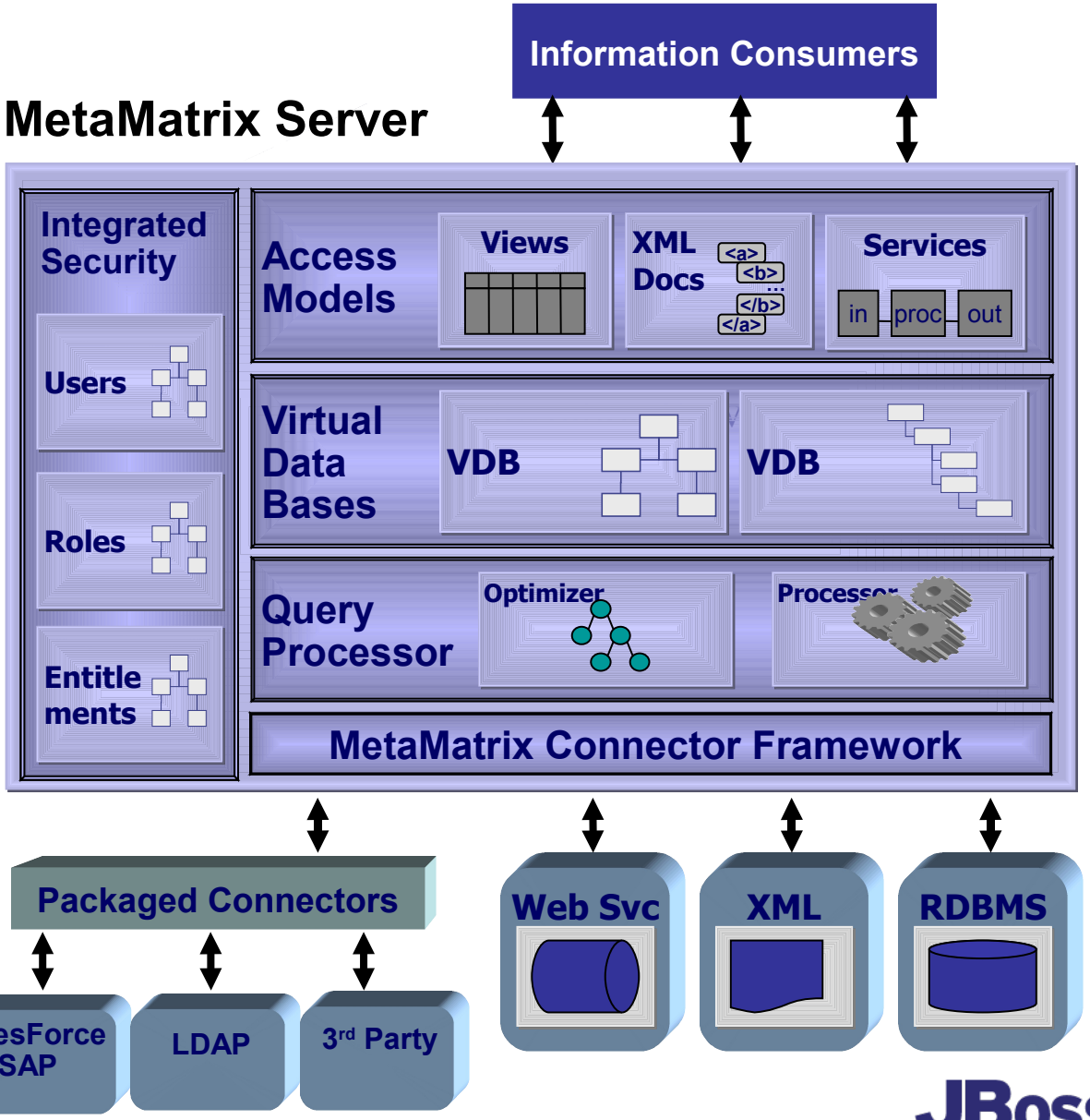
MetaMatrix Designer





Metadata Repository

MetaMatrix Server



Bringing Order to the Chaos

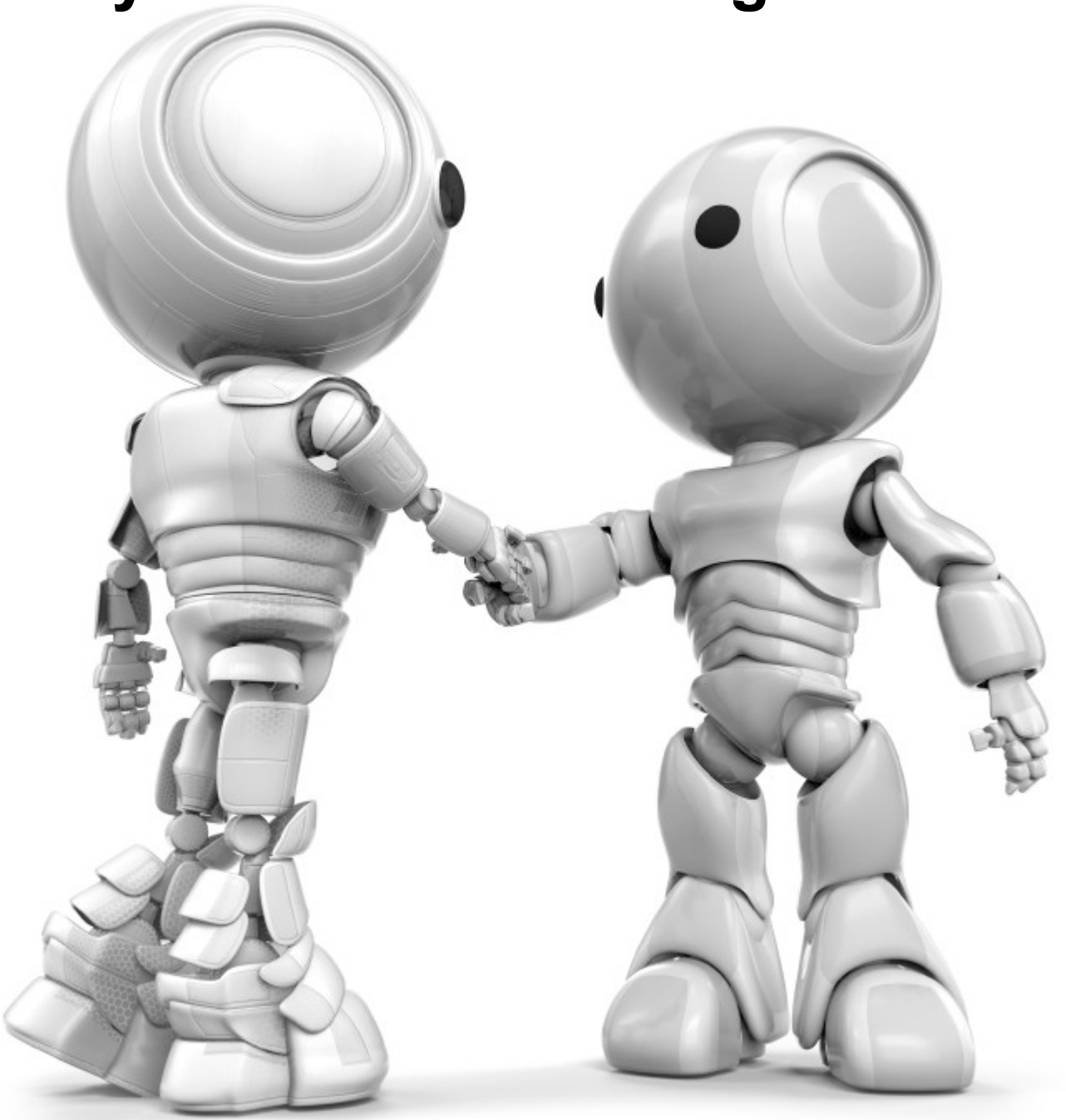
Solve the REALLY Scary Problems

What it Actually Feels Like Information Kung Fu Master!!!

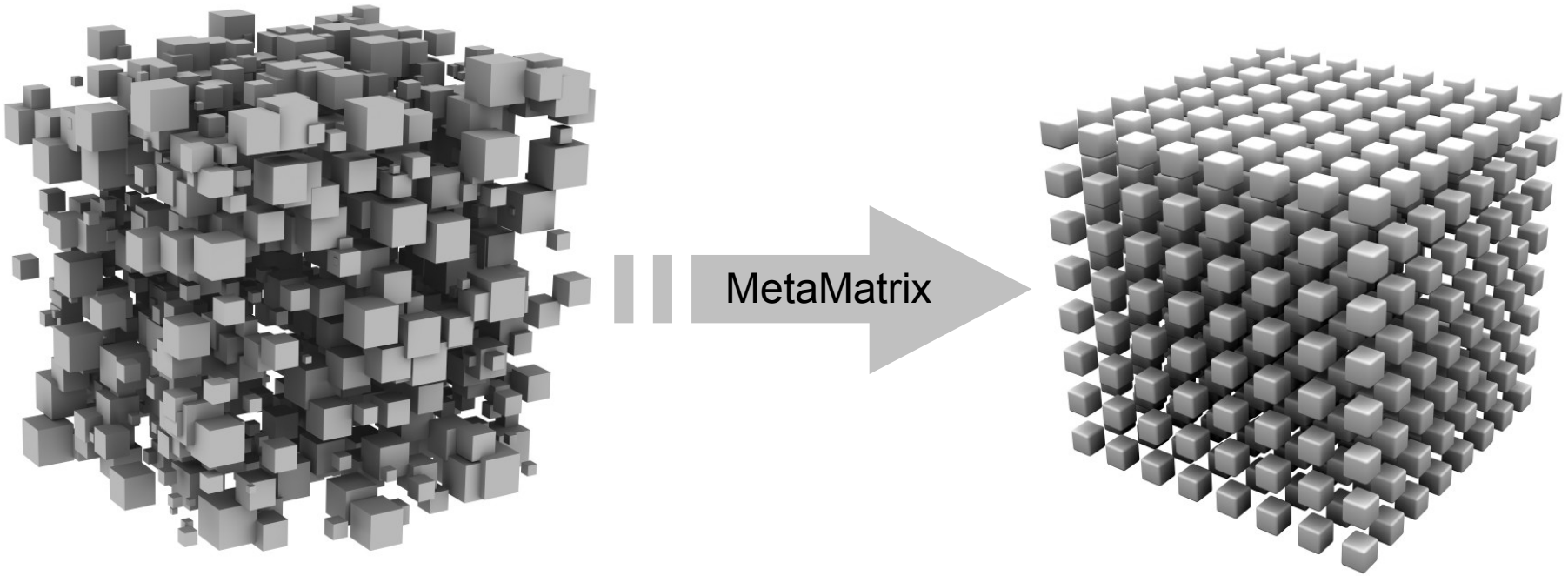
Reporting

Intelligent Agents

System and B2B Integration



Cubing the Impossible



Summary

QUESTIONS?

TELL US WHAT YOU THINK:
REDHAT.COM/JBOSSWORLD-SURVEY


Turning Lead into Gold
Chris Creel
Knowledge Management Director
DST Health Solutions
7/27/2009

What we do – Business Process Outsourcing

- We process health care claims
- 324 clients, mostly health plans
- Multiple platforms of different ages built with different technologies
- If you break your leg there is a chance that we will process the services claim.

Handing your operations over to someone else can be very unnerving and is one of the single largest hurdles to signing new business. Where you used to be able to walk down the hall to get your spreadsheet, now you have to call another company!

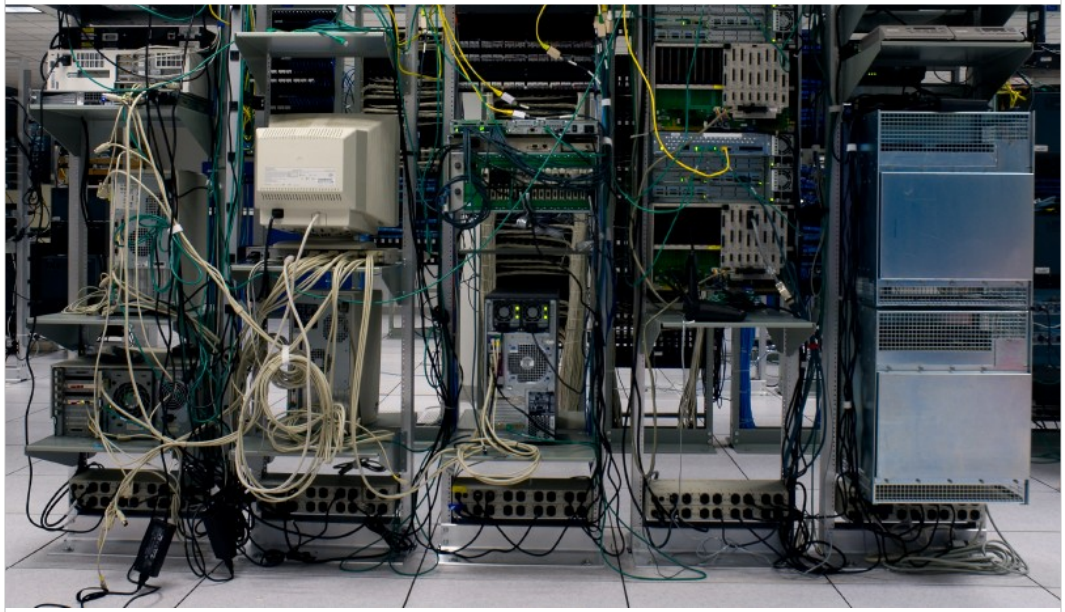
The cold hard reality is that most companies can't even do this for themselves and much of their company is “opaque.” The finance team in most companies is beset by requests for one “ad hoc” report after another. All these “ad hoc” reports effectively use the same data but because it is often pulled from multiple places it always has to be manually reconciled.

The lack of transparency leads to fear of the unknown and this fear can increase overhead because of the need to constantly check if everything is alright.

We have multiple COBOL systems running VSAM databases, multiple Java applications running on modern databases, information externalized in Excel spreadsheets, and data in file extracts that cannot be accessed any other way.

In order to make solid business decisions all this data has to be unified in to a common landscape. Doing so will help with making good business decisions. Great business decisions, however, are not made in silos of data, but at “unnatural intersections” between data that has never had a chance to sit side-by-side before; in seeing things together that have never or have rarely been seen together.

What it feels like...



Unfortunately, all of these legacy systems and data scattered everywhere in far flung corners of the company creates a general sense of malaise and defeatism that the problem is just too hard to address.

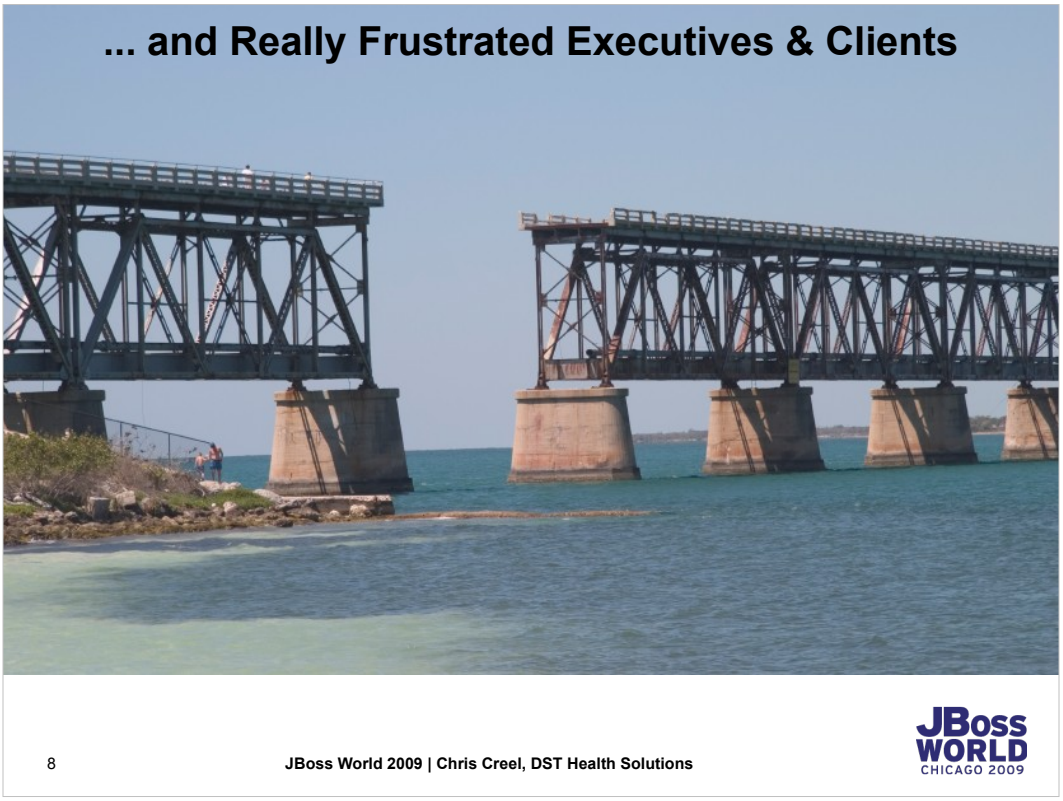
Consequently, companies often have “data warlords” that rule over some piece of data like time sheets, or sales numbers. In order to get this data you have to go to that person and ask them very, very, very nicely if you can have it.

This culture is an additional expense as it introduces friction in to the process, slowing the movement of data and the ability to integrate that data in to a bigger picture.

The Result – Manual Reconciliation & Reporting...

The hardest part of all is integrating this data. Systems that manage overlapping data typically store that data in different formats with different schema's. Consequently, individuals are employed to manually compensate for the differences to create a unified tapestry of business data. File extracts are pulled from one system, loaded in to a spreadsheet with a database dump from another system, and someone works the spreadsheet until the answers look right.

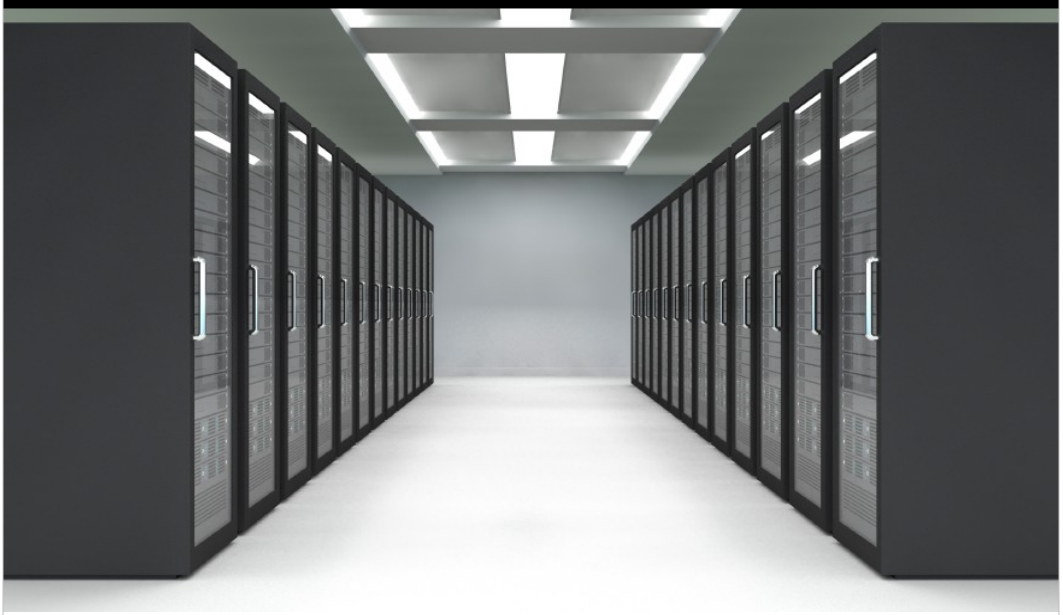
As a result of the sheer cost in time and pain, critical reports that should be run frequently and automatically monitored are run less frequently opening up opportunities for “surprises,” which are universally hated by executives and clients alike regardless of those surprises being good or bad.



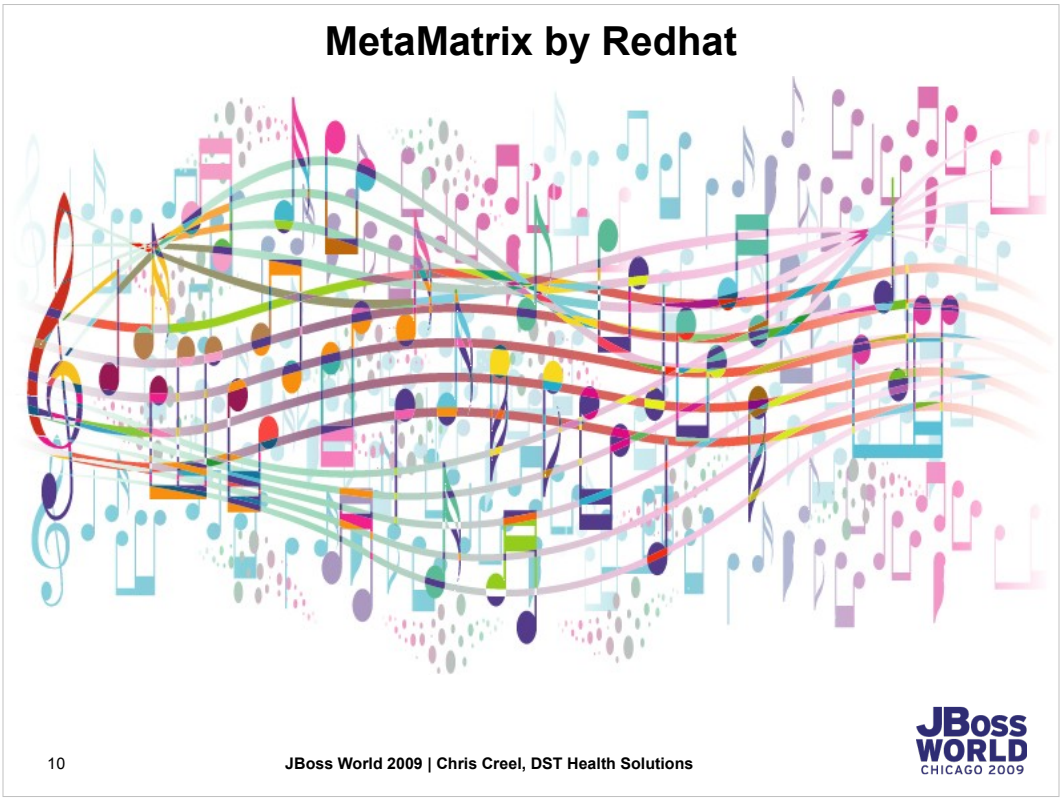
Regardless of how hard individuals work to pull the data from across the enterprise in to one place and deliver it to the end users, executives and customers will constantly ask for more data, data in the format they want, and data that they can “slice and dice.” When they don't get it fast enough, another spreadsheet is born, the cycle continues, and no long term value is created.

Many times without that last piece of data all the data you have can be useless.

What it Should Feel Like

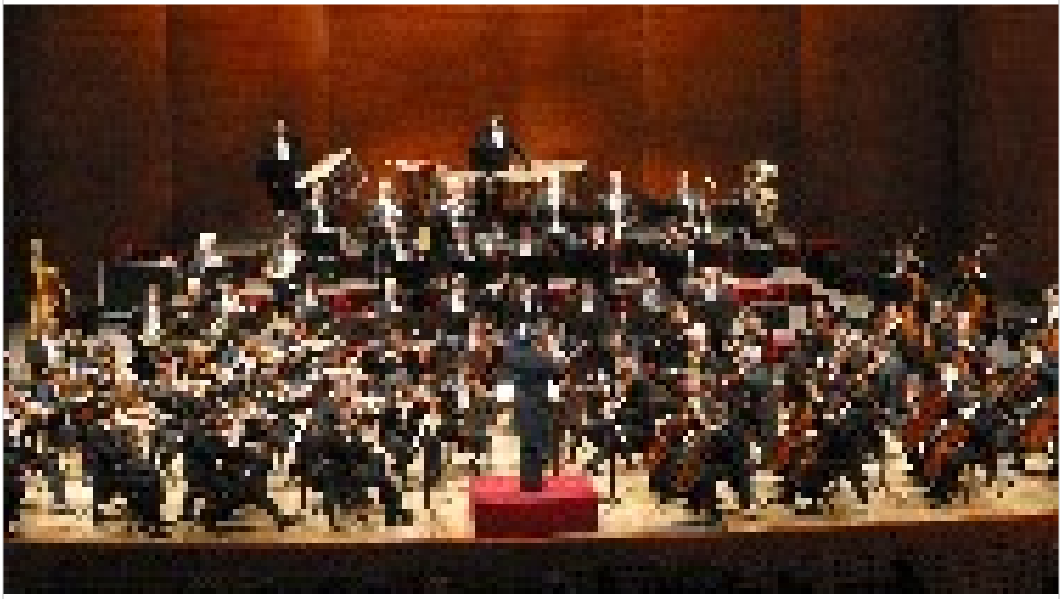


The ideal state is that all enterprise data is accessible real-time in a standard, consistent, easy way using whatever tools are most natural to the end user. The data should be woven together in a logical way to form a unified, rational landscape of data that can be easily navigated from end to end and then incrementally augmented creating an ever growing catalog of data.



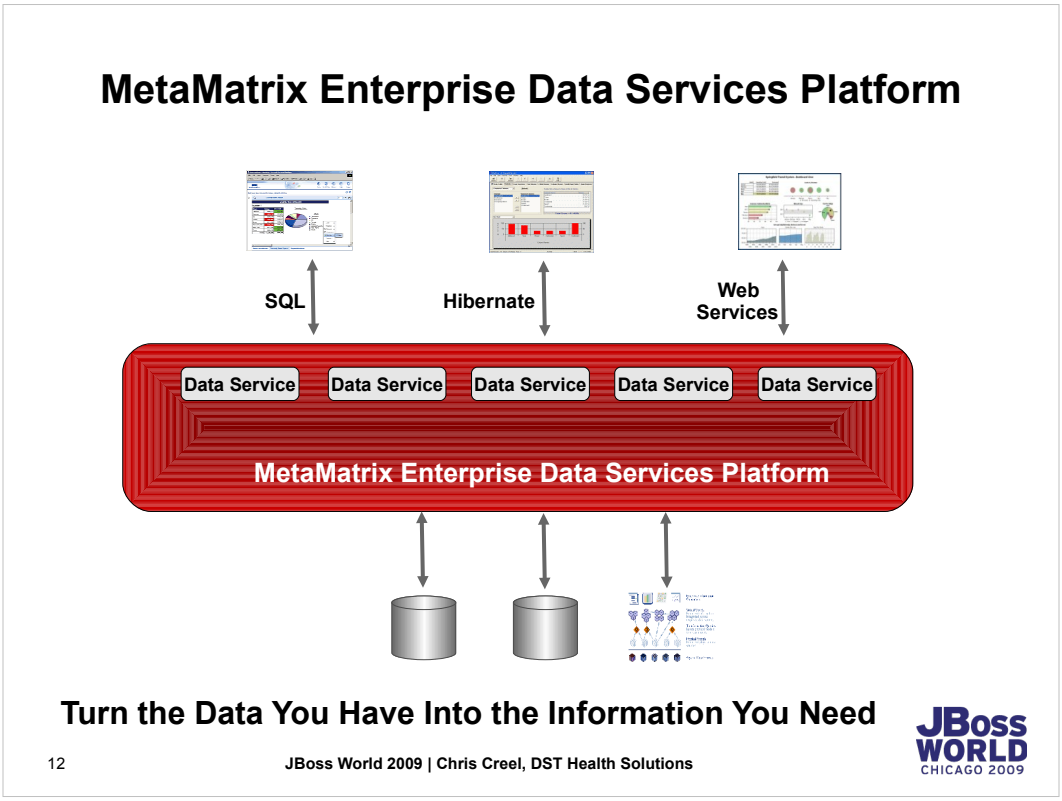
Imagine that the technologies in your enterprise are musical instruments. All the data in these technologies are the notes those technologies can play. Without some method of orchestrating all of those notes, it would sound like a cacophony without any discernible patterns.

What MetaMatrix Does for Us



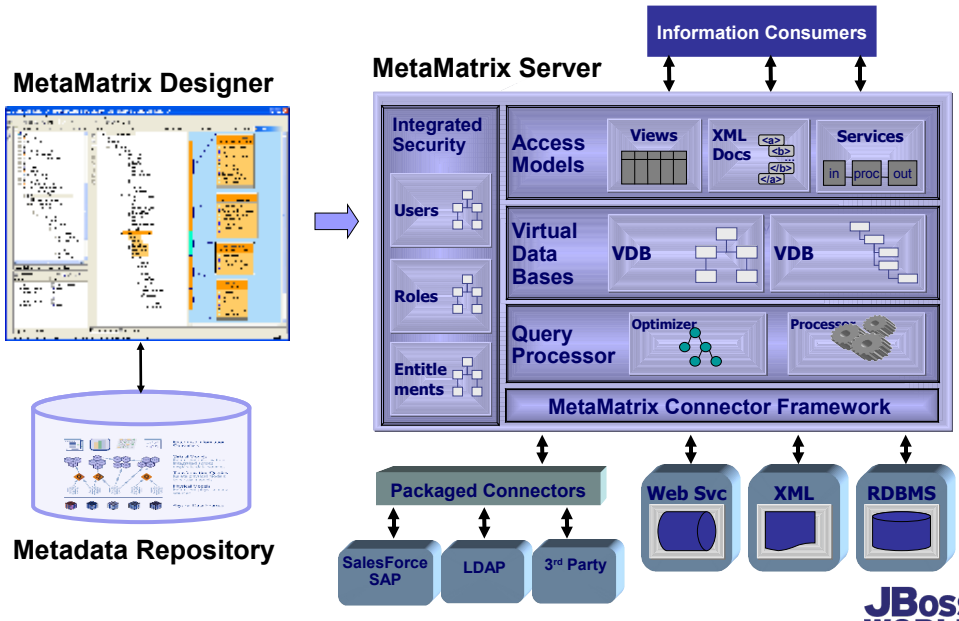
MetaMatrix serves as our “Data Conductor,” making sure that all the work is done by the orchestra, ensuring that all the right instruments are playing in the right order, and that new instruments can join in without sounding out-of-place.

The conductor ensures that you can play any tune you want using the exact same instruments without having to create an entirely new orchestra for each new song.



- Standards-based read/write access to heterogeneous data stores in real time.
- Speeds application development by simplifying access to distributed data
- Transforms data structure and semantics through data virtualization
- Consolidates data into a “single view” without the need to move data
- Centralized access control, auditing through robust security infrastructure
- Create services that provision data to business processes in your SOA
- Enterprise-proven – flexible, scalable, high-performance

Data Services Platform Architecture



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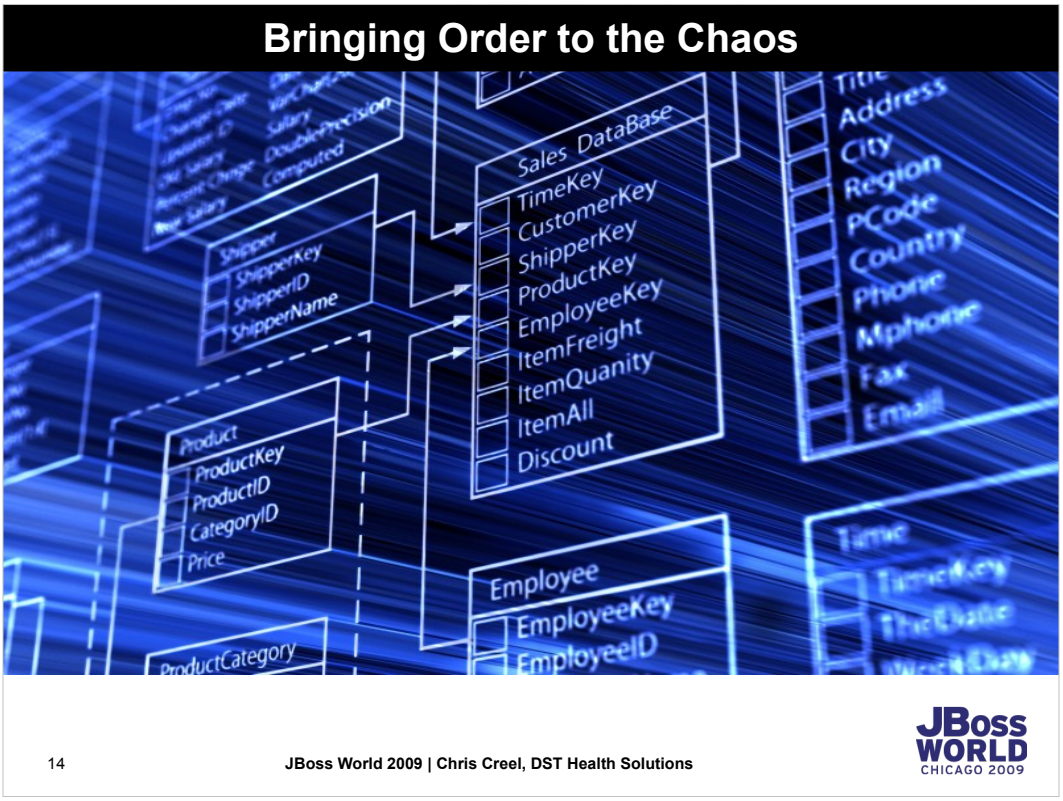


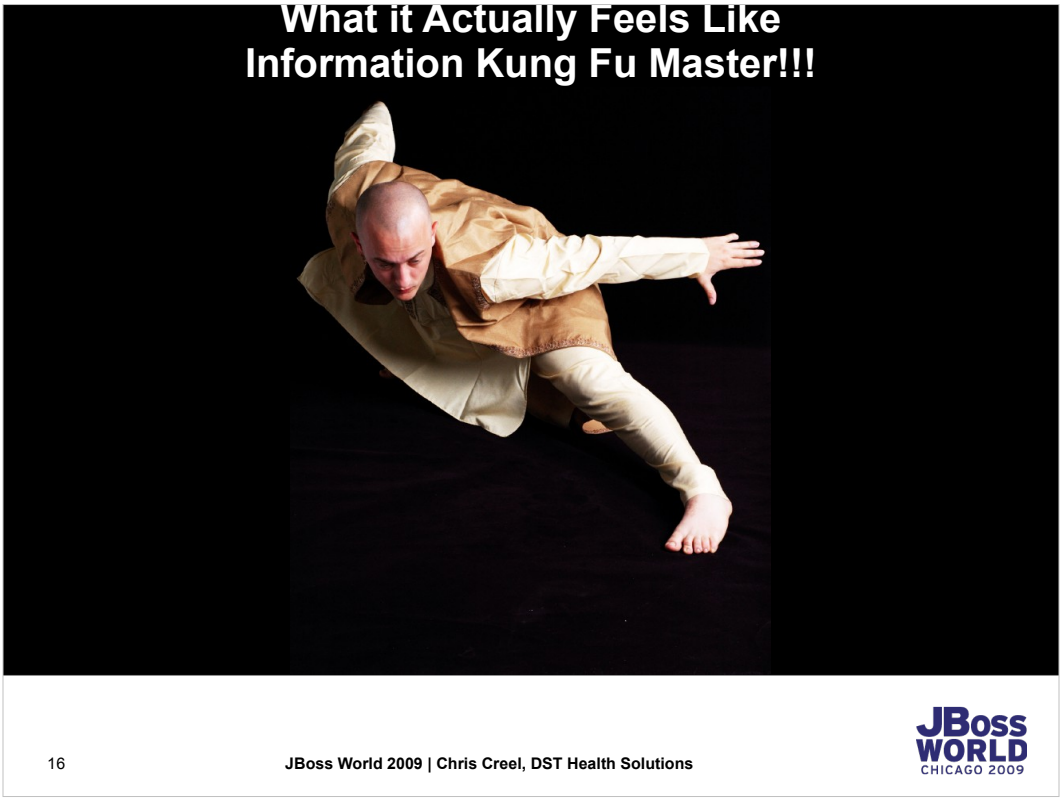
Using MetaMatrix, we can connect directly to our operational systems like our claims engines, PeopleSoft, Clarity, etc). We can also connect to Excel spreadsheets and flat file when performance is not an issue. MetaMatrix enables us to treat all data sources like a database and when we issue a query to that database, MetaMatrix will push the work down to the source ensuring good performance.

To do this we build “virtual layers” that we construct using SQL. We can create as many layers as we wish and MetaMatrix will collapse them down at run-time.

In this way, we can build vast landscapes of integrated data, then repackage different parts for different purposes.

Creating a unified landscape of business data from across multiple ancient legacy systems would be impossible without something like MetaMatrix. For example, dates in our legacy claims systems are in different unique formats because of the Y2K conversions in the 90's. MetaMatrix enables you to fully customize the database “connectors” such that function calls can be overridden in order to deal with such unique circumstances. We have had to do this for the DB2 VSAM database wrapper and for Oracle.

In this way we are able to pull operational data for all our clients across 4 legacy platform and integrate data with this billing and project data from our business applications like PeopleSoft and Clarity.

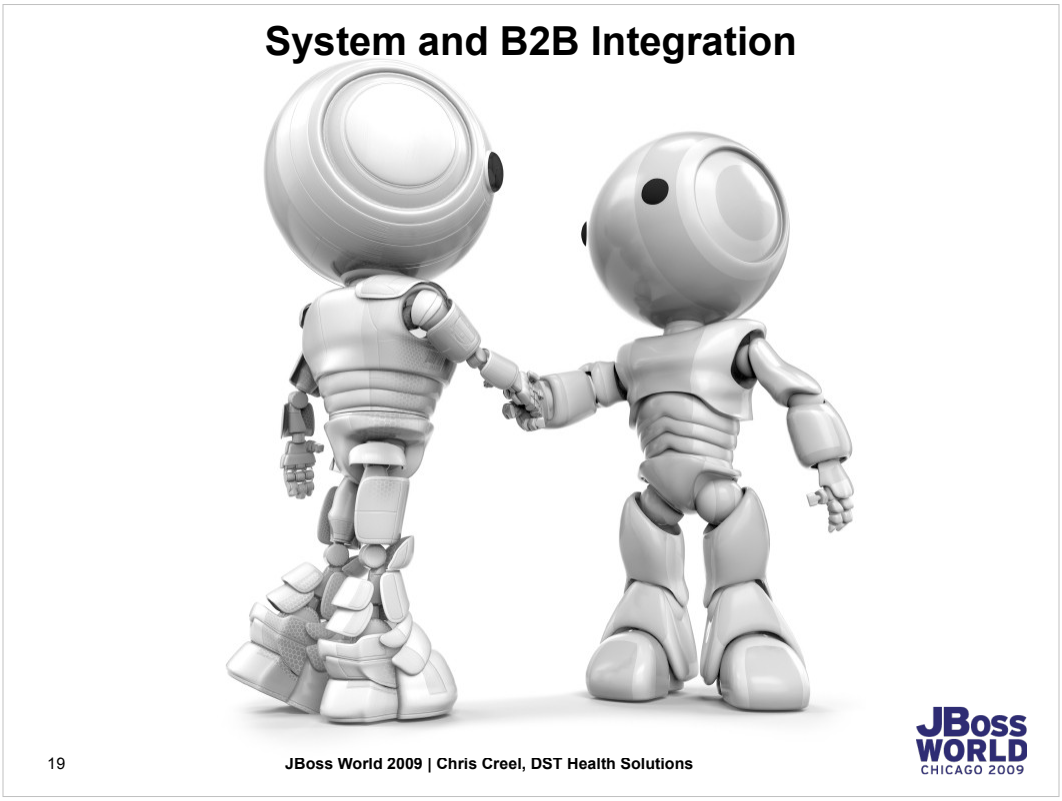


As we integrate more interrelated data from different sources, intersections between that data becomes more common. Great business decisions are made at the intersections of this data. Data that was once very hard to get to and combine with other data has become much, much easier. After a while you sort of feel like a kung fu master of data.

We can pass on this liquid feeling to our users by connecting JasperServer from JasperSoft to our virtual databases. JasperServer has an “Ad Hoc” reporting capability that enables business users to drag and drop data elements on to a report that they design. Without knowing, the data elements they drag on to their report can actually be from different systems.

We have a number of reports that regularly pull data from as many as four systems, all in parallel. The reports run at the speed of the slowest system.

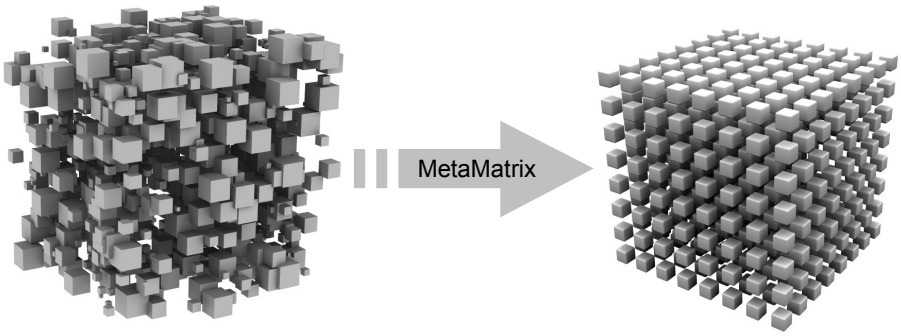
Monitoring an ever growing landscape of data becomes increasingly more complex because you typically want to monitor the intersections. As you integrate more and more data, the connections increase non-linearly. In order to monitor these intersections we have used Talend, an open source process automation tool, to create intelligent agents that understand our service level agreements and notify us when intersecting data sets could indicate trouble. Where this idea was once a very difficult because the data was scattered everywhere, now it is very simple because the data is in one convenient spot and always up to date. In this way we can avoid end-of-month “surprises” and avoid paying fines due to missed SLA's.



MetaMatrix can be read-from and write-to all of the data sources to which it is connected. This is a huge boon to a company like ours that leverages a number of third party vendors in order to provide services to our customers. Many times these customers do not want to reveal their database schema's so instead they can simply download the MetaMatrix designer, create the necessary tables, and deliver us files that we can import in to our virtual databases. In all cases we do not want to tie ourselves too closely to any vendor and so we plan on using MetaMatrix as the data abstraction layer, insulating ourselves and protecting our long term viability in the event that a solid competitor arises.

MetaMatrix ***also enables us to closely govern how our customers and vendors will access our virtual data sources.***

Cubing the Impossible



MetaMatrix enables you make your data do acrobatics. For example, you can create “cubes” out of operational data where no cube exists. To do this, you can create dimensions dynamically by stripping them out of operational tables. This isn't as scary as it sounds because MetaMatrix caching dramatically increases slicing and dicing speeds. You can also “prime the pump” with “Fish Net” reports that generate business value while pull the data that will be necessary throughout the day for slicing/dicing. Additionally, you can create “dimension databases” that store reference data about data stored in our operational databases (things like platform, lines of business, deployment model). We can then cube our operational “facts” with dimensions stored in our dimension databases, treating it all as if it had always been integrated.

Summary

In the book “Where the Wild things Are” a page talks about how Max tames the wild things with the magic trick of staring in to their yellow eyes without blinking. I see all these legacy systems and their messiness as the wild things and MetaMatrix as my magic trick. We are now running operational reports across 50 clients running on 5 platforms both modern and legacy. We can combine this data with data from our financial and project management systems. Then augment it all with manually maintained data stored in spreadsheets.

This has enabled us to keep our clients and executives more informed, automatically monitor for trouble, and get far more out of our legacy systems than we had ever imagined.