INGENIX

DSOWeb

Innovation in ETL Transforming Raw Data into the Building Blocks of Intelligence

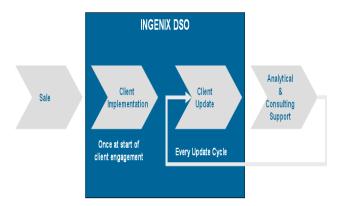
April 4, 2007

About Ingenix - Data Services Organization (DSO)

- The Ingenix Data Services Organization (DSO) annually processes and integrates millions of service lines and other claim-related data from more than 500 diverse health and productivity related data sources for more than 125 large employers and hundreds of small employers. This translates to:
- 4250 feeds processed in 2005
- 8964 feeds processed in 2006
- 18,000+/- feeds processed in 2007

About Ingenix - DSO Processes

- Data is received across several media types related to eligibility, medical claim (includes vision and mental health), pharmacy claim, workers compensation, short-term disability, long-term disability, FMLA, lab results, disease management, health risk appraisal, payroll information, etc.
- Implementation is the design phase focusing on data layout, client account structure, initial data quality plan, conversion rules and successful completion of the first cycle.
- Update cycle is the periodic receipt of data from carriers/clients, focusing on data review, investigation/resolution of inconsistencies to ensure clean data, and loading onto analytical environment



Business and Operational Challenges

- Long turnaround time for data delivery
- Need for a cost effective data management solution
- Absence of streamlined data quality assessment and investigation process
- Absence of company-wide standardized data intake process
- Quality review process that is manual and subjective leading to errors, rework and decreased confidence in results
- High maintenance costs

Business Needs

- Increase customer satisfaction through faster turnaround time and higher data quality
- Higher productivity through faster learning curve
- Elimination of manual intervention and continuous inspection of data
- Continually increasing automation
- Meet growing demand for faster data delivery and higher level of data quality
- Efficient data profiling and data management
- Flawless data delivery to analytical environments
- Ability to leverage transformed data across multiple Ingenix products

DSOWeb – Innovative ETL & DQ Solution

- Standardized data processing by data types eligibility, medical, drug, disability, WC, FMLA, HRA, lab and disease management
- Standardized incoming data into common format by data type
- Automated data quality checks
- Automated data trending
- Automated file processing and job monitoring
- User 'friendly' interface
- Data quality and trending failure analyses
- Transformation and mapping functionalities
- Integrated data quality investigation functionalities
- Validated client and carrier details from profiles such as:
 - Employee status, employee type and types of coverage
 - Number of covered lives and products
- Operational and data quality metrics

DSOWeb - Express eVal – UI Driven Mapping Functionality

	rosoft Internet Explorer provided by Ingenix	_ 🗗 🗡
Edit View Favorites Tools He	lp .	1
Back 🔹 🕑 🖌 🚺 💋 🏠	🔎 Search 🤺 Favorites 🛷 🔗 🍓 🖉 🖌 📙 🏭 🔏	
ess 🙋 http://colby.ingenix.com:8301/d	soweb/transform.do	💌 🌛 Go 🛛 Links » 👘 🔹
NGENIX.		DSUWel-
		Ver 2.
	Profile 🔍 Reformat 🔍 Mapping 🔍 System Admin	🗸 Utility 🗸
xpress eVal		
Npress e vur		
'F Transformation for Carr	ier Code MEDC-MEDC and Format Code MDC2-MEDC	
in manaformadon for Gan		
ICF Pharmacy Mapping		Source Fields Output Lookup
ATA_SOURCE_SUB_ID	DATA SOURCE SUBJECTITIER Data Type, STRING Max Eeligantis- (Delauto)	
ATA_SOURCE_PERS_ID		HDR_FILECTYP
E_SSN		HDR_FILLER1
ERS_SSN		HDR_PRCSADDR
OB		HDR_PRCSCITY
END_ID GX_RELATION_CD		HDR_PRCSNAM HDR_PRCSNUM
ELATION_CD		HDR_PRCSPHON
ATIENT_FIRST_NM		HDR_PRCSTATE
ATIENT_ZIP_CD		HDR PRCSZIP
THER_INSURANCE_IND		HDR_RECEIVID
GX_BENEFIT_PLAN_COMP_INE		HDR_RUNDT
ENEFIT_PLAN_COMP_IND		HDR_RUNTIME
GX_CAP_IND		HDR_VERSNUM
IP_IND		
GX_CHARGE_STATUS_CD	Ingenix DSOWeb - Functions	-
HARGE_STATUS_CD GX_CLAIM_TRANS_TYPE_CD	Concat	Functions Operators
LAIM_TRANS_TYPE_CD		Punctions Operators
IGX_COB_CD		Calculate Record Type
	Syntax:	Calculate Service Type
	bynoux.	
DB_CD	concat(variable1, variable2).	Calculate Procedure Type
DB_CD JST_USER_ACCESS_ID GX_FUNDING_ARRANGEMENT_	concat(variable1, variable2). Function:	Calculate Procedure Type Compare Date
DB_CD	concat(variable1, variable2).	Calculate Procedure Type Compare Date Concat
DB_CD	concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters, they need to be placed in double quotes as "Ingenix"	Calculate Procedure Type Compare Date Concat Convert From Over Punch
DB_CD JST_USER_ACCESS_ID IGX_FUNDING_ARRANGEMENT_ JNDING_ARRANGEMENT_CD (NBR GX_NEW_REFILL_CD	Concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters,	Calculate Procedure Type Compare Date Concet Convert From Over Punch Convert to number
OB_CD UST_USER_ACCESS_ID UGX_FUNDING_ARRANGEMENT_ UNDING_ARRANGEMENT_CD X_NBR UGX_NEW_REFILL_CD EW_REFILL_CD	<pre>concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters, they need to be placed in double quotes as "Ingenix" but a variable don't require this as \$AGE.</pre>	Calculate Procedure Type Compare Date Convert From Over Punch Convert to number Convert to string
OB_CDUST_USER_ACCESS_ID UST_USER_ACCESS_ID (GX, FUNDING_ARRANGEMENT_UDING_ARRANGEMENT_UDING_ARRANGEMENT_CD (GX, NEW, REFILL_CO EVEN.REFILL_CO LAIM, NBR	Concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters, they need to be placed in double quotes as "Ingenix" but a variable don't require this as \$AGE. Example: Example:	Calculate Procedure Type Compare Date Connext Convert From Over Punch Convert to number Convert to string Date Calculation
LAN_LOS_UD UST_USER_ACCESS_ID UNDING_ARRANGEMENT_ UNDING_ARRANGEMENT_CO X_NBR KANKW_REFILL_CO EW_REFILL_CO EW_REFILL_CO LAIM_LINE_NBR	<pre>concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters, they need to be placed in double quotes as "Ingenix" but a variable don't require this as \$AGE.</pre>	Calculate Procedure Type Compare Date Convert From Over Punch Convert From Over Punch Convert to number Convert to string
DB_CD	Concat(variable1, variable2). Function: Appends variable2 to variable1. Note:Constants can also be used as parameters, they need to be placed in double quotes as "Ingenix" but a variable don't require this as \$AGE. Example: Example:	Calculate Procedure Type Compare Date Convert From Over Punch Convert from Over Punch Convert to number Convert to string Date Calculation

- Enables users to create source to common data mapping
- Point and click functionality; functions, operators and attribute selection easily added to transformation box
- Dynamic Help; displays syntax and example for each function
- On-screen listing of source attributes, mapped attributes and look-ups for transformations
- Text box to capture business logic for each transformation
- All transformations are stored in meta data tables and available for hard copy documentation and searches

- Data Quality Rule engine systematically compares data results to rule thresholds and only flags exceptions for DSOWeb user intervention
- Metadata Driven Rules Engine Quick turnaround for adding, deleting or modifying rules
- More than 7,000 data quality rules tailored to each data type
- Different rule types for column property enforcement, structure enforcement and business rules enforcement
- Formulated from verified client claims, eligibility, lab results, HRA and workforce productivity data experience
- Based on record distribution and benefits paid threshold

DSOWeb – Trending

- Flags unexpected trends in data. Two levels are:
 - Month-to-date trending with the previous month's data
 - Year-to-date trending with the previous year's data.
 - For year-to-date, the trending is done up to the month the data is being processed
 - Example: If the plan begins in January and the current processing month is June, then trending is performed between received year's January-June and data for January-June of the previous year.
- Metadata driven trending rules engine; quick turn around for adding, deleting or modifying rules
- Configurable tolerance ranges for trending rules
- Examples of tolerable ranges

Record Count	Passing Range
Less Than 10000	5% to +5%
10001 -25000	-3% to +3%
Greater Than 25000	-1% to +1%

DSOWeb – Job and File Processing Dashboard

Reformat

Mapping

System Admin

Utility

Profile

Dash Board

Job Statistics Dash Board

	Run ID	Subject Area	Carrier	Client	FileName	Received Date	Sub Period	Process Step	Status	
>	6183	Medical	Carrier A	ABC Client	abc_a_a_F20051001 _T20051231_VEL60 _22.txt	2006-09-13	Oct 2005 To Dec 2005	Med_PXIProcess	Completed	Cano
2	6272	Drug	Carrier B	ABC Client	abc_b_b_F2006040 1_T20060630_vEL2 267.txt	2006-09-15	Apr 2006 To Jun 2006	Drg_Cleanup Process	Completed	Cano
>	6811	Eligibility	Carrier C	ABC Client	abc_c_c_F20051201 _T20051231_V6D00 _58.txt	2006-10-06	Dec 2005 To Dec 2005	Tollgate	Quality Error	Canc
					Ingenix	DSOWeb				
					Profile	Reformat	Ma	pping 🖉 Systen	n Admin 🔍 Util	ity

Client Dash Board

Run ID	Client Name	Subject Area	Duration /Period	Process Step	Client Level Merge Status	
2461	ABC Client	Medical	03-01-2005 To 05-01-2005	Client Data MergeStartup	Not Completed	Cance
2520	ABC Client	Drug	09-01-2005 To 11-01-2005	Client Data MergeStartup	Not Completed	Cance
3983	ABC Client	Eligibility	12-01-2005 To 02-01-2006	Client Data MergeStartup	Completed	Cance
5779	ABC Client	Drug	03-01-2006 To 05-01-2006	Client Data MergeStartup	Not Completed	Cano
6820	ABC Client	Medical	09-01-2005 To 11-01-2005	Client Data MergeStartup	Not Completed	Cano

Ingenix | Intelligence for Health Care | ingenix.com

DSOWeb – UI Driven DQ Failure Analysis and Decision Making

Data Quality Overrides

Runid	6749	File Name	Abc_ca	r1_car2_F20051001_T200	51231_VEL6	6447.txt						
Client	ABC Client	Carrie	r E Car1									
Recieved Date	2006-10-04	Sub Period	Oct 2005 To Dec 2005									
Rule Level				Rule Type								
Claims Be	fore Merge		•	1 Way Frequency			•	Apply Filter	Back			
Rule Id Ov	verride Type	Rule Type F	Rule Level	ICF Variable(Condition)	Upper Limit	Lower Limit	Actual(%) Actual Coun	Override Level		Reason For Overrid	le
5025 P	ermanent	1 Way Frequency	Claims Before Merge	INGENIX RELATION CODE = 3	21.0	11.0	22.15	19913	Data Feed	•	OK for Client X - Just outside of norm	*
5037 P	ermanent j	1 Way Frequency	Claims Before Merge	INGENIX CLAIM TRANSACTION TYPE CODE = 2	4.5	1.0	0.0	0	Carrier-Format	•	Carrier Y does not send adjustments, only	▲ ▼
5041 C	urrent Run	1 Way Frequency	Claims Before Merge	INGENIX COB CODE = 2	95.0	80.0	98.06	88171	-Select-	¥	Slightly higher than norm. Will moniter	* *
5046 P	ermanent	1 Way Frequency	Claims Before Merge	INGENIX D <mark>ET</mark> AIL CATEGORY CODE = 10	0.75	0.01	0.0	2	Data Feed	•	OK - expected to have little or no experience	*
5046	Select-	1 Way Frequency	Claims Before Merge	INGENIX DETAIL CATEGORY CODE = 45	0.75	0.01	4.44	3992	-Select-	¥	6	4
5046	Select-	1 Way Frequency	Claims Before	INGENIX DETAIL CATEGORY CODE = 51	0.75	0.01	0.0	0	-Select-	Ŧ		*

DSOWeb – Integrated DQ Investigation Tool

IMCF Adhoc Report (Level I). MicroStrategy 8 - Microsoft Internet Explorer provided by Ingenix	_ 8 ×
ile Edit View Favorites Tools Help	N
🕽 Back + 🕥 - 🙁 😰 🏠 🔎 Search 🤺 Favorites 🚱 😥 + 🍃 📓 - 🛄 鑬 🦄	
ddress 🗿 http://gdvp7dsoweb3/DSOWeb/asp/Main.aspx?evt=4001&src=Main.aspx. 4001&reportViewMode=1&reportID=687E7F3E41A781D358026D99D6F05BCF&Main.a 🝸 🗧	🗲 Go 🛛 Links 🌺 🕏
Home Report Lagout Support	<u> </u>
	ingenix DSOWeb
DSOWeb Reports Home My Reports My Subscriptions History List	
DSOWeb Reports Home > IMCF Adhoc Report > IMCF Adhoc Report (Level I)	
Summary of your selections Choose IMCF Report On.* (Required) Choose IMCF Report Ons. This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. Available: This prompt requires between 1 and 5 selections. This prompt re	A A
3. Choose IMCF Metrics On.* (Required) Choose from a list of Metrics. This prompt requires between 1 and 5 selectons. Available: Caloued Charge Amount Caloued Charge Amount Caloued Charge Amount Consumer HCA Deduction Amount	• •
)Done	Local intranet
	8 5 6 💦 10:13 AM

- Data investigations and validation environment integrated within application
- Uses BI tool allowing users to query converted data without needing to understand the data structure or a query language
- Ad-hoc and standard reports by data type
 - Automatically schedules and creates standard reports with each production update

DSOWeb – Raw Data Analysis Tool

🗿 Ingenix DSOWeb - Create Report D	Details - Microsoft Internet Explorer provided by Ingenix	_ 5	I)
File Edit View Favorites Tools	Help		ł
🌀 Back 🔹 🕥 🖌 📓 🐔	🔎 Search 🤺 Favorites 🚱 🔗 - چ 📓 - 📙 鑬 🦓		
Address 🙆 http://feta:8320/dsoweb/raw	Frequency.do	💌 🌛 Go 🛛 Links » 👰	Ŧ
	FAID Details		ļ
	Record		
	SubReport Name Report Type Available Variables Action		
	RAW PAID One-way Freq ALL IPVA_PSL_CLAMITDUE Delete		
	Record Indicator * Report Type *		
	ALL Cannot choose multiple input variables with report		
	Sub ReportName * format		
	Report Format		
	Available Variables * Selected Variables *		
	PVA_HDR_FLECTYP Add		
	IPVA_HDR_PRCSADDR		
	IPVA_HDR_PRCSCITY Remove		
	Report Condition		
	*		
	Variables Operators Values More Condition		
	Select V		
	Select V Select V		
	Select V Select V		
	and A		
	Save & Add Save & Close Cancel		-
e Done		Local intranet	1
🖞 Start 🛛 🕑 进 🕱 🔌 🗿 😿	💽 Inbox - Microsoft Outlook 🎼 Ingenix DSOWeb - Cr 🗟 Document 1 - Microsoft	▶ 1 18 F	

- Raw data investigation tool integrated within application
- Uses home grown tool that generates SAS queries without the need to understand SAS
- Ability to save queries for reuse
- Automatically emails formatted results to end user for printing or sharing

DSOWeb – Benefits

- Cost-effective data management solution
- Facilitates timely data investigation
- Faster turnaround time for data delivery
- Automated process eliminates human errors
- Streamlined process ensures scalability
- Metadata based DQ engine; ease of rules maintenance
- Human intervention only targeted at exception cases; increases productivity and maximizes quality output
- Timely issue resolution
- Metrics on data quality and operational processes can be reported as needed with current data
- Reduces dependency on technologists in transformation process

Ingenix - DSOWeb

Thank You