SOA IN HEALTHCARE CONFERENCE
Improving Health Through Technology:
The Role of SOA on the Path to Meaningful Use

July 12-14, 2010, The Westin Arlington Gateway, Arlington, VA USA

SOA in Healthcare

A Results Oriented Approach

July 12, 2010

Agenda

Using a results oriented approach to implement a SOA solution will provide the ability to uncover hidden insights into your business.

- Introduction

- Healthcare and SOA

  - Challenges

- A Results Oriented Approach

  - Discovery and business engagement
  - Focus on data collection

- Transforming the business

  - Improving operations
  - Improving customer service
  - Proactively managing health

Introduction: Project Overview

The project is in the 2nd phase of a multi-year SOA implementation. In 18 months 30 services were implemented to fully connect the health insurer's systems and provide the foundation to improve their business.

- **Business Driver:** The SOA implementation, part of a larger migration from a legacy system to a new integrated health management system, was driven by several business goals.

  - Improving the customer & employee experience by advancing channels functionality
  - Consolidating disparate data sources to present users a "One Question, One Answer" solution
  - Decreasing the operational cost of maintaining business logic in multiple applications, each of which required unique development skill sets

- **Service Coverage:** cover all business aspects of the organization

  - membership, claims, contracting, eligibility, benefits, and finance.

- **Service Consumption:** Services are consumed by various applications supporting Customer service call center representatives, Online web users and EDI.

Introduction: Project Overview

- **Transaction Load:** The Integration Layer handles over 200,000 calls per day to return critical healthcare information for over 600,000 members. 2nd Phase will increase the call volume to over 1m calls a day.

ESB Usage* by Channel

ONLINE
CALL CENTER
IVR
HIPAA EDI
BATCH TXN

0% 2%
7%
11%
5%
5%
70%
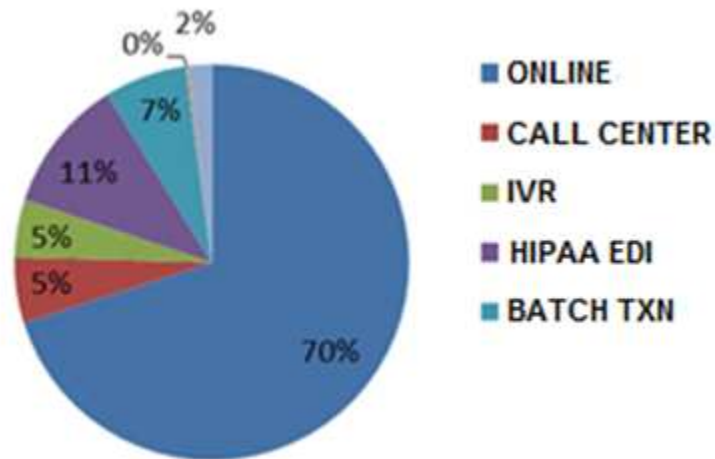
* 789,556 Transactions in this weekly sample

Quick Stats	
Number of Services	30
Number of output Elements returned	1017
Average Elements per service	34
Total Design, Build, Test Effort	35,000 hrs.
Average Effort Per Service	1,200 hrs.
Average Effort per Element	34.41 hrs.
All figures approximate. Effort does not include 25,000 hours for environment configuration, set up, stabilization etc.	

- The EAI layer is also responsible for implementing all business logic, security, and authorizations.

Healthcare is complex

Healthcare is struggling with the burden of legacy systems and solutions, just as the industry is poised to undertake a major transformation. The legacy systems are slow to adapt, and the web of disparate systems makes gather information impossible.

- **Healthcare is complex**
  - The natural state of healthcare is to grow in complexity
  - ICD-10 introduces ~3000% more data than ICD-9

- **The complexity chokes the business**
  - Over the years it is impossible to tell if the business is driving technology solutions or if technologies are limiting the business

- **SOA can provide clarity**
  - SOA can manage that complexity and deliver the results and insight necessary to allow business leadership to connect with the solution and appreciate it's value
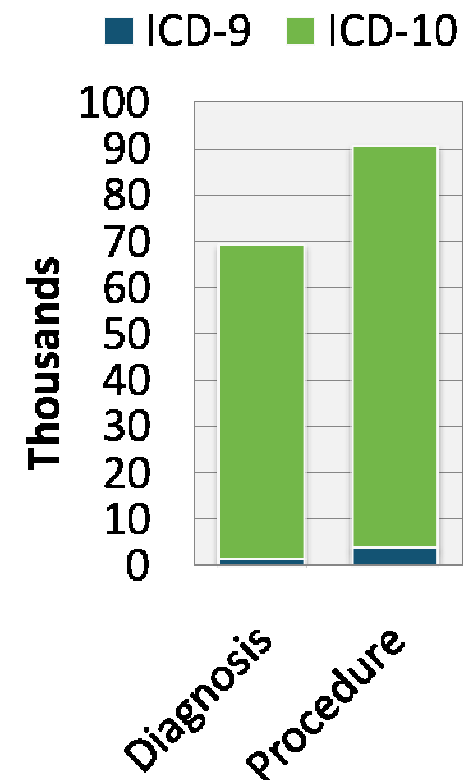
SOA: Typically a Technical Solution

'IT Folks' understand the short and long term business values of SOA but the business perceives SOA as a technical implementation. The challenges that SOA deals with are mostly technical in nature, and the benefits get easily overshadowed. As such, the business has a hard time associating real value with the investment.

- **Limited Business Engagement**
  - The biggest barrier to SOA adoption are non-technical issues related to insufficient business involvement in service identification and prioritization.
  - Architecture teams find it difficult to establish effective strategies for business to adopt the framework as comprehensive models of the SOA business value are lacking in the market place.

- **Business perception of SOA**
  - Service-Oriented Architecture is perceived by the business as another application that tackles technical issues.
  - EAI by its very nature shields the backend systems from the business and becomes the central cause for any failure – thus incurring the wrath of the business even when a break down occurs due to an unrelated cause like 'cable failure'.
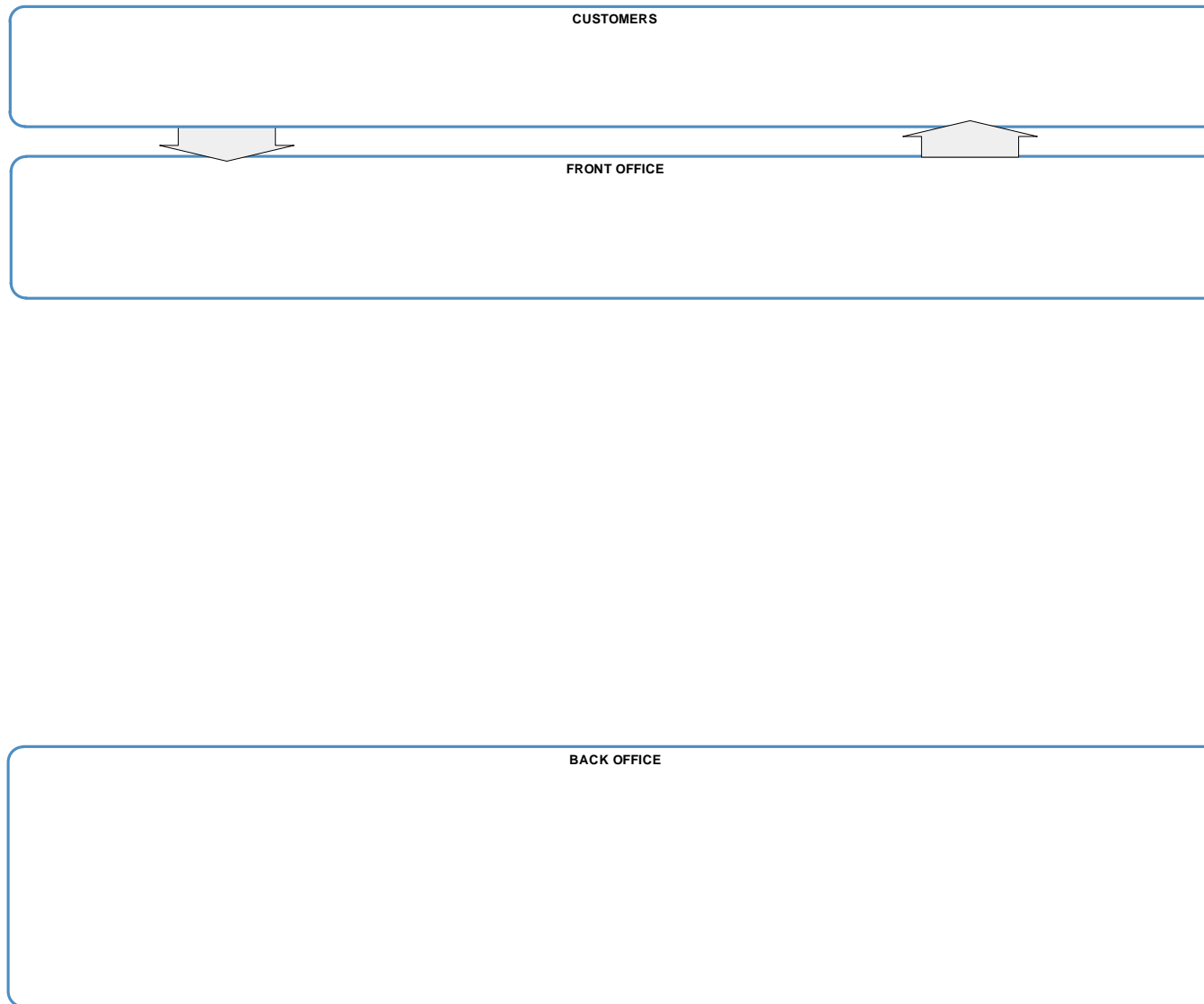
SOA: Finding the Business Connection

By capturing data and providing the business with insight previously not available, a result oriented SOA solution is 'well liked and adopted' by the Business as they can see results that directly affect their day-to-day operations.
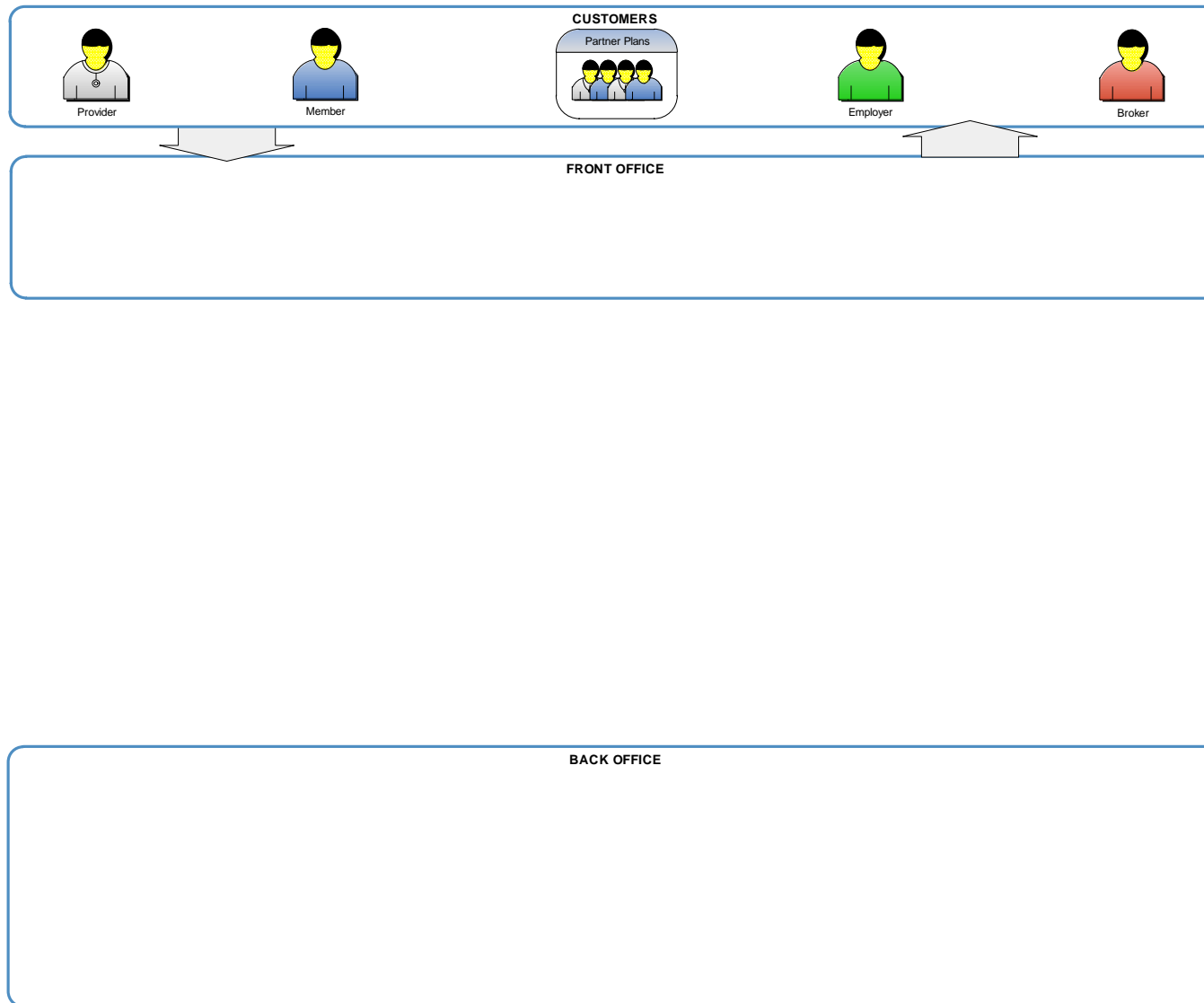
- **Business perception of result oriented SOA:**

    - Once SOA can provide concrete data-driven insight into their operations, the Business can begin to appreciate the solution, and understand it's value.
    - This moves the perception from an IT driven solution that just reduces IT costs, to a solution that will allow the business to improve their operations.
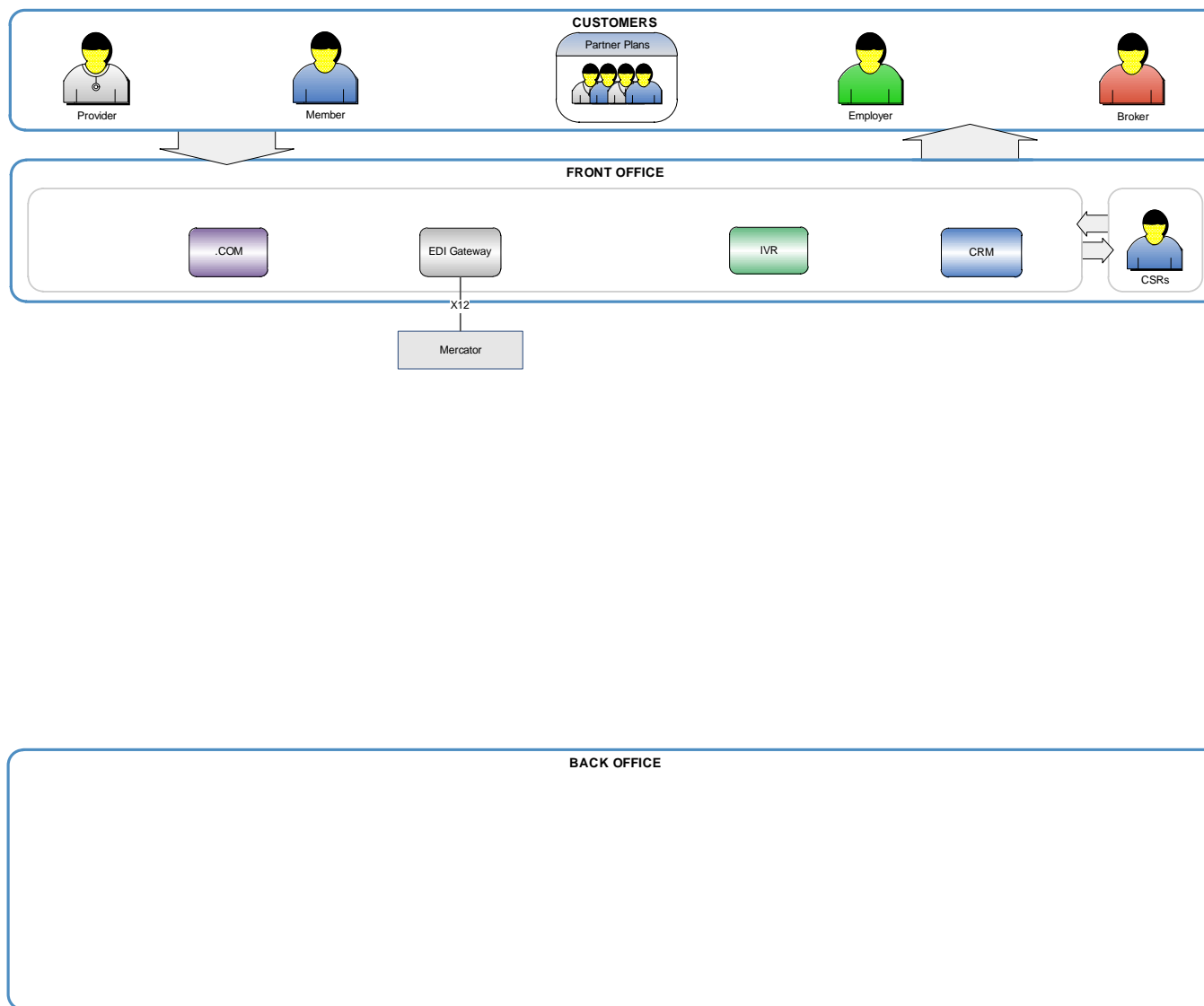
- **Business value of SOA:**

    - Offer the business insight into data that was previously unavailable involving member and provider touch points.
    - Provide in-depth information regarding system usage by various customer segments and lines of business
    - Provide the data necessary to improve
        - Internal operations
        - Customer service and hence customer experience and
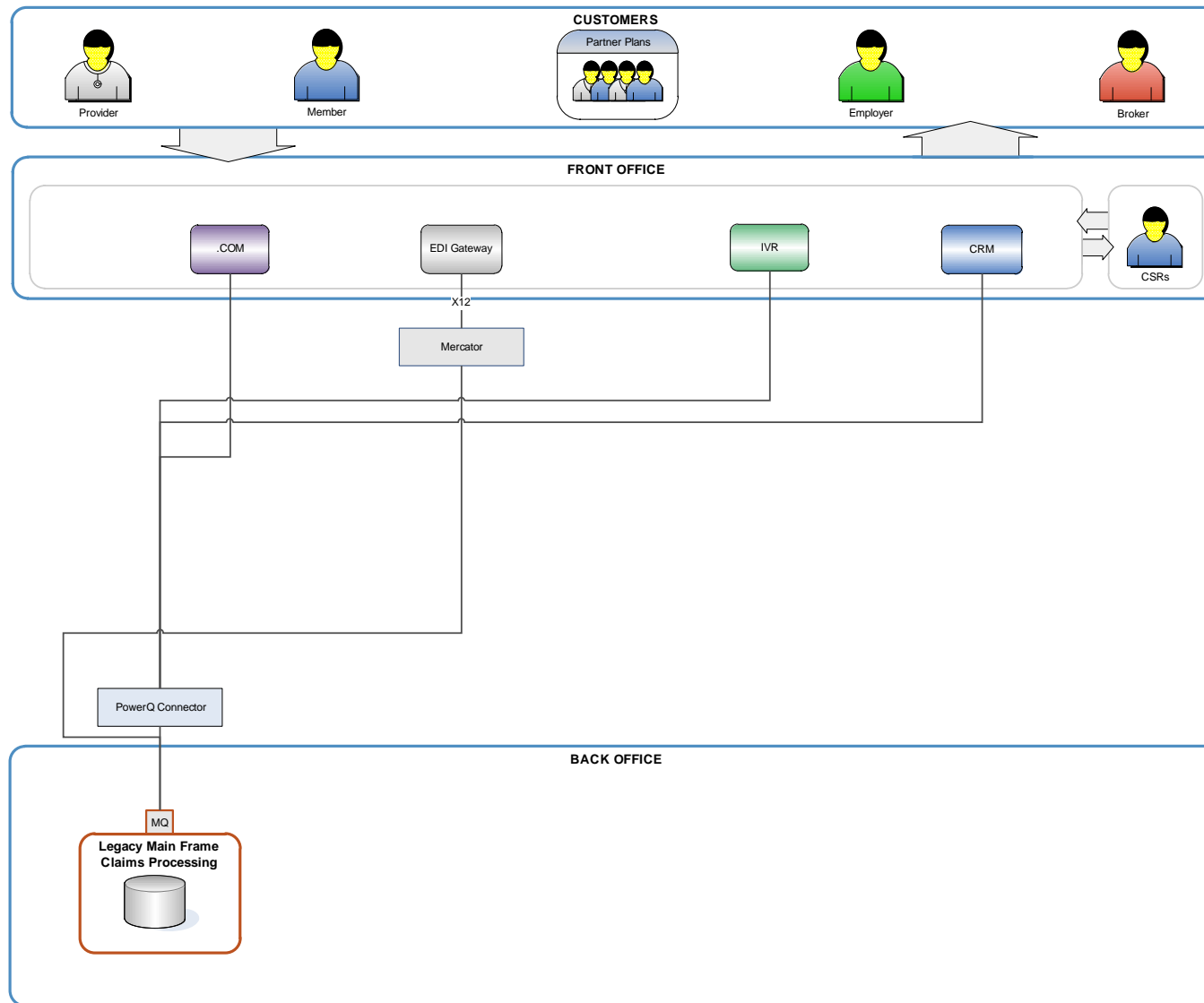   - Proactively manage health

Business Engagement

As we moved through discovery, it became apparent that we could move from a purely technical challenge to a solution that could deliver real business value through providing visibility across disparate systems.
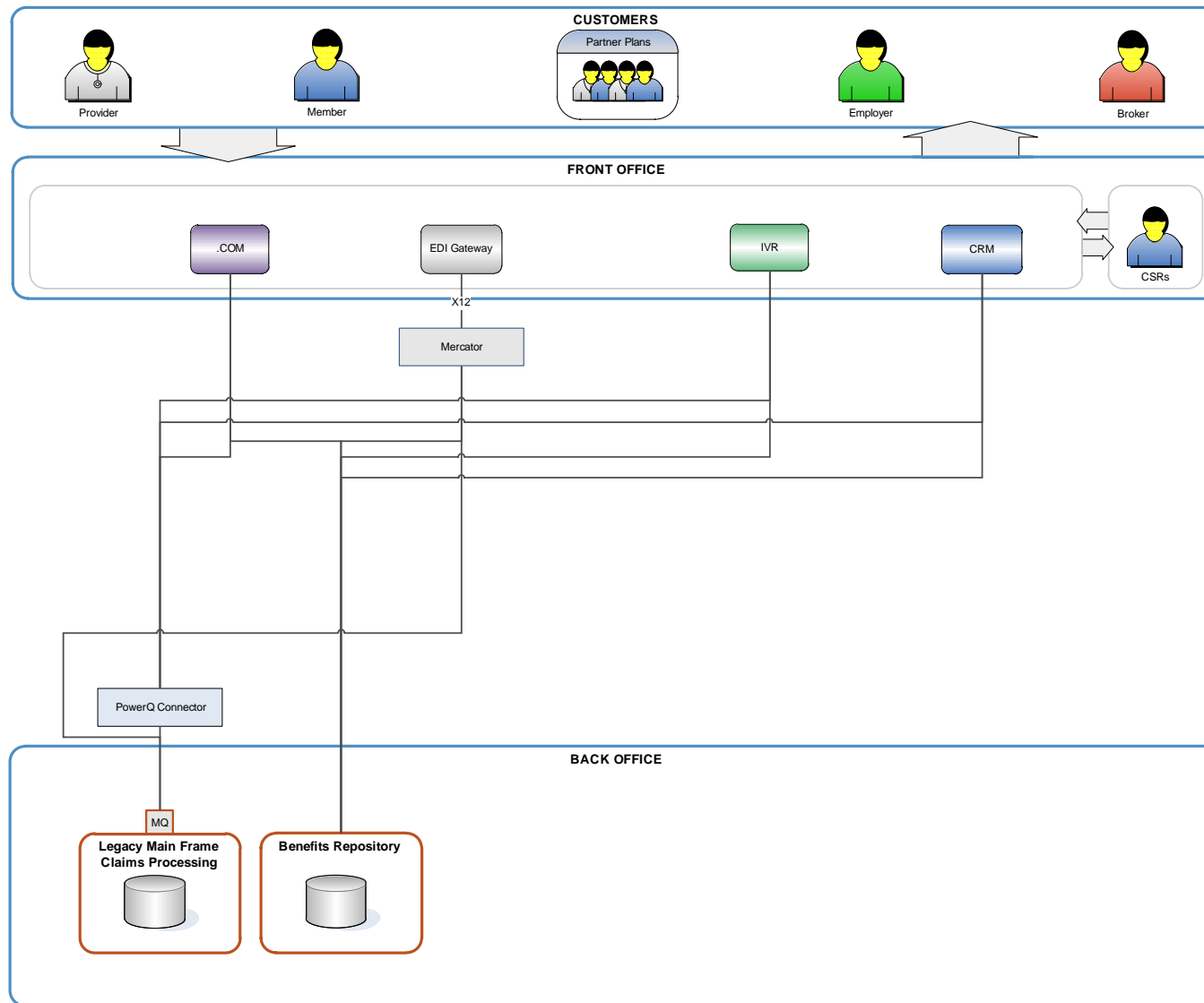
- Discovery
  - Early business engagement matters
- Simple objective
  - We started with an SOA integration layer connecting frontend applications to the backend processing engines.
- Complexity grew
  - The complexity of the problem increased as each auxiliary system was discovered
- Opportunity presented itself
  - It became apparent that the business had neither visibility into the number of different systems a Member / Provider interacted with nor had the ability to review and analyze the profile of these interactions.
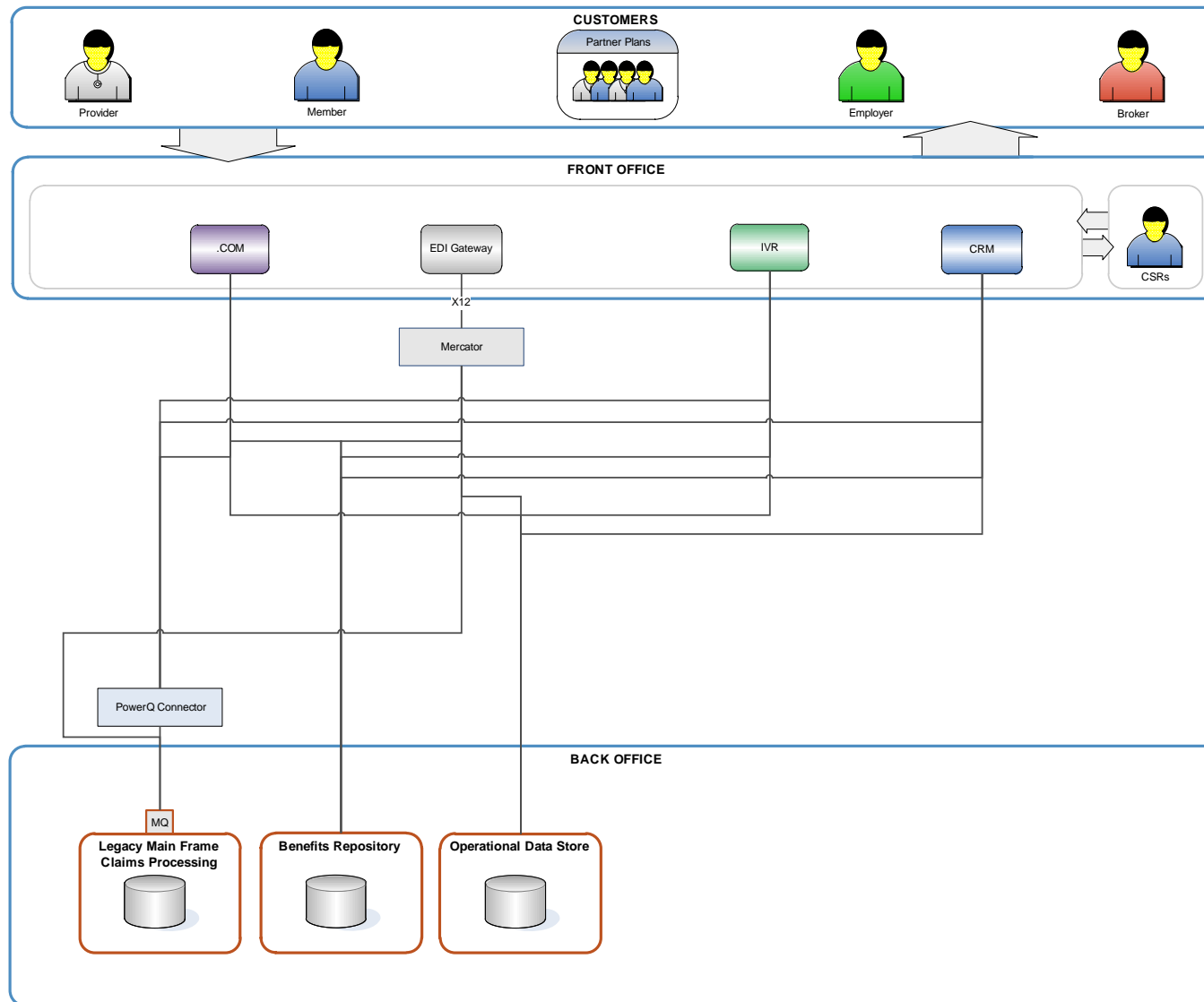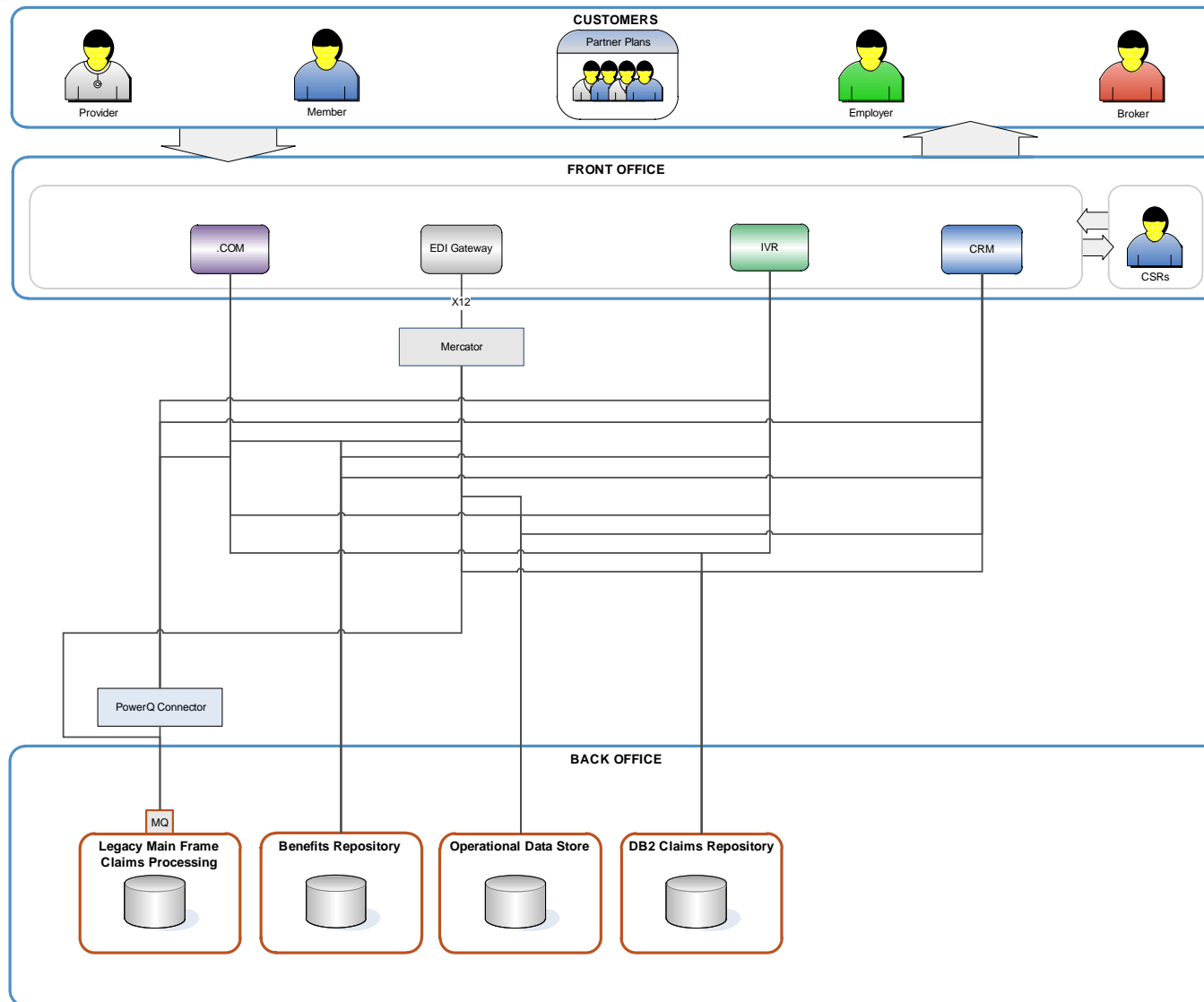
Discovery

CUSTOMERS

FRONT OFFICE

BACK OFFICE

Discovery

CUSTOMERS

Provider

Member

Partner Plans

Employer

Broker

FRONT OFFICE

BACK OFFICE

Discovery

CUSTOMERS

Provider   Member   Partner Plans   Employer   Broker

FRONT OFFICE

.COM   EDI Gateway   IVR   CRM   CSRs

X12

Mercator

BACK OFFICE

Discovery

Discovery

Discovery

Discovery

CUSTOMERS

Provider | Member | Partner Plans | Employer | Broker

FRONT OFFICE

.COM | EDI Gateway | IVR | CRM | CSRs

X12

Mercator

PowerQ Connector

BACK OFFICE

MQ

Legacy Main Frame Claims Processing | Benefits Repository | Operational Data Store | DB2 Claims Repository
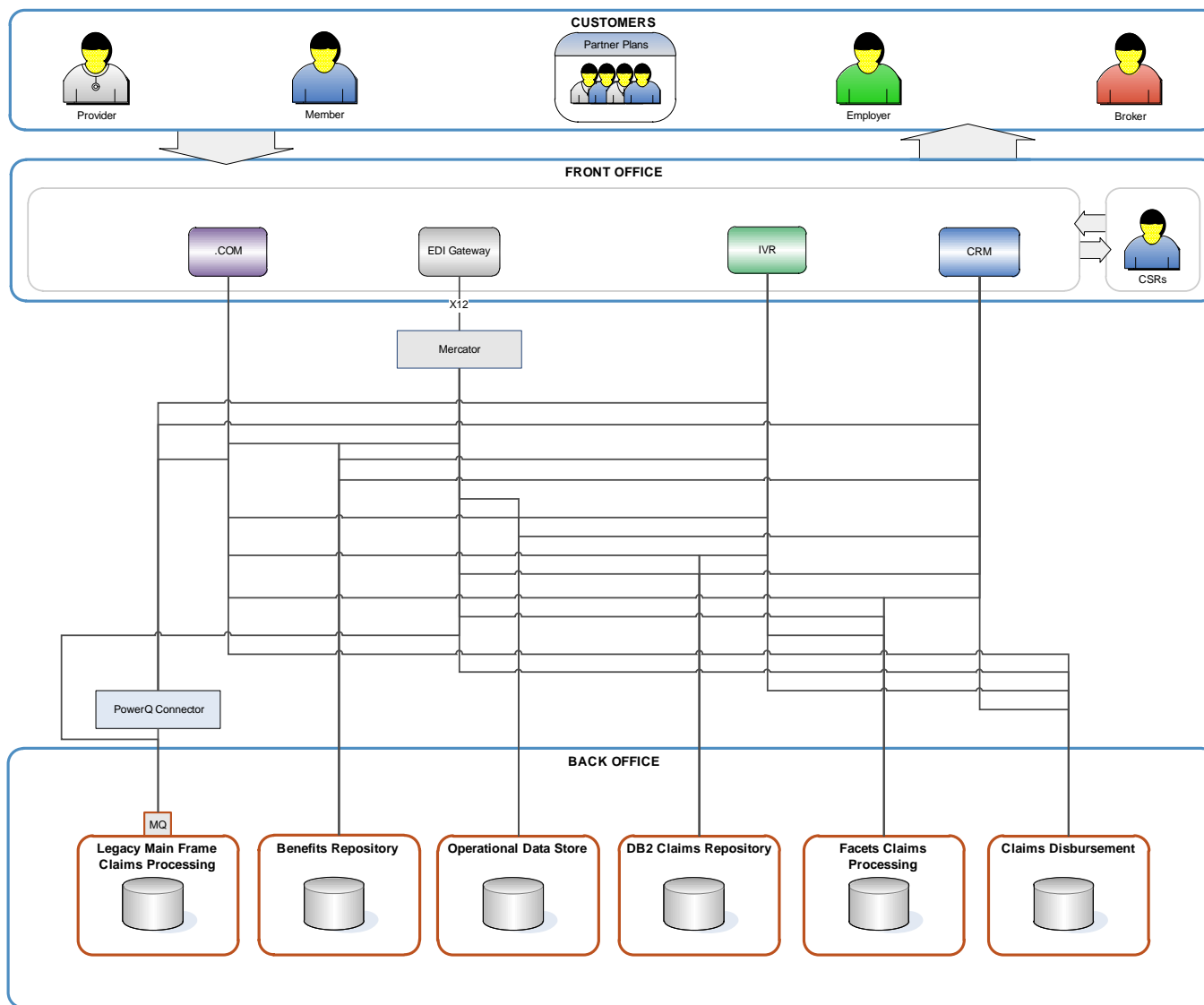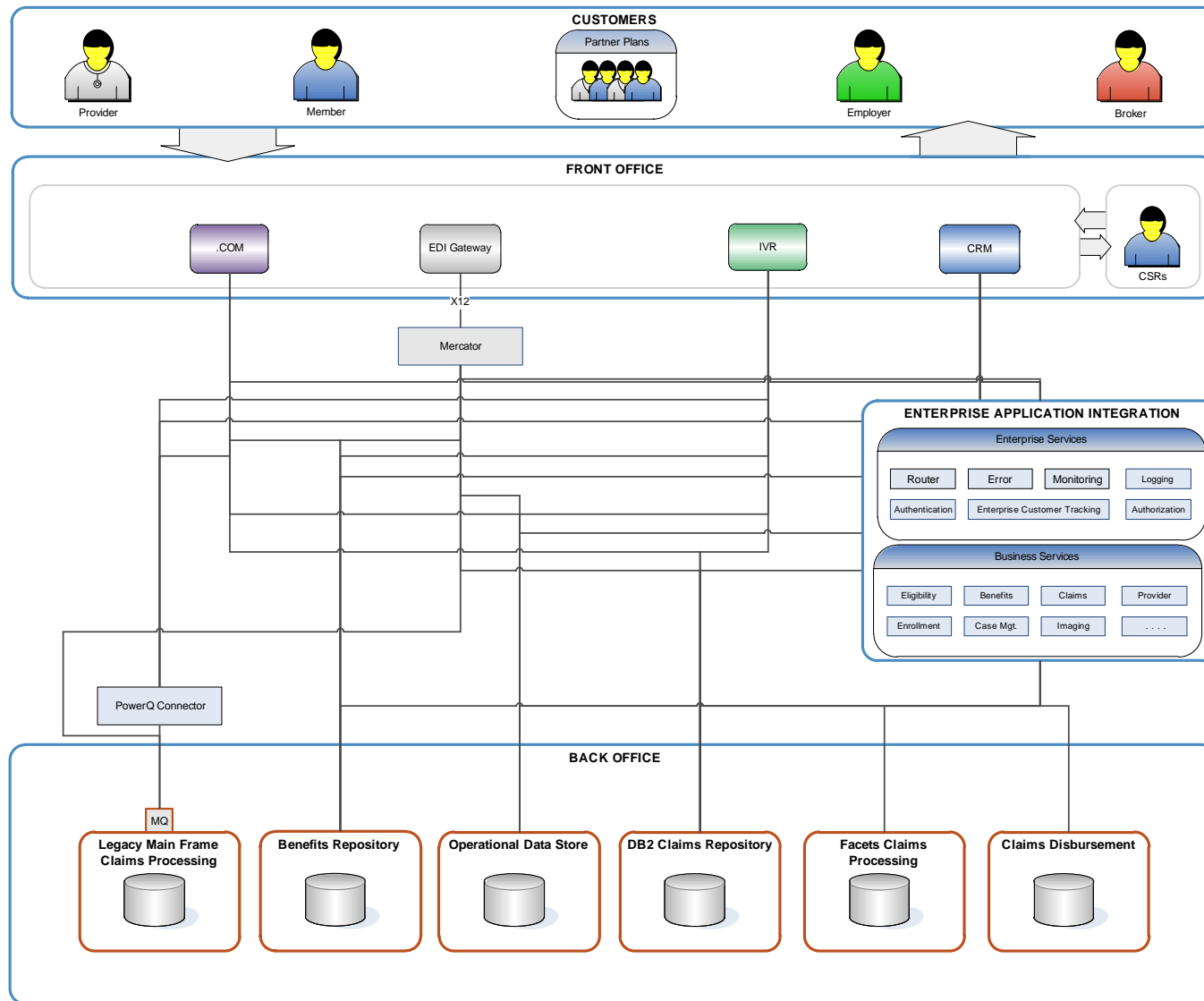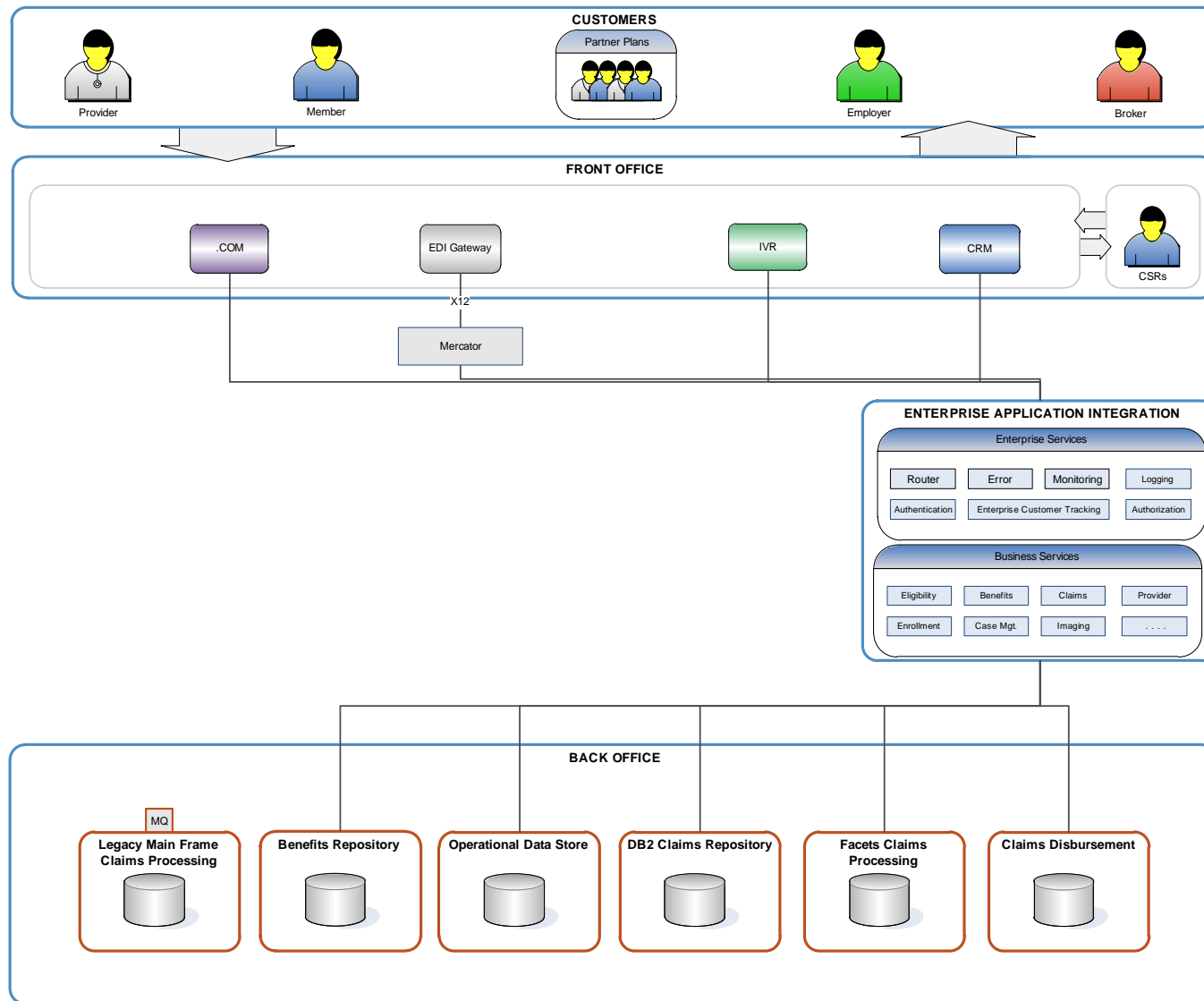
Discovery

SOA Solution

SOA Solution

Data monitoring

To adequately monitor and store the data moving through the system, the SOA solution must have the capability to answer a number of key questions.

- Analyze the Core Business
  - Correlate the business needs with key touch point metrics specific to the organization
- Analyze Backend System Data
  - Identify business data elements that can to be monitored and captured by the SOA solution.

- The SOA solution needs to answer the following questions
  - What is the information being sought?
  - Who is seeking this information?
  - Which application and backend systems is used?
  - What is the response information being delivered?
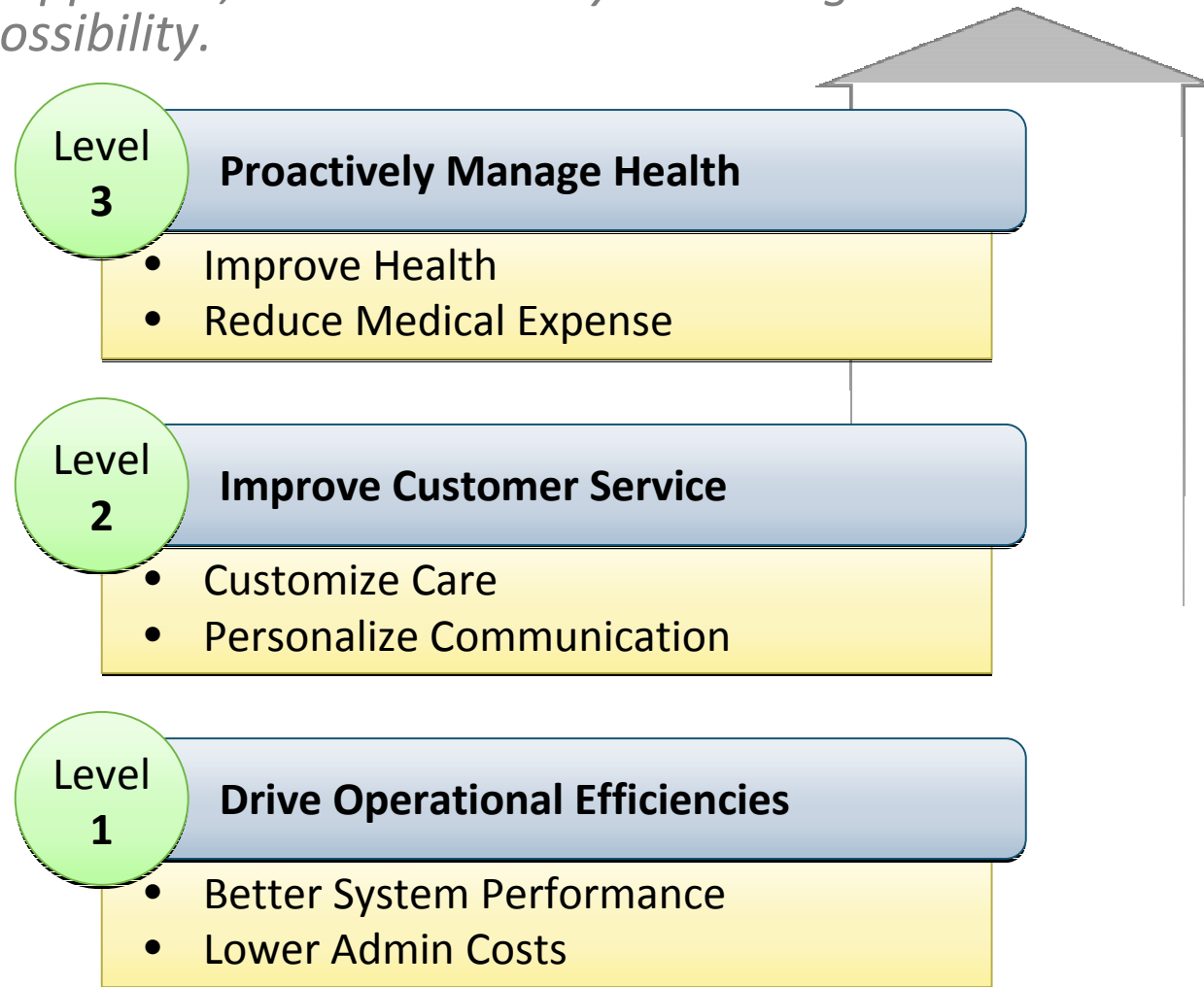
The data provides insight

The SOA implementation provides insight into the organization's operations in ways previously unavailable.

- Pre Implementation
    - Limited and siloed view of system usage
    - No holistic view of user activity across touch points.
    - No visibility on type of information was being looked up (Benefits, Claims, Membership etc.)
- Post Implementation
    - Member & Provider look up can be traced across channels
    - Comprehensive view of systems and service usage
    - The frequency of interactions can now be captured across a larger spectrum

- Behavioral data - an extra dimension
    - Data describing the frequency of events can be used to analyze changes in behaviors
    - These changes can often identify trends before more traditional methods.
        - Claims can take weeks and months to get certified.
    - You can act proactively on this information in real time

This insight can transform your business

When behavioral data is captured, operational improvements become immediately apparent, while the ability to manage health in real-time becomes a possibility.

Level 3 — **Proactively Manage Health**
- Improve Health
- Reduce Medical Expense

Level 2 — **Improve Customer Service**
- Customize Care
- Personalize Communication

Level 1 — **Drive Operational Efficiencies**
- Better System Performance
- Lower Admin Costs

Driving Operational Efficiencies

The data can be used to improve operations with individual users, or across channels for a larger impact.
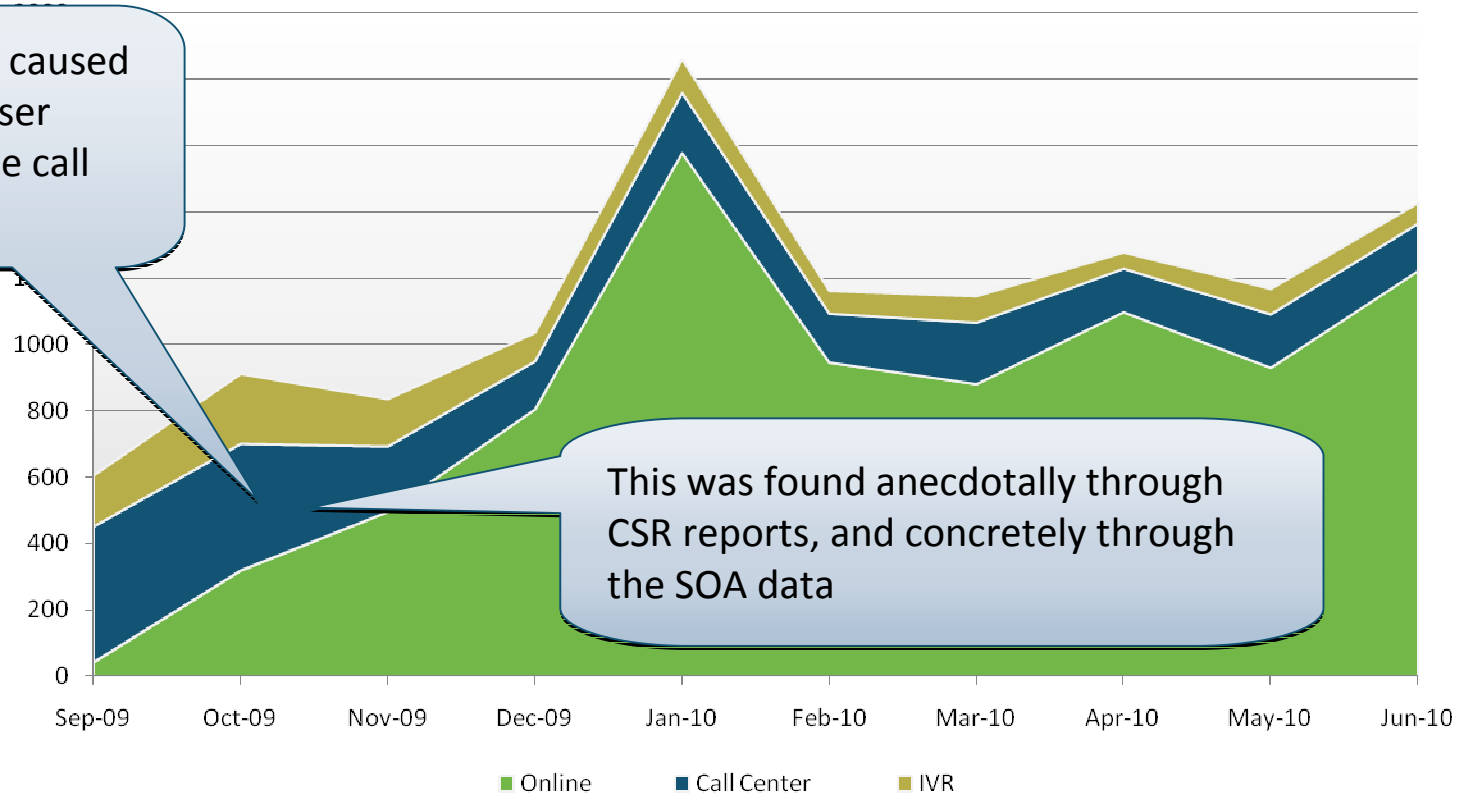
- Anecdotally reports through provider relations, and CSRs can be concretely confirmed or refuted through the SOA data.

- This allows IT to budget precious resources to resolve the highest impact problems.

- Breaking down of issues allows targeted communication to drive results

- An easy to monitor and maintain feedback loop allows for continuous improvement.
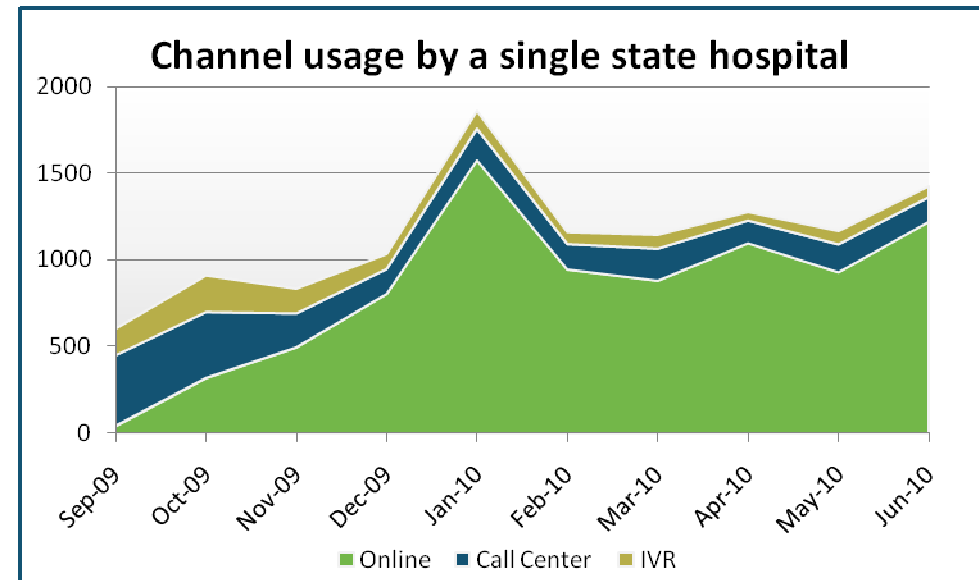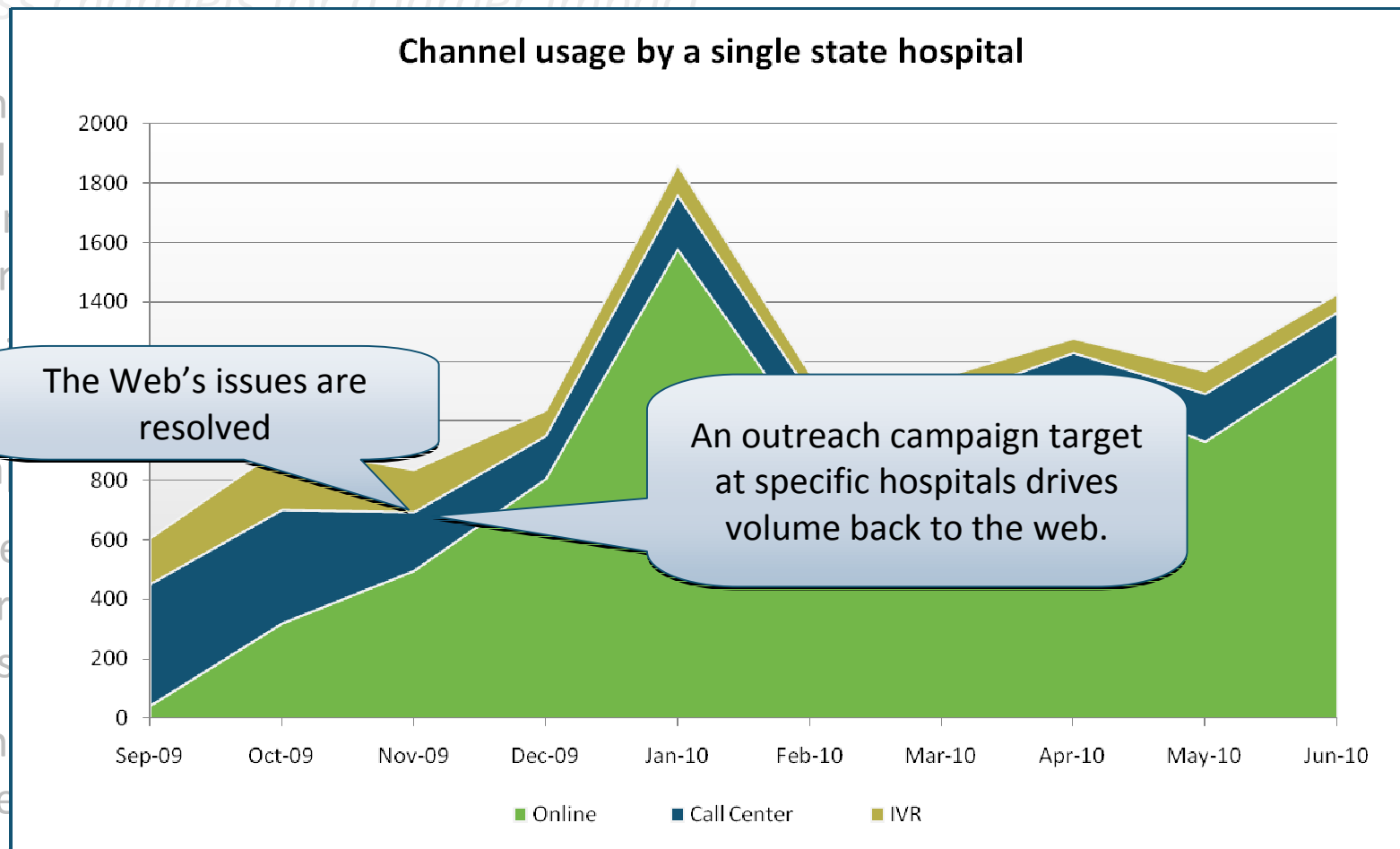

Channel usage by a single state hospital

Driving Operational Efficiencies

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Channel usage by a single state hospital

The Web's issues are resolved

An outreach campaign target at specific hospitals drives volume back to the web.

Driving Operational Efficiencies

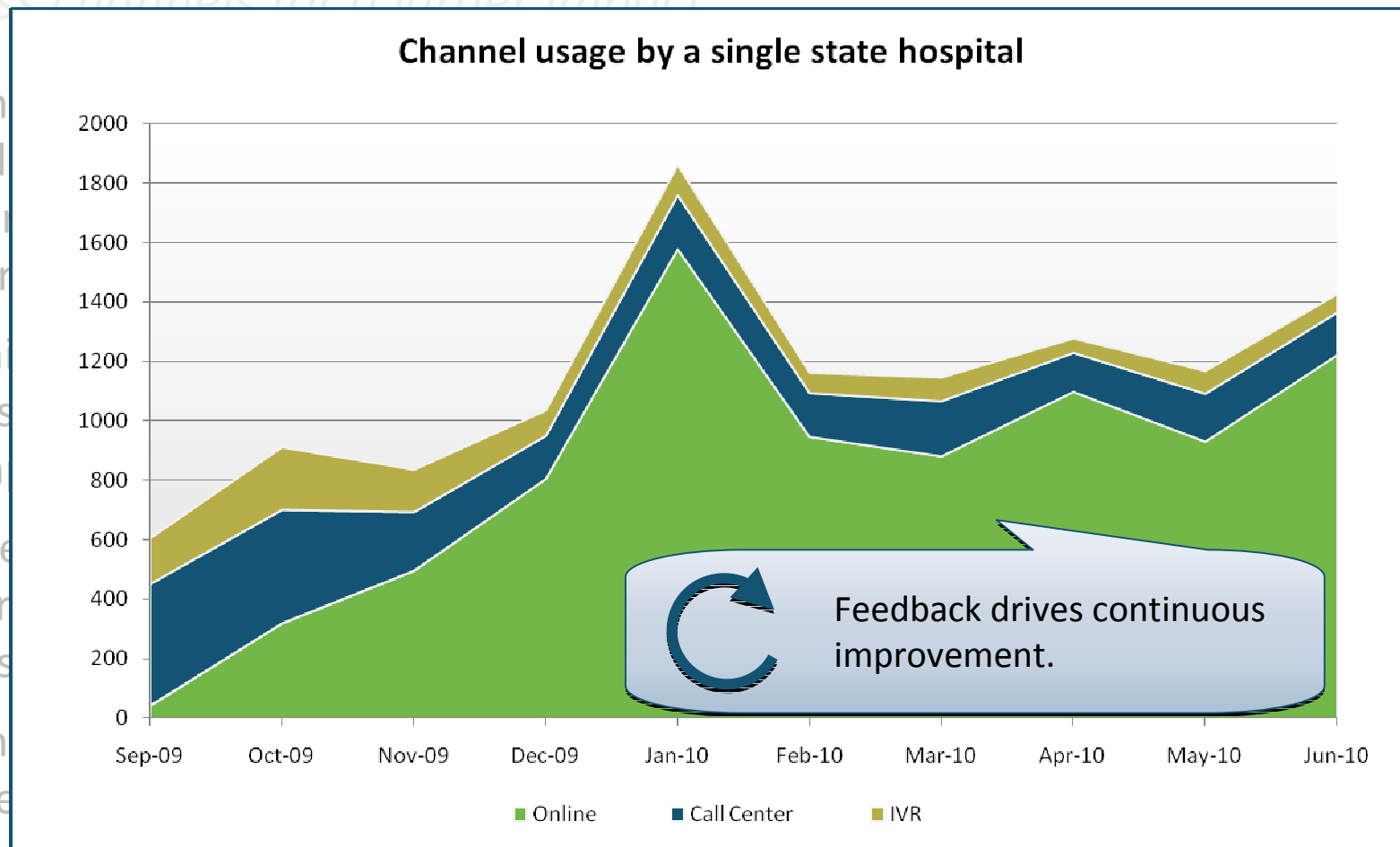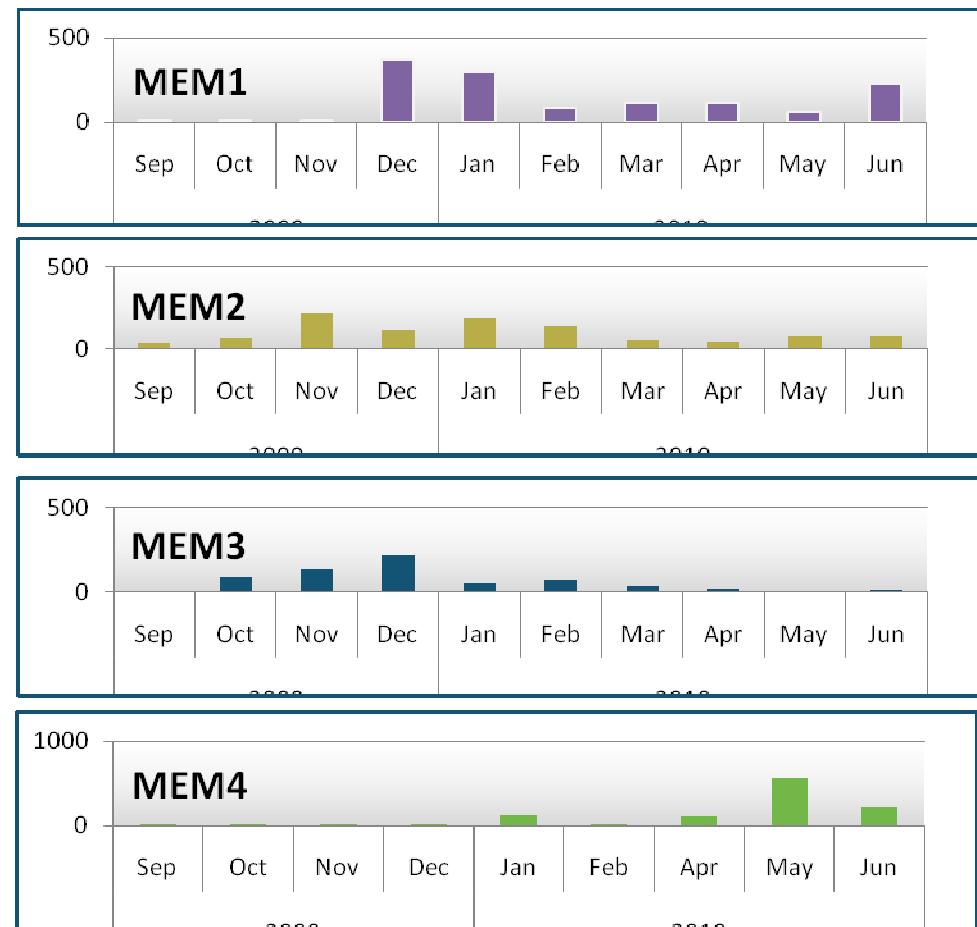*The data can be used to improve operations with individual users, or across channels for a larger impact.*

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Channel usage by a single state hospital

Feedback drives continuous improvement.

Online   Call Center   IVR

Improve Customer Service

With a 360⁰ view of your customers, you can provider a better, warmer, self-service experience. A history of their interactions is readily available allowing you to focus quickly on what is on the member's or provider's mind.

- Personalize communications and customize care based on past history, and current interactions.

- This can be done quickly, at or near the time when a difference can be made, and you have the member's attention.

- This data provides the foundation to personalize content based on real-time interactions.

- Tailor channel content and UI at an individual level across channels
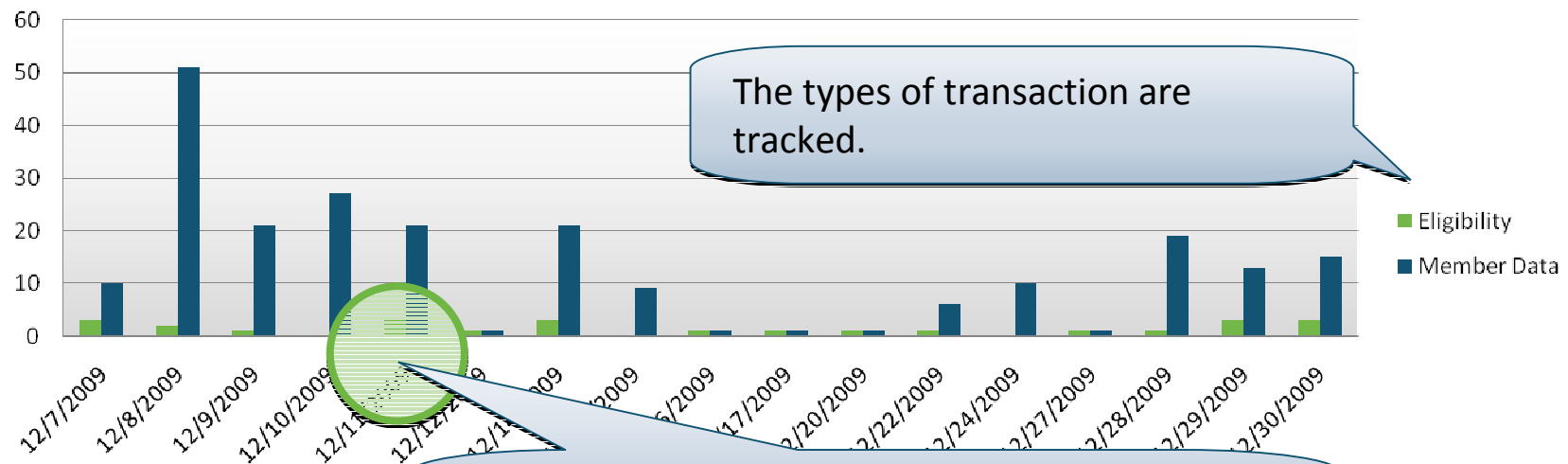
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Proactively Manage Health

Touch points tracked over time, show the frequency of certain behaviors. Changes in these behaviors provide an opportunity to manage a members health in real-time. This provides an additional dimension to the plan's ability to manage a members health.

- Changes in behavior can be used to trigger out-reach calls to at risk members

- Early outreach can help manage health events more effectively

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MEM4: Interactions per Day

MEM4: Interactions per Month

This complex member has regularly scheduled monthly check ups and health procedures.

Proactively Manage Health

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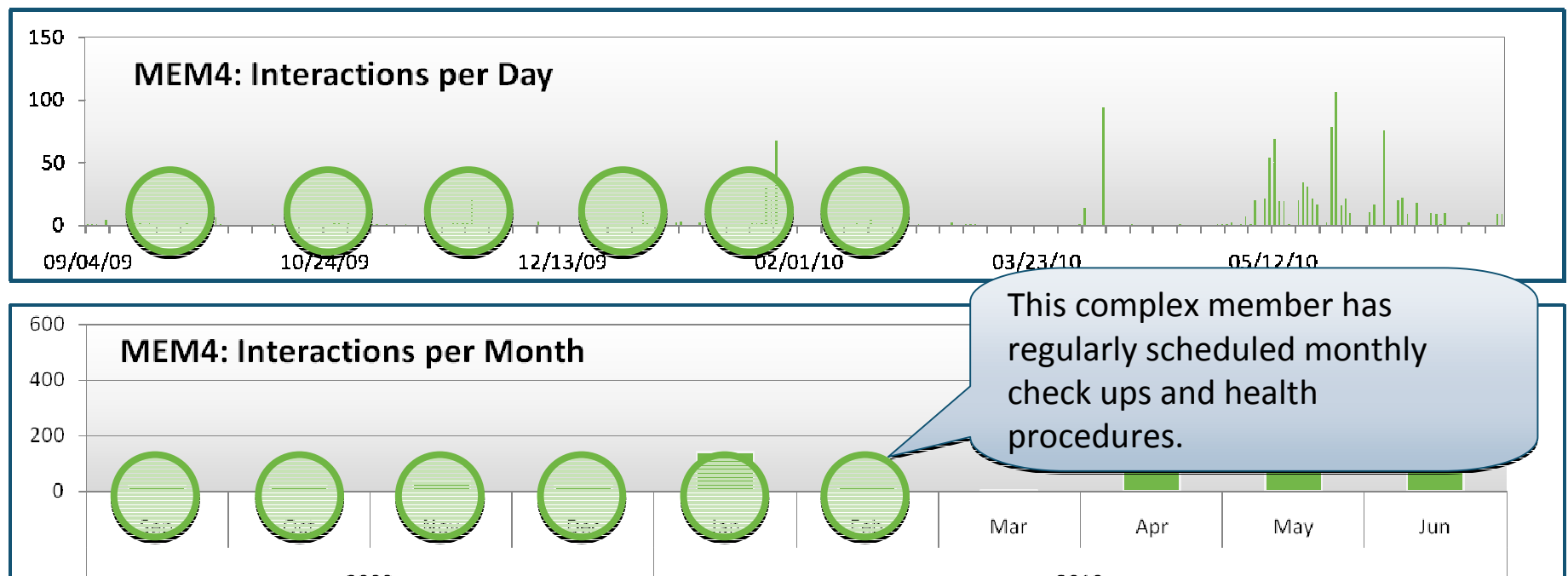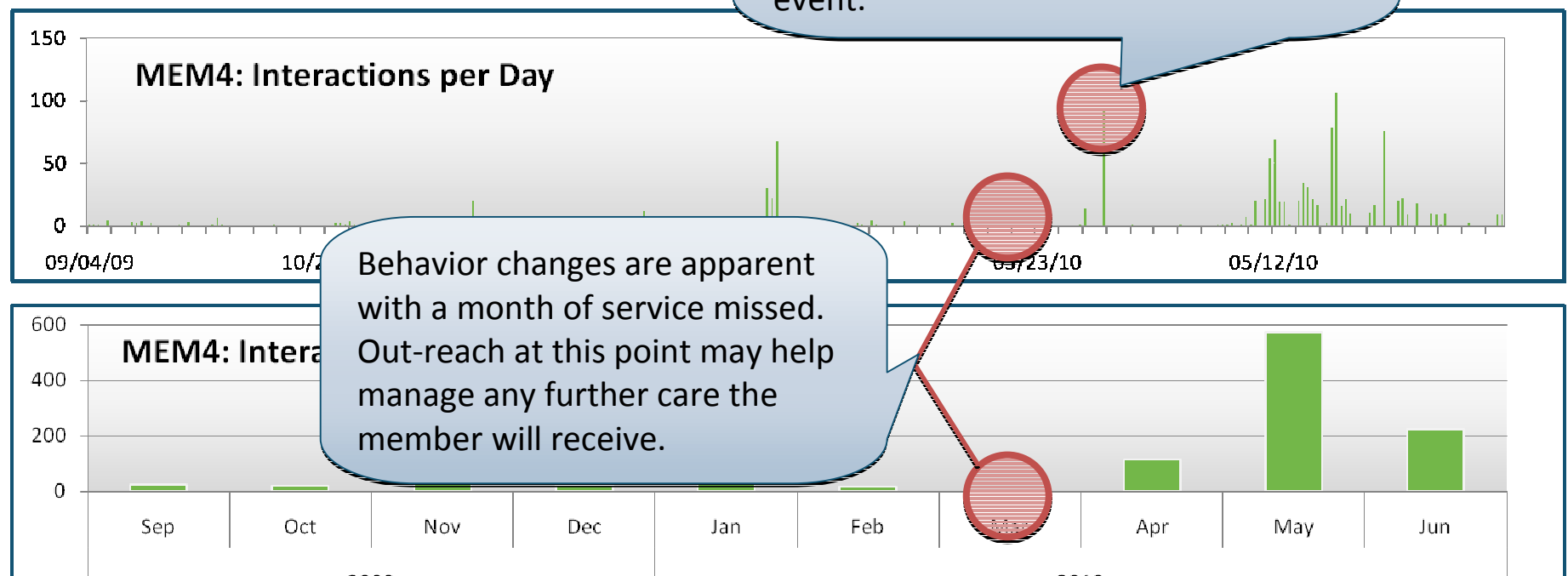
- Changes in behavior can be us... ...o at risk members

- Early outreach can help mana... ...ely

> The missed month is followed by abnormally high peaks of interest in the member. This is another sign that out-reach can help manage a coming health event.

> Behavior changes are apparent with a month of service missed. Out-reach at this point may help manage any further care the member will receive.
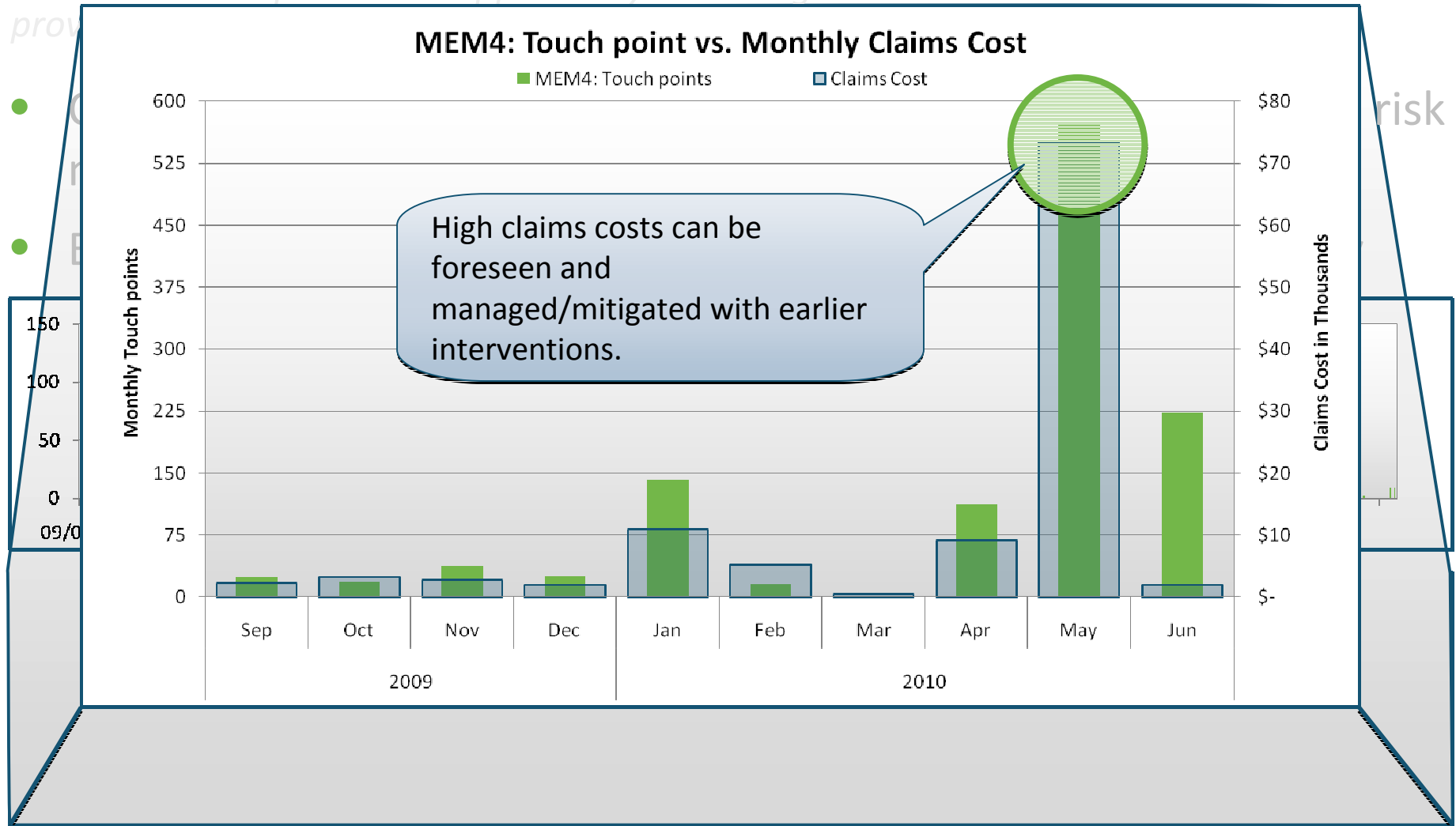
Questions?

About Arcadia Solutions

Who are we?   A healthcare technology consultancy dedicated to helping our clients drive continuous improvement of their businesses through investment in Health IT

Focus   Our emphasis is on optimizing the use of technology and business process to achieve the vision for providers, plans, and payers of optimized, efficient, high-performing healthcare

Background

Founded in 2002, acquired in 2007 by Marquette Technology Companies

Headquartered in Boston, working with healthcare provider, payer & plan clients, Global 2000 corporations

Announcement

Arcadia Service Lines

Provider Solutions

Arcadia works with healthcare provider organizations to improve patient outcomes, drive operational and financial excellence, and ensure the highest possible patient, staff, and provider satisfaction.

- EHR Diagnostics
- EHR Implementation
- Practice Redesign
- Regional Extension Centers
- Management Quality & Outcomes

Arcadia teams with Health plans and Health payers to drive business solutions that address healthcare costs reductions, increasing enrollments, changing legislation & demographics, addressing consumer demands.

- **Business Strategy**
- **Compliance & Mandates**
- **Core Systems**
- **Incentive Compensation**
- **Wellness Programs**

Payer Solutions

Consulting Services

Arcadia engages with Corporations to transform IT and deliver business requirements. Our extensive knowledge enables us to successfully deliver solutions - large or small - in a rapid, effective and cost-efficient manner.

- **Incentive Compensation**
- **Integration & Development**
- **IT Strategy**
- **Program Management Services**

Some Representative Clients

Healthcare Providers

- Children's Hospital Boston — life-changing care world-changing research
- Tufts Medical Center
- 25 WPHCA — Wisconsin Primary Health Care Association — Celebrating 25 Years!
- CPCA — California Primary Care Association
- Signature Healthcare
- Brockton Neighborhood Health Center
- Community Health Care INC.

Health Plans & Health Payers

- Blue Cross Blue Shield of Rhode Island
- Independence Blue Cross
- BlueCross BlueShield of Vermont — An Independent Licensee of the Blue Cross and Blue Shield Association.
- Wellmark. BlueCross BlueShield — You Just Can't Beat The Blues
- NCHC Since 1968
- AvMed HEALTH PLANS
- The Health & Wellness Institute — health management solutions
- TUFTS Health Plan — No one does more to keep you healthy.
- Rhode Island Quality Institute

Consulting

- SunTrust
- Liberty Mutual.
- Aflac. — We've got you under our wing
- Otsuka
- UBS
- SIEMENS
- COVIDIEN — positive results for life
- Ameriprise Financial

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