

A close-up photograph of a tablet computer. The screen is filled with a bright red background. At the top, the word 'Clarín' is written in white, with a small circular logo to its right. Below it, the words 'BIG DATA' are written in large, bold, white, sans-serif capital letters, arranged in two lines. The tablet is positioned diagonally, and the surrounding environment is dark and out of focus.

Clarín

—
Leonardo Dalera

HEAD OF BIG DATA & ANALYTICS



About Clarín

Architecture & Machine Learning

Use Case

Conclusions



1945



2020



75 years

FROM

Decisions based on intuition.

Proof + corrective actions.

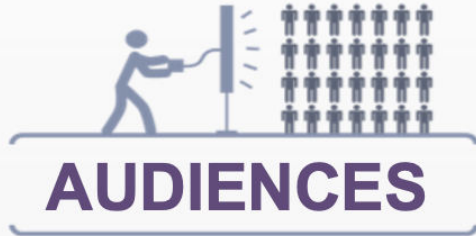
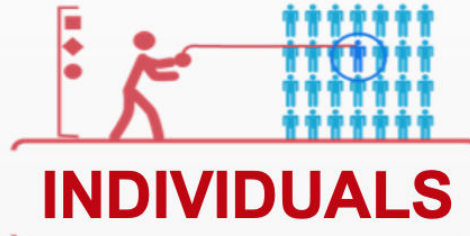
Analysis and action in weeks or months.

TO

Decisions based on information.

Certainties + predictive actions.

Analysis and action in hours and real time.

**AUDIENCES**Focused on the **content****INDIVIDUALS**Focused on the **consumer**

**Digital
transformation
of audiences
to individuals.**



Users

20 millions

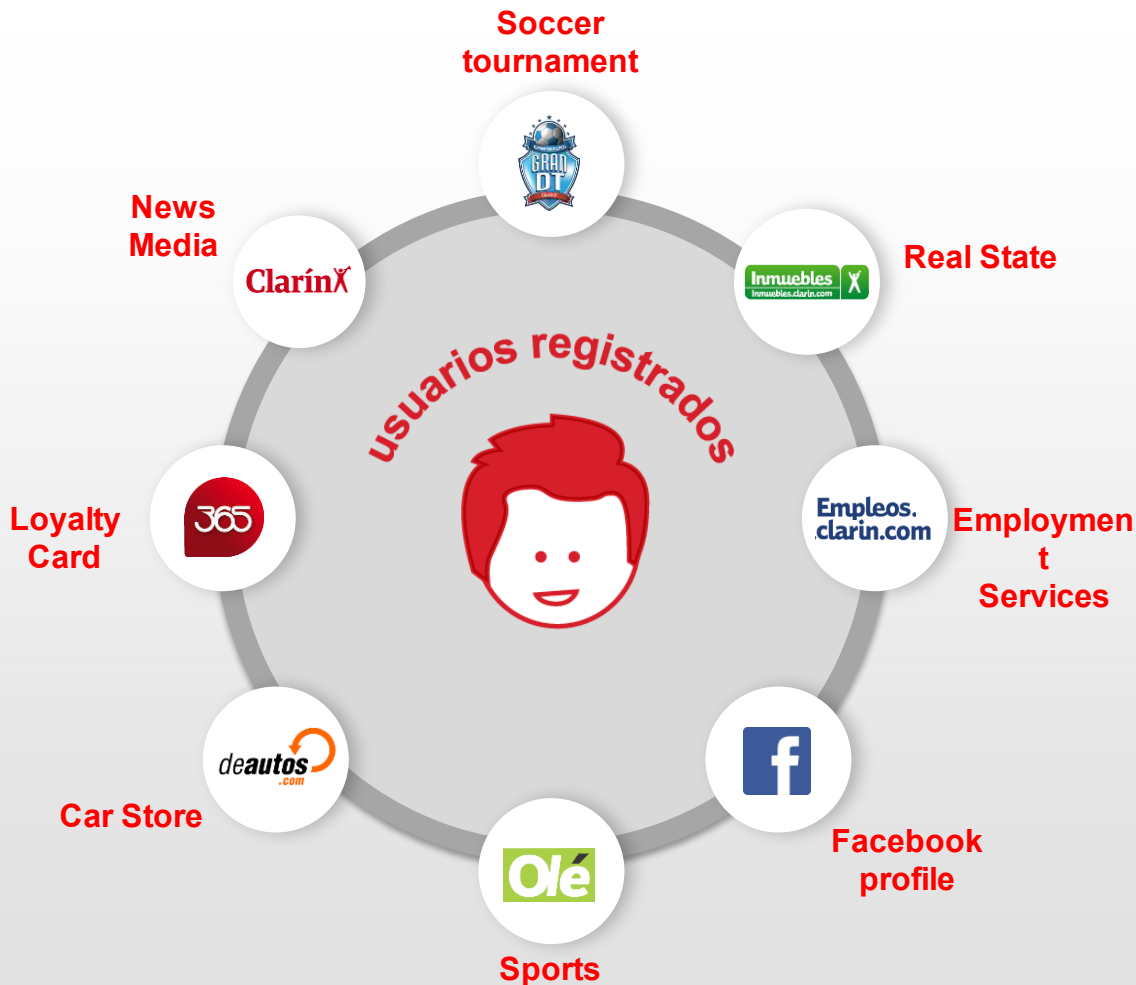
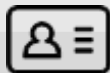
Unique e-mails

+17 millions



Browsers

58 millions





About Clarin

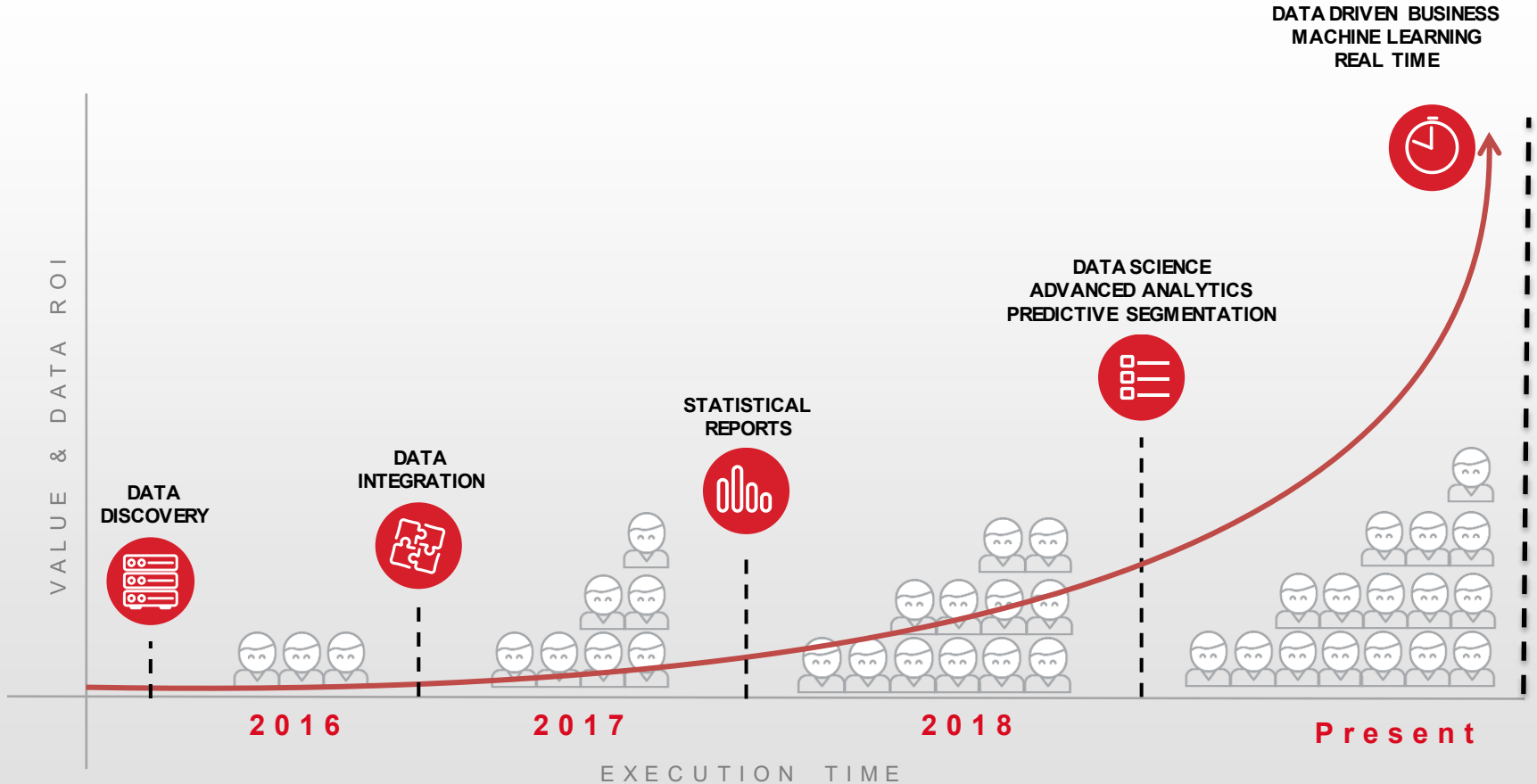


Architecture & Machine Learning

Use Case

Conclusions

VALUE & DATA ROI



Clarín Big Data Infrastructure

SOURCES



STORAGE



PROCESS & ML



DELIVERY



Machine learning models and friends



Website
Behavioral



Social Media Profiles
& Interactions



Off-line Interactions
w/ CRM & Call Center



Recommendation system

Churn

Scoring

Predictive analytics

SEO

Behavioral

Segmentation

Price Modeling



Real Time Segmentation

E-mail marketing

Retargeting

Audience Extension
w/ lookalike models

Remarketing between
Eloqua y Bluekai



Micro-segmented ADS

Programmatic

Ads tracking
& Measurement

Campaign optimization

Viewability



About Clarin

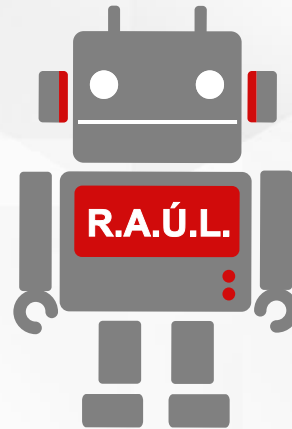
Architecture & Machine Learning



Use case

Conclusions

Recomendador Automático Últimas Lecturas



We understand the contents of **each article**



Style

Sentiment

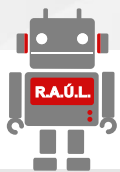


Topic

TAGs







We based our recomendaton on:



Last article



Browsing
history



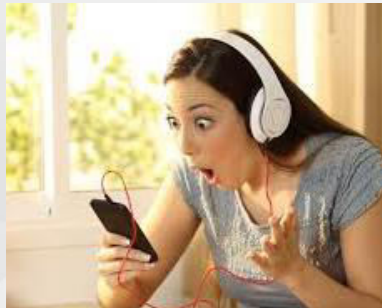
Similar
Users



Most
popular

NAVEGATION

COLABORATIVE FILTERING





Juan
100% Technology

Clarín

Noticias de hoy Femicidio de Úrsula

Más allá de los bits
Revolución cuántica: las claves de la nueva computación súper veloz

Supera en todos los campos a la computación tradicional y sus alcances se pueden probar desde una PC o un celular. Cada vez con más popularidad, ya hay una serie de televisión que trata el tema.

La computadora cuántica se parece a un candelabro atravesado por tubos y alambres de cobre. Es más alta

Last Article

Technology 65%
Video Games 20%
Travel 15%



Behaviour



Most popular



Similar User



About Clarin

Architecture & Machine Learning

Use Case



Conclusions

BIGDATA TEAM



DATA AND
QUALITY

Reporting
eMail Marketing

SEO

ADVANCED ANALYTICS

PMO

Knowledge is value.

Big Data is the means to bring that value more quickly to the business



- INNOVATION
- LEARN SOMETHING NEW EVERY DAY
- MAKE MISTAKES FAST AND CHEAP



Thank you!

THE NEW DATA-DRIVEN CREATIVITY



POWER BY **ORACLE**

BEESO

BEKERISOCIALAND

TODAY

- 159 Collaborators
- Largest independent Ad Agency in Mexico
- 1st Great Place to Work Agency in Mexico
- Most Effective Agency in Mexico (14th Worldwide) (Effie Index 2020)

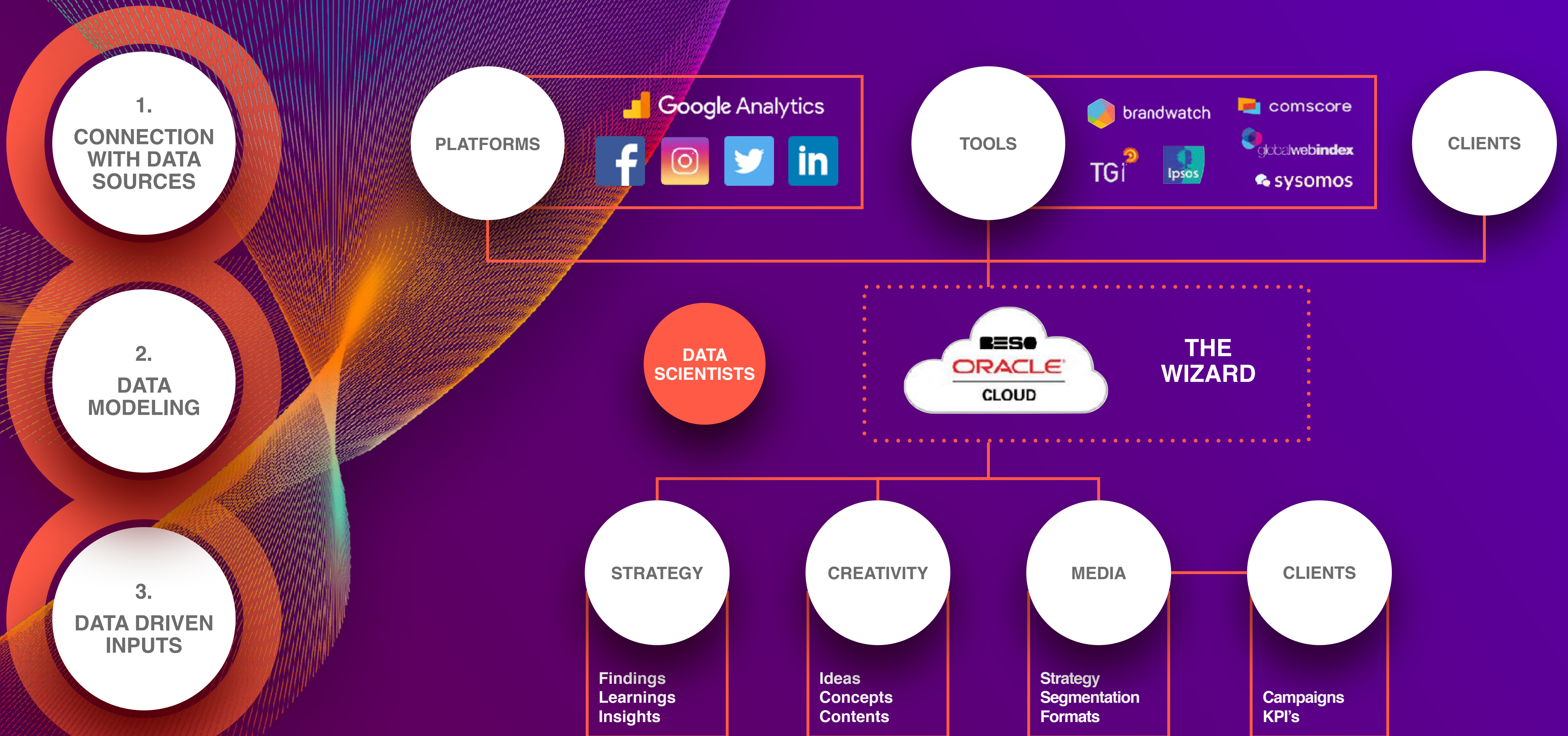


DATA DRIVEN PHILOSOPHY

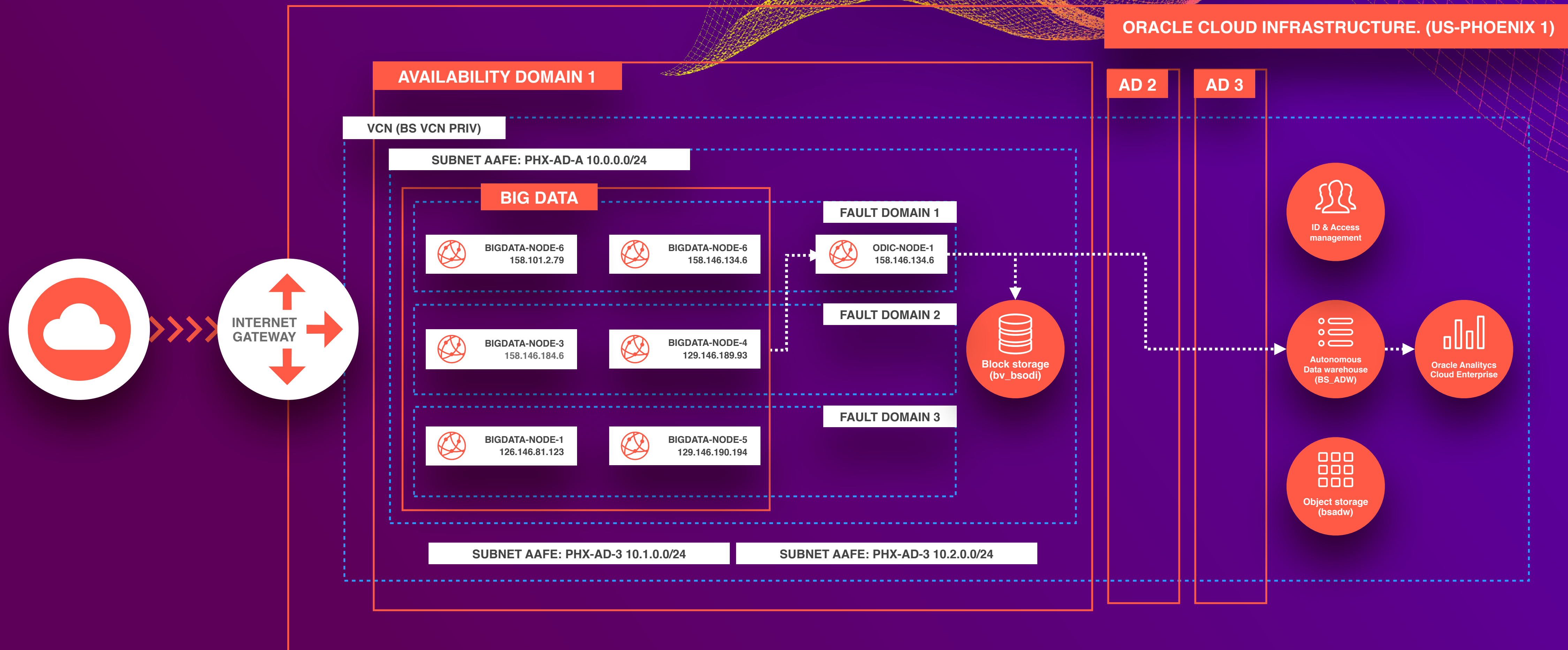
People, processes,
ideas, strategies and
decisions **100% Data
Based.**



THE WIZARD - BESO DATA DRIVEN STRUCTURE



THE WIZARD INFRASTRUCTURE



THE WIZARD - ROLLOUT TIMELINE

Business Analysis
& Data
Exploration

Jul 19

Infrastructure Plan
Oracle Data
Integrator

Jul 19

Sep 19

Data Model Oracle
Big Data

Release Test

Feb 20

Go Live!

Mar 20

First Data Driven
Creative
Campaign

Data Science
Module
Implementation

Ago 20

First Regional client
to rollout the
platform across all
Latam

Oct 20

Jan 21

THE NEW ADVERTISING



BACK TO SCHOOL / DATA METHODOLOGY



Data Sources

We set our data sources connections with:

- Google Trends
- Facebook Audience
- INEGI
- COPANPO
- NIELSEN
- COMSCORE

In order to generate the consumer's journey.



Information Modeling

We built and modeled our information based on interests, brand categories, consumptions, habits, new needs and products for this new Back to School.



Big Data & Data Mining

Brand objectives, affinities and products were generated in order to satisfy the needs of customers with more than one brand.



Analysis & Insights

For each brand and product, hypothesis were generated in order to increase conversion rates (customer purchases).



Strategy & Business Consulting

We created communication strategies based on the degree of affinity of each of our insights.

Based on the affinity level, we were able to create productive messages in order to connect with the consumer in a deeper level.



OUR ORACLE SOLUTION APPLIED TO THE ENTIRE SPECTRUM

CATEGORY	% OF IMPACT IN THE CATEGORY	Soriana	HSBC	Santander	Suburbia	Liverpool	PUMA	UNITEC	Tecnológico de Monterrey	sky	Microsoft	Tupperware
Shoes and Clothing	97%	●			●	●	●					
School Supplies	92%	●	●	●	●	●	●					
Hygiene Items	85%	●										●
Food Supplies	82%	●										
Technology	82%	●	●	●		●	●			●	●	
Finance	72%	●	●	●		●		●	●		●	



BACK TO SCHOOL PREDICTIVE INSIGHTS

Insight	Insight Performance	Category
My son's backpack must be sanitizable	97%	School Supplies
My kid has grown a lot during this quarantine	92%	Shoes and Clothing
The school does not have enough sanitary measures to protect my kids when classes go back to normal	90%	Hygiene Items
I need a loan to pay for tuition and school supplies	87%	Finance
I only have 1,500 pesos to spend	85%	Finance
My kid has grown a lot during this quarantine	82%	Food Supplies



BACK TO SCHOOL PREDICTIVE INSIGHTS

INSIGHT (90%):

“The school does not have enough sanitary measures to protect my kids when classes go back to normal.”

Opportunity:

Make sure that the students have the minimum required products to prevent COVID infections at their return to school facilities.

Sales / discounts on Back to School products (P. 80%)



Hygiene & Prevention



Functionality



Variety



BACK TO SCHOOL PREDICTIVE INSIGHTS



mxtupperware • Seguir

mxtupperware Ellos saben que #EnCasaConTupperware están mejor. Sigue cuidándote y también a los que más amas. #GuardaditosEstamosMejor. 🥰🥰

5 sem

tupperwareturkuaz 🥰🥰 Amazing

5 sem 2 Me gusta Responder

marthabriano Amo @mxtupperware 🥰❤️

5 sem 1 Me gusta Responder

avlo.pezt8875 Adquieran sus productos para conservar sus alimentos por más tiempo, sov

1,220 Me gusta

20 DE JULIO

Agrega un comentario... Publicar

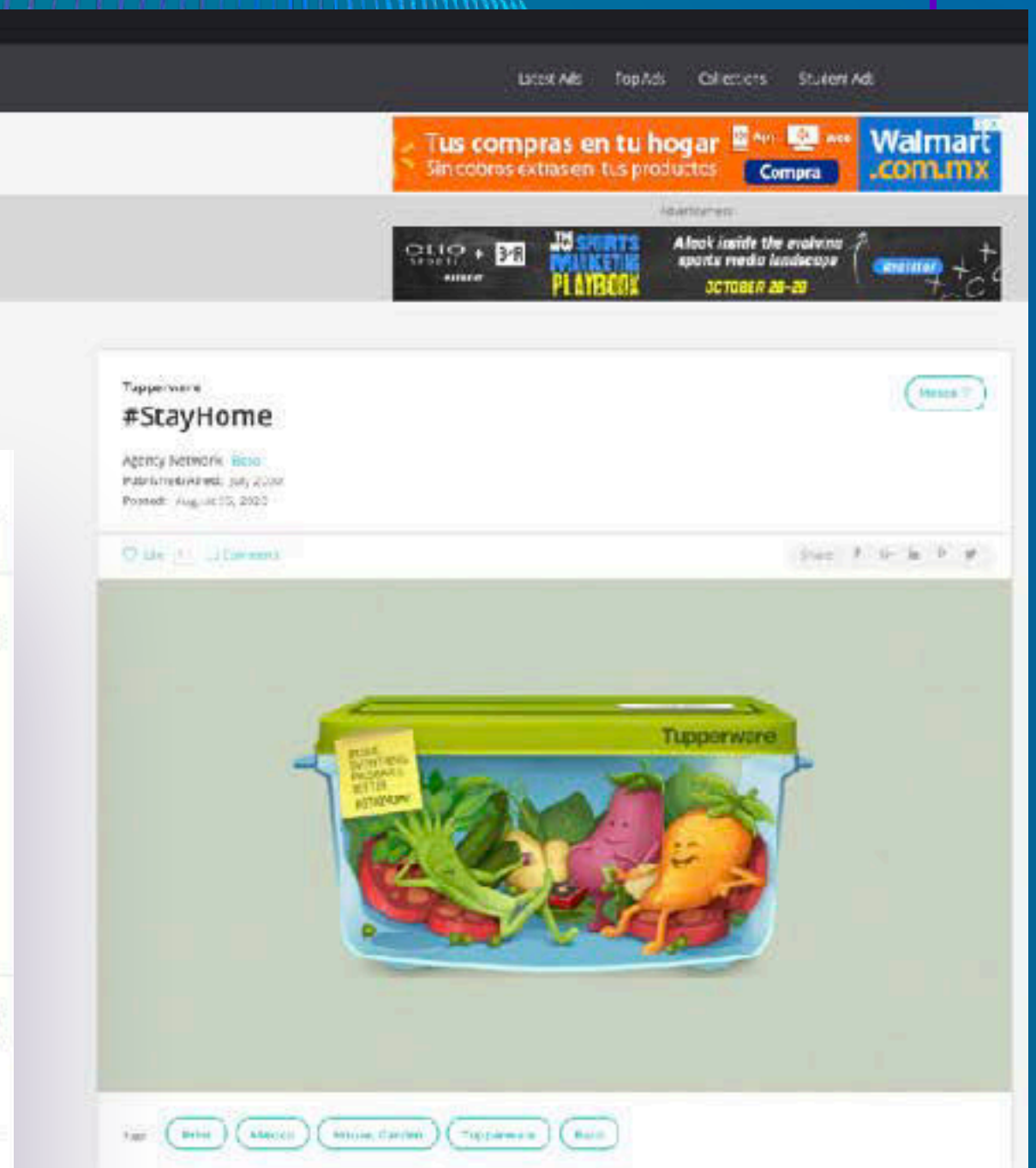
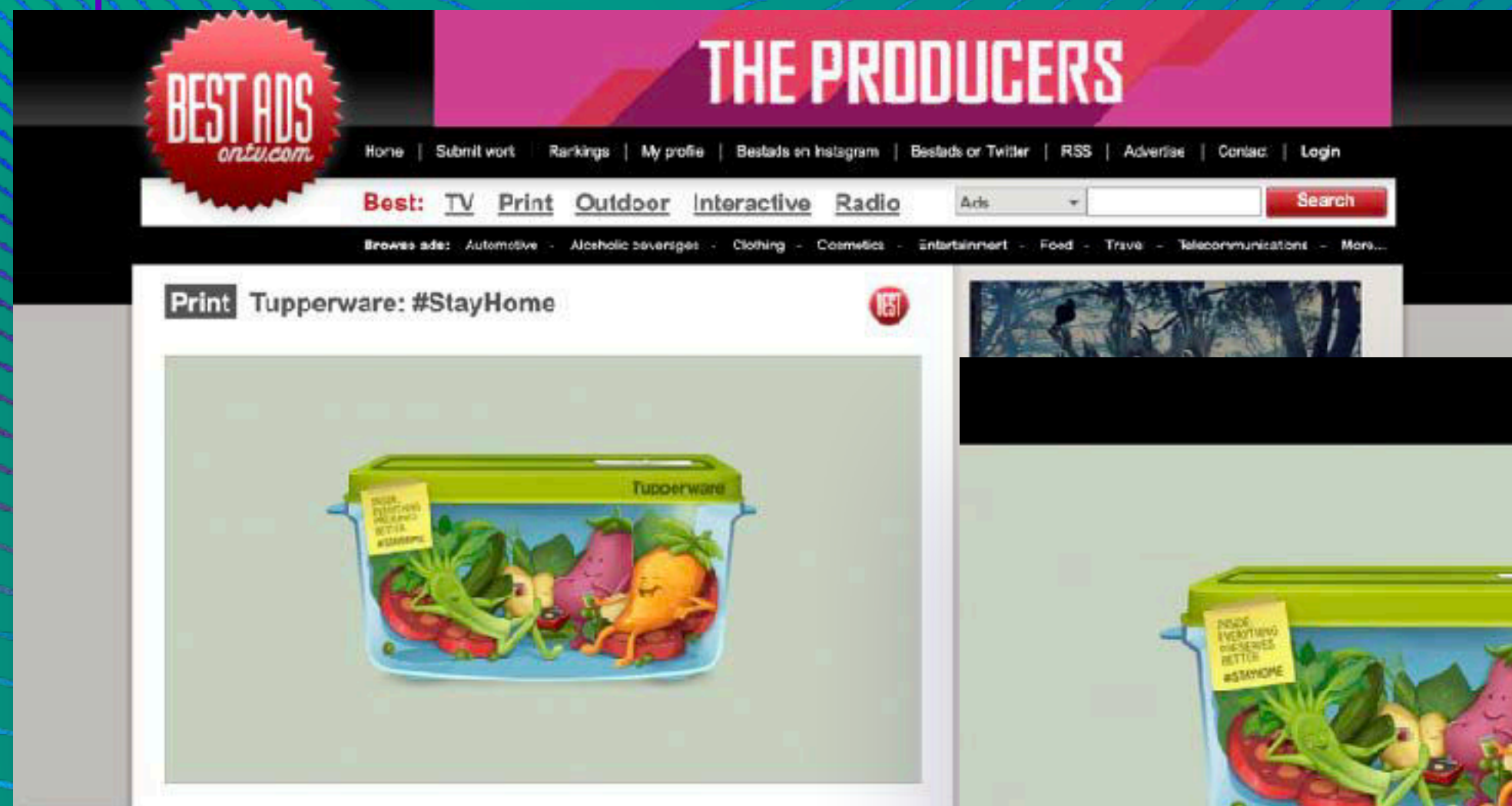
DATA DRIVEN CREATIVITY

“Let us be the guardian of your kids when they go back to school and you cannot protect them.”

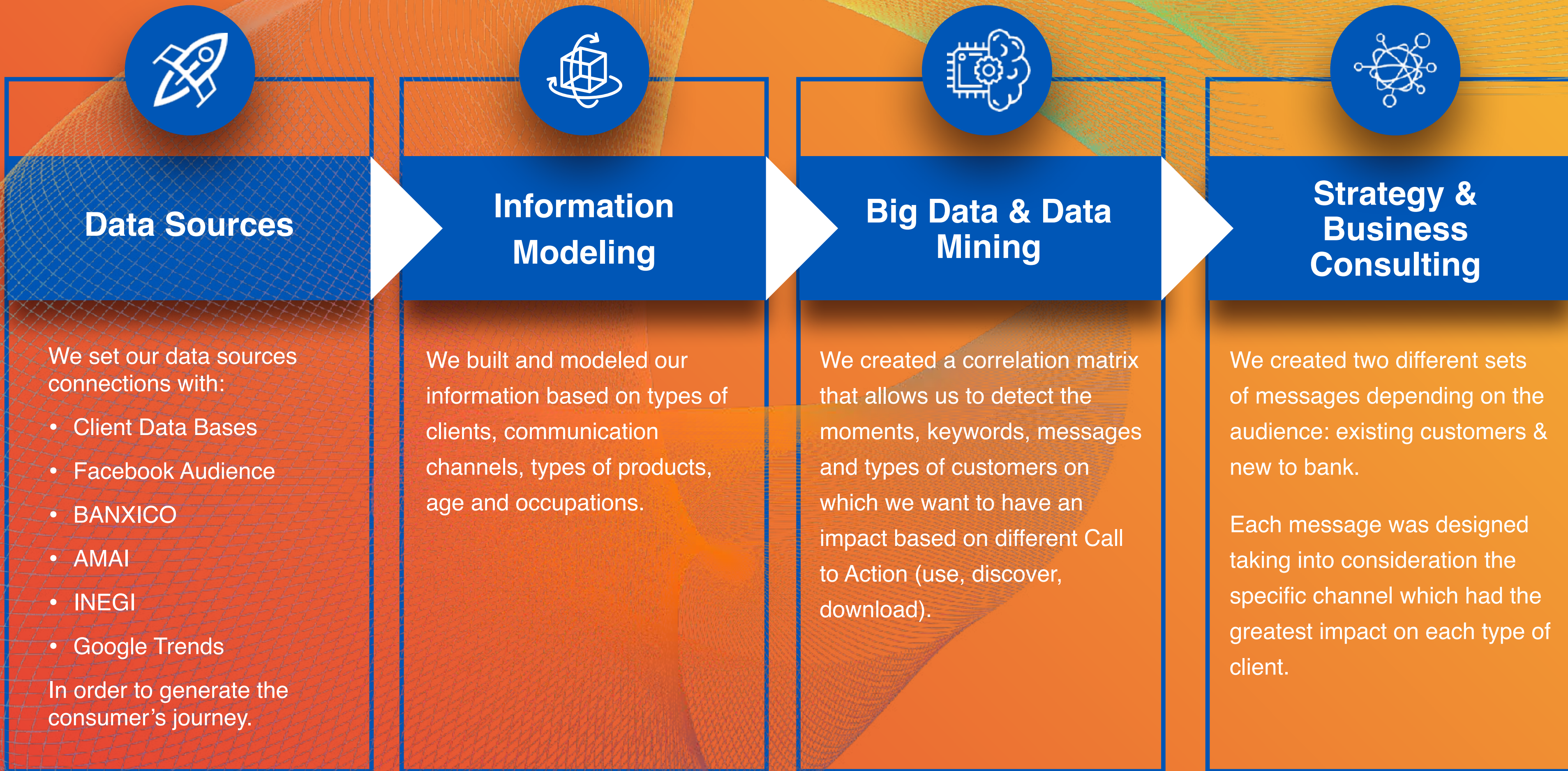


BACK TO SCHOOL PREDICTIVE INSIGHTS

AND THE ADVERTISING INDUSTRY TOO



THE COMMUNICATION MATRIX | METHODOLOGY /DATA CASE





HSBC COMMUNICATION MATRIX

		CTA	DESCARGA																																				
		TIPO DE CLIENTE	CLIENTES NO DIGITALES																																				
		AUDIENCIA	Centennials							Millennials							Business Advanced							Manager, Entrepenuer															
FASES DE COMUNICACIÓN	CATEGORÍA	MENSAJE CORTO / CANAL	ATM	Sucursal	Correspondencia	TVC	Sito web	RSS (orgánico)	OIV	Search	Social (pautado)	ATM	Sucursal	Correspondencia	TVC	Sito web	RSS (orgánico)	OIV	Search	Social (pautado)	ATM	Sucursal	Correspondencia	TVC	Sito web	RSS (orgánico)	OIV	Search	Social (pautado)	ATM	Sucursal	Correspondencia	TVC	Sito web	RSS (orgánico)	OIV	Search	Social (pautado)	
			MENSAJES	FUNCIONALIDAD	REDUCIR EL MANEJO DE EFECTIVO	32	24	29	37	40	37	26	36	38	27	35	22	42	41	34	36	36	18	30	37	41	36	42	39	34	37	22	31	34	30	32	23	26	38
FÁCIL DE USAR	35	33			28	38	31	23	35	26	30	40	32	29	29	39	37	36	36	37	29	34	42	31	41	36	28	30	36	42	36	36	42	38	26	28	32	31	
PLATAFORMA FUNCIONAL	31	30			20	34	29	31	30	21	31	34	34	35	33	27	25	36	27	33	32	43	26	31	32	28	27	26	22	38	37	36	26	20	24	35	29	29	
CONOCIMIENTO	ALTERNATIVA FINANCIERA	34		40	31	25	31	44	42	26	39	28	34	26	35	40	40	33	30	45	40	37	27	31	43	28	32	36	33	41	40	36	37	24	29	36	28	46	
	INCLUSIÓN FINANCIERA	26		30	32	39	35	34	41	38	29	29	25	38	37	44	37	36	32	39	44	36	40	27	40	37	40	37	29	38	31	36	34	26	27	28	37	41	
	SEGURA DE USAR	31		29	34	38	39	32	41	27	34	31	30	31	43	42	43	46	40	44	36	36	38	34	41	34	31	27	38	27	34	34	41	38	33	43			
AWARENESS	SEGURIDAD	OPERACIONES INMEDIATAS		31	39	37	33	39	30	36	26	37	34	26	38	37	39	35	44	41	31	31	37	31	39	39	37	26	36	31	34	45	32	30	23	27	38	32	37
		SIN SALIR DE CASA		28	36	34	34	38	41	28	27	32	27	27	24	28	41	31	38	31	41	41	38	32	31	36	29	28	27	24	27	28	40	36	34	32	29	34	44
	DISPONIBILIDAD	EN LA PALMA DE TU MANO		28	31	26	21	35	31	37	35	35	27	26	31	28	27	24	27	37	40	41	27	23	29	26	34	25	28	26	26	32	32	32	32	28	35	23	43
		TU BANCA DONDE QUIERAS		35	26	26	36	32	35	33	28	38	38	35	36	44	37	37	37	41	45	45	33	23	31	43	29	37	39	34	32	32	34	35	41	26	35	40	
CONSIDERATION	CONTROL	AHORRA TIEMPO	32	40	29	23	39	37	32	31	35	39	36	33	28	32	31	42	29	30	33	31	29	28	38	37	37	35	26	41	41	44	35	21	33	28	33	40	
		GESTIÓN PERSONAL DE PROD Y SERVICIOS	32	31	28	38	29	43	41	35	35	30	38	27	41	40	30	29	33	39	31	36	39	30	38	27	36	30	30	34	28	34	30	30	29	29	27	44	
	TIEMPO	INMEDIATÉZ	25	29	36	31	38	33	27	25	29	33	29	33	39	34	34	44	38	30	35	44	34	34	34	25	30	26	26	34	31	39	38	37	39	25	34		
		VARIEDAD DE PRODUCTOS	32	28	32	24	33	29	28	31	39	36	30	22	39	39	38	35	35	36	44	33	35	36	37	24	26	36	22	38	29	38	28	28	33	30	31	32	
		PORTAFOLIO DE SERVICIOS	24	28	32	33	39	32	33	27	29	36	23	24	30	37	24	33	38	35	30	30	29	24	33	26	36	27	21	24	37	34	27	29	22	23	32	37	
ENGAGEMENT	VARIEDAD	NUEVOS SERVICIOS	28	29	27	27	41	40	38	37	31	35	36	32	37	34	31	30	38	45	40	30	30	41	39	24	28	26	29	34	37	44	35	24	28	25	25	35	
		NUESTROS PRODUCTOS	35	39	35	22	37	31	30	31	38	22	26	34	35	39	25	37	29	31	36	40	25	28	26	31	36	22	21	30	39	33	39	23	23	23	32	31	
	INNOVACIÓN	NUEVAS FUNCIONES	32	27	29	35	42	36	28	35	31	30	24	23	38	35	37	39	40	35	38	36	32	31	32	37	27	26	35	38	33	35	35	22	35	32	28	40	
		INNOVACION EN SEGURIDAD (HUELLA)	37	39	24	13	33	37	32	27	39	25	22	25	26	32	31	38	30	18	28	44	30	31	32	27	29	31	25	40	41	42	30	31	26	25	28	33	





HSBC COMMUNICATION MATRIX | OUTCOME

Objective: Security

HSBC August 2

Nosotros nunca te solicitaremos información confidencial sobre tus Tarjetas de Crédito y Débito HSBC por ningún medio. Conoce más aquí: <http://grp.hsbc/6181GjACd>

Cuida tu información para evitar fraudes

HSBC

Laura Angulano Nájera and 59 others 12 Comments 31 Shares

Like Comment Share

Objective: Inmediacy

HSBC July 30

El mundo que busca las sucursales que están abiertas los sábados, encuentra respuestas inmediatas a sus preguntas con nuestro #ChatBot. <http://grp.hsbc/6180GjACr>

Más fácil que buscar

¿Qué Sucursal HSBC abre

HSBC

61 10 Comments 7 Shares

Like Comment Share

OUR RESULTS

BETTER ROAS

Up to 30% efficiency rates in our digital media campaigning

NEW LINE OF BUSINESS

In only six months we achieved \$1.5M USD in data services revenues

A MARKET DIFFERENTIATOR

We won 4 from 5 pitches where we showed Oracle infrastructure

+ANALYSIS - EXTRACTION

Fully automation of clients' reports to increase FTE productivity

SMART FINANCE

Maximize resources' value through DATA analysis and AI (connection with BESO ERP)

THANK YOU!



POWER BY ORACLE



Who is Certegy?

The OAC Experience

Eric Probst Sr Manager Fraud Analytics
February 23, 2021





Agenda

Who is Certegy?

OAC Journey

Analytics Future

Questions



Certegy Payment Solutions

Who is Certegy?

SUPERSTORES	BIG LOTS!	COSTCO WHOLESALE	K KROGER	TARGET	Walmart		
GROCERY	Albertsons You're in for something fresh.	BILO	FOOD LION	HEB	ingles	Kroger	
	Publix	SAFeway	Tops Freshly Market	TRADER JOE'S	Wegmans		
OTHER FOOD	Doc Martens	<i>Harry & David</i>	HICKORY FARMS	Smart & Final.	Total Wine & MORE		
CONVENIENCE	7-Eleven	K	FRIENDLY	GIANT EAGLE	Holiday	Mac's	MURPHY USA
LUXURY GOODS	BALENCIAGA	BOTTEGA VENETA	COACH	GUCCI	JIMMY CHOO	PRADA	TIFFANY & Co.
APPAREL	ANN TAYLOR	CHARLES TYRWHITT JERMYN STREET LONDON	dressbarn	SHOE CARNIVAL	TOOTSIES		
DEPARTMENT STORES	belk	Dillard's	KOHL'S	macy's	<i>Saks Fifth Avenue</i>		
DISCOUNT RETAILERS	DOLLAR GENERAL	Marshalls	ROSS DRESS FOR LESS	Steen Mart	TJ-MAXX		
HOME FURNISHING	Ashley FURNITURE	HomeGoods	RH	ROOMS TO GO	WILLIAMS-SONOMA		
HOME IMPROVEMENT	ACE Hardware	Do it Best Corp.	LENNOX	LOWE'S	MENARDS		
SPECIALTY RETAIL	Conn's	HOBBY LOBBY	Michaels	Party City	PET SMART	Staples	
AUTOMOTIVE	FREIGHTLINER	Harley-Davidson	MIDAS	NAPA AUTO PARTS	Pop-Tops	BELLE TIRE	TIRE KINGDOM
HOSPITALITY & LEISURE	FOUR SEASONS	Hilton	HYATT REGENCY	JW MARRIOTT	<i>The Jefferson</i>	THE RITZ-CARLTON	
TECHNOLOGY & TELECOM	AT&T	CDW	GoDaddy	verizon	WILD WEST DOMAINS		
FINANCIAL INSTITUTIONS	FIFTH THIRD BANK	OLD NATIONAL	POPULAR	SUNTRUST			
FINANCIAL SERVICES	ChexSystems	FirstCash	giact	InvoiceCloud	NYCE	VoltCash	
HIGHER EDUCATION	Citrus College	La Sierra	MEHARRY	NSU Northwest State University	STRAYER UNIVERSITY		

Risk Analytics Team

(25 of 78 employees)



Sets and manages overall strategies based on probabilities of loss using several risk tools. Provides various reports to the client to better visualize their current and past trends.

Identifies high risk patterns and creates fraud cases to mitigate real time fraud.

Works with law enforcement agencies to identify and apprehend established fraud rings throughout the country.

Develop proprietary scoring logic from linear regression models based on several consumer history attributes.

OAC Analytics

Autonomous Data Warehouse

- Initial data load from Oracle on premise databases – December 2019
- 12 ODI projects with 50+ mappings with loads scheduled every few minutes
- 6 OCPUs with auto scaling enabled
- 100 tables with 24 views; the largest table has 450M rows



Projects and Enhancements

Continued focus on improving the decision process, enhancing fraud detection, and the Customer Experience

2019-2020 Completed Projects:

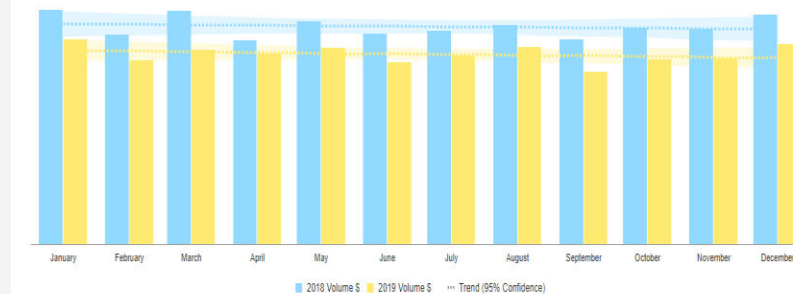
- Sought a replacement system for Hyperion Interactive Reporting – Summer 2019
 - Requirements
 - Automated Reporting
 - Ability to Schedule Reporting via email or FTP
 - Ability to export to Excel
- Partnered with Oracle to license OAC as Hyperion Replacement – Sept 2019
- OAC deployed to Risk Department – December 2019
- Hyperion server decommissioned 2020
- Self Training and conversion of Risk processes to OAC – Dec 19 to June 20
- Machine Learning – Added 100+ new attributes to review high risk transactions

Pipeline Projects:

- New Products – Gaming and Bank Pay
- Conversion of Authorization system to the Cloud
- Machine Learning models to review high risk transactions
- Spatial Analysis to track check cashing patterns
- Live presentations with Data Visualization to our customers

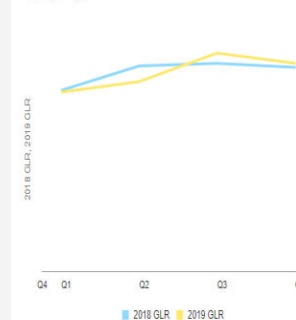
Month	Approved Amount		Approved Variance %	Gross Loss		GLR	
	2018	2019		2018	2019	2018	2019
1	\$ 46,614,068	\$ 40,732,996	-13%	469,825	403,207	1.01%	0.99%
2	\$ 41,709,875	\$ 36,672,835	-12%	336,754	316,270	0.81%	0.86%
3	\$ 46,349,110	\$ 38,639,757	-17%	404,579	310,004	0.87%	0.80%
4	\$ 40,604,480	\$ 37,931,785	-7%	401,983	329,695	0.99%	0.87%
5	\$ 44,438,560	\$ 39,106,590	-12%	452,589	383,598	1.02%	0.98%

2018-2019 Performance



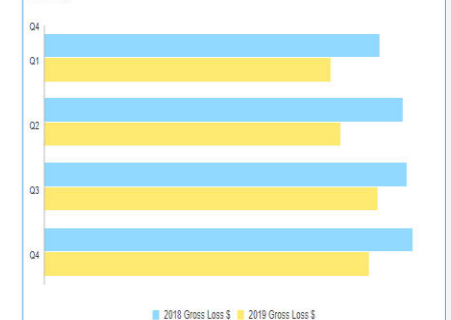
	2018 Volume \$	2019 Volume \$	19 v 18 Volume Δ %
January	\$46,614,068	\$40,732,996	-13%
February	\$41,709,875	\$36,672,835	-12%
March	\$46,349,110	\$38,639,757	-17%
April	\$40,604,480	\$37,931,785	-7%
May	\$44,438,560	\$39,106,590	-12%
June	\$46,614,068	\$40,732,996	-13%
July	\$41,709,875	\$36,672,835	-12%
August	\$46,349,110	\$38,639,757	-17%
September	\$40,604,480	\$37,931,785	-7%
October	\$44,438,560	\$39,106,590	-12%
November	\$46,614,068	\$40,732,996	-13%
December	\$41,709,875	\$36,672,835	-12%
Grand Total	\$519,543,848	\$453,910,925	-13%

GLR %



	2018 Gross Loss \$	2019 Gross Loss \$	2018 GLR	2019 GLR
January	\$469,825	\$403,207	1.00%	0.97%
February	\$336,754	\$316,270	0.80%	0.86%
March	\$404,579	\$310,004	0.84%	0.79%
April	\$401,983	\$329,695	0.86%	0.86%
May	\$452,589	\$383,598	1.00%	0.97%
June	\$469,825	\$403,207	1.03%	0.96%
July	\$417,099	\$366,728	1.02%	1.09%
August	\$463,491	\$415,231	1.00%	1.06%
September	\$418,290	\$358,955	1.03%	1.05%
October	\$446,003	\$386,382	1.04%	1.05%
November	\$415,103	\$357,686	0.97%	0.97%
December	\$446,282	\$408,649	0.96%	1.03%
Grand Total	\$5,056,995	\$4,402,137	0.97%	0.97%

GL \$



Fraud Prevention

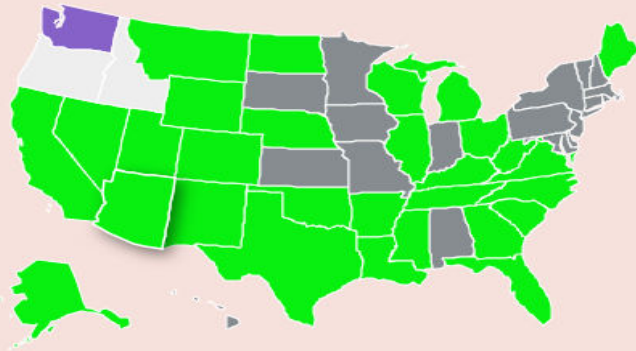
Working with the State of Washington to prevent fraud

Approved Transactions by Month

AUTH_IND	TRAN_DATE (Month of Year)	TRAN_COUNT	TRAN_AMOUNT
A	July	1,839	1,208,260.92
	August	1,469	1,096,157.95
	September	1,491	1,130,795.24

Map of States w/ Approved \$'s

AUTH_IND: A



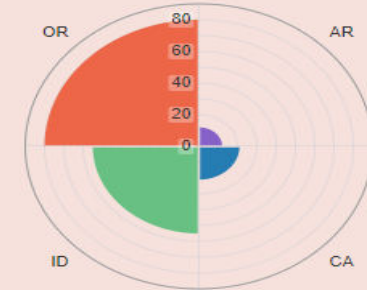
500 mi

Approved by State

MERCHANT_STATE	TRAN_COUNT	TRAN_AMOUNT
★ WA	4,482	3,233,422.95
OR	80	51,637.77
ID	55	37,411.32
OH	15	14,583.97
AR	29	13,685.11
CA	26	12,914.80
NV	9	10,567.24
AZ	13	9,649.99
CO	13	8,891.72
MT	7	8,586.96
NM	4	8,024.00
UT	6	5,550.65
TN	11	4,329.36
NC	3	2,426.24
LA	3	2,323.00
AK	3	2,318.46
TX	7	2,280.22
FL	4	1,977.42
KY	4	1,274.73
ND	3	600.00
OK	4	532.61
WI	1	481.29
WV	1	449.00
GA	2	294.25
ME	1	266.37
VA	7	258.89
MS	1	158.98
IL	1	97.04
NE	1	83.21
WY	1	61.15
MI	1	39.91

Approved # by State other than WA

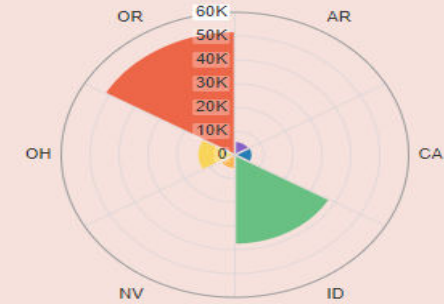
TRAN_COUNT: 10 - 5,000 MERCHANT_STATE: AK, AR, AZ, CA, CO, FL, HI >



MERCHANT_STATE AR CA ID OR

Approved \$'s by States other than WA

MERCHANT_STATE: AK, AR, AZ, CA, CO, FL, HI, ID, IL, IN, KY, LA... +17 TI >



MERCHANT_STATE AR CA ID NV OH OR

Our future

BankPay - A Better Alternative

Certegy's BankPay allows retailers to accept payments directly from consumers' bank accounts in a fast, simple, and secure way.

Reduced Cost

- Authorized transactions processed through the Automated Clearing House (ACH) network, providing significant savings over interchange fees
- Daily settlement and next banking day funding of transactions accelerate cash flow

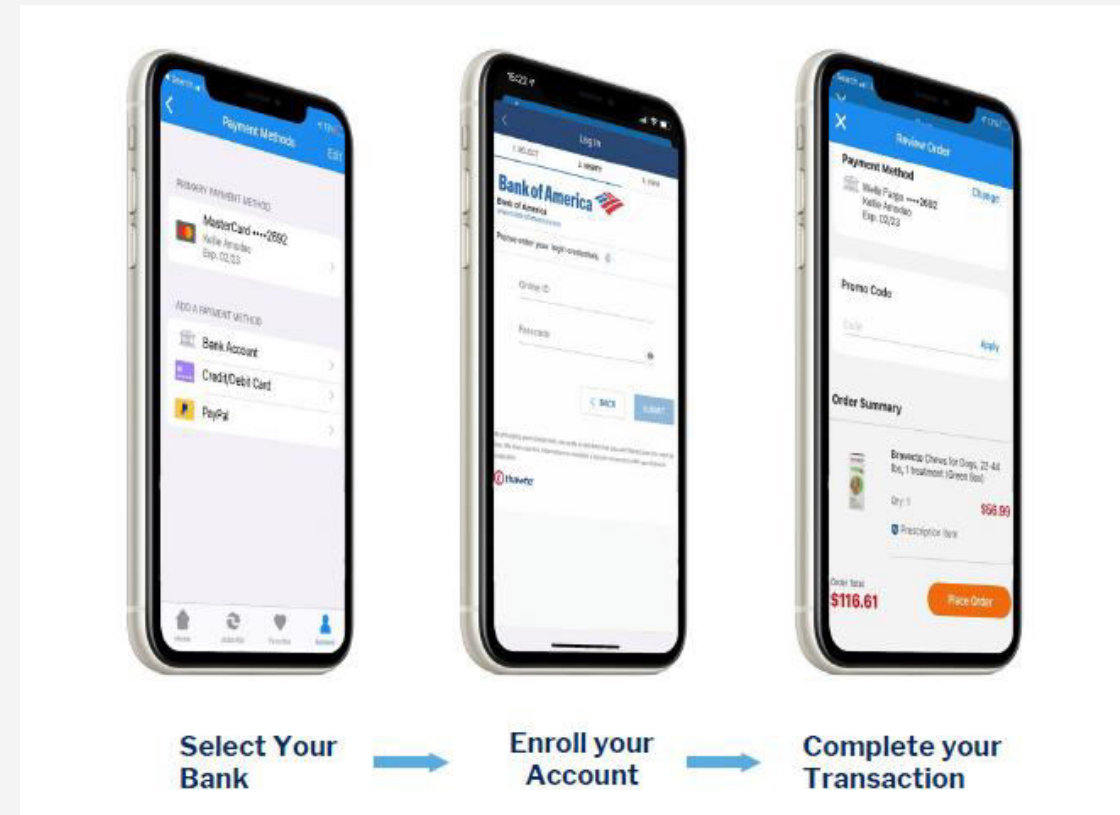
Reduced Risk

- Digital tokenization ensures merchant's app does not store any consumer banking information
- Each approved transaction is guaranteed by Certegy, eliminating fraud losses and chargeback risk

Reduced Friction

- Initial consumer enrollment via either online banking login or manual account entry
- 100% DDA Coverage with instant access
- Consumer only enrolls once across all participating Certegy merchants

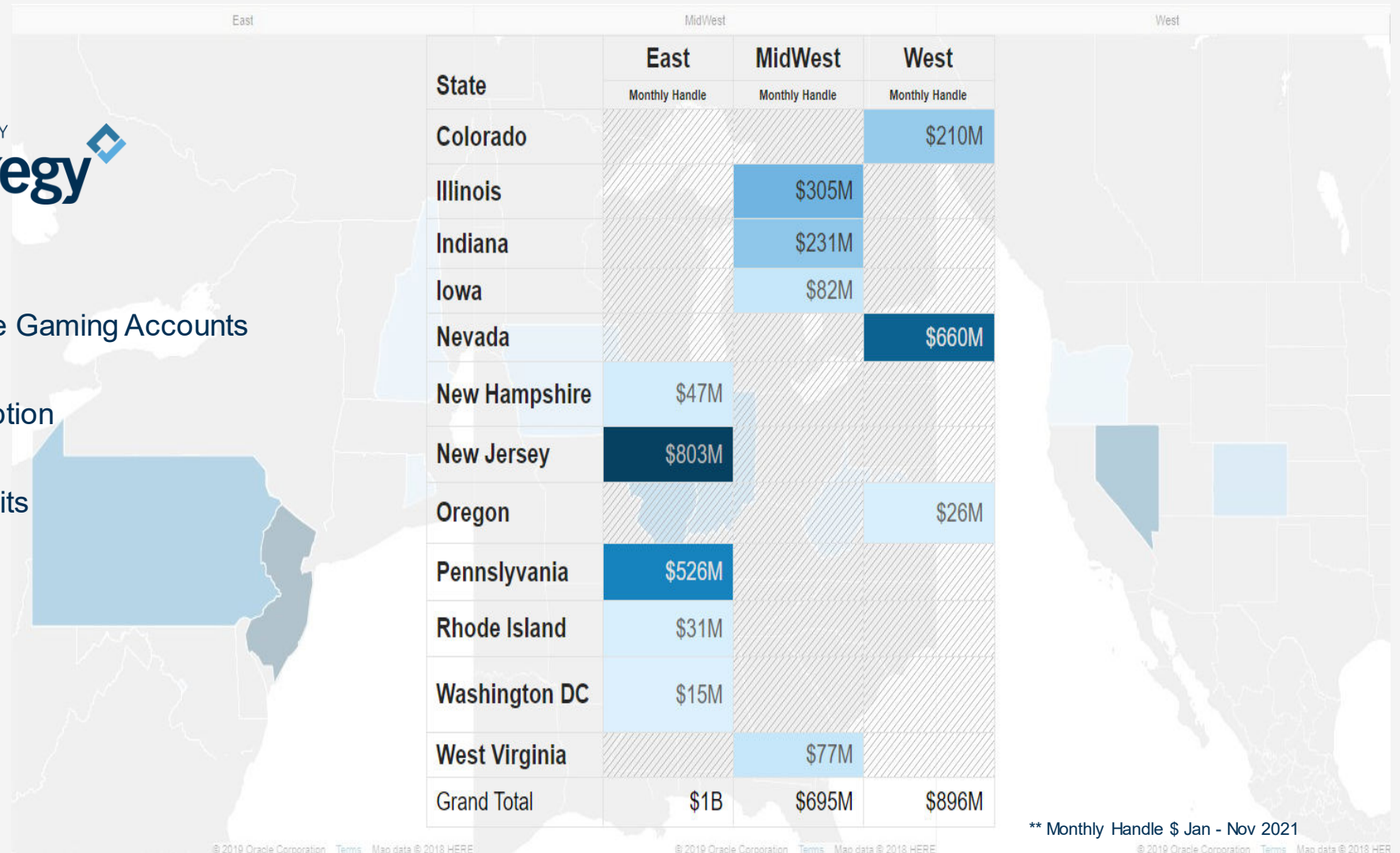
BankPay | POWERED BY certegy



Gaming

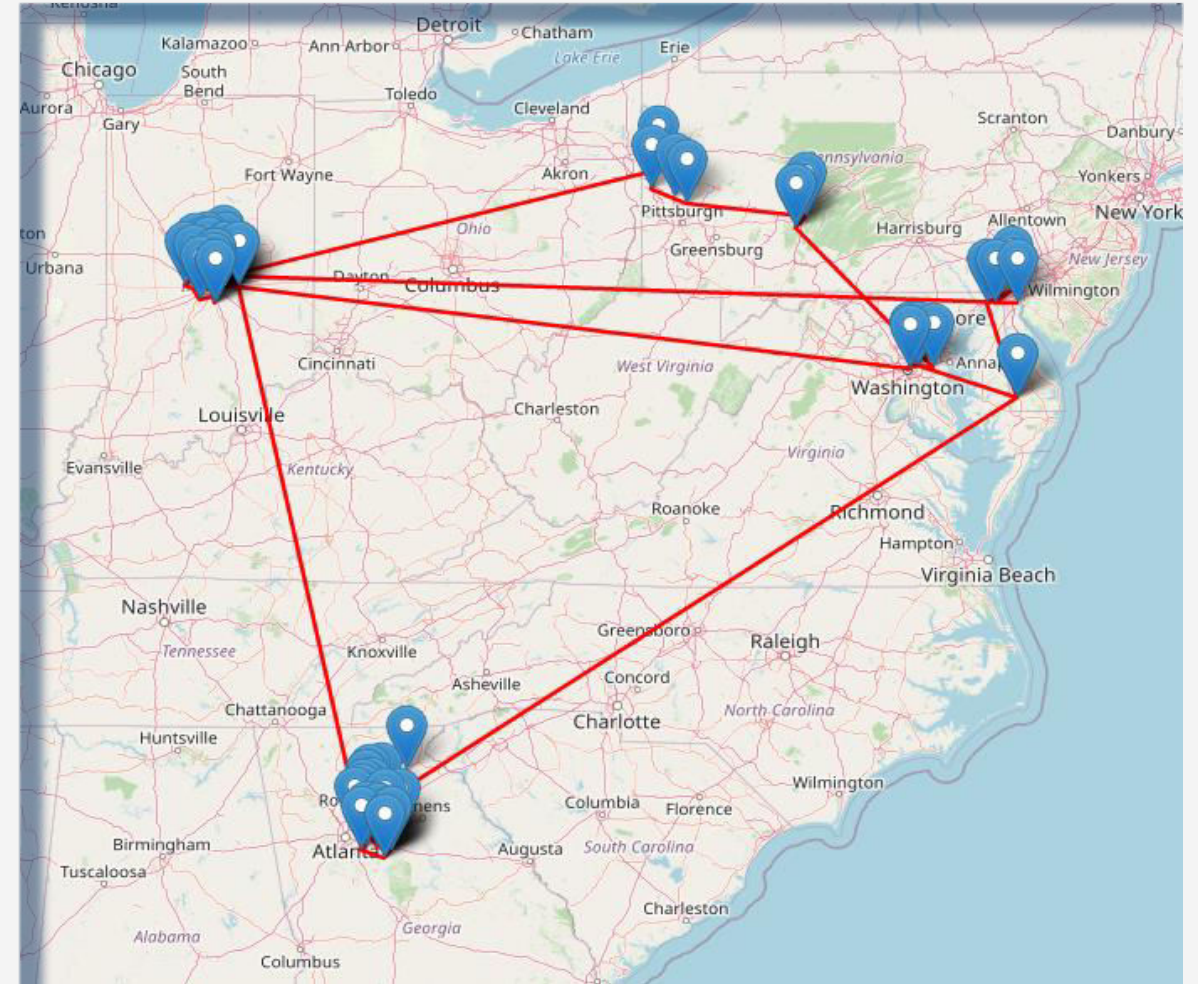
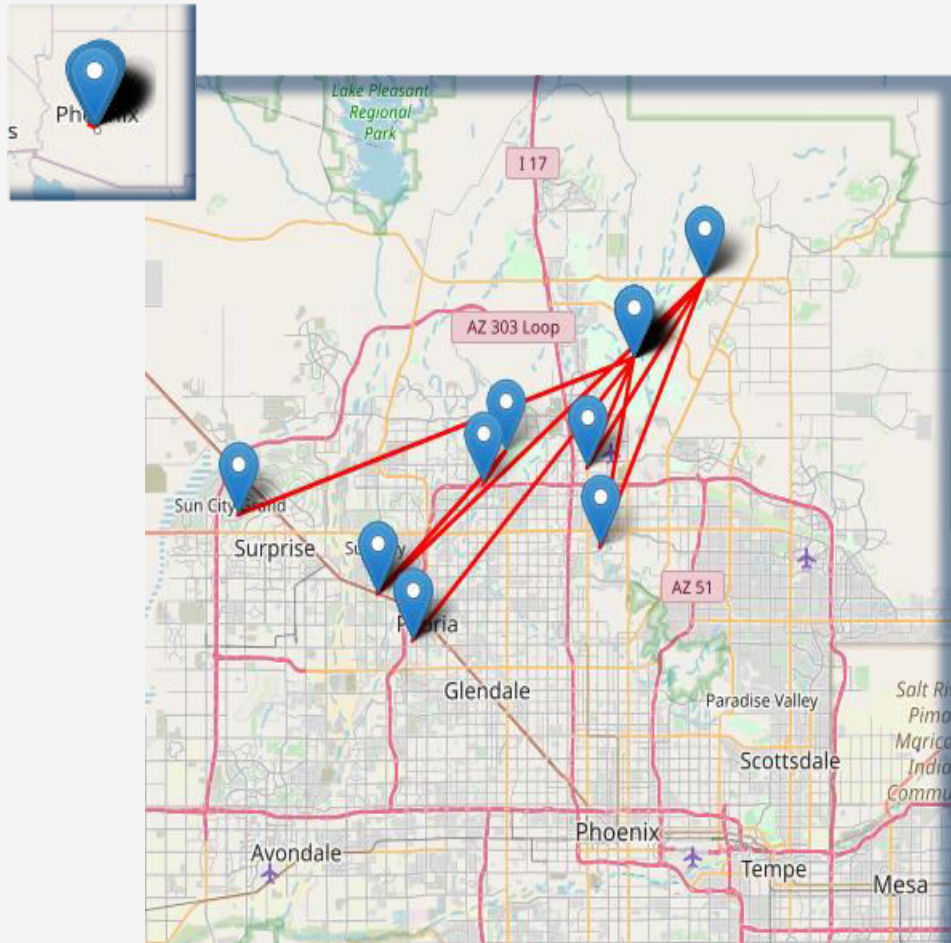
CashLine | POWERED BY **certegy**

- Provide ACH funding for Online Gaming Accounts
- Most cost-effective payment option
- 6 day check cashing player limits
- Higher limits for VIP players



Spatial Analysis – Determining Patterns

Expected versus unexpected good check cashing behavior



Questions?

Upgrading to Autonomous

State of Maine

Jeffrey Jordan, Director, Enterprise Data Services

February 23rd

1820



2020

MAINE200

LEADING THE WAY

Population

1M

Annual Budget

4.00B

Employees

12K

Best Lobster

1

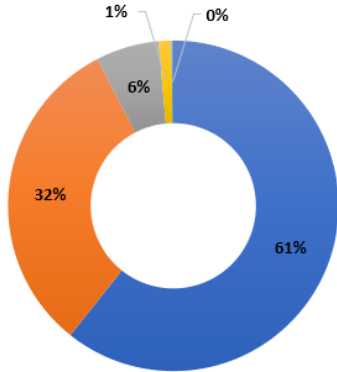


DAFS Analytics Use Case

Combining Oracle Analytics Cloud with Oracle Autonomous Database to service reporting and analytics needs for State of Maine across the enterprise including all executive branch departments, legislative and judicial branches.

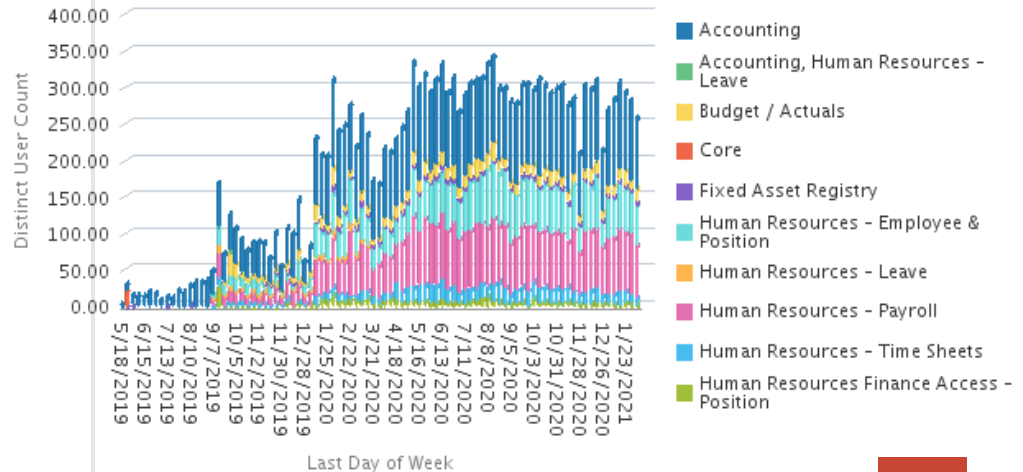
5TB of Data, 1 Billion Rows, 8000 Attributes

■ Payroll ■ Accounting ■ Time Sheet ■ Personnel ■ Budget



1000 Named Users, 100s Querying Weekly

Distinct User Count by Week



DAFS Analytics History



1995: Initial launch

The implementation of a new accounting ERP system required enhanced reporting which was best accomplished by a data warehouse



2000-2015: only modest changes.

Proliferation of departmental subset systems built from data extracts fills innovation gap.



2016: Lift and Shift to Oracle Cloud, 11g DBaaS & OACS

2x improvement in performance, and significant functional upgrades.



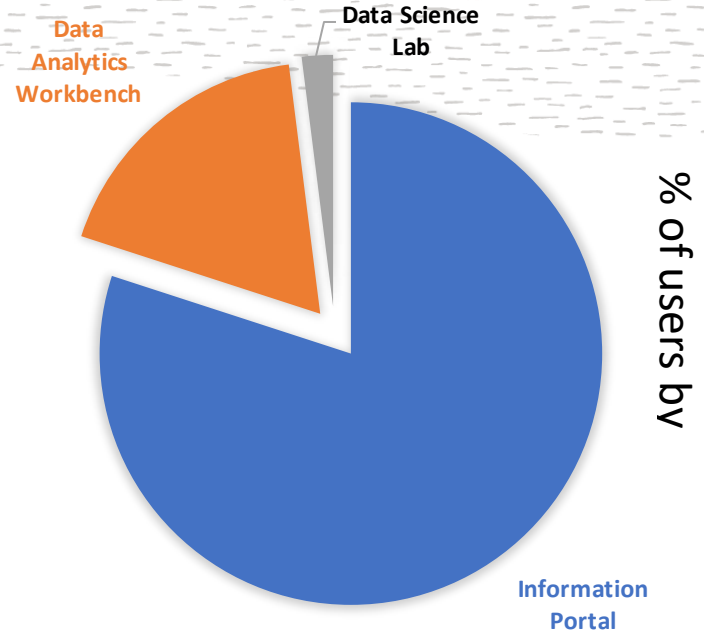
2020: OCI Migration, Autonomous DW 19c adopted

Documented 4x performance improvement

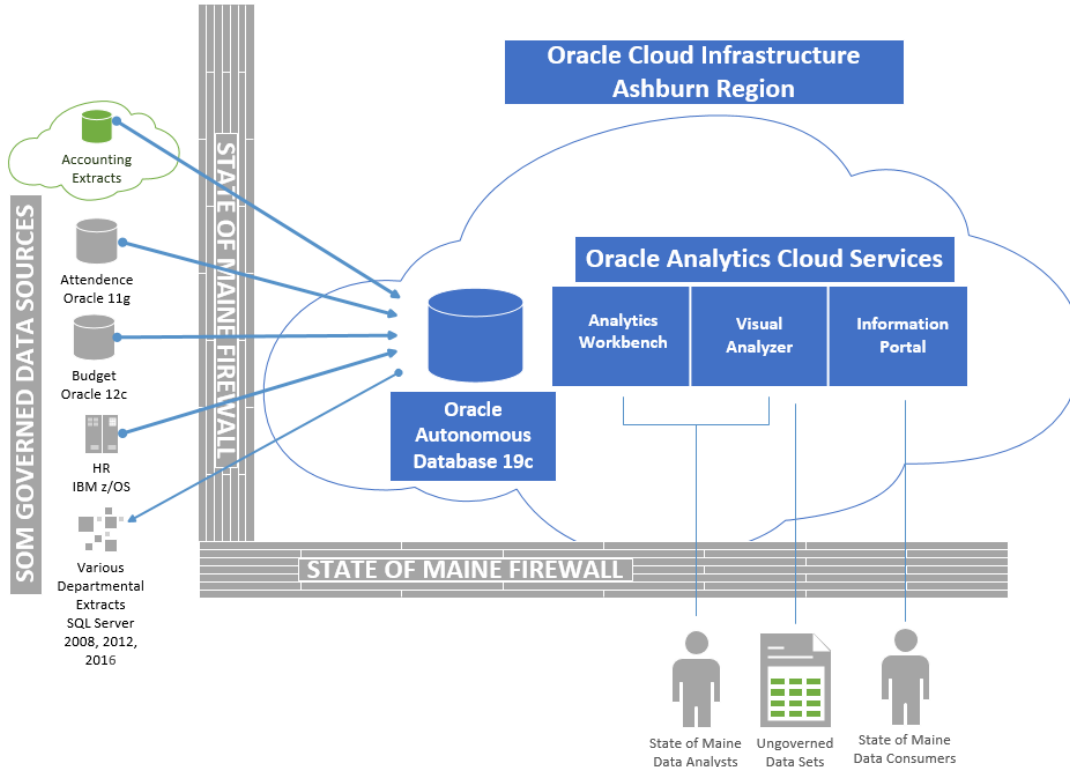
First API integrations with Maine Service Bus developed.

Delivery of a Three-Tier Service Model

- **Tier 1 – Data Analytics Workbench**
 - Using the Oracle Repository to define governed data sources
 - Transforming data for analysis – Star Schema Model
 - Applying data access rules to presentation layer
 - Analysis and Data Visualizer become the core tools of the data analyst
 - It is a precursor to and used to build the Information Portal
- **Tier 2 – Information Portal**
 - Dashboards & Automation
 - Query by simple navigation only
- **Tier 3 – Data Science Lab**
 - This is becoming the focus now
 - Expected use of Essbase for what-if analysis
 - Natural language processing
 - Integration with R & Python forecasting models



Hybrid Architecture



Data ingress from legacy systems including:
Oracle 11g
Oracle 12c
VSAM & COBOL
CSV & other extracts

Data egress to legacy systems including:
SQL Server 2016



Things to look
out for

Upgrading to Autonomous

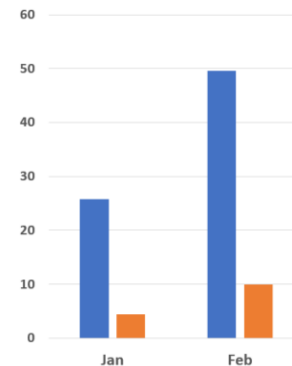
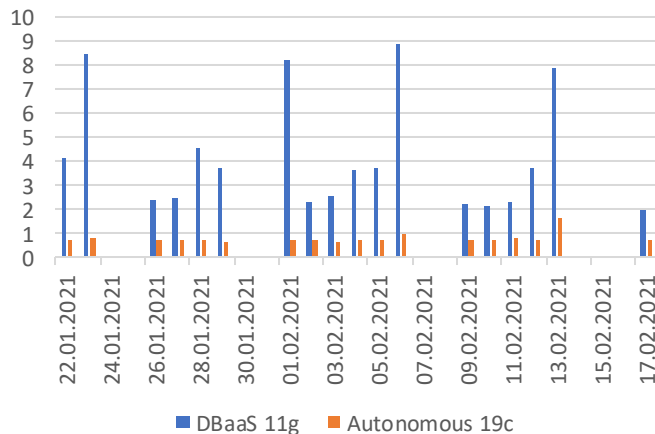
- **False Starts**
 - First Effort - Public 'Shared' Autonomous Data Warehouse
 - Integration problems connecting to on-premise data sources
 - Second Effort – Private 'Dedicated' Autonomous Data Warehouse
 - Allowed for better connectivity with our on premise assets
 - Required implementation of Remote Data Gateway to facilitate Oracle Analytics connectivity
- **Character set change**
 - The Autonomous Database Service requires **Unicode AL32UTF8**
 - Required data migration steps to resize columns and handle whitespaces
- **11g – 19c**
 - Legacy on-prem assets which were behind rev levels were difficult to integrate with 19c
 - Required some process re-engineering to be successful
- **SQL Server & SSIS Integrations**
 - Required update of SQL 2012 databases to SQL 2016
 - Make sure you have the correct SQL Server Driver – **Oracle Provider for OLE DB 19.1**
 - Tune **Fetchsize** parameter appropriate to your data profile, we landed on **50000**



Success Story

- Nightly Loading processes performance increased by 4x
- Oracle Analytics Visualizations and Dashboard Performance improved 50%
- 25% cost reduction for managed services associated with dba and Linux administration activities as a result of moving from DBaaS to Autonomous DW

ETL Run Time Comparison



What's Next

- Workday Integration
 - Model & ETL Processes to load Workday Data
 - Integrate with Workday Data with existing model
 - Expand to capitalize on new opportunities
- Capitalize on the ML/AI/Graph Capabilities in Oracle Autonomous Database
- Leverage Elastic Scalability to optimize expenditures and create opportunity for on-demand performance increases



Thank you

