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Healthcare and SOA

Timothy J Dion
CIO, Sensei
Thursday June 24

Healthcare and SOA

New Tools of Engagement

Sensei

Intro and Overview

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Intro

- Presenter: Timothy J Dion, CIO Sensei Inc
  - 20 year technology executive
  - Focused on use of advanced technology to solve business problems in health care, bio-tech, and financial services
- Sensei:
  - Founded in 2005 with headquarters in Boca Raton FL
  - Creates custom solutions that engage and empower consumers to live better through the use of information systems and mobile technology

Key Points

Mobile technology can revolutionize health care
SOA is a fundamental building block
Use technology to “change” the system

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Health Care 1.0

The Physicians are in Charge

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Health Care 2.0

The Health Care system is in Charge

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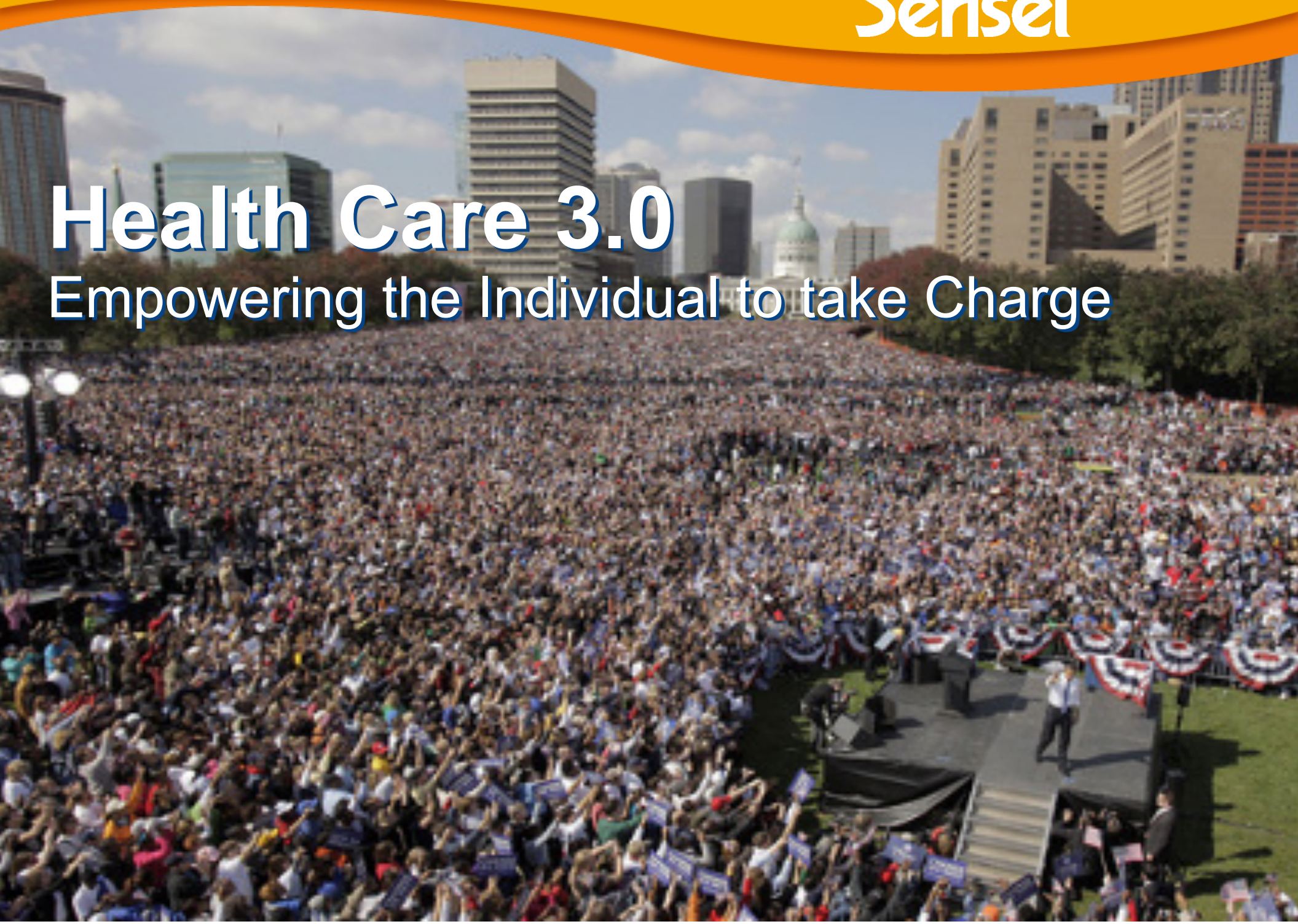
Health Care 3.0

Empowering the Individual to take Charge



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Industry Challenges

Healthcare Challenges

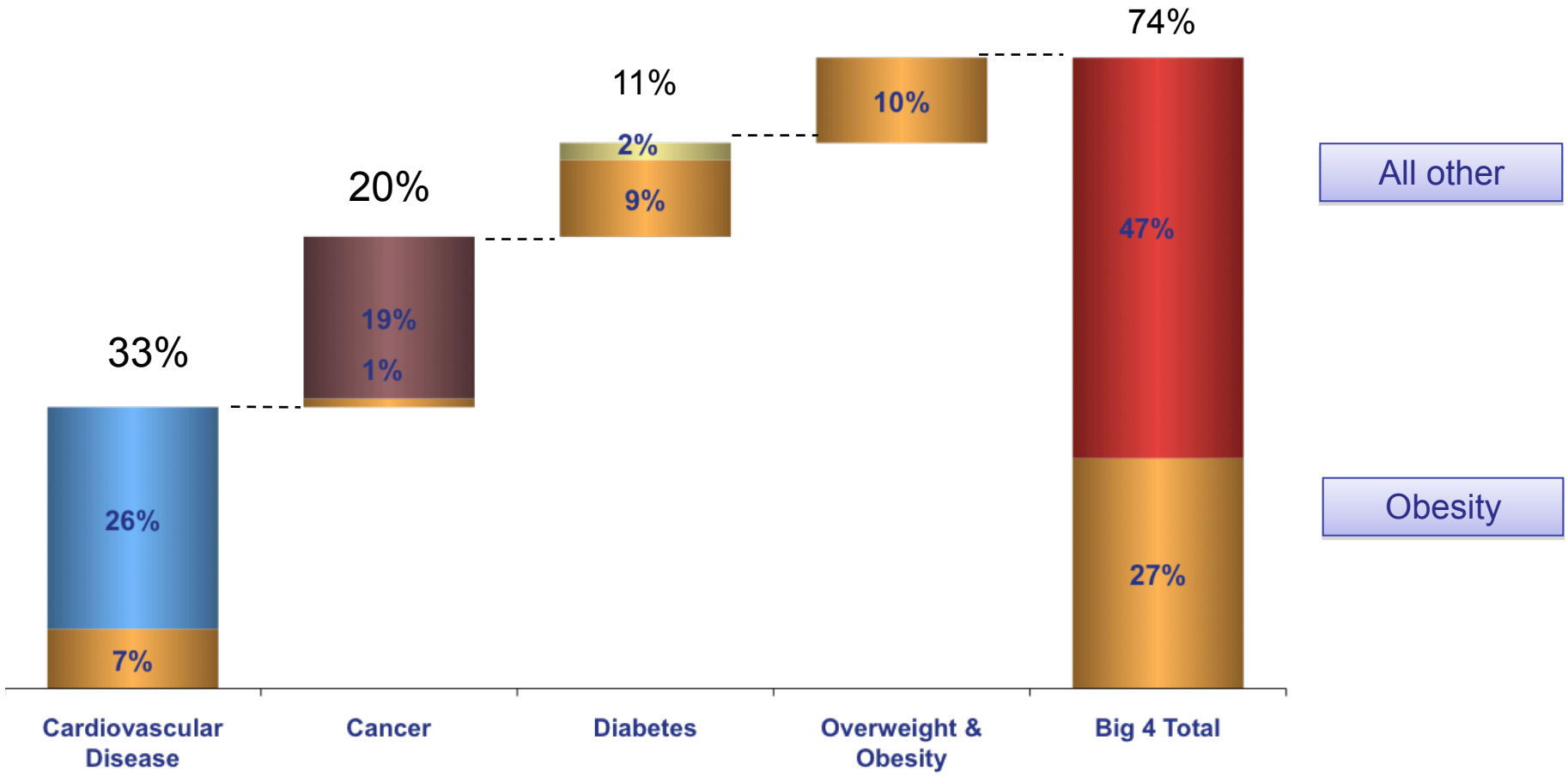
- Uncontrollable healthcare costs
- Increased interest and need for more consumer responsibility
- Healthcare challenges around lifestyle, compliance, and resources
- Disparate data sources

Questions for Healthcare Providers

- Do you have a consumer directed health strategy?
- Is member data accessible to the member and their providers?
- Can you extract a single view of the member, e.g., create a Personal Health Record?
- Are you using data to reduce costs and/or improve care?
- Are you able to monitor and measure behavior change based on interventions?
- Do you have a Service Oriented Architecture in place?

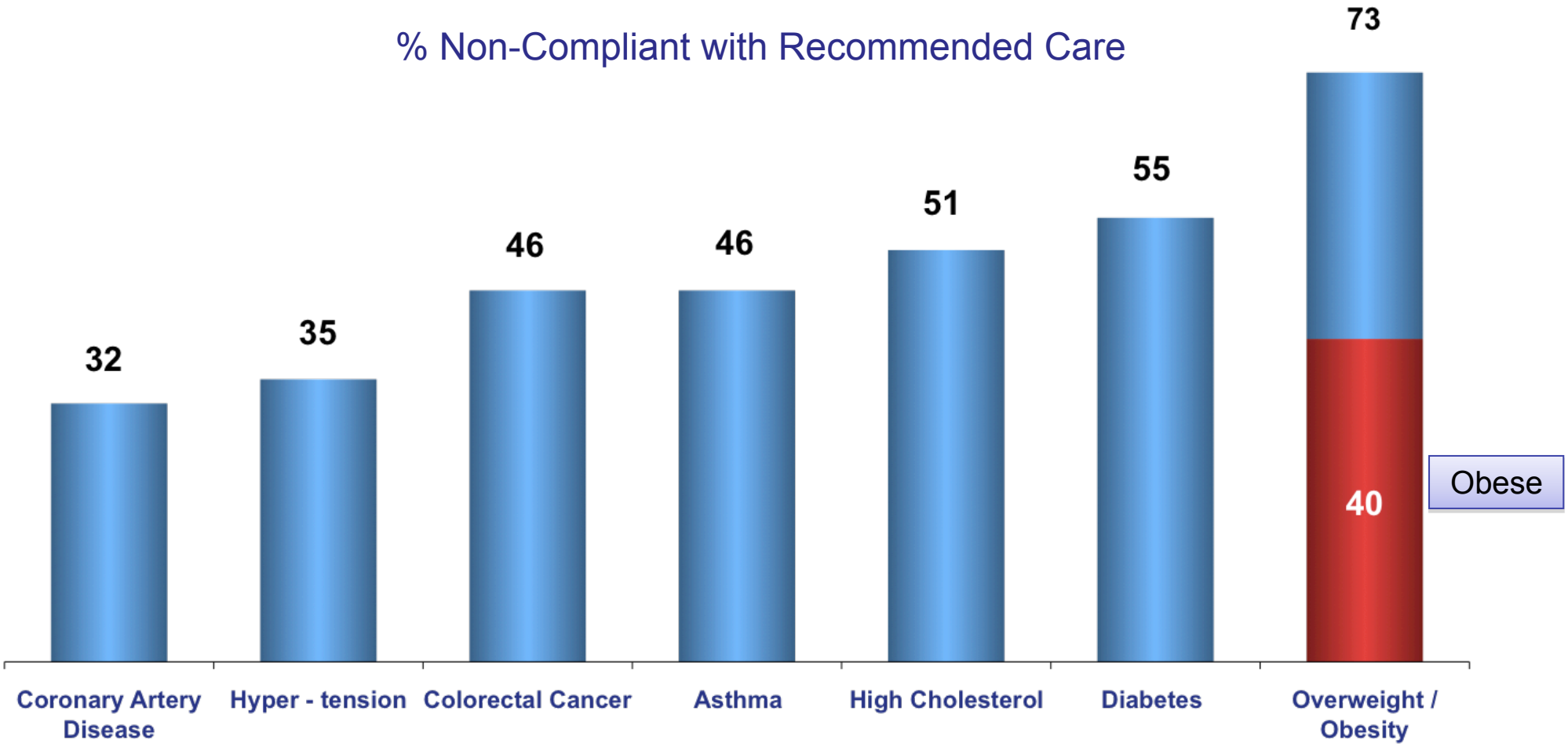
Obesity is a major cost driver

Top 4 chronic diseases - % of total healthcare spending



*2008 Estimates: Total HC spending ~ $2.4 Trillion, Direct spending ~ $1.8 Trillion

Non compliant behavior is common



Source: Elizabeth McGlynn, et al, The Quality of Health Care Delivered to Adults in the United States, NEJM, Vol. 348:2635-2645 June 26, 2003 (No. 26); NHANES 2005-06

Health care-savvy workers cost-conscious
By Steve LeBlanc, Associated Press Writer | April 7, 2010

Workers who better understand their health insurance plans -- from their share of premiums to co-payments for doctor office and emergency room visits -- are more likely to make more cost-efficient decisions, a new study finds.

"If people are more aware of their overall health care costs and how the different types of care have different costs, then people will use the health care system more efficiently," said Amy Lischko, the lead author of the report and former commissioner of the Massachusetts Division of Health Care Finance and Policy.

The American Journal of Managed Care.

Meeting the Challenges

- The Healthcare system must become an on demand, member centric, service focused organization
- Improve the overall health of the population
- Improve the overall effectiveness and efficiency of the delivery system

How?

- Provide cost savings and new revenue generation opportunities
- Integrate disparate systems
- Provide tools to manage costs and influence wellness
- Promote behavior change
- Use innovative technologies to promote consumer engagement and responsibility

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Mobile Technology Can Revolutionize Health Care

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Sensei's Approach

Individuals hold the key to transforming healthcare and its costs. So how do you impact the behaviors of millions of health care consumers?

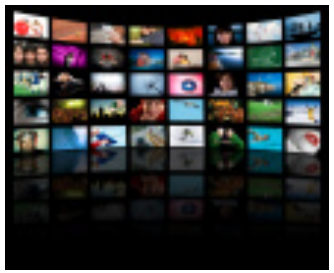
Through timely, relevant and personalized communications.

Integrating information systems and wireless communication, best practices in behavioral science and clinical research to systematically understand and empower individuals-promoting healthier lifestyles-making healthcare communications a science.

Mobile Reach

US Wireless Subscribers

276,032,484…and counting Oct '09 CTIA



TV Households

- 113,000,000

Internet

- U.S. Census: 60%
- Three in Five U.S. Households
- Have Home Internet Access

Universal Demographic

- 84% of English speaking Hispanics have cell phones
- 74% of whites and 71% of blacks
- More than 50% of Hispanics use data services on their mobile phones daily

	White	African American	Hispanic
Text Msg	53	68	73
Pictures	56	57	71
Games	23	36	35
Email	17	19	25
Internet	18	27	22

PEW / INTERNET
PEW INTERNET & AMERICAN LIFE PROJECT

Forty-four percent of survey respondents agreed with the statement, “I feel lost without my cell phone.”

Sixty-seven percent of respondents agreed that “having my cell phone with me makes me feel safe.”

PEW / INTERNET
PEW INTERNET & AMERICAN LIFE PROJECT

Feature Phones 75% of the Mobile Market

- According to the NPD Group in the U.S. feature phones still rule the market

- Sales of new feature phones are 72 percent of new handset sales in the second quarter (Q2 ‘09), while sales of new smart phones reached 28 percent of overall consumer purchases

- Overall handset sales volume in the U.S. grew 14 percent year over year in Q2 2009.

Health Care is Going Mobile

"With more consumer engagement or interaction with giving them the tools they want, then hopefully they will be a better consumer in healthcare. It should lower our cost and lower their cost to overall have a better economy around healthcare.
Highmark 2009

We certainly think providing a mobile experience for accessing health information is going to be paramount

C**an you highlight any of those pain points about moving to a mobile platform?**
Certainly the fact that there are multiple mobile platforms is a challenge
Mayo Clinic

Information please
As medicine embraces integrated and holistic patient wellness solutions, the demand for integrated, actionable data grows. Nielsen

Sensei Meets the Challenges

- Sensei approach provides
  - Comprehensive, engaging, and utilitarian programs for all personal health needs
  - Innovative technologies to reach a broad audience addressing the needs of the individual
  - Cost savings- the right information, at the right time, to make better choices
  - Revenue generation opportunities
    - Rewards and Incentives
    - Ad revenue
    - Custom applications for employers and health plans
  - Expert insight and analysis of user interactions

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Mobile Tools for Health Care

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Mobile Health Zone

- Health decisions mostly occur while people are going about their daily lives, so the ultimate goal is to make the information available on the mobile platform
- Members need one reliable location to find the information they need to make informed health decisions
- Personalized and relevant to the user — so the content is shaped by the user's health
- Robust and secure approach for delivering solutions and affecting a members healthcare

Sensei's Mobile Health Zone provides a comprehensive, utilitarian, and engaging program to meet all their personal health needs including:

Benefits and Services, PHR, HRA
Personalized Health and Wellness programs

Mobile Health Zone: Benefits to Health Plans

- Encourage & Facilitate Use of In Network Providers
- Triage Decision Support (ER vs. Urgicenter, Connect to triage line)
- Optimize formulary utilization with time and point of service medication options
- Increase use and efficiency of PBM
  - Refill reminders
  - Medication reminders
- Real time benefits information- consumer friendly, smarter choices, reduce customer service calls
- Efficient communication channel- real time claims status
- Population management programs- high level of engagement, broad reach, low cost

The Mobile Health Zone
A Cost Savings Opportunity

Formulary optimization

- Provide formulary options and tier pricing
  - share with their physicians when ordering or changing medications at the time and point of service
- Savings occur around physician communication, cost of prescribed medication not optimized by formulary, and less patient/physician inconvenience and resistance

Provider Lookup with decision support and triage call line

- ER look up includes common ailments seen at ER that can be treated by another facility, i.e. urgicenter and refers patient there with appropriate information
- Higher utilization of in network services

Pharmacy/ PBM

- Increase convenience thereby encouraging use of in network pharmacy and/or PBM with reminders

Alerts and Reminders for key parts of the clinical system

- Flu vaccine
- Mammogram
- HRA

Population Management programs

- Weight Loss, Diabetes Smoking Cessation
- Higher enrollment and participation
- Increased ROI with automated system
- Leverage live coaching/dm managers interaction by exception automated messaging

Mobile Health Zone

Benefits

Anywhere anytime lookup of Plan and benefits information & Status

Communicate

Secure interactive messages and surveys to one or all in your community

Finances

Everything related to financial accounts and services in real time

Health

Personalized Programs providing timely Information & guidance

Mobile Gateway to Health and Wellness

Mobile Health Zone

- Applications and services can be
  - added or removed, no changes for the mobile client
  - Configured by the health plan, employer, or the user

Mobile Health Zone: At The Office

- PHR
- Prescription substitution with formulary info
- Deductible status
- Co-pay amount for visit
- HSA Balance

Personal Health Records

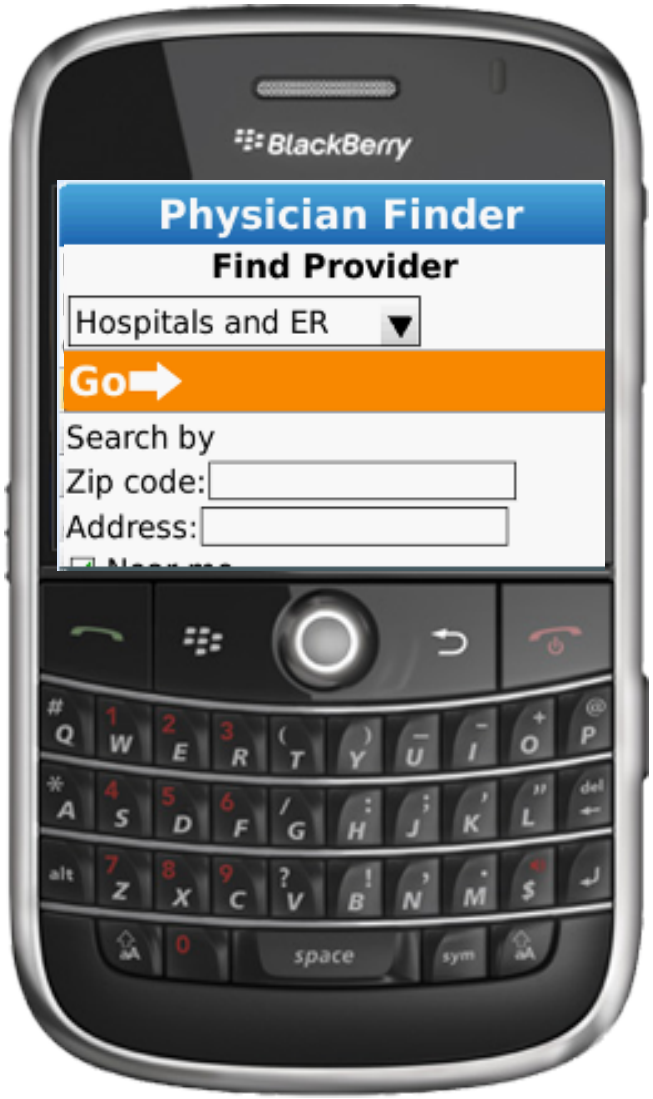
Dossia, Health Vault, Google Health, Proprietary

Your health information when & where you need it:

- allergies and adverse drug reactions,
- Medications: Dose & Schedule
- illnesses and hospitalizations,
- surgeries and other procedures,
- vaccinations,
- laboratory test results,
- family history.

Mobile Health Zone: At The Time

- Provider look-up
  - Hospital/ER
    - Simple triage support
  - Physician
    - Sort by availability, quality
    - …
- Pharmacy Locator
  - In network



Mobile Health Zone: At The Moment

- Population Management
  - Weight Loss
  - Pregnancy
  - Diabetes
  - Tobacco Cessation
  - Health & Wellness
  - CVD, Metabolic Syndrome & Diabetes
- Advantages
  - Personalized Health Program & Coaching
  - Engage with majority of population not limited to higher acuity
  - Seamless data collection and integration
  - Optimize DM and coaching opportunities, interventions triggered by exception

Mobile Health Zone: Pharmacy

- Medication Adherence
- Formulary Optimization- at time and point of service during the office visit
- Pharmacy Benefits Manager
    - Prescriptions filled at select venues
        - Automated reminders for taking meds (dose, instructions, picture, etc)
        - Automated Refills with notification
- Key facts about the medications
    - Indications, common side effects

Mobile Health Zone: Hospital Systems

- Expand ***connection/relationship*** with individual consumers beyond the brick & mortar
  - Customize content for each facility
  - Available to consumer by mobile location or zip code
  - Highlight services of most value on the go
    - ER waiting time
    - Consult a nurse
    - Physician Finder
    - Personal Health Record
  - Integrate Health Programs at facility with mobile connection - weight loss, diabetes…

RIMS- Revenue Generation

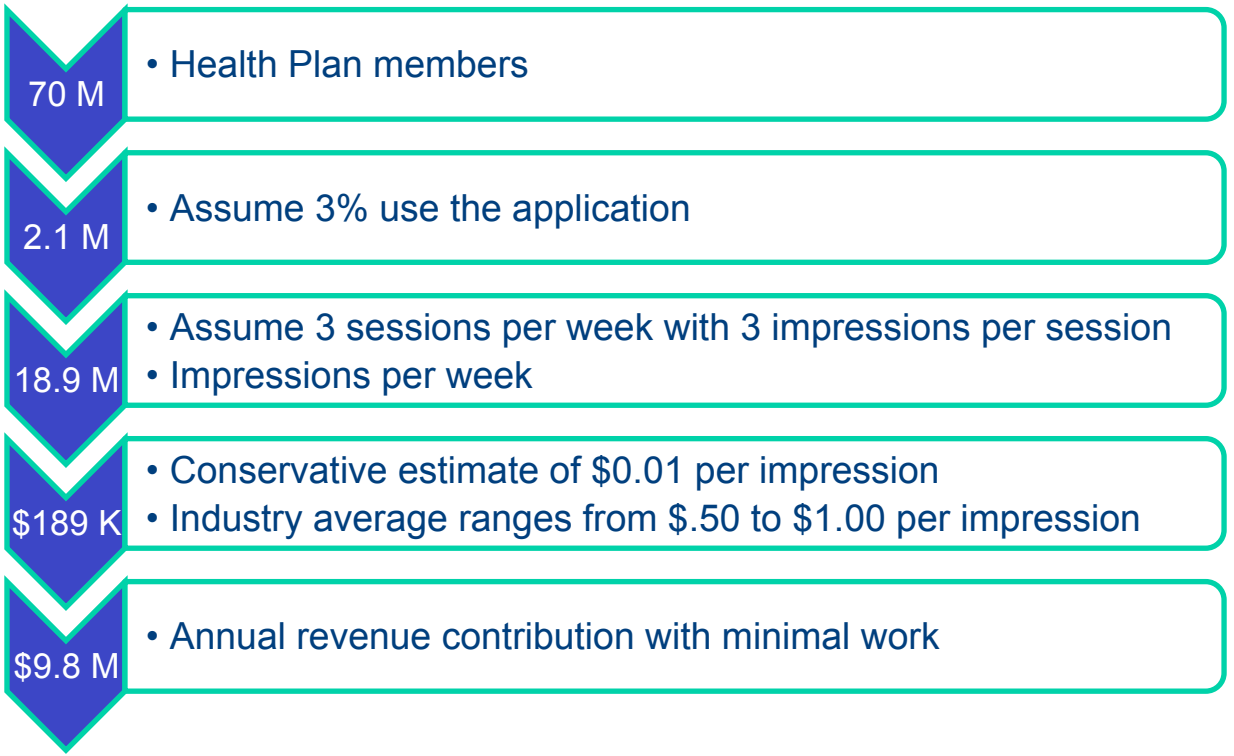
- Reward & Incentives for health & wellness is a recognized tool for success in enrollment and participation
- There are some challenges with existing rewards programs:
  - Employers and health plans carry the cost for these programs
  - Numerous gates or hurdles to pass to achieve reward
  - Delayed gratification- good but not great

Sensei's Approach

- ***Provide timely contextual incentives and rewards encouraging positive consumer behavior and engagement***
- ***Immediate gratification!***
- ***Target promotions to specific content, real time- responding to consumer 's interests and preferences.***
- ***Promotions are paid for by brands and targeted advertising***
- ***Proprietary technology delivering targeted promotions to most mobile phones***
- ***Applications are free to members***

Revenue Generation Through Mobile Marketing

- Medical applications have the second highest retention/loyalty rate after the news
- Mobile coupons and vouchers have demonstrated significant growth and customer interest in the last 24 months
- For example:



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SOA As A Fundamental Building Block

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Background

- 3 years ago Sensei re-architected platform
- Fundamental decision to be SOA
- Evaluated numerous vendors
- Choose JBoss/ Red Hat
- Open Source front to back

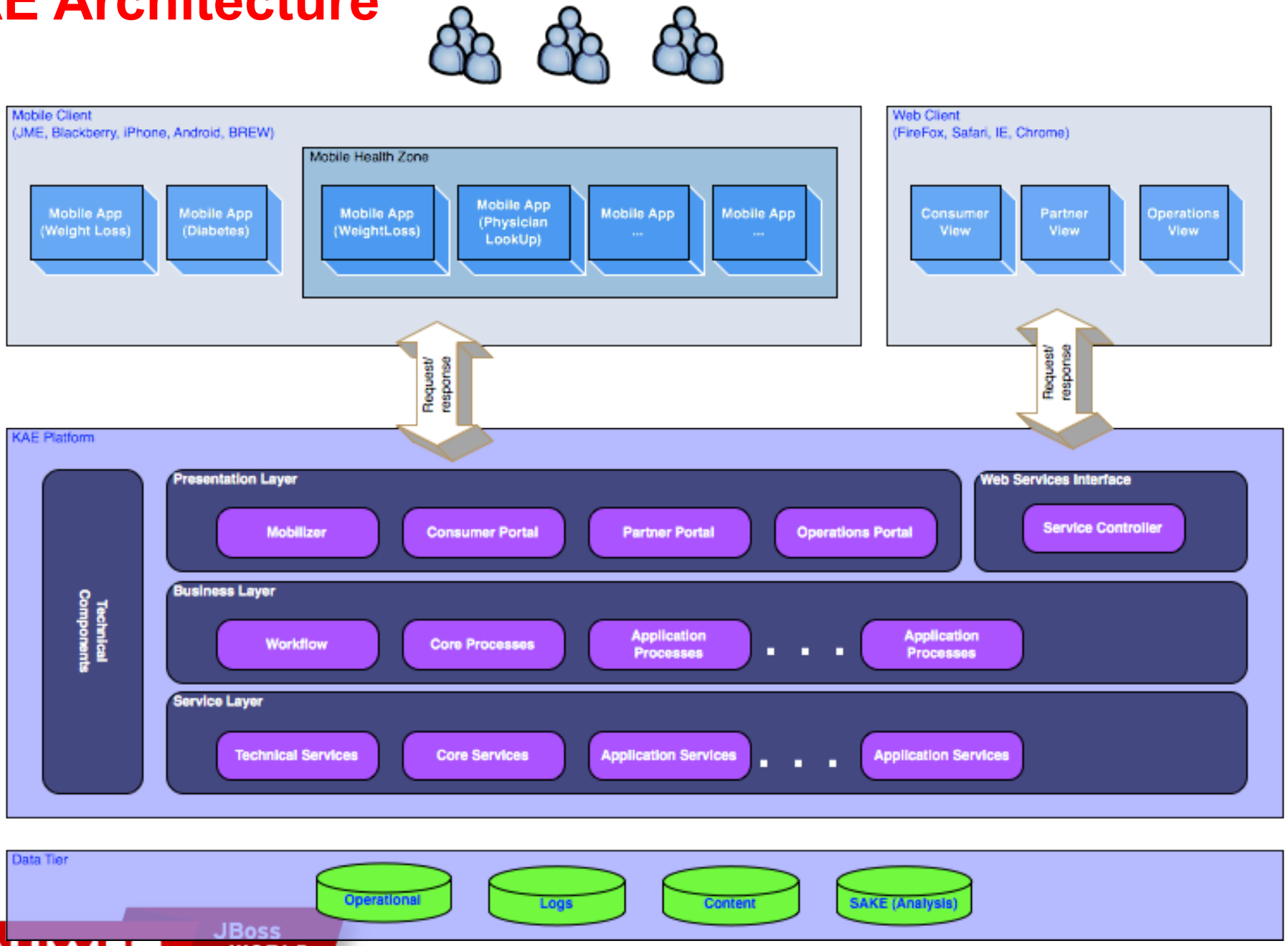
We use:

- JBoss (Enterprise SOA, Portal, Application Platforms)
- RedHat Enterprise Linux
- MySQL
- Alfresco
- Pentaho

Why SOA in Health Care?

- Numerous disparate integration points in existing health care infrastructure that is different organization to organization
- Sharing of data between existing systems is costly
- Consolidation among health care organizations is increasing
- Isolated systems do meet the model for consumer centric healthcare, functionality needs to be leveraged across application boundaries
- Standardization of rules, processes, capabilities will help contain costs
- Consistency and accuracy of data across multiple interfaces and systems (updates from one system need to be reflected across all other systems)
- Standardized formats for data interoperability
- Changing landscape around regulations, compliance, and standards requires flexibility

KAE Architecture



KAE:
The Platform For Change

- Automated expert system
  - Content and personal data integrated with multidimensional decision support
- Configurable and customizable user interface for unique user roles
  - Mobile and Web interfaces
- Workflow and business rules engine
  - Easily created business process
- Flexible messaging framework
  - Dynamic custom communication engine
- Graphics engine for optimized user experience
  - Dynamic graphics generation for mobile and web
- Knowledge Engine for analysis and reporting
  - Includes proprietary CRM engine
- External system integration
  - Facilitate communication and information exchange between systems

KAE Advantages

- Enterprise scale
  - Robust, flexible infrastructure
- Service oriented architecture
  - Facilitates efficient creation & deployment of applications/programs
- True Mobile Applications
  - Enhanced interactive user experience
  - Incorporates mobile functionality (i.e. automatic alerts, location services)
- Proprietary Mobile Framework
  - Mobile application supported by >90% of mobile phones in market (>150 Million users in US)
  - Framework supports custom content, look and feel for each application. Updates are quick and easy and do not require changes to the mobile application on the phone.

KAE: Enterprise Security

- HTTPS
- 128 Bit Encryption
- Role Based
  - Includes unique user name and password
- No stored data on handsets
- Industry standard application time out and access rules
- Healthcare specific
  - HL7 Compliant
  - HIPPA Compliant

Thank You

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