

Big Data is now a proper noun

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Introduction - Optum

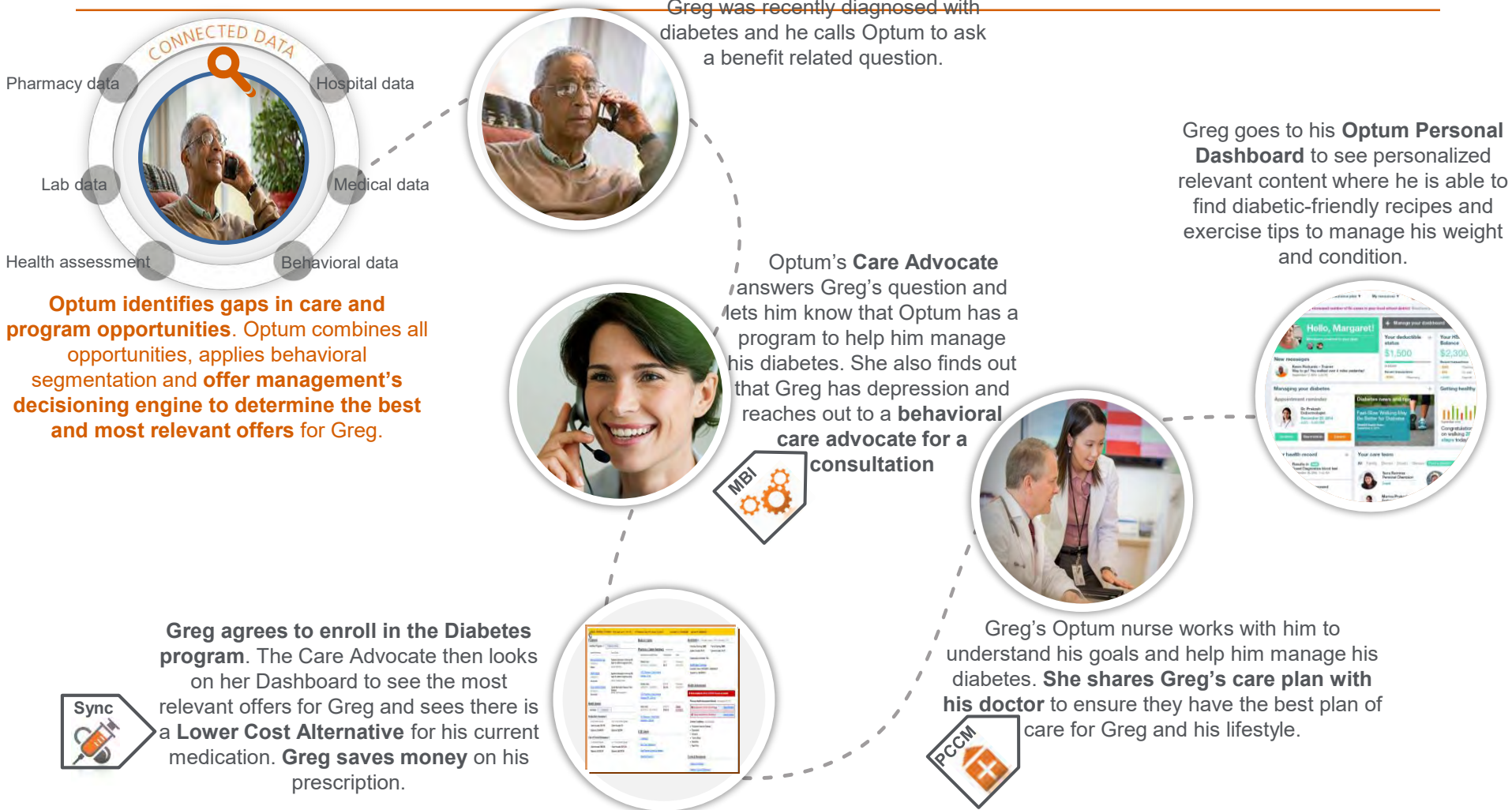
- Largest (by far) health services company in US, probably the world.
- Parent company 2015 revenue \$157B , Optum \$67B.
- Exploiting the convergence of data and care models
 - Outreach and Wellness Programs
 - Contract Claim Processing
 - Pharmacy Benefits
 - Optumhealth Bank (HAS)
 - Revenue maximization
 - General Consulting
 - Direct Care Delivery
 - Optum Labs
- All of this is data driven, and compliant with a myriad of privacy and other regulatory statutes.
- Strong Culture of innovation and “do it yourself”

Some Business Challenges

- Multiple Identities of a constituent
- Data regulations around privacy and retention
- Consolidation of the industry (500 acquisitions over 10 years)
- Untapped value of integrated data

Clinical Synchronization Member Journey

Integrated data enables this experience



Greg is happy. Optum and his doctor see him holistically and consistently and are helping him manage his diabetes condition.

Centralizing Consumer Data to Enable Whole Person Care

TODAY

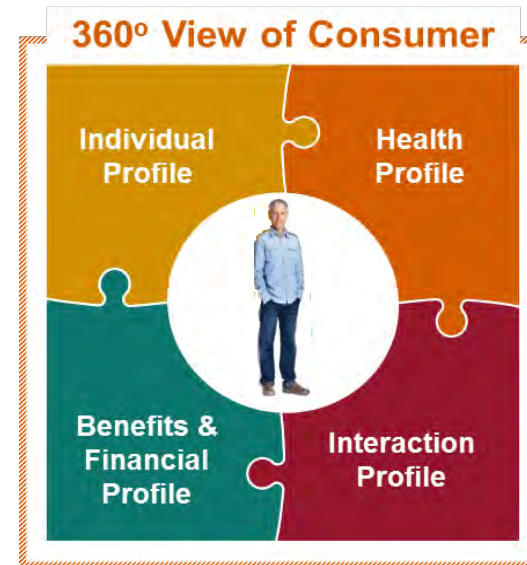
Each project brings in their own data elements into disparate sources resulting in **duplicative capital spend** and decentralization of consumer data. **We cannot get the holistic view of a member**



We do not have a holistic view of the consumer:

- Unable to realize clinical integration
- Client data is scattered across the organization
- Unable to uniquely identify our consumers
- Unable to create a personalized experience

To improve the Consumer Experience and enable Clinical Synchronization, we are delivering the Optum Big Data Platform. BDP will centralize consumer data so we can see the whole consumer, personalize our interactions with them, improve clinical outcomes and reduce medical costs



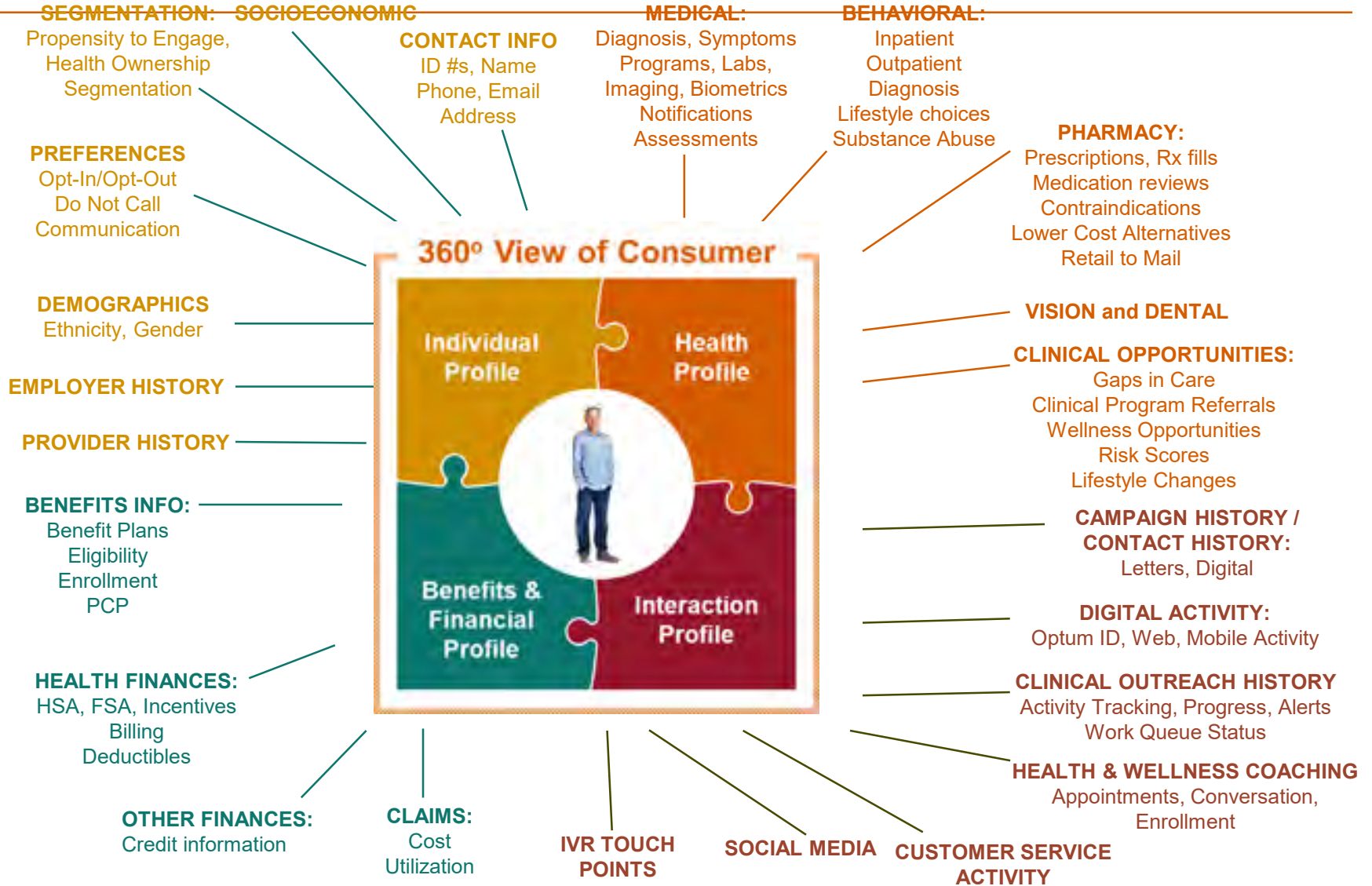
- ↑ Increased Consumer Engagement
- ↑ Improved Clinical Outcomes
- ↓ Reduced Medical Expenses

Multiple activities need the same data! and Consumer Data needs to be in a central location to enable the delivery of whole-person integrated care:

- Clinical Synchronization
- Personalized Optum digital experience
- Patient Center Care Model Technology
- Advocacy
- Offer Management
- Preference Center

Consumer Data Strategy

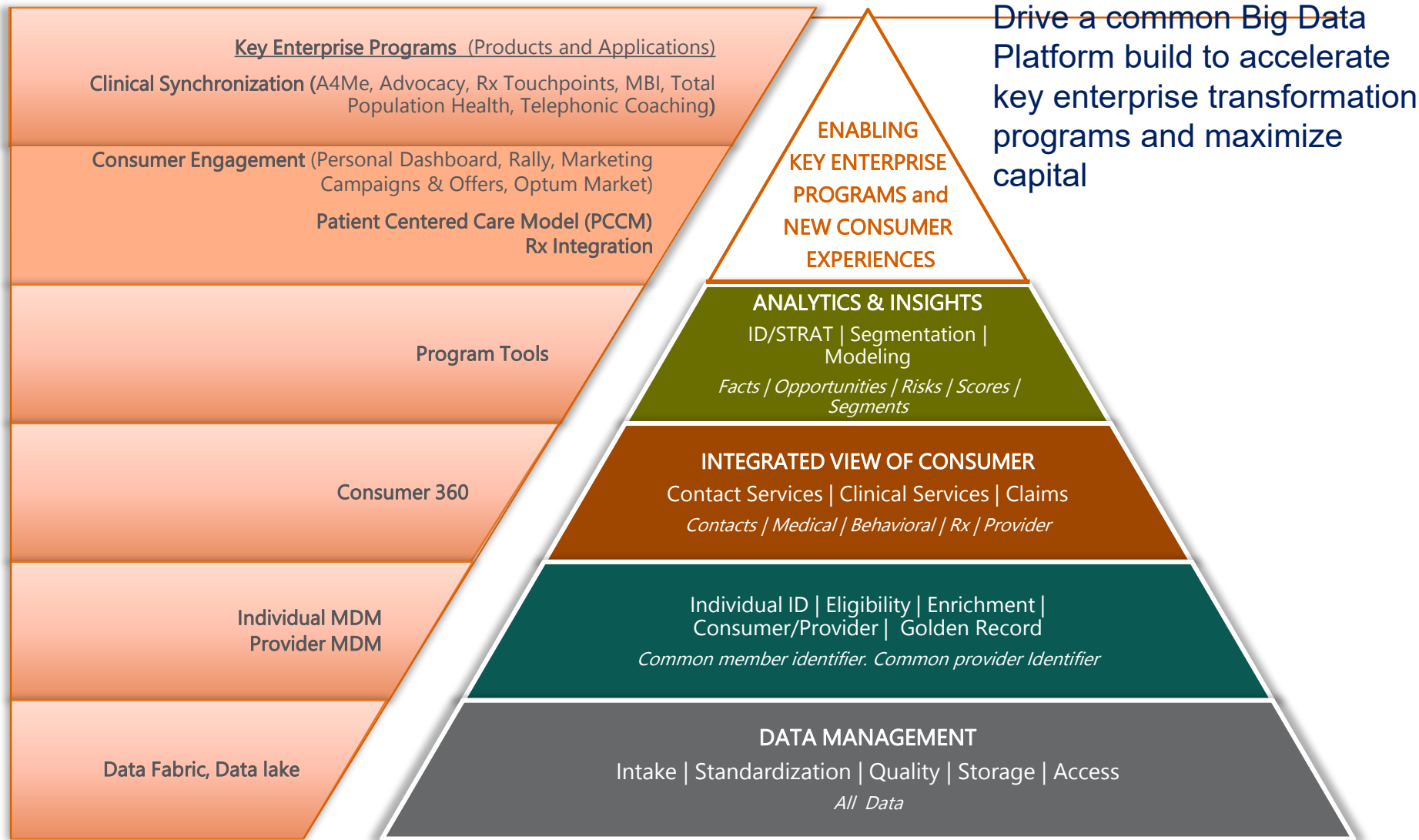
Integrated 360° View of the Consumer



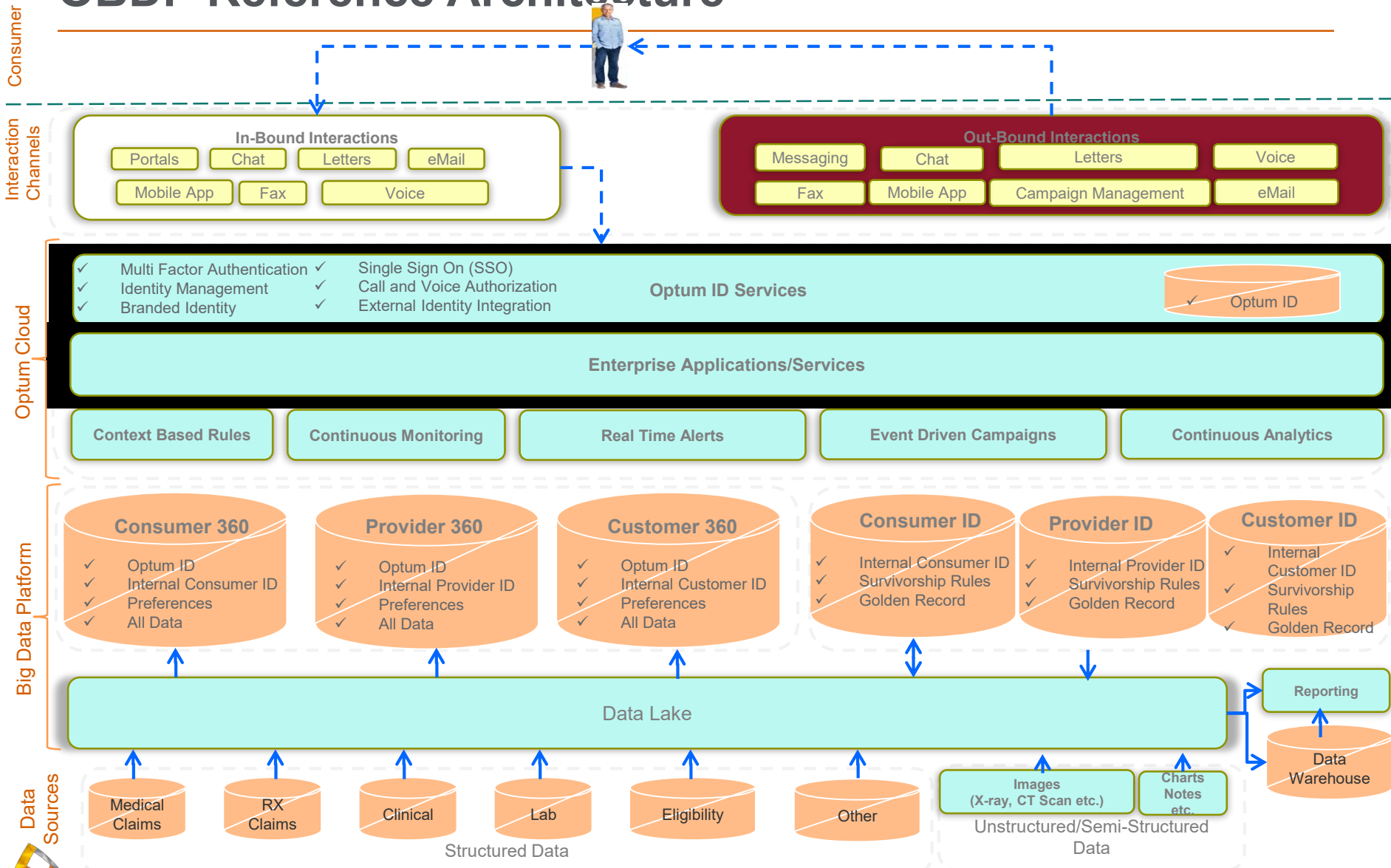
New Solutions – Building the Foundation

- Migrate the hard core analytics to parallel open source systems (Hadoop, Spark, R, Kibana)
- Significant investment in visualization capabilities
 - Detect data quality problems sooner
 - Find lost revenue opportunities
 - Geographically represent cost or other trends
- Deduplication of identities
 - Also called Master Data Management, or “The Belly Button ID”
 - Consistent identifier over the lifetime of the patient or other entity
- Longitudinal and comprehensive consumer data record
 - All ingested data transformed into a canonical model, matched to the MDM, and stored in a data lake
 - Transformed data also stored in a NoSQL document oriented database with data level security.
 - Data can be used for any legitimate need in the organization, such as interventions, gaps in care closure, or the digital experience.
 - Ultimately consolidate over 20 disparate warehouses resulting in reduced complexity, improved customer experience, and lower costs.

Common Foundation Across Transformation Programs



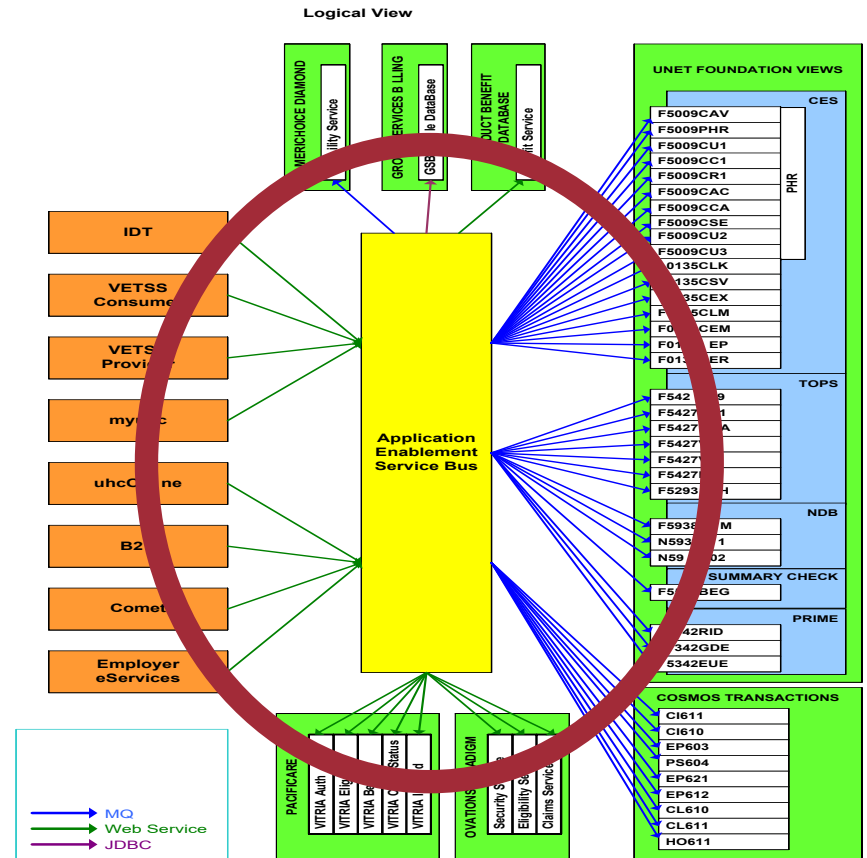
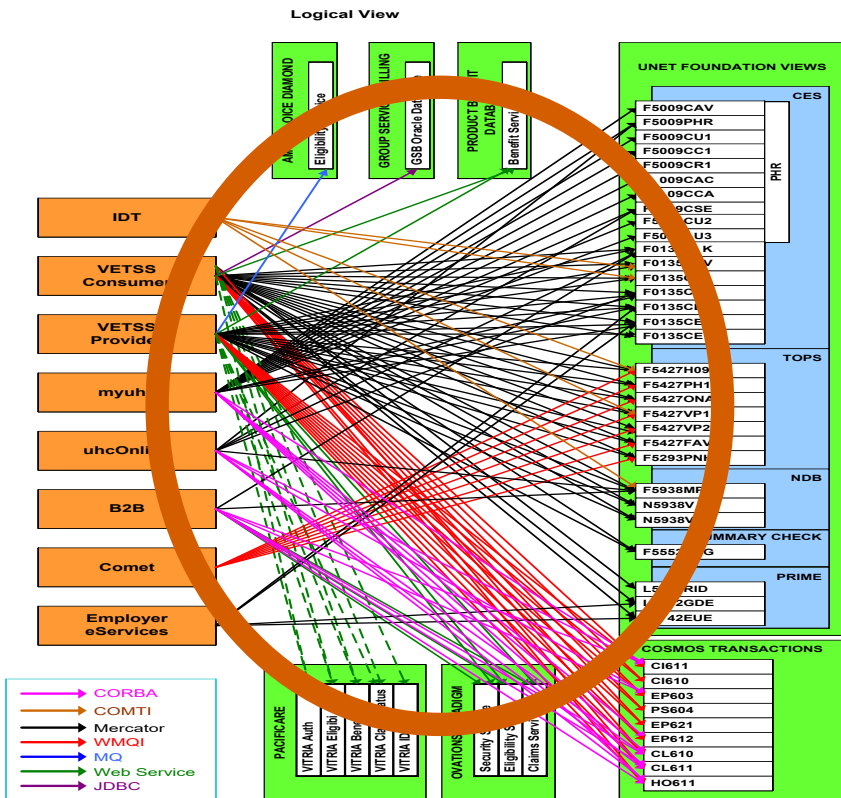
OBDP Reference Architecture



The Enterprise Service Bus is a strong analogy to BDP Value

This program has quietly revolutionized the way we connect systems, with near universal adoption, and substantial, ongoing cost savings.

From: Tightly coupled, point to point, complex



To: Loosely coupled, reusable services and infrastructure