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Using TOGAF at Kynetia

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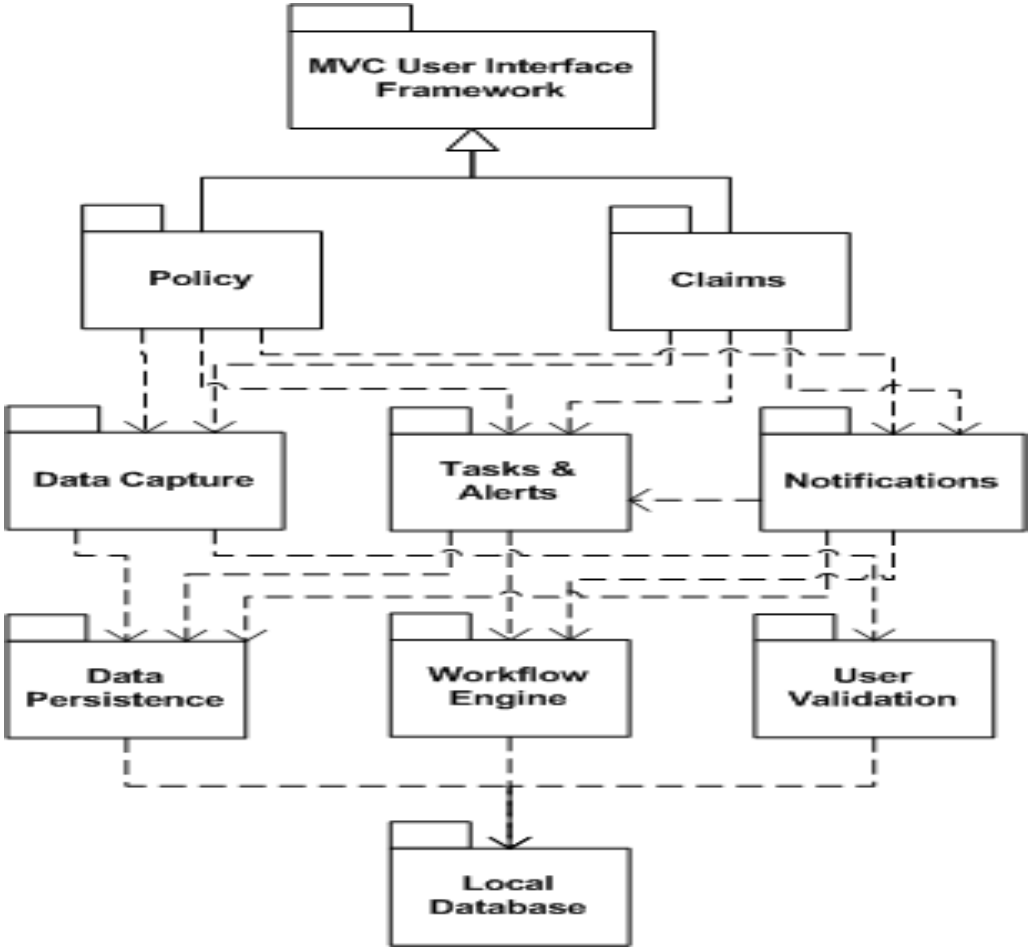
Local Application

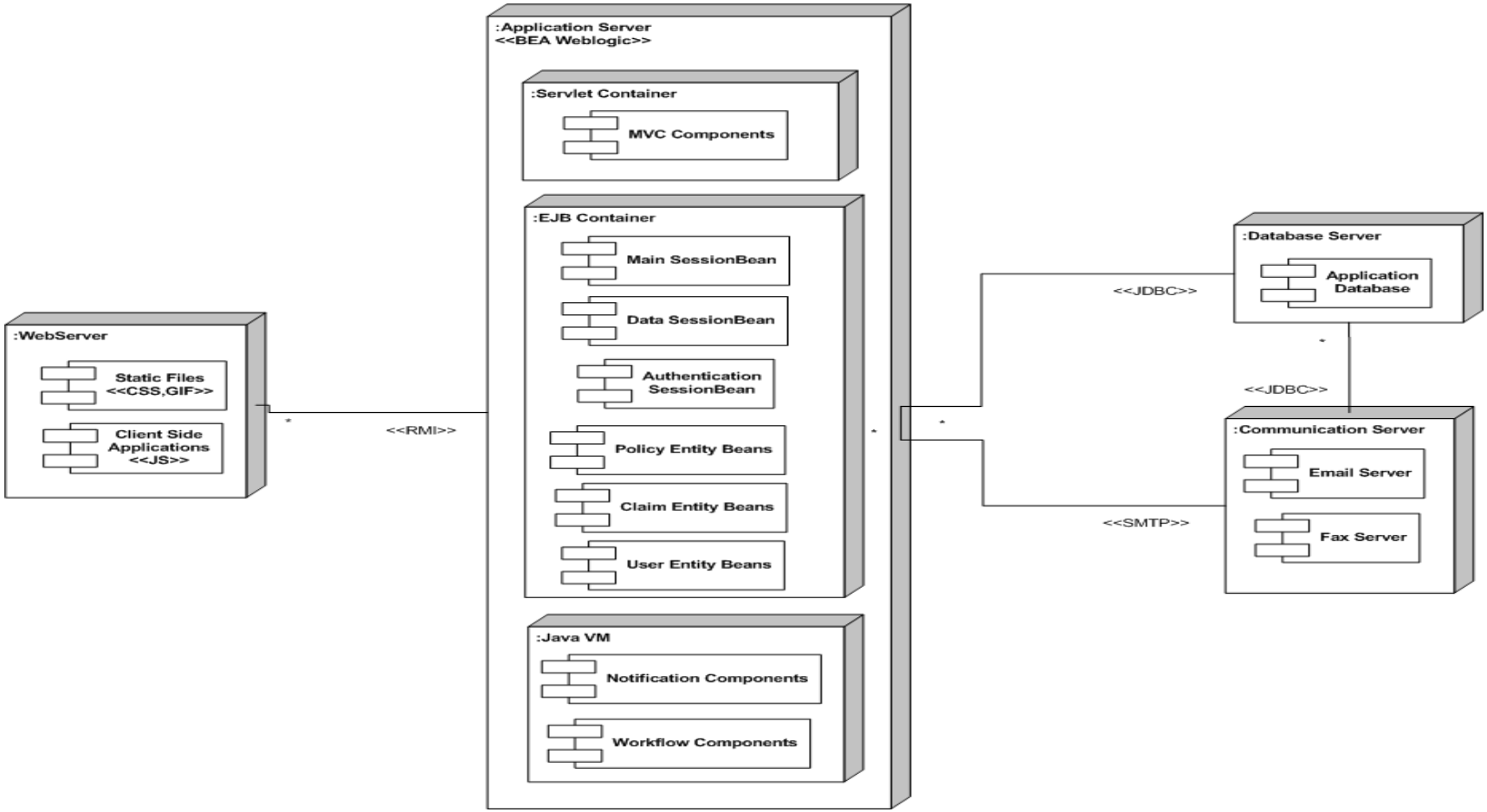
Local Application

- Developed for a Multinational Insurance Company

Package Diagram



Component and Deployment



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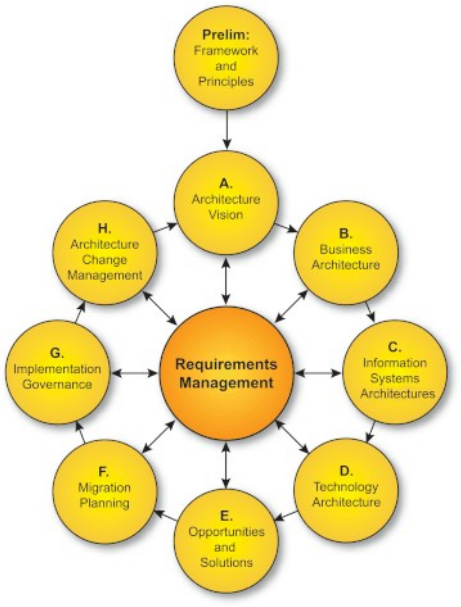
Using TOGAF to Create Enterprise Application



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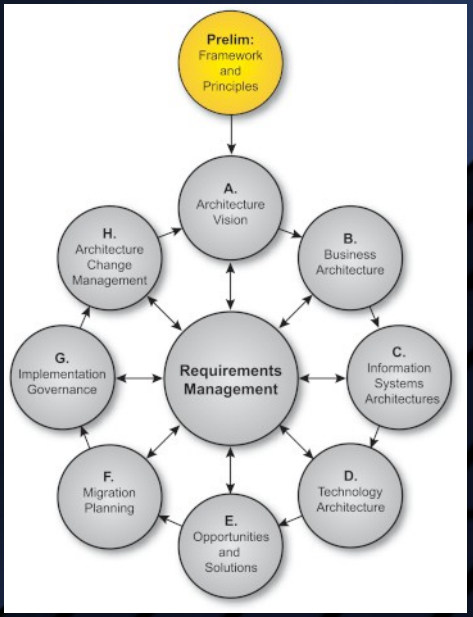
Framework and Principles



Business Drivers

- A Global platform covering the activities worldwide:
  - USA & Canada
  - Europe & Middle East
  - Australia and Eastern Asia
  - … and soon South America and Africa

Business Goals

- Bring Local Application to Global Platform
- Integrate Several Corporate Services
- Simplify Workflow
- Create Common Application Framework
- Reuse Business Entities
- Optimize Business Processes
- Remove Current Constraints (localization, connectivity, scalability, flexibility, etc.)
- Allow Customized Services for Minor/Local needs

Architecture Principles

- Global Platform Architecture principles:
  - Unique and centralized database for business entities
  - SOA Approach for Global Applications:
    - Service layer to access the data
    - Global applications for core business functions
    - Service bus to expose & access functionality
  - Unify Front-end components by using:
    - Common presentation tier technologies (XSL/AJAX/Etc)
    - Portlets, single sign-on

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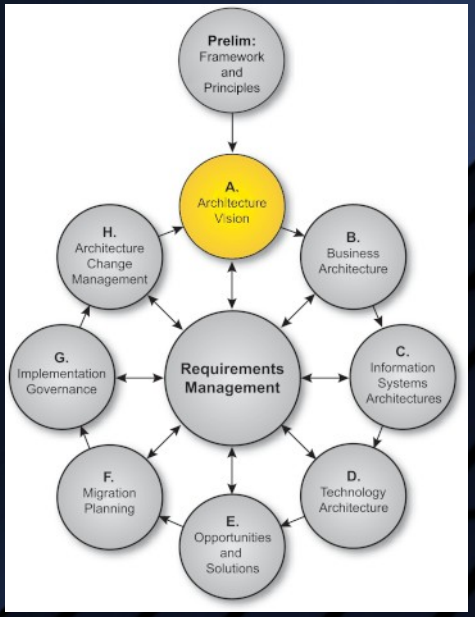
Architecture Vision



Statement of Architecture Work

- Scope and constraints
  - Re-platform and Re-design work is required
  - Data access through common services
  - Legacy technology (i.e. EJB 1.1) to be updated/replaced
  - Replace home-grown MVC by industry standard components
  - Front-end to be updated with Global presentation services
  - Full integration with Global services (Document Storage, Document Generation, Email Input / Output, etc.)
  - Ensure capacity, availability and performance for Worldwide usage
  - Construct Global Platform within 2 years

Statement of Architecture Work

- Refined statements of Business Principles, Business Goals and Strategic Drivers
  - Automate work, collect information and analyze data to improve business processes and client services
  - Globalize business solutions and maximize company's capacity, rather than optimizing local performance
  - Strategic Driver: use corporate knowledge and capacity to increase services qualities and capacities

Architecture Vision

- Provide a single platform for 25,000+ users
- Single-Sign-On
- Single database, with exhaustive reporting and mining
- Improved Scalability, Extensibility & Performance
- Reuse scalable solutions, adapting to the Global Architecture and Services
- Minimize risks by reusing working components, and transform them into Global services

Business Scenario

- Users: Company employees, Clients and third parties
- Business Case:
  - The Client submits a Claim into the system
  - The workflow activates an alert to Insurance Company
  - The Insurance Company notifies a suplier to repair the damage
  - The company tracks the activity, manages and report the client to ensure the service quality
  - The company gathers information and provides a risk study to the client based on the claims submitted in the last 3 years

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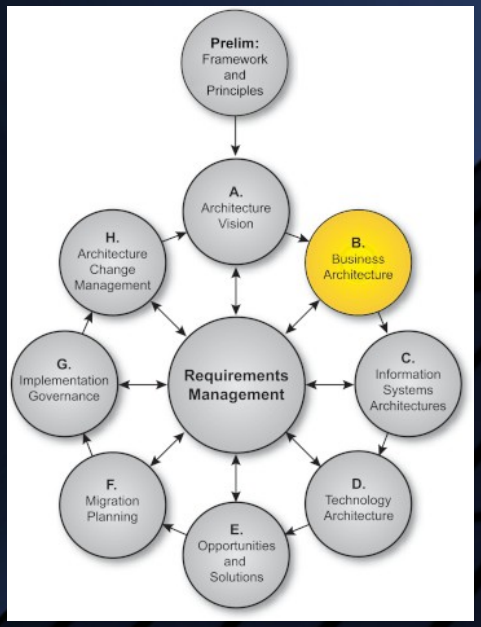
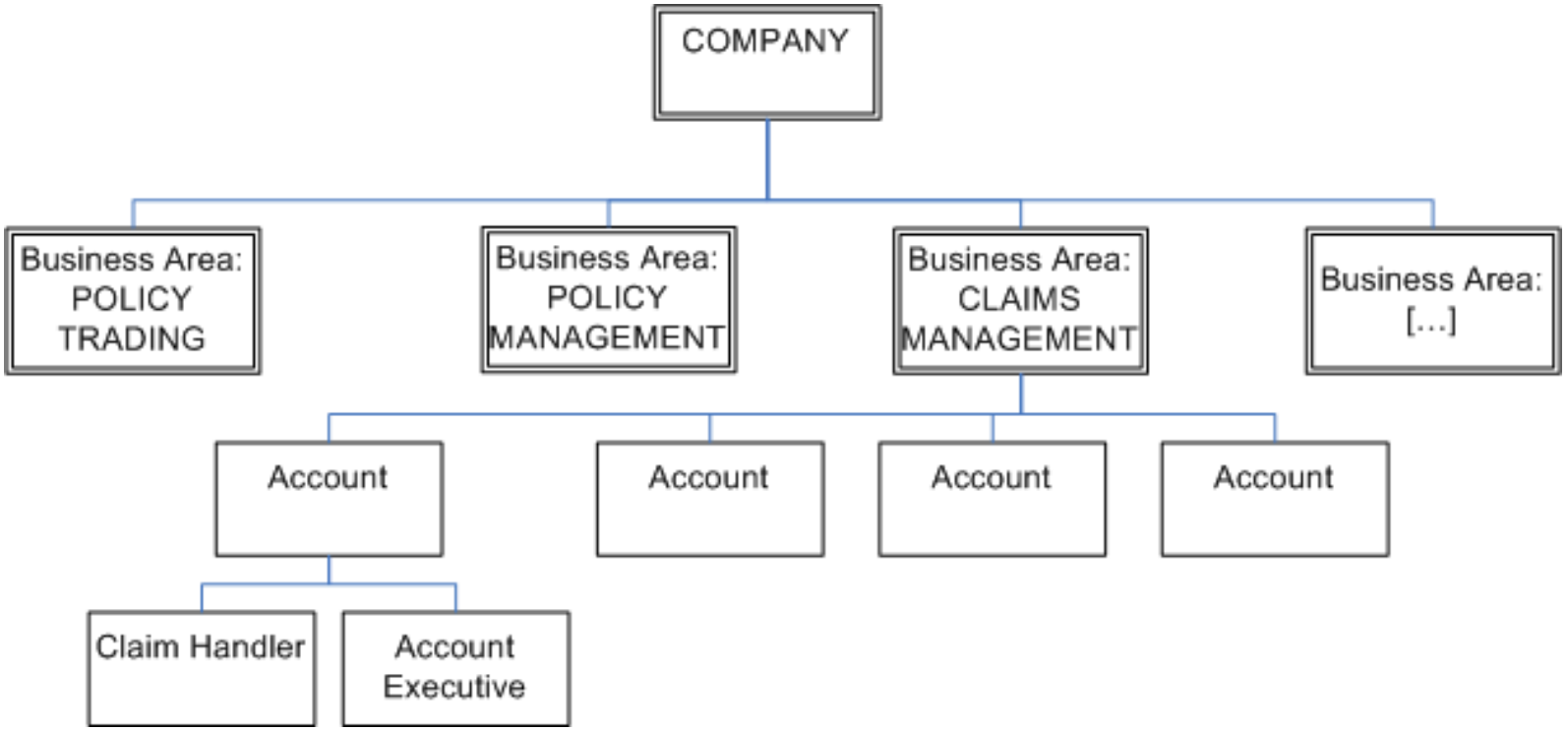
Business Architecture



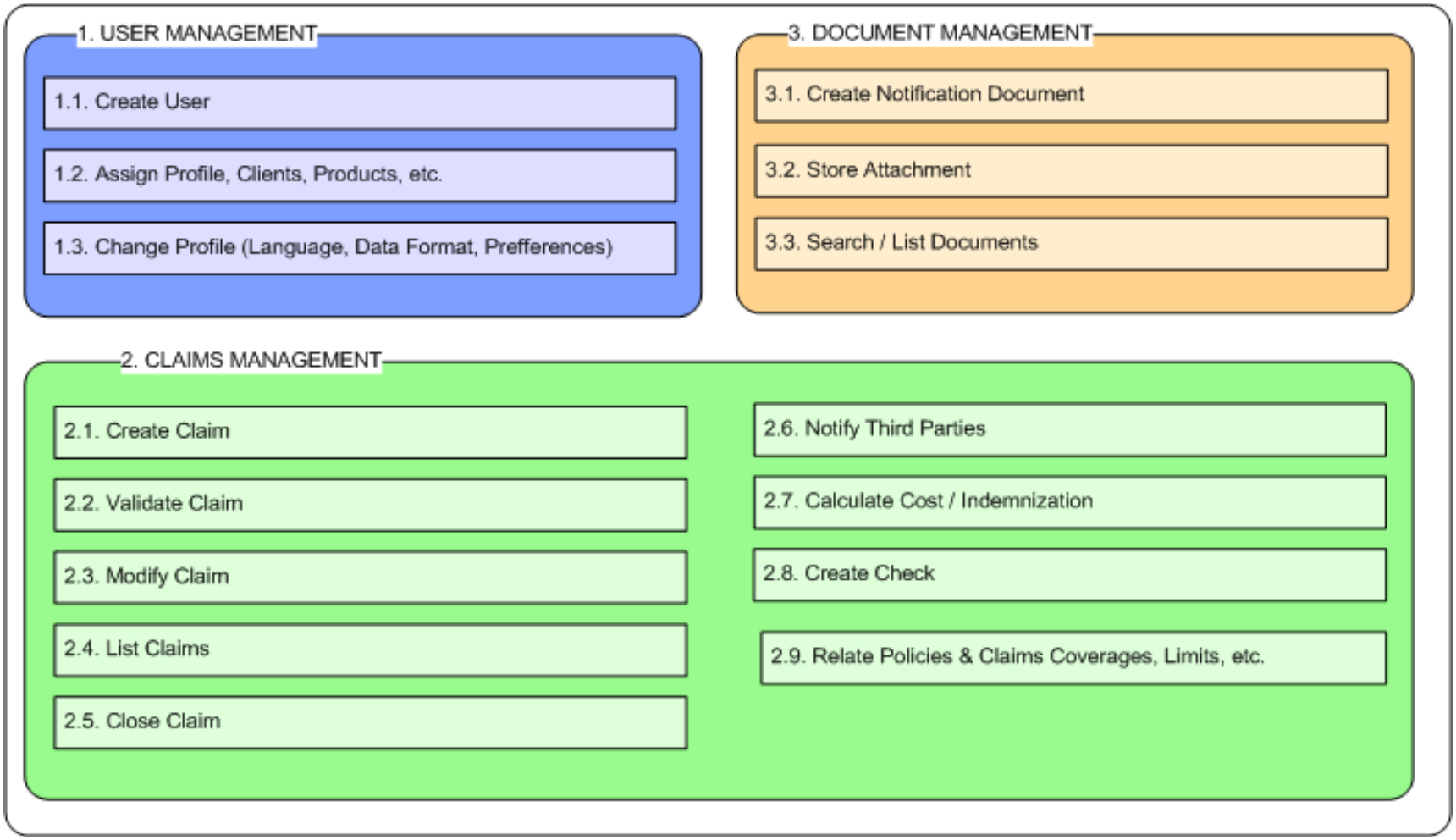
Business Goals, Drivers

- Business Goals
  - Covering worldwide business requirements
  - Flexibility to integrate with all global services
  - Service all corporation employees plus external users as clients and third parties
  - Generate new services for clients on top of new platform
  - Unify Business Data: Policy, Claims, Reports, Clients, Users, etc.
  - Unify Deliverables: Reports, Forms, Documents.
  - Reuse information and media
  - Facilitate Corporate reporting and cross-country processes
- Strategic Drivers
  - Move forward into a SOA Platform instead of hundreds of local systems, reducing maintenance costs and giving a complete governance view

Organization Structure



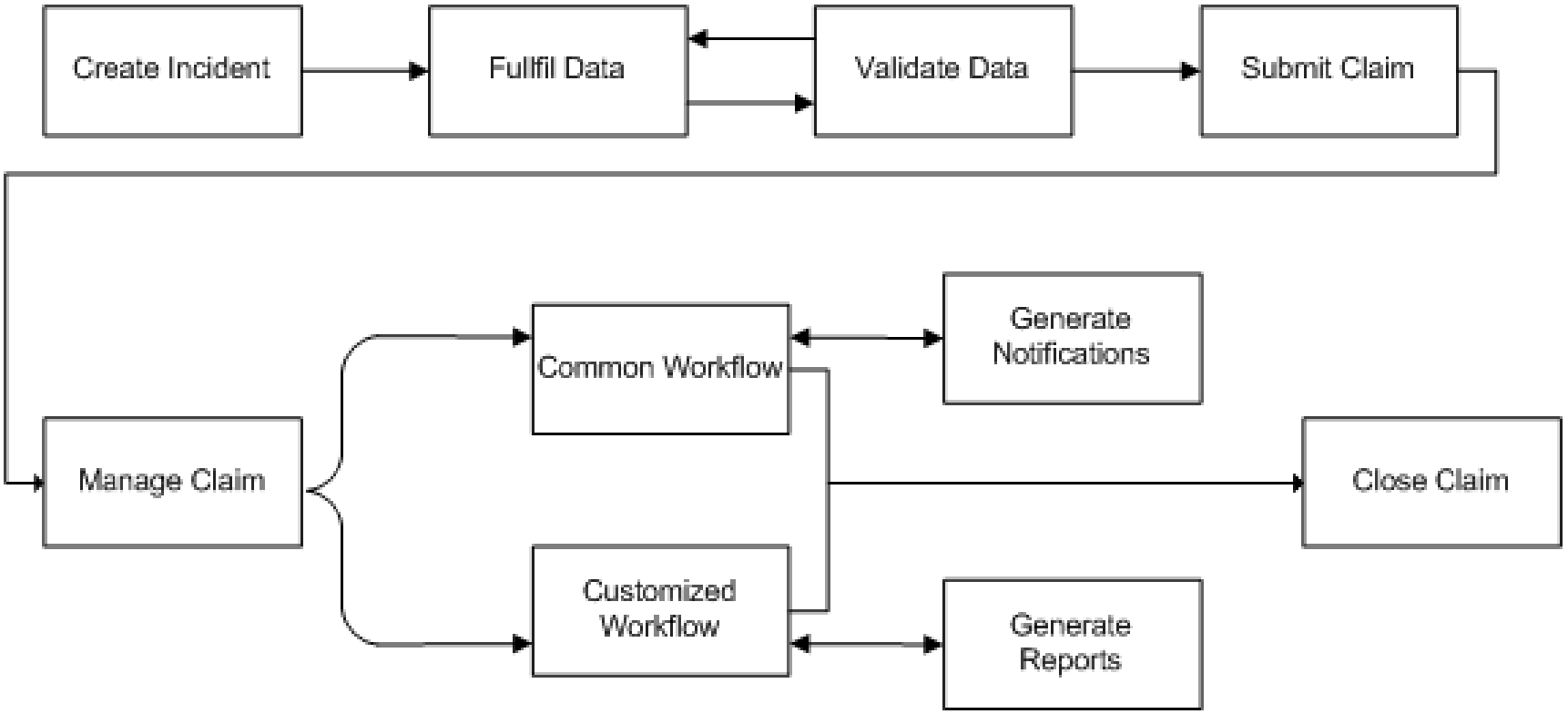
Business Functions



Business Services

- Claims system must expose Services for:
  - Create, modify, retrieve and close claims
  - Get reports from claims data stored in the system
  - Notifications & Alerts interaction
  - Submit events for Claim Management Workflow

Business Processes



Gap Analysis

Target Architecture → Current Architecture ↓	Data Access based on Service Layer	Clusterized supporting High availability	Front-end Integrated with corporate Framework	Business logic driven by standard BPEL Workflow	Eliminated services ↓
Data Access based on direct Database querying	Potential Match				
Clusterized supporting High availability		Included			
Ad-hoc MVC & JSP Generation					To be replaced
Ad-hoc Alert system					Gap in Target Architecture
New →			Gap to be procured	Gap to be procured	

Potential Sources of Gaps

- People gaps
  - Training Required
- Process gaps
  - Forms Definition & Workflow Needs Improvements
- Information gaps
  - New Information Must be Captured
  - Processes and Sources Must be Validated
- Facilities gaps
  - Several New Facilities Required

Gap Analysis Results

- Front-end and Middleware must be refactored to meet target requirements
- Database access method should be modified
- Scalability and availability need to be improved
- Alerts & Notification system is not fully covered in target architecture
- Global solution does not contain a email / Fax alert engine

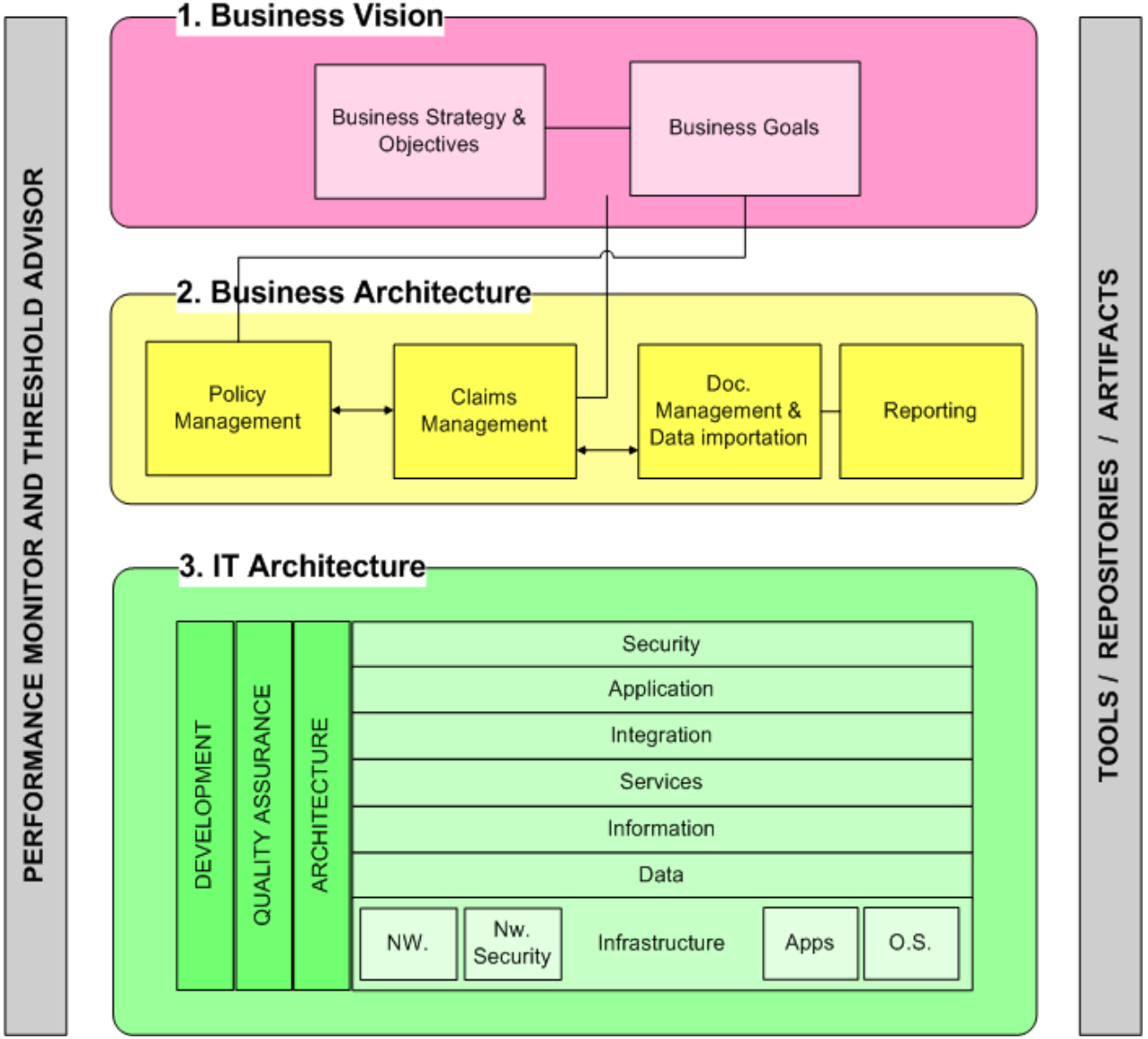
Technical Requirements

- SOA approach in Integration
- Use BPEL for defining Business Processes
- Re-engineer Solution to Match Target Platform
- Re-design System
- Provide Unified Front-end by Creating a Portal

Updated Business Requirements

- Form data capture functionality is reduced as the global service has restricted functionality
  - Local application allows data capture from dynamic forms, enabling a easy way to create Line of business and process the data fulfilled in the forms
  - Global application limits the flexibility of dynamic forms, so data capture functions are reduced
- Response time of system functions and services (i.e. Document Rendering or email alerts) will be increased due to Global Architecture complexity

Enterprise Architecture



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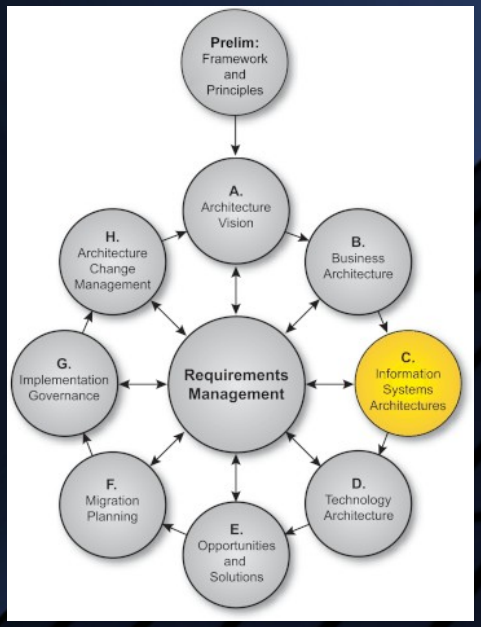
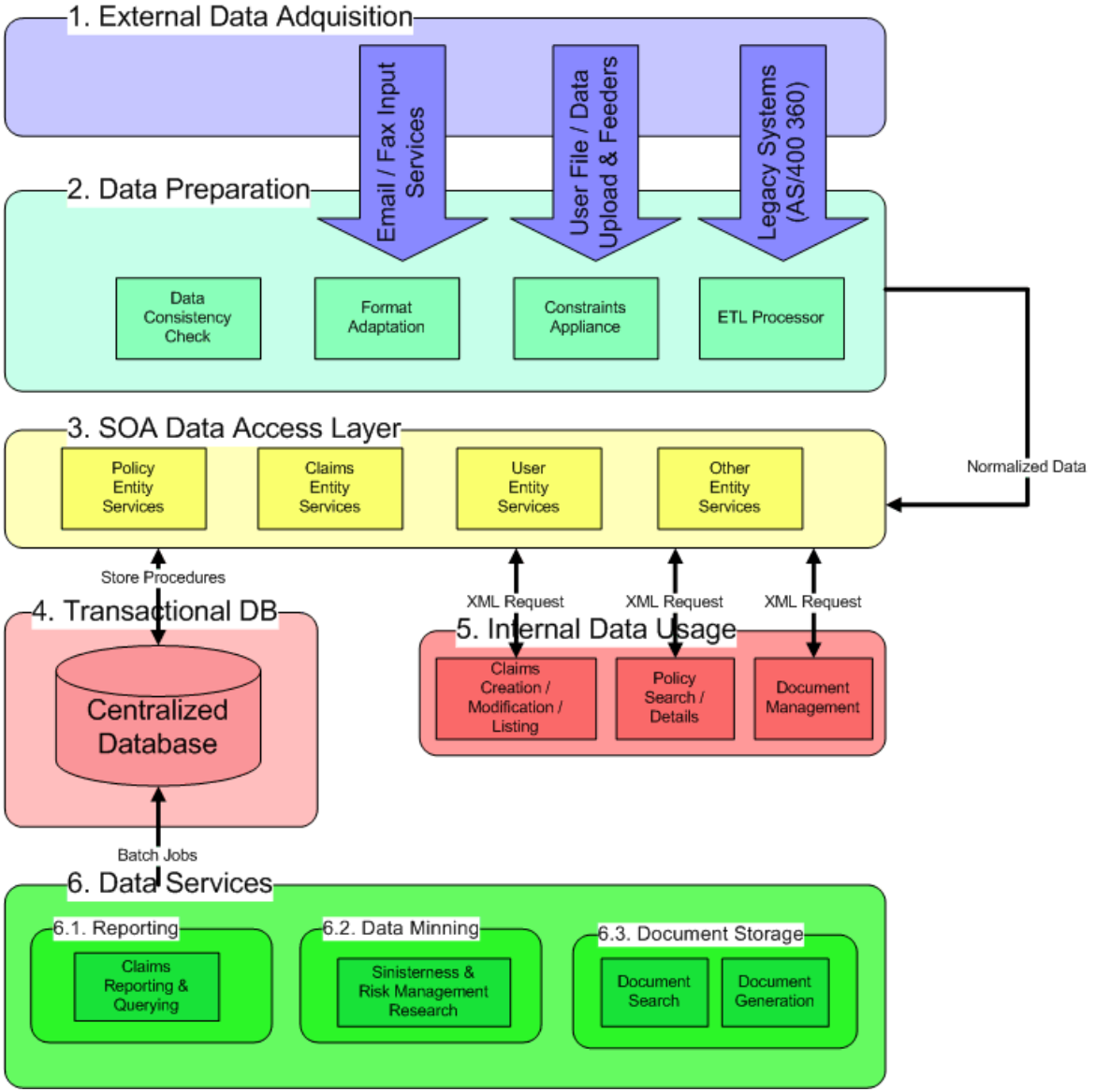
Information System Architecture



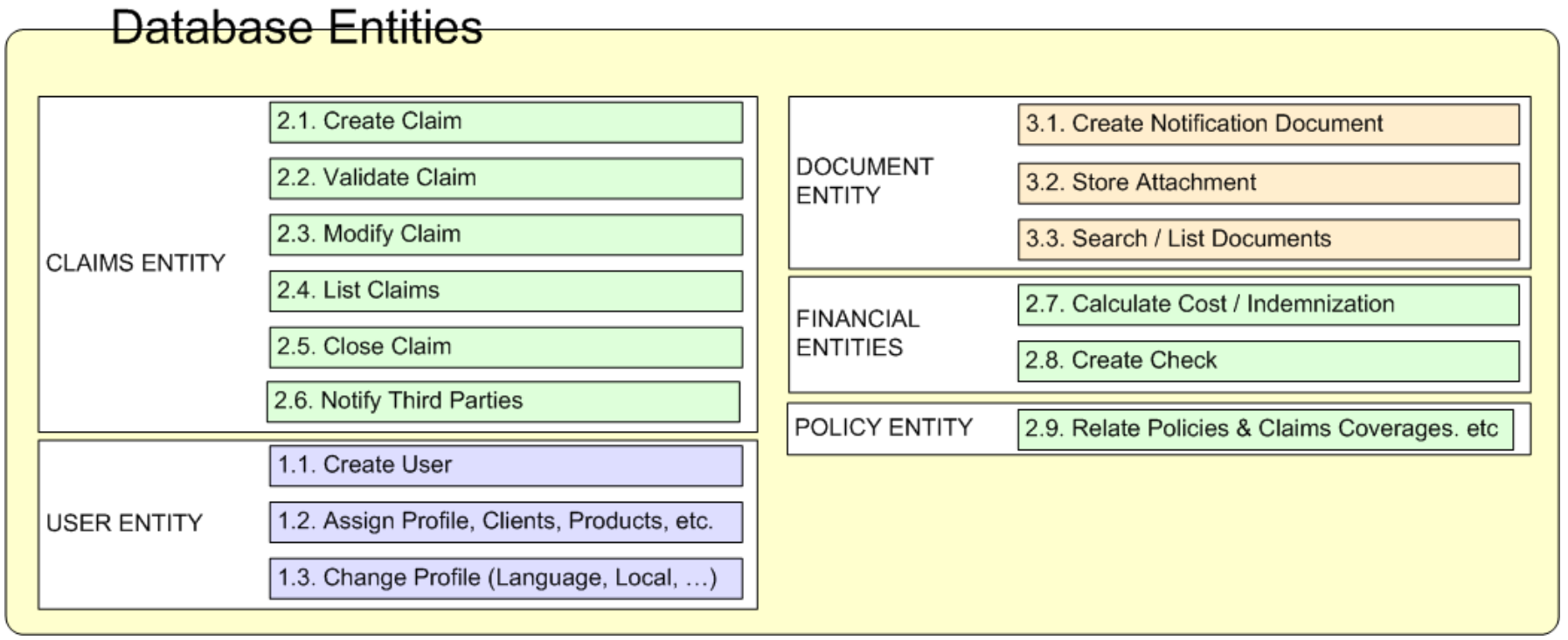
Data Architecture



Data Management Process Model

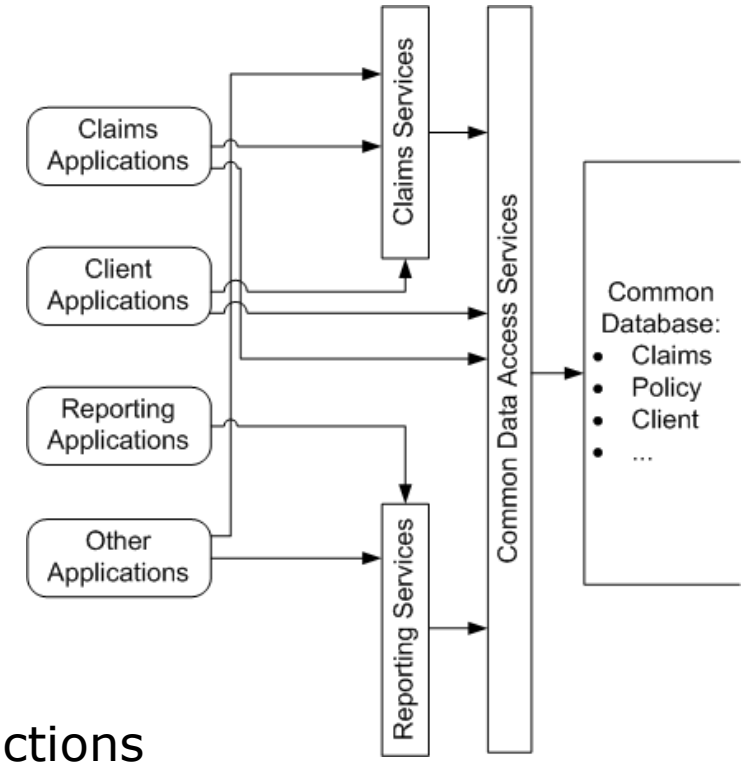
- New Processes to Manage Data:
  - Data Migration from Legacy Systems (previous Back Office systems & Local systems) to Common Database
  - ETL for exported Data. Data is exported from Local systems in different formats (i.e. FIX, XML, TAB) and then imported into new Common Database via ETL processes (SQL, Java or other platforms)
  - Documents and Events from email & fax will be processed though Common Services:
  - Main Entities (Policy, Claims, Clients, etc.) will be processed by dedicated Global Services

Data entity / business function matrix



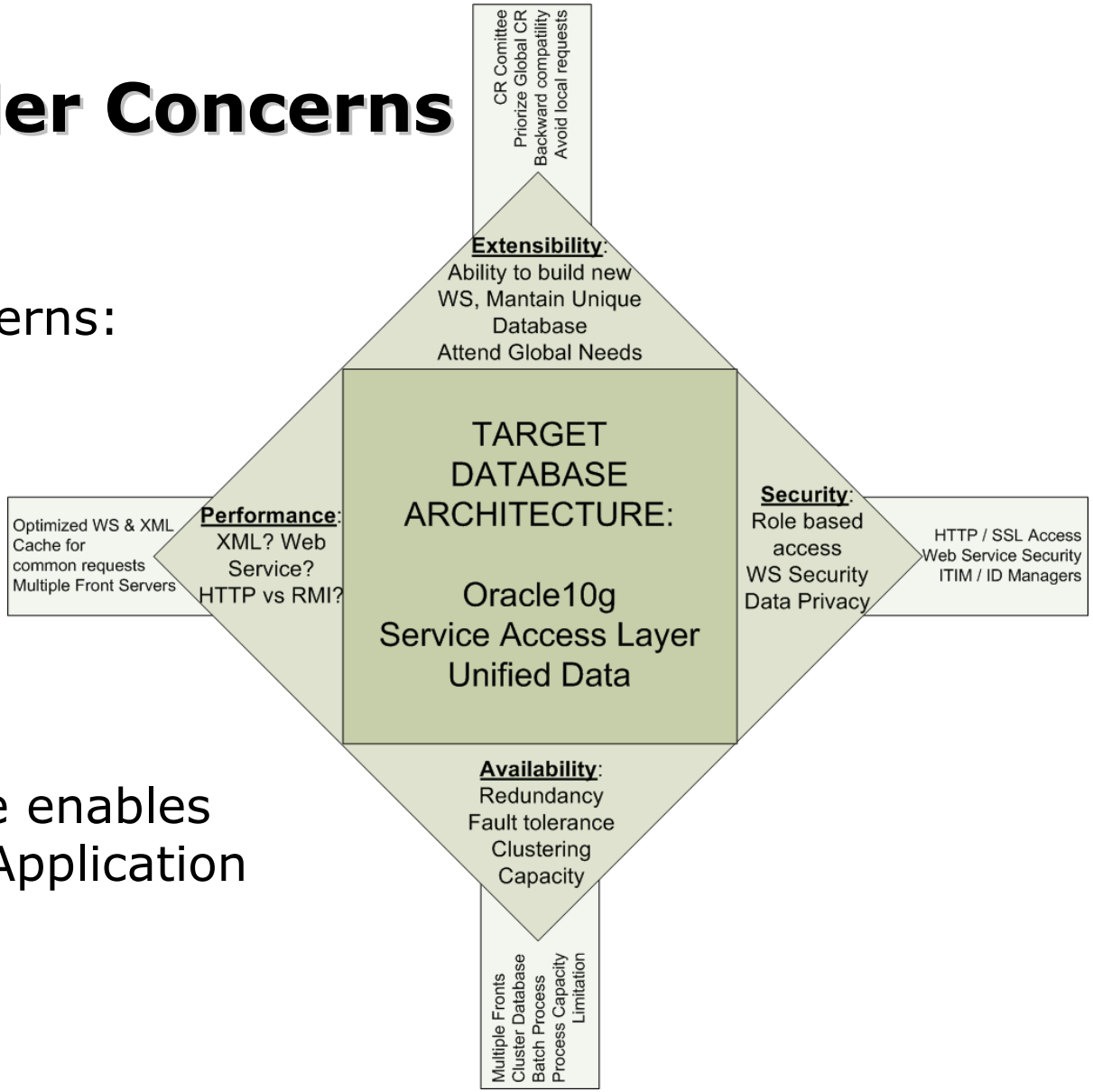
Data Interoperability Requirements

- Claims data is required to be used by other applications/systems:
  - Financial Systems
  - Risk Management analyst tools
  - Coverage and Claims Report
  - Client Information Applications
- All applications should use:
  - Common Services for plain data
  - Reporting Services for BI
  - Claims Services for interactive functions



Key Stakeholder Concerns

- Addressing key stakeholder concerns:



- Data Architecture enables the Services for Application Architecture

Data Lifecycle View

- Lifespan:
  - Data lifecycle is determined by Business Requirements
  - Most of Entities must be stored and accessible for 10 years
- Updation:
  - Depends on final applications (i.e. Claims Management, Policy Renewal, Risk Managenet, etc)
  - Data is updated always via Web Service Layer
  - Frequency: for most entities update is daily during creation and renewal, which happens once a year
- Archive / Deletion
  - Old data will not be deleted: deletion shouldn't happen
  - Archived data with 10 years or more: policy is not fully defined

Data Security View

- Layers:
  - Security at Application Level (i.e. JAAS at EJB or POJO elements)
  - Oracle realms / schemas security: different views for different access profiles
  - Service Layer security: possible application of Windows WSE
- SOA:
  - Services require authentication at connection level
  - Data access is authenticated using credentials

Data Management View

- Data is managed fully through the Service Layer, which interacts with a set of store procedures in Database:
  - Create and Update are driven by common services
  - Deletion is not allowed except for cleaning processes
  - Reference:
    - Common services for structural information such as users and clients
    - These services provide referential ids to be used in the rest of entities

Gap Analysis Results

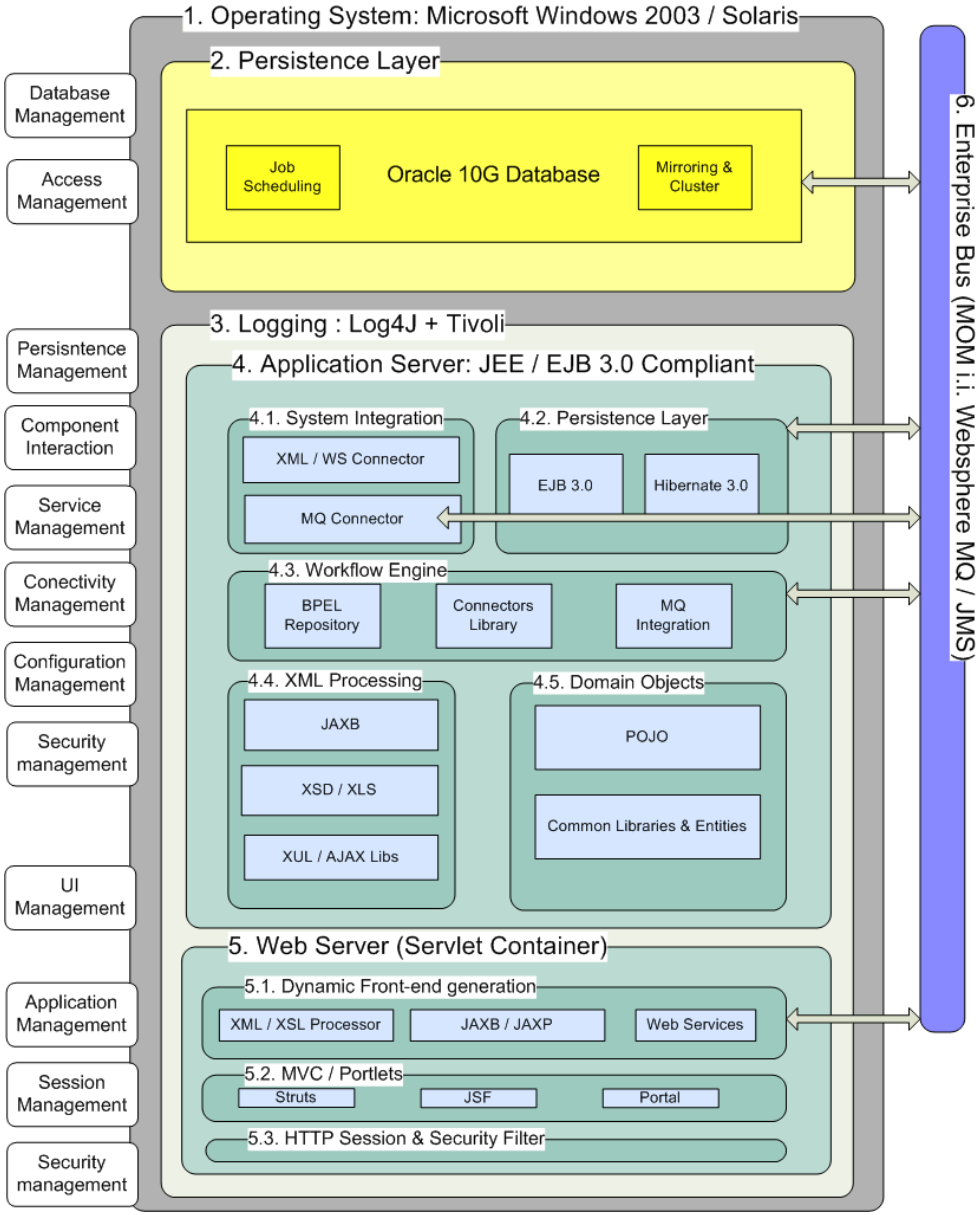
- Security: Services will require authentication, DAL should implement a validation mechanism
- Performance: To develop querying cache to avoid massive WS/XML process
- Extensibility: Services must be for common usage: custom functionality must be redesigned using common services
- Availability: Global platform must be clusterizable, using persistent middleware (i.e. MOM) and fault tolerance

Impact Analysis

- Business Architecture: Minor local functionality should be unified into the Global system and, consequently, for some cases will be removed
- Application Architecture: Security requirements implies application changes and improvements to assign data access profiles
- Technology Architecture: DAL technology changes from Dynamic SQL to SOA Approach using Web Services

Applications Architecture

- Target Applications Architecture

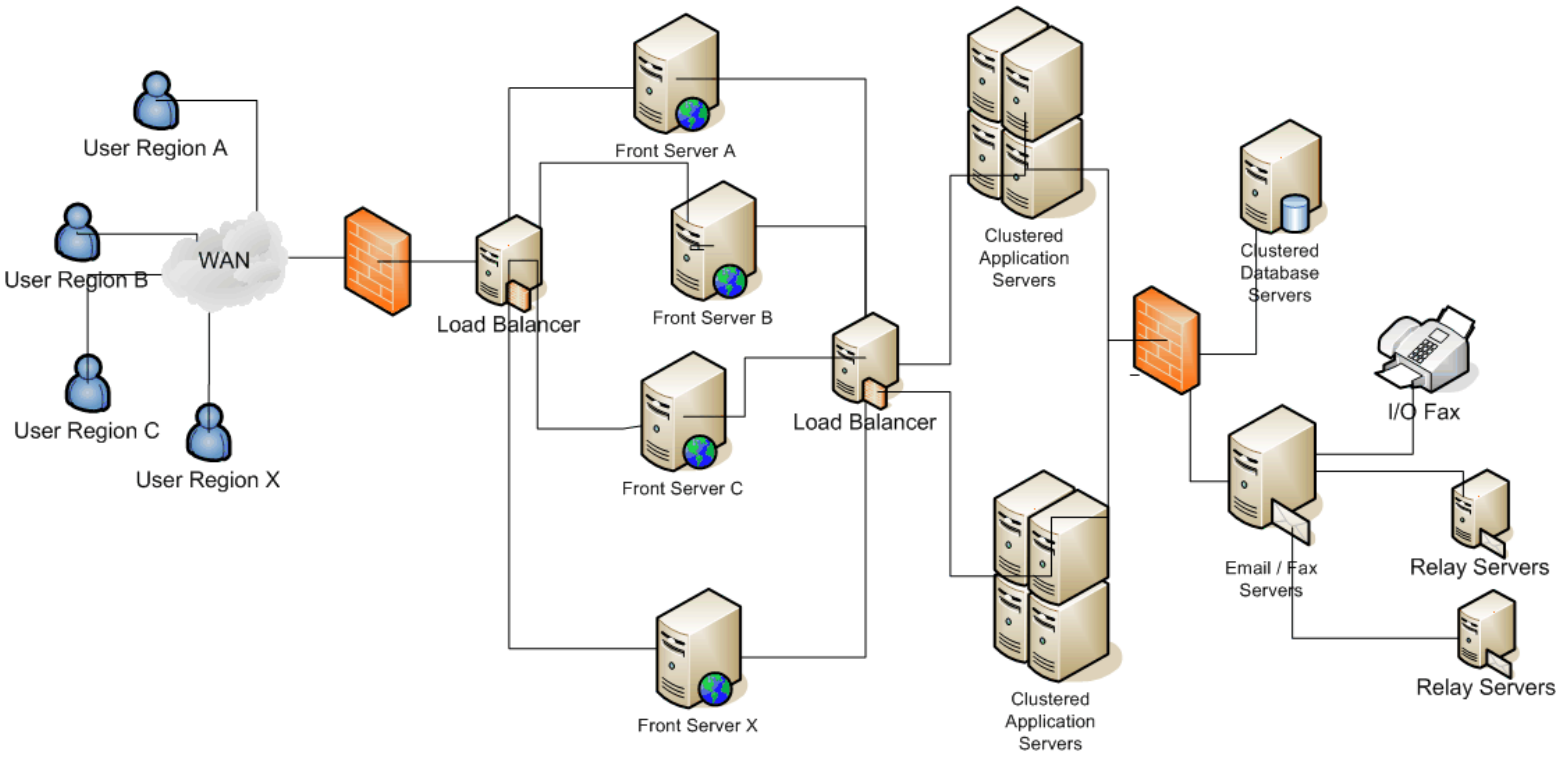


Applications Architecture

- Validated Applications Principles:
  - Reduce Integration complexity
  - Maximize Data Usage and Performance
  - Avoid Data Duplication
  - Security and Simplicity (on Data Access)
  - Provide Corporate Governance

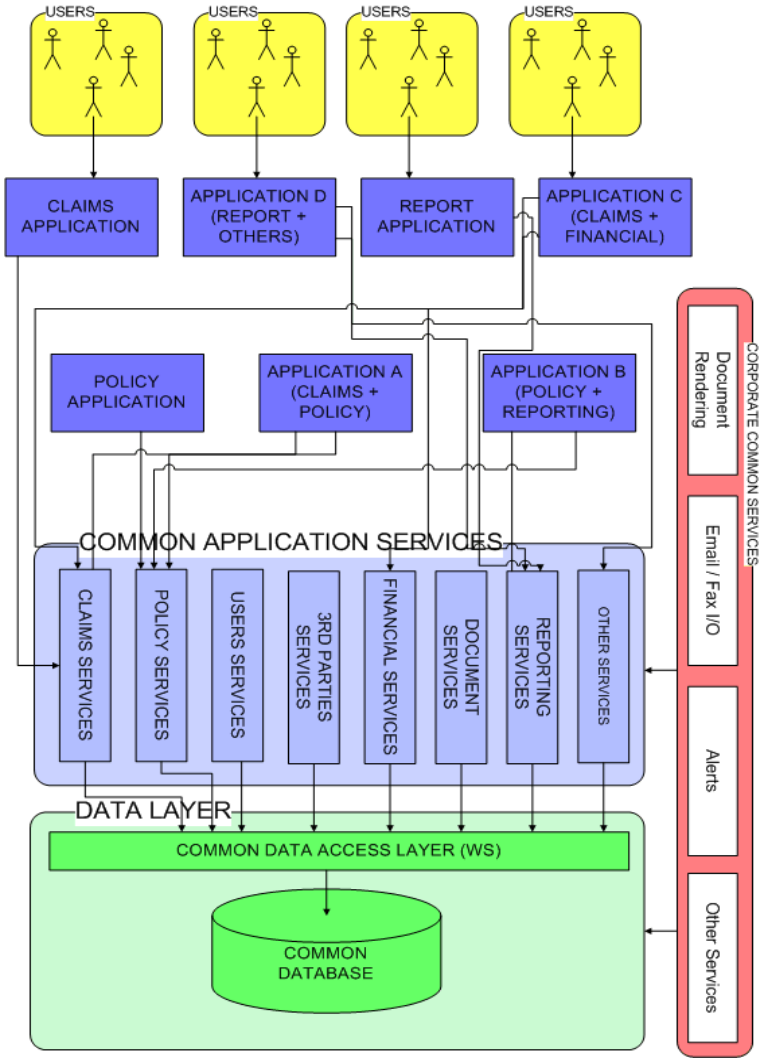
Applications Architecture

- Place System Models: Centralized Infrastructure



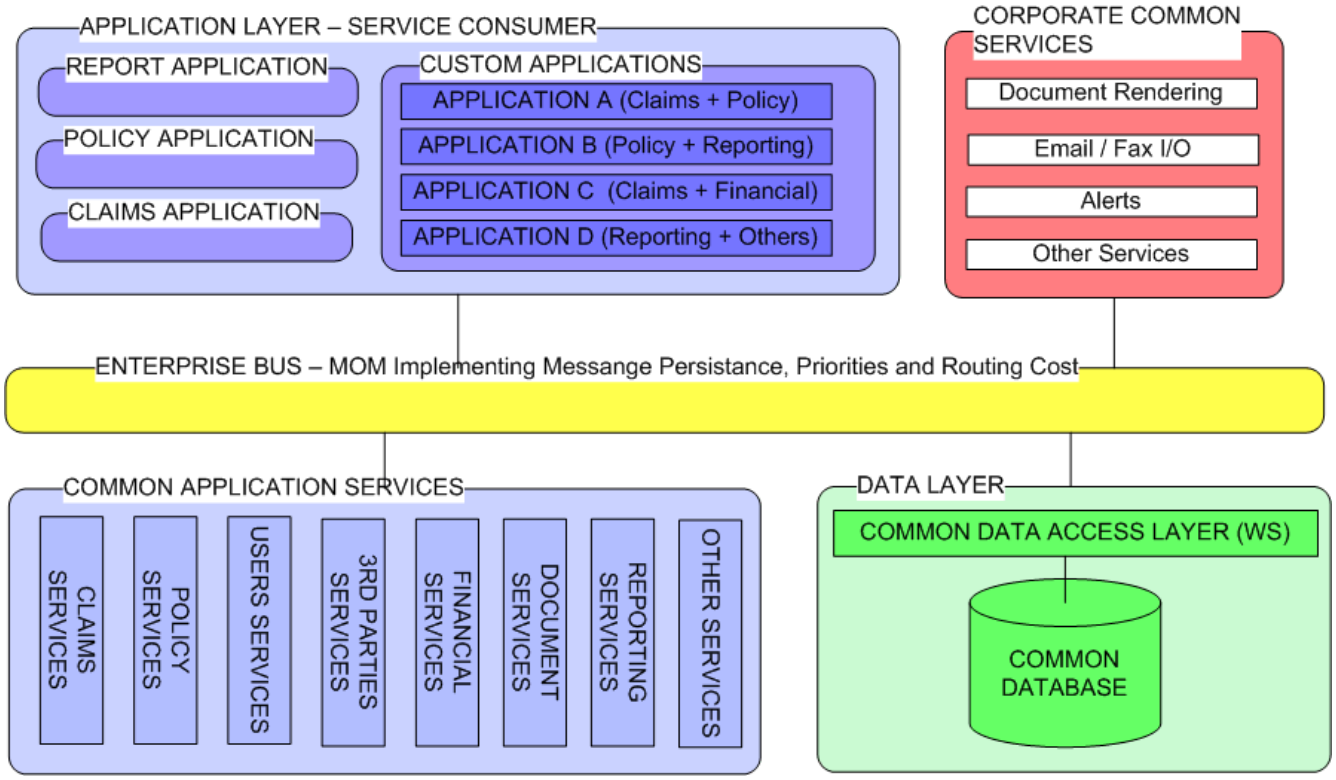
Applications Interoperability Requirements

- **View of Applications Interoperability**
  - Defines a service based interface for all systems
  - Specific Data Services provide entities data
  - Specific App. Services provide entities functionality
  - End Applications use previous services
- **Low coupling between applications: Functionality & Data is built from common services**



Applications Interoperability Requirements

- View of Applications Interoperability
  - Usage of Enterprise Bus for Service Access
  - In first phases, direct WS clients are allowed

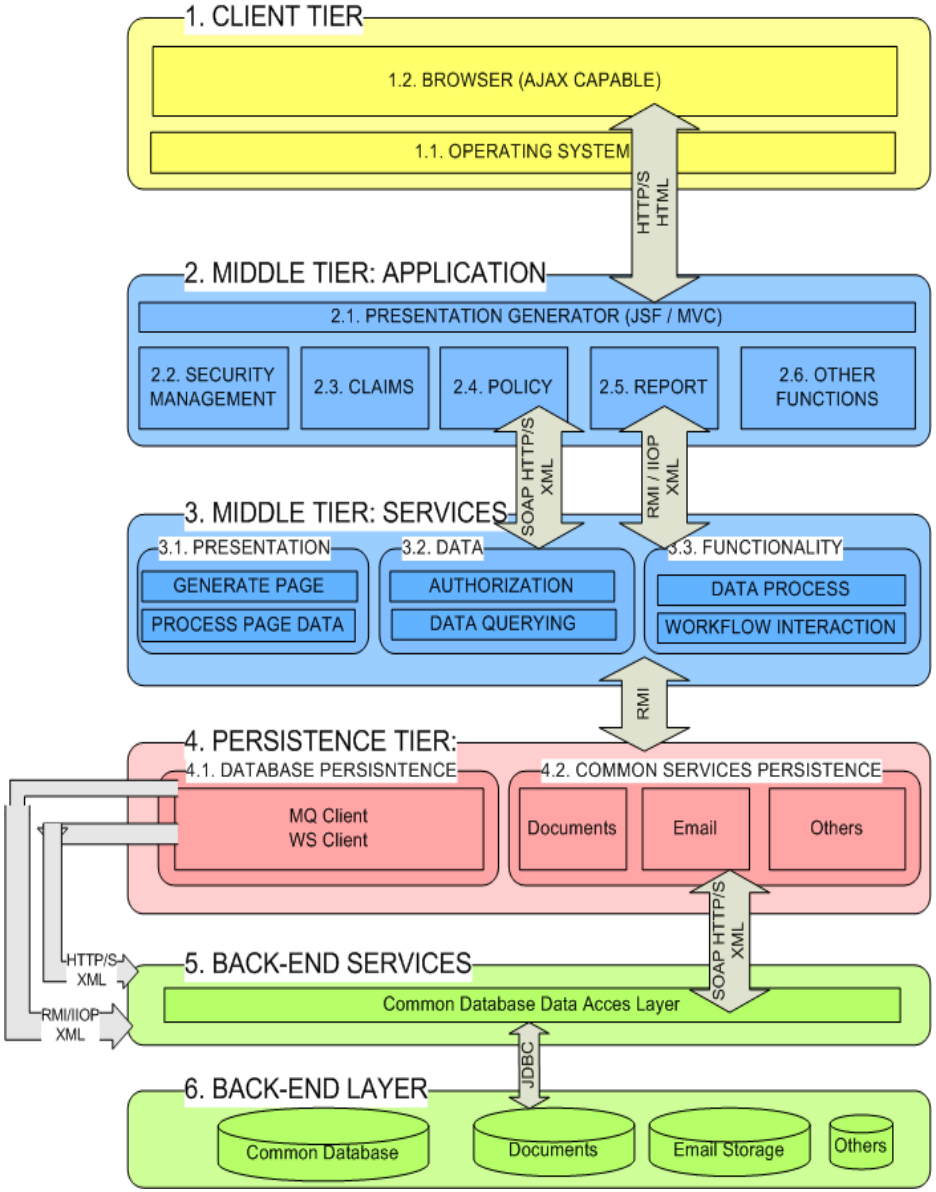


Applications Architecture (contd.)

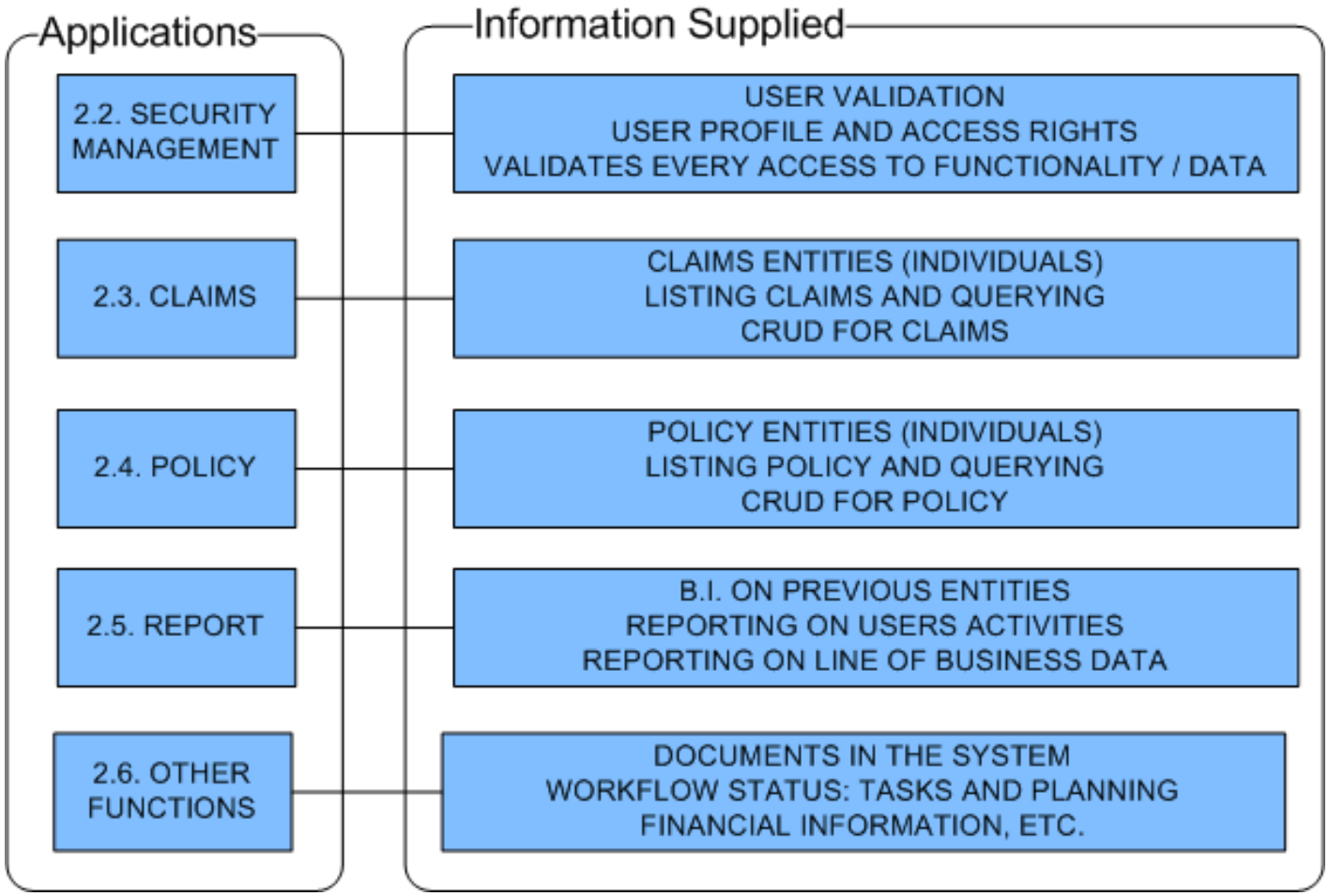
- Viewpoints addressing key stakeholder concerns:
  - Performance: System should perform as Real Time Web Application, but MOM Middleware for Enterprise bus is slow. Cache and dedicated Message Queues
  - Security: Business Components should be deployed as secured application blocks. Usage of JAAS.
  - Governance and flexibility: Usage of BPEL / BPMN to design workflow between app. blocks
  - Serviceability: SOA for middle, back and front ends.

Common Applications Services View

- Services Exposed:
  - Presentation
    - Dynamic Forms
    - Ajax Support
    - Common Front
  - Data Services
    - Entity FindBy…
    - Listing
    - CRUD
  - Functionality
    - Workflow
    - Reporting
    - BI
    - Documents
    - I/O Comms

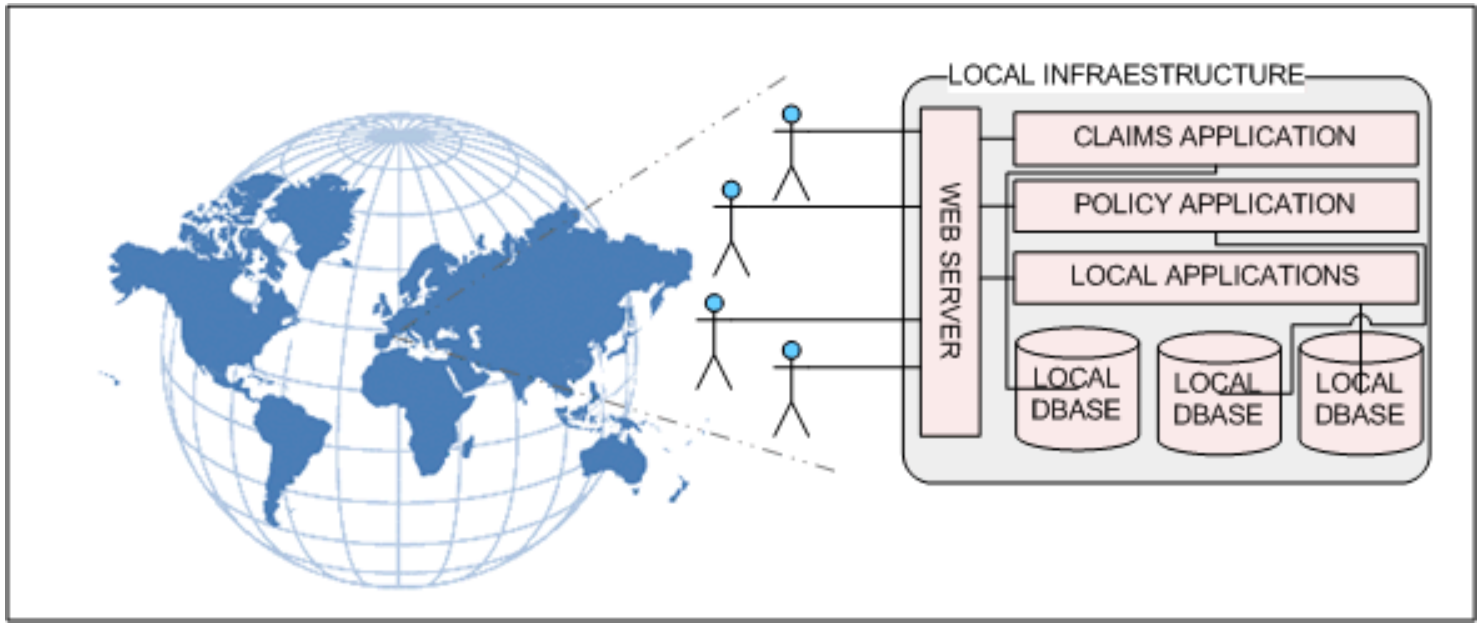


Applications / Information View



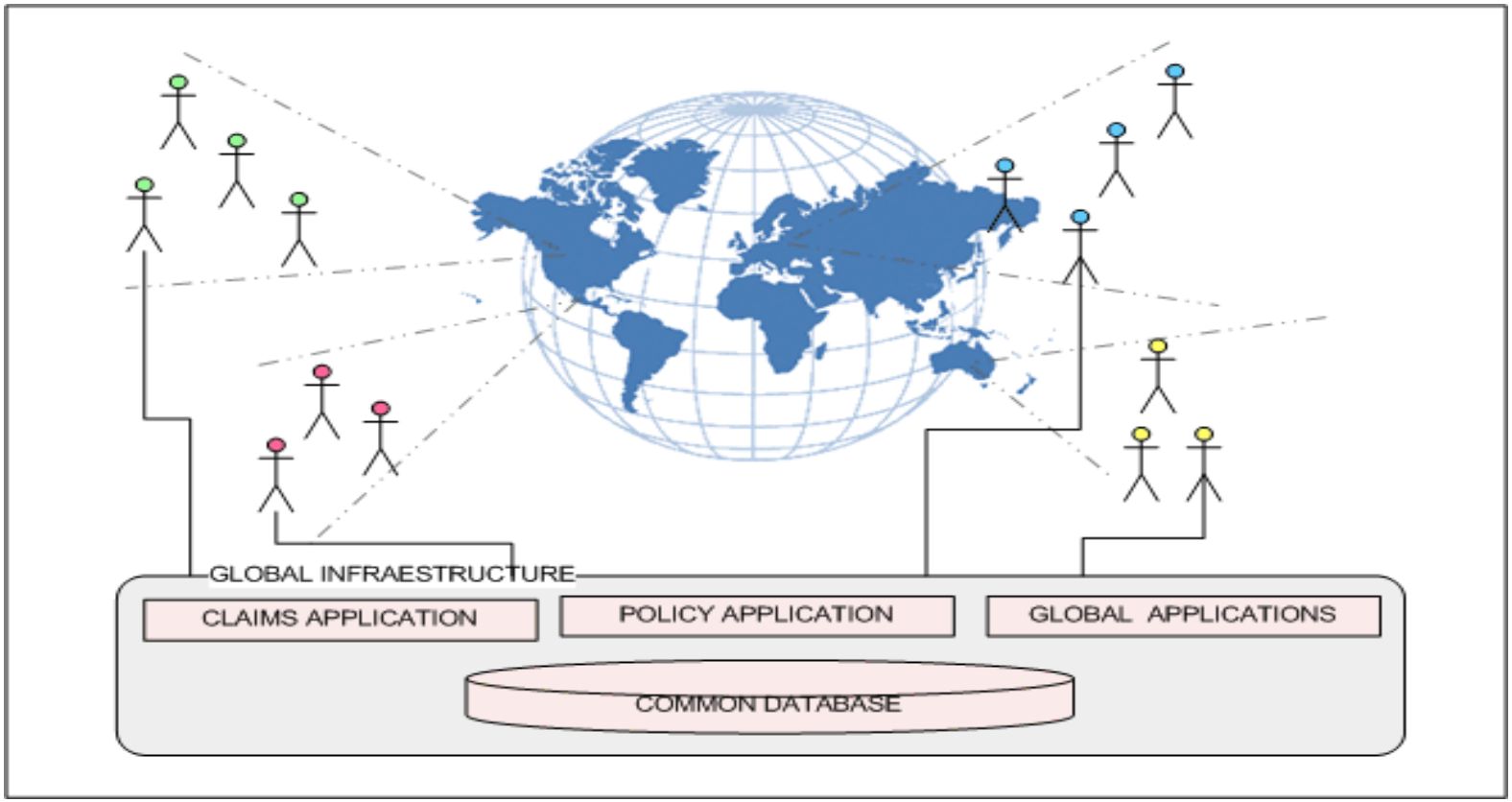
Applications / User Location View

- Local Applications User Location View



Applications / User Location View

- Target Application User Location View



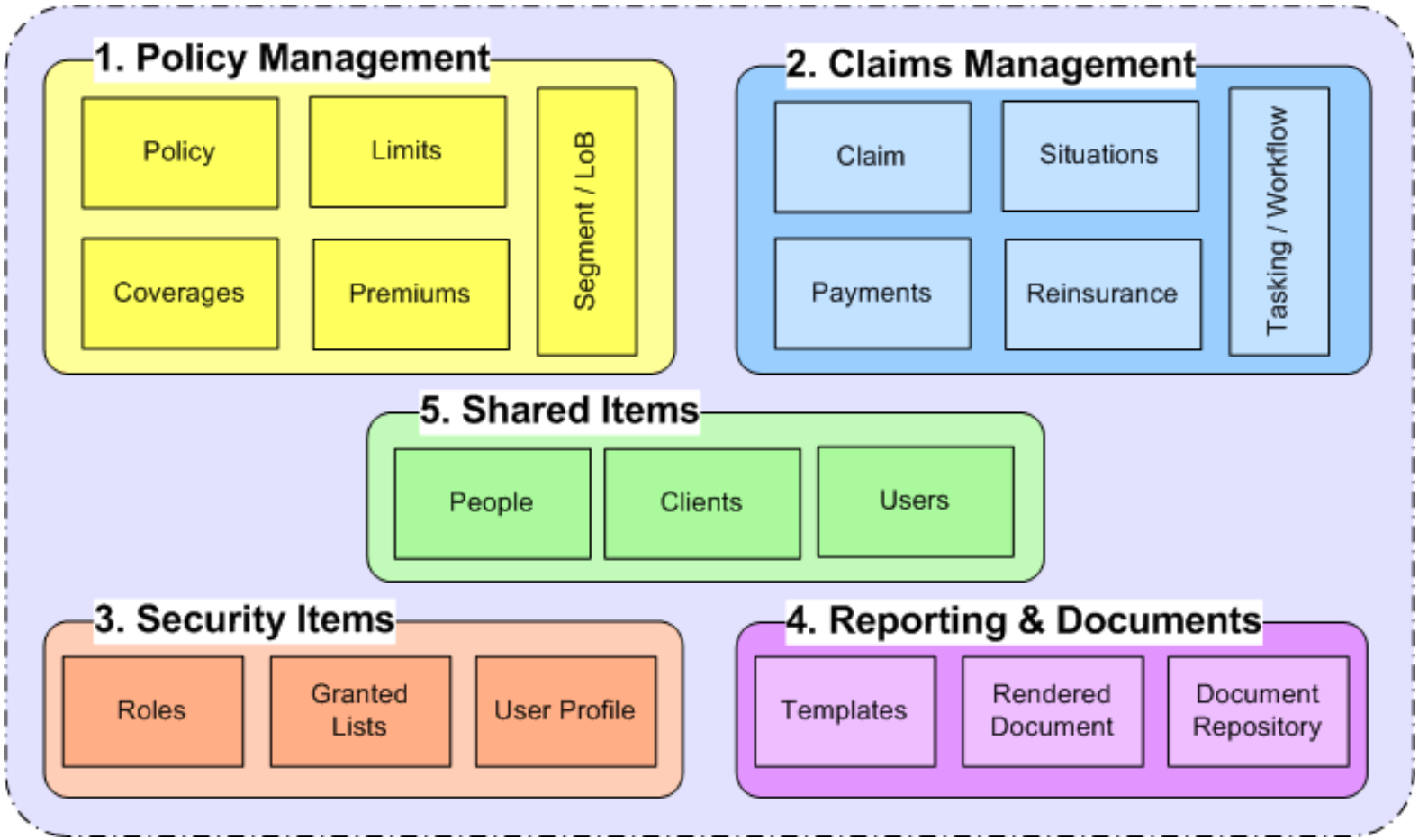
Applications Architecture (contd.)

- Gap analysis results
  - Application blocks should be adapted into a security framework (JAAS, ITIM, etc.)
  - Original workflow (ad-hoc, stored in database) must be replaced by Commercial Workflow Engine, based on BPEL for further customization
  - Performance and scalability must be addressed by implementing MOM and redundancy

Applications Architecture (contd.)

- Impact Analysis
  - Business Architecture: Usage of BPEL Choreographer limits the functionality. Customized functions at business lines workflow requires now specific development at Workflow Engine
  - Data Architecture: No impacts, as Database Access Layer abstracts the applications details
  - Technology Architecture: Considering Commercial Software for applications architecture impacts on technology to use and general implementation

Information Architecture



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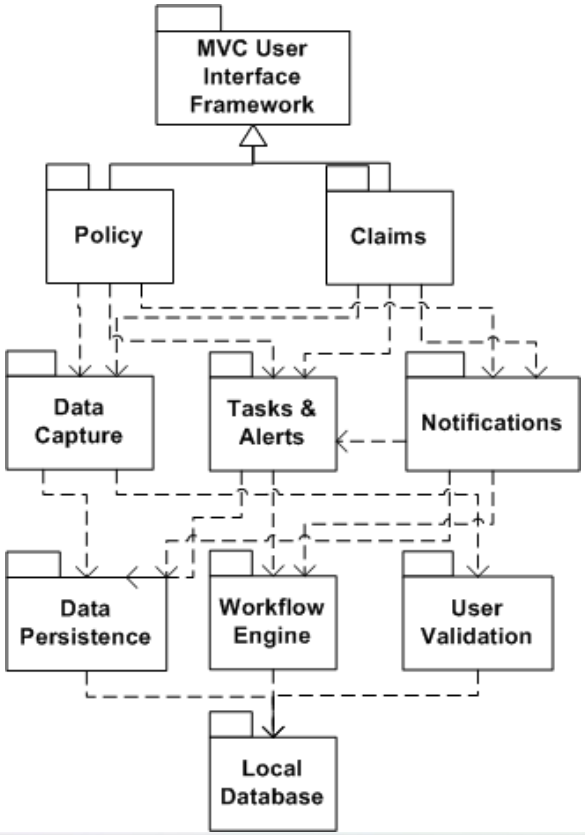
Technology Architecture

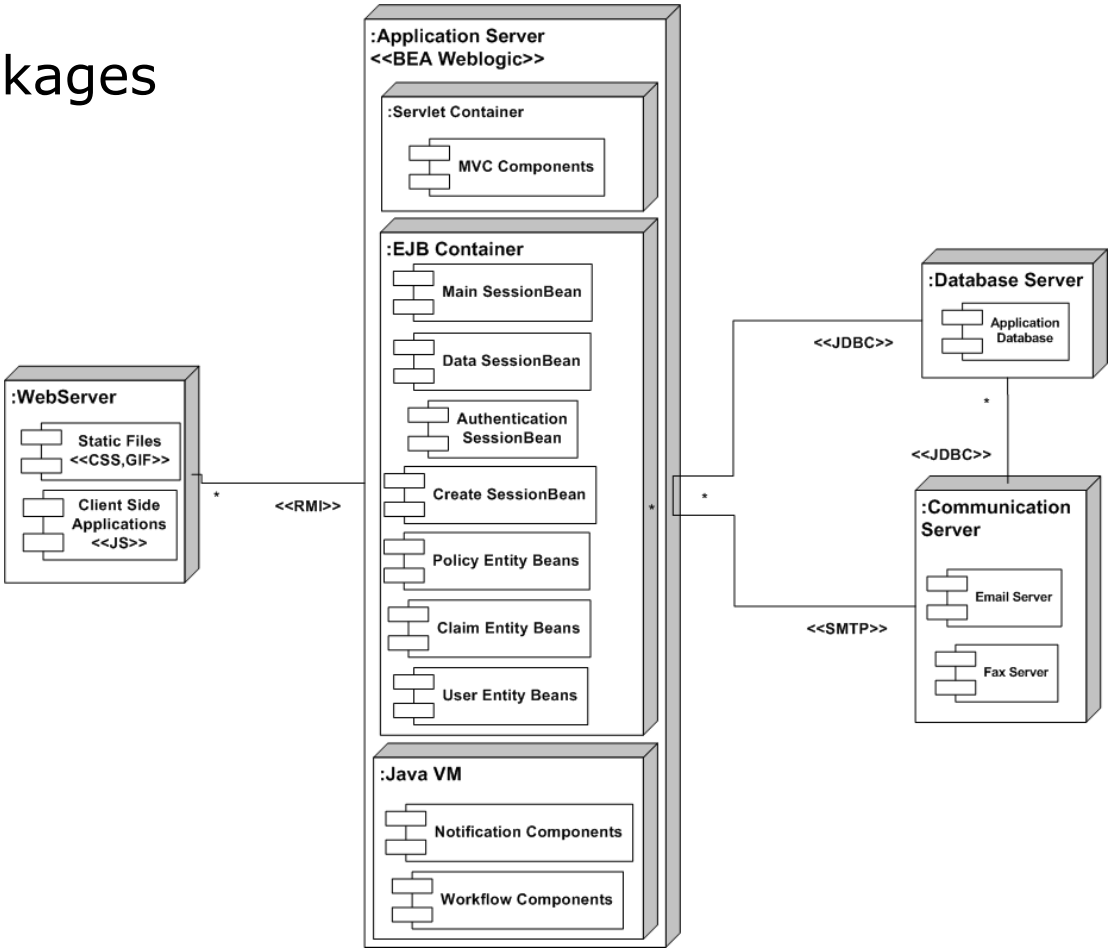
Baseline

- Technology Architecture Version 0.1:
  - Technology Architecture – Constraints
    - Local Application platform is not compliant with Corporate platform (App Server, Database, Java Technologies …)
    - Local Database Access and Structure must be replaced
    - Scalability: Local capacity is far below desired capacity
    - Serviceability: Application must expose services
    - Security: Data and Functionality access to be secured
    - Application must be integrated with Global Services

Baseline

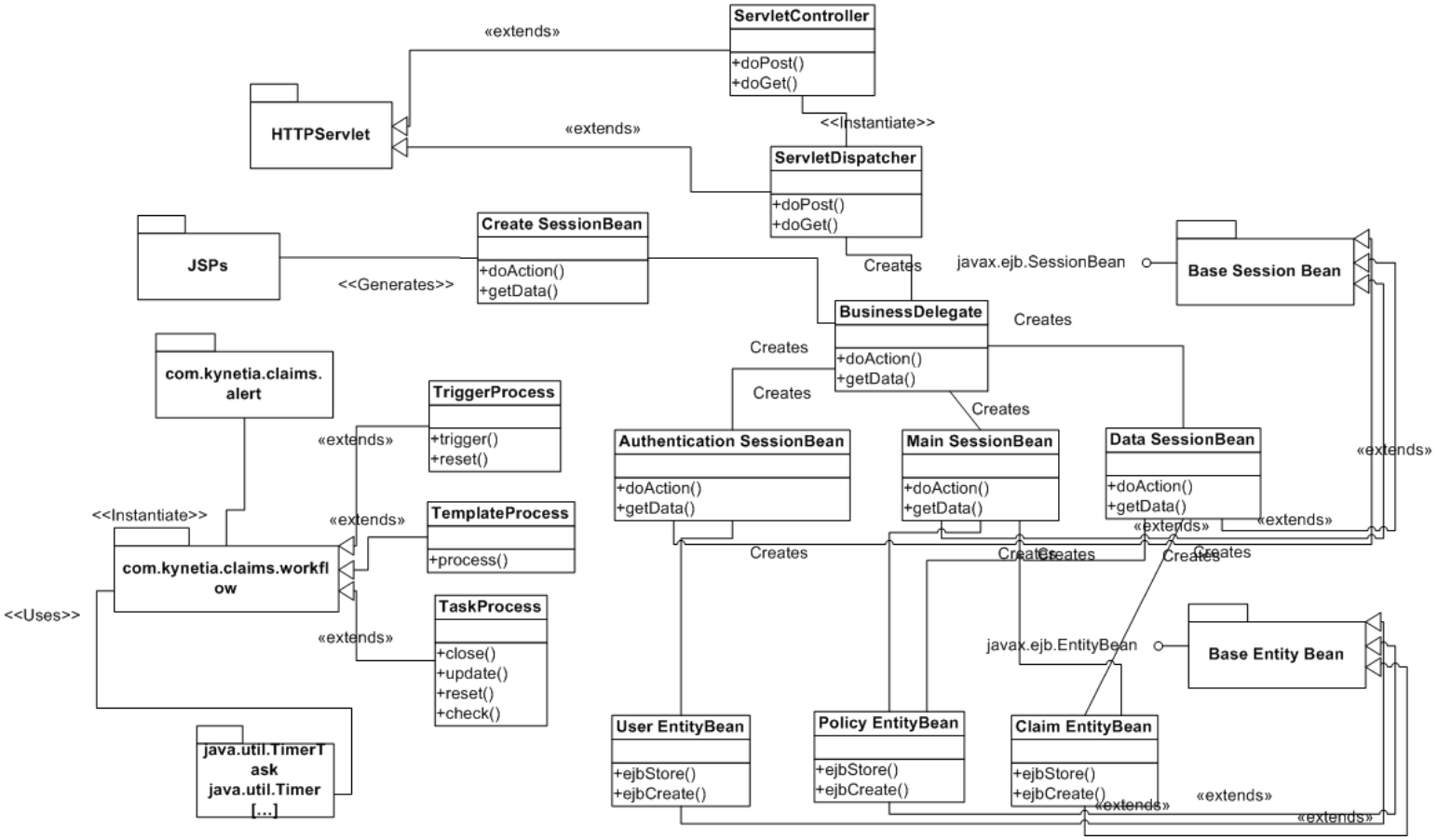
- Technology Architecture Version 0.1:
  - Deployment / Packages





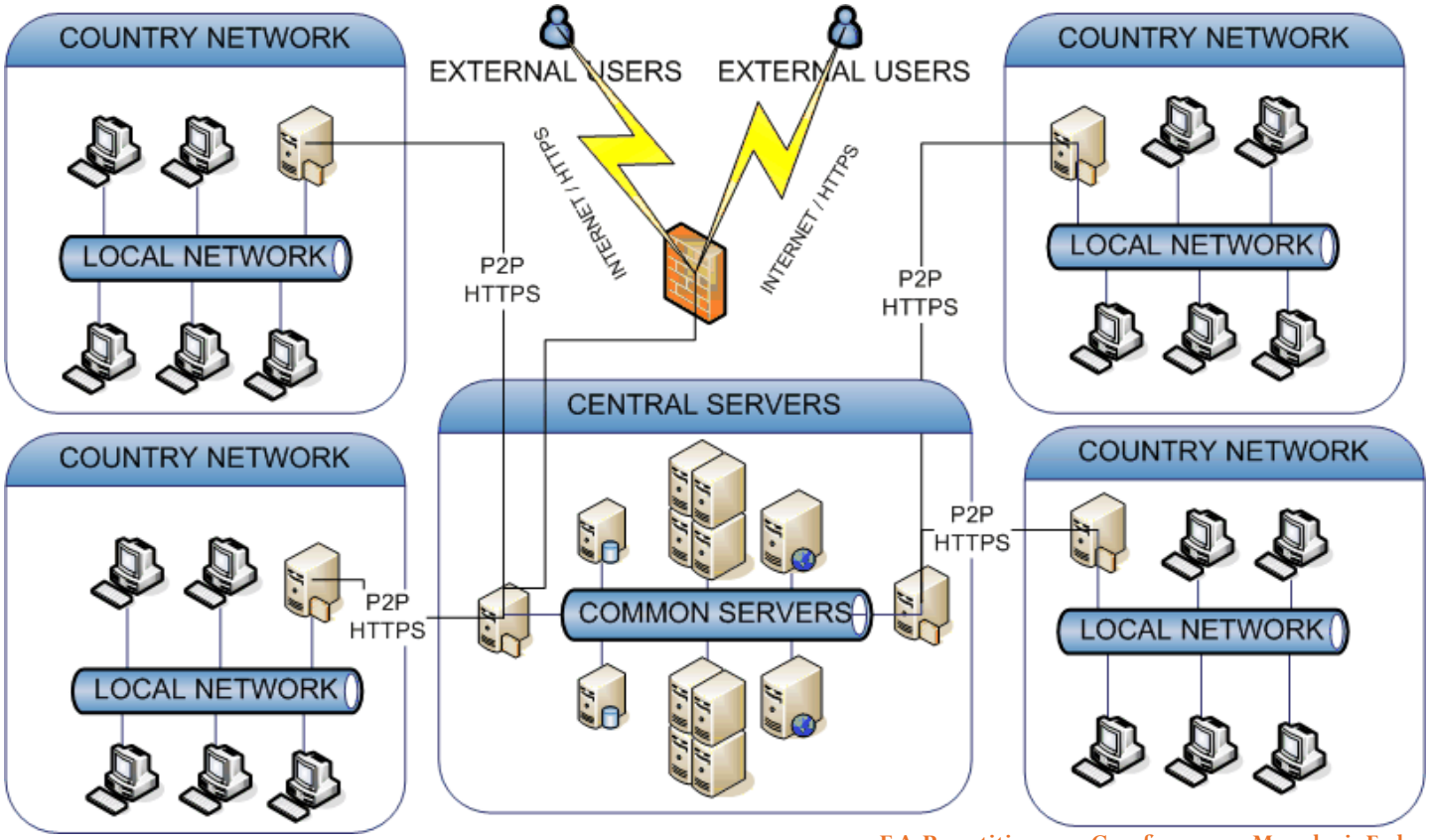
Baseline

- Technology Architecture Version 0.1:



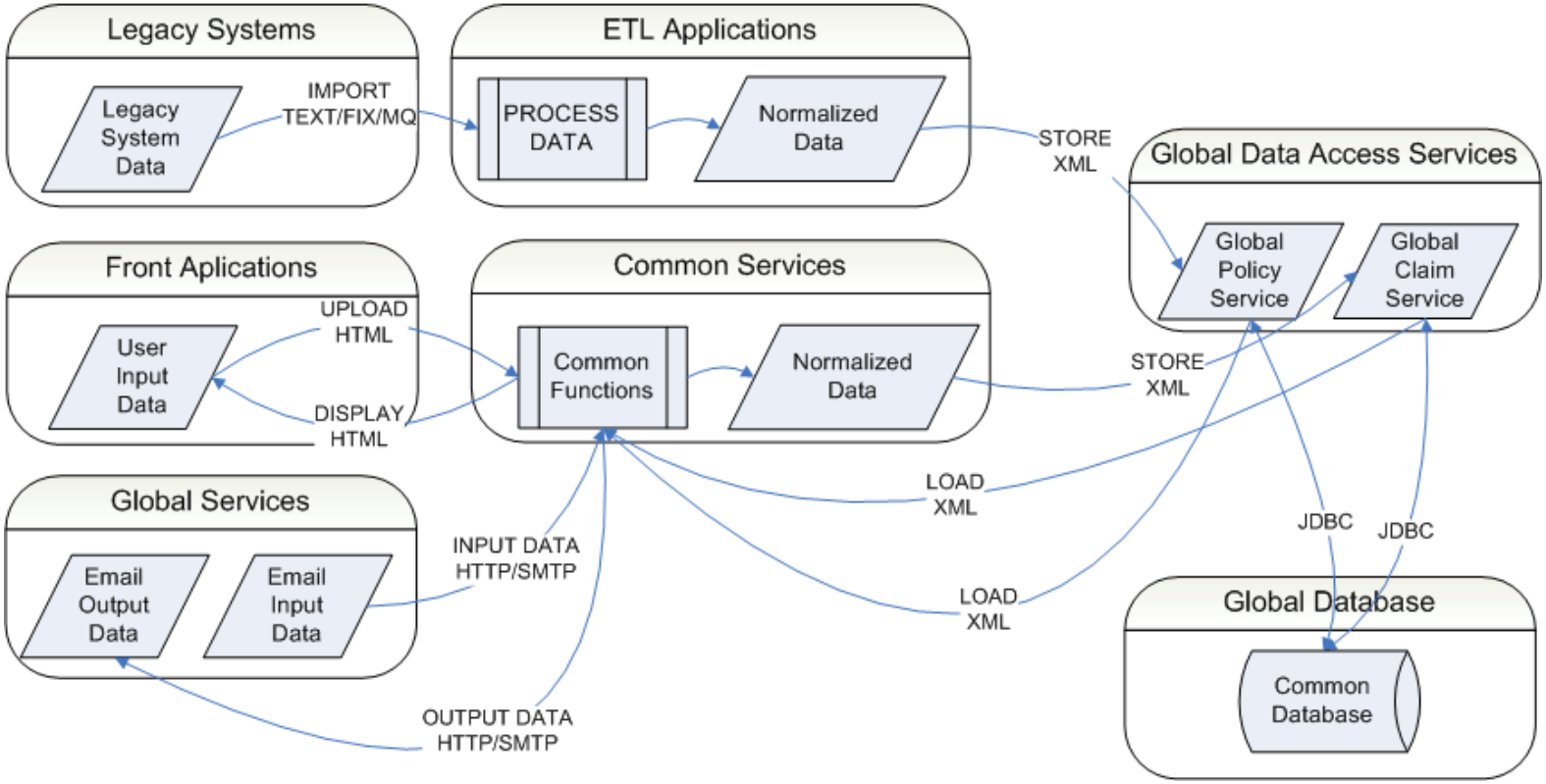
Viewpoints

- Technology Architecture Version 0.2
  - Networked Computing/Hardware View



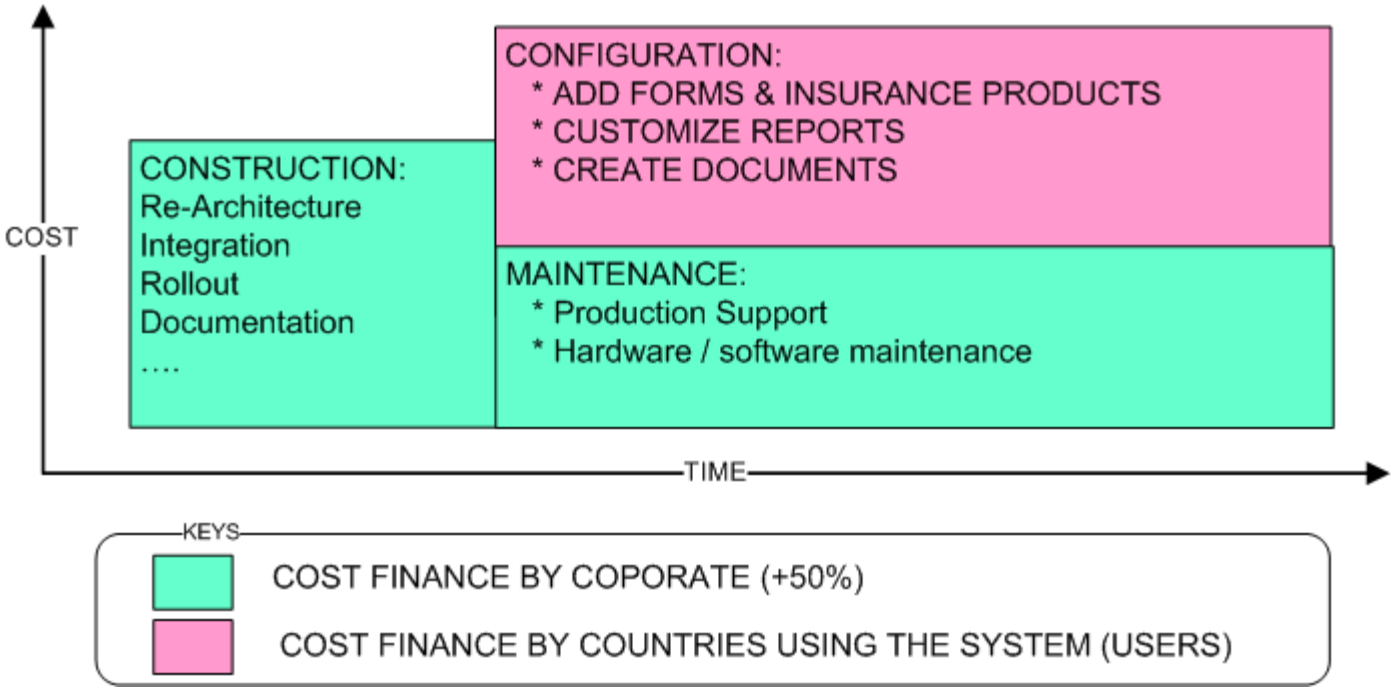
Viewpoints

- Technology Architecture Version 0.2
  - Processing View



Viewpoints

- Technology Architecture Version 0.2
  - Cost View



Viewpoints

- Technology Architecture Version 0.2
  - Standards View: Central Servers:
    - Unified Platform based on J2EE / Oracle / XML
    - Low coupling between applications
    - High redundancy and availability
    - Easy monitoring & maintenance
  - Standards View: Local Clients (Countries):
    - RIA Approaches, based on Web systems
    - Low response time
    - No client side component to be deployed (W32)

Business goals and objectives

- Technology Architecture Version 0.5
  - Technology Architecture - Requirements Traceability
    - Claims accessible and unified
    - Able to generate reports and documents
    - Dynamic definition of insurance products
    - Complete functionality not available
      - Unified products for Policy & Other Insurance products
      - Advanced reporting

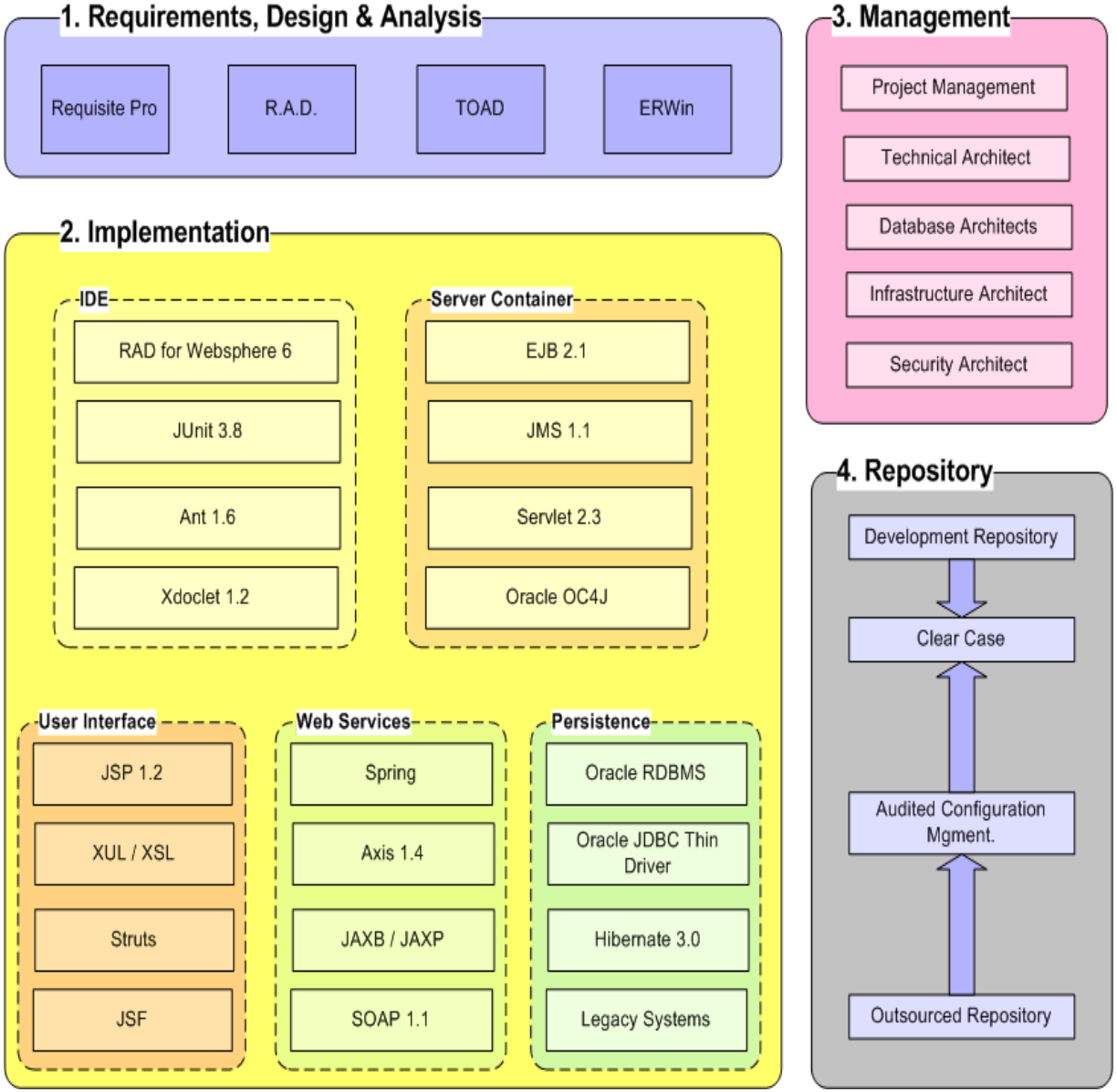
Criteria for specification selection

- Technology Architecture Version 0.6
  - Technology Architecture - Requirements Traceability
    - Client side: Performance is downgraded due to Service invocation and response times
    - Server side: Ad-hoc solutions are not 100% compliant with corporate technical standards

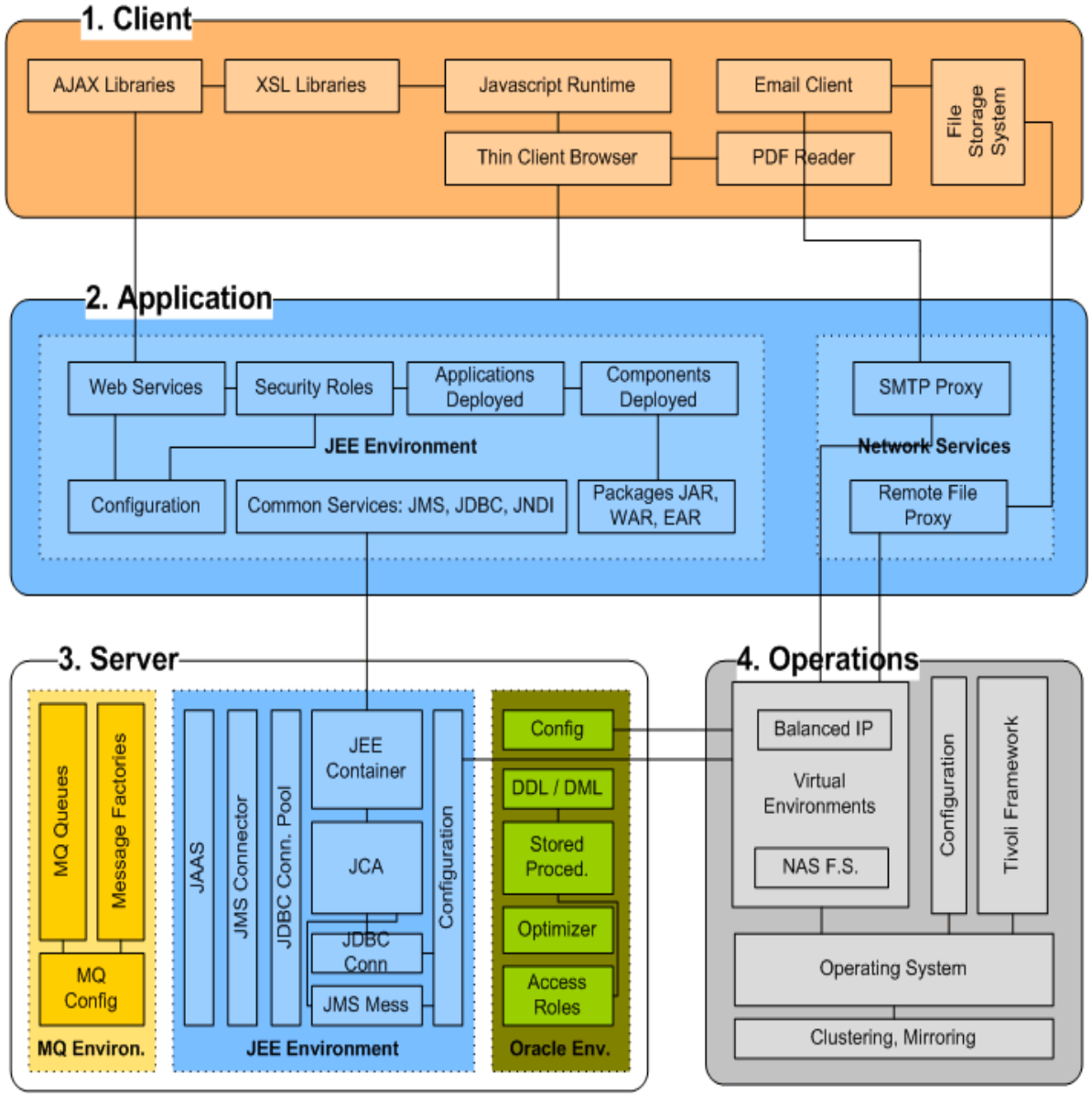
Gap analysis

- Technology Architecture Version 1
  - Technology Architecture - gap report
    - Some services are still to be integrated in Claims system
    - Existing Functionality GAP will require modifications on current version
    - Overall Performance to be revised after integrating with Common Services (Web Service overhead and XML process)
    - Extensibility to be tested and probably improved

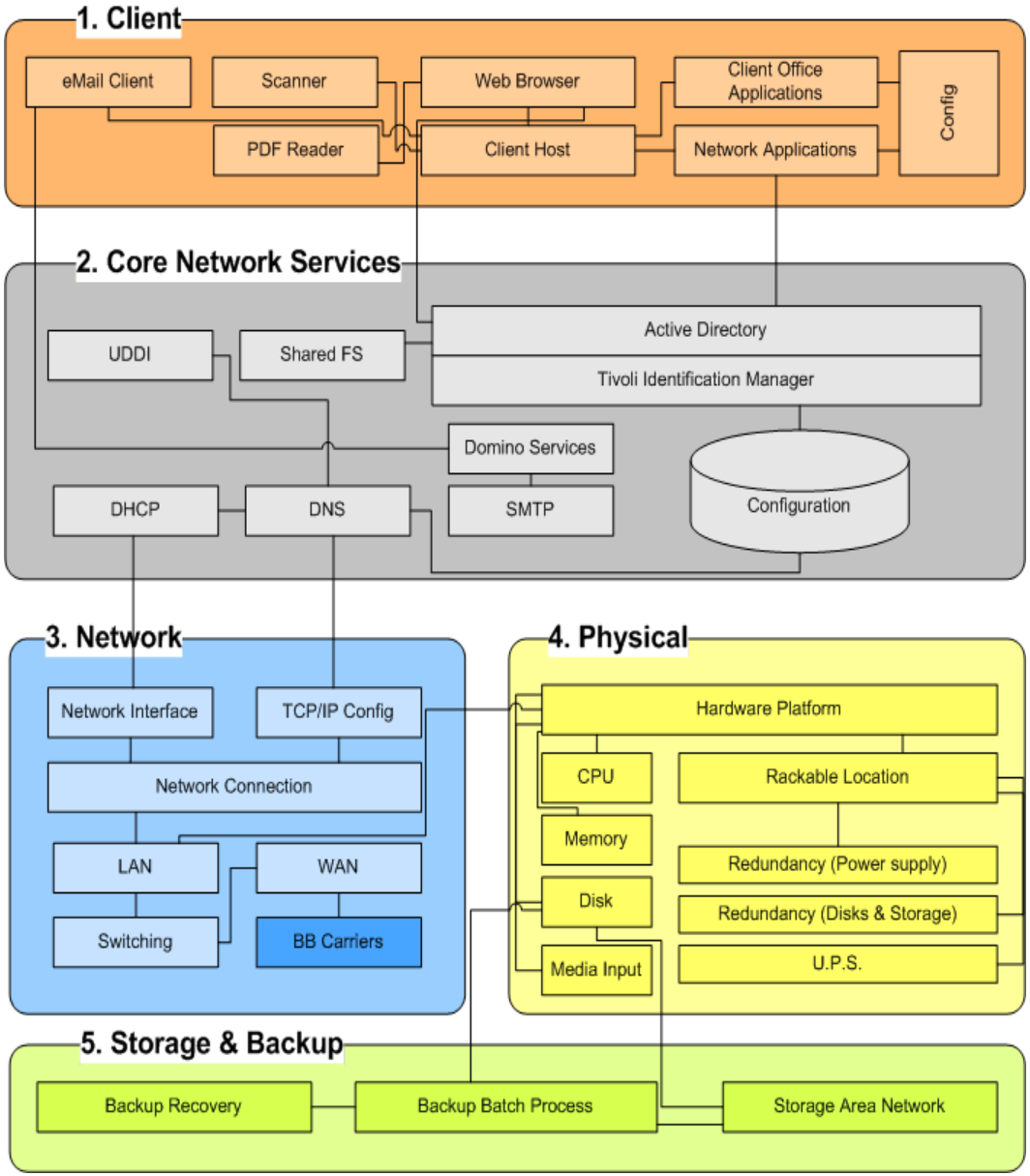
Development Architecture



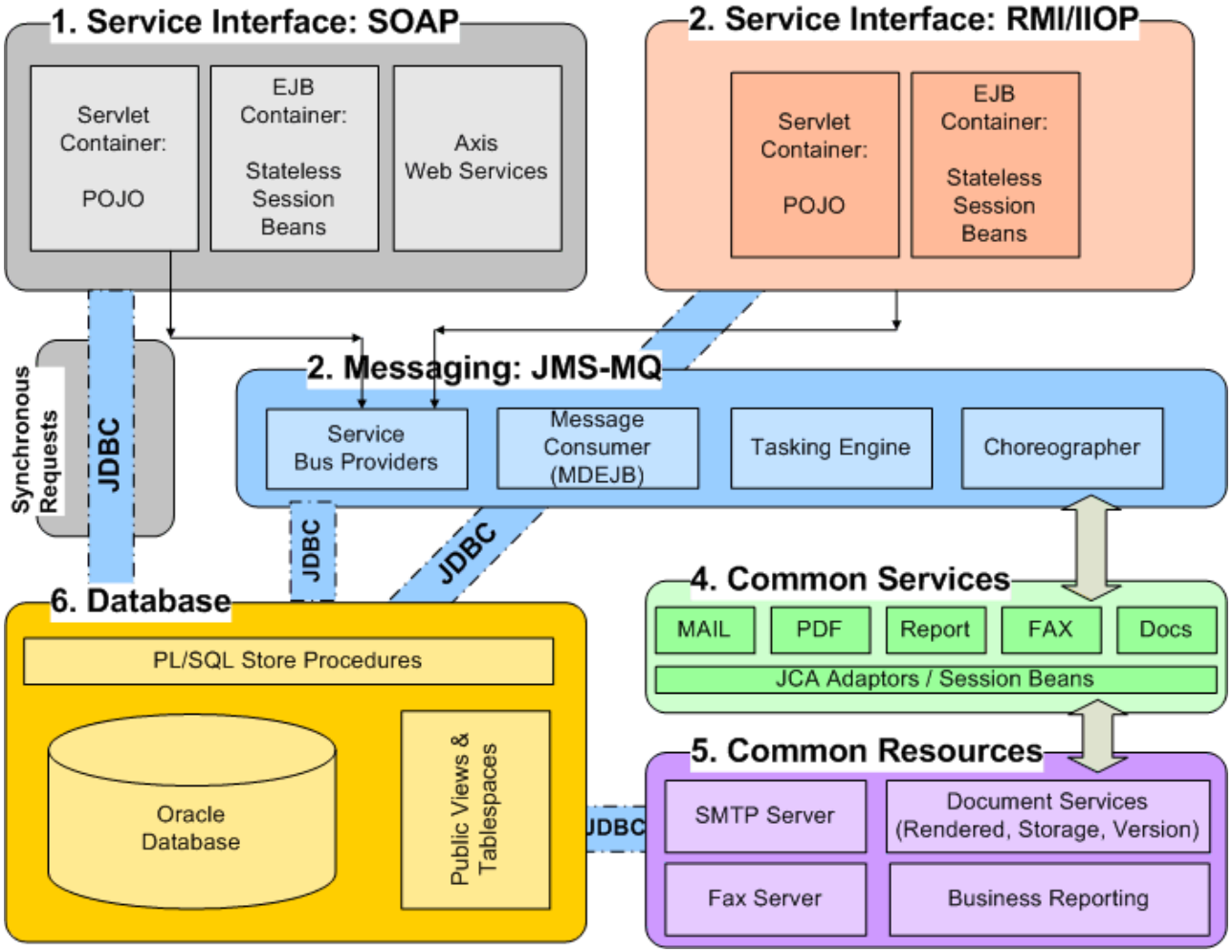
Infrastructure Architecture



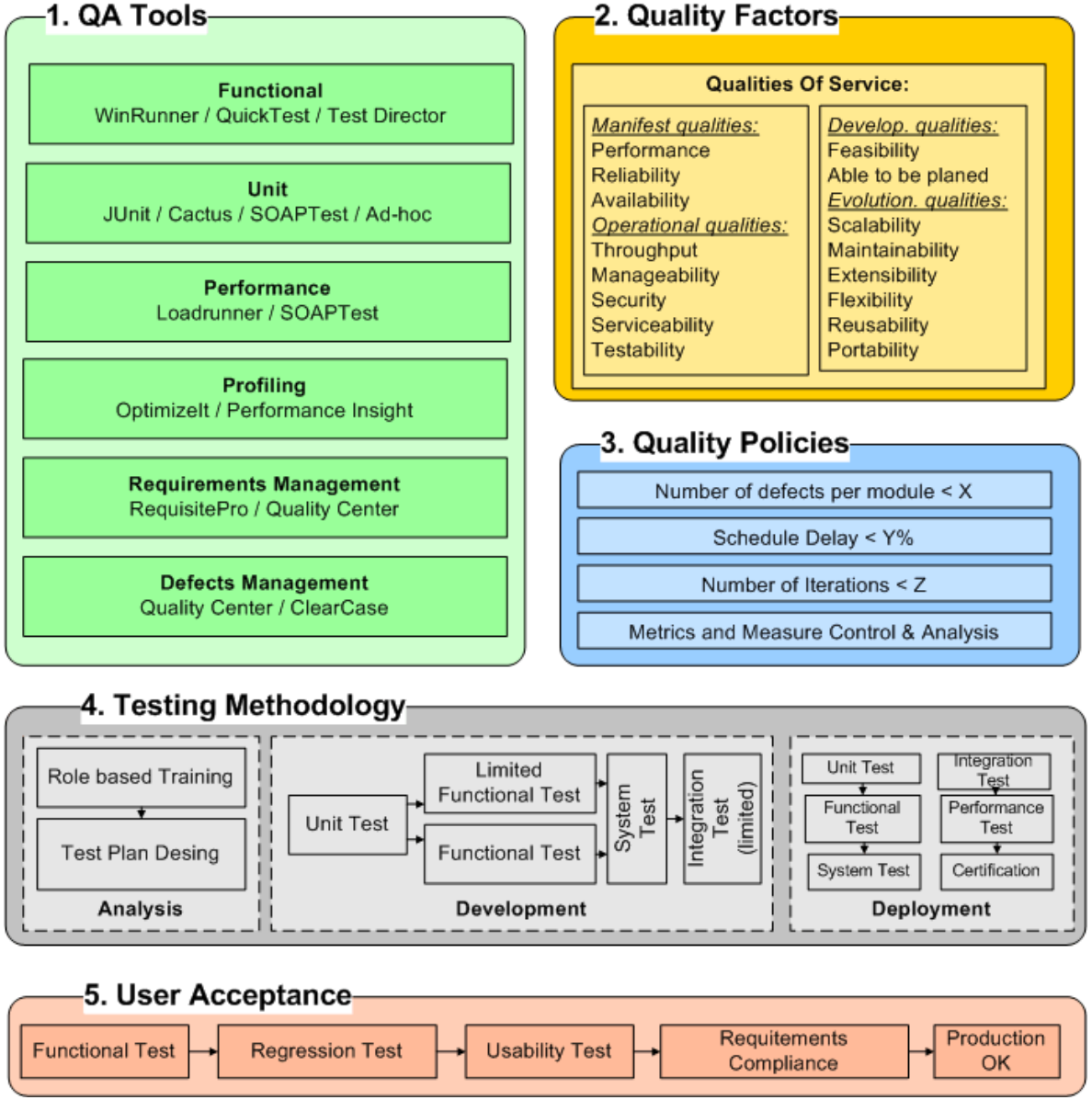
Infrastructure Architecture – Network



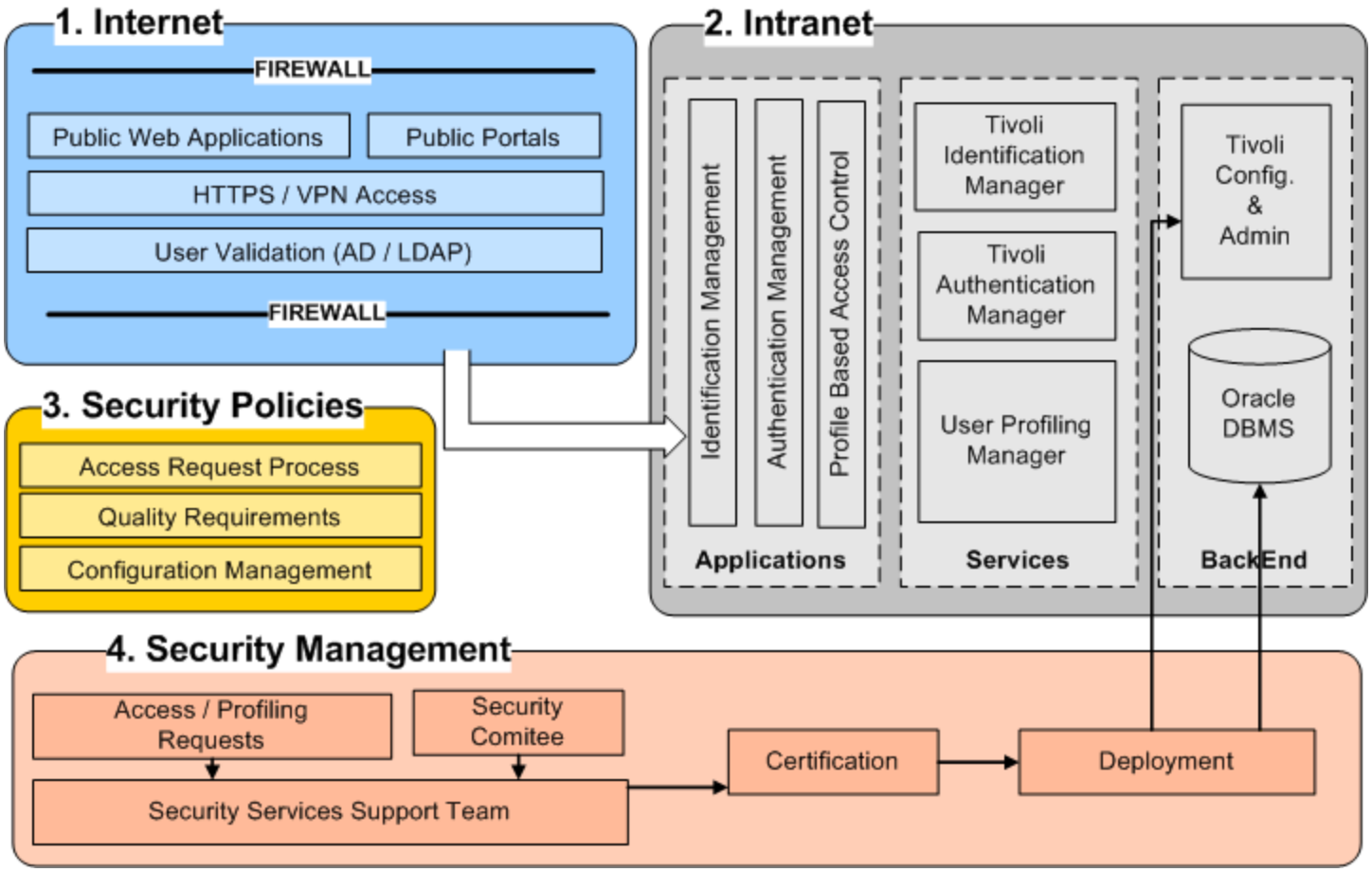
Integration Architecture



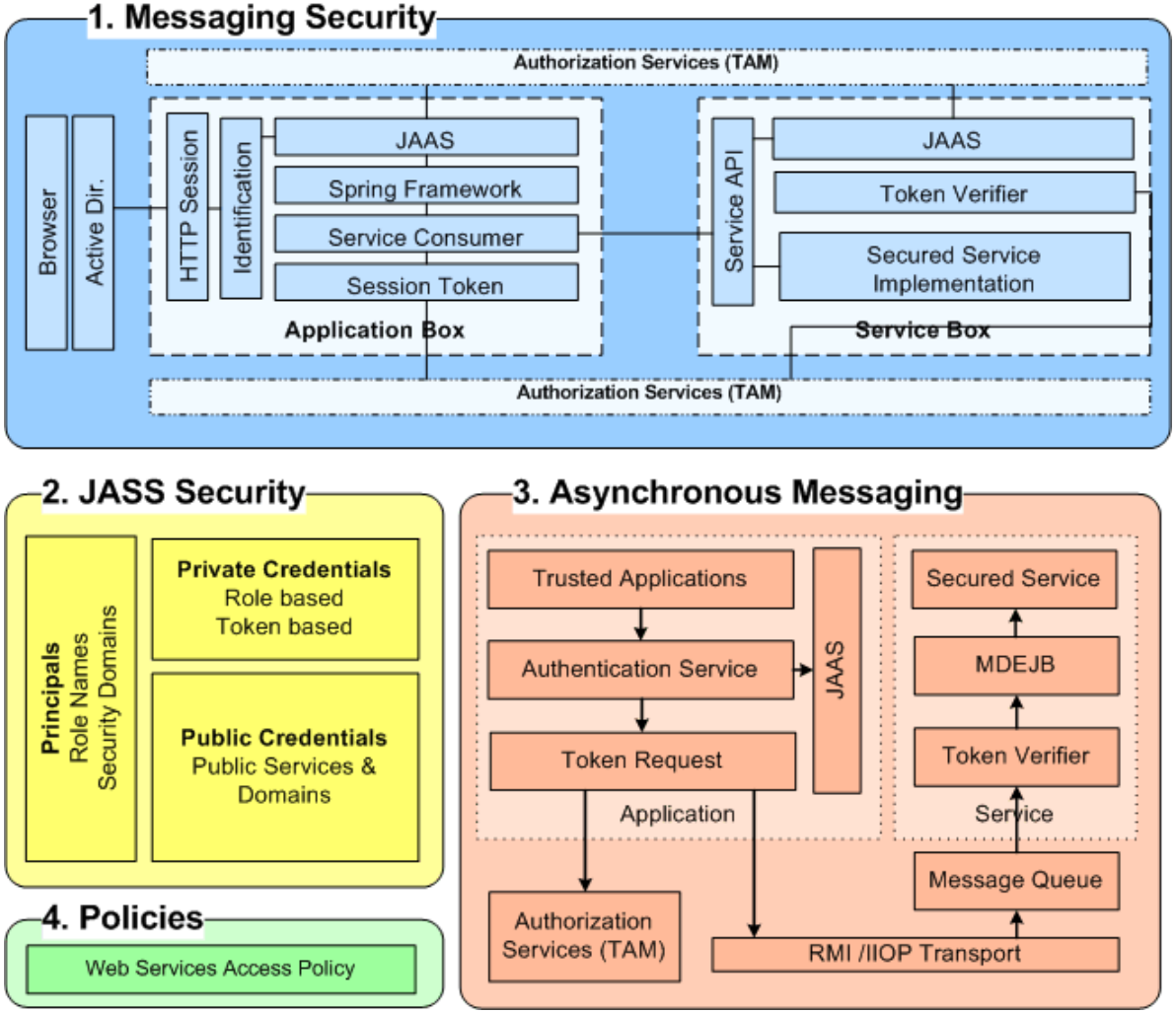
QA Architecture



Security Architecture



Service Architecture



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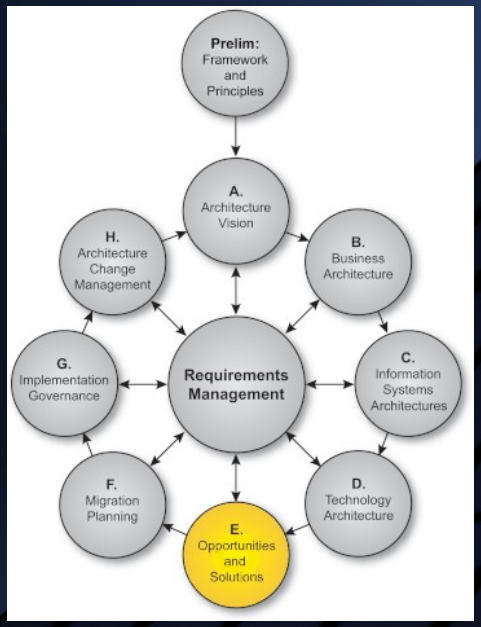
Opportunities and Solutions

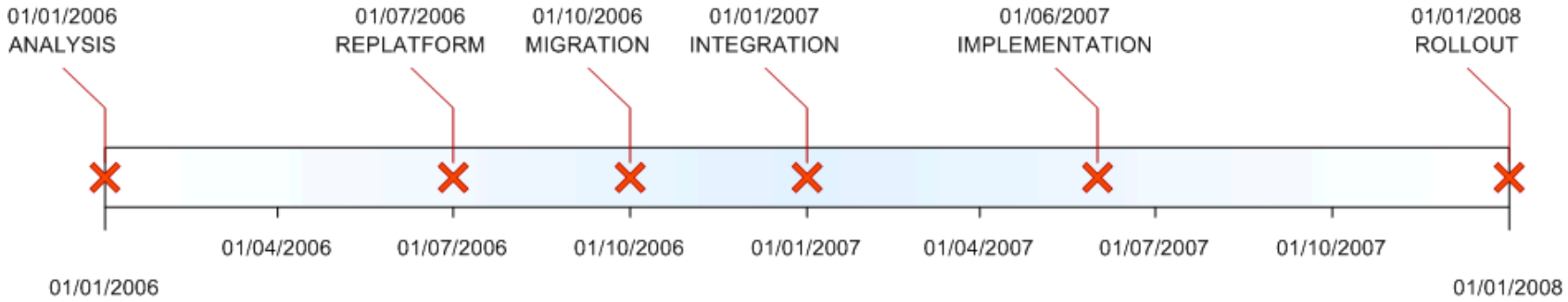


Outputs

- Opportunities
  - Share business information between countries, to improve performance and costs
  - Global Platform allows to create tons of reports, analysis, statistics and extract information from business activities:
    - New Information services
    - Improvement helped by Data Mining
    - B2B opportunities

Outputs

- High-level implementation plan



Outputs

- Impact Analysis - Project list
  - This Project impacts on every Global Operations
    - Corporate services
    - Local services
    - Authentication services
    - Document & Data Storage
  - Requires synchronization with current Local Version
  - Data Migration impacts all legacy systems

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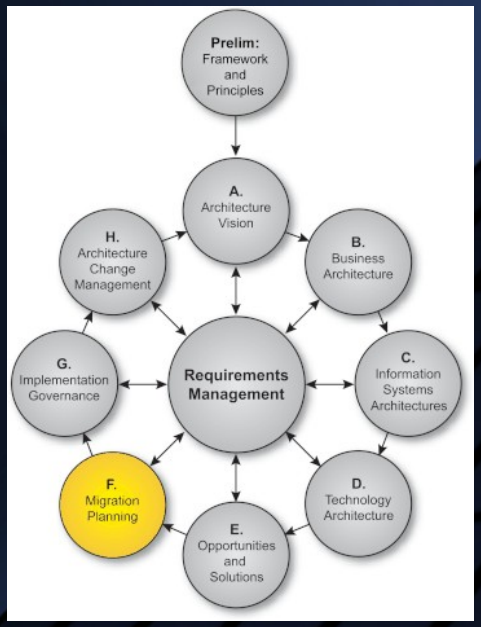
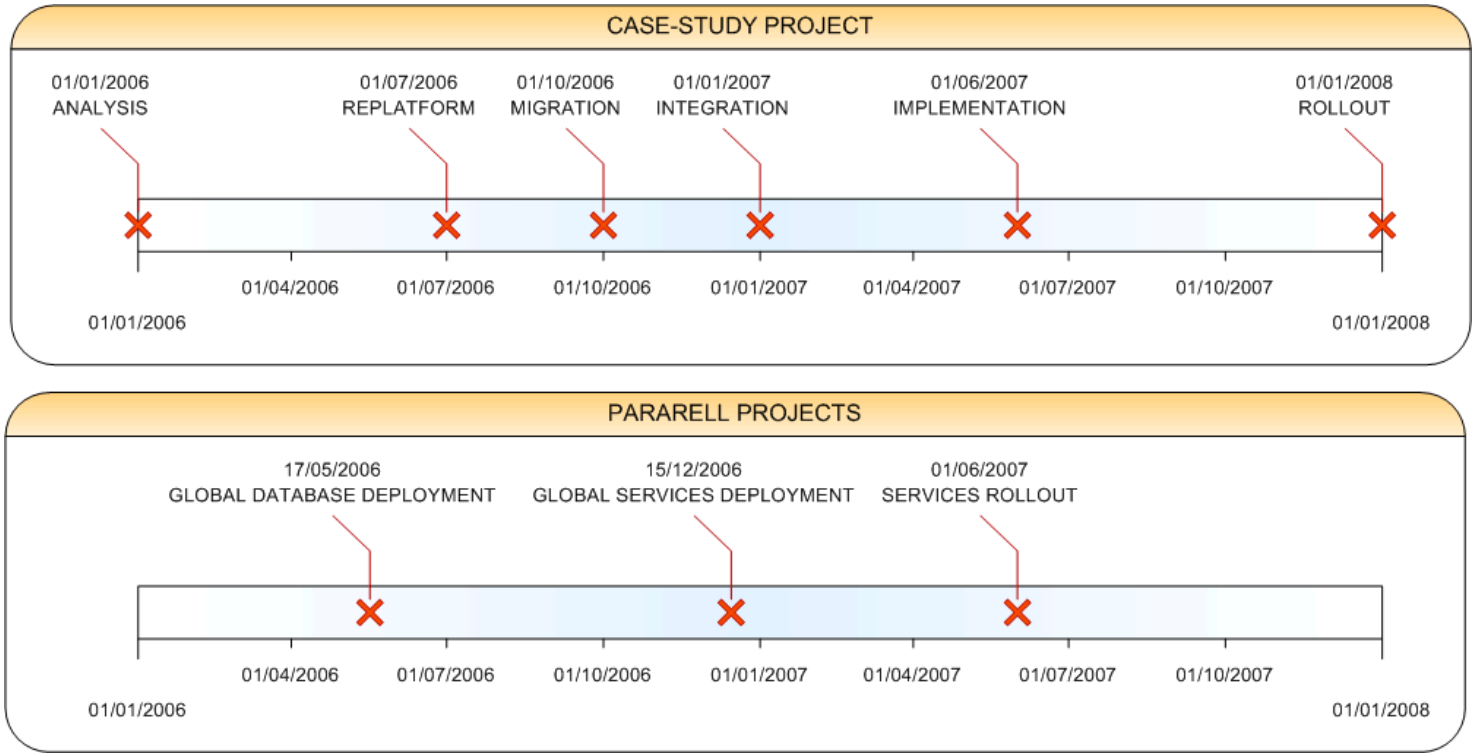
Migration Planning



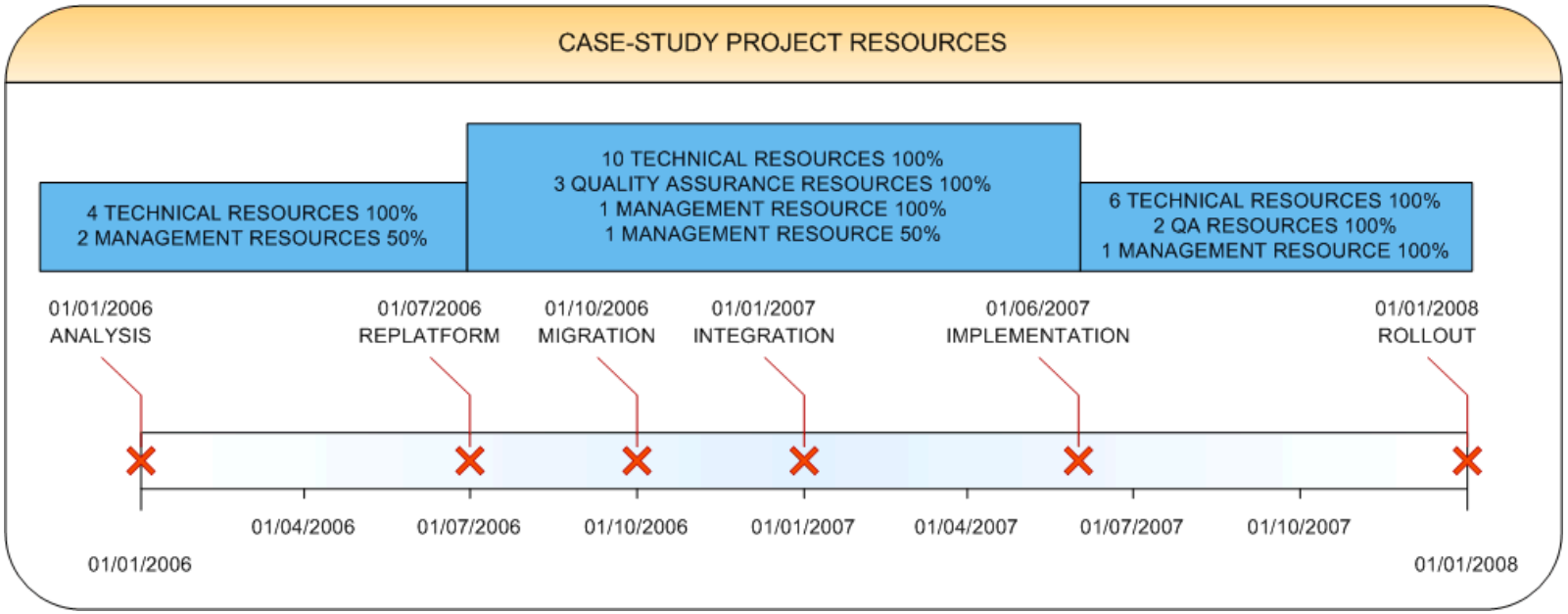
Steps

- Prioritize projects
- Estimate resource requirements and availability
- Perform cost / benefit assessment of the various migration projects
- Perform risk assessment
- Generate implementation roadmap (time-lined)
- Document the Migration Plan

Prioritize projects



Resource Requirements and Availability



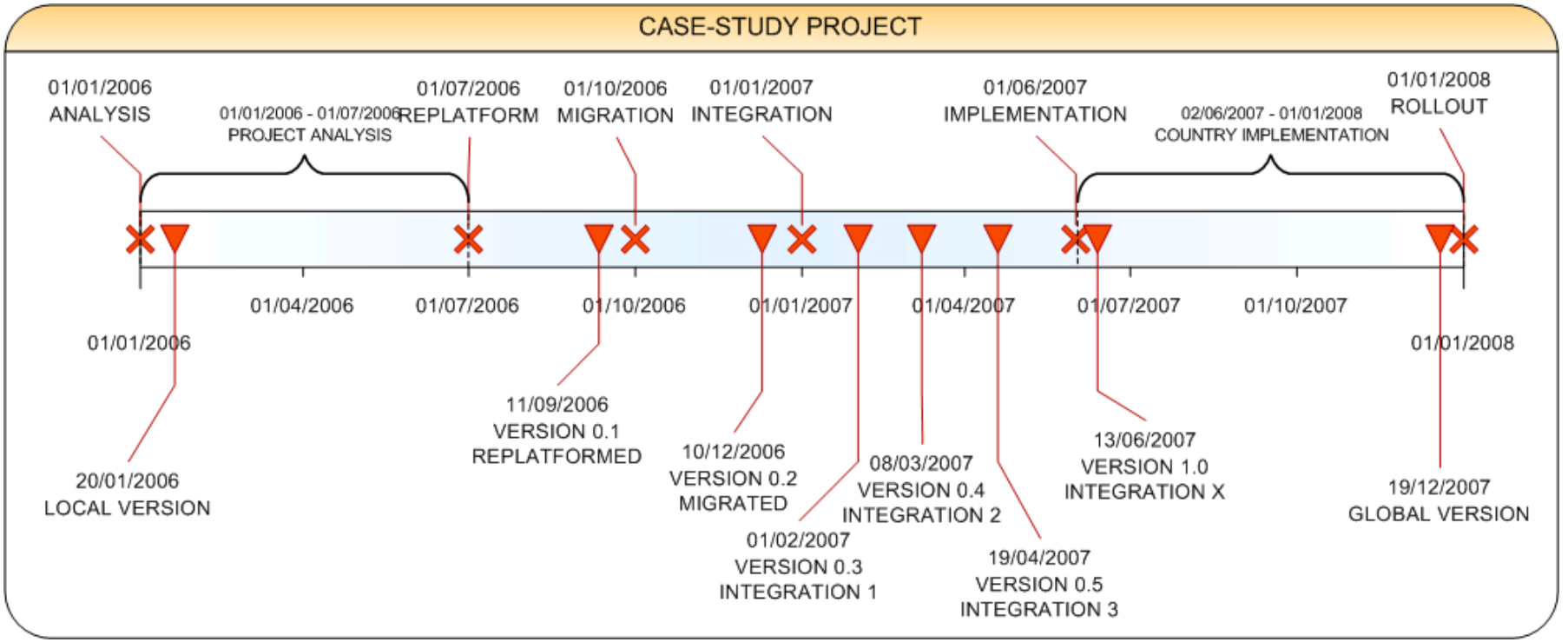
Cost/Benefit Assessment

- Investment per country is returned in 2 years (average) due efficiency improvement
- Common cost for Global infrastructure is returned in 5 years:
  - Provides reduction of Maintenance & Infrastructure Cost (IT systems reduced in more than 50%)
  - Increases new business opportunities (Global Data and potential cross-country services)

Risk Assessment

- Main risk to cover is the feasibility and efficiency of global platform:
  - Delivery dates could be delayed. Financial impact
  - Technical solution can't satisfy business requirements (performance, reliability, etc). Time and Financial impact, due re-work on solution
- Under extreme circumstances, the previous systems can provide service to business needs (No operational risks)
- Iterative deployments & validations are required to minimize previous risks

Implementation Roadmap



Migration Plan

- Analyse Project Approach
- Replatform Local System (Corporate IT policies)
- Migrate Database, from Local to Global
- Iterative Integration Project
  - Migrate Local Database access to Global Services client
  - Load Data and Test Iterations
- Configure Country based data & Requirements
- Deploy Version

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Q & A

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