



## Data as a Trusted Partner

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# Agenda

- Who are we
- Who is AmeriPride Services
- Where we started
- Enterprise Information Management
- Freedom vs Order
- Results so far
- Thank you

# Tony Ordner



- Currently Manager of Information at AmeriPride Services
- Over the past 18+ years worked in a number of different roles at AmeriPride Services
  - Software engineering
  - Systems and data integration
  - Reporting including operational, executive, profit analysis, acquisition analysis
  - Process improvement
  - Led, managed and built teams of software engineers, process engineers, data specialists
- Educated at the University of Minnesota Duluth, B.A. in Criminology
- Confirmed technology geek and avid PC Gamer

# Steven John



- Currently CIO at AmeriPride Services
- Previously was Strategic CIO at Workday, ensuring Workday adhered to the industry’s highest IT standards and processes; CIO at H. B. Fuller Company, a specialty chemical manufacturer and early Workday customer
- Recognized with multiple awards: Computerworld’s Premier 100 IT leaders, the Leadership award by the CIO Executive Council, and by *InformationWeek* as a relentless innovator for implementing cloud solutions
- Taught IT leadership courses at Pace University in NYC for 12+ years
- Educated at the University of Utah and completed graduate work at Temple University

# Who is AmeriPride Services?



## *People You Can Count On*

Started in  
Lincoln, Nebraska  
1889



- Headquartered in Minnetonka, Minnesota
- More than 115 production facilities and service centers throughout the United States and Canada (Canadian Linen, Quebec Linge)
- Providing linen, uniforms, floor mats, restroom, safety and cleaning products to nearly 150,000 customers every week.
- Privately held company, still owned and managed by the Steiner family.

# Our Vision

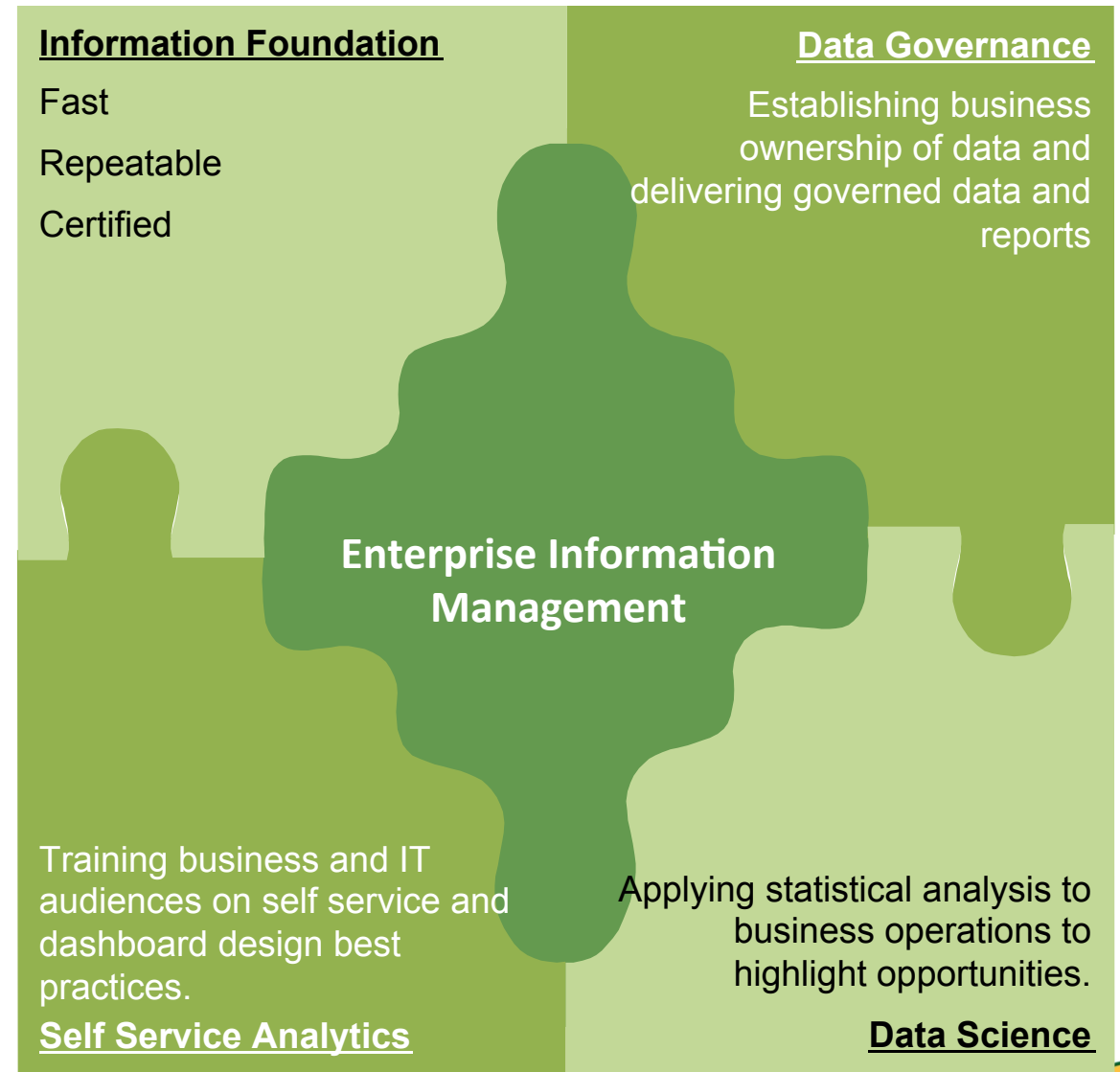
## To Transform our data into Trusted Insight & Competitive Advantage

- Know at a glance how you are doing
  - Simplified visual interactions, pictures are worth...
  - Standard metrics, everyone gets the same swing
- Freedom to spend more time doing your job
  - Insight delivered, no decoder ring needed
  - Certified data, no assembly required
  - Any device, any time access

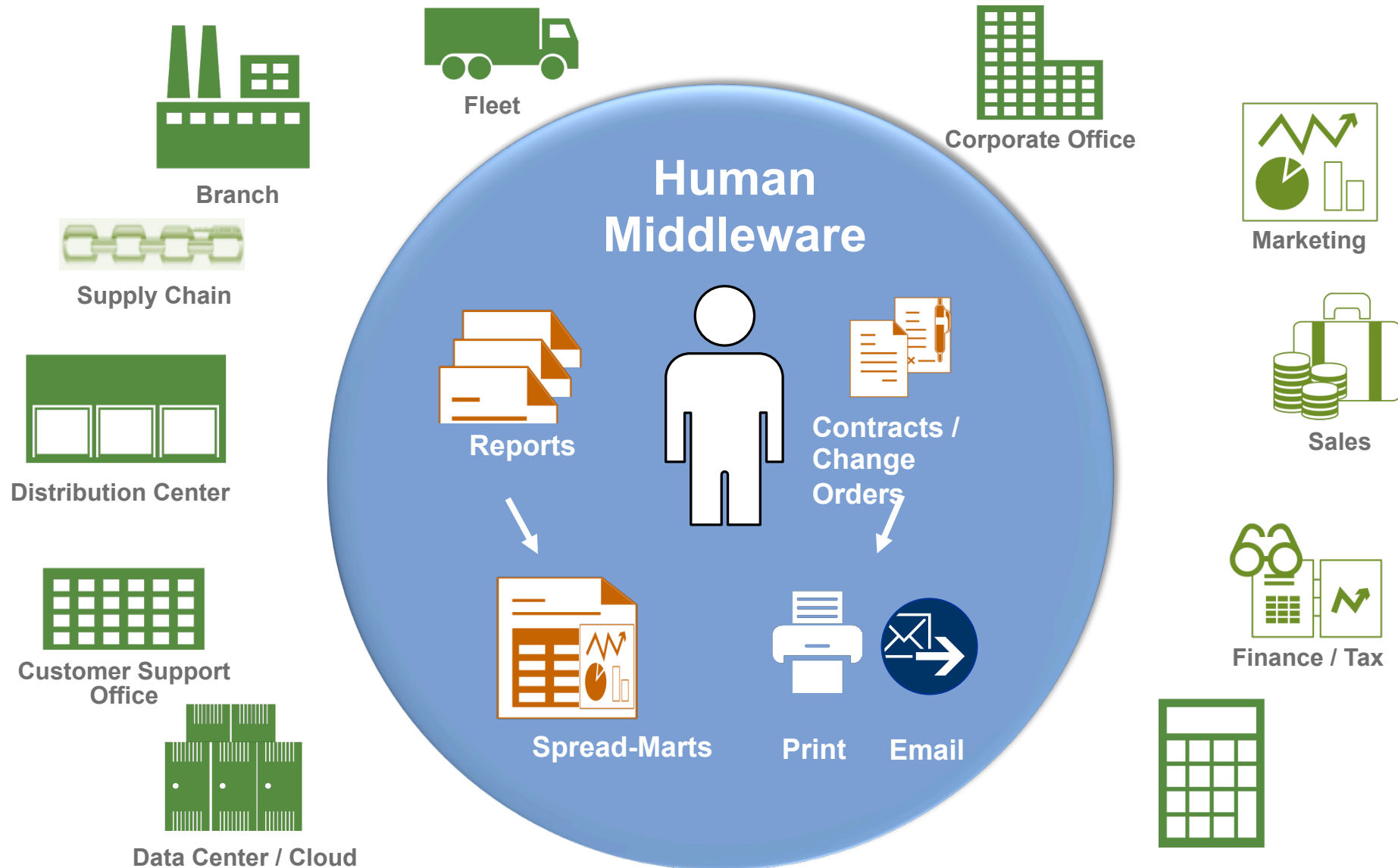
*Simplify, Standardize and Automate*

# Our Mantra

- **Simplify;** make data accessible through dynamic dashboards and self service
- **Standardize;** align the organization on definitions and best practices
- **Automate;** create reusable assets and processes to expedite data

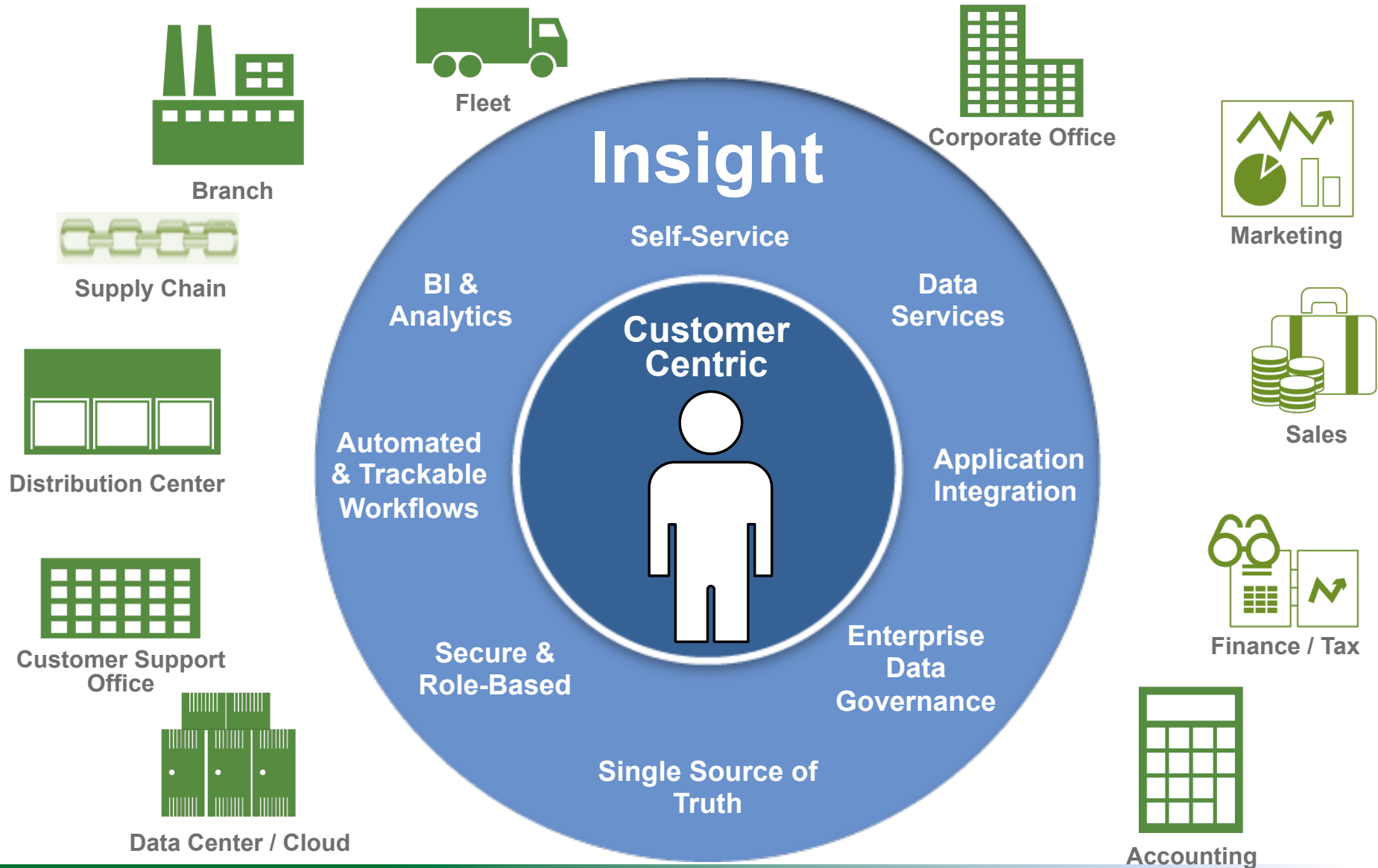


# Where we started





# Our Future



# Applying Technology

**Some examples of how we have applied technology are:**

- Data Center and infrastructure changes
- Centralized Major Systems
- Complete Customer Care (C3) Mobile
- Customer Portal
- Custom and Focused eStores
- Automated processing systems
- Telematics systems
- Routing systems
- Electronic handheld devices

We feel that these changes have made us one of North America's most technologically advanced uniform service companies.

# Data Center In 2007



We decided that this was not an acceptable foundation for centralizing our critical business functions.

# Data Center Today



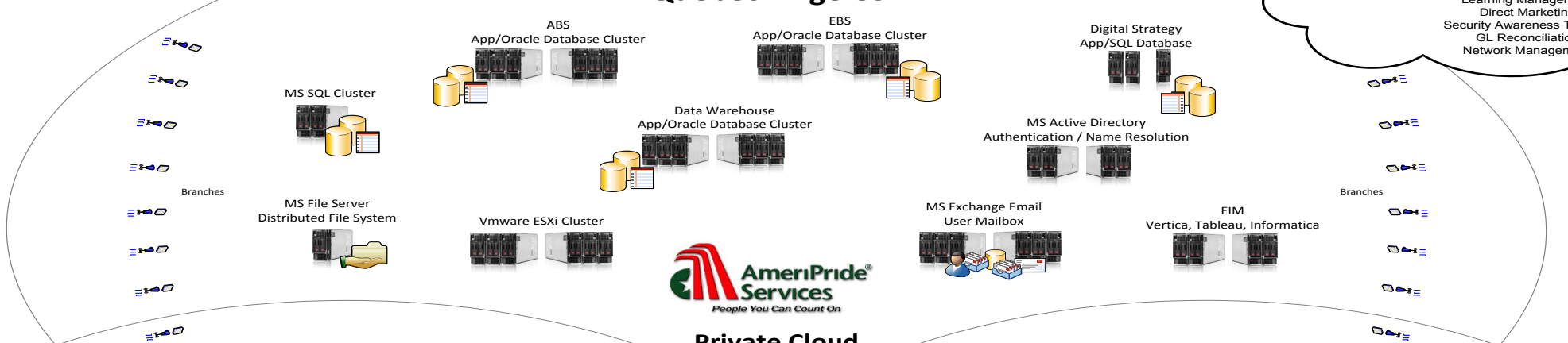
Working with HPe partner Works Computing we implemented a hot aisle containment (HAC) configuration which takes advantage of the natural properties of warm air rising. The HAC system directs the upward airflow to an AC return system such as a drop-ceiling void. The HAC can increase cooling efficiency by 50% or more. We also embraced SAN storage, Blade Servers and VM machines to increase flexibility and improve resource management.

# To The Cloud?

If you are doing something that someone else can do or do better than you then something only you can do isn't getting done

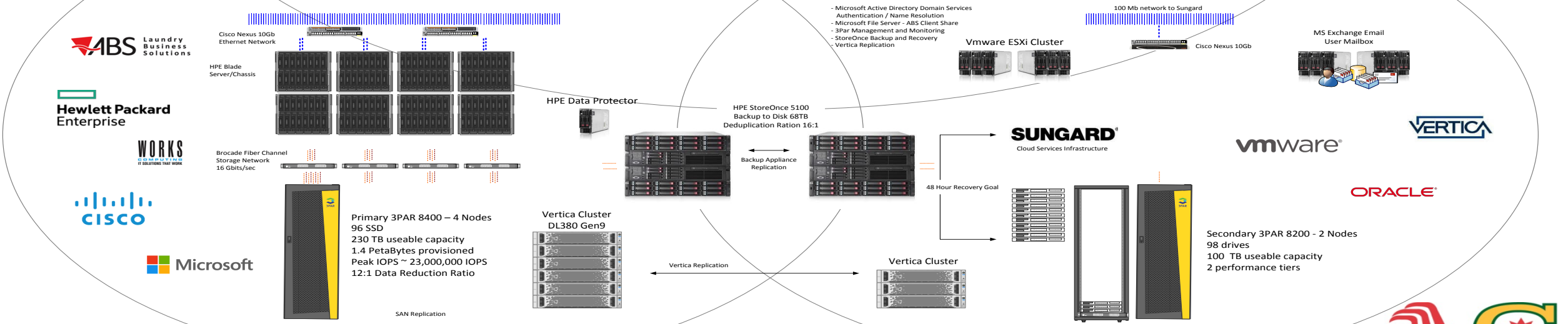
# Hybrid Cloud

**AmeriPride Services Inc.**  
**Canadian Linen and Uniform Service Co.**  
**Québec Linge Co.**



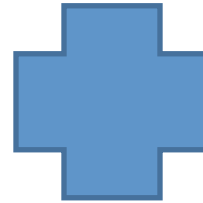
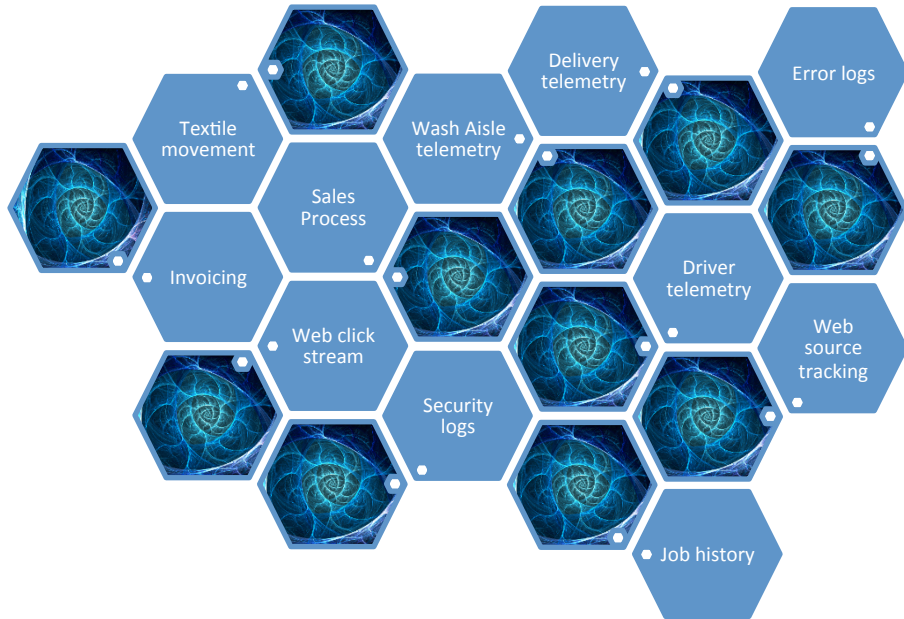
## CRC Data Center

## Business Continuity Second Site



# Data & Analytics

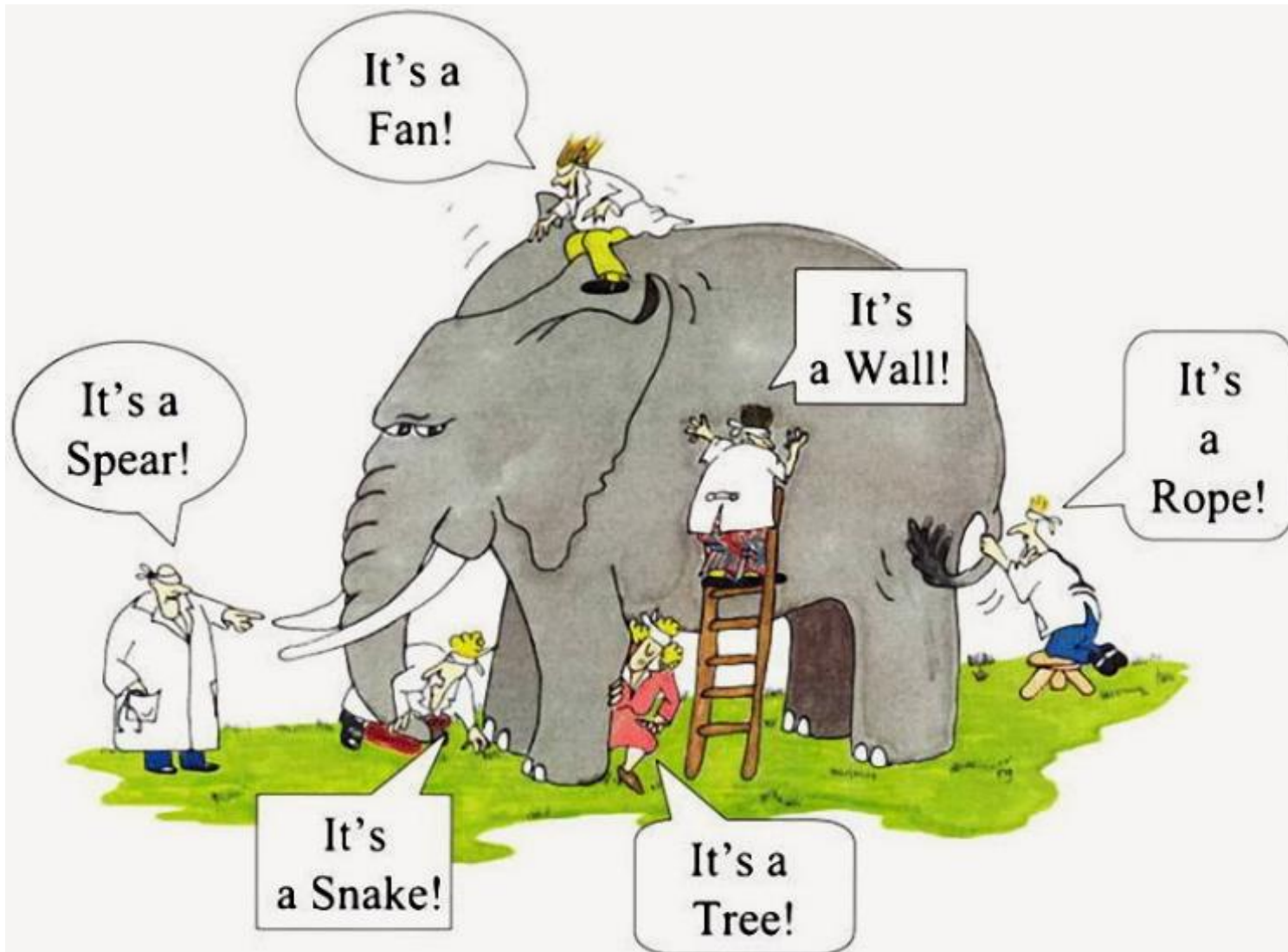
## Big data



## Siloed Analytics



# Dangerous Conclusions





# The Path Forward

## People You Can Count On



## Data You Can Count On



## One Team



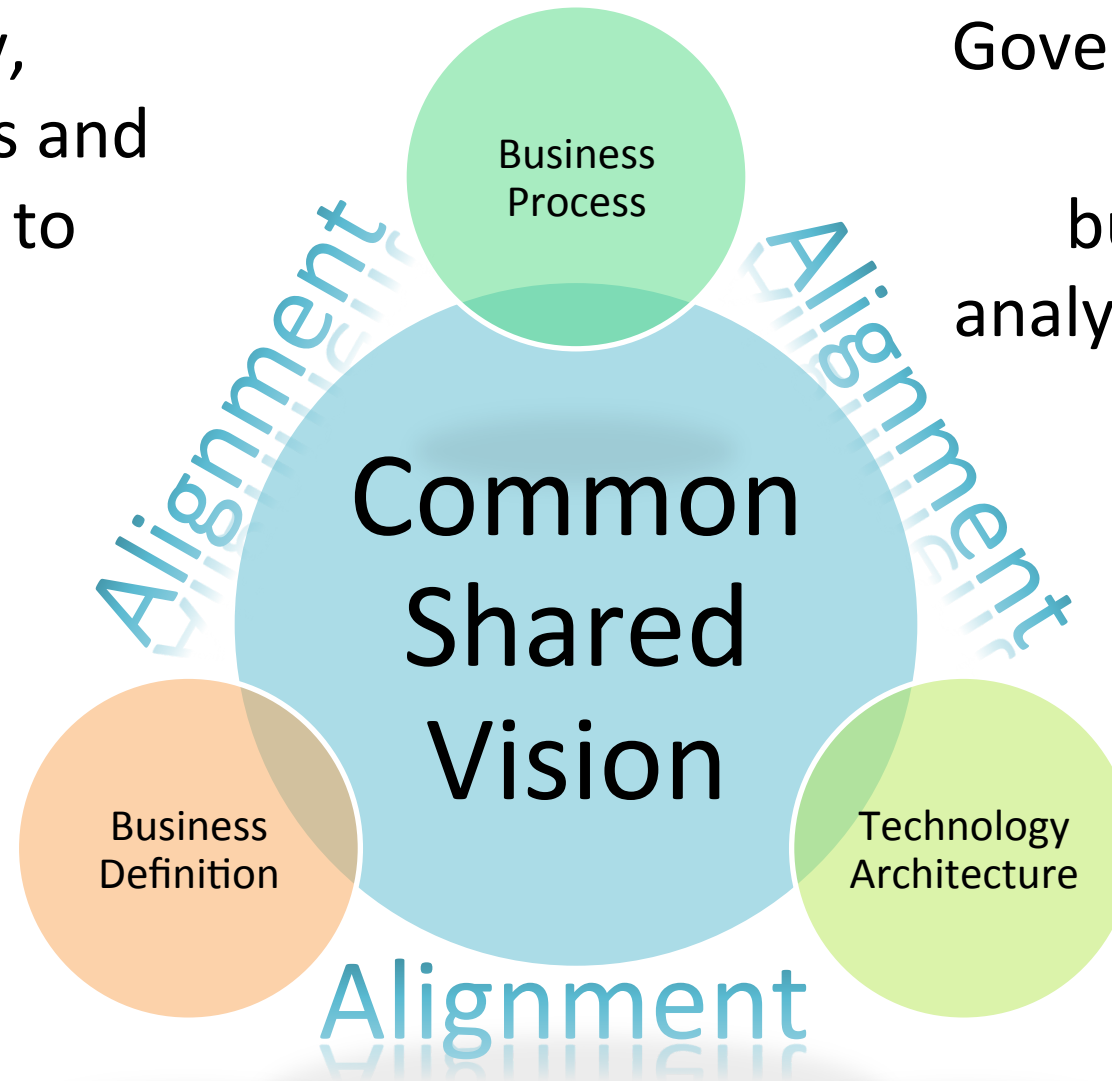
## One Truth



# Transforming the Business

Aligning technology, standard definitions and standard processes to deliver a common shared vision.

Governing alignment by bringing together business leadership, analytics leaders and IT.

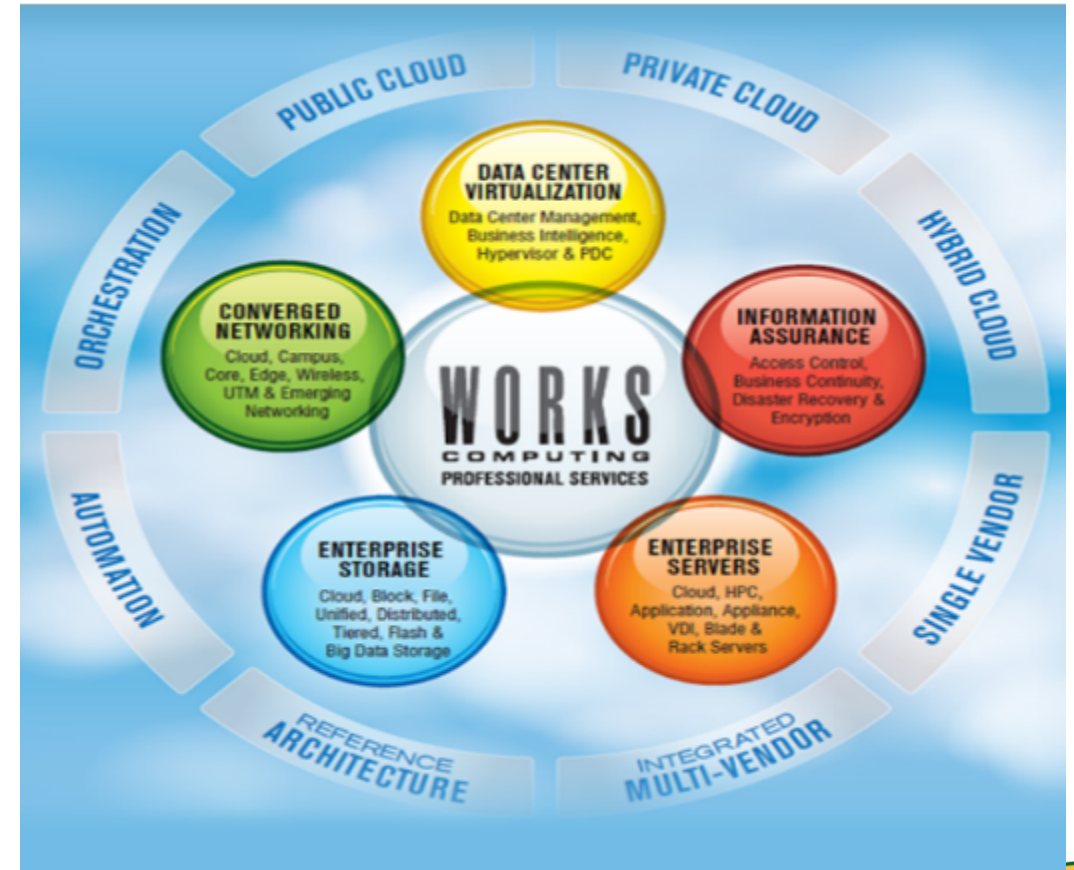
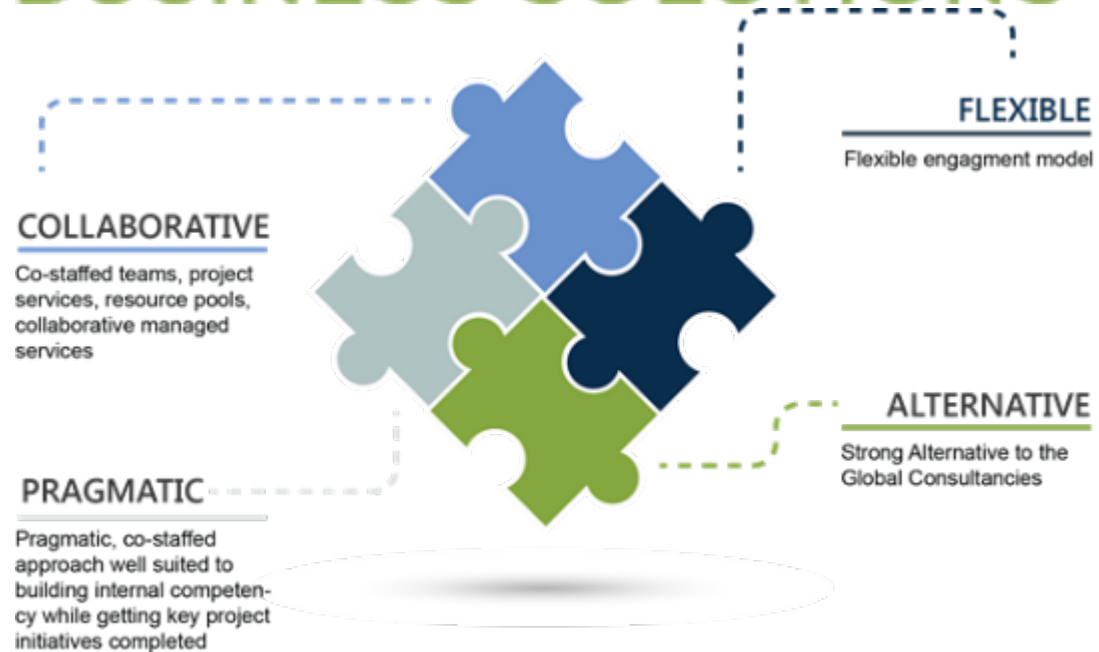


# Our Partners

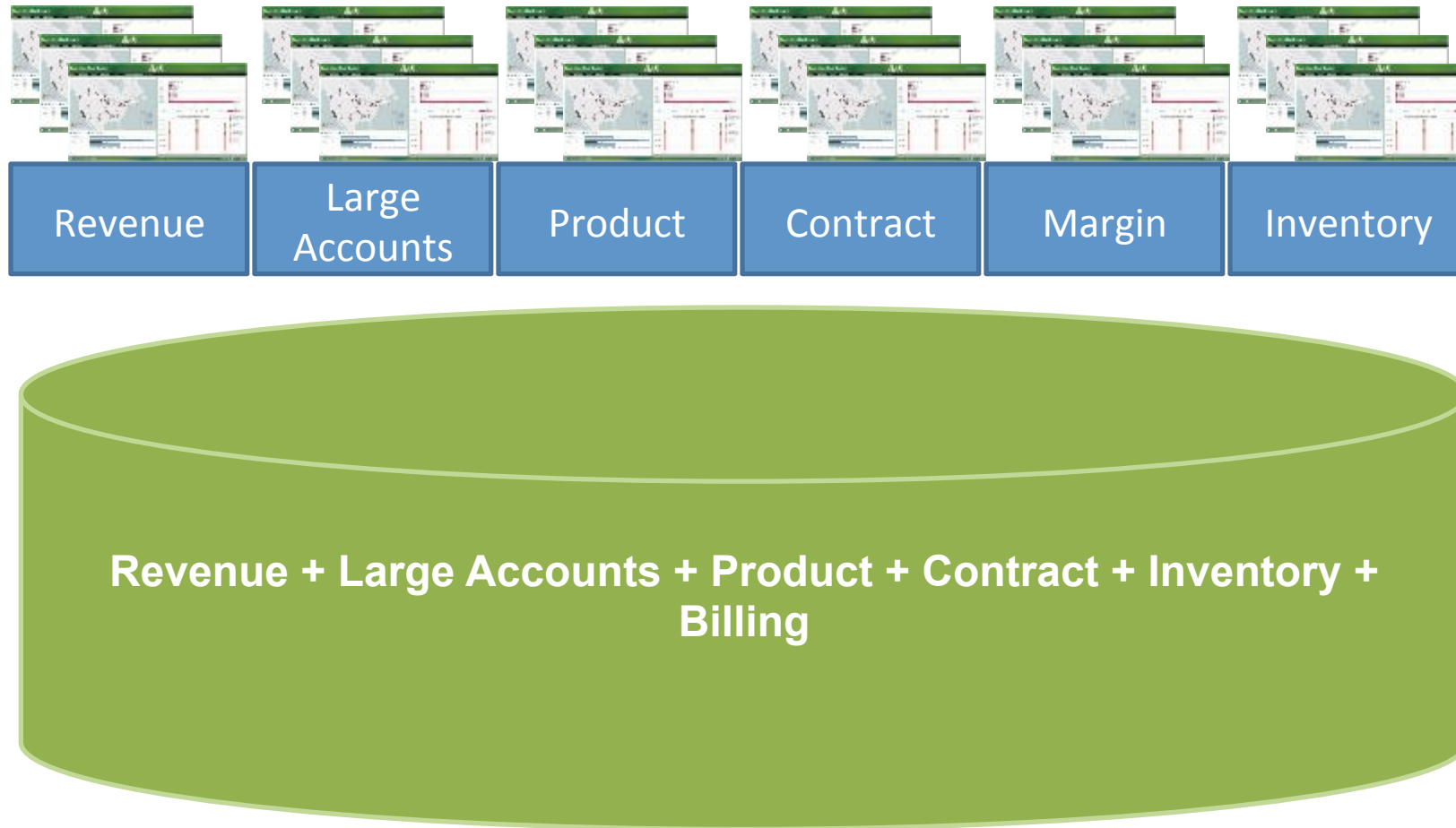
Don't go it alone get an objective 3<sup>rd</sup> party to provide proven templates and structure and help you connect with your business users in new ways as well as get internal staff armed with new tools.

## Daugherty

### BUSINESS SOLUTIONS



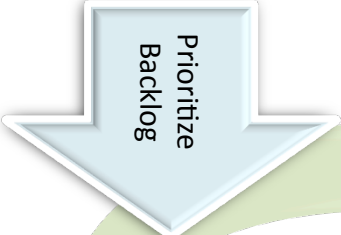
# Agile Data Warehouse Approach



Delivering iterative enhancements every six to eight weeks, supporting Simplify Standardize Automate initiatives like Together in Growth, Style Standardization, Contract Renewal, Margin, Inventory Management, and others.

# How Work Gets Done

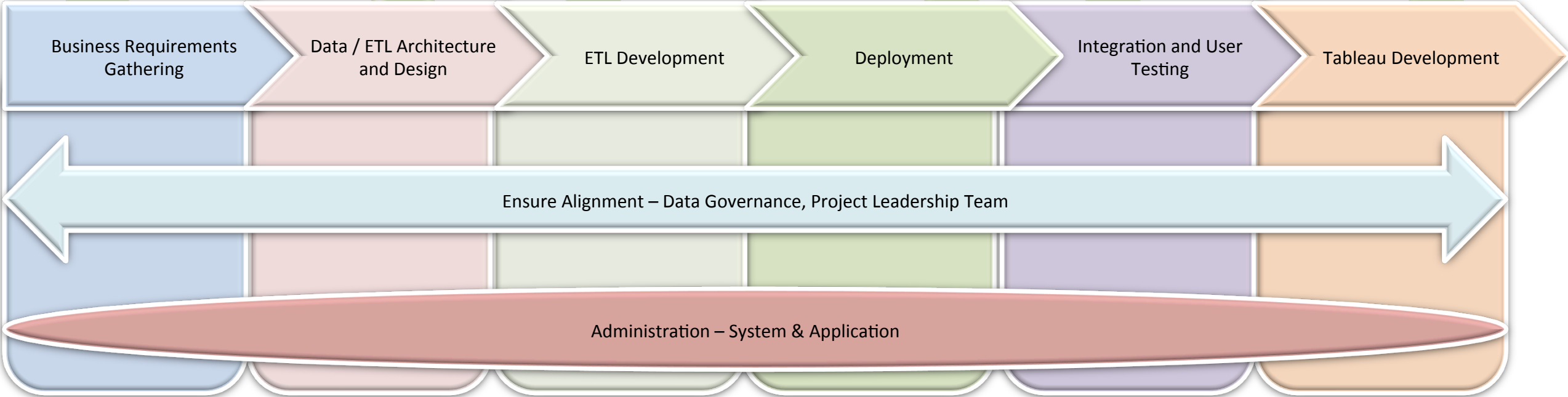
Technical Owner  
&  
Business Owner



Scrum 1

Scrum 2

Scrum 3



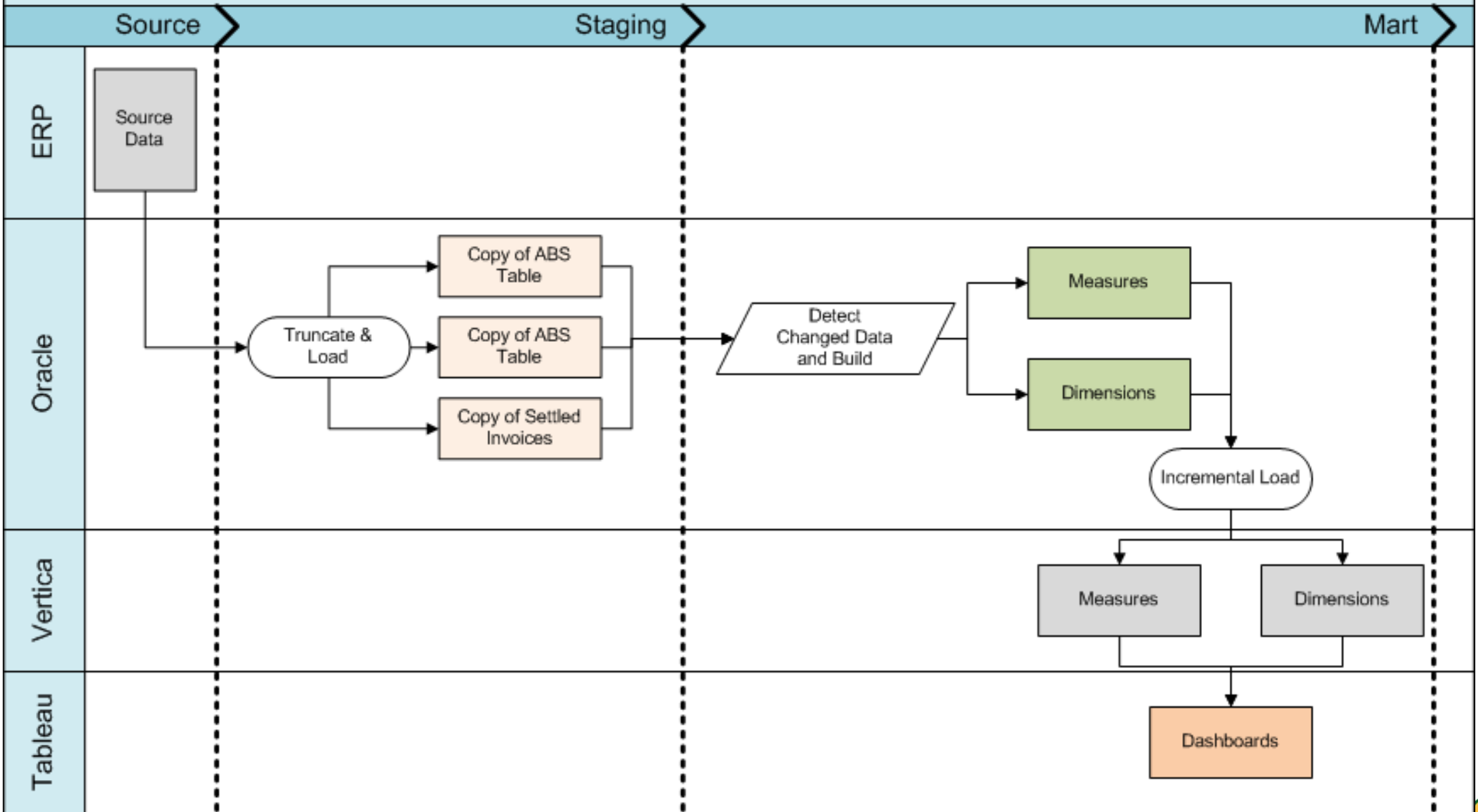
# Data Foundation: Building an Intelligent Platform



# Why Vertica?

- We were having problems just getting our weekend data loads to complete
  - Our Director of Infrastructure and our partner Works Computing introduced us to Vertica and set up a POC
  - We took our longest running load (36 hours), brought in an HPe Vertica resource and within two weeks this same load was able to run in 15 minutes.
  - We loaded 365 million rows of invoice line level information into a flat table with no projections and I was able to navigate the data using Tableau with a 20 second refresh rate as I changed the dashboard and navigated the data.
- **Make your data fast:** The licensing model allows us to scale up or out with minimal costs compared to Microsoft and Oracle solutions.
- **Analytics at scale:** Vertica allows us to apply models at scale to better leverage our investment in data science.
- Did I mention fast? Everyone comments on how fast large amounts of data can be queried.

# ETL Architecture – Version 1





# So we went live and....



Performance was less than expected...\*

- 7-10 minute response from Tableau
- Project ground to halt
- ETL jobs took double digit hours


*Note: These are completely (un)realistic captures of an AmeriPride Tableau developer's experience before and after improvements.  
\* Meaning things we could not even do before now ran in 7-10 minutes, but still too slow for a dashboard.*

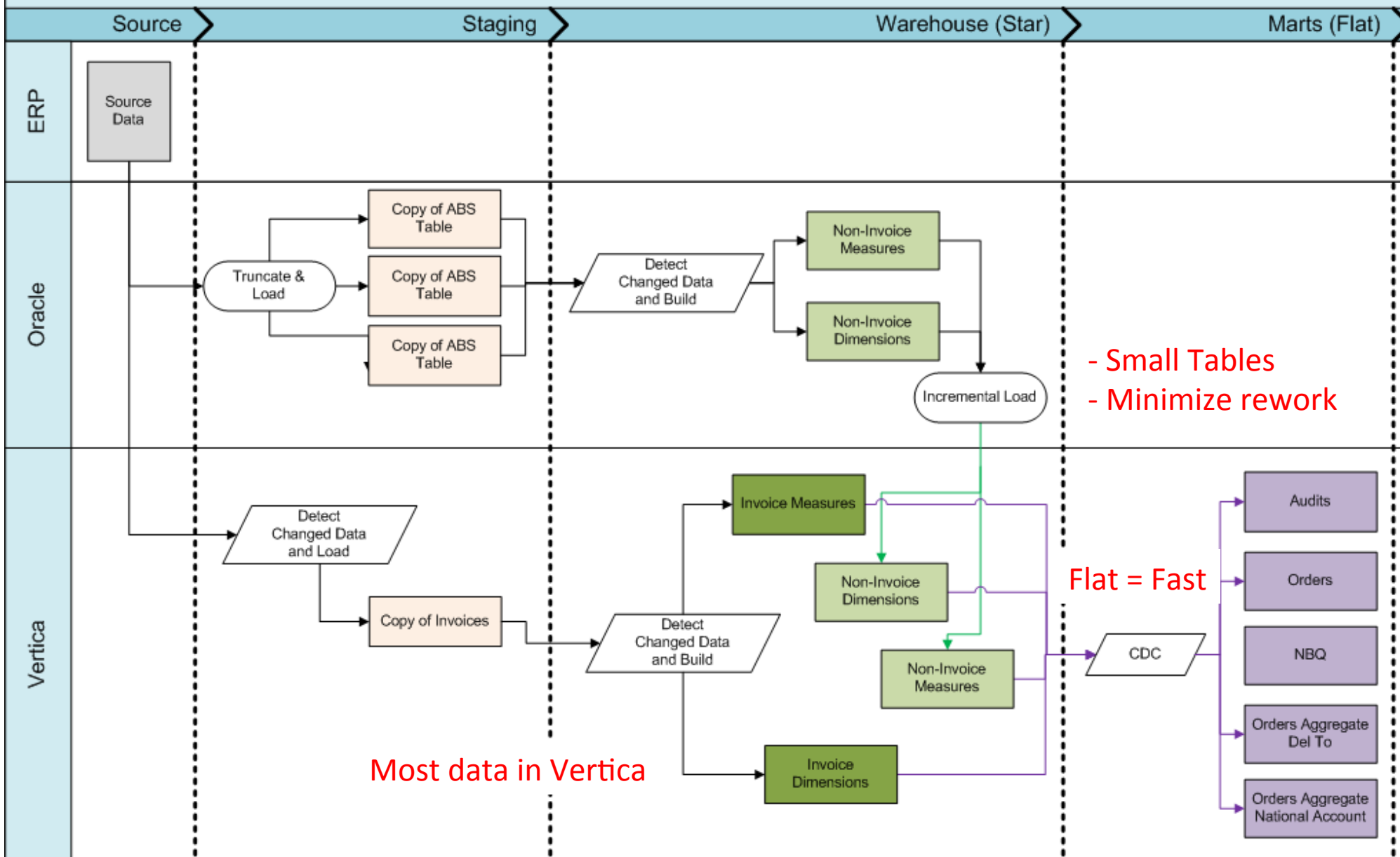
## So we reached out to HPe Professional Services

- We had onsite help within a week
- We learned about resource pools
- We realized performance gains
  - 5-200 second response from Tableau
  - ETL jobs ran in single digit hours



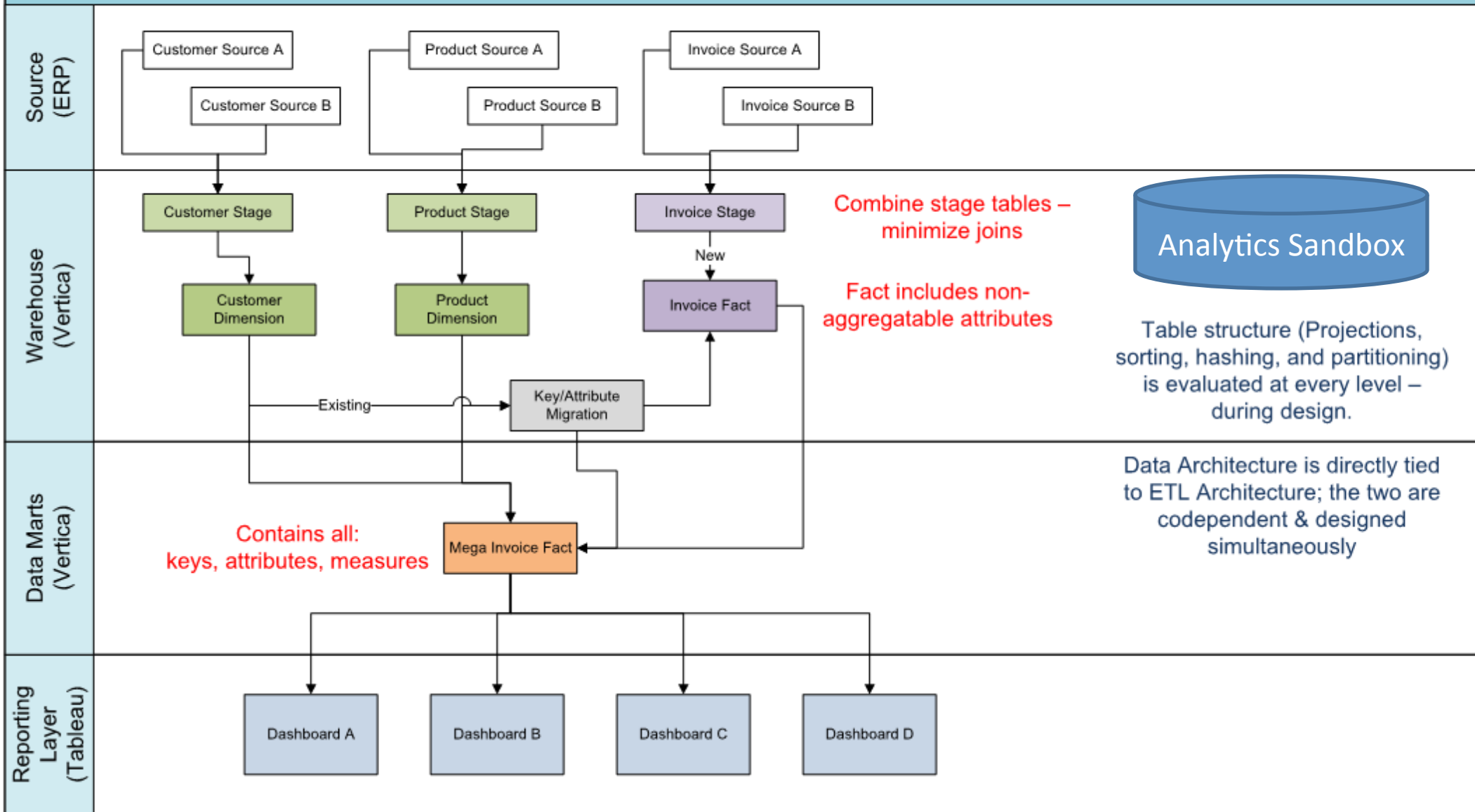
# Take 1: Lessons Learned

- Vertica is not magic 
  - It is very different from traditional relational databases
  - Segmentation & sort order
  - Eliminate big table joins
  - Concurrency
  - Testing / Monitoring
- Tableau Query Design
  - Aggregate Tables
  - Push-down to Vertica
  - Eliminate big table joins
  - Some things belong in the database
- Ask HP for help early and often
  - Hard to know what you don't know
  - They are eager to help and share knowledge
  - Great online documentation is easily available



# Take 2: Lessons Learned

- Joins need to be planned for
  - If sort order and hashing are out of alignment then you get global re-segmentation across nodes
  - CDC joins were extremely painful and slow to get to the flat marts
- With today's large datasets it is no longer about ETL it is about ELT
- VMs & Shared Storage ease of administration are not worth the performance price for large data
- Projection Sprawl
  - Had to create a large number to support the tableau queries
  - Had to create a large number to support the VM limitations
- Data Churn
  - Because the mega table has the current version of the dimension attributes every time they change we must delete and insert the row and this can create a huge amount of data churn.
  - We decided to throw hardware at this problem however this would not work for real big data enterprises, in that case you likely want to dedicate nodes for loading.



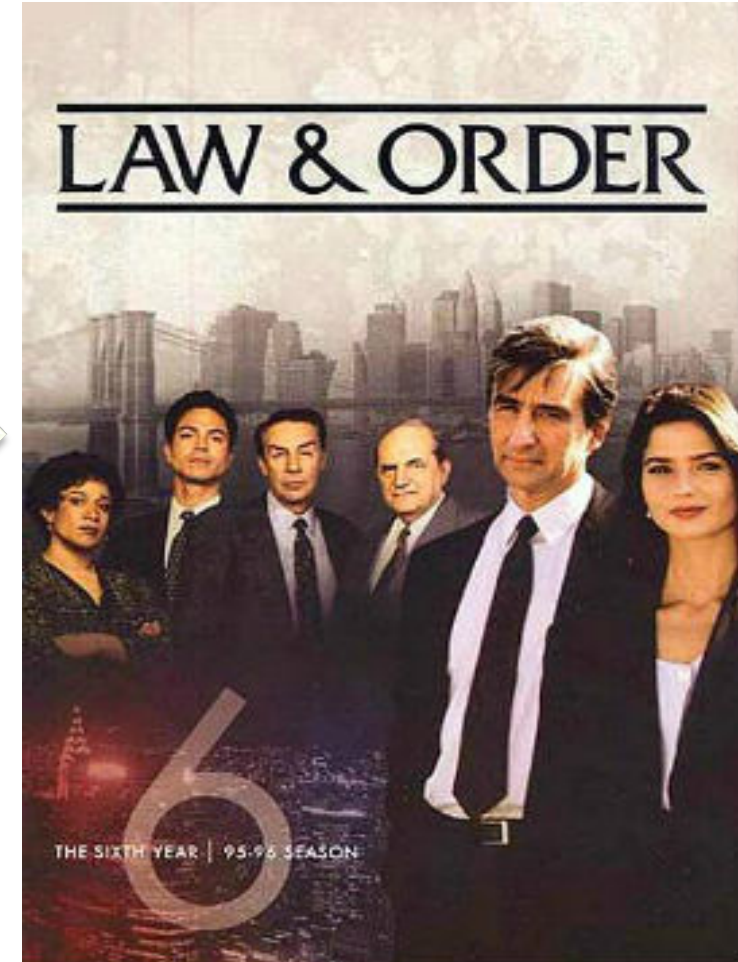
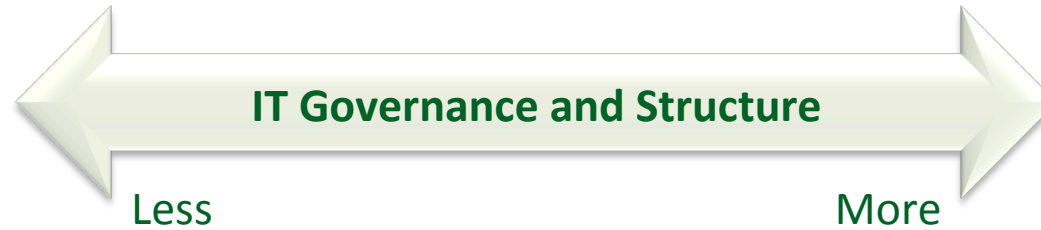
# Vertica Server Evolution

- Virtual Machine Node
  - HP bl660 G8 blades
  - 16 vCPUs
  - 80gb RAM
  - 10gbps Network
    - shared public + private interfaces
  - Vmware 6
  - Storage on VMware data stores, based on HP 3Par array
- Physical Machine Node
  - HP dl380 G9
  - 28 cores (Dual E5-2690 v4 @ 2.60GHz)
  - 256gb RAM
  - 1gbps Network for public interfaces
  - 10gbps Network for private interfaces
  - Storage on local RAID 1+0 array in each server
- 3 nodes
- Q1 2017
  - Utilize existing analytic functions
  - Remove last staging tables from RDBMS
  - Update Vertica to 7.2.3
  - Determine backup & DR strategy
- Q2 2017
  - Implement backup & DR strategy
  - Push r-based analytic models into Vertica
  - Install machine learning
  - Engage with Vertica professional services POC involving IoT and machine learning

# Striking the Balance



**Freedom  
Business Enablement**



**Order  
IT Management**

# Freedom

- **Enabling business power users**

- Establishing a Community of Practice
- Side by side development between IT and Business Users
- Weekly office hours with resident Tableau experts
- Analytics Sandbox Environment
- Usage monitoring for program roll outs
- Bi-weekly hosted training sessions

- **Quarterly showcases**

- Executive judges
- Prizes for most innovative awards





# Order

## IT-Led Enterprise Deployment of Tableau Server

- **Coordination and Alignment**
  - Standardization
  - Establish governance from the start
- **Control and Proliferation**
  - Scale quickly, under control
  - Build top down and bottom up simultaneously
  - Optimize Architecture

# Order: Establish and Govern Confidence

Part of EIM involves certifying our data so it becomes trusted as “**the source of truth**” company-wide

Update Sheet Name



Data Exploration Template

CORPORATE\EW50627

Business User Created

Non – Certified Data

Directional

Update Sheet Name



Information Team Template

CORPORATE\EW50627

Information Team Created or Supported

Update Sheet Name



EIM Team Template

CORPORATE\EW50627

EIM / Information Team Created or Certified

100 % EIM – Certified Data

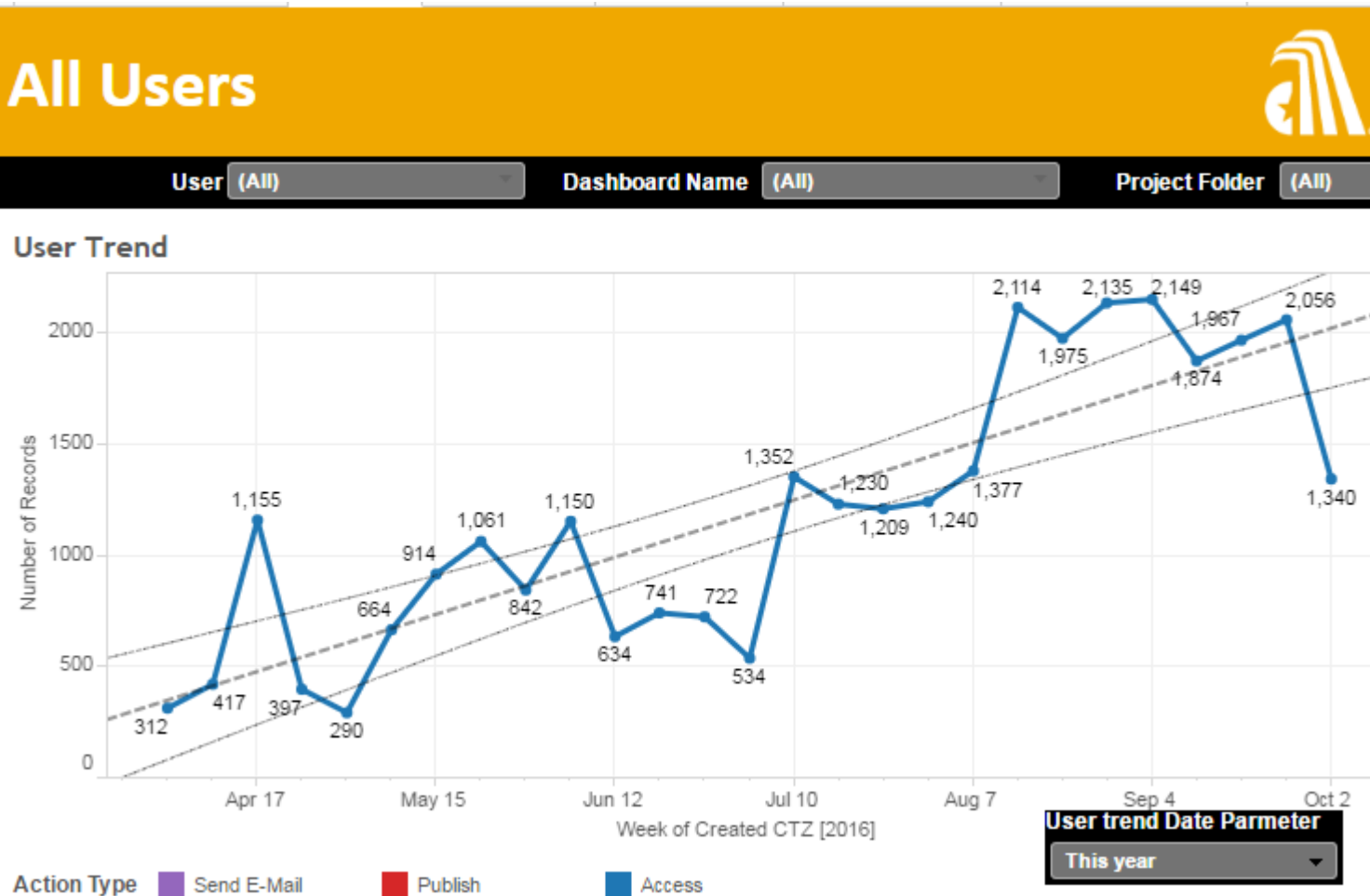
Source of Truth

People You Can Count On®

Template

Data You Can Count On

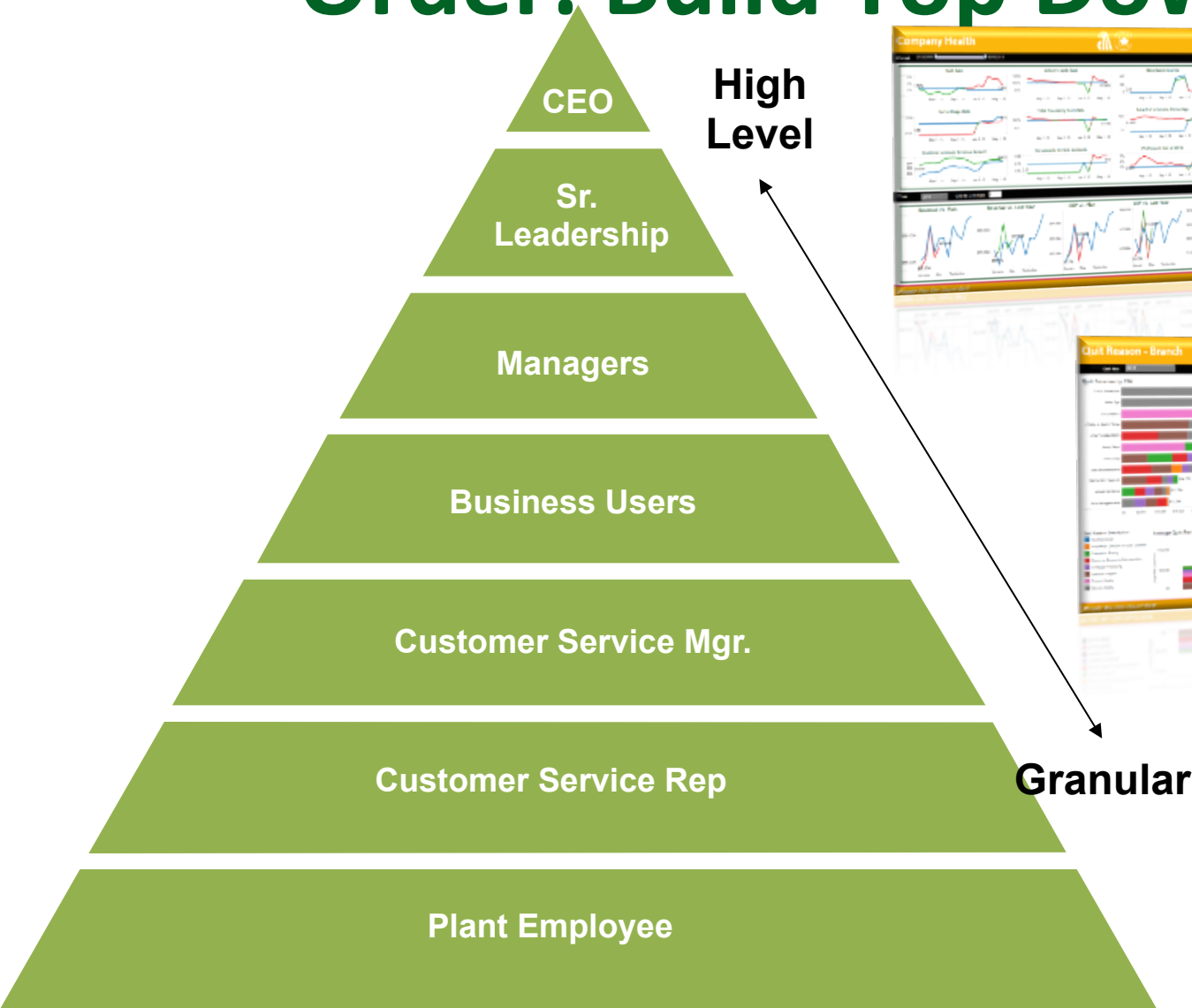
# Order: Scale Quickly, Under Control



## Controlling access through user based reporting and security

- Prioritize user base by business area with need
  - Establish key relationships and identify power users
  - Train on best practices
- Deliver compelling solutions for each business audience
  - Side by side development of critical exec reporting
  - Collaboratively tackle analytical use cases
  - Build top down and bottom up simultaneously

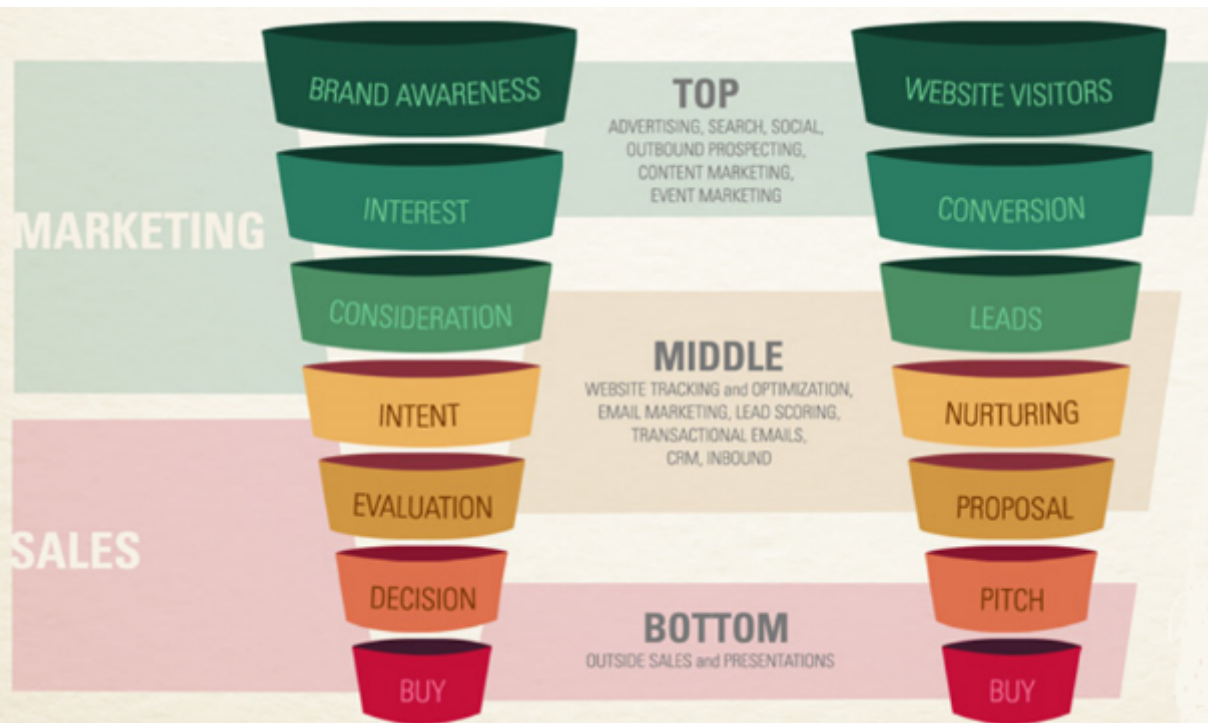
# Order: Build Top Down and Bottom Up



Ensure employees, from the CEO down to plant workers, see the same information, aggregated at levels aligned to their responsibilities.

- Singing different parts off of the same sheet music

# 2017 Vertica Enabled Applied Analytics Roadmap



## Growing Revenue

1. 3<sup>rd</sup> party data provider - based propensity models
2. Lead prioritization/ optimization
3. Product penetration opportunities
4. **Renewal modeling**
  - Leverage existing data set, + renewal
  - Carry forward learning from price segmentation
5. Quit probability

## Protecting profit

1. Image / Text care optimizations
  - Customer identification
  - Pricing
2. **Pricing actions**
  - Implement price test learnings and segmentation – cluster/cell level price recommendations
3. Customer Profitability Roadmap
4. Item Margin Roadmap

Foundational

Product Hierarchy

Variance Reporting

Forecasting/ Budgeting

# What do we get for all of this investment?

- Our ability to quickly iterate through analytic scenarios in our sandbox and then take action at scale in our warehouse have enabled the following programs to be implemented.
  - Contract Renewal Guidance
  - Together In Growth – Customer Service
  - Pricing Guidance
- Shine the light and they will come – Hawthorne effect
- Together these programs are contributing to a 3% uptick in revenue that we expect to continue to realize going forward. As we further tweak the programs we expect this to grow another 1-2%.
- ROI on our EIM investment at the end of 3 years is projected to be 1.5x



If you have further questions please feel free to contact one of us:  
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