A New Approach
Expanding SOA in Healthcare

Eric Leader, VP Technology Architecture and Product Management, Carefx
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Introduction – Eric Leader
The Call for Change
Is There a Third Option?
Becoming Agile: Re invent, Repurpose, Re use
Everyday SOA
SOA Solution Examples
Open Discussion / Q&A
Introduction

Eric Leader
VP Technology Architecture and Product management
Carefx Corporation

- Former Chief Technology Architect for Catholic Healthcare West.
- Experienced implementing Portal and SOA solutions in healthcare.
- Advisor to healthcare and technology companies.
- Thought leader in using collaborative technologies in healthcare.
- Participant in several Healthcare Information Exchange Initiatives.
The Call for Change …

“…provide solutions that attract more patients and physicians…connect all parties so the organization can provide stellar care, bill for services easily and optimize revenue collection…be clinically centered, not technology centered.”

Shahid Shah, “The Healthcare IT Guy”

“…provide process integration that ‘bridges the information chasms’ that currently exist between patients, hospitals and other care settings.”

“…support the cognitive functions of all caregivers, including health professionals, patients, and their families.”

NRC report on IT Effectiveness
Evolutionary Change- Becoming Agile

NRC – Computational Technology for Effective Health Care: Immediate Steps and Strategic Directions

- Accommodate changes in roles
- Adapt to shifts in process
- Support clinical workflow and cognitive tasks
- Present data in the context of a user’s role
- Embrace potentially disruptive change
- Serve up data from multiple departments facilities and systems
- Deliver more highly intuitive user interfaces
Two Traditional Approaches

1) Monolithic EMR – one size fits all

- One system tries to do many things
- Most are done well
- Some not so good
- Some are missing
- But what about?
Two Traditional Approaches

2) Best of Breed

- Core EMR strategy
- Service Lines
- Partial Integration
- Some still missing

- But what about?
3) The Third Option - SOA

- Establish Strategic Core EMR
- Provide BOB where appropriate
- SOA Enable the enterprise
- Agile Reuse of SOA
- Provide Cognitive Integration
Beyond the Facility Walls...

Currently, we duplicate a lot of data multiple times.

Information may not be available at POC.
Becoming Agile - What If…

- Provide a composite of all data sources.
- *Inside and outside the four walls*
Everyday SOA – How the Pieces Fit

A service?
A repeatable business task – e.g., register a patient, reconcile medications, generate invoice

Service orientation?
A way of integrating your business as linked services and the outcomes that they bring

Service oriented architecture?
An IT architectural style that supports service orientation

A composite application?
A set of related & integrated services that support a business process built on an SOA
SOA Architecture

Display and Access

Clinical Workflow

Services (Application & Information)

Web-method Data Access

Web

Collaboration B2B

Device

Application

Application

Content Systems

Data Systems

Registry Services

External
Example: Medication Reconciliation

**Joint Commission – National Patient Safety Goal #8**

A process exists for comparing the patient’s current medications with those ordered for the patient while under the care of the organization.

What applications?
What process?
Who does what?
How do you monitor?

Are the systems helping or getting in the way?

“I was very good at triage, usually I could triage someone with a complicated medical history and a lot of meds in about 5 or 10 minutes. Now, thanks to the computer and medication reconciliation, it takes me 2 to 3 times as long. The more we try to streamline, the slower things move.”

- ER Nurse Blog
Example: Medication Reconciliation

- Med is appropriately prescribed at initial state of care.
- Changes in treatment process make it such that initial med no longer applies or is detrimental.
- Caregivers don’t have a way to communicate to subsequent caregivers.
- Subsequent caregivers have no visibility into prior phases of care.
- Patient may get frustrated by changes in course, getting conflicting info from different caregivers, repeating tests / procedures, etc.
- Patient’s health suffers increased risks.
Example: Medication Reconciliation

- Role based view: Gather data from all sources
- Enabled through SOA
- Support Cognitive Task
- Query RxHub for pharmacy data
- Patient is a participant.

RxHub
Lab
EMR
PHR
IHE
Enterprise Service Bus

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Enterprise Service Bus
Multiple portlets re-used

90% of content, services &
Multiple portlets re-used

Resourcing incremental from original investments

Employees

PORTAL PLATFORM
and SOA Framework

Patients

Providers

50% of development time

Portal software connects all stakeholders enabling communication,
collaboration, process efficiency, orchestration and workflow optimization and
information sharing using SOA framework.
Because of the portlet driven presentation layer, and separate SOA-based business logic layer, "Mashing" up pieces of functionality to create new composite applications and workflows.
A patient can access a personal health record that can be used to manage their health information and can be shared across the health continuum.
Inefficient Referral Process: Impacts Volume & Community Satisfaction

- 30% of referral orders get scheduled
- 25-30% appointments ‘no show’
- Minimum of 4 weeks between Referral Order and Scheduling of Appointment
- Referring provider does not always receive the final visit documentation
eReferral Work Flow – SOA Enabled

1. Patient visits PCP at CHC and receives a Specialist Referral. EMR sends Clinical Summary and Order to CIE.

2. Referral coordinator (RC) uses eReferral Portal to initiate and manage referral process.

3. Specialist coordinator (SC) receives referral and communicates with RC and retrieves further information from CIE.

4. Patient sees Specialist. Specialist writes note. EMR submits Specialist note into CIE.

5. Completion of visit is flagged on eReferral Portal. Referring Clinic retrieves referral report from portal and/or additional clinical data from CIE.

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SOA Architecture - Closing the Gaps

- Reusable SOA solution
- Work-flow specific
- Support Cognitive Tasks
- Role Specific
- User customization
- Context enabled
- Integrated SSO
- Real-time SOA data access
- Don’t duplicate data
- Multiple data sources
With a SOA solution, you will:

- Not be faced with the challenges of duplicating data (yet again!)
- Provide a consistent and informative view for caregivers.
- Support Clinical Workflow and Cognitive tasks
- Serve up data from multiple departments, facilities and sources.
- Facilitate transitions without adding complexity.
- Deliver more highly intuitive user interfaces.
- Establish a service-oriented architecture that adds modernity, flexibility, and scalability.
Thank You from Carefx

Please contact me for personal follow-up:

Eric Leader
VP Technology Architecture
eleader@carefx.com

Visit www.carefx.com for additional info.