About

Enterprise Rate Indication System (ERIS) provides access to historical data in specific format from different transactional systems in one view.The previous version pulled data everfy 6 months using a SAS code written in 2014 with the knowledge of CSE data from 2014. This code was slow and had issues. The new process was designed to be run daily automatically and output consistent data with other data feeds and dashboards, used in the company.

The technical challenges of the project include combining data from three different transactional systems using cumbersome coding, implementing several levels of data aggregations, and applying capping. The part I like is cumulative multiplication applied in one metric.

Process

Policies	**Source Data**	fsbi_dw_spinn.dim_policy
		fsbi_dw_spinn.dim_policyextension
		fsbi_dw_spinn.vdim_company
		external_data_pricing.eris_ratechange*
	Load	cse_bi.sp_eris_policies
	Table	reporting.vmERIS_Policies
	View	reporting.vERIS_Premium
	Historical snapshots in external tables*	external_data_pricing.vmeris_policies
	Comment	full load in SPINN_EXTRA daily, takes ~3 min
		Exposures are doubled in some ERIS coverages. P.A. is Ok
Claims	**Source Data**	public.vmfact_claimtransaction_blended
		public.vmfact_claim_blended
		fsbi_dw_spinn.vdim_producer
		fsbi_dw_spinn.dim_policyextension
	Load	cse_bi.sp_eris_claims
	Final tables or views	reporting.vmERIS_Claims
	Historical snapshots in external tables*	external_data_pricing.vmERIS_Claims
	Comment	full load in SPINN_EXTRA daily, takes ~3 min See comments in the stored procedure regarding complex metrics calculations

Configuration	public.dim_coverageextension.Act_ERIS
	case statements embeded in SQL see Configuration tab
***Notes**	*Inserts into external tables are scheduled in Redshift Scheduler first day of the next quarter. Cron(0 18 1 1,4,7,11 ? *)*
	Files of the external tables are saved in cse-bi S3 bucket, RedshiftSpectrum/Pricing folder.

Configuration

Policy3rd	LineDescription	LOB	Product
A	Auto	AU	AU
B	Boatowners	OTH	BO
E	Earthquake	OTH	EQ
F	Dwelling Fire	DF	DF
H	Homeowners	HO	HO
M	Personal Mobile Home (Old)	OTH	MH
Q	Earthquake	OTH	EQ
R	California Assigned Auto Risk	AU	AU
U	Personal Umbrella	OTH	PU

Condition	ProgramInd
Company=0019	Select
ProgramInd=Non-Civil Servant	NC
ProgramInd=Civil Servant	CS
ProgramInd=Affinity Group	AG
ProgramInd=Educator	ED
ProgramInd=Firefighter	FF
ProgramInd=Law Enforcement	LE
in any other case	LOB

Coverage		CoverageCd 1	CoverageCd 2	Notes	Standard covx_code used for EE calc	Standard covx-code in Act-ERIS but not used in EE
	3	CovA				
	4	CovC				
	6	CovC				

Configuration

BI	BI, BISPL			BI	MPREM
CMP	Comprehensive, COMP			COMP	COMP
COL	Collision, COLL			COLL	CWAIV
MP	MedPay, MEDPM			MEDPAY	
OTH			sum all coverages		
PD	PD			PD	
RT	TOW, ROAD	RREIM, RentalReimbursement	(sum both)	RREIM, ROAD	
UM	UM, UMBI	UMPD	(sum both)	UM,UMBI, UMPD	UNDPD, UIMBI
HG3	CovA				

Altsubtypcd	System	Form	
1	WINS	3	
2	WINS	3	
3	WINS	3	
4	WINS	4	
6	WINS	6	
41	WINS	OTH	
45	WINS	OTH	
49	WINS	OTH	
DF1	SPINN	3	
DF3	SPINN	3	
DF6	SPINN	6	
FL1-Basic	SPINN	3	
FL1-Vacant	SPINN	3	
FL2-Broad	SPINN	3	
FL3-Special	SPINN	3	
Form3	SPINN	3	
HO3	SPINN	3	
HO4	SPINN	4	
HO6	SPINN	6	
PA	SPINN	OTH	
HO3-HomeGuard	SPINN	HG3	HO3-Homeguard

Configuration

Condition		Feature	
Auto		public.dim_coverageextension.act_eris	
Homeowners and Landlord: Altsubtypcd			
DF1		3	
DF3		3	
DF6		6	
FL1-Basic		3	
FL1-Vacant		3	
FL2-Broad		3	
FL3-Special		3	
Form3		3	
HO3		3	
HO4		4	
HO6		6	
PA		OTH	
HO3-HomeGuard		HG3	HO3-Homeguard

AnnualStatementLineCd	LOB2	LOB3	CoverageType*
10	SP	DF	PROP
21	SP	DF	PROP
40	HO	HO	PROP
90	SP	OTH	PROP
120	SP	OTH	PROP
160	HO	HO	LIAB
171	SP	DF	LIAB
191	AL	AL	LIAB
192	AL	AL	LIAB
211	APD	APD	PROP
220	AC	APD	PROP

in Premium See below FeatureType definitions losses

Configuration

AnnualStatementLineCd	FeatureType
010	PROP
021	PROP
040, only Liability features, Homeowners	LIAB
040, mix of Property and Liability features, Homeowners	PROP
040, not Homeowners	LIAB
090	PROP
120	PROP
160	LIAB
170, only Liability features, Landlord	LIAB
170, mix of Liability and property features, Landlord	PROP
170, not Landlord	LIAB
191	LIAB
192	LIAB
211	PROP
220	PROP

Claims Metrics

Metric	Formula
itd_paid_expense	ITD (Inception To date): aoo_paid + dcc_paid
itd_paid_dcc_expense	ITD (Inception To date): dcc_paid
itd_paid_loss	ITD (Inception To date):loss_paid
itd_incurred	ITD (Inception To date):loss_paid + loss_reserve + aoo_paid + dcc_paid
itd_incurred_net_salvage_subrogation	ITD (Inception To date):loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received
itd_total_incurred_loss	ITD (Inception To date):loss_paid + loss_reserve + aoo_paid + aoo_reserve + dcc_paid + dcc_reserve
itd_reserve	ITD (Inception To date):loss_reserve + aoo_reserve + dcc_reserve
itd_loss_and_alae_for_paid_count	ITD (Inception To date): loss_paid + aoo_paid + dcc_paid
itd_salvage_and_subrogation	ITD (Inception To date: salvage_received + subro_received
qtd_paid_dcc_expense	QTD (DevQ To date): dcc_paid
qtd_paid_expense	QTD (DevQ To date): aoo_paid + dcc_paid
qtd_incurred_expense	QTD (DevQ To date): aoo_paid + aoo_reserve + dcc_paid + dcc_reserve
qtd_incurred_dcc_expense	QTD (DevQ To date): dcc_paid + dcc_reserve
qtd_paid_salvage_and_subrogation	QTD (DevQ To date): salvage_received + subro_received
qtd_paid_loss	QTD (DevQ To date): loss_paid
qtd_incurred_loss	QTD (DevQ To date): loss_paid + loss_reserve
qtd_paid	QTD (DevQ To date):loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received
qtd_incurred	QTD (DevQ To date):loss_paid + loss_reserve + aoo_paid + dcc_paid
qtd_incurred_net_salvage_subrogation	QTD (DevQ To date):loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received
qtd_total_incurred_loss	QTD (DevQ To date):loss_paid + loss_reserve + aoo_paid + aoo_reserve + dcc_paid + dcc_reserve
qtd_paid_25k	QTD (DevQ To date): least(25k, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_paid_50k	QTD (DevQ To date): least(50k, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_paid_100k	QTD (DevQ To date): least(100k, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_paid_250k	QTD (DevQ To date): least(250k, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_paid_500k	QTD (DevQ To date): least(500k, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_paid_1m	QTD (DevQ To date): least(1m, loss_paid + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_25k	QTD (DevQ To date): least(25k,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_50k	QTD (DevQ To date): least(50k,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_100k	QTD (DevQ To date): least(100k,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_250k	QTD (DevQ To date): least(250k,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_500k	QTD (DevQ To date): least(500k,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
qtd_incurred_net_salvage_subrogation_1m	QTD (DevQ To date): least(1m,loss_paid + loss_reserve + aoo_paid + dcc_paid - salvage_received - subro_received)
x_itd_incurred_net_salvage_subrogation_250k	case when ITD_Incurred_net_Salvage_Subrogation>0 then greatest(0,ITD_Incurred_net_Salvage_Subrogation - 250000) else 0 end
x_itd_incurred_net_salvage_subrogation_500k	case when ITD_Incurred_net_Salvage_Subrogation>0 then greatest(0,ITD_Incurred_net_Salvage_Subrogation - 500000) else 0 end

Claims Metrics

reported_count	1 or 0 Reported Count is based on transactional level. The script is looking for the first transaction date(*) and quarter when this condition is TRUE in a transaction (no aggragation in metric values): loss_paid>=0.5 or loss_reserve>=0.5 or f.aoo_paid>=0.5 or aoo_reserve>=0.5 or dcc_paid>=0.5 or dcc_reserve>=0.5 or salvage_received>=0.5 or subro_received>=0.5
closed_count	1 or 0 Closed Count is based on transactional level. The script is looking for the latest transaction date and quarter (from transactional date) when this condition is TRUE:sum(loss_reserve + aoo_reserve + dcc_reserve)<0.5 (The data are aggregated at the claim-claimant-ERIS feature level (see Configuration) and transaction date)
closed_nopay	The same as closed count but in the same quorter this condition should be TRUE ITD_Paid_Loss + ITD_Paid_Expense<=0 to have 1 in the metric
paid_on_closed_loss	ITD_Paid_Loss If closed_count 1 else 0
paid_on_closed_expense	ITD_Paid_Expense If closed_count 1 else 0
paid_on_closed_dcc_expense	ITD_Paid_DCC_Expense If closed_count 1 else 0
paid_on_closed_salvage_subrogation	ITD_Salvage_and_subrogation If closed_count 1 else 0
paid_count	1 in DevQ when ITD_Loss_and_ALAE_for_Paid_count>0
Claim_Status	Closed when Reserve=0 or Open

Policy Metrics

Written Premium
Earned Premium
Current Level Earned Premium (CLEP) calculated as follows:
Multiply the EP from a term by the product of (1+Rate Change with effective date implemented after the term effective date)
Ex: Rate Change +5% on 1/1/2017; +10% on 1/1/2018; -2% on 1/1/2019
Exposures (Earned House Years for property, Earned Car Years for Auto). Must reconcile to the PPD.

Cumulative Multiplication: Sum of Exponents of Natural Logarithms
EXP(SUM(LN(cast((1+r.renewal_change/100) as float))))