Harvard Pilgrim Health Care

SOA Journey at HPHC

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Agenda

- About Harvard Pilgrim Health Care (HPHC)
- What's the problem here?
- Our Objectives and Approach
- Current and Future Application Landscape
- Bringing an Organizational structure change
- Establishing a Funding Model
- Unifying Central IT Capabilities
- Defining a Business Architecture
- Establishing a SOA Reference Architecture
- Establishing SOA Governance and COE
- SOA Transformation
- Using a Service Identification Process
- Creating a Service Backlog
- Measuring Capacity
- Measuring the ROI
- Conclusion

About Harvard Pilgrim Health Care (HPHC)

Established since 1976

Serves almost a million members

Revenue of almost 3 Billion dollars

Harvard Pilgrim Health Care is the nation's #1 private health plan on NCQA's 2010-11 Health Insurance Ranking list

Harvard Pilgrim is nation's top-ranked plan for the seventh consecutive year

Harvard Pilgrim Health Care is highest-ranked health plan in New England in J.D. Power and Associates national study

Among the best places to work

American Heart Association recognized Harvard Pilgrim as a Start! Fit-Friendly company in 2008. We receive the award for championing the health of our employees through our fitness centers, discounts on health and fitness products and nutritional programs.

Disease Management Purchasing Consortium International, Inc. recognized Harvard Pilgrim with certification for validity in savings measurement.

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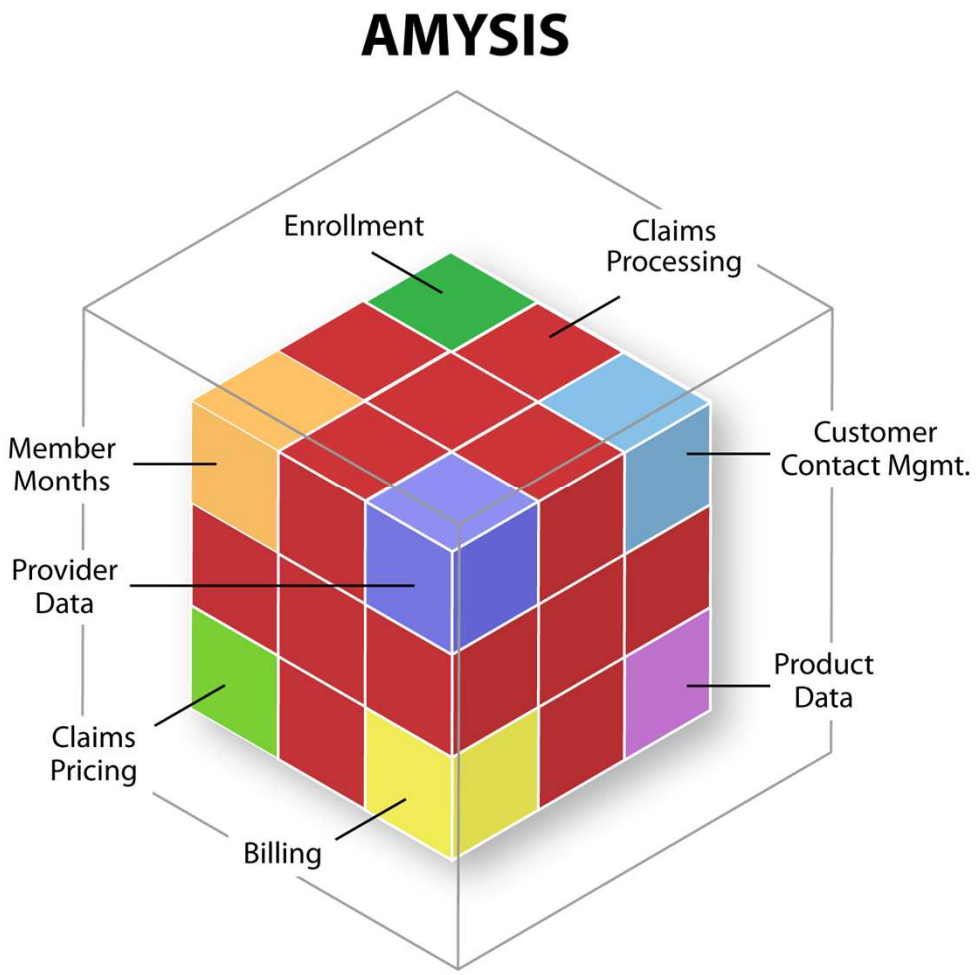
Amisys: The "Big Box" Problem



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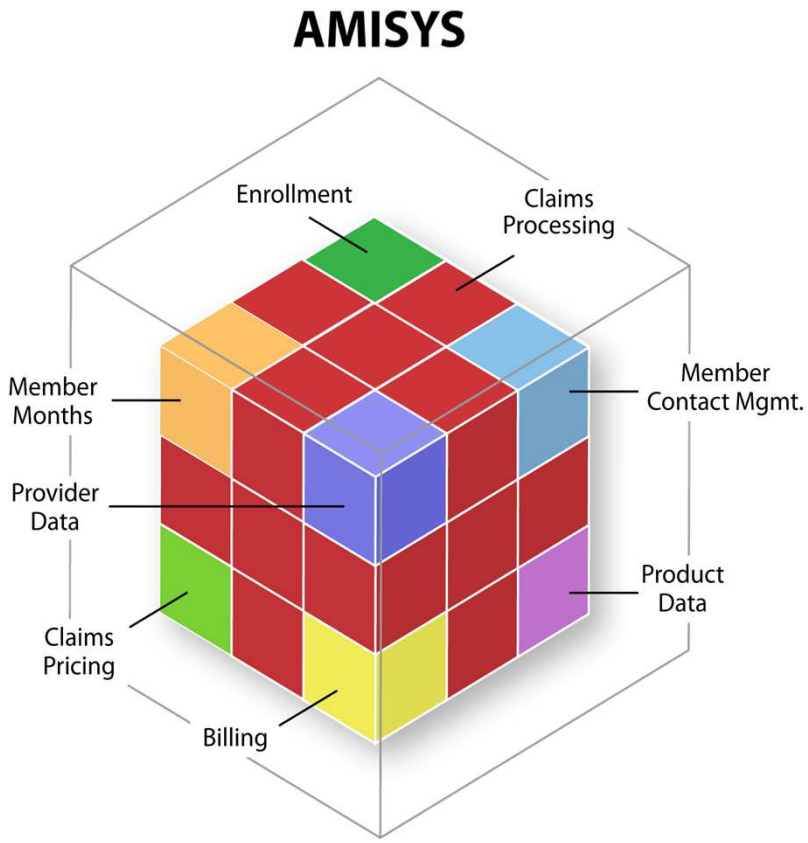
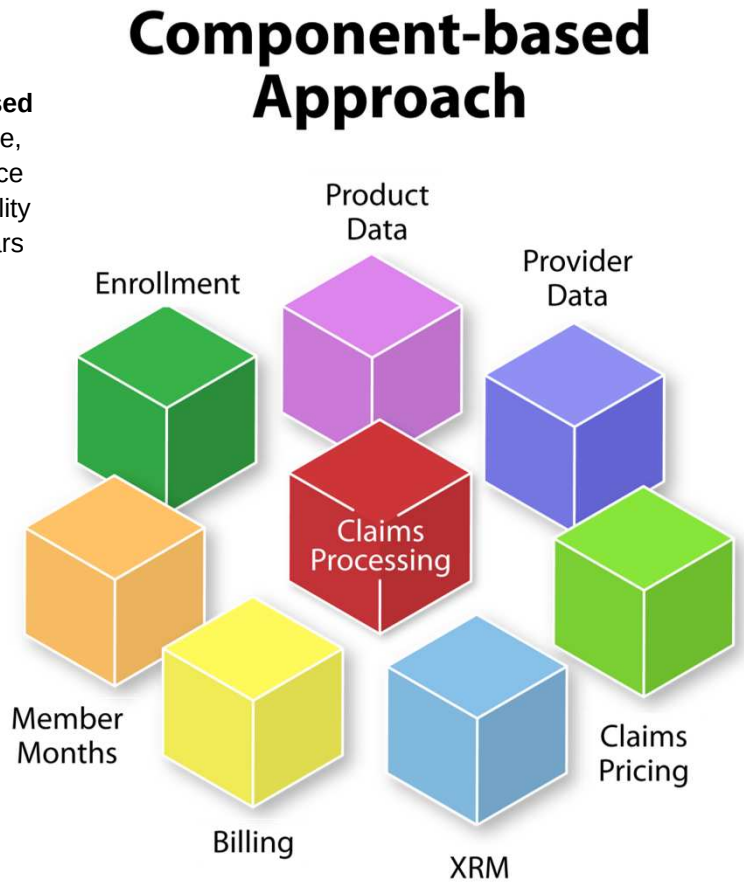
IT Stategy = Component-based Approach



A component-based approach: Upgrade, replicate and replace pieces of functionality over the next 5 years



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Our Goal/Objectives and Approach

- The goal: Replace Amisys, a multi-year endeavor, and deliver value during (rather than at the end of) the effort.
- The objectives of HPHC's enterprise IT Strategy/Architecture were:
  - Promote interoperability and connectivity among dissimilar systems that must function together or provide service to each other.
  - To provide the ability to manage timely change, whether driven by legislation, policy, business logic, organizational structure, IT infrastructure, product upgrades, and vendor consolidations or failures.
  - To foster the identification and reuse of components and services to avoid duplicative implementations that add costs.
  - To identify areas for new development and to highlight legacy systems that must be retired.
- The Approach
  - Component design (Using the principles of Service Oriented Architecture)
  - Agile methodologies (Incremental and Iterative Approach)
  - Use of strategic technologies
  - A step-by-step reduction of dependency on Amisys functionality
  - Meet regulatory mandates (5010 and ICD 10)

Component Based Approach

- A future architecture based on service oriented components allows HPHC to leverage such functionality (e.g., Claim Pricing, Member Service Workflow, etc.) for Amisys' replacement as well as other claims processing systems where such proves advantageous to HPHC.
- Less costly than “big box” replacement – about $125M
- Affordable by spreading spend over multiple years
- Leverages strategic technologies
- Allows the work to be phased with some components coming on line and delivering value well before the completion of the strategy (replacing Amisys)

Current/Future State Application Landscape

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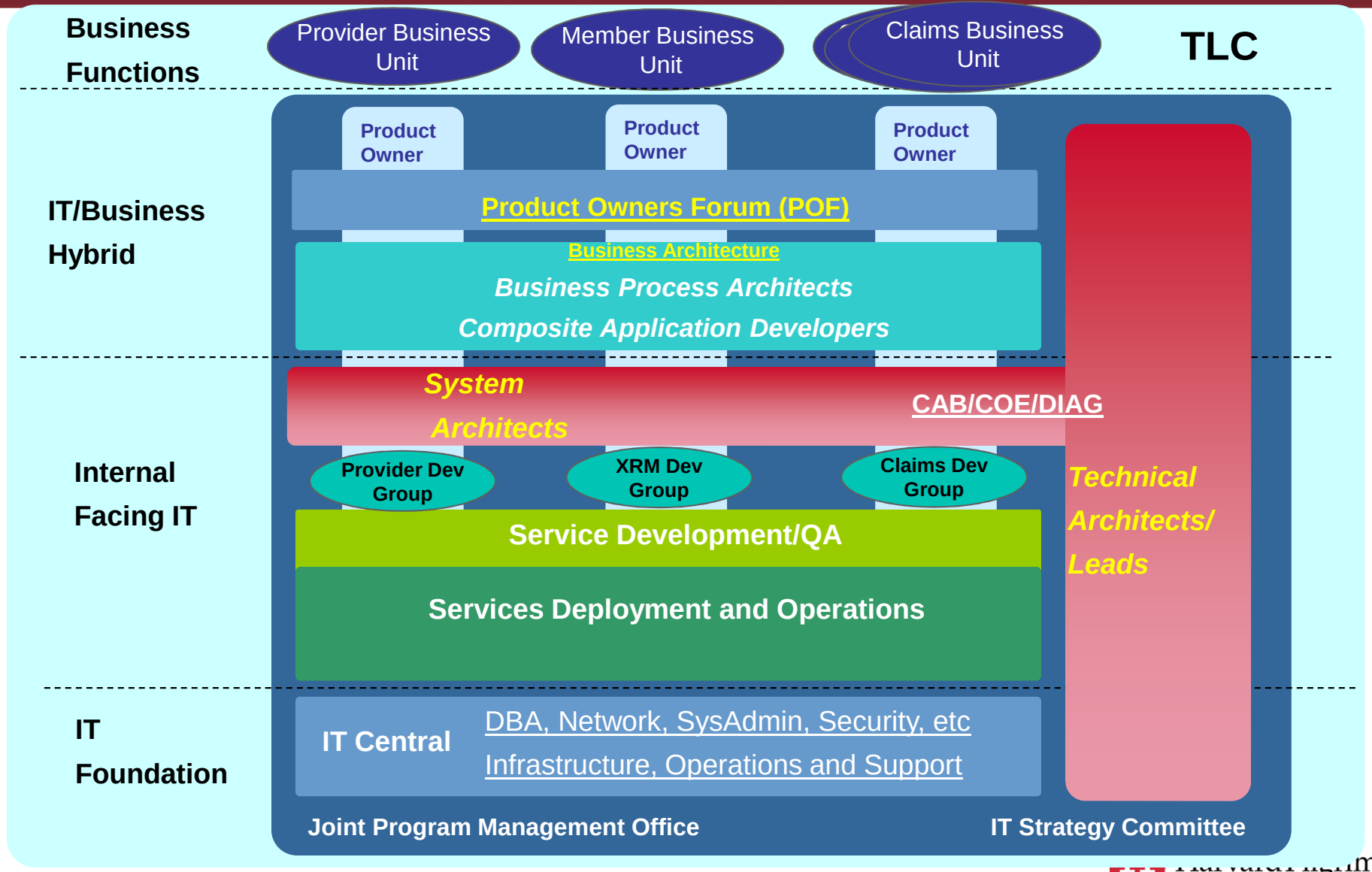
SOA demands Organizational Structure change



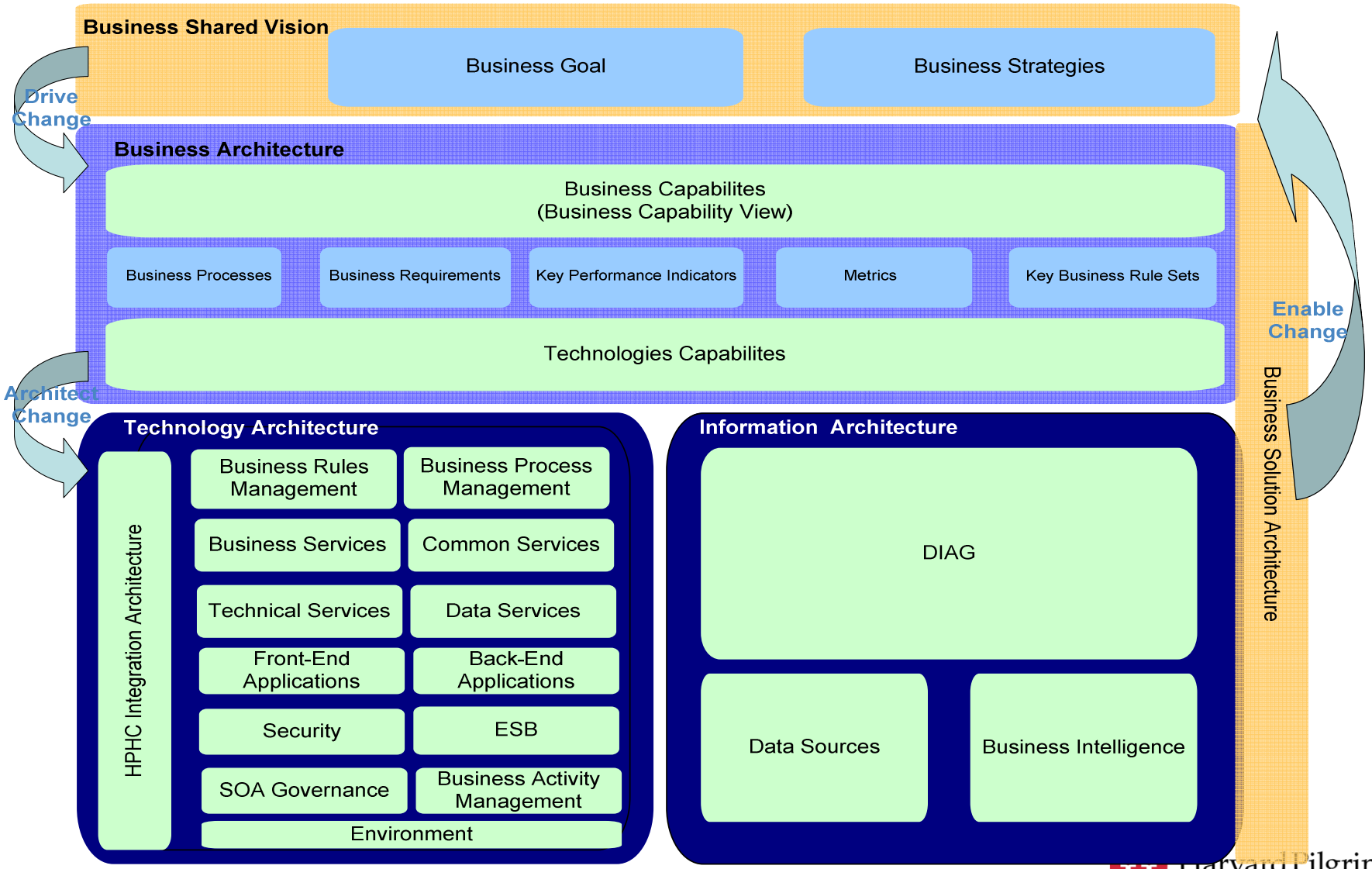
Establishing a Funding model is important for SOA success

- Project-based Funding (anti-enterprise strategy)
  - "He who comes to the river first, builds the bridge."
- **Enterprise Funding (allocated funds for enterprise projects) – an ideal model**
- IT Funding Model (to fund an improvement initiative) – little business participation
- Charge Back Model

Unifying Central IT Capabilities

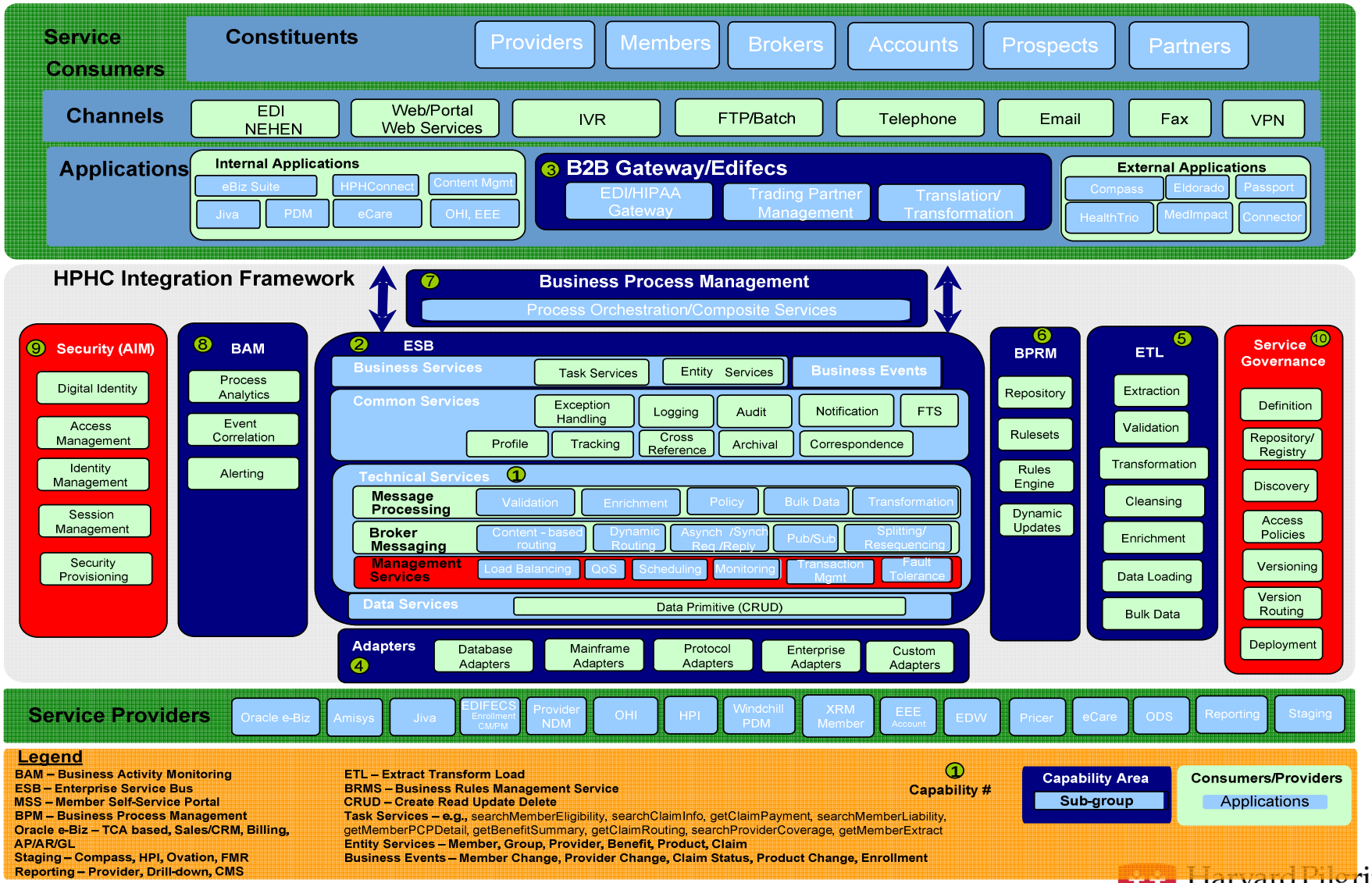
- Infrastructure
- Incident Management
- Information Services
- Security Services – trusted subnet, service accounts, wallet, etc
- Database Administration – performance, db monitoring
- Services Monitoring – service vitality, service performance, RUM
- Production/Go Live Acceptance – metric and measurement checklist
- Tools – need the right tools for identifying and diagnosing problems

Defining our Business Architecture



Establishing a SOA Reference Architecture

HPHC SOA Reference Architecture



Legend

BAM – Business Activity Monitoring
ESB – Enterprise Service Bus
MSS – Member Self-Service Portal
BPM – Business Process Management
Oracle e-Biz – TCA based, Sales/CRM, Billing, AP/AR/GL
Staging – Compass, HPI, Ovation, FMR
Reporting – Provider, Drill-down, CMS

ETL – Extract Transform Load
BRMS – Business Rules Management Service
CRUD – Create Read Update Delete
Task Services – e.g., searchMemberEligibility, searchClaimInfo, getClaimPayment, searchMemberLiability, getMemberPCPDetail, getBenefitSummary, getClaimRouting, searchProviderCoverage, getMemberExtract
Entity Services – Member, Group, Provider, Benefit, Product, Claim
Business Events – Member Change, Provider Change, Claim Status, Product Change, Enrollment

1 Capability #

Capability Area
Sub-group

Consumers/Providers
Applications

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SOA Governance and COE is key

- Manage the SOA Lifecycle
- Manage the SOA Transformation Roadmap (Transition Plan).
- Manage the Services Product Backlog.
- Manage the Services Lifecycle
- Provide Knowledge Sharing and Skills Transfer
- Ensure Quality of Services Factory Team
- Provide SOA Architectural Authority
- Define High Value Business Services
- Establish Decision Rights
- Support Tool and Vendor Selection Processes
- Conduct SOA Architecture Reviews
- Provide SOA Architecture Vitality and Leadership
- Provide SOA Measuring Best Practices
- Provide Project Support
- Socialize the SOA Reference Architecture Model
- Provide Production Support

Summary – HPHC SOA Transformation

Before – Traditional Delivery & Integration	Now – Services Center of Excellence
Service Delivery & Integration Focus on services development with limited direct influence over key organizational areas (e.g. information management)	**Services Center of Excellence** A self-supporting center with all key facets of organization coordinated with existing groups and functions.
Services Development View Services developed without a full view of the entire lifecycle and lifecycle requirements of managing enterprise services.	**Services Lifecycle View** A full lifecycle orientation that influences the process, and technology aspects of an agile enterprise services structure.
Product/Functional Driven Services built to satisfy integration requirements from one application to another.	**End-to-End Process Driven** Services designed to provide greater business opportunities across the end-to-end business process cycles.
Governance Concerned Loose governance policies, controls and procedures not managed through in a centralized manner	**Governance Oriented** Design- and Run-time governance managed centrally through a robust services repository and registry
Information 'on the side' Separate information management group engages when needed to satisfy tactical information requirements.	**Information 'at the center'** Integrated services information management team creates and evolves information solutions that enable greater information fidelity, quality and reliability.
Traditional Manual Testing Services are tested using mostly manual processes and tools that are not aligned to service requirements.	**Continuous Integration & Testing Automation** Daily integration builds and tests running in parallel with automated test scripts that continuously test service solutions.
Silo Change Control Changes and configuration parameters are not consistently managed and applied across multiple environments.	**Integrated Change Control & Configuration Management** All change and configuration management issues are centrally administered for complete visibility and control.

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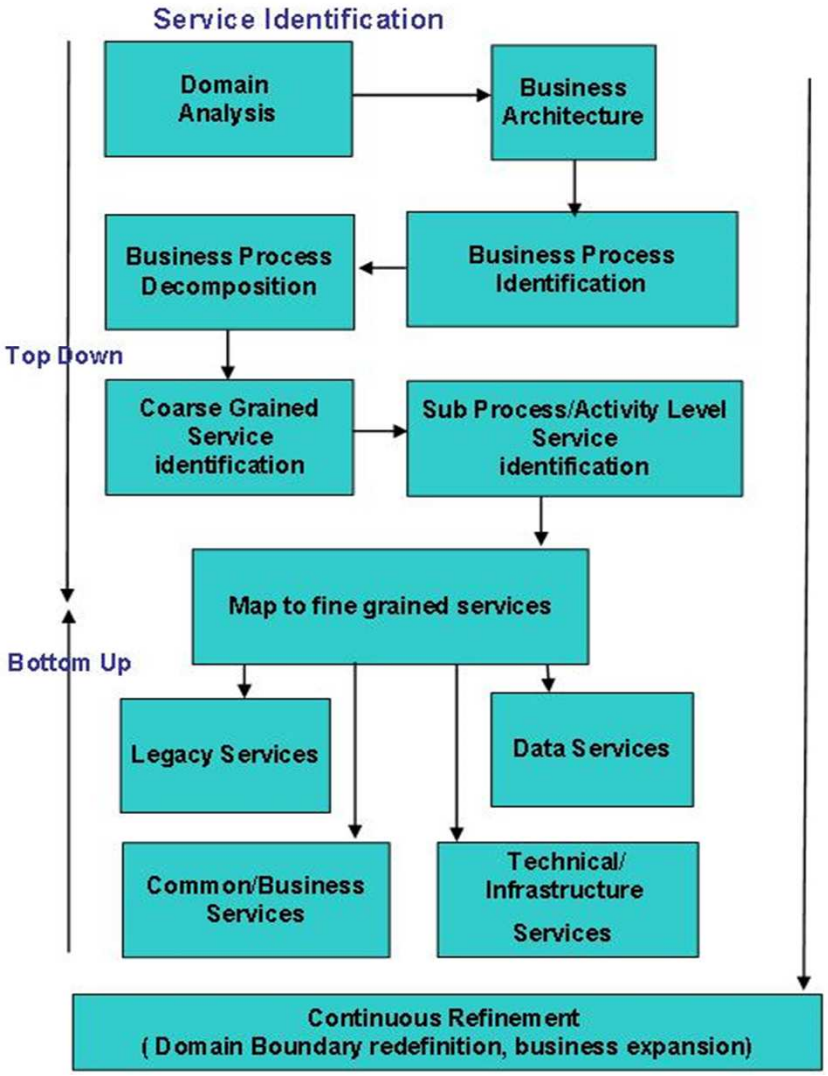
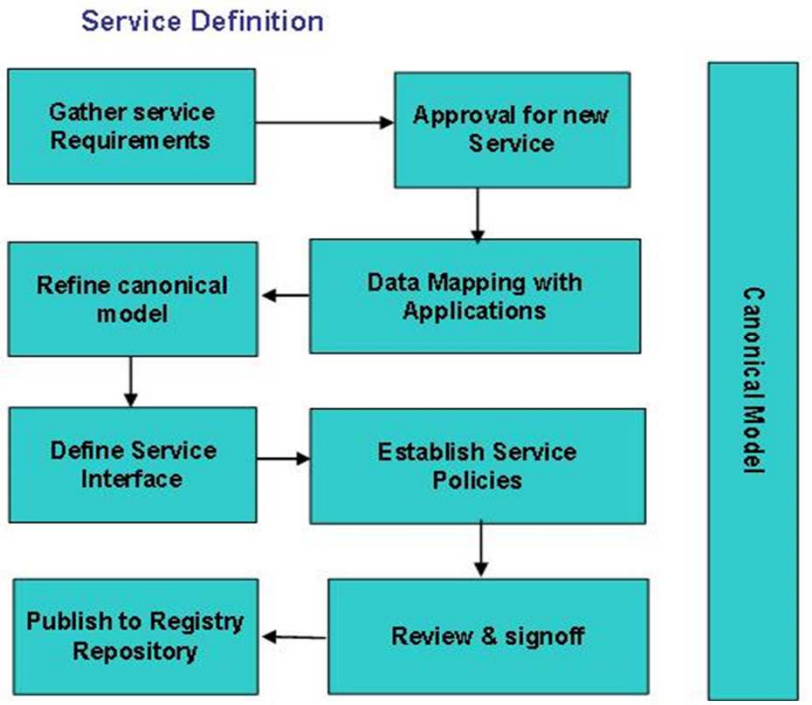
Establishing a Service Identification Process





- Service Identification requires both top-down and bottom-up approaches
- Need to consider the application landscape across the organization to maximize reuse
- Move towards a Common Data model
- Can be done for small part of the enterprise & extended incrementally.
- Service definitions get refined as domain boundary expands or business expands thereby testing governance processes

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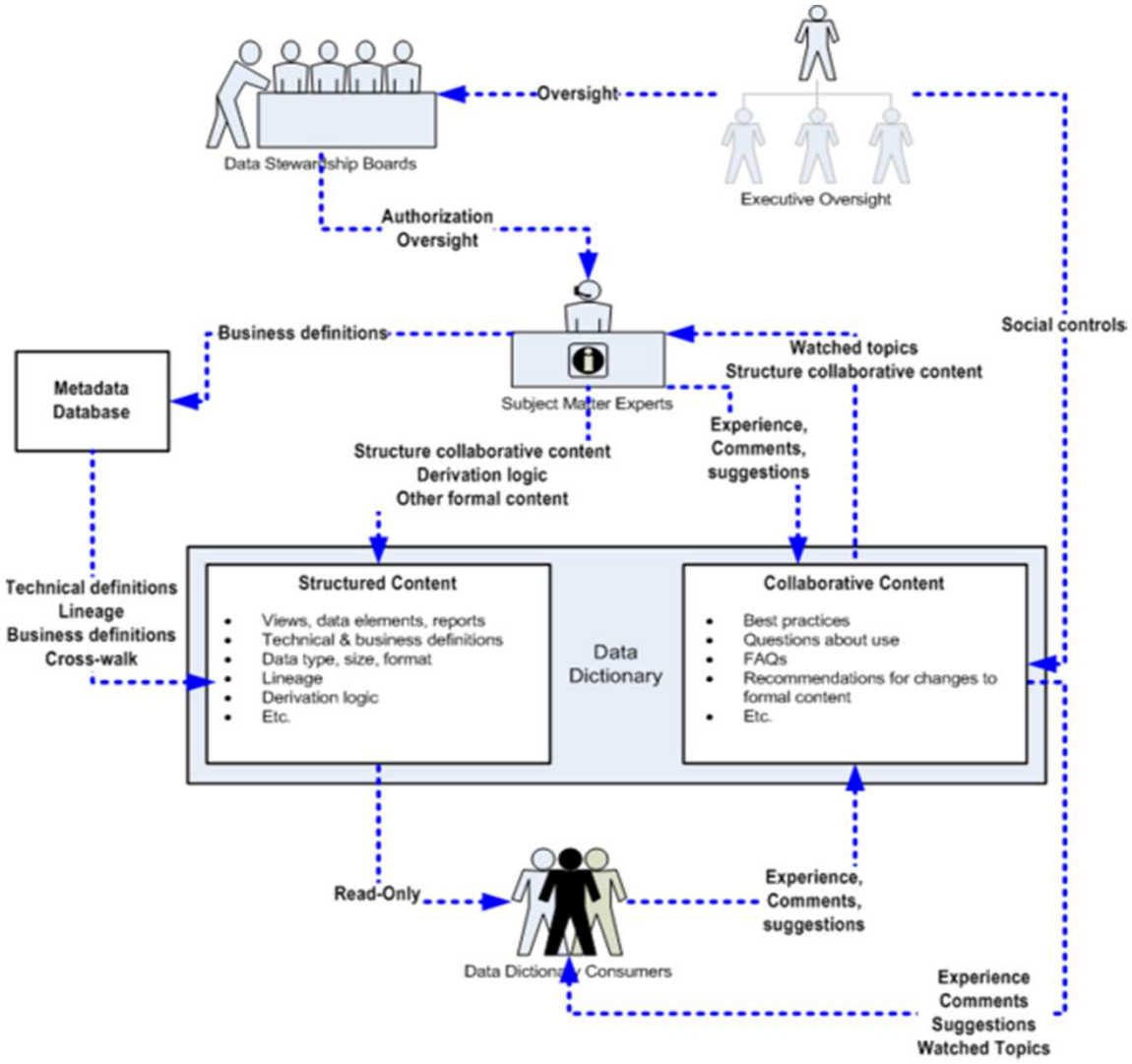
Using ELDM and Data Dictionary For Creating Enterprise Canonicals - (DIAG responsibility)



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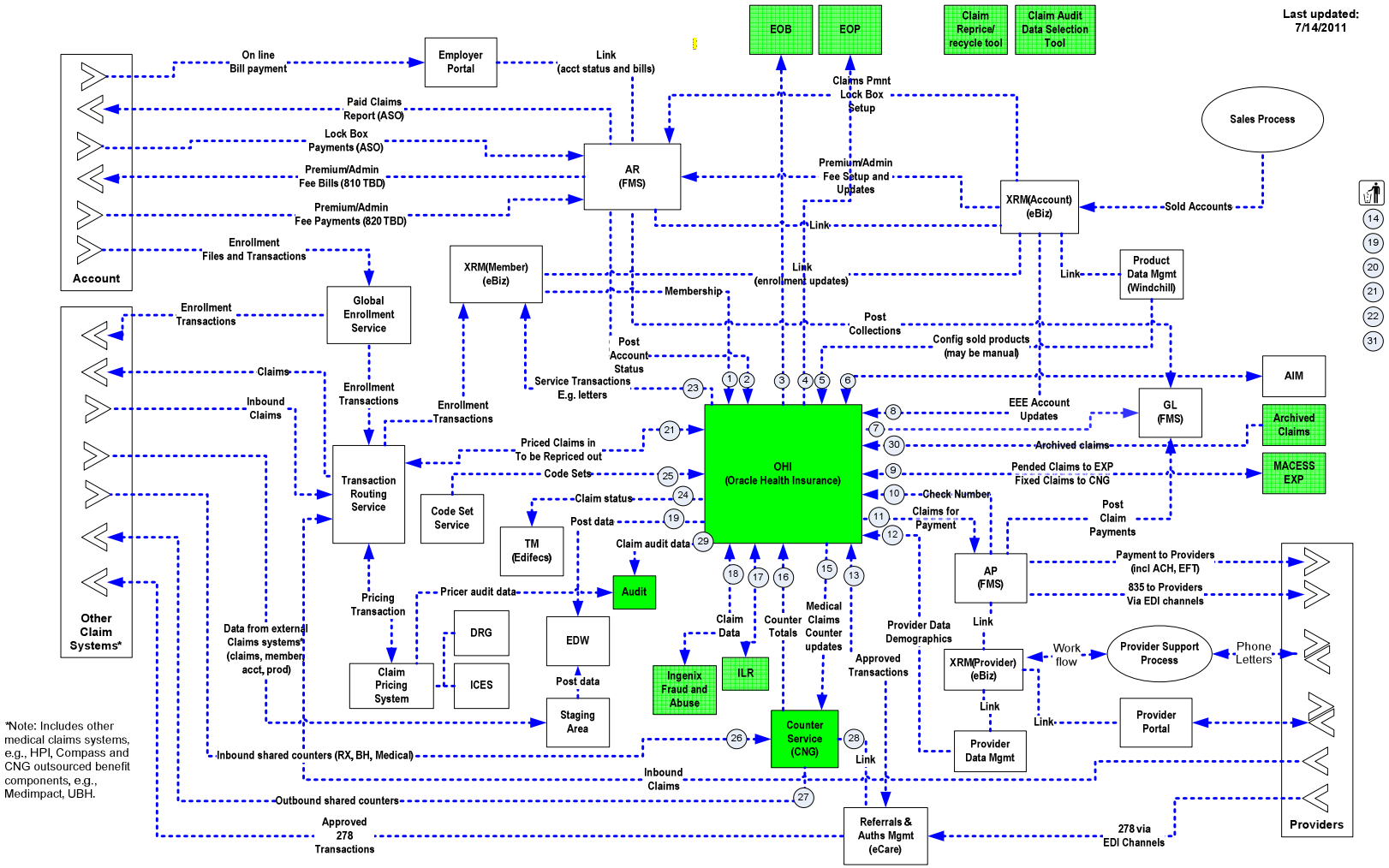
A BCD Approach for identifying integration points



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Creating A Business Services Backlog

Member
- GetMember
- SearchMember
- ExtractMember
- GetMemberEligibility
- NotifyMemberChange
- GetMemberPCP
- Member Entity

Product
- GetProduct
- GetCodeSet
- ExtractCodeSet
- SearchProduct
- ExtractProduct
- Product Entity

Customer
- GetCustomer
- SearchCustomer
- NotifyCustomerChange
- Customer Entity

Broker
- GetBroker
- SearchBroker
- Broker Entity

Provider
- GetProvider
- ExtractProvider
- SearchPCP
- NotifyProviderChange
- Provider Entity

Counter
- GetCounters
- GetAuthCounters

Claims
- GetClaim
- SearchClaim
- SubmitClaim

RefAuth
- GetRefAuth
- SearchRefAuth
- NotifyRefAuthChange
- RefAuth Entity

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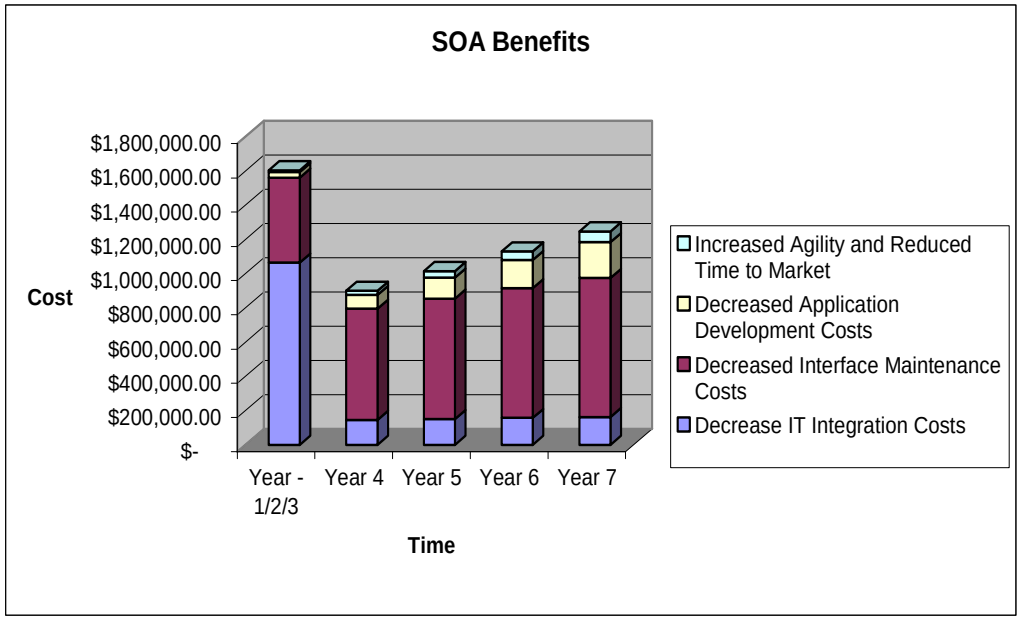
Measuring your ROI

SOA Benefits for HPHC	Year - 1/2/3	Year 4	Year 5	Year 6	Year 7	Total
Decreased IT Integration Costs	$ 1,064,573.00	$ 145,384.00	$ 151,199.00	$ 157,247.00	$ 163,537.00	$ 1,681,940.00
Decreased Interface Maintenance Costs	$ 496,375.00	$ 649,800.00	$ 703,950.00	$ 758,100.00	$ 812,250.00	$ 3,420,475.00
Decreased Application Development Costs	$ 33,333.00	$ 80,800.00	$ 122,412.00	$ 164,848.00	$ 208,121.00	$ 5,102,415.00
Increased Agility and Reduced Time to Market	$ 10,175.00	$ 24,662.00	$ 37,363.00	$ 50,316.00	$ 63,524.00	$ 186,040.00
Total Benefits	$ 1,604,456.00	$ 900,646.00	$ 1,014,924.00	$ 1,130,511.00	$ 1,247,432.00	$ 5,897,969.00



NPV Savings (over five year analysis period, using 10.0% discount rate)	$ 4,512,170.68
Discount rate used for NPV Calculations	10.00%

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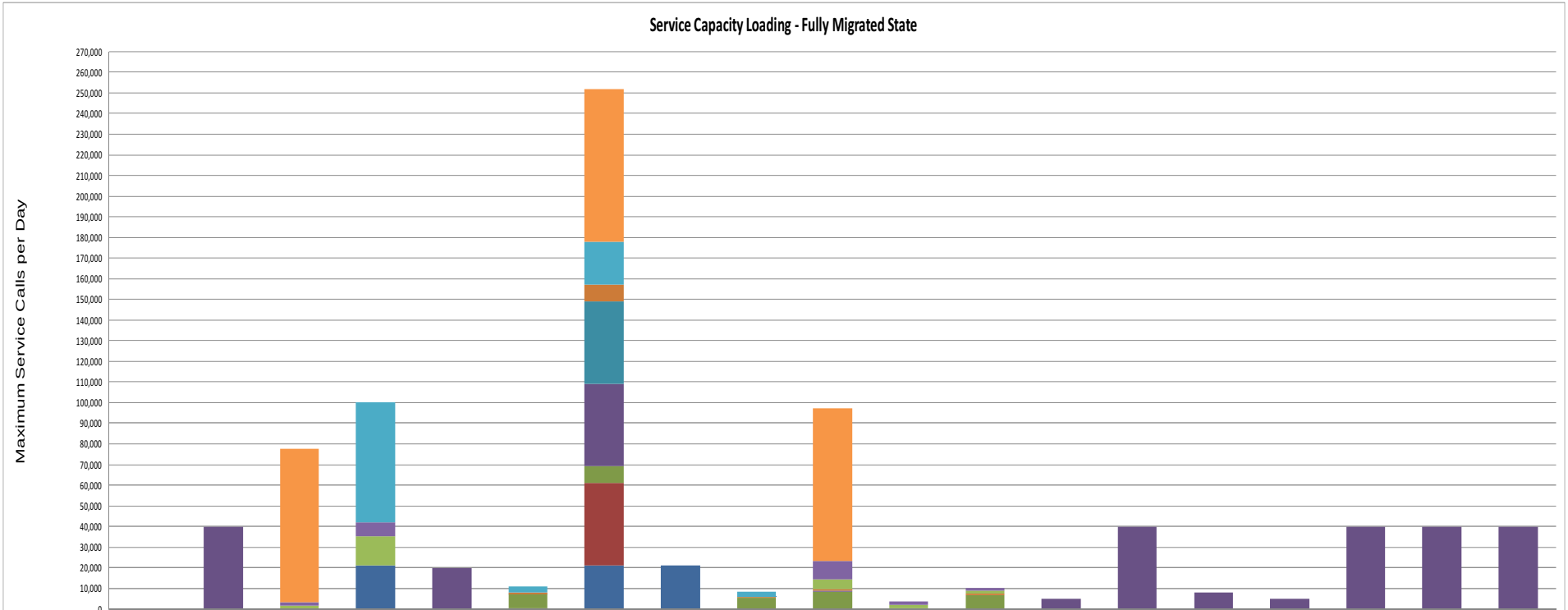
Measuring Capacity Demand and Planning



	CorrespondenceService	GetAccountPaymentStatus (GAPS)	GetAccumulator	GetClaim	GetClaimPayment	GetCustomer	GetMember	GetMemberAccumulator	GetProduct	GetProvider	GetRefAuth	Member Entity	Claim Reprocessing	OHI Claim data to Staging Interface	PendClaim	Reprice Interface	SetAccountInvoice	Submit Claim Interface	updateClaimStatus
	Enterprise												Local						
EDI (270/271) - Realtime			74,000				74,000			74,000									
HealthTrio - Batch				58,000		3,000	21,000		2,500										
XRM (Provider) - Realtime			1,750	7,000						9,000	1,750	1,250							
XRM (Member) - Realtime			1,750	14,000						4,500	1,750	1,250							
XRM (Member) - Batch	350																		
RMB - Batch									2										
PTL - Realtime						689	8,022		551	827		689							
JIVA - Batch						200	40,000												
I/F - Realtime		40,000			20,000		40,000			600	200		5,000	40,000	8,000	5,000	40,000	40,000	40,000
ENR - Batch						6,890	8,000		5,512	8,268		6,890							
ECARE - Batch						200	40,000												
AMS - Batch				21,000			21,000	21,000											

Service Monitoring and Dashboard (SLA)

- Current Availability
- Current Response Time
- Current execution time
- Current functionality compliance
- Total service calls and frequency

Channel	Description	Status	On Time	Test Time	Quick	Resp	Max Resp	Avail	Avail	Min Avail
GETCUSTDEVV2	DEV Customer Information Service 1	✓	✓	06/22/2011 15:51:00 Wed	✓	703	1,778	⚠	89.58	95.00
CLAIMSVCDEVV2	DEV Get Claims Process 2	✓	✓	06/22/2011 15:51:00 Wed	✓	125	16,500	⚠	94.79	95.00
CLAIMSVCDEVV3	DEV Get Claims Process 3	✓	✓	06/22/2011 15:51:00 Wed	✓	343	16,500	✓	100.00	95.00
GETPROVDEVV4	DEV Provider V4 Service	✓	✓	06/22/2011 15:51:02 Wed	✓	2,859	4,000	✓	100.00	95.00
CNTRSVCETE	ETE Accumulator Counter Service	✓	✓	06/22/2011 15:50:51 Wed	✓	138	2,000	✓	100.00	95.00
GAPSVCETE	ETE Get Accounts Payments Summary	✗	✓	06/22/2011 15:50:50 Wed	✓	30	20,000	⚠	48.96	96.00
CLAIMSVC2ETE	ETE Get Claims Process version 2	✓	✓	06/22/2011 15:50:51 Wed	✓	181	12,000	✓	100.00	95.00
PROVSVC2ETE	ETE Provider V2 Service	✓	✓	06/22/2011 15:50:51 Wed	✓	190	7,538	✓	100.00	95.00
WTS270-5010-PRD	PRD ProviderClaim request/Response (WTS/EDI 270-5010) End-to-End components	✓	✓	06/22/2011 15:50:02 Wed	✓	625	12,975	✓	100.00	98.00
WTS276-5010-PRD	PRD ProviderClaim request/Response (WTS/EDI 276-5010) End-to-End components	✓	✓	06/22/2011 15:42:04 Wed	✓	3,734	12,975	✓	100.00	98.00
1099BI09	PROD 1099HC 2009 Batch INTPRD5 pdf processes	✓	✓	06/22/2011 15:45:16 Wed	✓	129	6,875	✓	100.00	95.00
1099NBI09	PROD 1099HC 2009 Batch Non-Complaint INTPRD5 pdf processes	✓	✓	06/22/2011 15:45:17 Wed	✓	336	11,538	✓	100.00	95.00
1099NBO09	PROD 1099HC 2009 Batch Non-Complaint ODSPRD1 pdf processes	✓	✓	06/22/2011 15:45:18 Wed	✓	112	47,172	✓	100.00	95.00
1099BO09	PROD 1099HC 2009 Batch ODSPRD1 pdf processes	✓	✓	06/22/2011 15:45:18 Wed	✓	275	4,478	✓	100.00	95.00
1099I09	PROD 1099HC 2009 Non-Batch INTPRD5 pdf processes	✓	✓	06/22/2011 15:45:14 Wed	✓	1,503	21,202	✓	100.00	95.00
1099NI09	PROD 1099HC 2009 Non-Batch Non-Complaint INTPRD5 pdf processes	✓	✓	06/22/2011 15:45:15 Wed	✓	520	18,127	✓	100.00	95.00
1099BI10	PROD 1099HC 2010 Batch INTPRD5 pdf processes	✓	✓	06/22/2011 15:45:10 Wed	✓	208	18,000	✓	96.30	95.00
[illegible]	[illegible]	✓	✓	[illegible]	✓	[illegible]	[illegible]	✓	[illegible]	[illegible]

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What ROI have we seen over the past 3 years?

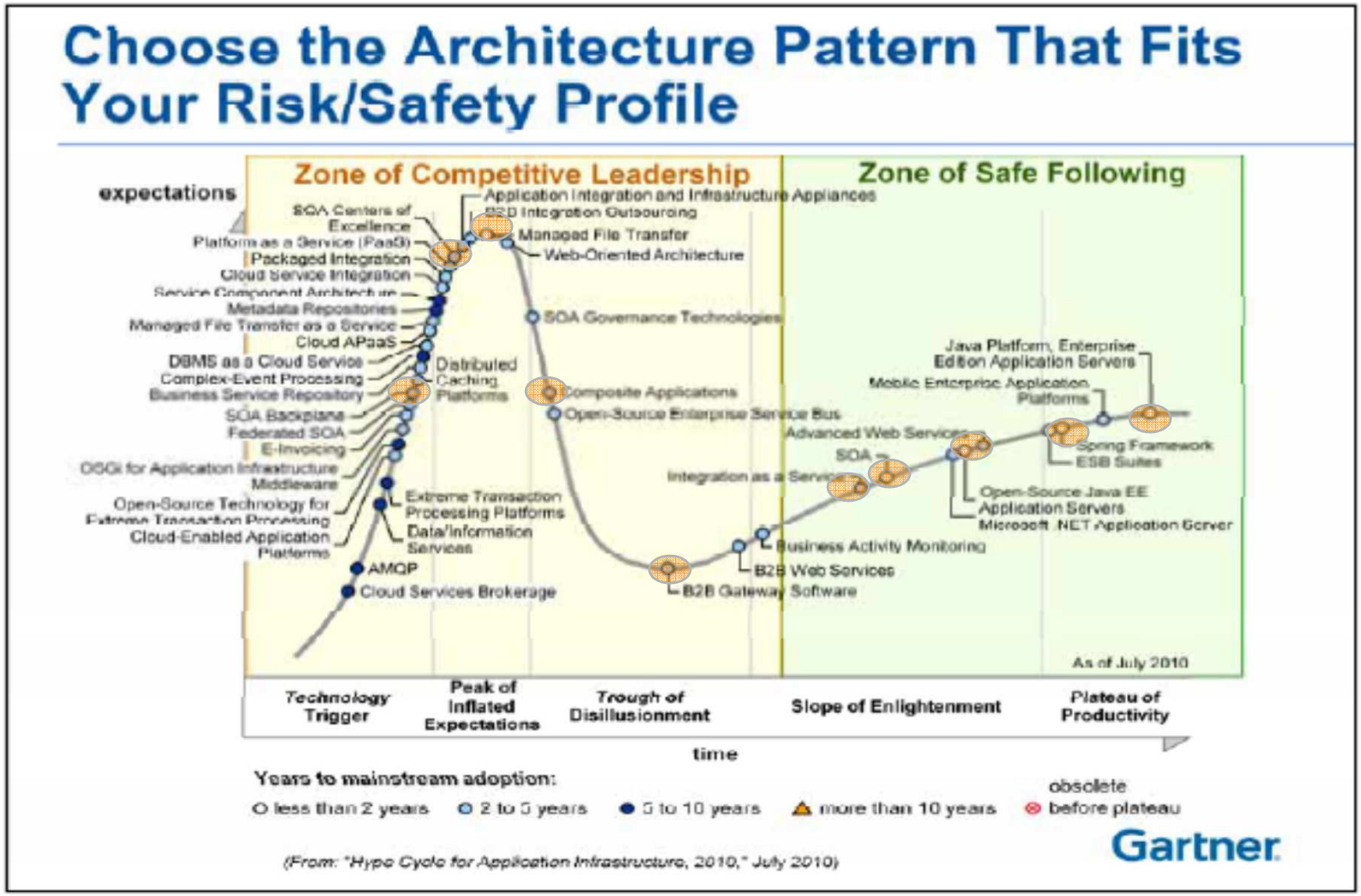
Decreased IT Integration Costs – SOA decreases integration costs compared to point-to-point integration due to standard canonical and reuse of services.

Decreased Interface Maintenance Costs - Cost of maintaining and enhancing interfaces is decreased due to isolation of maintenance requirements to the changing application and reduced rework for application upgrades.

Decreased Application Development Costs – With formalized processes, methods, and governance that require reuse as the primary option of software development, service-oriented development approach's can result in significant application development savings over time due to component and code reuse.

Increased Agility and Reduced Time to Market – With an SOA projects can be delivered in less time and with less risk due to significant reuse of existing component and code. The result is an improvement in the value that is delivered to the business from a given project.

Where are we in the Gartner Hype Chart?



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Conclusion

- Continue adding new components
- Continue monitoring SOA maturity
- Continue monitoring Organizational maturity
- Continue monitoring ROI

Thank you !

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