IBM Software Group

Desenvolvimento de Software Orientado a Serviços

Mara Rocha
Websphere Sales
zSeries
Latin America

e business on demand software

Agenda

- **Evolução do Desenvolvimento de Software**
- **Desafios**
- ***Arquitetura Orientada a Serviços***
- ***Desenvolvimento Orientado a Serviços***

Evolução do Desenvolvimento de Software

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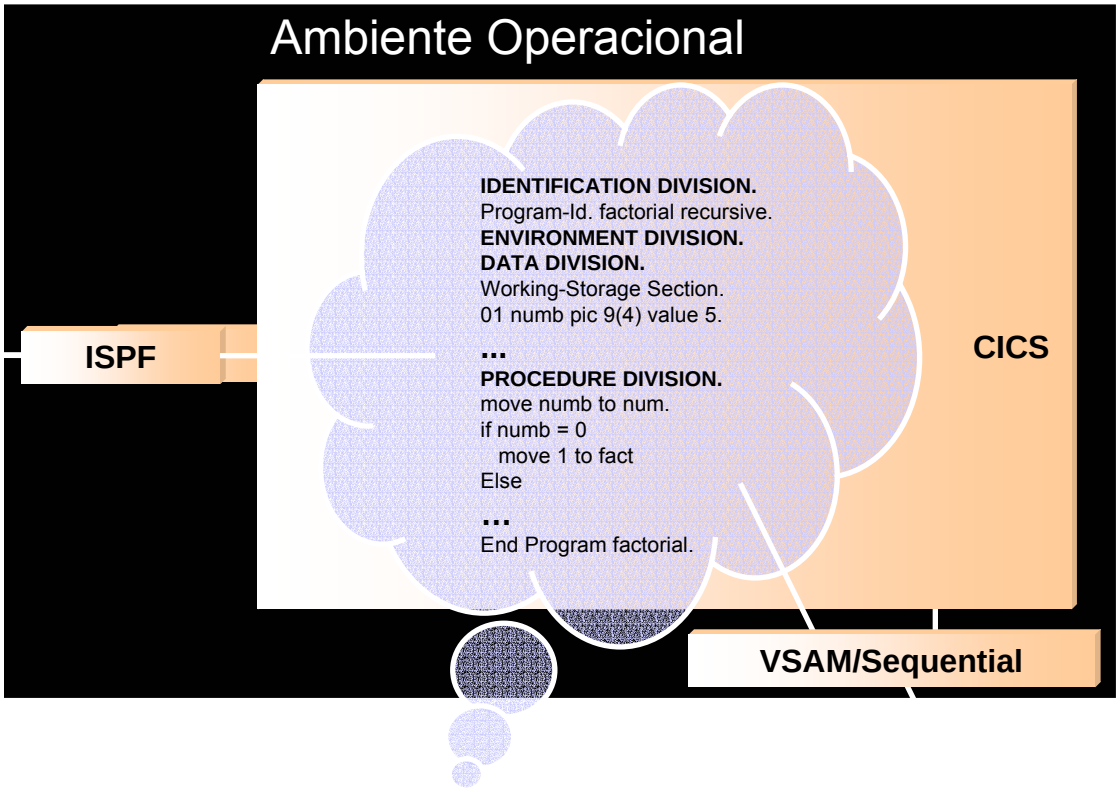
Era Centralizada - Exemplo

Text Based UI

Pessoas



COBOL

- Separa seções do programa de outro
- Separa funções de negócio (i.e. subrotinas)
- Abstrai runtime físico do programa (i.e. registros, stacks, alocação de memória, etc)

ISPF

- Separa definições de tela do programa
- Prove interação do usuário

VSAM/Sequential

- Separa acesso a dados do programa

CICS

- Prove alto nível de acesso a dados
- Separa definições de tela
- Prove call de programa a programa

Aplicações Corporativas

Monolíticas

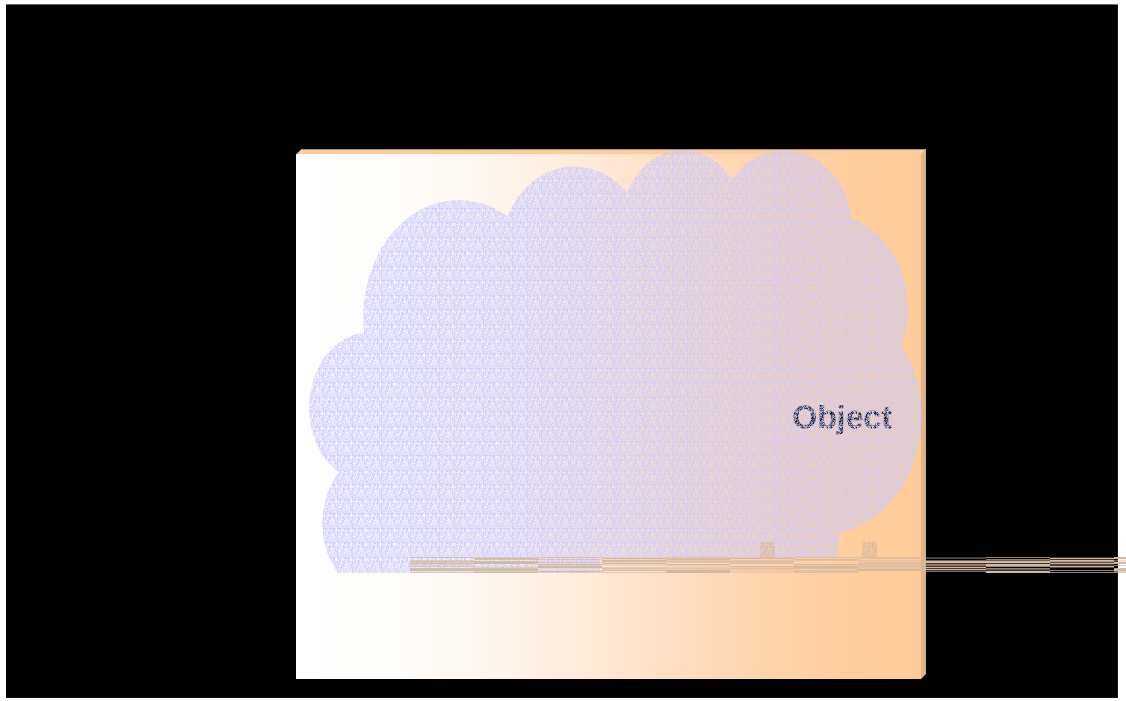
Dados Corporativos

Baseada em arquivos

Era Client/Server – Exemplo

Pessoas

Era das Redes – Exemplo



Pessoas

Aplicações Corporativas

Dados Corporativos

Desafios

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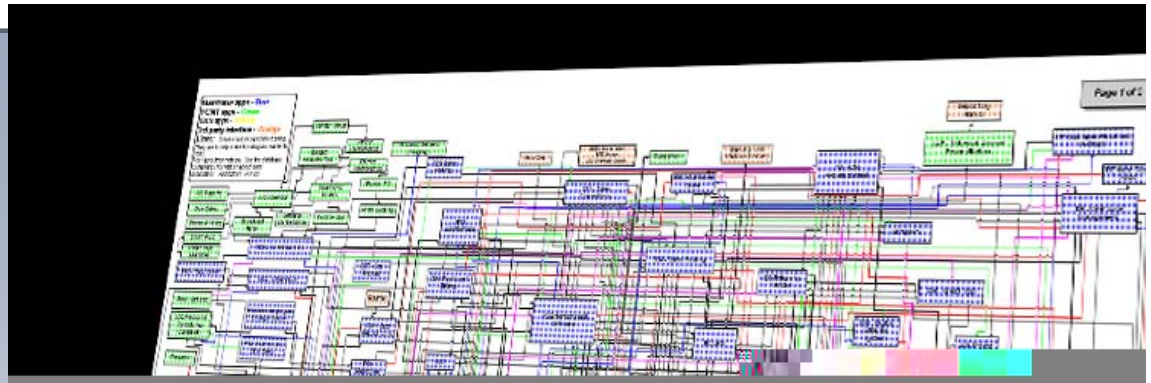
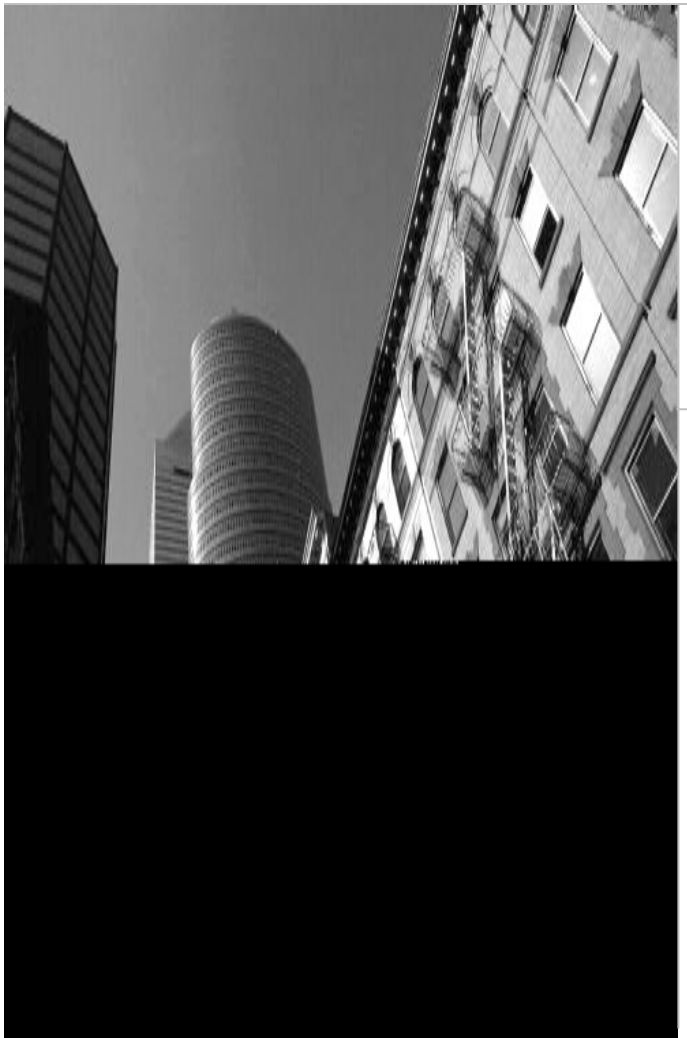
A convivência das 3 eras hoje

- **Diversidade de padrões, tecnologias, plataformas e modelos de arquitetura**
- **Dificuldade de criação de políticas corporativas**
- **Integração de aplicações ponto a ponto.**
- **Ilhas de TI com redundância de dados e procedimentos**
- **Difícil planejamento de transformação da infraestrutura**



Os novos imperativos: flexibilidade e velocidade



"Hoje as arquiteturas de TI, antiquadas como são, são a maior barreira que boa parte das empresas encontram quando pretendem fazer mudanças estratégicas" *–McKinsey , Flexible IT, Better Strategy"*

"Temos escutado que flexibilidade no negócio será mais importante que eficiência operacional... Podemos estar chegando a uma nova era onde veremos a morte de alguns tipos de negócio por não serem capazes de se adaptar rápido o suficiente" *Bryan Glick, Global Future Forum -An Industry Think Tank*

To keep pace with global competition: "We are taking apart each task and sending it … to whomever can do it best, … and then we are reassembling all the pieces"

- from Thomas Friedman's 'The World is Flat'

Arquitetura Orientada a Serviços

SOA

ON DEMAND BUSINESS™

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Service Oriented Architecture

Proposta de solução para o crescente desafio de transformação da infraestrutura de TI das empresas.

- ✓**Criando meios de convivência para tecnologias heterogêneas**
- ✓**Alinhando funções de negócio e os elementos que as representam em TI**
- ✓**Simplificando e barateando o processo de desenvolvimento**
- ✓**Criando meio de reutilização e compartilhamento dos ativos existentes**

O que é …..?

… serviço?

Uma tarefa repetida de negócio – ex., saldo, conferência de crédito

… uma orientação a serviço?

Uma forma de integrar seus negócios como serviços conectados e os resultados dessa cadeia

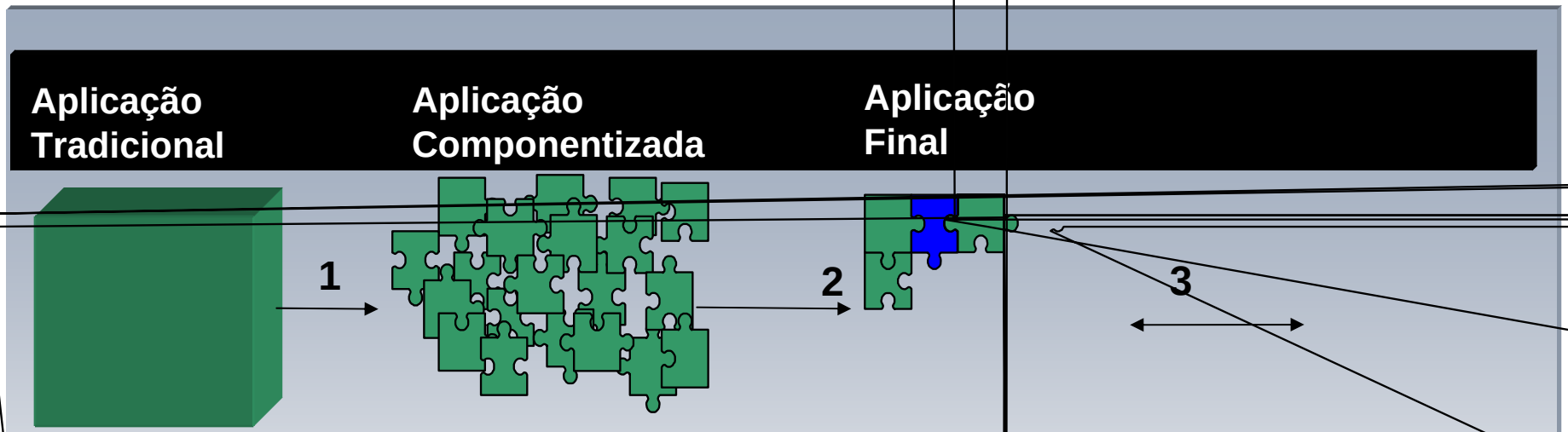
… arquitetura orientada a serviço (SOA)?

Um estilo de arquitetura de TI que suporta orientação a serviço

… uma aplicação composta?

Conjunto de serviços relacionados e integrados que suportem um processo de negócio baseado em SOA

Nova abordagem de desenvolvimento



1. **Desmembrar aplicações de negócio em componentes reutilizáveis e serviços**
2. **Combinar serviços para atender necessidades de negócios**
3. **Reutilizar serviços para atender novas necessidades de negócio**

RESULTADO:

A implementação de uma aplicação composta representa um processo de negócio

O que diferencia SOA de propostas do passado?

Padrões

- Ampla adoção de Web services garante interfaces bem definidas
- Antes, padrões proprietários limitavam interoperabilidade

Comprometimento Organizacional

- Negócios e TI estão unidos em SOA (63% dos projetos atuais são liderados por LOB)*
- Antes, canais de comunicação & 'vocabulário' comum eram desafio

Especialização e Foco

- Serviços SOA foco em atividade e interações de negócio
- Antes, foco em sub-tasks técnicas e de escopo restrito

Conexões

- Serviços SOA são dinamicamente linkados
- Antes, interações de serviço eram hard-coded e dependentes da aplicação

Nível de Reuso

- Serviços SOA são altamente re-utilizáveis, maximizando os assets de TI existentes
- Antes, todo o reuso estava limitado a aplicações departamentais

Arquitetura Orientada a Serviços: a base da transformação

"**A review of early case studies indicates that organizations that use a service-oriented architecture (SOA) can reduce integration project development and maintenance costs by 30% or more. These savings are made possible by the increased effectiveness of component reuse that SOA enables."** - "Integration in a Service-Oriented World," Ken Vollmer and Mike Galpin, Forrester, 2004

“ Application maintenance consumes between 60 – 80 percent of IT budgets”
Phil Murphy – Giga

“SOBAs demonstrate the real-world benefits of service-oriented environments and services oriented development of applications. Type A enterprises (aggressive adopters of technology) will notice the initial benefits of composite SOBAs within six months of implementation, and will achieve a rapid return on investment within 12 months of investment. - "Service-Oriented Business Applications Show Their Potential“ – Gartner, 2005

Desenvolvimento Orientado a Serviços

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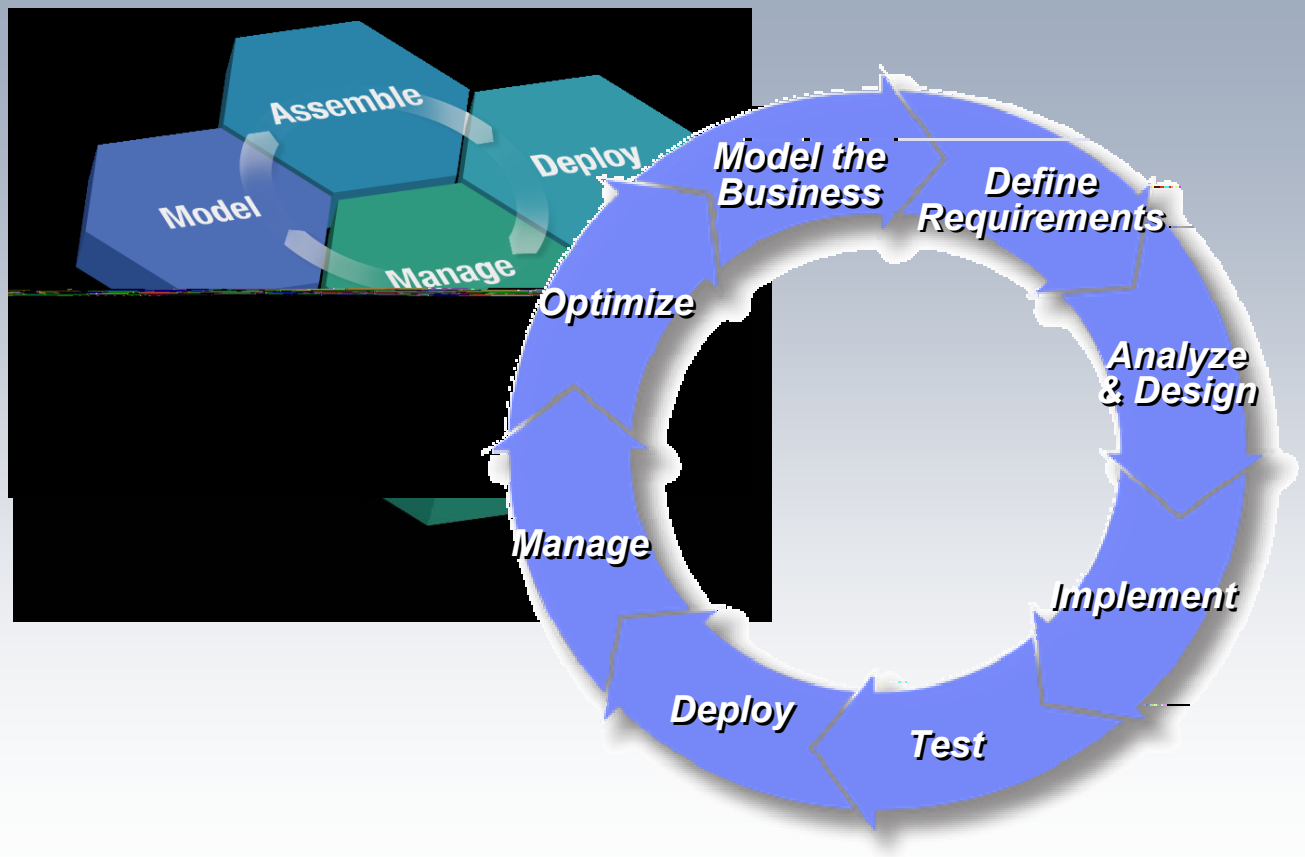
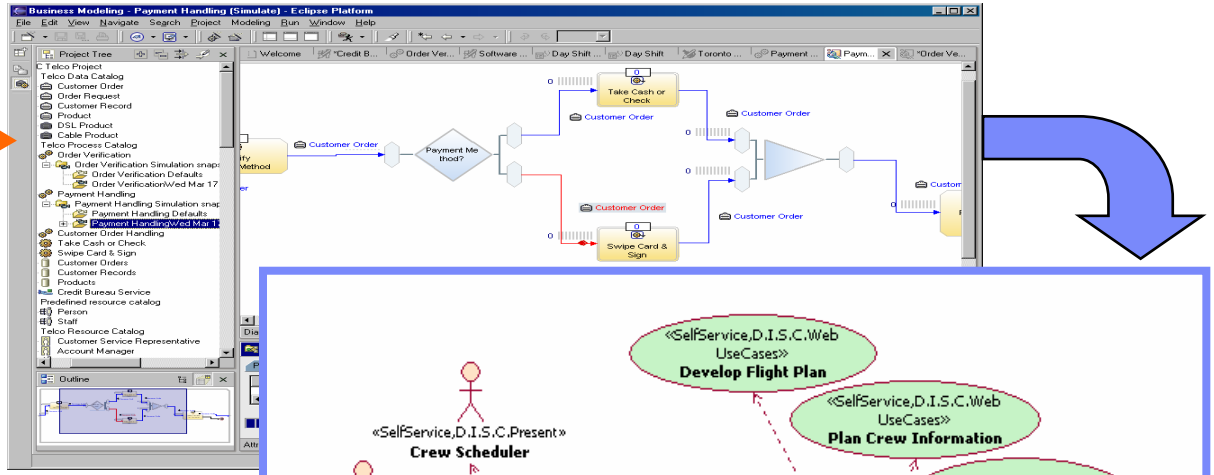
Enterprise Platform – Life Cycle



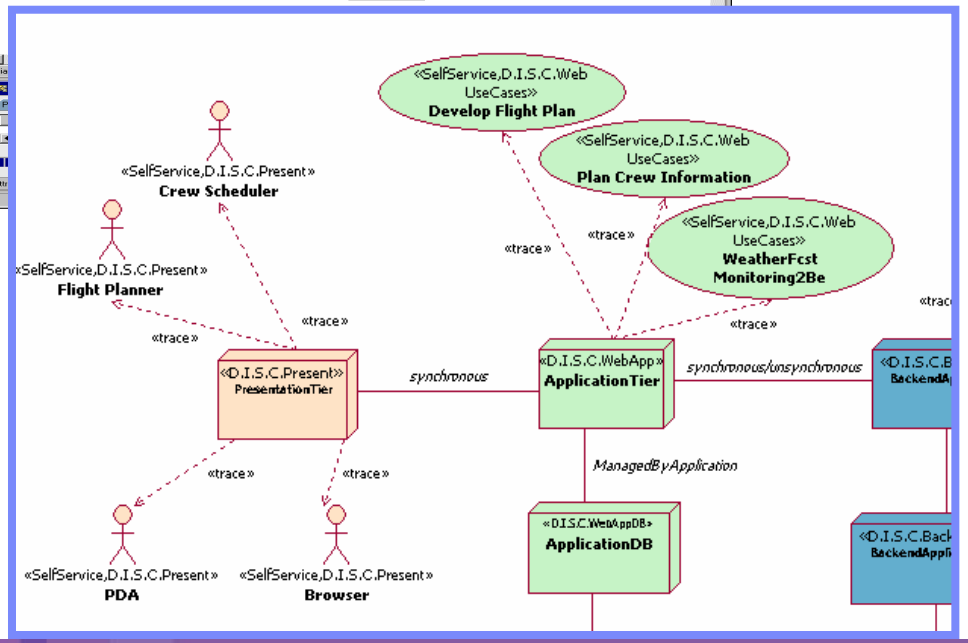
Step one: Model the business - *Document business processes and user interactions*

IBM WebSphere Business Integration Modeler
IBM Rational Software Architect
IBM CICS Interdependency Analyzer

Analyst models "as is" business process and explores alternative "to be" business processes

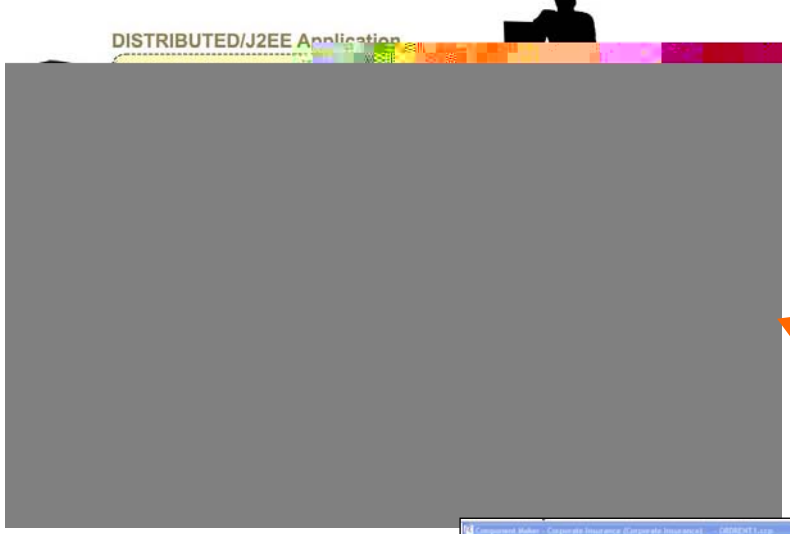


Analyst models "as is" and "to be" user interactions through use cases

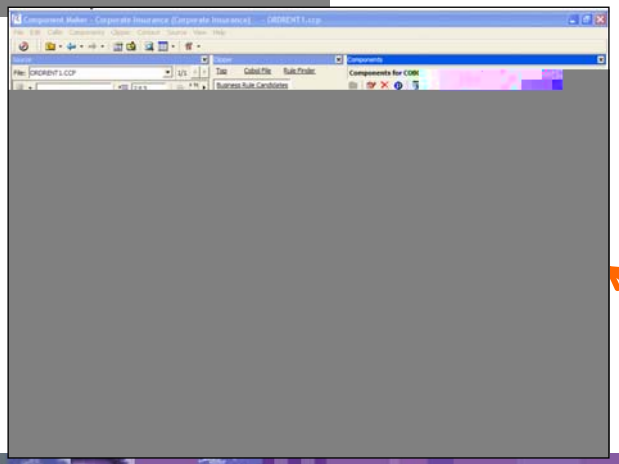


Step three: Analyze and design application - *Minimize risks by understanding architectural dependencies*

IBM WebSphere Studio Asset Analyzer
IBM Asset Transformation Workbench
IBM CICS Interdependency Analyzer



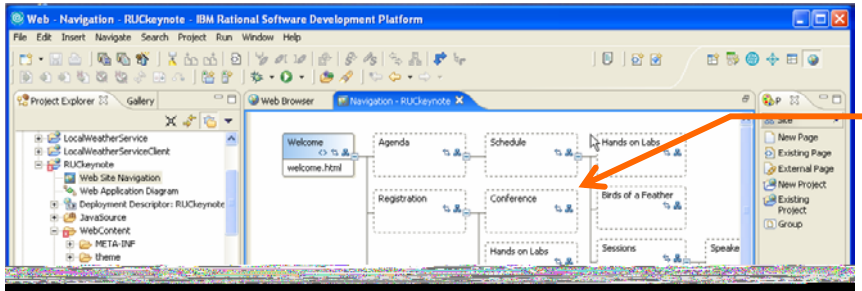
End to End impact analysis – Architect identifies all assets, distributed and mainframe that will be affected by required change

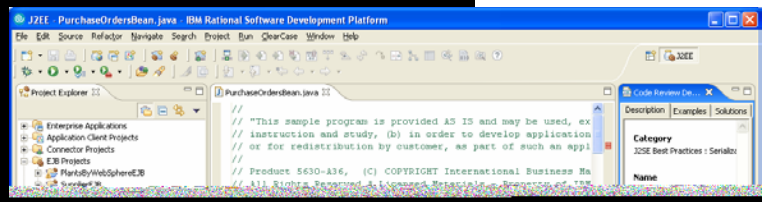


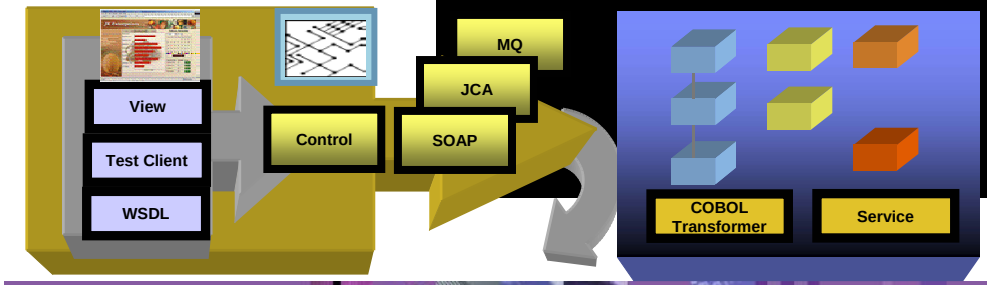
Architect componentizes existing business rules, creating a reusable web service from existing applications

Step four: Implement application - *Build higher quality applications in less time*

IBM Rational Software Architect ***IBM Rational Application Developer***
IBM Debug Tool ***IBM WebSphere Developer for z/Series***
IBM CICS Business Event Publisher ***IBM CICS VSAM Transparency***







Developer implements application leveraging highly productive J2EE, Java, CICS, IMS, COBOL, PL/I capabilities (JSF, SDO, patterns)

Developer leverages code analysis & unit testing to fix functional, performance, and security problems at the component level

Step five: Assemble processes on a flexible, robust SOA integration platform

Deploy composite applications

IBM WebSphere Developer for zSeries ***IBM WebSphere Integration Developer***

IBM CICS Business Event Publisher

New! *WebSphere Process Server V6*

Simple, flexible deployment of processes

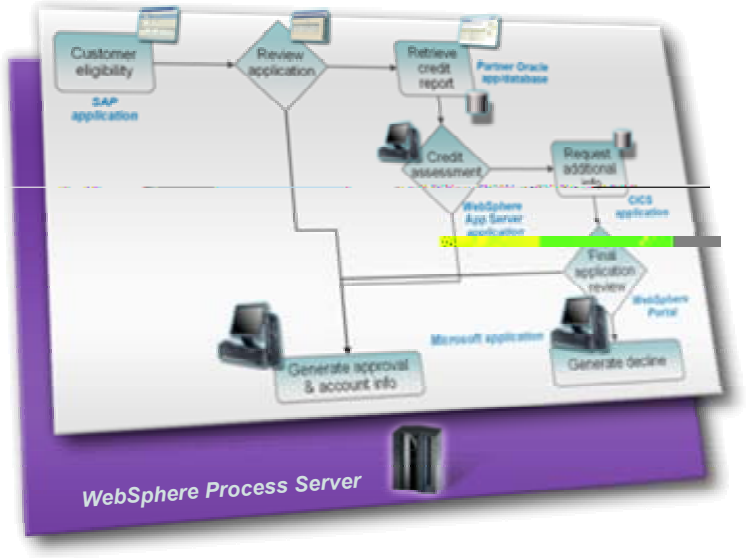
- Built and optimized on the market leading application server, IBM WebSphere Application Server

Powered by Enterprise Service Bus (ESB)

- Built on top of an open standards based ESB
- Flexible connectivity infrastructure for integrating applications, data, and services to power your SOA

Dynamically modify deployed processes

- Making plug-and-play of process components a reality
- Change business rules quickly and easily



Planned Availability on System z9 and zSeries

- Linux for zSeries – 4Q2005
- z/OS – 1H2006

Step six: Define data environment

IBM Debug Tool
IBM Fault Analyzer
IBM File Manager
IBM File Export

Step seven: Unit and System test

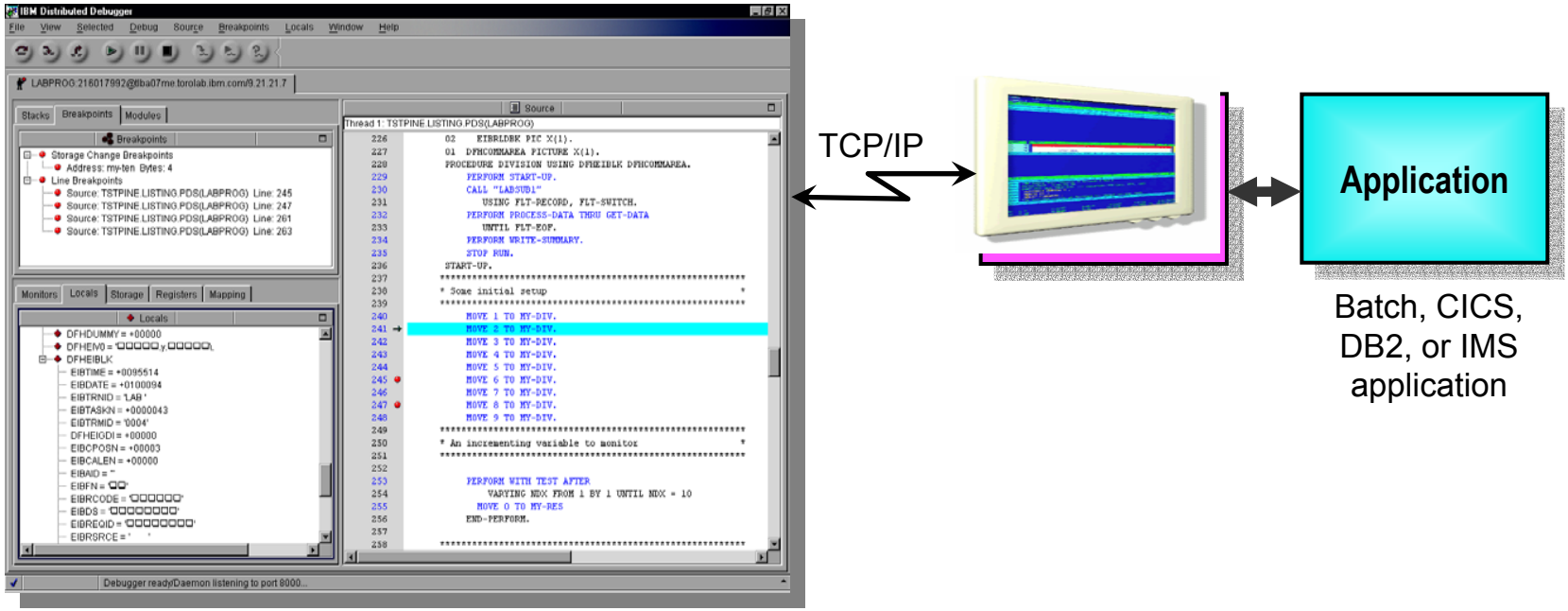
IBM Enterprise COBOL

IBM Enterprise PL/I

IBM Debug Tool

IBM Debug Tool Advanced Utilities

Rational Purify



Advantages: Remote debug mode in WDZ

Code Coverage

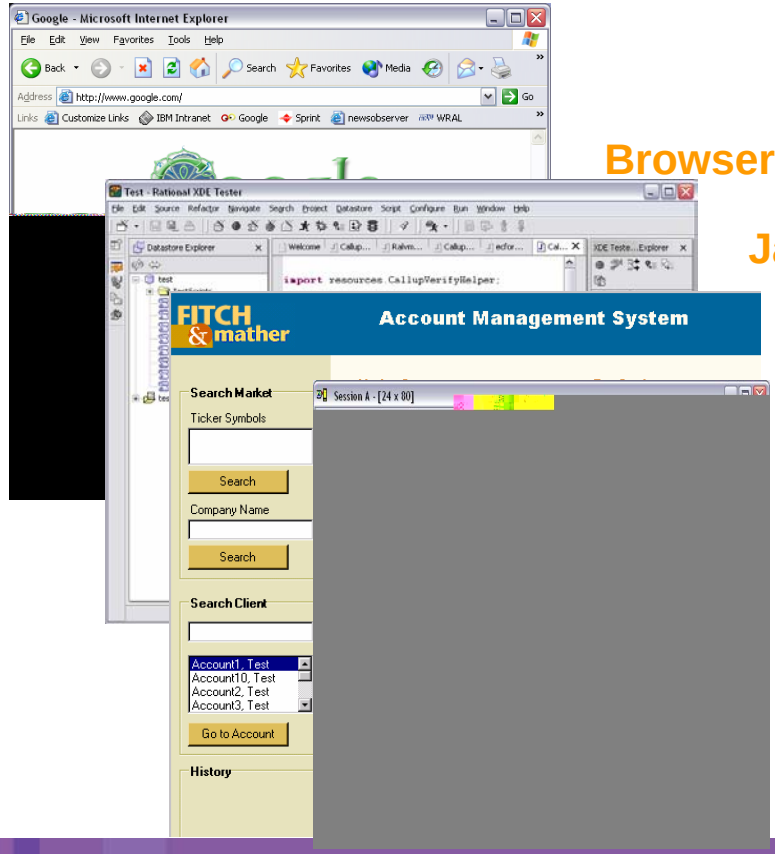
COBOL conversion aid

Step eight: Functional Test Application

Functional Testing for Web/Java and 3270/5250 Host applications

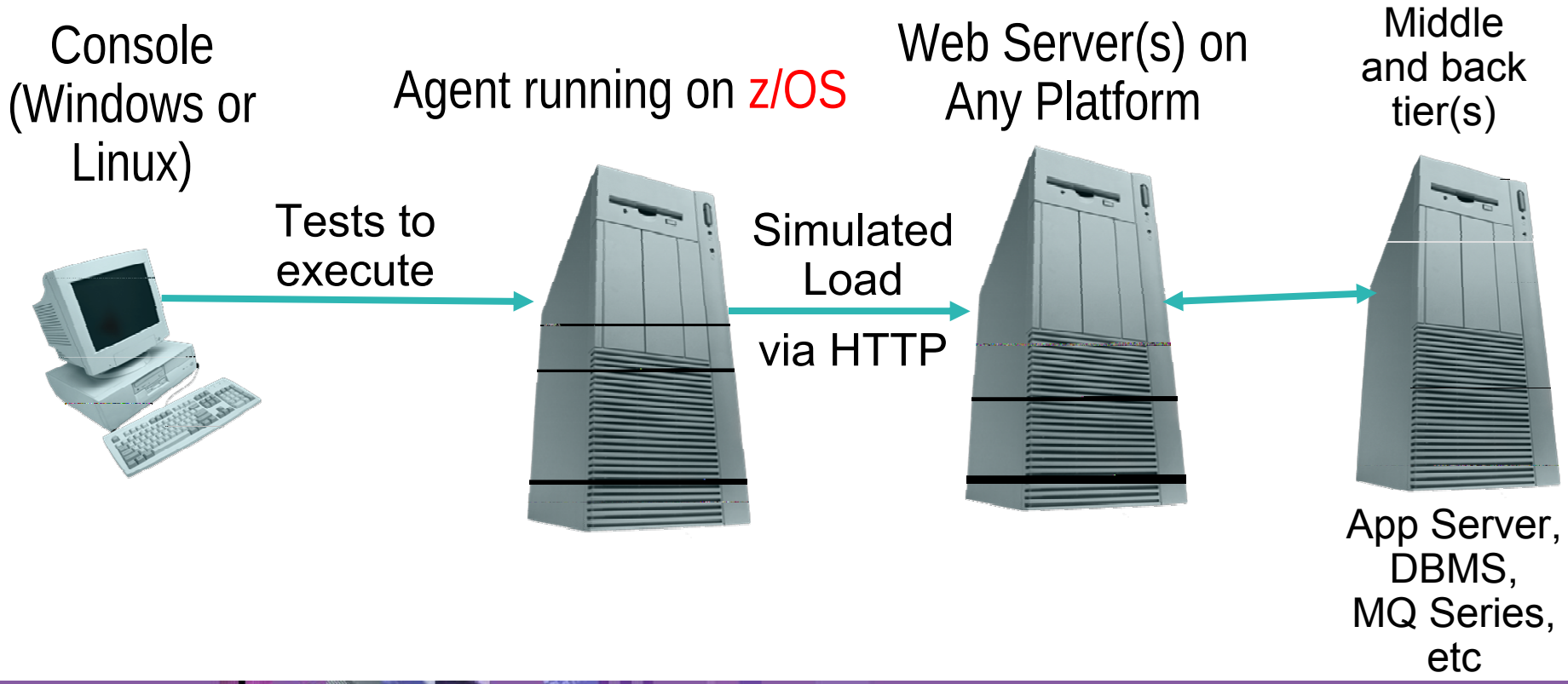
IBM Rational Test Manager
IBM Rational ReqPro
IBM Rational Functional Tester
IBM Rational Manual Tester
IBM Workload Simulator

- IBM Rational Functional Tester Extension for Terminal-based Applications
  - Integrate traditional and mixed workload function testing
  - Single point of control to manage testing of legacy applications & web front-end components
  - Single solution to manage development and testing across mainframe and distributed platforms
- Key Product Differentiators
  - Supports TN3270/5250 host applications
  - Leverages Rational solution
  - Based on Eclipse or .Net



Step nine: Performance Test Application and Platforms

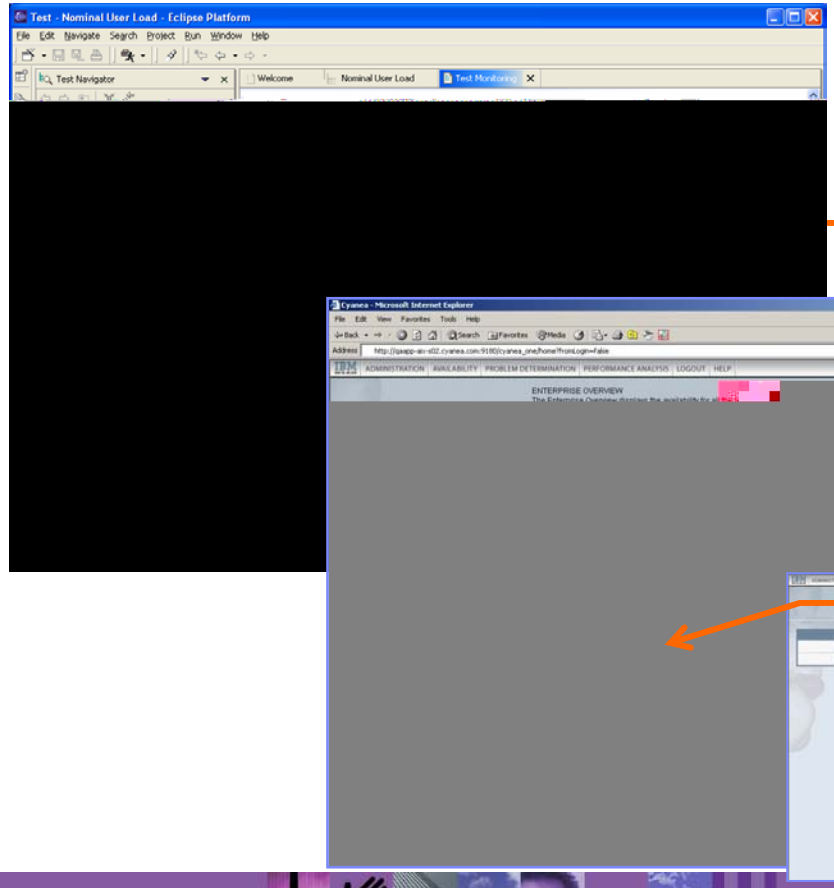
IBM Rational Test Manager
IBM Rational Performance Tester
IBM Rational Manual Tester
IBM Workload Simulator
IBM CICS Performance Analyzer



Step ten: Deploy - Plan capacity and ensure compliance with Service Level Agreements

IBM CICS Performance Analyzer
IBM Rational Performance Tester
IBM Workload Simulator

ITCAM for WebSphere/SOA
IBM Fault Analyzer
IBM OMEGAMON
IBM Application Performance Analyzer

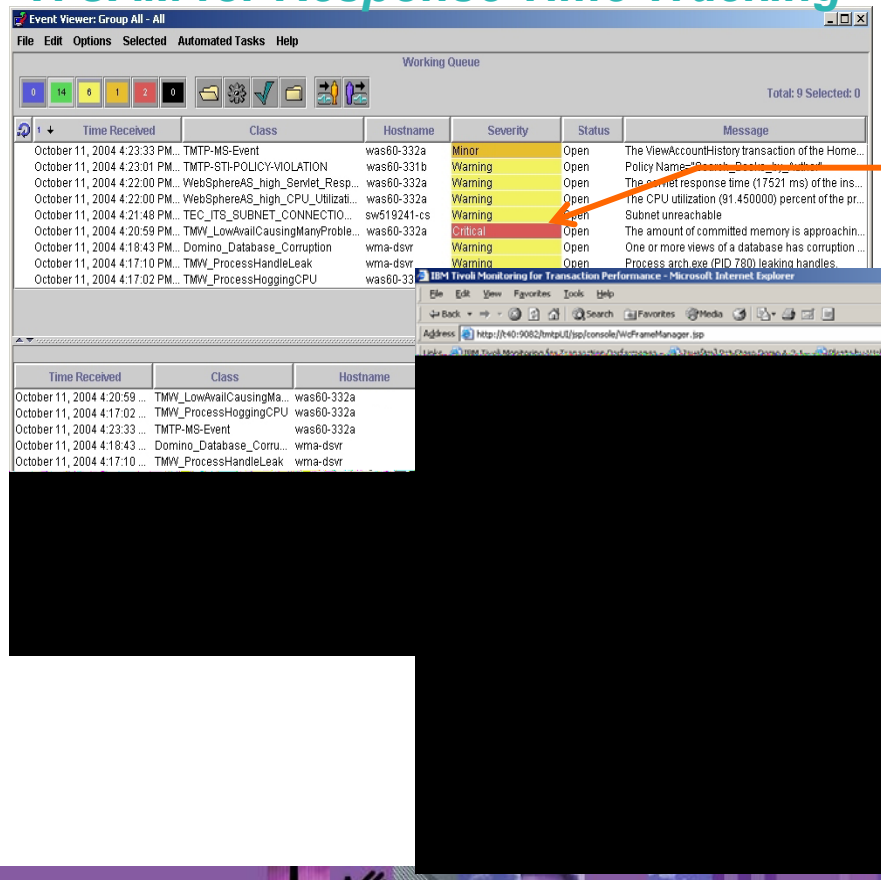


Tester evaluates the scalability of the new application based on Service Level Agreements captured in business model

Deployment team builds capacity plans based on performance tests

Step end: Manage - Monitor *service levels with a centralized view into your network, systems, middleware, and application performance*

IBM CICS Performance Analyzer
IBM CICS Configuration Manager
IBM Application Performance Analyzer
ITCAM for Response Time Tracking
IBM VSAM Recovery
IBM Tivoli Enterprise Console

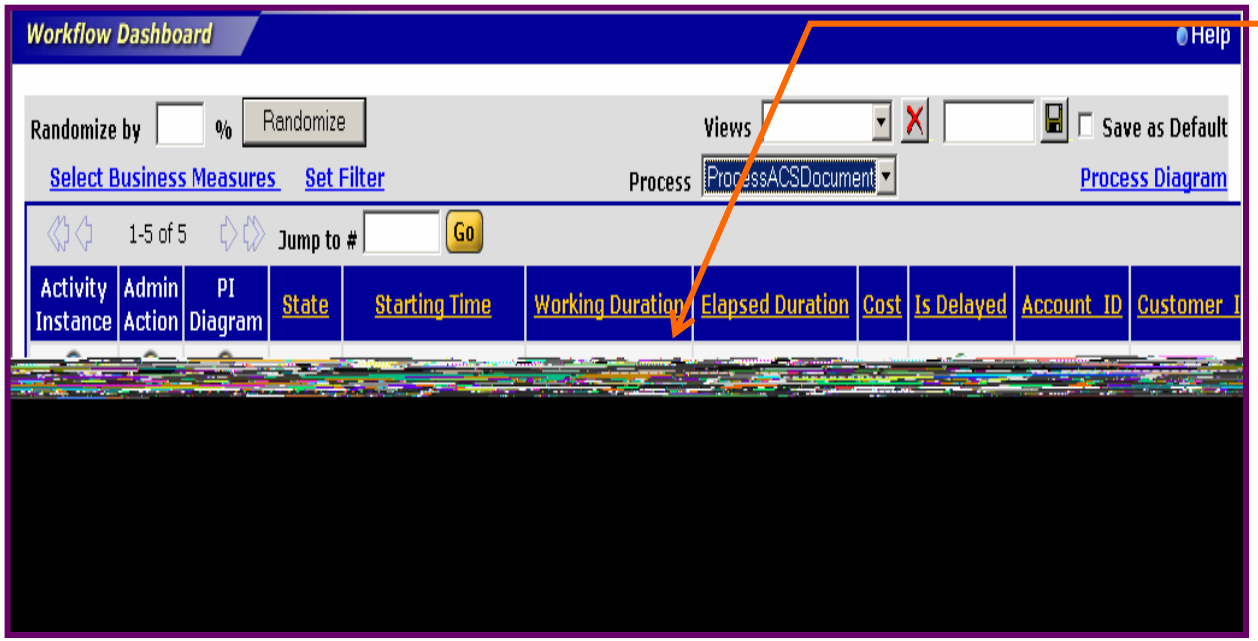


Operations Manager monitors application performance and is automatically notified of problems, enabling fast triage to the right stakeholders (application, DB, network, etc.)

Step continue: Optimize

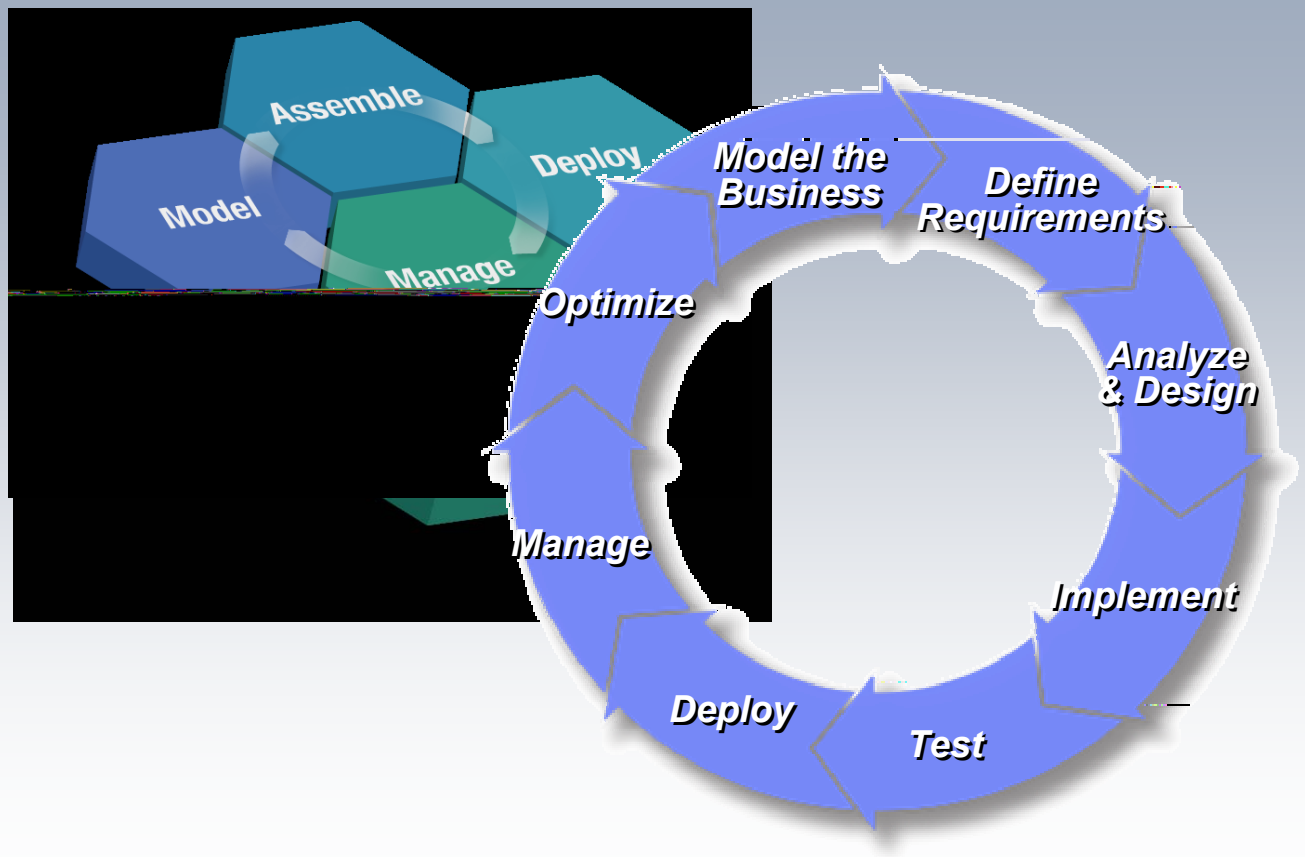
Verify delivery of expected benefits; fine-tune business processes and iteratively improve business performance

IBM WebSphere Business Integration Monitor
IBM CICS Performance Analyzer
IBM CICS Interdependency Analyzer



Analyst compares projected to actual improvement in business performance, and fine-tunes business process to optimize results

Enterprise Platform – Life Cycle



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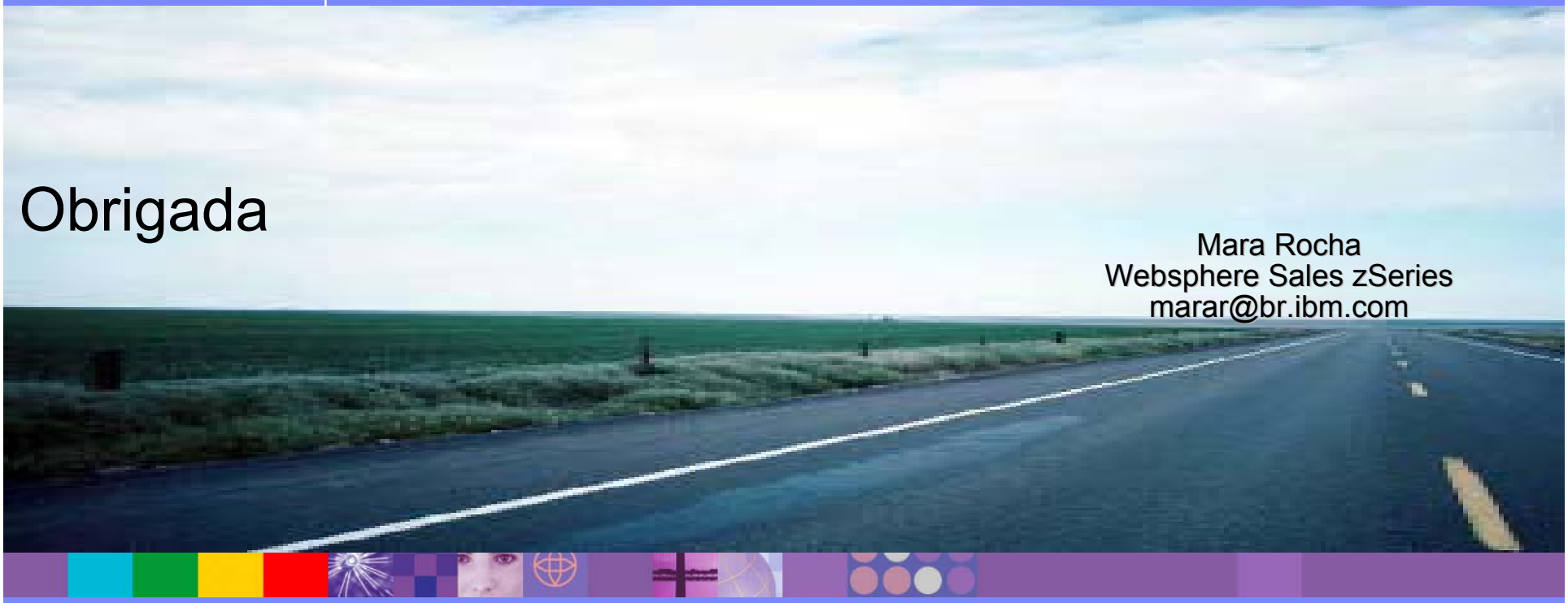

Obrigada

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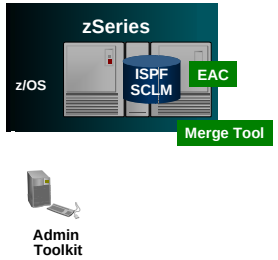
ON DEMAND BUSINESS

SOFTWARE CONFIGURATION MANAGEMENT Z

SCLM Advanced Edition

- **SCLM part of z/OS ISPF Option 10**
- **SCLM Advanced Edition (AE)**
  - Single point of control, single point of management, single repository of knowledge, single set of user interfaces.
  - Breeze, Administrator Toolkit, Enhanced Access Control (EAC), Merge Tool, Developer Toolkit
    - Developer Toolkit
      - Eclipsed based desktop client
      - Support for long named artifacts
      - Native support for J2EE build and deploy



Model

Model a new business process that builds on your current capabilities …..

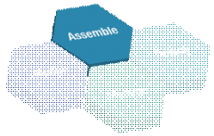
WebSphere Business Modeler

…and discover program units and business rules you can reuse in the new process.

WebSphere Studio Asset Analyzer

CICS Interdependency Analyzer

Asset Transformation Workbench

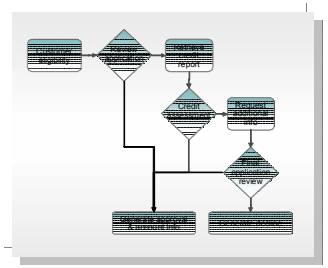


Assemble

Wrap programs as services, creating composite appl'ns from core assets….

WebSphere Developer for zSeries, *plus Service Flow Modeler*

Rational Application Developer



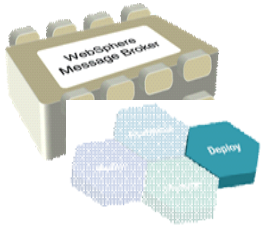
… and assemble the services across multiple platforms

WebSphere Integration Developer

Deploy

Choreograph and deploy your new composite applications ….

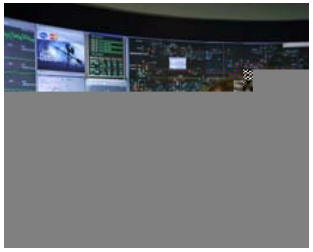
WebSphere Process Server



… using an advanced ESB to power your SOA

WebSphere Message Broker

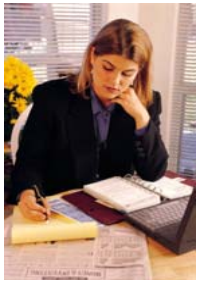
Manage



Monitor the processes across your SOA, and intervene if necessary ….

WebSphere Business Monitor

Tivoli Composite Application Manager for WebSphere

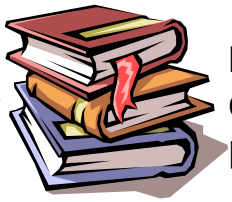


…. and export data for analysis and process improvement, back to ….

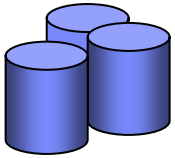
WebSphere Business Modeler

Ciclo de desenvolvimento tradicional

Requerimento de Negócio



Busca documentação pré-existente

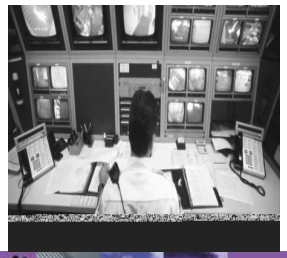


Busca manual nas bibliotecas

- Análise de mudança
- Verificação do impacto da mudança de código
- Busca manual dos registros

Uso dos resultados para mudar ou extrair código

Codificação



Teste manual e debug de aplicações, revisões dumps, e implementação

Melhores Práticas em Desenvolvimento

Boas Práticas

- Desenvolva Iterativamente
- Gerencie Requisitos
- Utilize arquiteturas de Componentes
- Modele Visualmente
- Verifique Continuamente a Qualidade
- Gerencie as mudanças