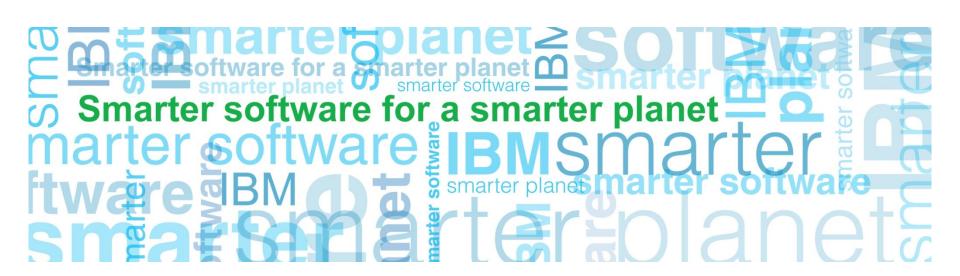


### IBM软件交付转型历程和最佳实践

顾明 IBM中国开发中心 高级软件工程师



- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
- IBM DevOps Services和BlueMix

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Q&A



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- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
- IBM DevOps Services和BlueMix
- Q&A

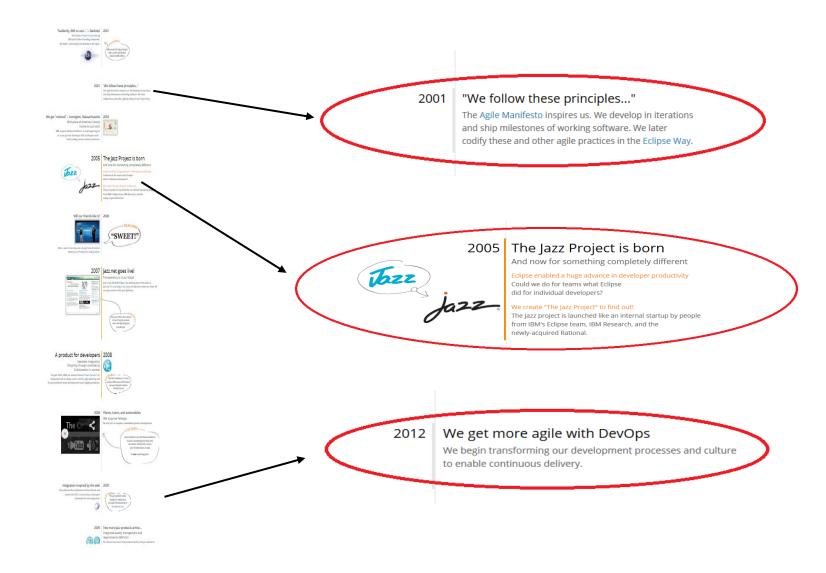


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#### 生命周期管理的鸿沟

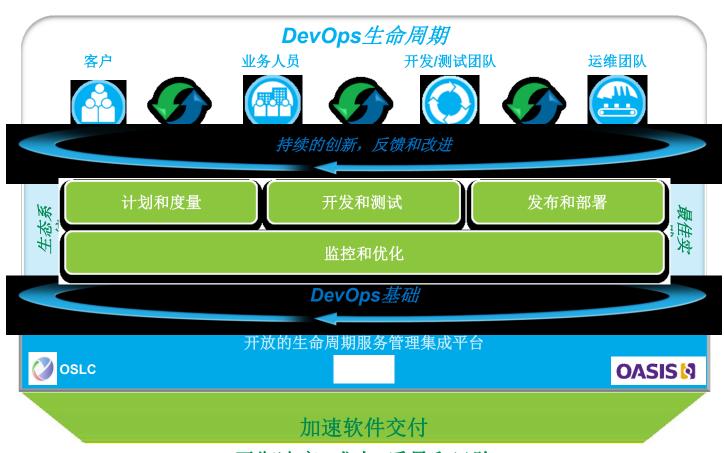


#### IBM交付转型的重要事件



### IBM认为支持DevOps的能力

路径和切入点

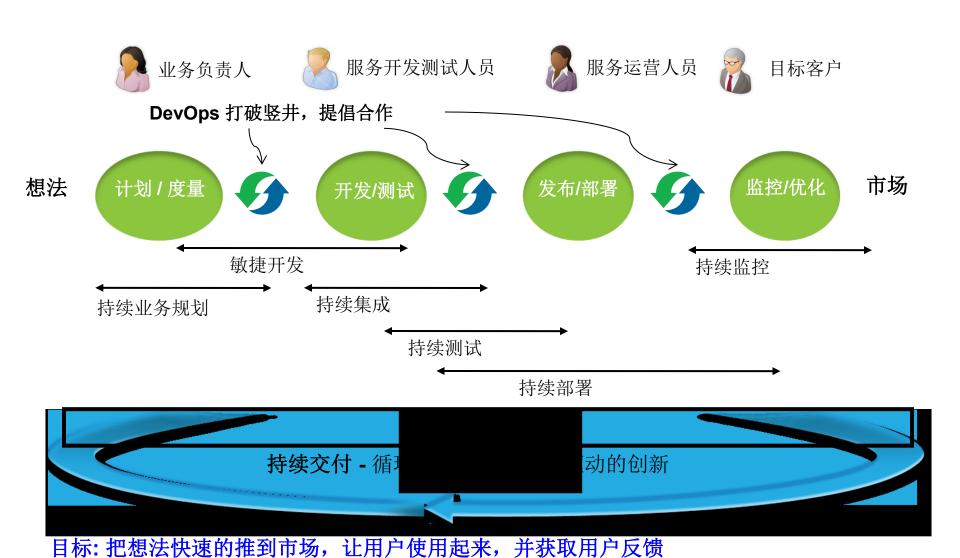


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平衡速率,成本,质量和风险降低客户反馈的时间

### DevOps - 采用闭合环路的软件交付方法

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- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
  - 团队的组织结构
  - 持续的规划
  - 敏捷的开发和测试
  - 持续的部署
  - 持续的监控
- IBM DevOps Services和BlueMix
- Q&A



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#### Jazz产品研发团队



- Jazz是IBM建立并致力于改进跨软件和系统生命周期协作的下一代平台
- 400 位开发者, 在10个国家中的25个不同地点
- 构建多个Jazz产品
  - Rational Team Concert
  - Rational Quality Manager
  - Rational Requirements Composer
  - Rational DOORS Next Generation
  - Rational Software Architect Design Manager
  - Rational Rhapsody Design Manager
- 通过 jazz.net 进行透明化开发
  - 公开的开发构件 (计划、工作项等)
  - 直接与开发团队交互 (开发者对开发者)
  - 提供云端或可下载的最新里程碑和发布供用户试用评估

**CLM** 

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### Jazz团队组织

#### ■ 基于Component

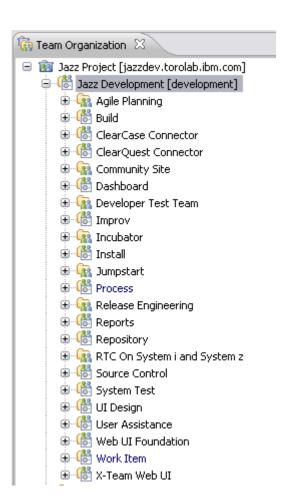
- 一个团队负责一个或者多个Component
- Component团队分布在全球很多国家和城市

#### ■ RTC的Component团队

- 过程Component团队
- 工作项Component团队
- 源代码管理Component团队
- 构建管理Component团队
- **–** ...

#### ■ 团队组织视图

- 体现了项目管理中的组织架构分解图



#### 项目组织结构和职责

#### ■ 项目管理委员会 (PMC)

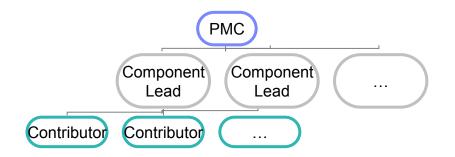
- 负责产品发展方向
- 负责产品发布计划
- 与业务伙伴,用户交流,决定产品要做哪些新功能
- 变更审核

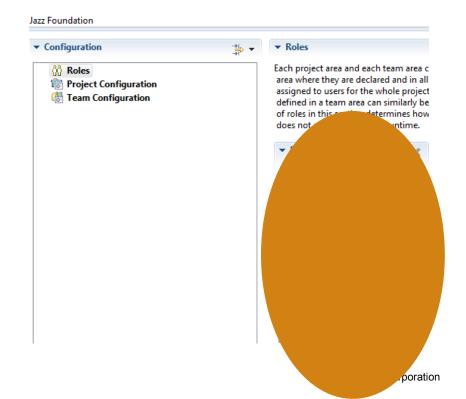
#### ■ Component 团队Lead

- 负责整个Component团队的高效工作
- 根据产品发布计划,负责Component的发布计划

#### ■ 团队成员 (开发人员)

- 负责迭代过程中的开发、测试以及设计
- 工作中,通常有多个角色
  - 开发、测试、构建,
  - jazz论坛回答解决用户问题
  - 文档编写





#### 功能团队和维护团队

#### ■功能团队

- 功能团队是虚拟的团队,仅负责某个计划项指定的功能
- 功能团队可以跨越组件、功能和应用的界限
- 每一个关联的组件、功能、测试团队中都必须在功能团队中有一个代表

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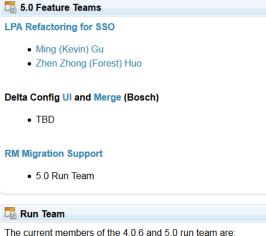
-每一个功能团队都有一个团队领导,以及一个来自于负责该计划项的CLM项目管理委员会 (PMC)的高级领导

#### ■ 维护团队

- 虚拟子团队,负责处理每个组件关键的日常工作:
  - 修正已有特性中的缺陷
  - 回答jazz.net论坛中的问题
  - 与技术支持团队解决客户问题
  - 维护源代码管理流, 监控持续构建, 管理测试环境的部署
  - 监控工作项队列,分检工作项,排序和规划工作

# Reponsibilities 描述: This section describes the overall responsibilities of the run team

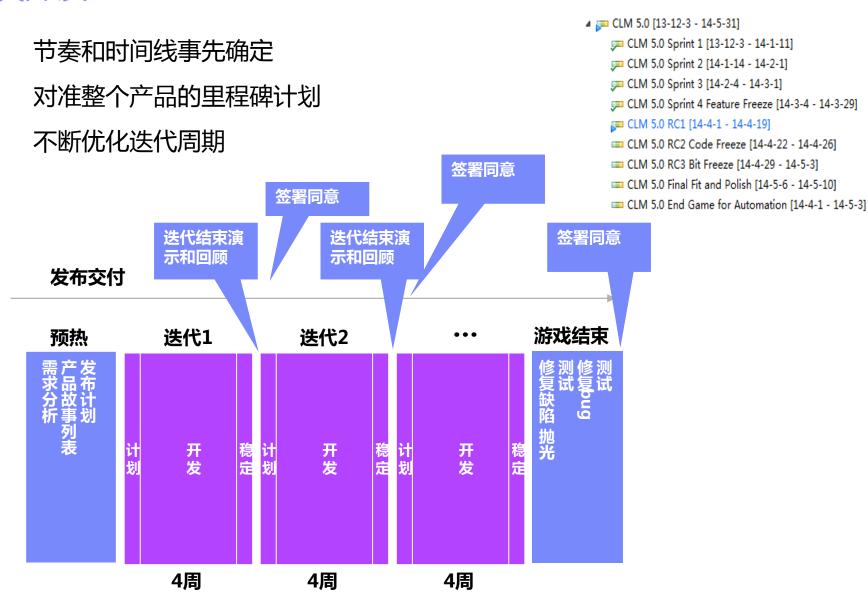
- Performing the duties of the Buildmeister
- · Performing the duties of the Newsmeister
- · Performing the duties of the Testmeister
- . Serving as the initial point of contact for L3 escalations(aka L3 Buddy)
- . Helping to maintain our QCERT goals by working QCERT related defects especially those with an APAR tag
- Implementing tactical feature requests especially those with an RFE tag



Qing WangShu Chu

Run team responsibilities are here.

#### 迭代开发



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#### 迭代开发和实施

- 一个迭代分解为三个阶段
  - 制定迭代计划
  - 开发完成迭代计划
  - 测试和sign off迭代构建版本
- Component团队制定迭代计划
  - 上次迭代的情况
  - Component团队的发布计划
  - PMC的反馈
- 团队成员开展开发工作完成迭代计划

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■ 测试并sign off这次迭代的构建版本

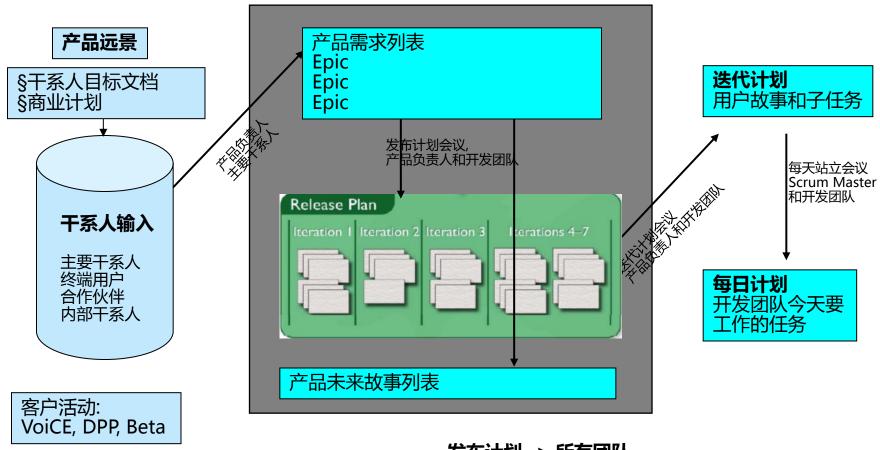
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- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
  - 团队的组织结构
  - 持续的规划
  - 敏捷的开发和测试
  - 持续的部署
  - 持续的监控
- IBM DevOps Services和BlueMix
- Q&A



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#### 自适应多级计划



发布计划 -> 所有团队

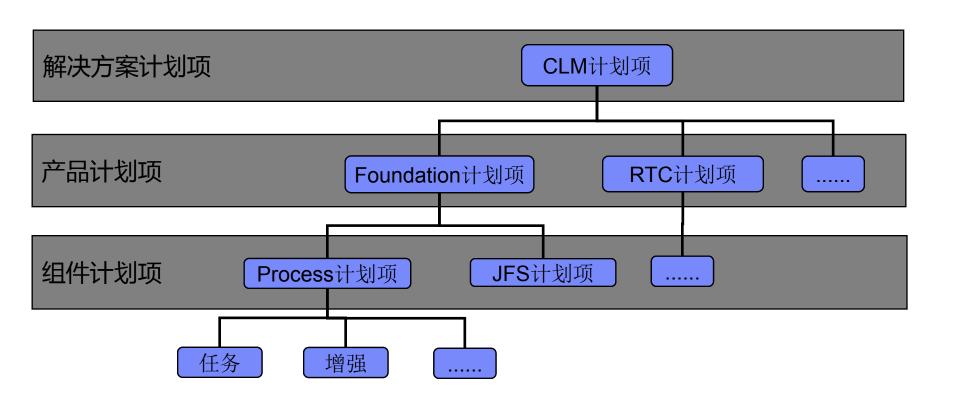
迭代计划 -> 每个团队

每日计划 -> 开发人员个人

用户缺陷和扩展

社区

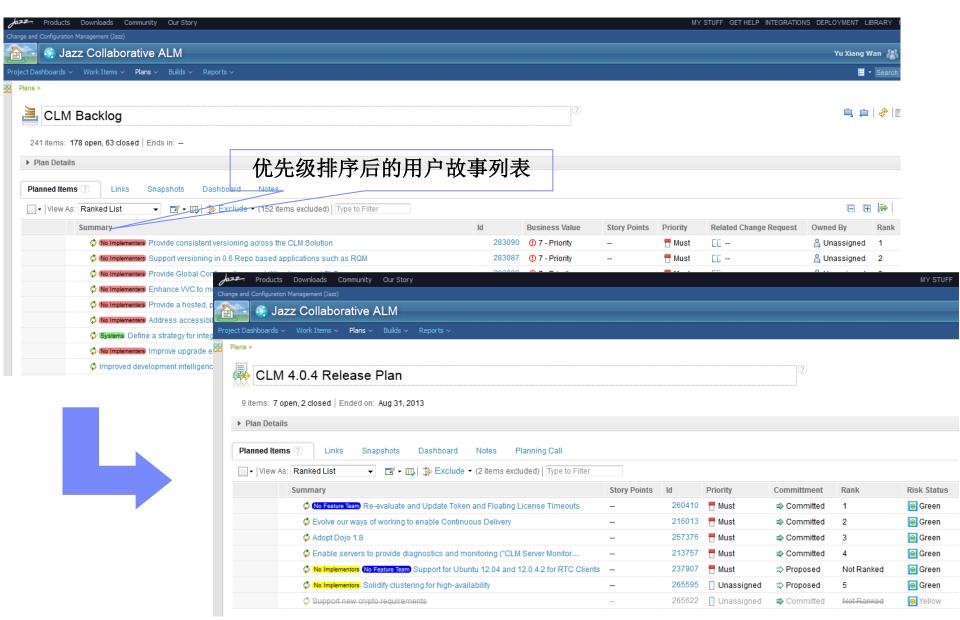
### 计划项的分解



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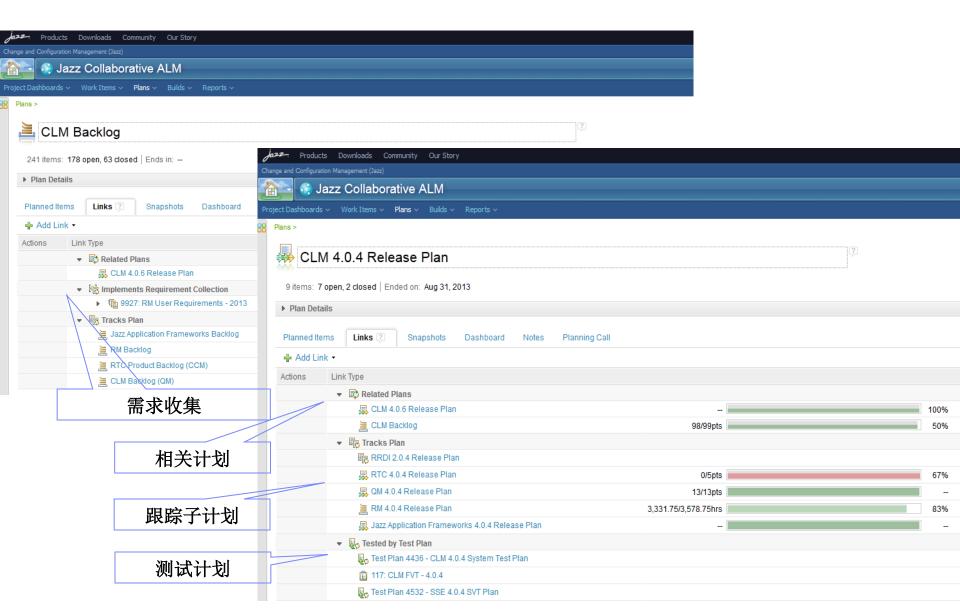


#### 从用户故事列表到发布计划



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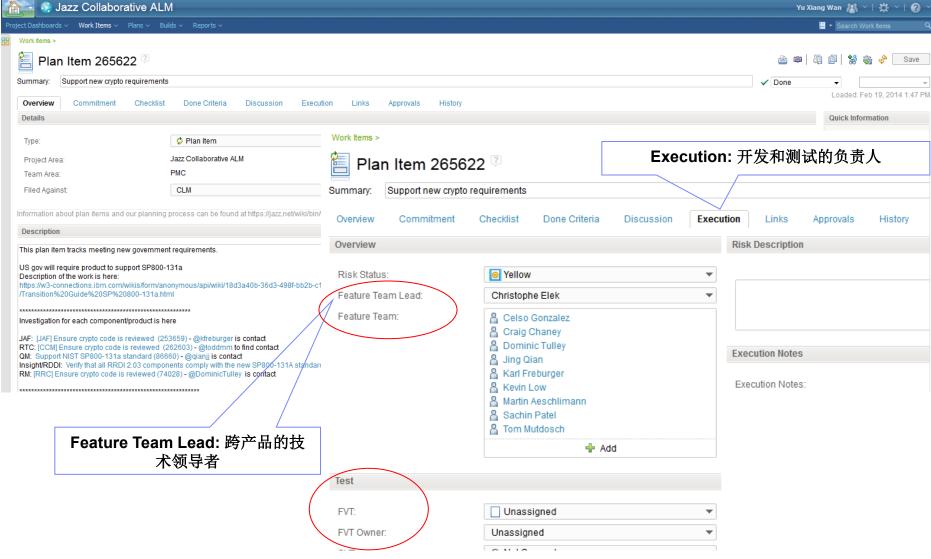
### 计划间的关联



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#### 计划项



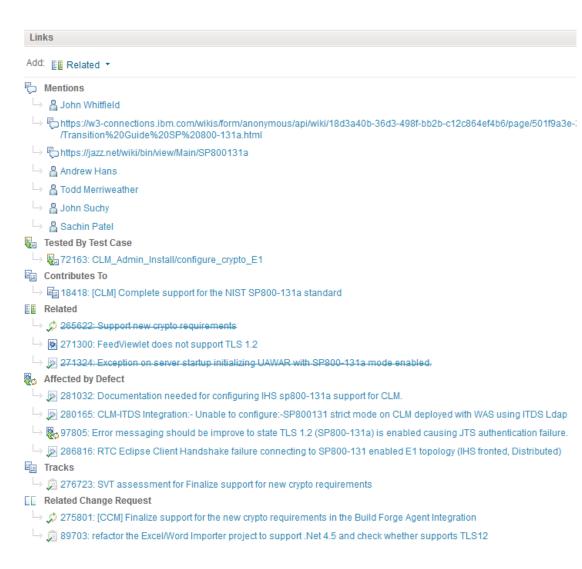
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#### 计划项 - 关联项

- CLM 计划项被分解为各产品项 目区域中的子计划项
- CLM 计划项通常会关联需求, 相关产品计划项,测试用例和 其他所有的跟踪项
- 产品计划项被进一步分解为故事或任务,来定义和指导特定的开发活动
- 特定项目区域中的计划项通常 关联产品范围内的测试用例, 需求和缺陷

21



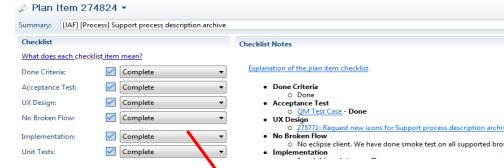
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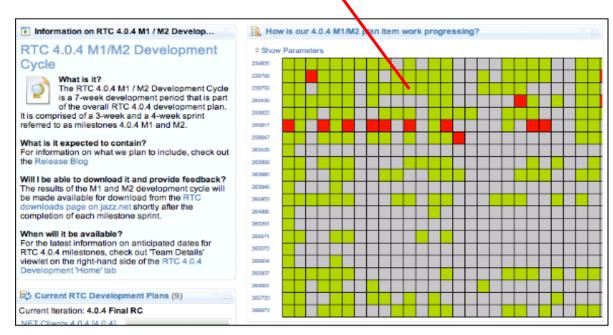
## 计划项 - 开发检查清单

■ 保证开发的所有方面都被覆盖到:

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- 完成实现
- 开发单元测试(构建中运行)
- 更新系统测试
- 更新功能测试(构建中运行)
- 完成全球化测试
- 更新翻译测试用例
- 开发自动化测试
- 录制演示视频
- 准备培训材料
- 完成安全扫描
- 等等





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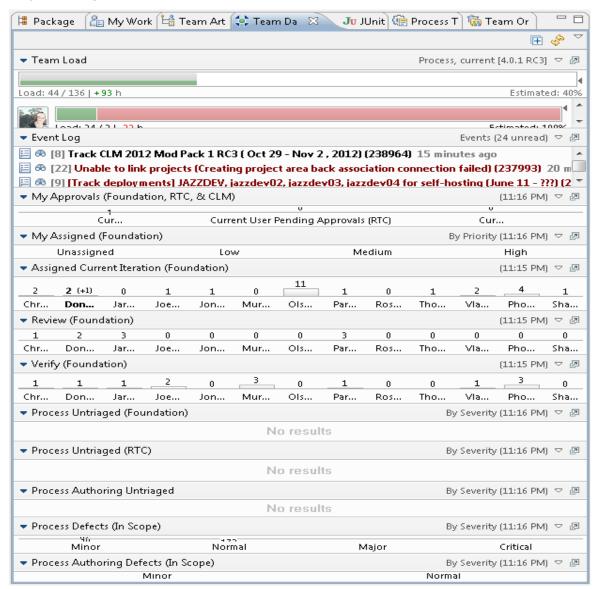
- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
  - 团队的组织结构
  - 持续的规划
  - 敏捷的开发和测试
  - 持续的部署
  - 持续的监控
- IBM DevOps Services和BlueMix
- Q&A



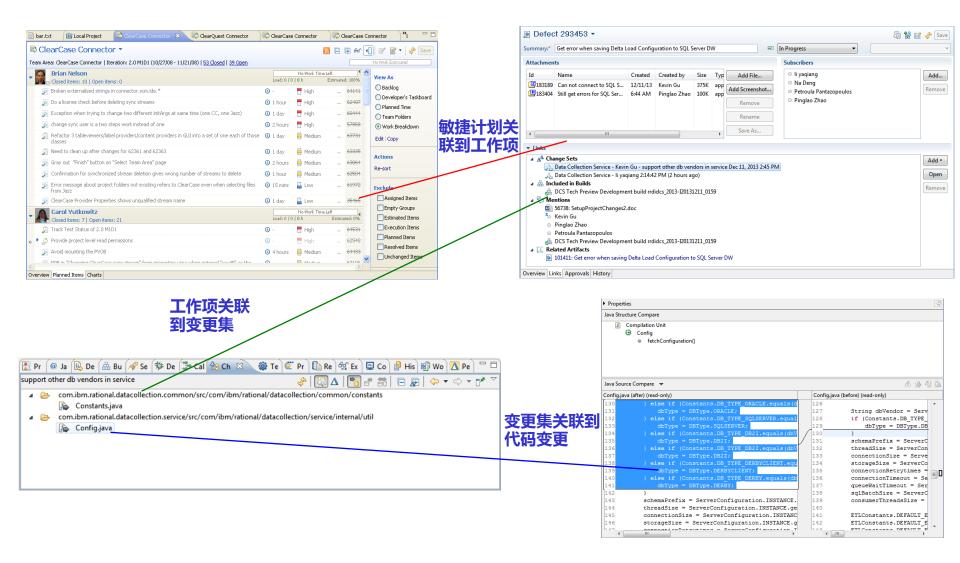


#### 利用团队仪表板实时关注项目状态

- 团队的工作量
- 分配给我的工作项
- 需要我代码审查的工作 项
- 需要我审批的工作项
- 分配给每个团队成员的工作项
- 需要团队成员审查的工 作项
- 团队事件
  - 构建结果
  - 工作项更新
  - 代码基线交付
- 团队本次迭代所有未完成的工作
- ..



#### 开发过程全程追踪



#### 代码评审和检查

- 自我评审
  - 编写和运行测试用例
  - 检查版权信息(自动)
  - 验证更改的文件 (不遗漏, 无垃圾)
  - 运行代码检查
  - 运行 Rational AppScan进行代码扫描

Dependency Graph

- 同行评审
  - 使用 RTC 评审功能
  - 运行代码检查
  - 运行测试用例

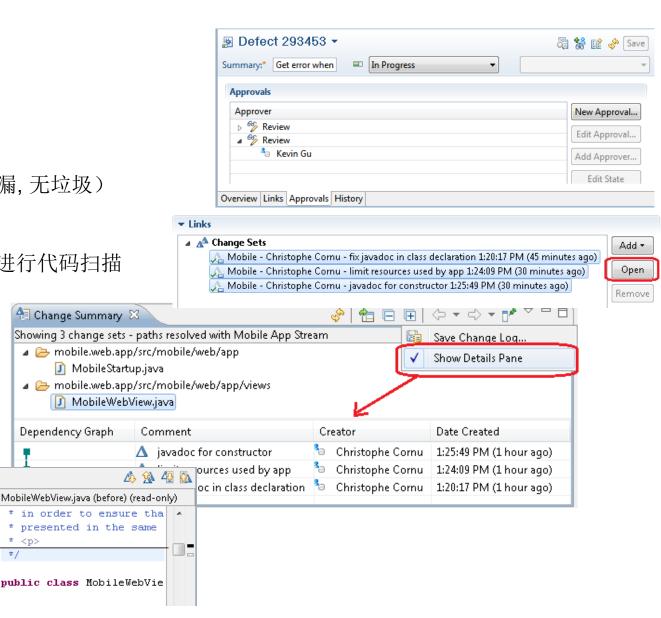
Java Source Compare 🔻

MobileWebView.java (after) (read-only)

\* -- More descriptive javado

\* And improved doc here as

public class MobileWebView ex



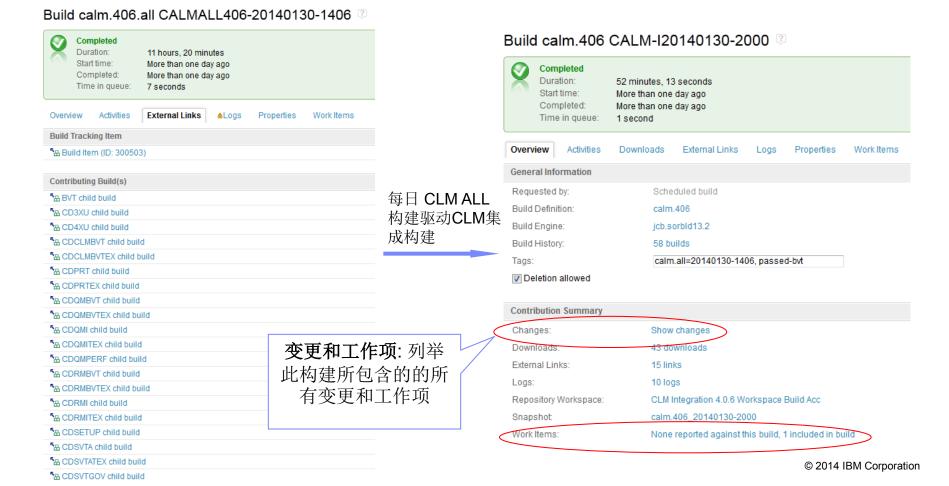


#### 构建和测试跟踪

■ 每日自动运行CLM ALL构建,包括CLM集成构建和自动化测试

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■ 构建自动创建、更新**构建项**,用于跟踪构建和测试结果

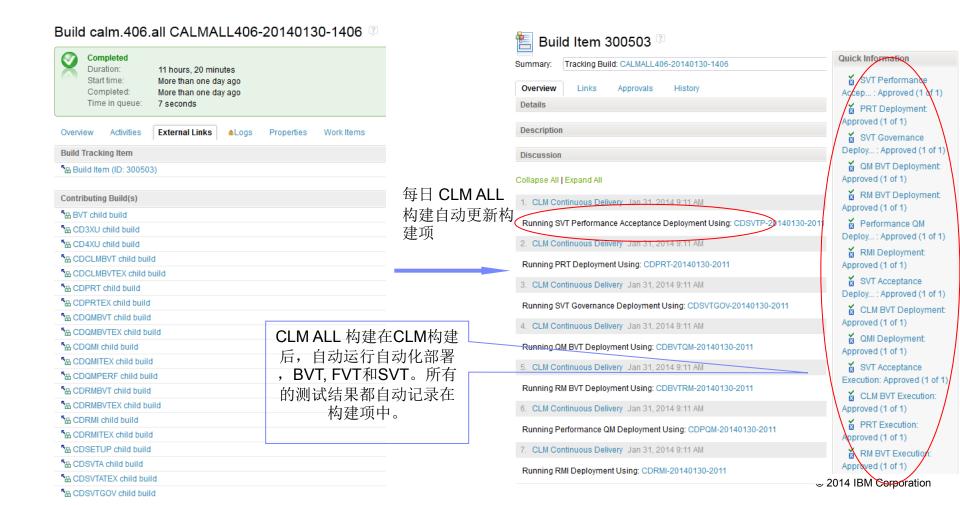


### 构建和测试跟踪

■ 每日自动运行CLM ALL构建,包括CLM集成构建和自动化测试

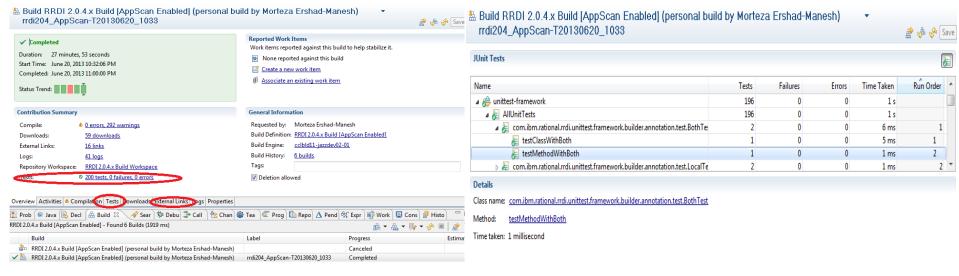
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■ 构建自动创建、更新**构建项**,用于跟踪构建和测试结果





#### 构建和测试结果



Welcome: gumingbj@cn.ibm.com, Rational RRDI/Insight FVT environments

#### Each VM has 3 states

- 1) Running means BVT automation is running, it will be updated to Passed/Failed according to BVT Result, you CANNOT book this machine.
- 2) Passed means BVT automation is completed and the result is passed, you can book this machine
- 3) Failed means BVT automation is completed but the result is failed, you can book this machine to check the failure.
- 4) Idle means BVT was passed and this machine was booked by someone but he/she just released this machine, note the environment maybe corrupted by previous owner.

  5) Email Address means machine was booked, contact the owner directly if you want use this machine. Note it will be used for BVT without notification.

VMID	HOSTNAME	os	DBMS	STATE
VM1	VEGA37.cn.ibm.com	Win2K8x64	DB2V97	xjiang@cn.ibm.com
VM2	VEGA22.cn.ibm.com	Win2K8x64	DB2V10	xueningl@cn.ibm.com
VM3	VEGA41.cn.ibm.com	Win2K8x64	SQL2K8	<u>Idle</u>
VM4	VEGA42.cn.ibm.com	Win2K8x64	ORA11G	<u>Failed</u>
VM5	RI13.cn.ibm.com	RHEL5x64	DB2V97	xjiang@cn.ibm.com
VM6	VEGA19.cn.ibm.com	RHEL5x64	DB2V10	Running
VM7	VEGA43.cn.ibm.com	RHEL5x64	ORA11G	Passed
VM8	VEGA27.cn.ibm.com	RHEL6x64	DB2V97	Passed
VM9	VEGA20.cn.ibm.com	RHEL6x64	DB2V10	Passed
VM10	RI09.cn.ibm.com	RHEL6x64	ORA11G	mengtbj@cn.ibm.com
VM11	RI28.cn.ibm.com	SLES10x64	DB2V97	<u>Idle</u>
VM12	RI32.cn.ibm.com	SLES10x64	DB2V10	Passed
VM13	RI29.cn.ibm.com	SLES10x64	ORA11G	Passed
VM14	RI11.cn.ibm.com	SLES11x64	DB2V97	Passed
VM15	VEGA31.cn.ibm.com	SLES11x64	DB2V10	Passed
VM16	RI12.cn.ibm.com	SLES11x64	ORA11G	Passed

#### Insight 1.1.1.2 and RRDI 2.0.3 FVT Automation Test Result

Test result on Win2K8x64 with DB2V97 on vega37. Insight: 1.1.1000.20130522-1045, RRDI: 2.0.4000.rrdi204-I20130613_1006					
Verification Points	Status	Log			
Fresh Install CLM 4.0.3	Passed	Log			
CLM Setup	Passed	Log   Screen Capture			
Java ETL	Passed	Log			
Fresh Install RRDI 2.0.3	Passed	Log			
RRDI Setup	Passed	Log   Screen Capture			
Check System Service	Passed	Log			
Check JRE Version	Passed	Log			
CLM OOTB Reports	Unattempted	Log			
Load Cognos Archives	Passed	Log   Screen Capture			
Fresh Install Insight 1.1.1.2	Passed	Log			

### 构建版本审批 (Sign off)

- 什么是 Sign off
  - Sign off是团队经过测试,同意Release Engineering发起的把一个构建作为每周构建版本或者迭代构建版本的请求这样一个过程
- 每周构建版本 Sign off
  - 团队 buildmeister负责sign off每周构建版本
- 迭代构建版本 Sign off
  - 由团队每个成员sign off
  - 团队每个成员参与测试
  - 我们使用Rational Quality Manager追踪测试用例和测试状态

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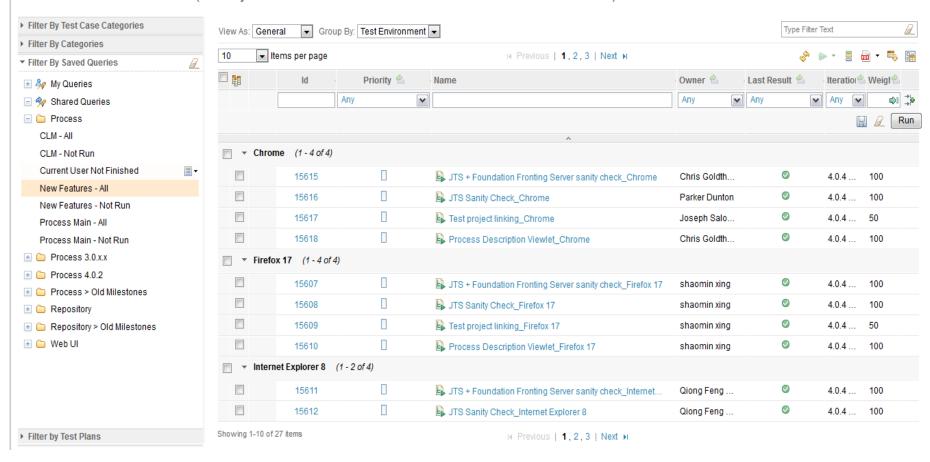


### Sign off - 测试内容

#### 团队成员根据本次迭代自己完成的工作项,编写测试用例 团队Testmeister根据已有和新增的测试用例,生成TER

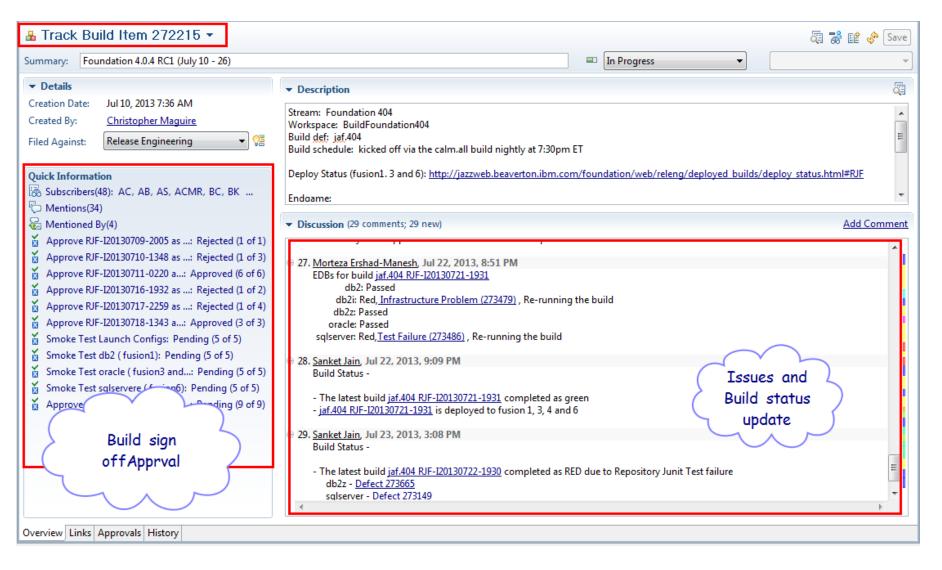
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Test Case Execution Records (Filter By Saved Queries: Shared Queries > Process > New Features - All)





#### 构建状态工作项: Track Build Item

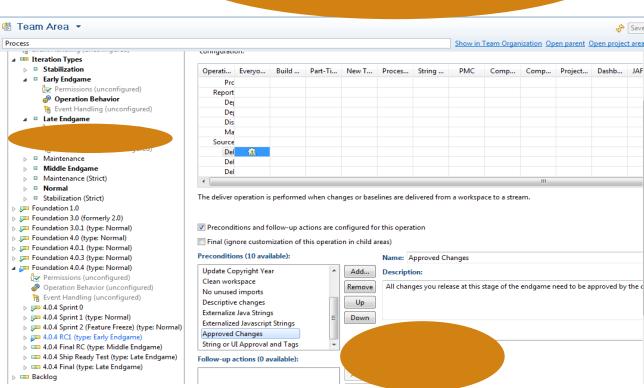


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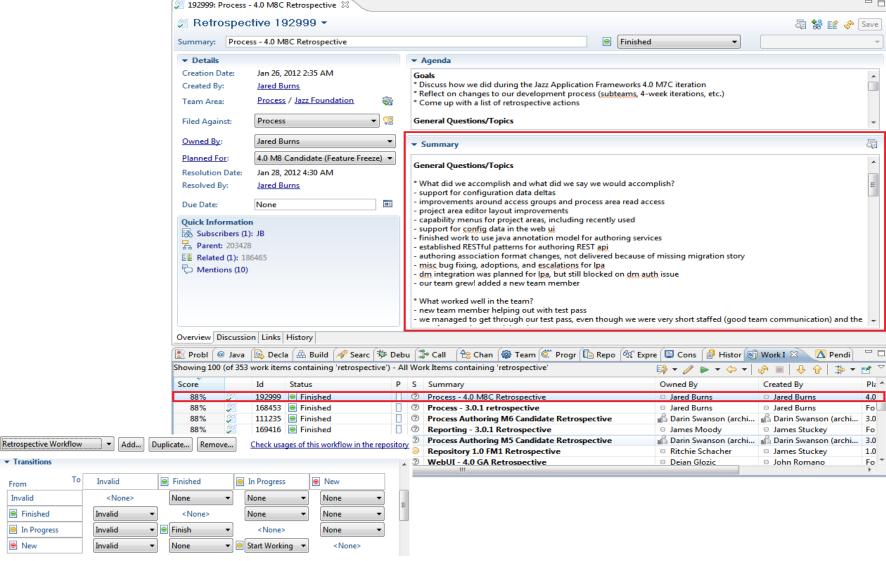
#### 游戏结束 - 黎明前的"黑暗"

- 也叫游戏结束(end game)
- 发布之前的收敛(变更管理要求更加严格)
- 一系列的测试--修复缺陷的过程
- 阶段
  - **功能/代**码冻结
  - **位**冻结
  - 内部发布
  - 正式发布发





#### 回顾(Retrospective)



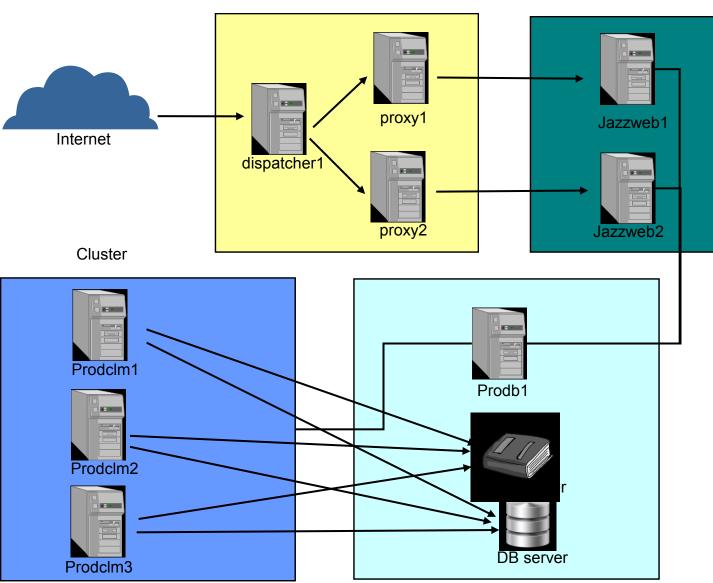
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- IBM软件交付转型历程记事
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  - 持续的规划
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  - 持续的部署
  - 持续的监控
- IBM DevOps Services和BlueMix
- Q&A



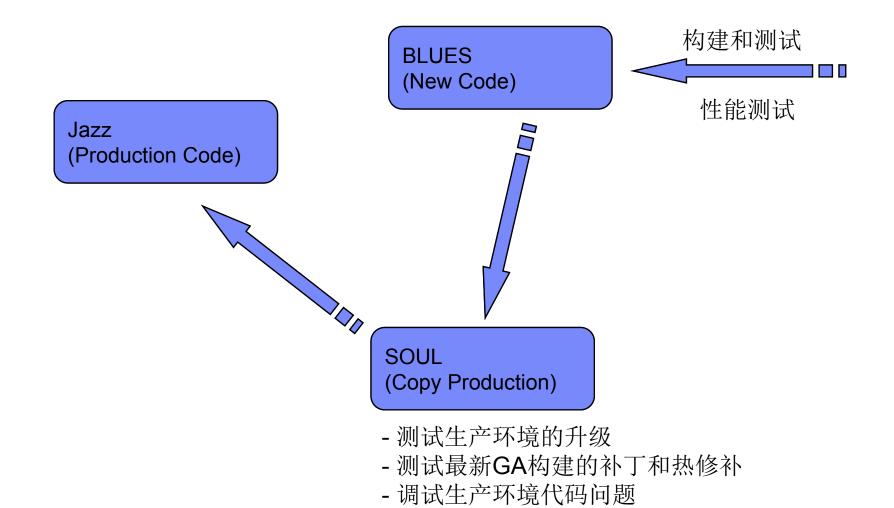
### 持续部署

■ Jazz.net部署结构



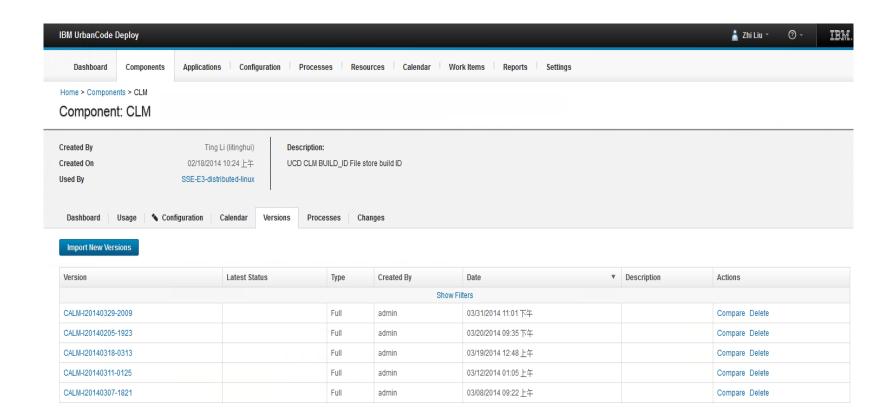
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# 生产环境与测试环境



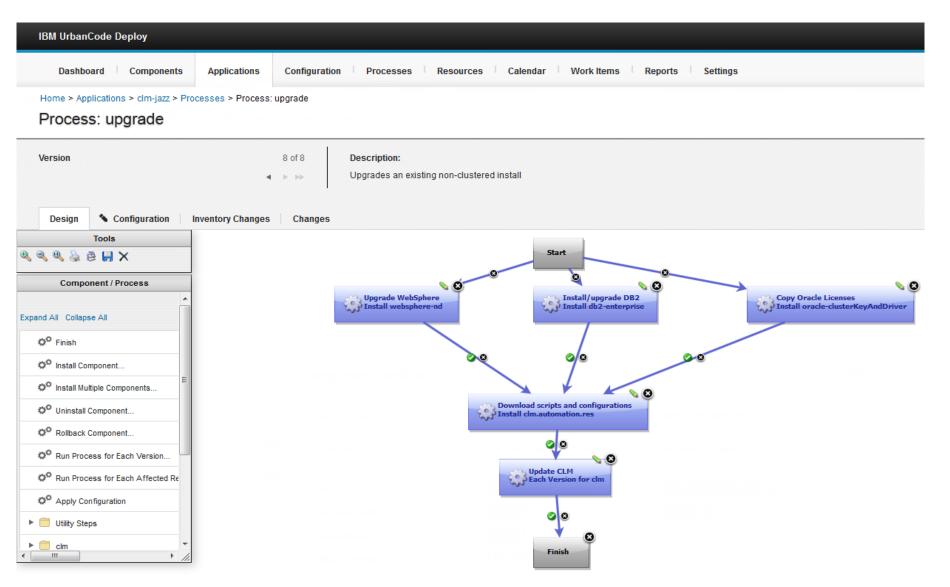


## 使用uDeploy中获取CLM构建



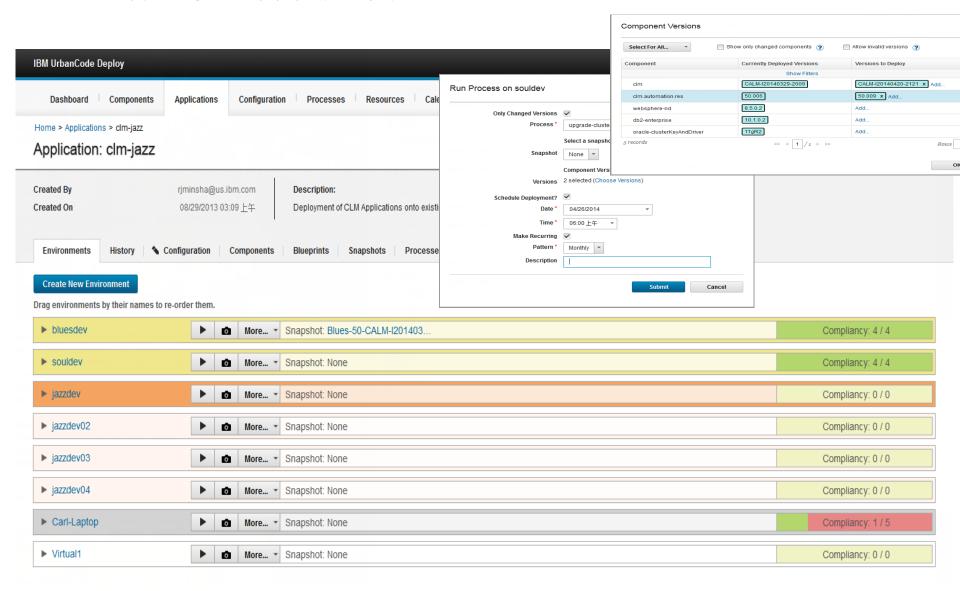
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## 定制部署流程





## 配置目标环境和自动化部署



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- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
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  - 持续的部署
  - 持续的监控
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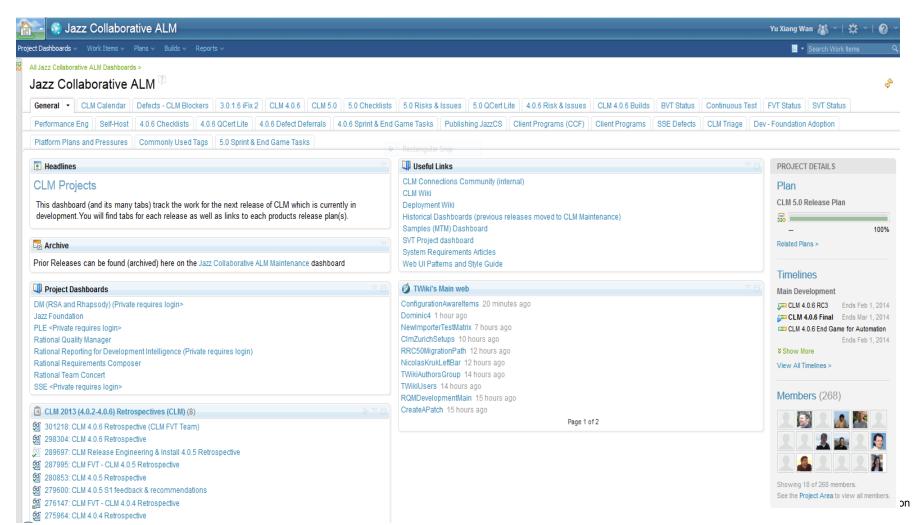




### 仪表盘

- CLM团队采用仪表盘作为主要状态监控机制
- CLM 团队有多种仪表盘覆盖开发过程的方方面面,包括产品集层面,产品层面,特性,团队等

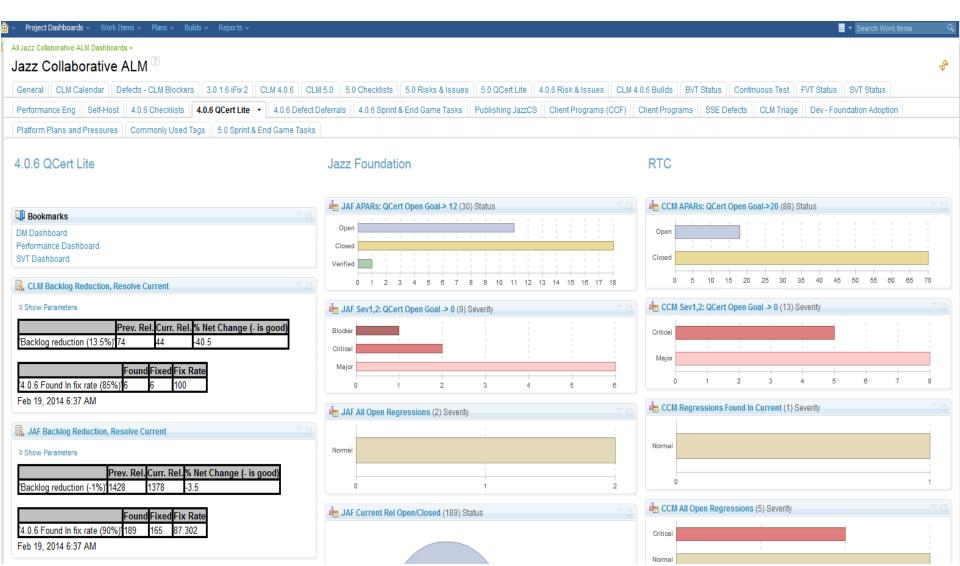
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## 仪表盘 - 质量认证

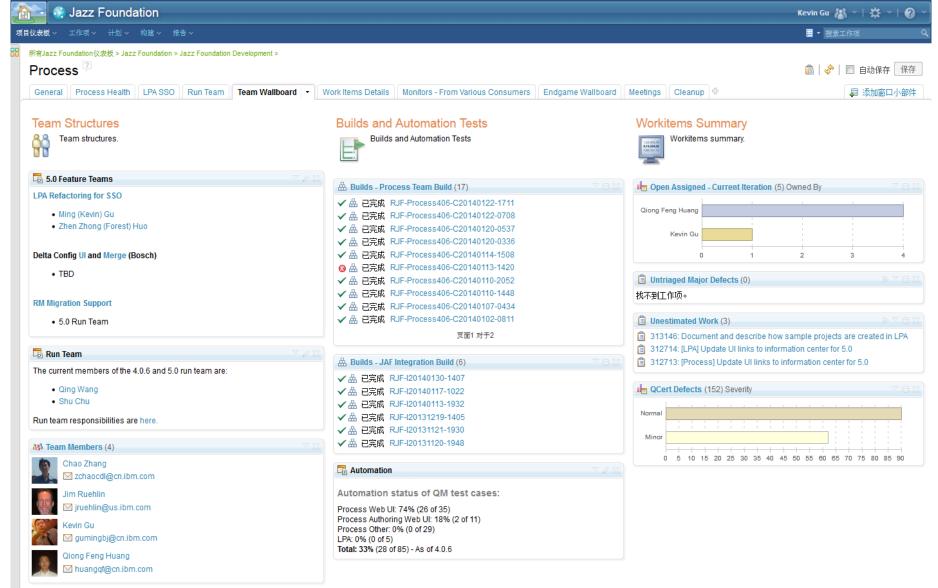
■ 质量认证仪表盘主要针对产品发布前的质量认证审计

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### 产品子团队仪表盘

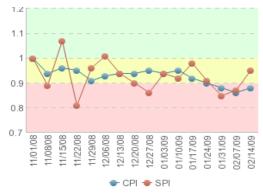


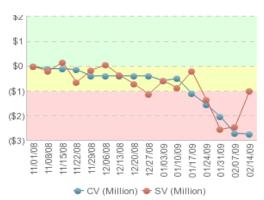
or a smarter planet

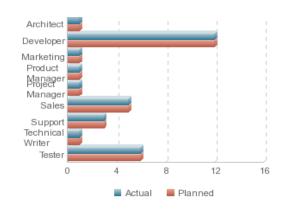
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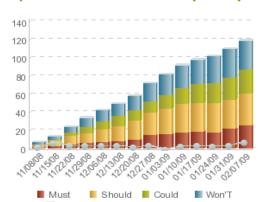
### 质量衡量指标实例



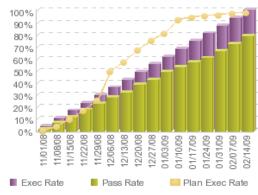




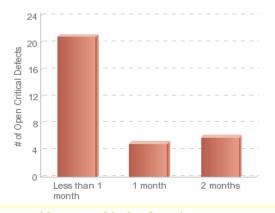
Requirements with no Test Case by Priority



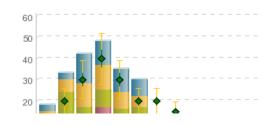
Test Execution Status

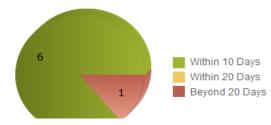


Open Critical Defects by Age

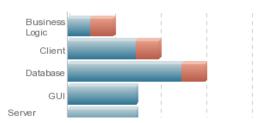


Post-Ship Defect Arrival by Severity - Actual Post-Ship RFE Turnaround Time vs.Planned





Post-Ship Open Critical Defects by Component & State



## oftware for a smarter planet m

- IBM软件交付转型历程记事
- Jazz团队的最佳实践分享
  - 团队的组织结构
  - 持续的规划
  - 敏捷的开发和测试
  - 持续的部署
  - 持续的监控



Q&A



## IBM DevOps Services - 云端的RTC

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### Click. Code. Create.

Everything you need to build great software.



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#### Create a project



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Share your genius in free public projects, or keep it confidential with private projects.\*

\*Private projects free in 2013

#### Find your rhythm

Simple bug tracking or

#### Develop with freedom

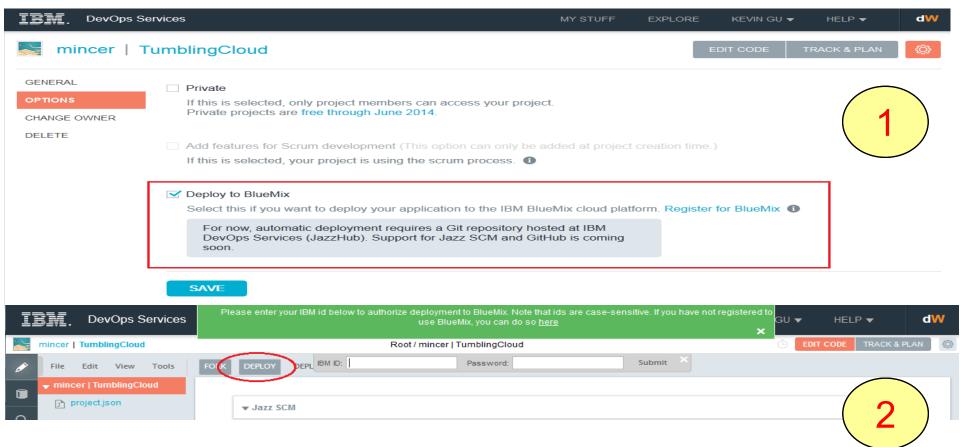
Code in the cloud with tools you love... Eclipse, Visual Studio, the built-in JazzHub editor. You can even link to your GitHub repo.

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## IBM DevOps Services和BlueMix的集成

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- 在云端开发和部署软件产品
- 利用浏览器Web IDE开发代码
- 将应用直接推送部署到IBM BlueMix云平台

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## a smarter planet





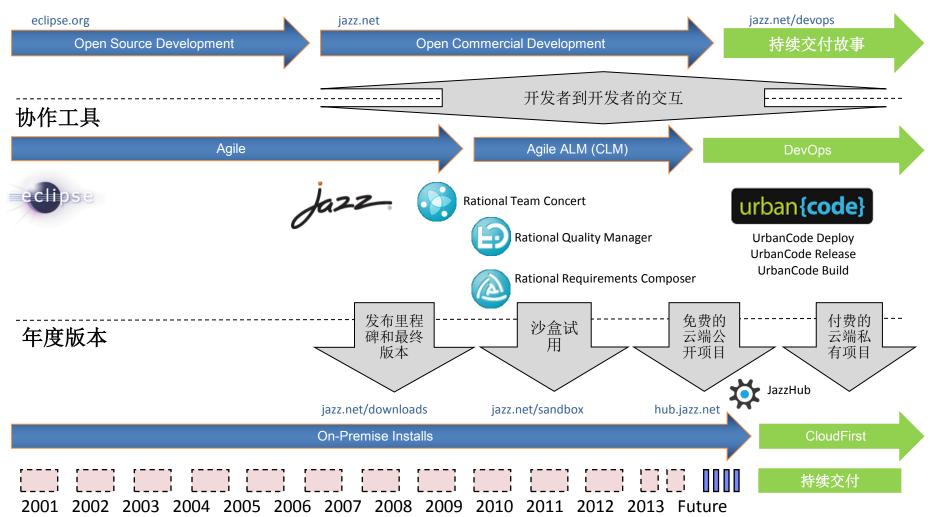
#### www.ibm.com/software/rational

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## 加速CLM交付

#### 协作社区



smarter planet

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## CLM团队的当前目标

目前

2013年第四季度

2014年上半年

ware for a smarter planet 🔲

长期目标

计划/度量

根据业务目标定义版本 度量客户价值

可靠

度

化

战略性地规划和溯源 使用仪表板展示度量指标

目标关联到版本

度量到项目指标

可重复

已

实践

局部性地制定目标 管理部门资源 开发/测试

使用开发智能持续改进 持续测试

持续交付和持续集成

管理测试数据并虚拟化测试 服务

交付和构建过程中进行测试

集中化的测试管理关联生命周期信息

管理生命周期构件 定期执行SCM集成和和自动 化构建 同步测试 发布/部署

通过自动化管理环境 提供自服务购建、虚拟资源 供给和部署

跨企业标准化和自动化

自动化基于模式的虚拟资源供给和部署

规划部门发布和自动化状态 使用标准拓扑结构进行自动 化部署

计划和管理发布 标准化的部署

监控/优化

自动化问题隔离和问题解决 持续优化

优化应用 使用企业级的问题解决流程

使用业务和用户上下文进行 监控

集中事件通知和事件处理

持续监控资源 开发和运营部门非正式合作

https://jazz.net/jazz/web/projects/Jazz%20Collaborative%20ALM#action=com.ibm.team.dashboard.viewDashboard&team=Continuous%20Delivery&tab=\_10