EVOLUTIONARY SERVICE-ORIENTED ARCHITECTURE

e-SOA in the Military Health System

Erick Peters MBA PMP
InterSystems Corporation

A {NOT SO} UNIQUE PROBLEM

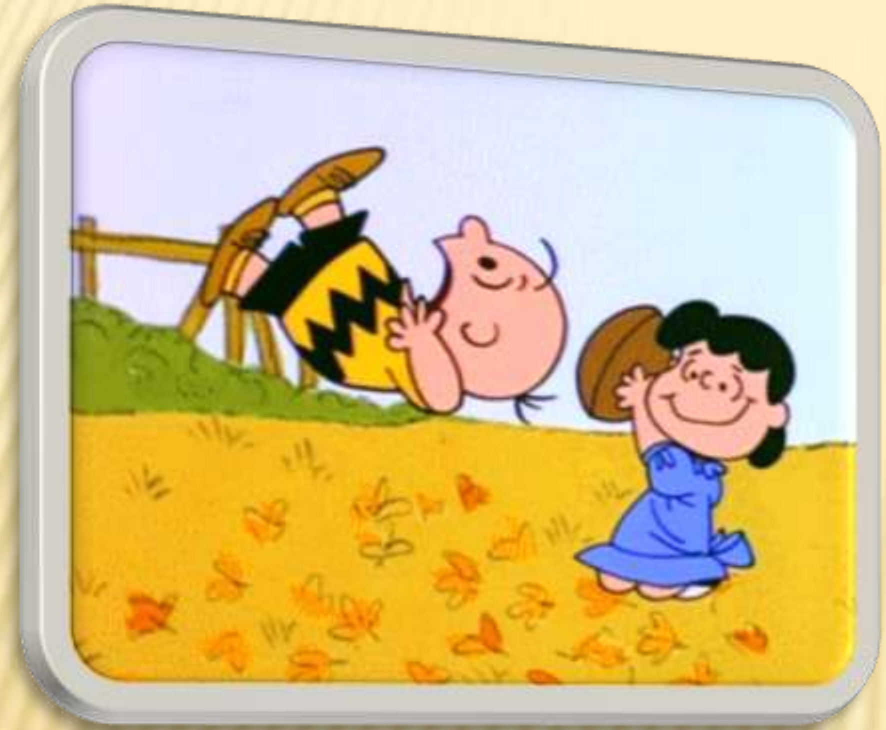
- Creating a service framework around monolithic legacy systems presents unique challenges:
  - Proprietary, closed architectures
  - Users expectation of continuity
  - Mature, functioning systems
  - Previously developed point to point interfaces
  - Enterprise in motion-dynamic

AGENDA

- The SOA Revolution
- Why e-SOA
  - The Decoupling Challenge
  - The Cohesion Challenge
  - The Evolution Requirement
- Understanding the Military Health System(MHS) Enterprise
  - System(s) Architecture
  - Information Exchange
  - The Dilemma
  - The COTS Approach
  - The Current Approach
- From Concept to Implementation
  - Choosing the tool(s)
  - E-SOA Business Drivers
- Question and Answer

THE SOA REVOLUTION

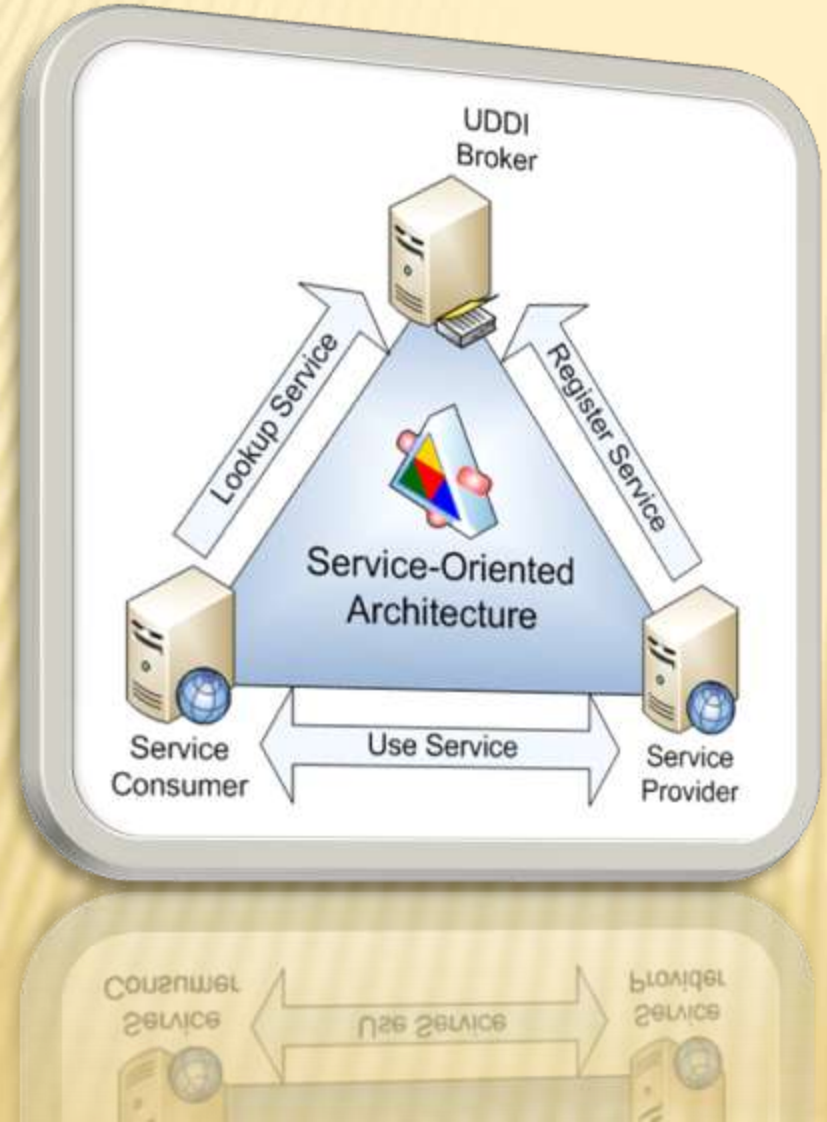
SOA REVOLUTION



“Sometimes I lie awake at night, and I ask, 'Where have I gone wrong?' Then a voice says to me, 'This is going to take more than one night.'”

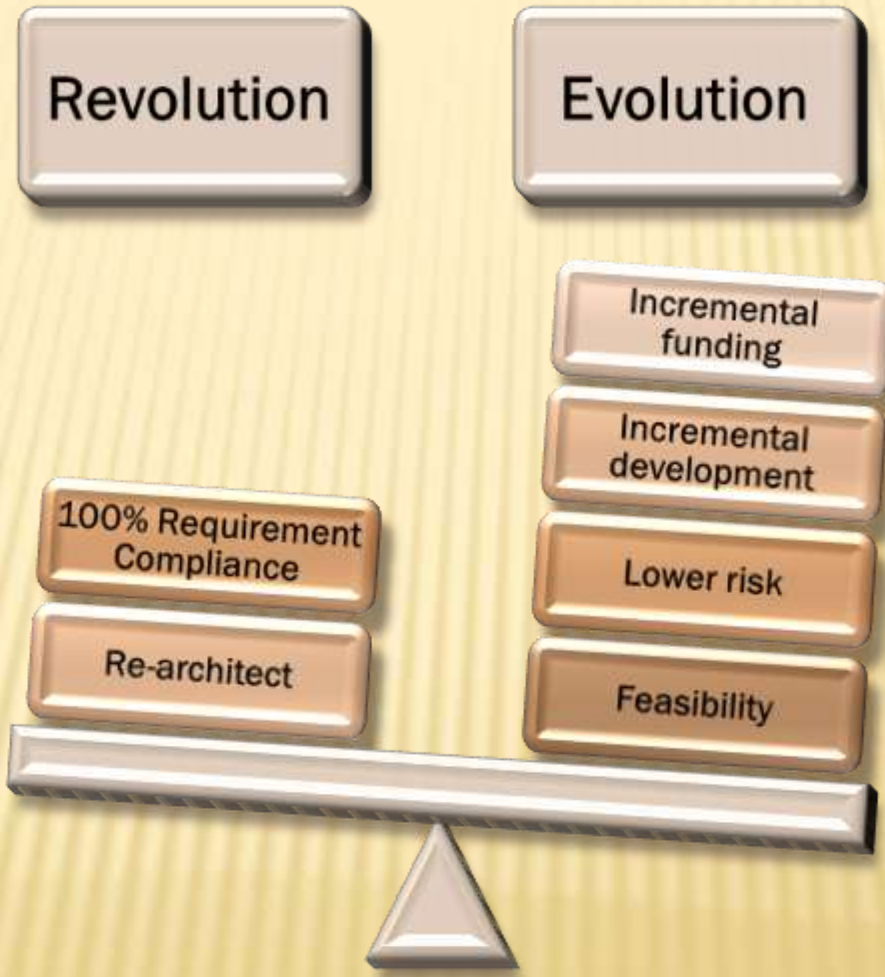
-Mr. Charles Brown

SOA-THE TECHNOLOGY PART



The technical implementation of services is NOT the biggest challenge facing established enterprises…

REVOLUTION OR EVOLUTION



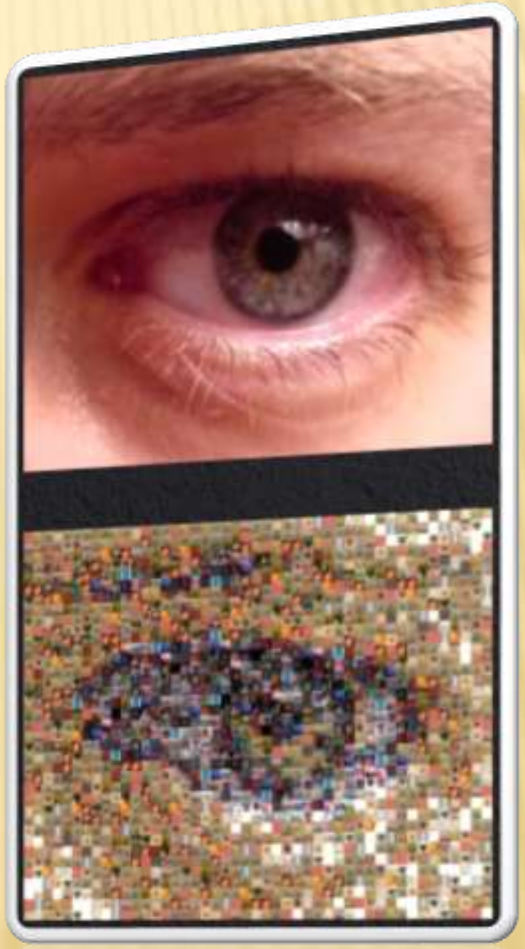
WHY E-SOA

THE DECOUPLING CHALLENGE

- Migrate from disparate systems or traditional enterprise architectures
- Separate components and code without breaking the system
- Create new, sensible, extensible, reusable components

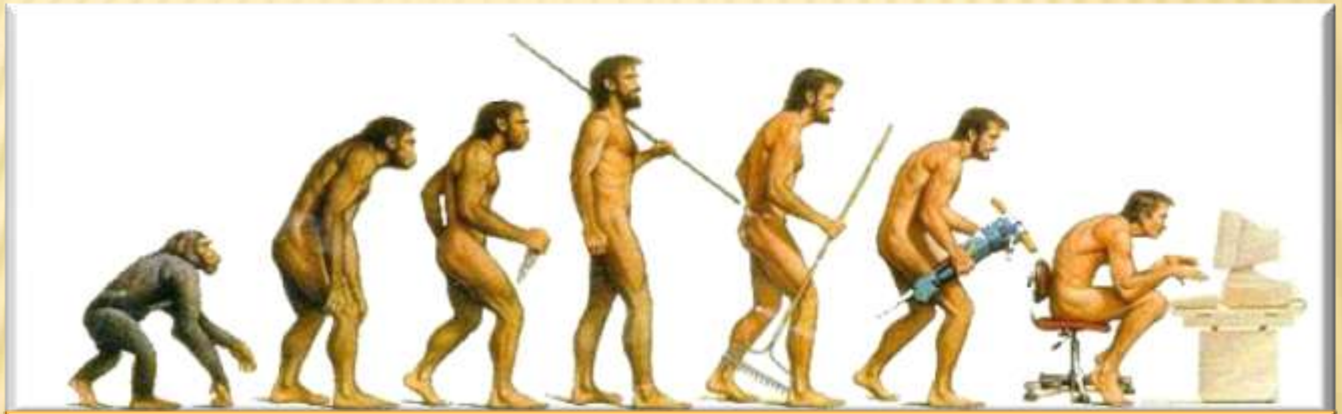
THE COHESION CHALLENGE

- Maintain the semblance of one system
- Infinite sub-services create a single system interaction experience for the end user
- New components must blend seamlessly with legacy components



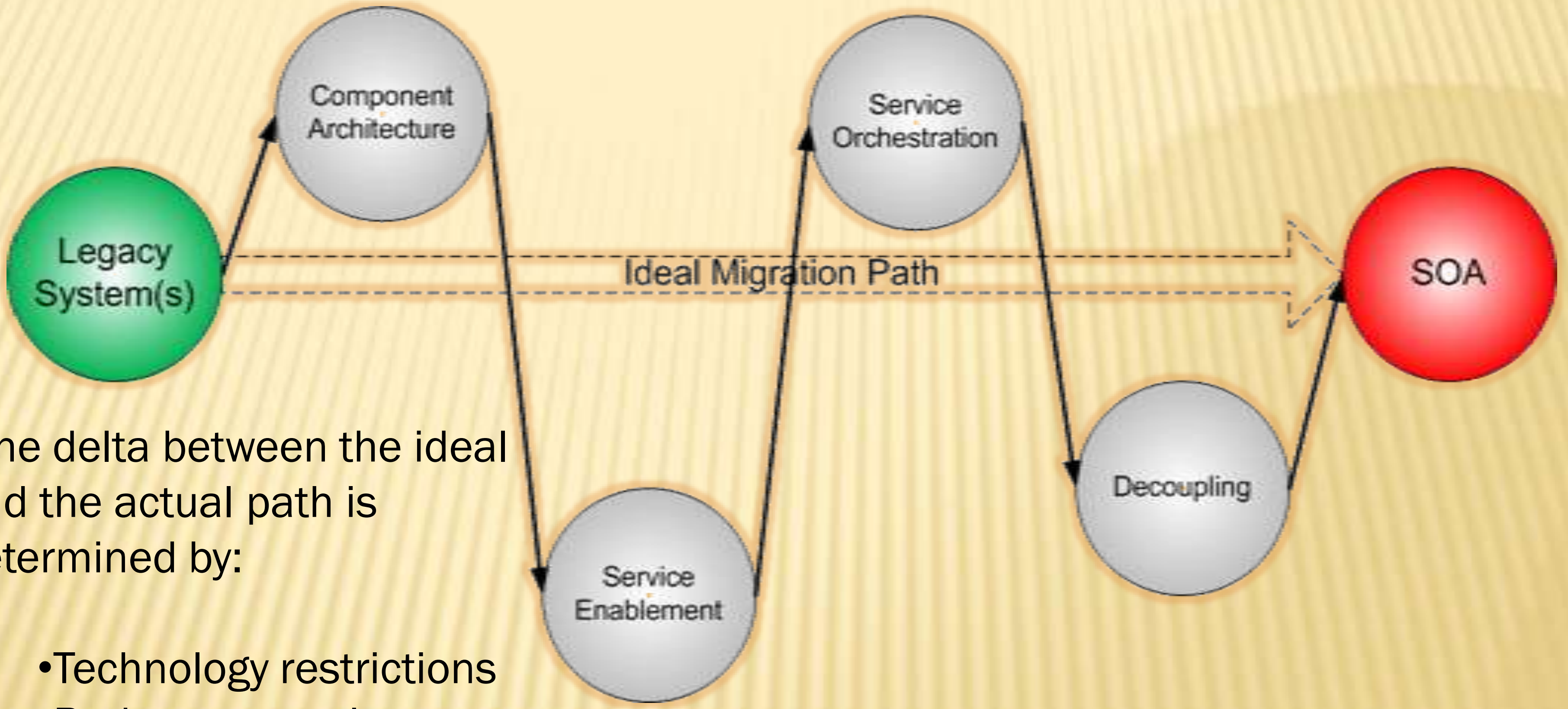
THE "EVOLUTION" REQUIREMENT

- Decades old legacy system
- Ongoing system changes
- Irreplaceable business rules
- Continuity of operations
- Regulatory/legal compliance
- Other systems in flux:
  - Longitudinal Health Record (AHLTA)
  - Procurements



—Synonyms **1.** unfolding, change, progression, metamorphosis.
—Antonyms **1.** stasis, inactivity, changelessness.

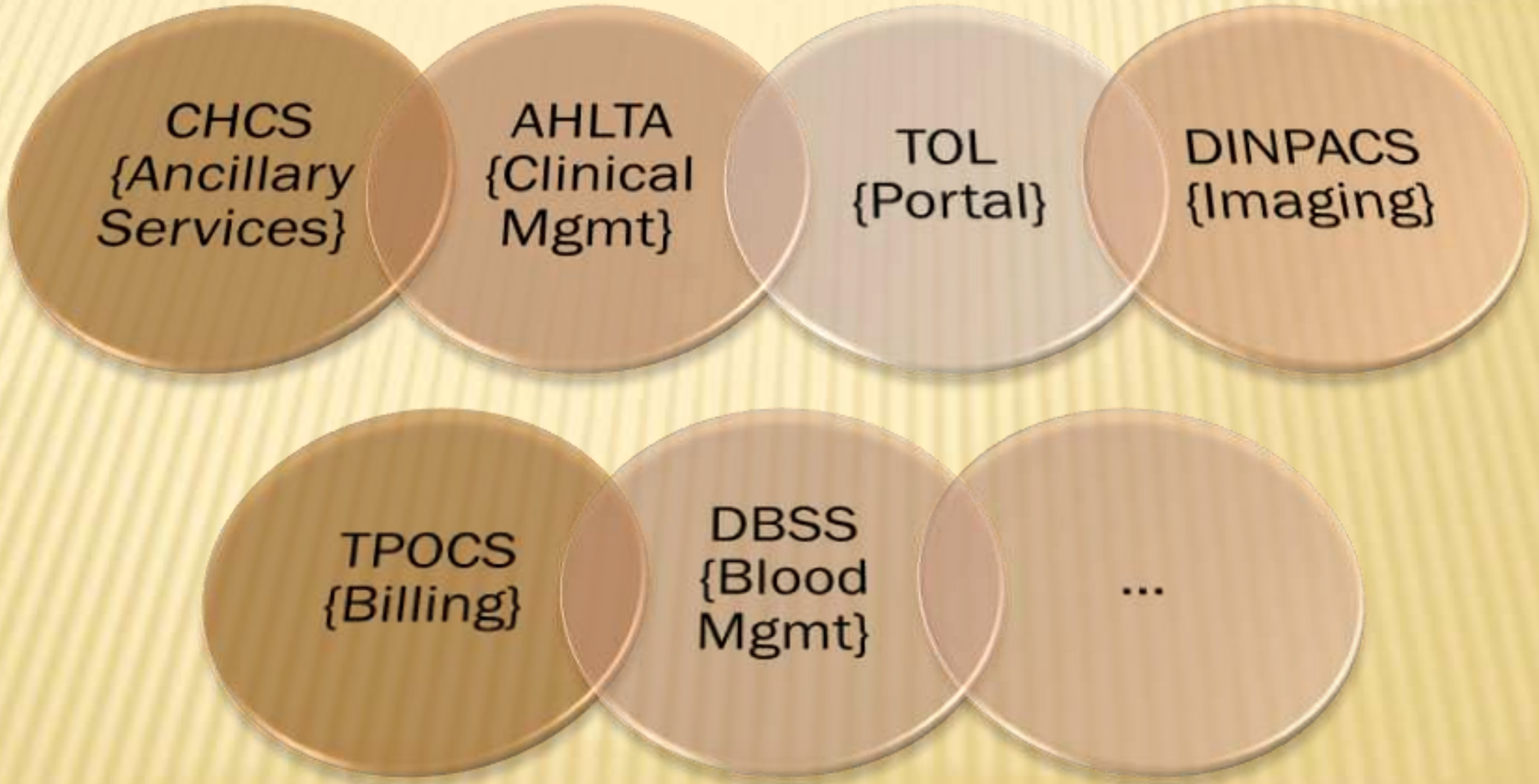
THE EVOLUTION



- The delta between the ideal and the actual path is determined by:
  - Technology restrictions
  - Budget constraints
  - Risk tolerance
  - Timeline requirements

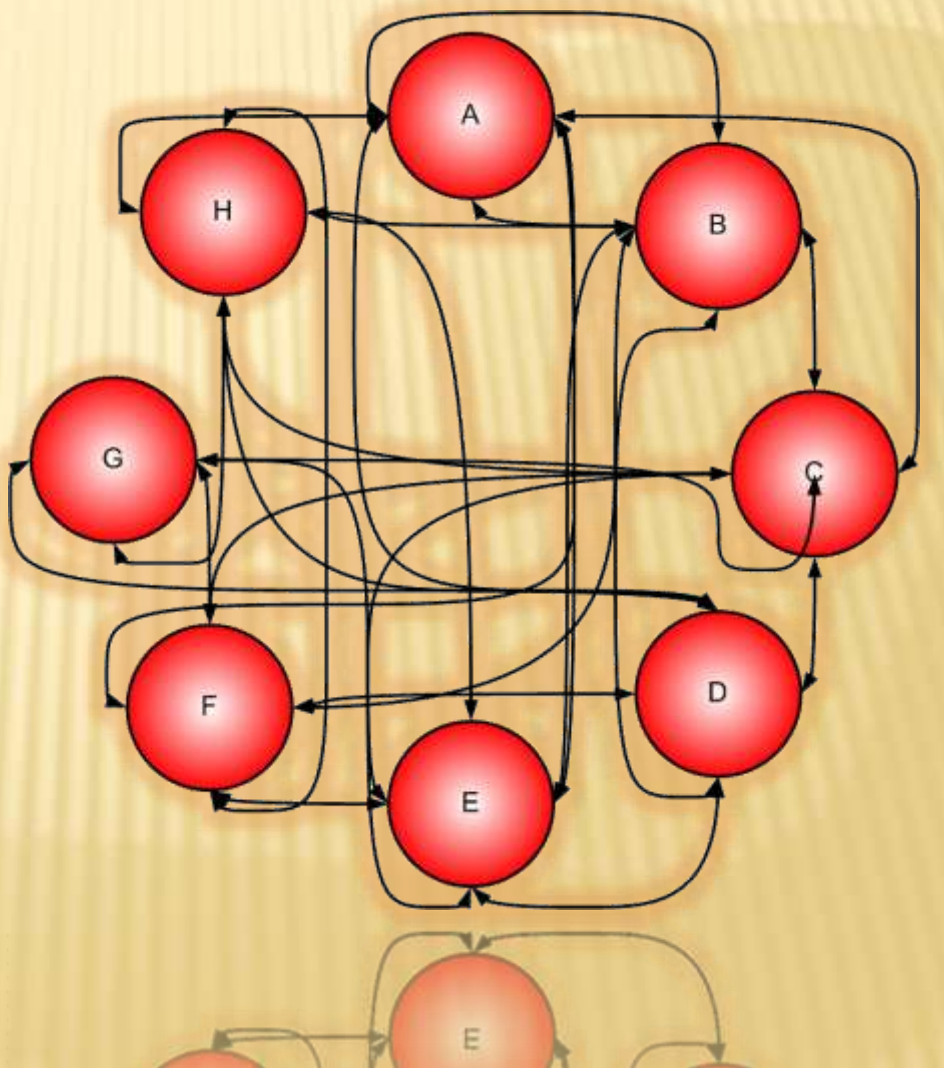
UNDERSTANDING THE MHS ENTERPRISE

MHS SYSTEMS OVERVIEW



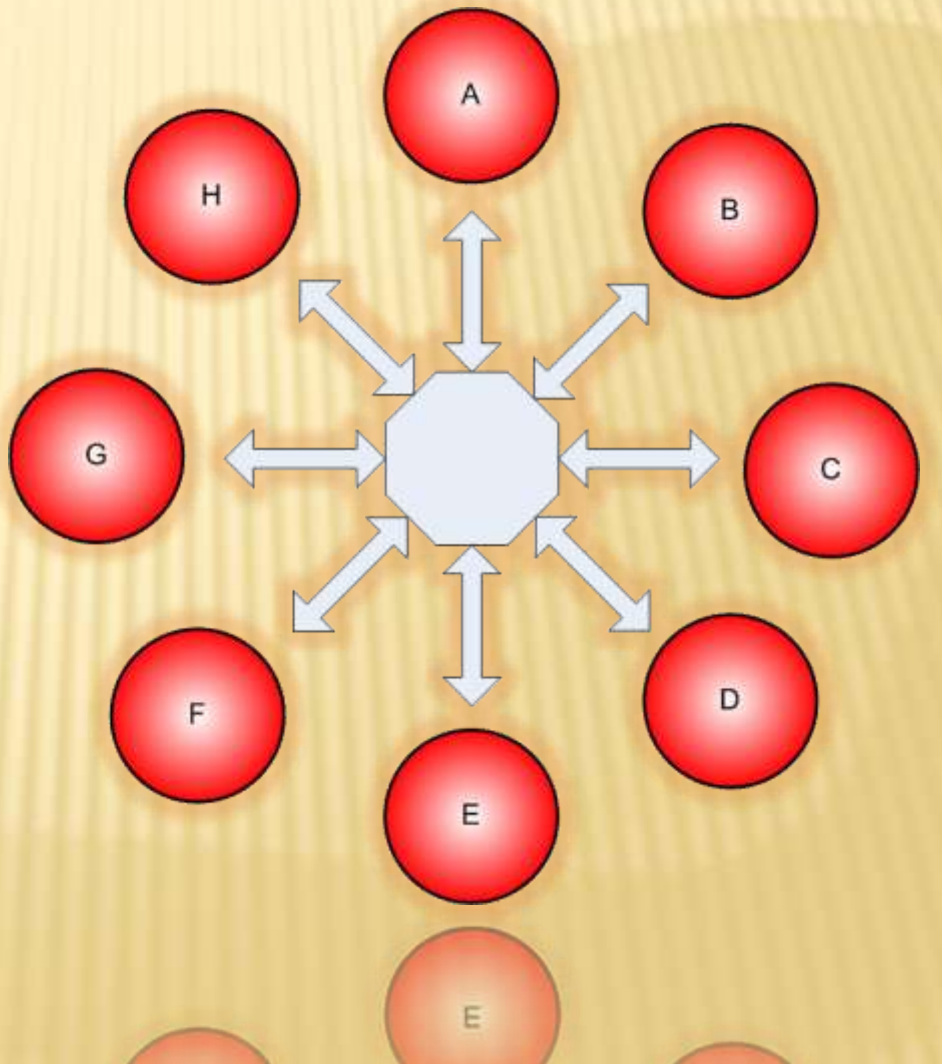
MHS INFORMATION EXCHANGE-LEGACY

- Historical 'one-off' development
- Hundreds of point-to-point interfaces
- Extreme coupling
- Expensive maintenance and sustainment



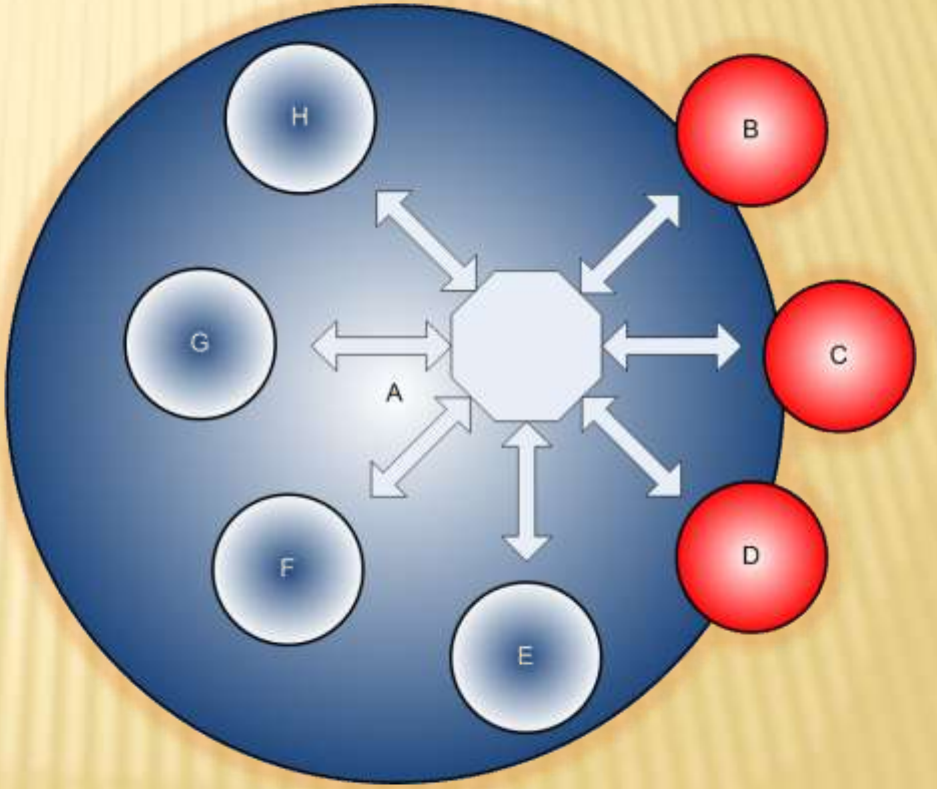
MHS INFORMATION EXCHANGE-GOAL

- Single unified service engine based on JSR 208
- Service enablement
- Service orchestration
- Message normalization
- Guaranteed delivery
- Binding specifications



MHS INFORMATION EXCHANGE-REALITY

- Composite HealthCare System (CHCS)
  - Dominates the MHS landscape
  - A system of systems
  - Developed over 15 years
  - Digital Standard MUMPS
  - Built in interfacing (HL7 and EDI)



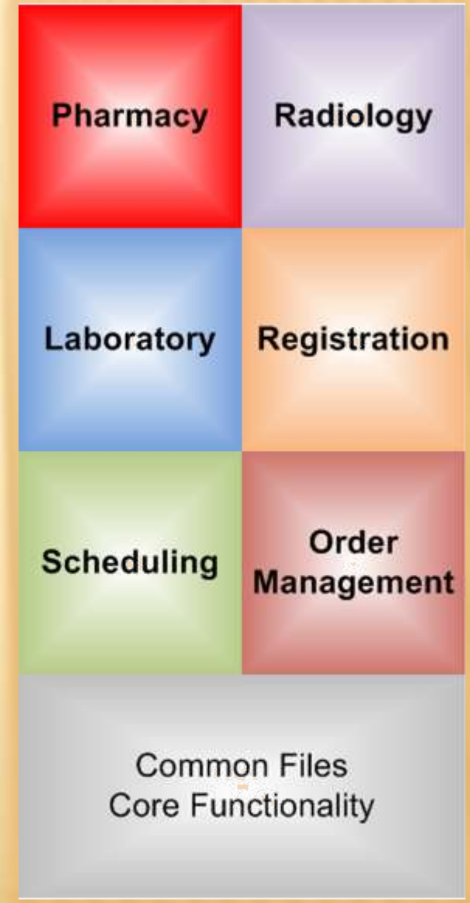
MHS SOA -THE DILEMMA

How to evolve from monolithic legacy to open SOA

- Dominant master system
- Highly coupled
- Legacy language (DSM)
- Closed architecture
- Federated, stand-alone instances

THE COTS APPROACH

- Modularize the legacy system
- Replace modules incrementally
- Integrate COTS modules
- Evolve legacy to obsolescence and retirement



THE COTS CHASM

- Requirements gap
  - Commercial practices and government requirements
  - Mature, accepted, and adopted business rules
  - Regulations, policies, and instructions
- Configuration costs
  - Customization of code
  - Customization of interfaces (integration and user)
  - Total Cost of Ownership during modular transition

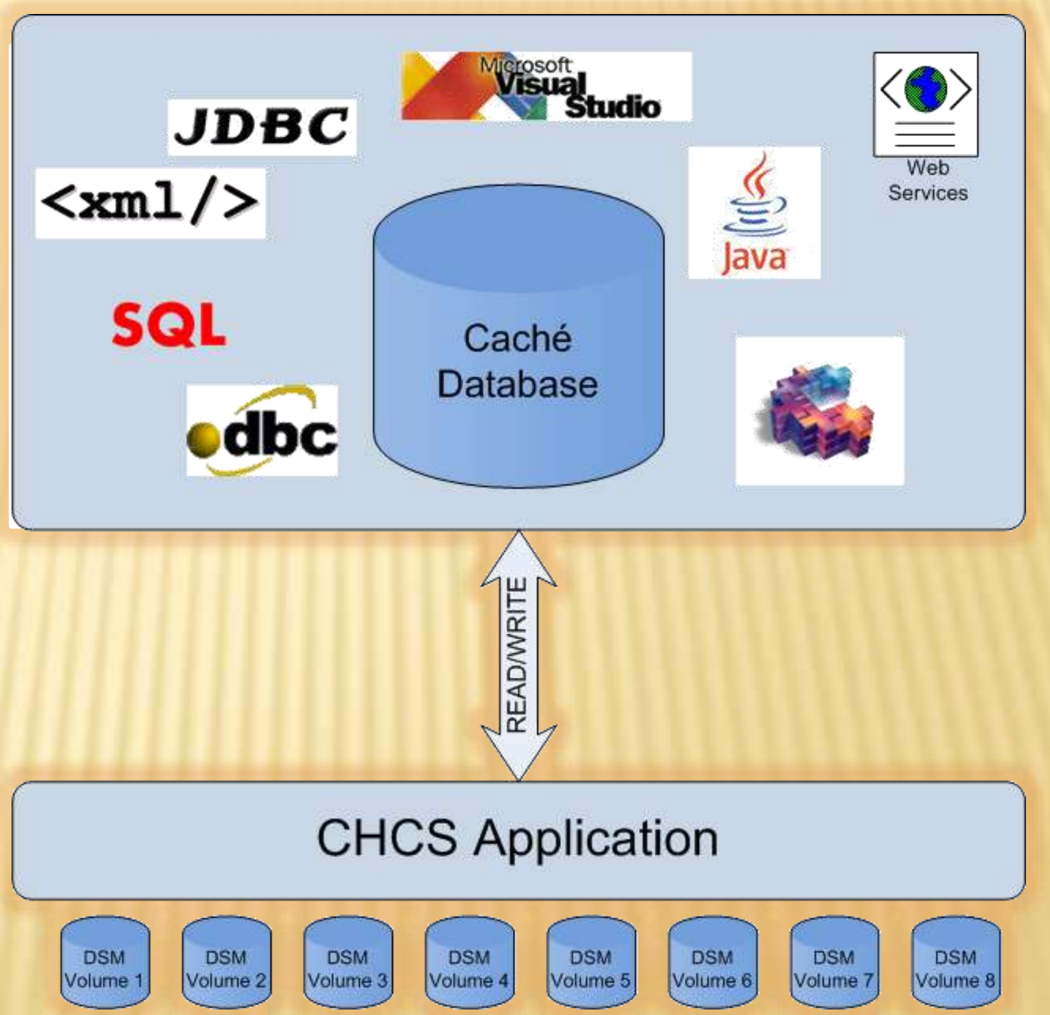
THE CURRENT APPROACH

- Keys to success
  - Migrate to standards-based, open-architecture
  - Decouple functionality within the core system
  - Service enable core functionality
- Architectural decisions
  - Service interrelations and orchestration
  - Common files and functions (the plumbing)
  - Modular decomposition

STANDARDS-BASED OPEN ARCHITECTURE

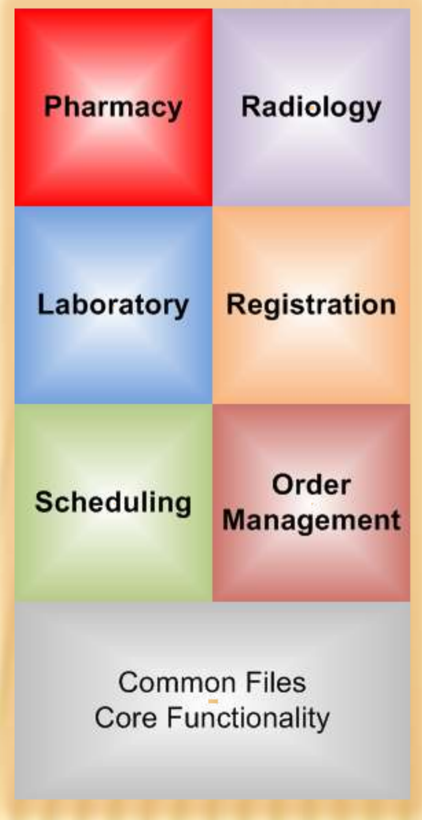
- 3,300+ Caché Classes:
- 3,300+ SQL Table
- 3,300+ Caché Objects
- 45,500+ SQL/Object Triggers
- 150,000+ Data Elements

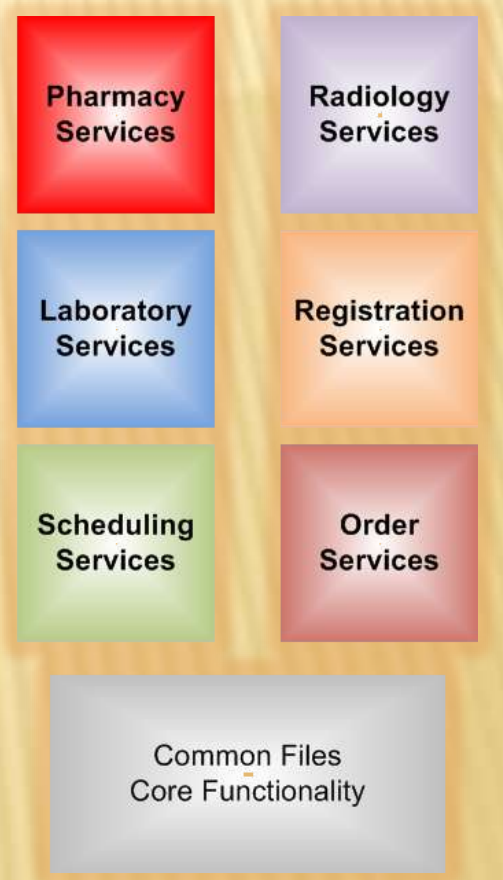
- 3,300+ Fileman Files
- 45,500+ Triggers
- 80+ DSM Globals
- 150,000+ Data Elements



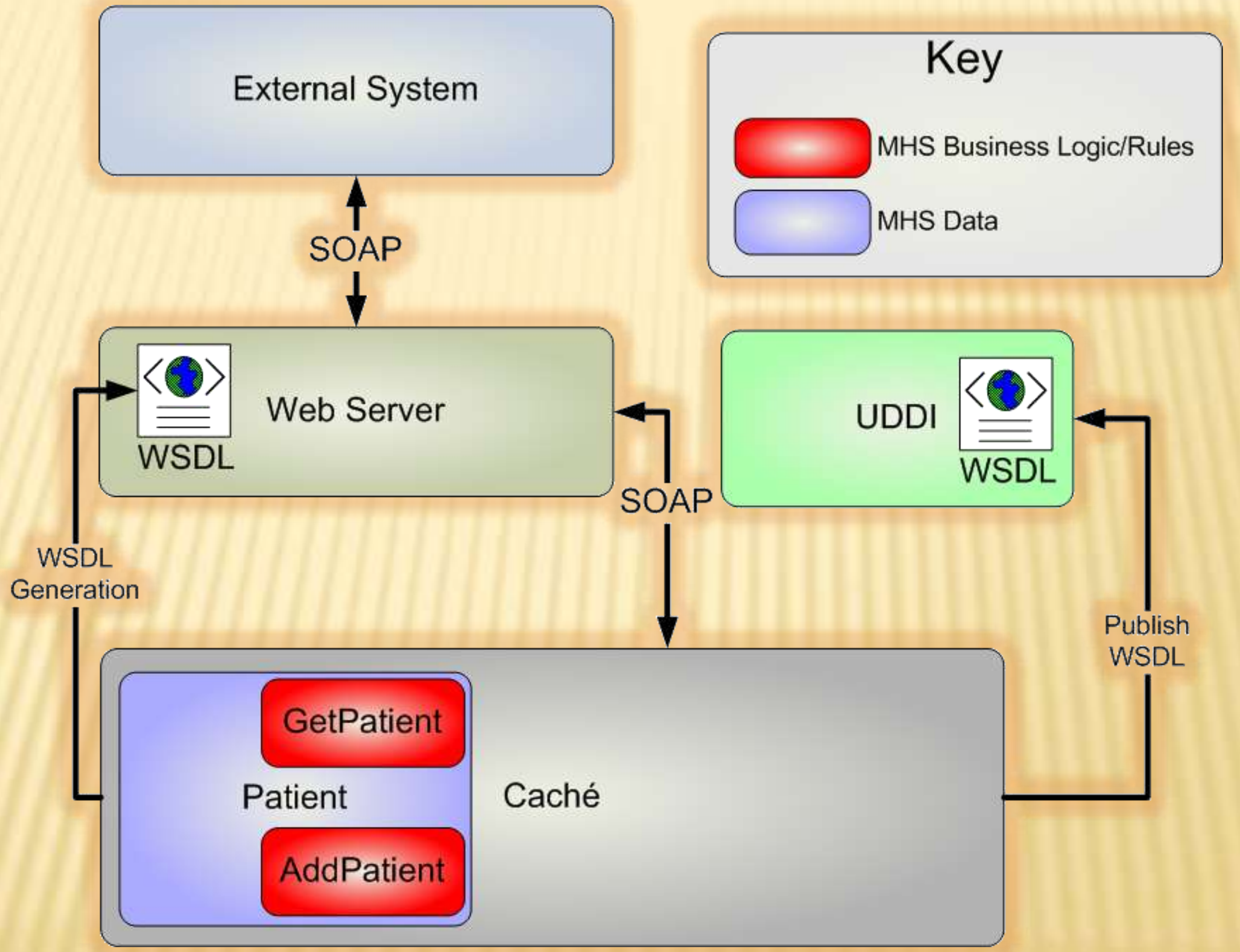
DECOUPLING FUNCTIONALITY

- Segregation of modules may not be absolute
- Orchestration of services is key
- Avoid service redundancies





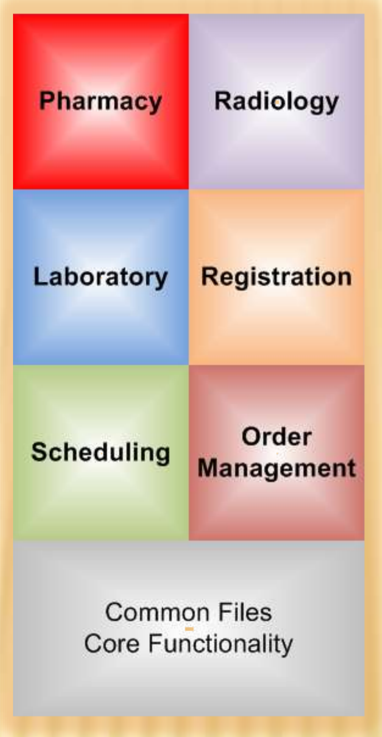
SERVICE ENABLEMENT OF LEGACY

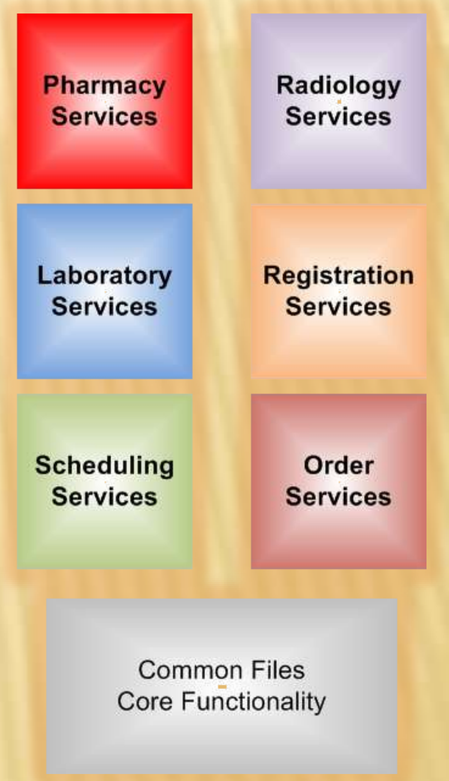


Service Enable Core Functionality

NEXT EVOLUTIONARY STEP

- Service orchestration
- UDDI
- Interoperability
- Extending the enterprise

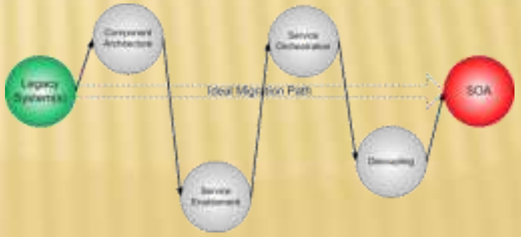




FROM CONCEPT TO IMPLEMENTATION

E-SOA TOOLS SELECTION

- Agile
  - Able to change course frequently with little adverse impact to cost/risk/schedule
- Technology absorption
  - Readily integrated into YOUR technology enterprise
  - Extensibility/interoperability/trainability/maintainable
- Rapid Application Development
  - Able to deliver phased, deployable results
  - Empowers long term vision
  - Lowers project risk



E-SOA BUSINESS DRIVERS

- Require the cost, speed, scalability, flexibility benefits of SOA
- Cost, schedule, and risk restrictions requiring compromise
- System usability required during implementation
- Each evolution:
  - Marginally closer to the end state architecture
  - Offers value commensurate with cost
  - Achievable/pragmatic
  - Lowest risk critical path

QUESTIONS?