

Developing SOA Solutions

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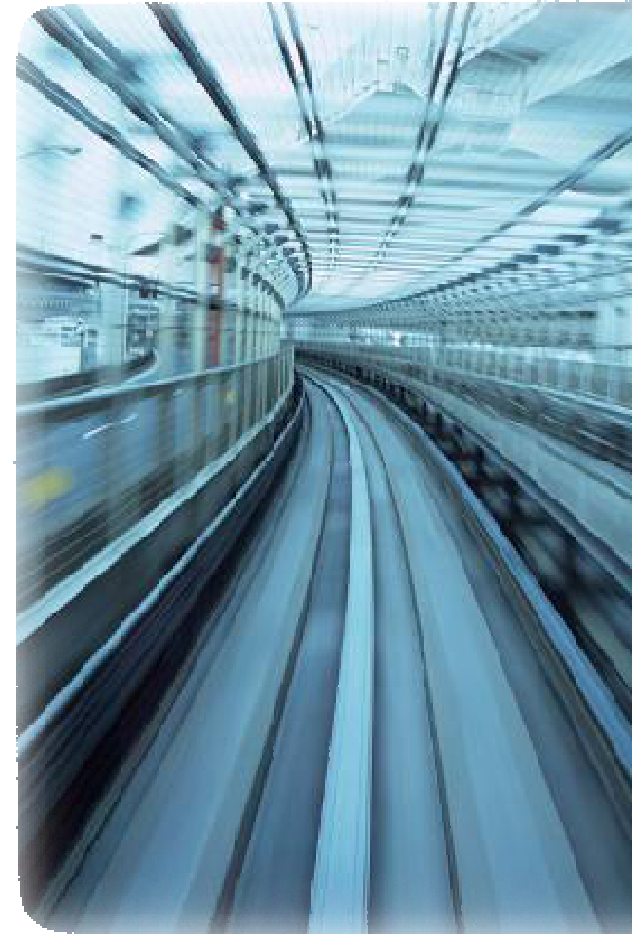
Agenda

- Creating a Foundation for SOA-based Solution
- The Model-Driven Lifecycle for SOA
- Business Performance and Service Optimization

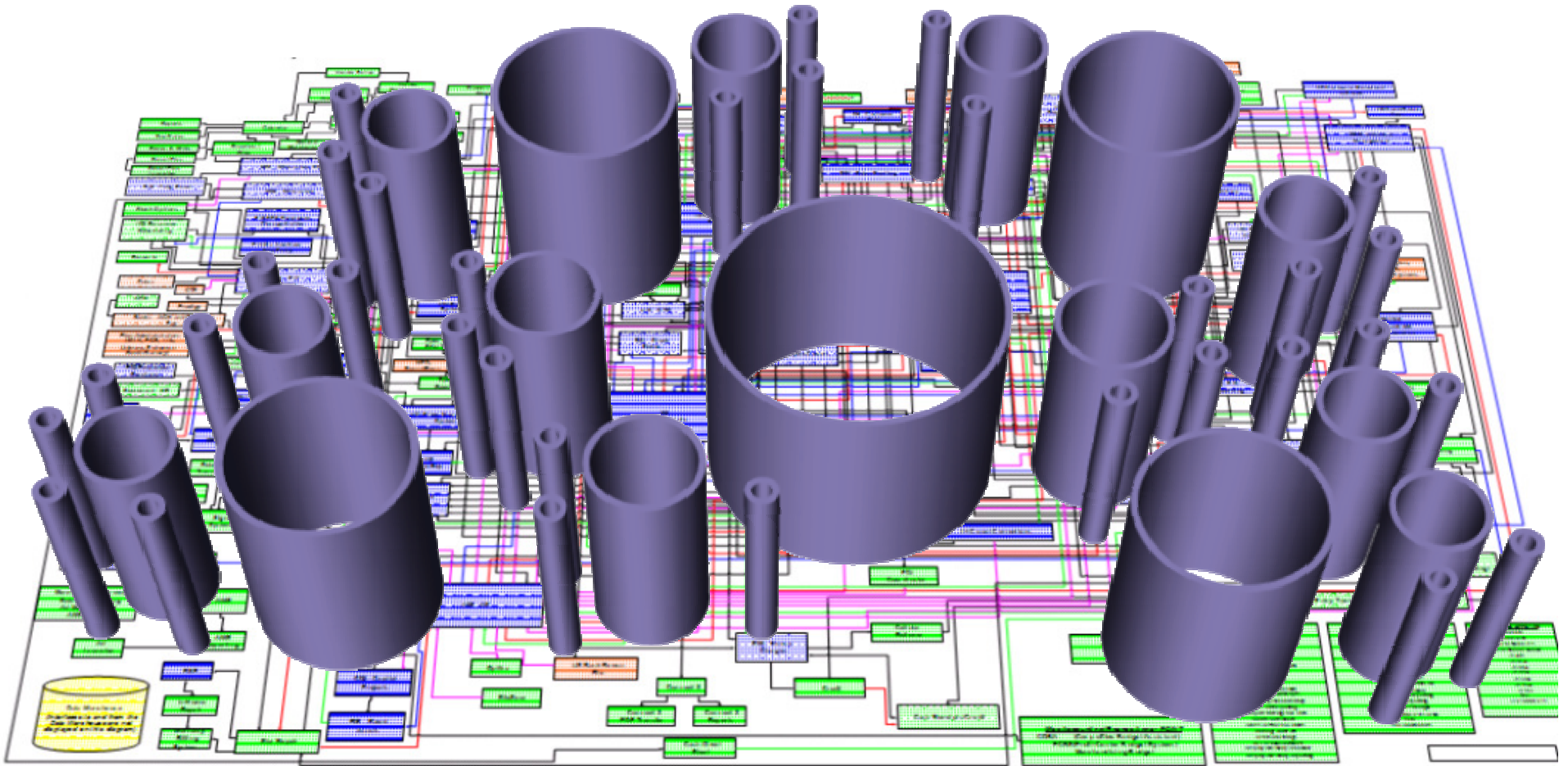


We face the challenge of accelerating market shifts

- Rising consumer expectations compel improvements in speed and personalization
- Rapid swings in economic and commodity markets highlight lack of adaptability
- Lower barriers to entry in a digital, flat world, enable fast and easy access by new competitors



But rigid IT systems, inflexible processes, and application silos inhibit agility and performance



How do businesses build agility to adapt and respond dynamically?



The Justification for SOA

- Business and IT Alignment
 - ▶ Driving IT design decisions from a fundamental understanding of the business model to which IT is being applied
- Business Flexibility
 - ▶ Ability to accelerate change
 - ▶ Ability to deliver innovative new business functions/capabilities
 - ▶ Ability to shift IT spend toward new function => reduce costs
- Agility, Velocity, Efficiency, Control
 - ▶ Increase the value of IT to the businesses that we serve



What is Service-Oriented Architecture (SOA) ?

- SOA is different things to different people:

- ▶ a **set of services** that a business wants to expose to their customers and partners, or other portions of the organization

Business Executive, Analyst

- ▶ an **architectural style** which requires a service provider, requestor and a service description

IT Architect

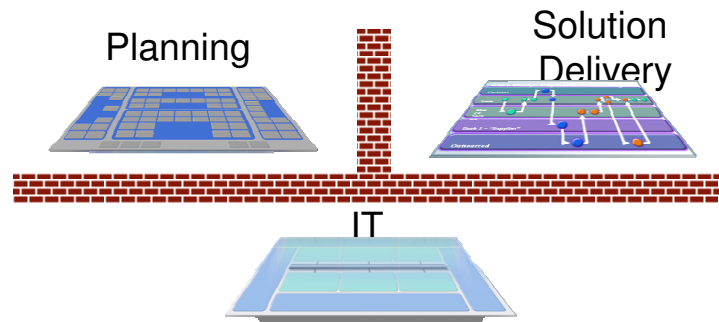
- ▶ a **set of architectural principles, patterns and criteria** which address characteristics such as modularity, encapsulation, loose coupling, separation of concerns, reuse, composability

- ▶ a **programming model** complete with standards, tools and technologies such as Web Services

Software and System Developer

- ▶ a **middleware solution** optimized for service assembly, orchestration, monitoring, an management

“The great divide” between business and IT



Business

“I can’t tell if my day-to-day operations support my business strategy”

“It takes me too long to get the right information at the right time to optimize my decision making”

“It takes too long, and costs too much to respond to changes in my market”

Traceability

Visibility

Flexibility

IT

“I can’t get business people to articulate requirements I can execute”

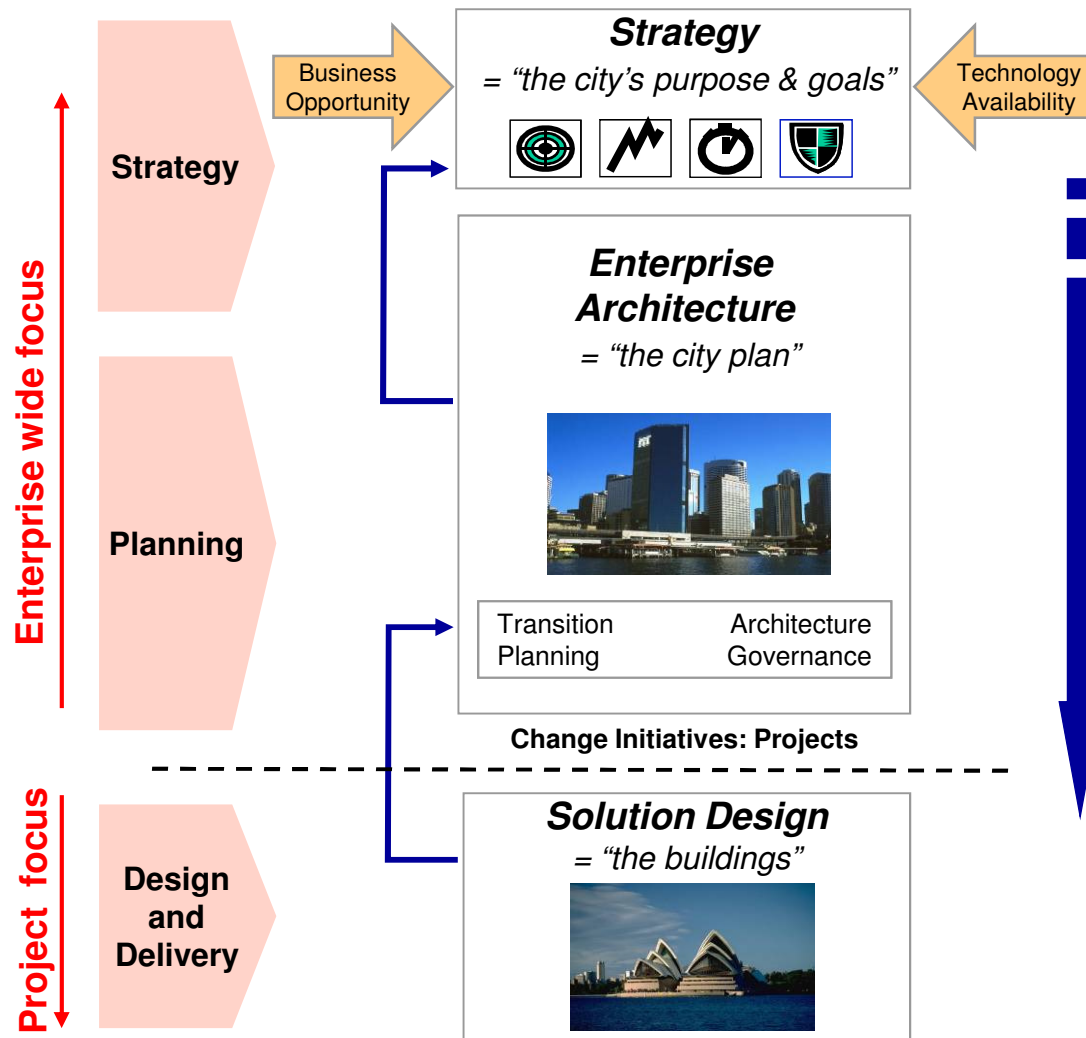
“How do I demonstrate the value of my IT project to the business?”

“By the time I deliver a solution, the business requirements have changed all over again”

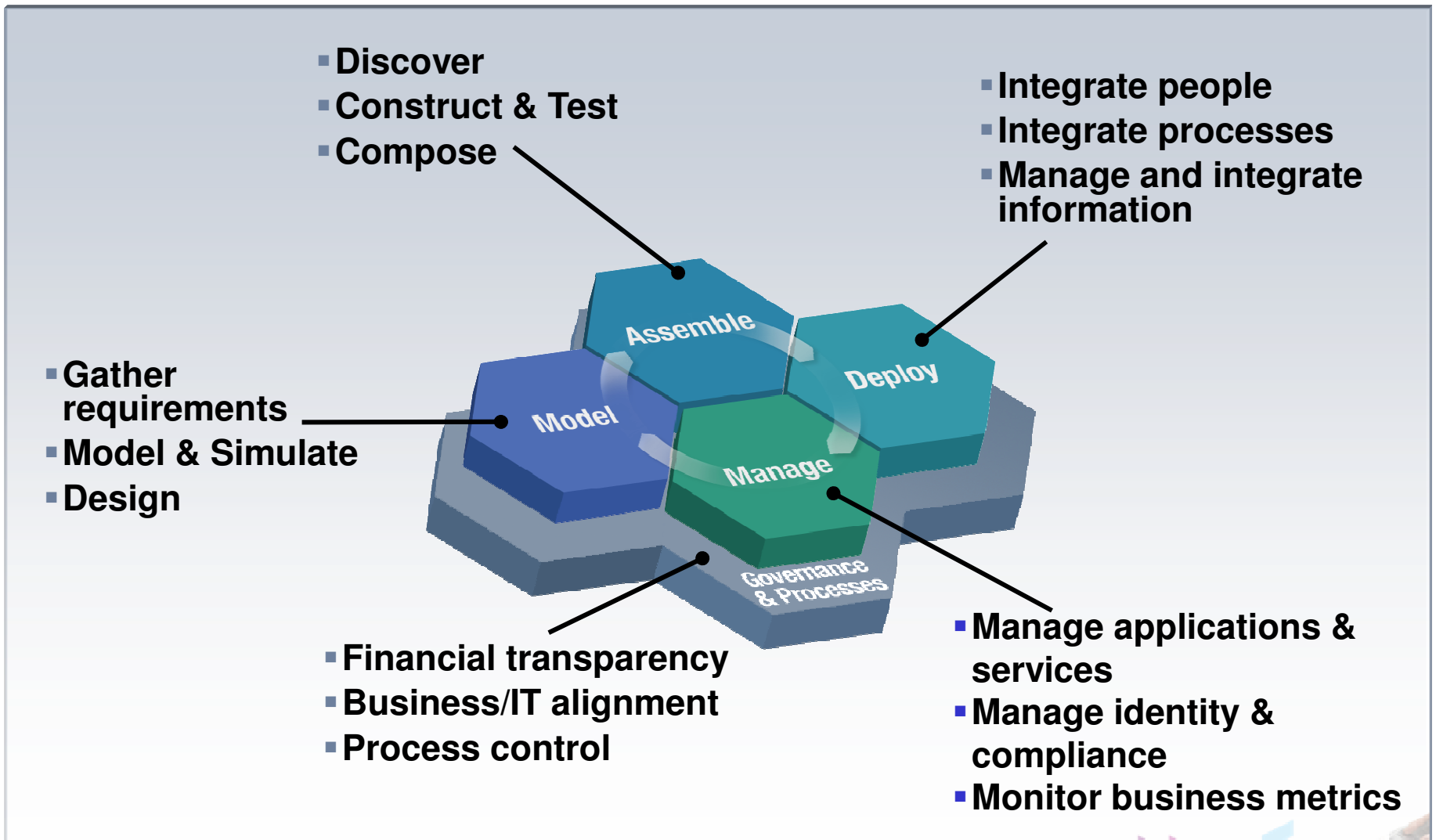
“Every business unit thinks their requirements are unique”



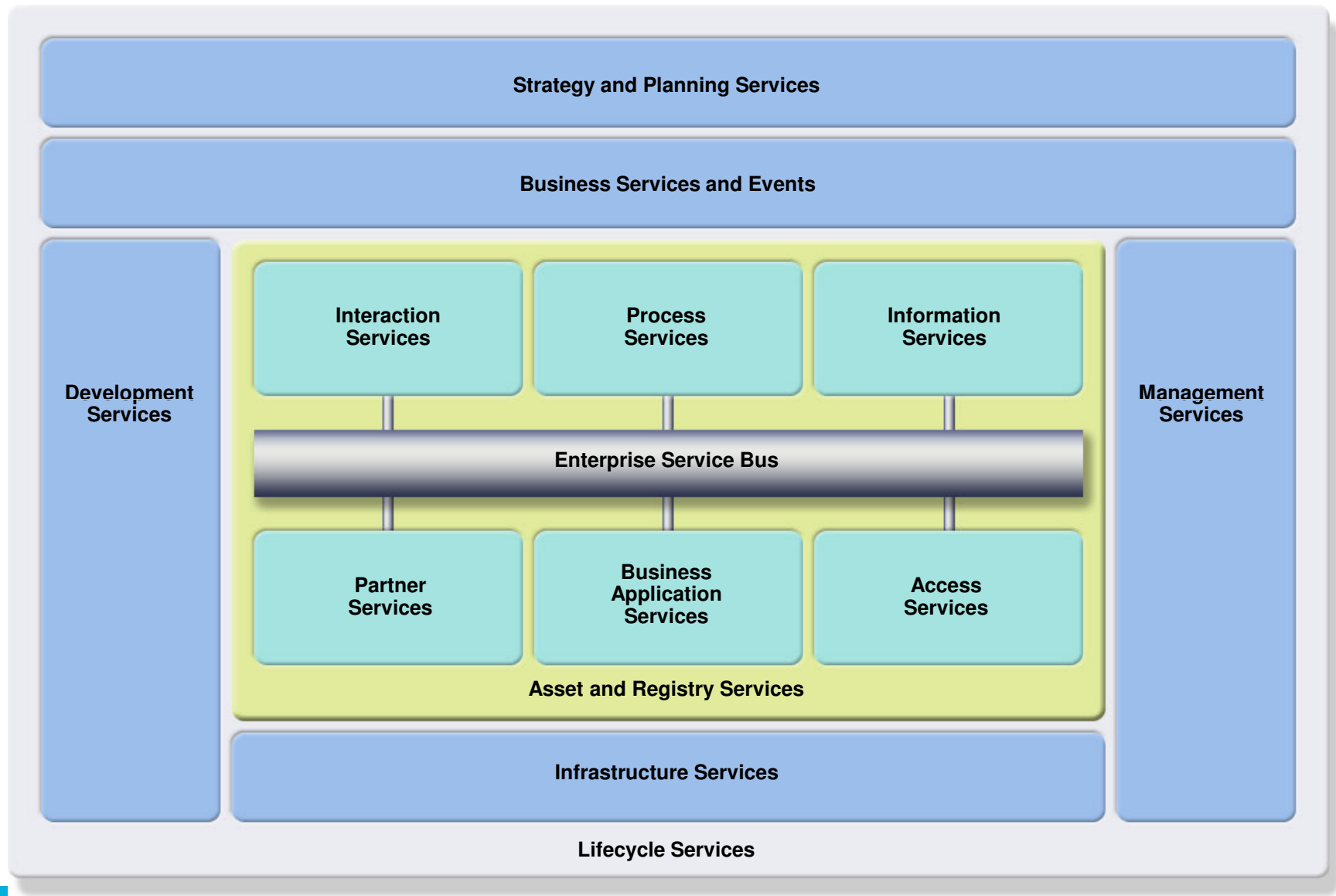
Hierarchical View of The Enterprise - Directing Change toward Strategic Goals



The SOA Lifecycle

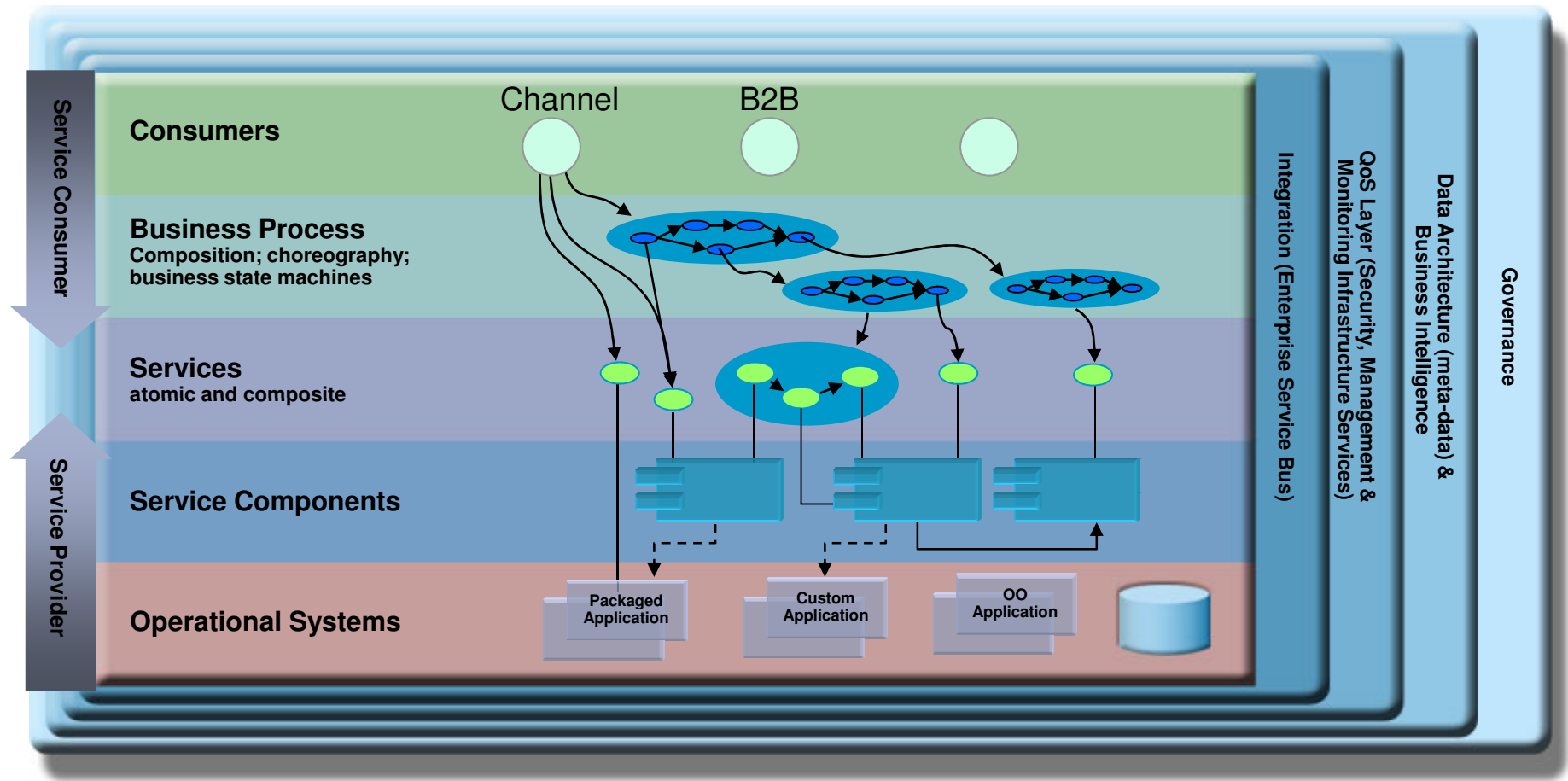


SOA Foundation Reference Model

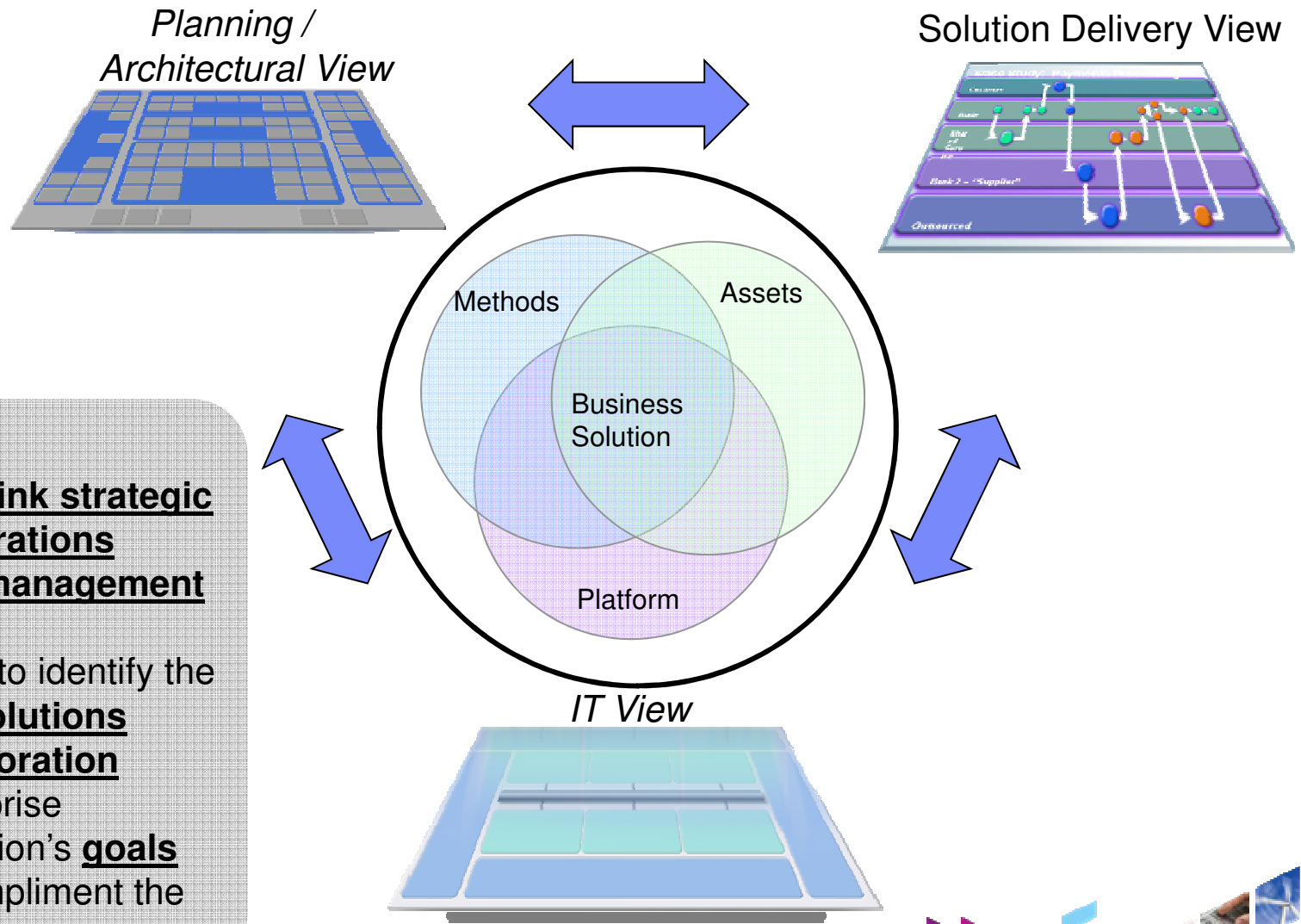


SOA Solution Layering

Leveraging the SOA Reference Architecture



Link planning and solution delivery to make it easier for the business user to leverage IT's full potential



- Benefits:**
- More effectively link strategic planning to operations
 - Make portfolio management easier
 - Allow customers to identify the highest value solutions
 - Facilitate collaboration across the enterprise
 - Verify that operation's goals and metrics compliment the strategy

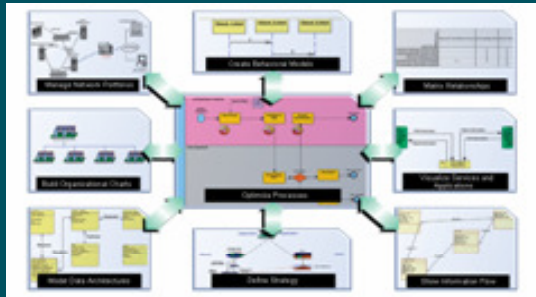
Each individually accelerates Business and IT Alignment

	Base definition	Main value proposition	Key results
SOA	An architectural style for business and IT that enables flexibility and improved time to market for integrated solutions	Agile and aligned business and IT design and delivery <i>“The right solutions supporting the right time to market”</i>	<ul style="list-style-type: none"> ▪ Improved business agility ▪ Lowered cost ▪ Reduction of risk ▪ Delivery of reusable and flexible services ▪ Low-maintenance, standards-based integration ▪ Aligning business processes with the services supporting them ▪ SOA Governance as a catalyst for business and IT alignment
BPM	A solution delivery discipline , based on SOA practices, that drives business agility, efficiency and optimization around organizational concerns and measurable business objectives	Business optimization and IT responsiveness via process definition, analysis, customization and deployment <i>“The right organizational resources doing the right things”</i>	<ul style="list-style-type: none"> ▪ Collaboration to predict and optimize process outcomes and operational efficiency ▪ Rapid deployment of new solutions from reusable building blocks ▪ Rapid customization of flexible processes ▪ Real-time sensing and response to business events providing end-to-end visibility and actionable insight
EA	An architectural discipline that merges strategic business and IT objectives with opportunities for change and governs the resulting change initiatives	Driving portfolio planning in a strategic context and directing change toward common enterprise goals <i>“The right changes enacted the right way”</i>	<ul style="list-style-type: none"> ▪ Better, faster strategic and tactical decisions with validated results ▪ Prioritized investments to support business goals ▪ Improved risk management of organizational transformation ▪ Enterprise level communication and visibility for people, processes and assets ▪ Standardization and governance of shared business and IT building blocks

EA and BPM Drive Solution Delivery

SOA Center of Excellence

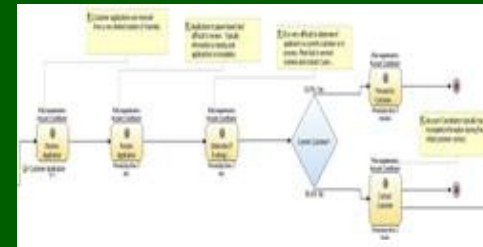
Enterprise Architecture *Rational System Architect*



- Enterprise blueprint based on business and technology architecture
- Transformation roadmap
- Integrated view of technology ecosystem
- Change management and collaboration

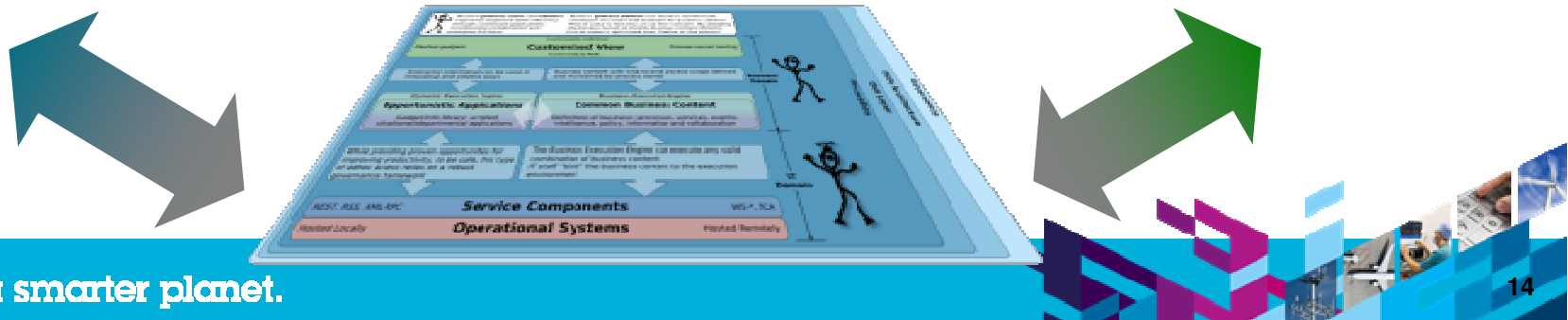
Models

Business Process Management *WebSphere Business Modeler*



- Detailed business process models
- Optimized business processes
- Organizational and resource models
- Human tasks, business rules, business policies, KPI's

SOA Solution Delivery



Let's build a smarter planet.

WebSphere Business Modeler

Business Level Modeling And Simulation

Designed for business users

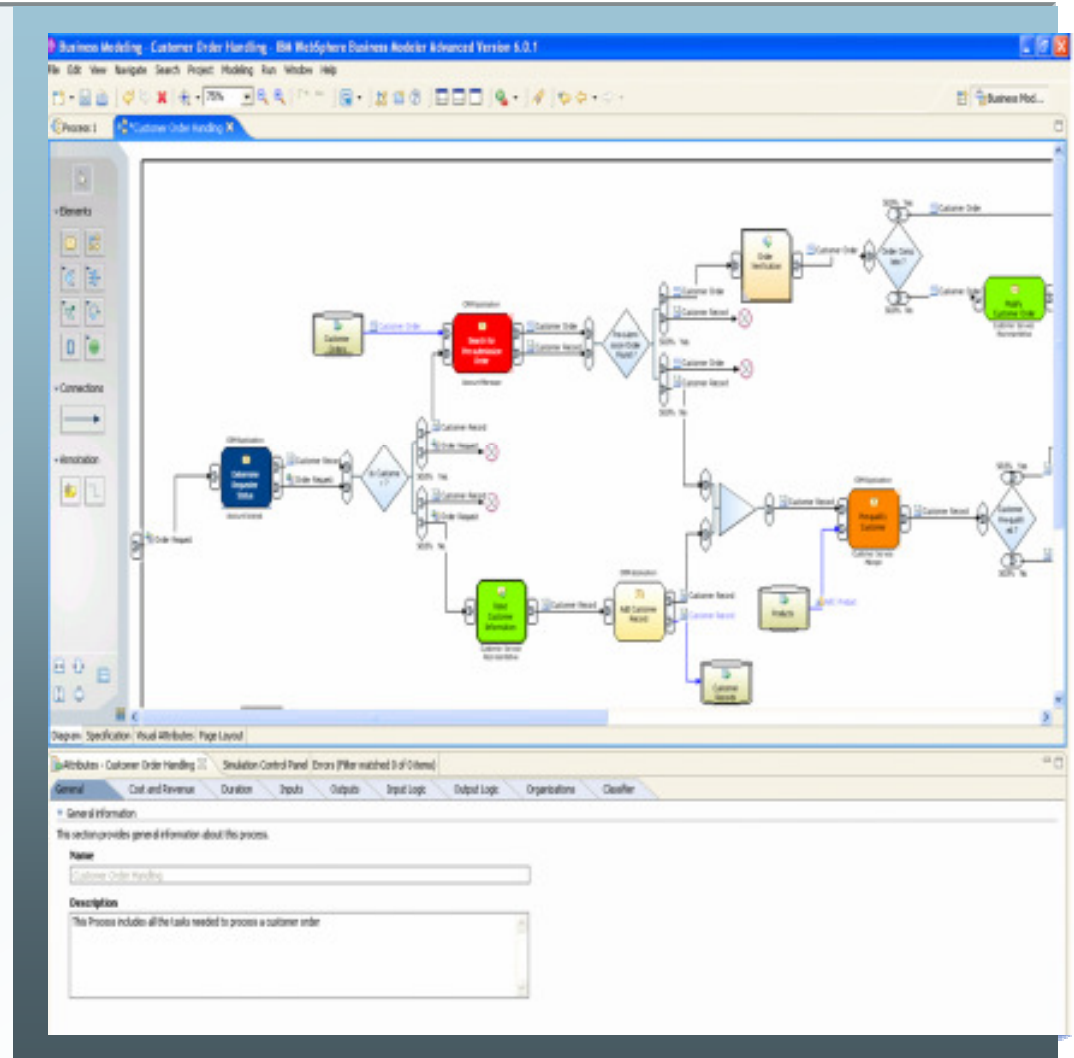
- Import models directly from Visio
- Hundreds of process templates available (IFW, IAA)
- Optimize all aspects of your business – set KPI's and metrics
- Collaborate with subject matter experts through the Publishing Server

Model, simulate, and analyze

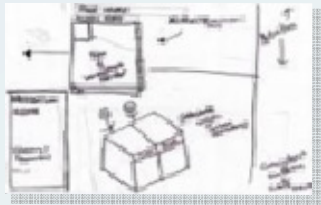
- Enhanced analysis and simulation capabilities. Fully understand impacts before deploying.

Clean hand-off to I/T

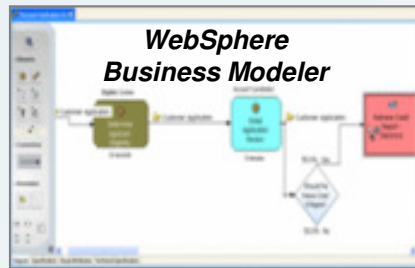
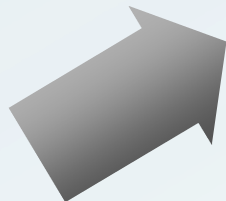
- Rapid and accurate deployment of your solutions
- Business modeling is the starting point for IT deployment (WID)



Model and Simulate the Process



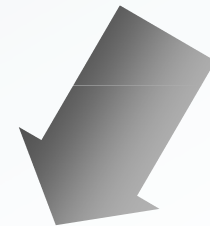
Existing Processes



Run simulation to estimate savings and support the business case for the process change

67% of processes fail because their impact was not known prior to execution

Omar Sawy,
Redesigning Enterprise Processes for e-business



Current State - Times & Costs

Case Analysis with Unlimited Resources

Probability	Average Process Time (Min:sec)	Average Cost	Case
32.91%	10:11	\$5.40	1

Future State - Times & Costs

Case Analysis with Unlimited Resources

Probability	Average Process Time (Min:sec)	Average Cost
35.57%	8:16	\$4.38

Storyboard Human Tasks & Forms Interaction

The screenshot displays the IBM WebSphere Business Modeler interface. The top window shows a process flow diagram for 'Order Handling Process'. The flow starts with 'Recieve Order', followed by 'Process Order', then a decision diamond. The 'Yes' path (50.0%) leads to 'Bill Customer', and the 'No' path (50.0%) leads to 'Cancel Order'. The bottom window shows the 'Storyboard' view with a table of human tasks and their associated forms.

Process Context (Callout pointing to the process flow diagram)

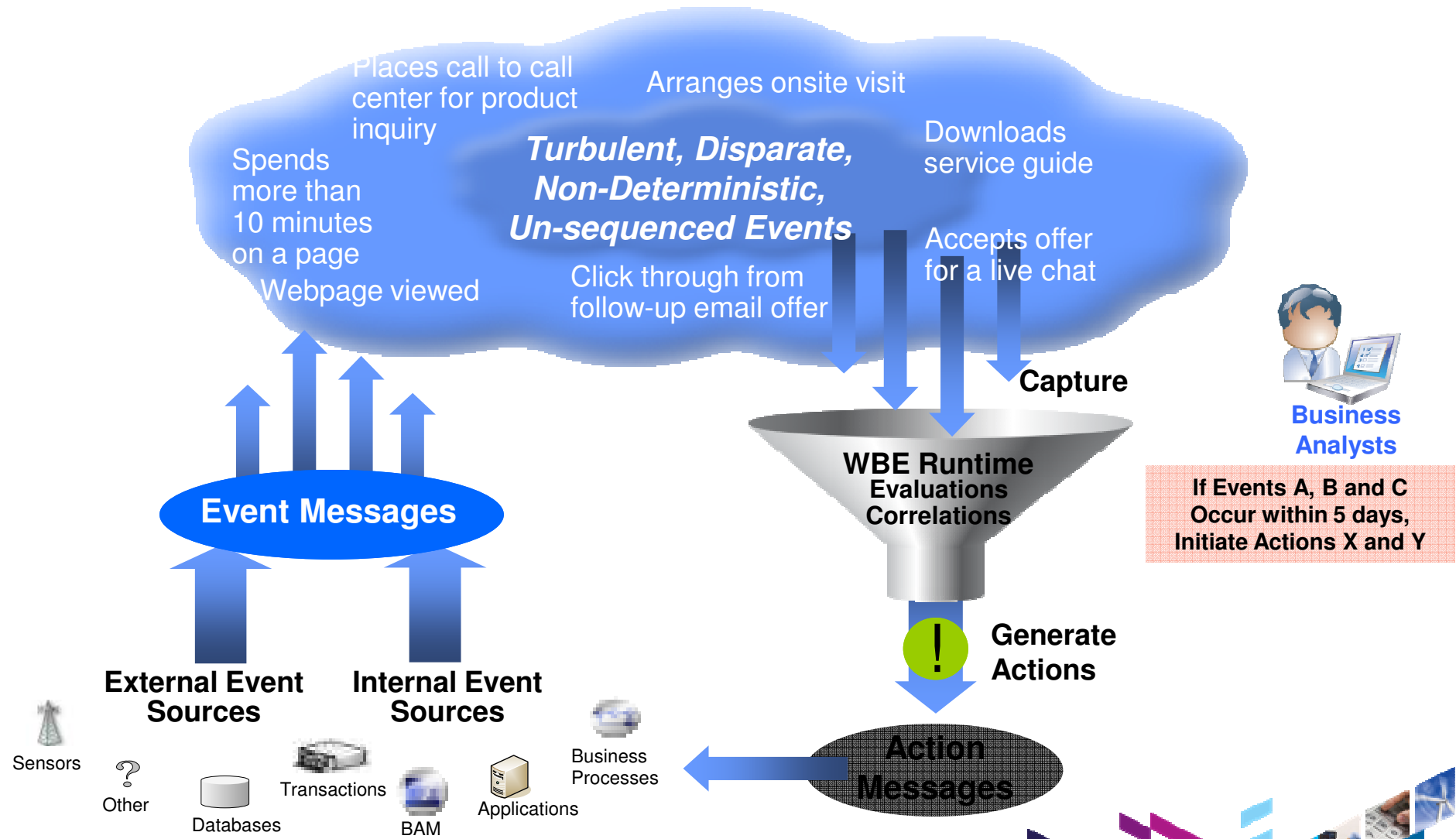
Review User Interface Forms (Callout pointing to the 'Input Form' and 'Output Form' panels)

Storyboarding Definition (Callout pointing to the storyboard table)

See Human Tasks in Sequence (Callout pointing to the 'Human Tasks with Forms' table)

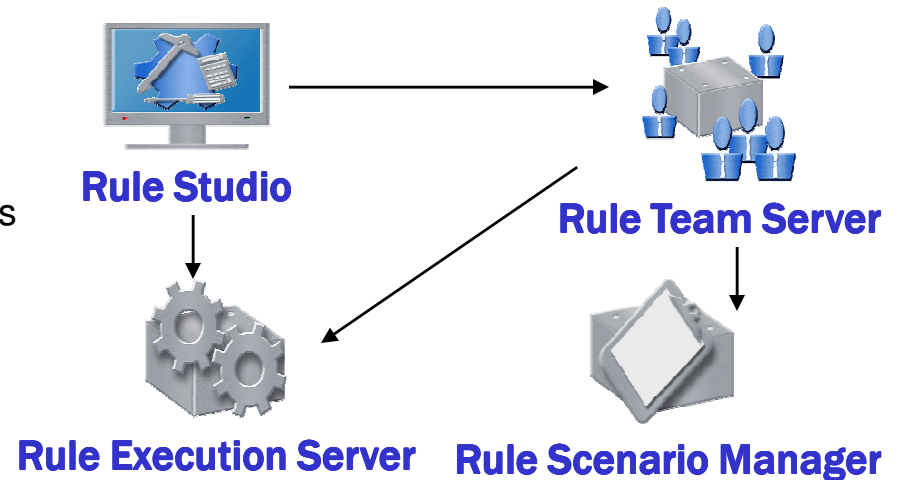
Sequence	Human Task	Input Form	Output Form
1	Recieve Order	Order Form	Customer Order
2	Process Order/Check Inve...	Customer Order	Customer Order
3	Process Order/Review Ord...	Customer Order	Customer Order
4	Bill Customer	Customer Order	Bill
5	Cancel Order	Customer Order	

WebSphere Business Events



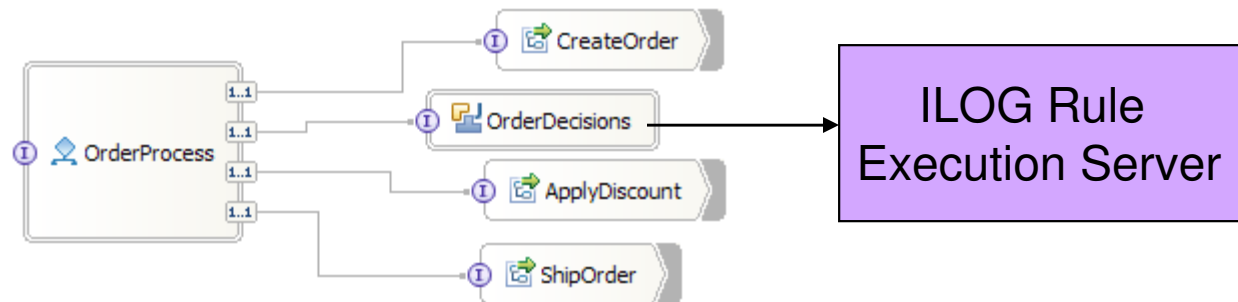
IBM WebSphere ILOG JRules

- Business rules bring high levels of flexibility and business involvement to BPM applications
- ILOG JRules provides a complete development, runtime, and management environment for business rules
 - ▶ Rich rule development with **Rule Studio**
 - ▶ Collaborate and share rules with users with **Rule Team Server**



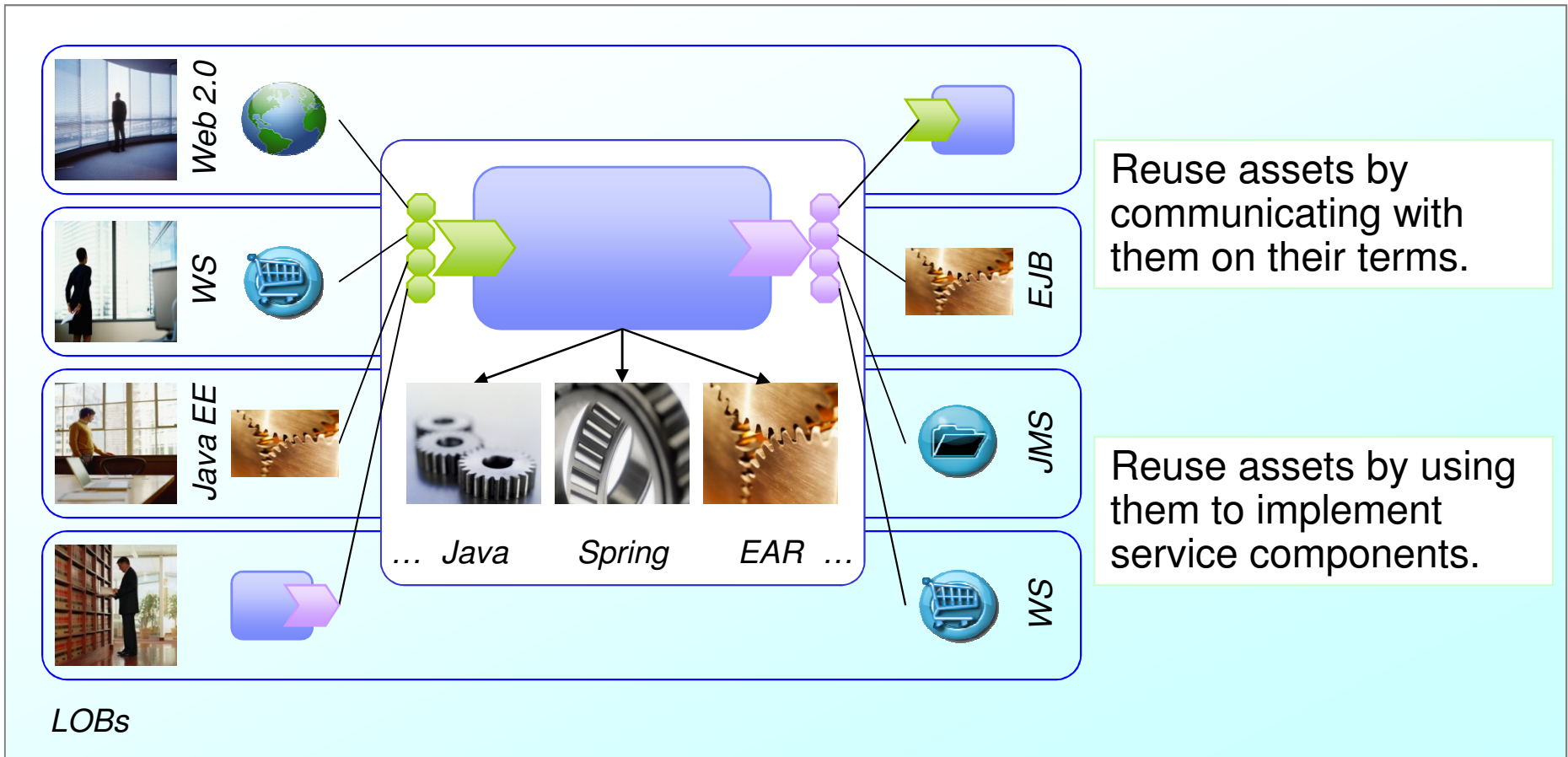
- ▶ Test and simulate rules with **Rule Scenario Manager**
- ▶ Scalable runtime and management and monitoring for rules with **Rule Execution Server**

- BPM applications integrate with ILOG JRules through SOA
 - ▶ JRules SCA component wired to other SCA components calls Rule Execution Server to call decision service



Reduce, Reuse, Recycle

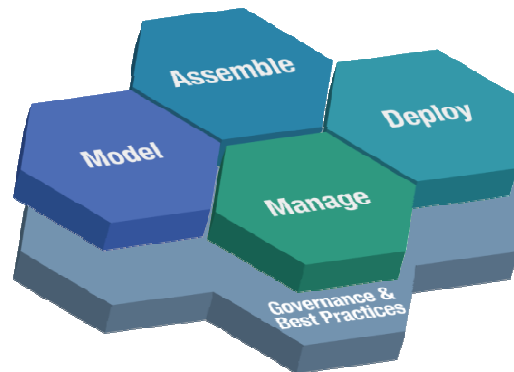
- How do I tap into and reuse the valuable IT collateral in my lines of business and reduce redundancy for the benefit of the enterprise?



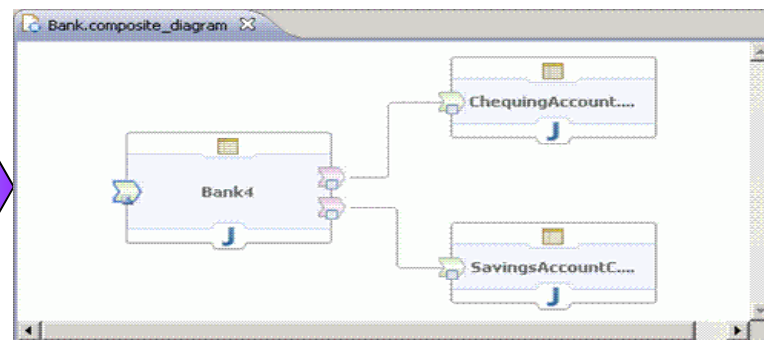
Open Service Component Architecture

An open, emerging standard programming model for assembling flexible SOA business solutions from diverse, reusable service enabled IT assets

Describe, implement and assemble service components into reusable composites.

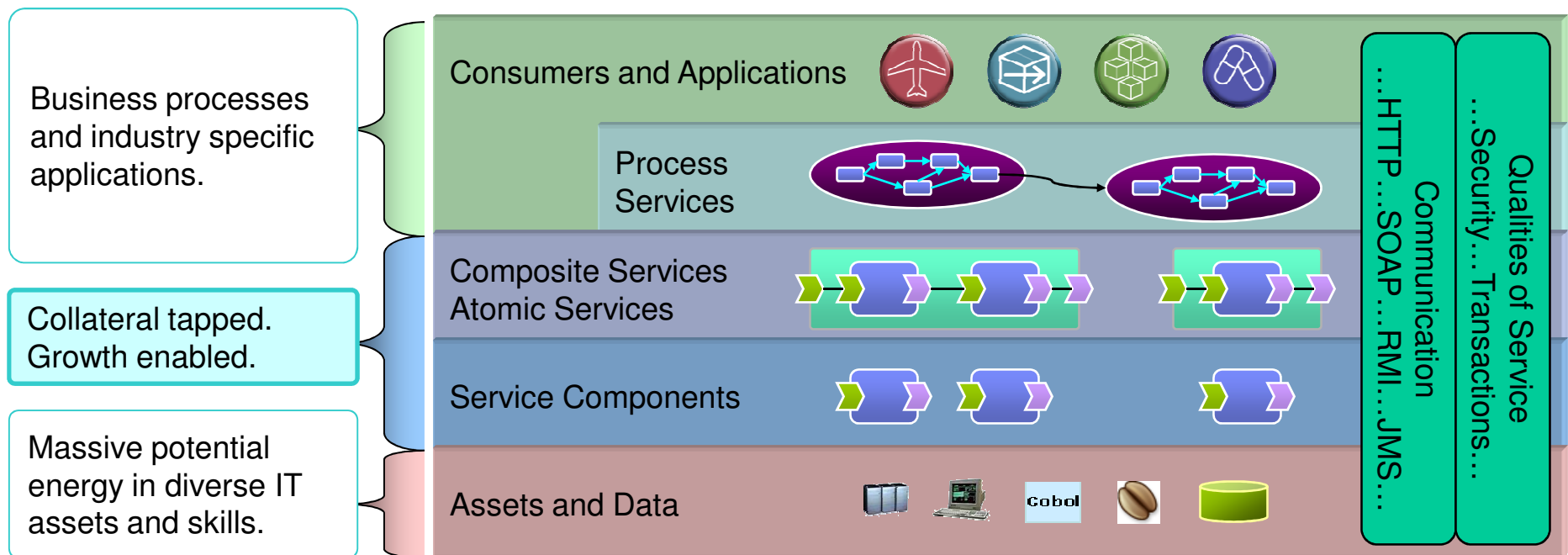


Package composites into contributions and run on WebSphere Application Server.



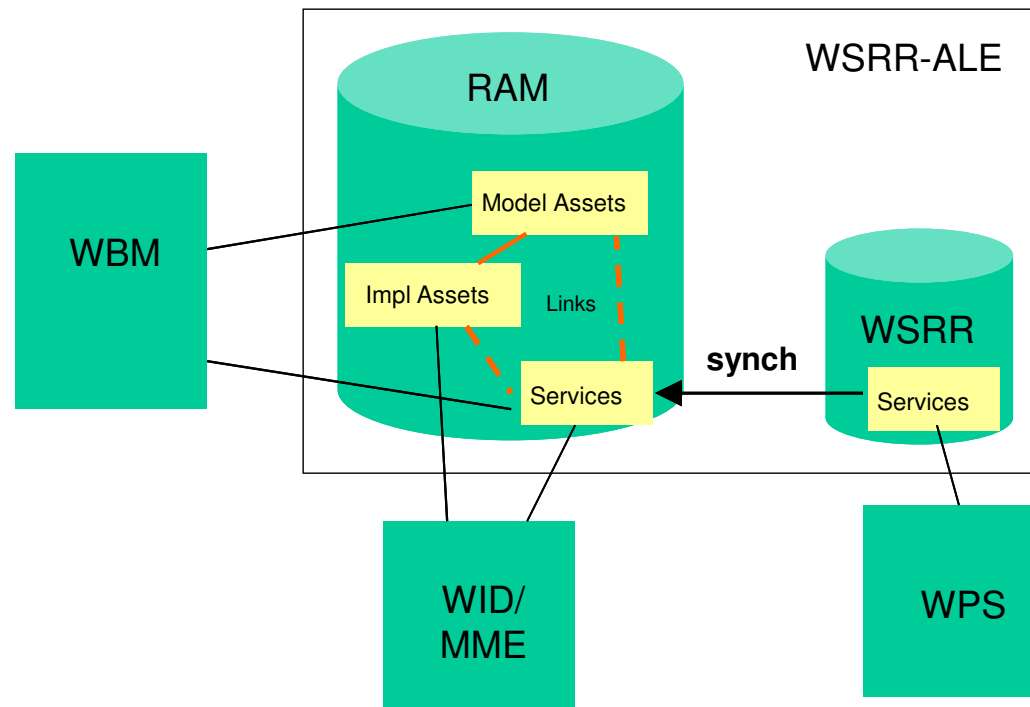
SCA – A Concrete Manifestation of the SOA Style

- Use SCA to...
 - ▶ Assemble diverse IT assets into SOA solutions.
 - ▶ Loosely couple coarse grained service components.
 - ▶ Realize highly reusable, multi-lingual, flexible services.

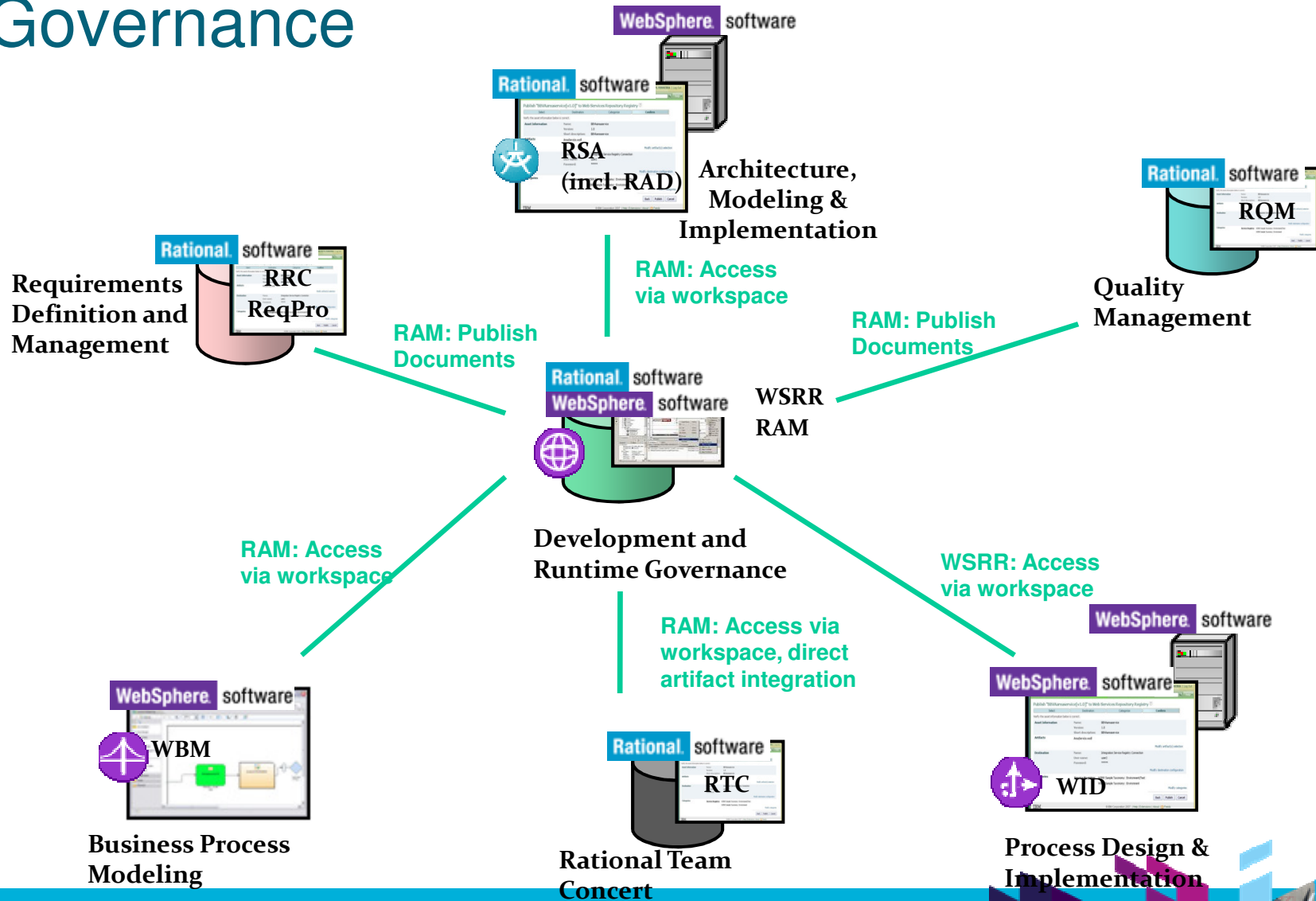


Model Synchronization and Lifecycle

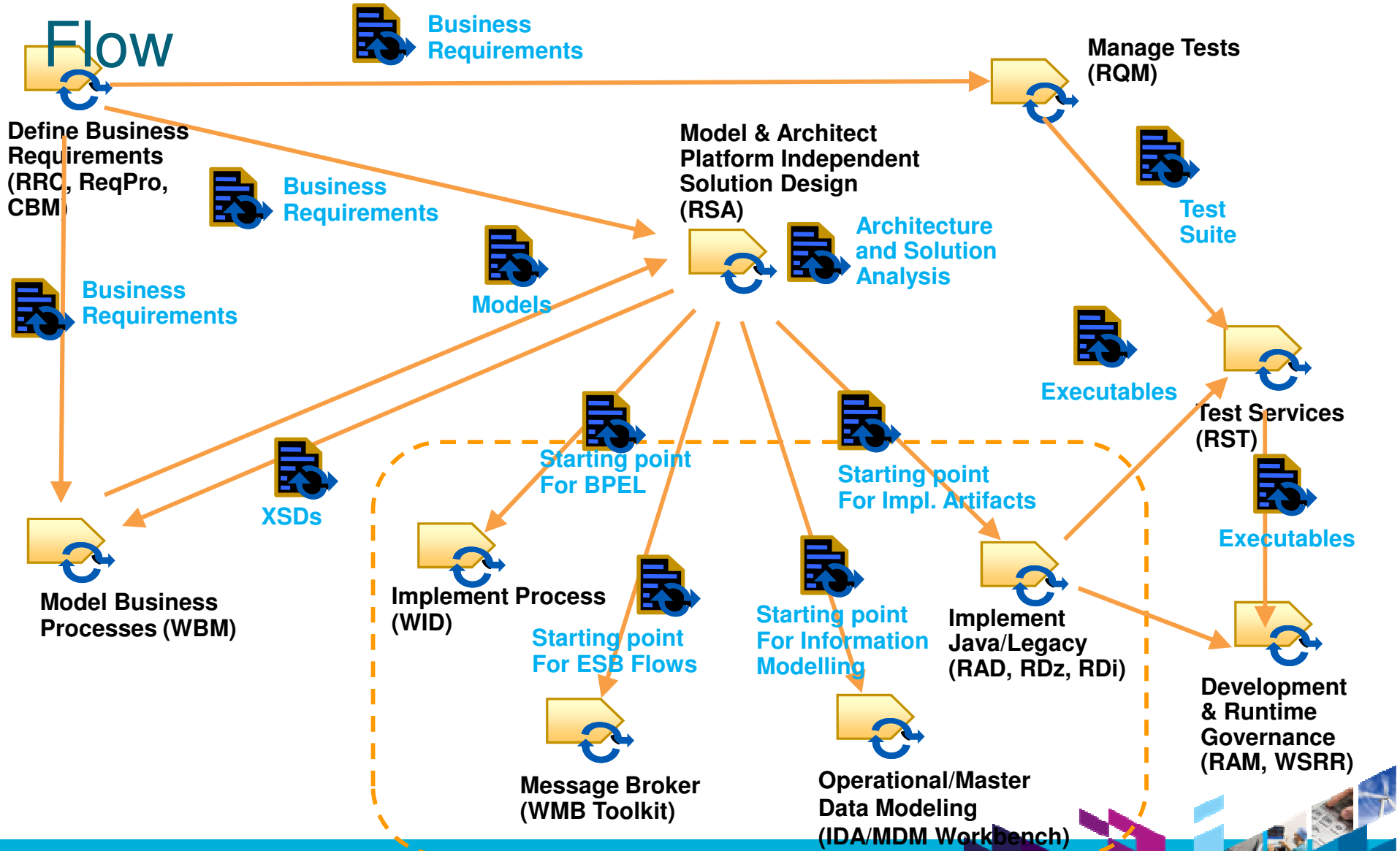
- Service Definition support with WSRR-ALE
 - ▶ Service definitions can be imported from RAM into WBM [v6.2]
 - ▶ Service traceability maintained to models and implementation [v7/v7+]



Cross-Brand Interactions for Governance



Cross-Brand Interactions – Artifact Flow



What Is Rational Automation Framework for WebSphere?

- Customizable Framework for the WebSphere Family of products that delivers
 - ▶ *Automated configuration change management*
 - ▶ *Application deployment automation*
 - ▶ *WebSphere product installation & patching automation*

The framework's strengths are...

▶ **Accuracy**



“Data Abstraction” - RAFW applies the right data to the right environment

▶ **Speed**



Eliminate manual administration with pre-built automation

▶ **Consistency**



Apply data in repeatable manner to WebSphere environments



Automate WCA Pattern Customization with Rational

Automate for Agility

- ✓ Automating cloud development reduces time-to-market and delivers higher quality, consistent results
- ✓ Automate your existing tools and processes, gain rapid ROI, and then fine-tune your cloud development for increased efficiency and savings

Gain Control of WebSphere Environments

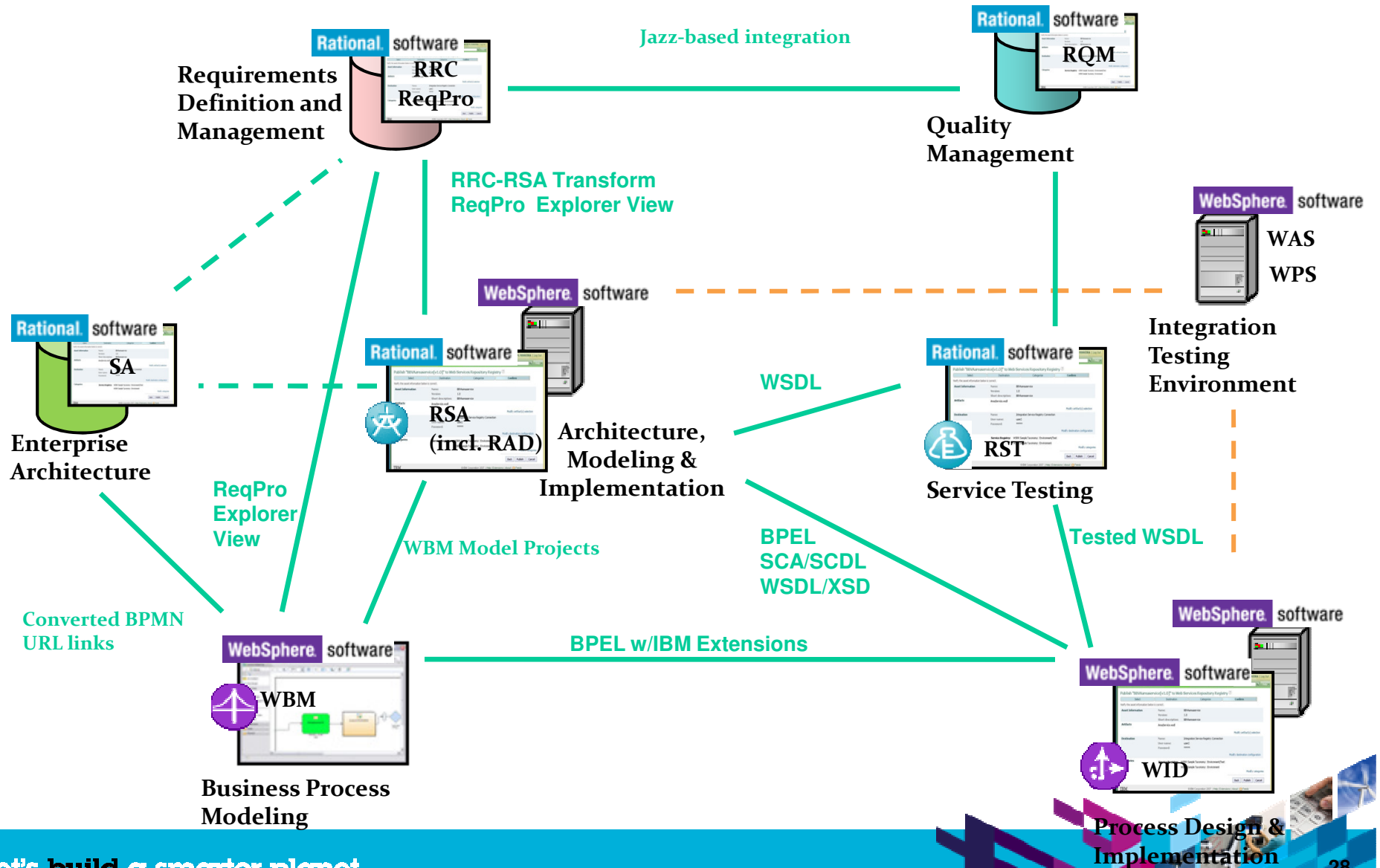
- ✓ Over 500 field-proven automated tasks for configuration and application deployment to Application Server and Portal Server targets

Head for the Clouds for Greater Resource Utilization

- ✓ Ensure efficient and consistent use of WebSphere CloudBurst images for many types of environments, including development, testing, and production scenarios
- ✓ Rational Automation Framework for WebSphere integration with WebSphere CloudBurst delivers on-demand, easily customized middleware appliances for all purposes



Cross-Brand Interactions



Standards-Based Interaction

- All of the cross-brand tooling involved in the modeling lifecycle supports one or more standards:
 - ▶ BPEL
 - RSA generates standard BPEL files from service models
 - WBM generates BPEL with IBM extensions for consumption by WID and WPS
 - ▶ BPMN (BPMN2)
 - Rational SA (BPMN) and RSA (subset of BPMN2) create standard BPMN-based process models
 - [AlphaWorks Diagram Importer](#) enables consumption of BPMN from SA in WBM
 - RSA supports BPMN2 process models today
 - ▶ Classic (IBM-proprietary) SCA, Open SCA
 - Both RSA and WID support all flavors of SCA in some way
 - ▶ Web Services (WSDL, XSD)
 - RSA, WID, RAD, and WAS generate and consume standard web services artifacts
 - ▶ OSLC
 - Open Services for Lifecycle Collaboration: <http://open-services.net/html/Home.html>
 - Specification of collaboration between lifecycle tools
 - Core to the Jazz Server Foundation and IBM tools that enable collaborative lifecycle support

Interaction Details

- SA – WBM
 - ▶ BPMN conversion tool on AlphaWorks enables process models created in SA to be consumed in WBM
 - ▶ URL linkage between the products is available today
- RRC - ReqPro – WBM/RSA
 - ▶ Can “push” requirements defined in RRC to ReqPro for management
 - ▶ Can view requirements documented/managed in ReqPro in WBM and RSA workspaces (ReqPro view)
 - ▶ Can map/trace business process models to requirements
 - ▶ Can also use RSA transform to convert downloaded RRC artifacts into RSA consumable project artifacts
- WBM – RSA
 - ▶ Can open WBM project in RSA, rendered as equivalent, read-only UML model
 - ▶ Can save editable version of WBM model in RSA for updates as IT design progresses, use RSA model compare capabilities to identify changes between IT version of model and business version of model in RSA
 - ▶ Can leverage components of WBM business model in RSA services model
 - ▶ Can persist RSA models in RTC SCM and use model-compare capabilities
 - ▶ FEATURE: Changes in RSA (i.e. IT) do not impact model in WBM (i.e. business)
- RSA – WID
 - ▶ Transforms produce artifacts consumable by both IBM and non-IBM development tools, process servers and application servers because they adhere to standards:
 - UML-to-SOA produces WSDL, XSD (both in context of WID-consumable projects if desired)
 - UML-to-SCA produces SCDL, also consumable by WID
 - RSA, WID and WPS (latest versions) support both Classic SCA and Open SCA components
 - Open SCA is industry standard
- RAD – Validators available and configurable for different standards and versions of those standards



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