



面向服务的IBM云计算管理平台技术实现

提纲

- 1、IBM对云服务的观点和实现参考模型
- 2、基于服务的IBM云管理平台

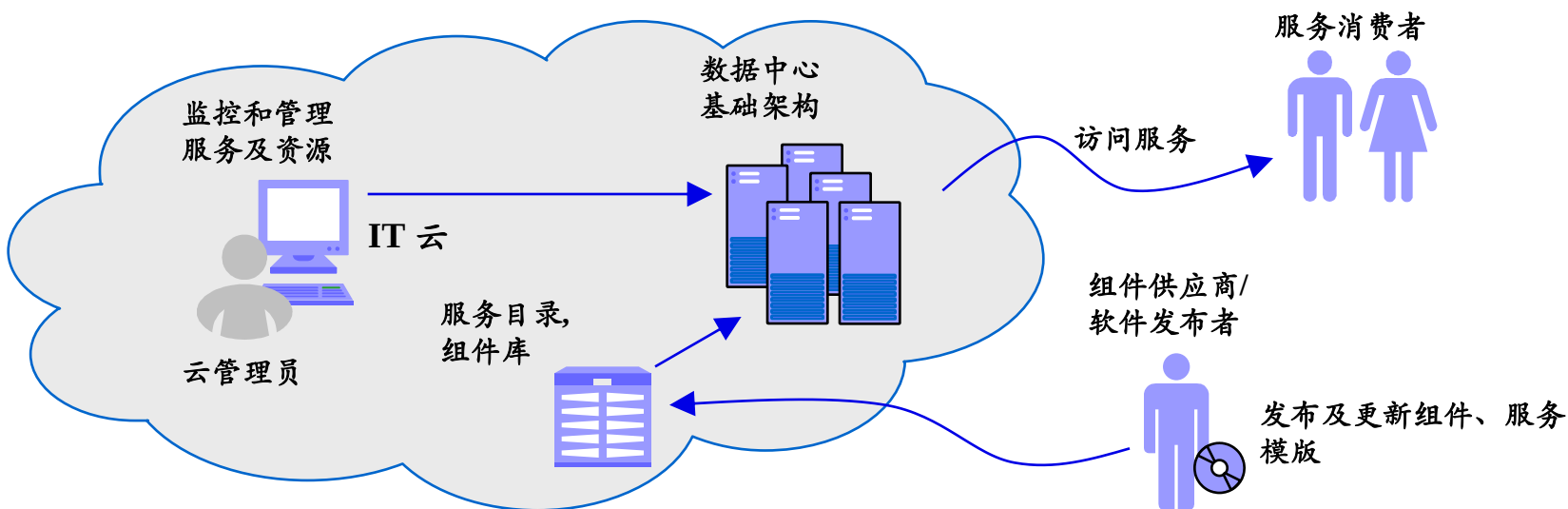
IBM观点：云计算的核心内容是帮助解决系统复杂性难题

云计算是：一种新的用户体验和一种新的业务模式

- 云计算是一种新出现的IT交付方式：应用，数据和IT计算资源快速部署交付并且按照标准组件通过Web提供给最终用户，并且实现灵活的计价和收费模式

云计算是：一种基础架构管理和服务交付的方法论

- 云计算是一种管理大量高度虚拟化计算资源的管理方式。从管理的角度来看，这些虚拟的计算资源，组成了一个统一的庞大计算资源。这些计算资源可用来弹性可扩展地交付服务



云计算的五四三二一

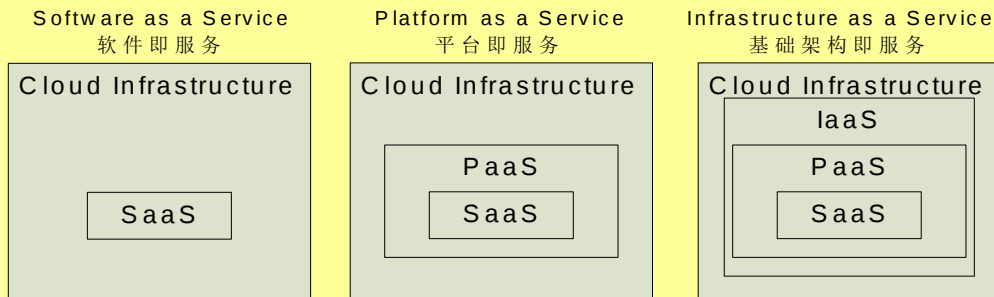
两种技术₂



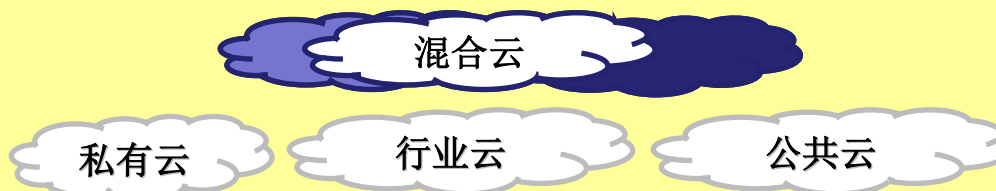
面向服务架构 (SOA)



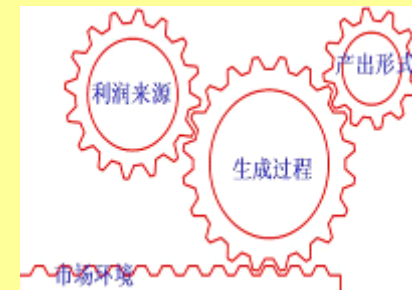
三个层次₁



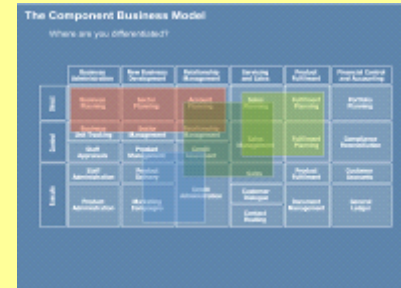
四种模式₁



一个系统



业务模式



建设模式

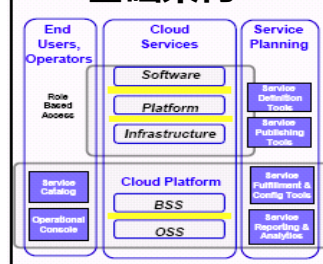


利用清晰的云模式推进高效的IT和业务变革

客户痛点：

1. 如何让云计算更好支撑业务的快速发展
2. 云计算究竟可以带来什么好处
3. 如何启动云计算项目以更好落地

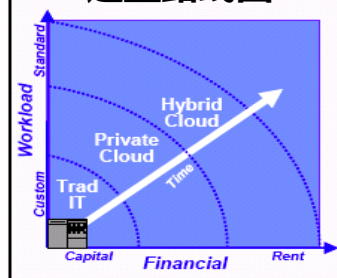
基础架构



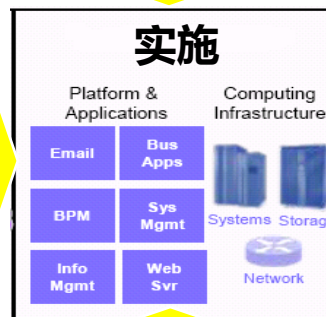
启动云变革的4个维度：

1. IT-as-a-Service 的建置路线图
2. 支持云计算模式的基础架构（IT 基础架构/运营变革）
3. 进行当前和未来的工作负荷详细分析
4. 决定正确的工作组合（云和非云,公共云与私有云）

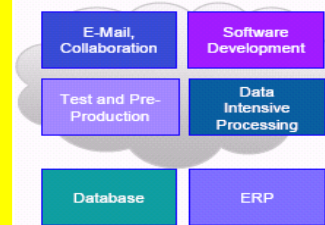
建置路线图



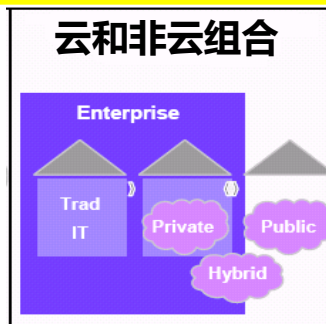
实施



工作量详细分析

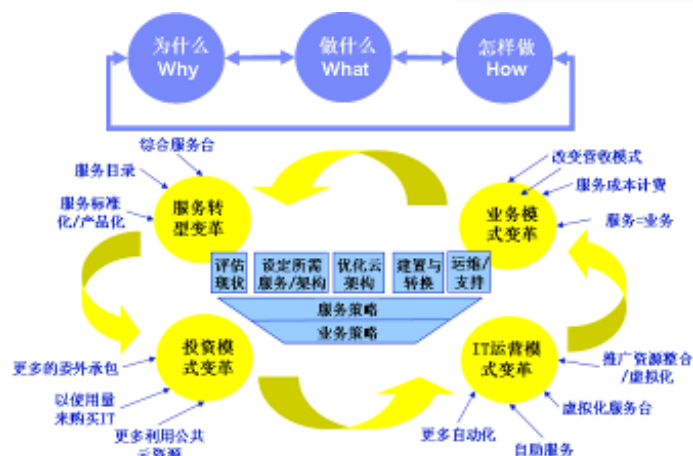


云和非云组合



方案特点：

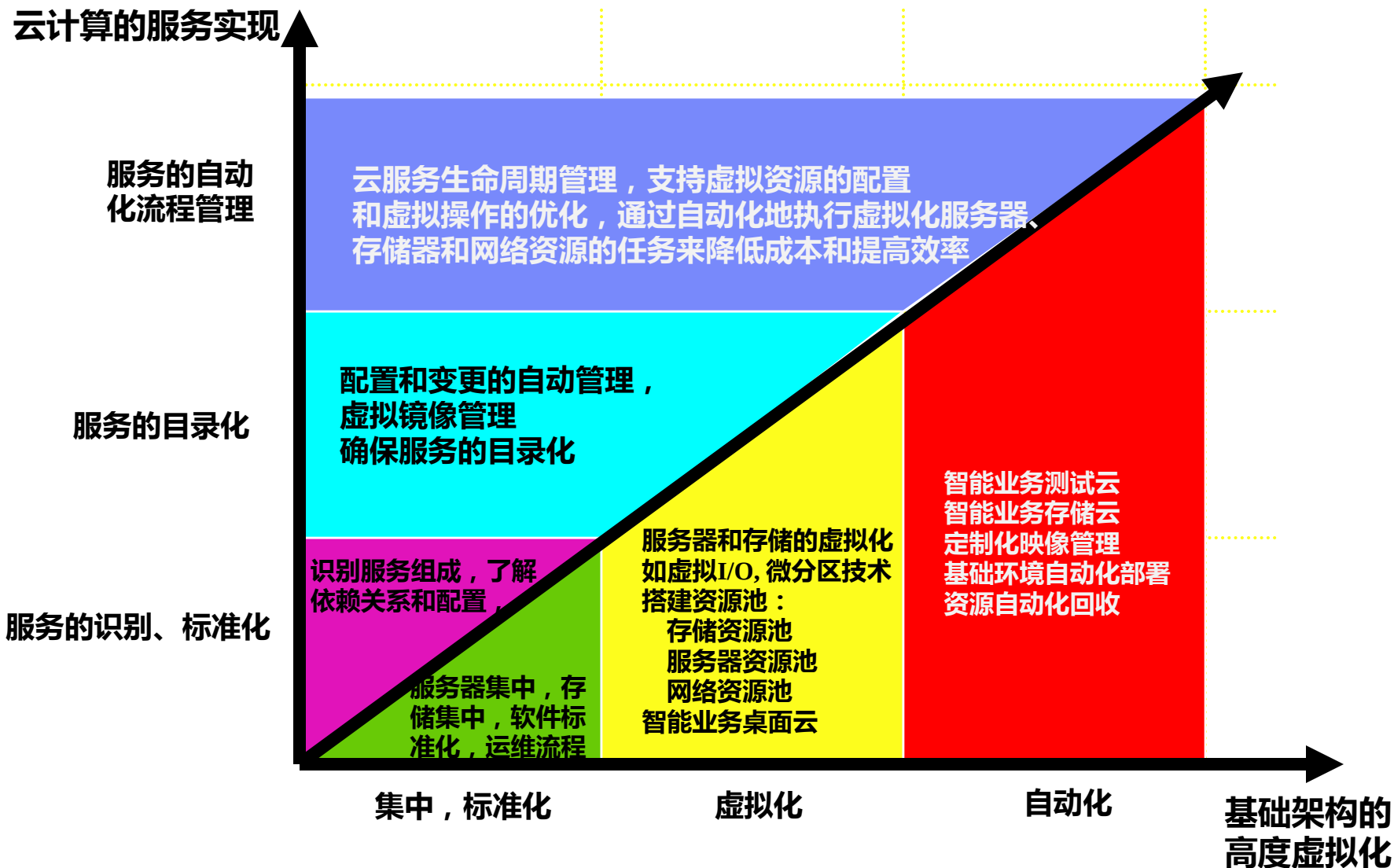
1. 基于Asset和大量客户实践的咨询
2. 基于IT端到端理解的分析设计



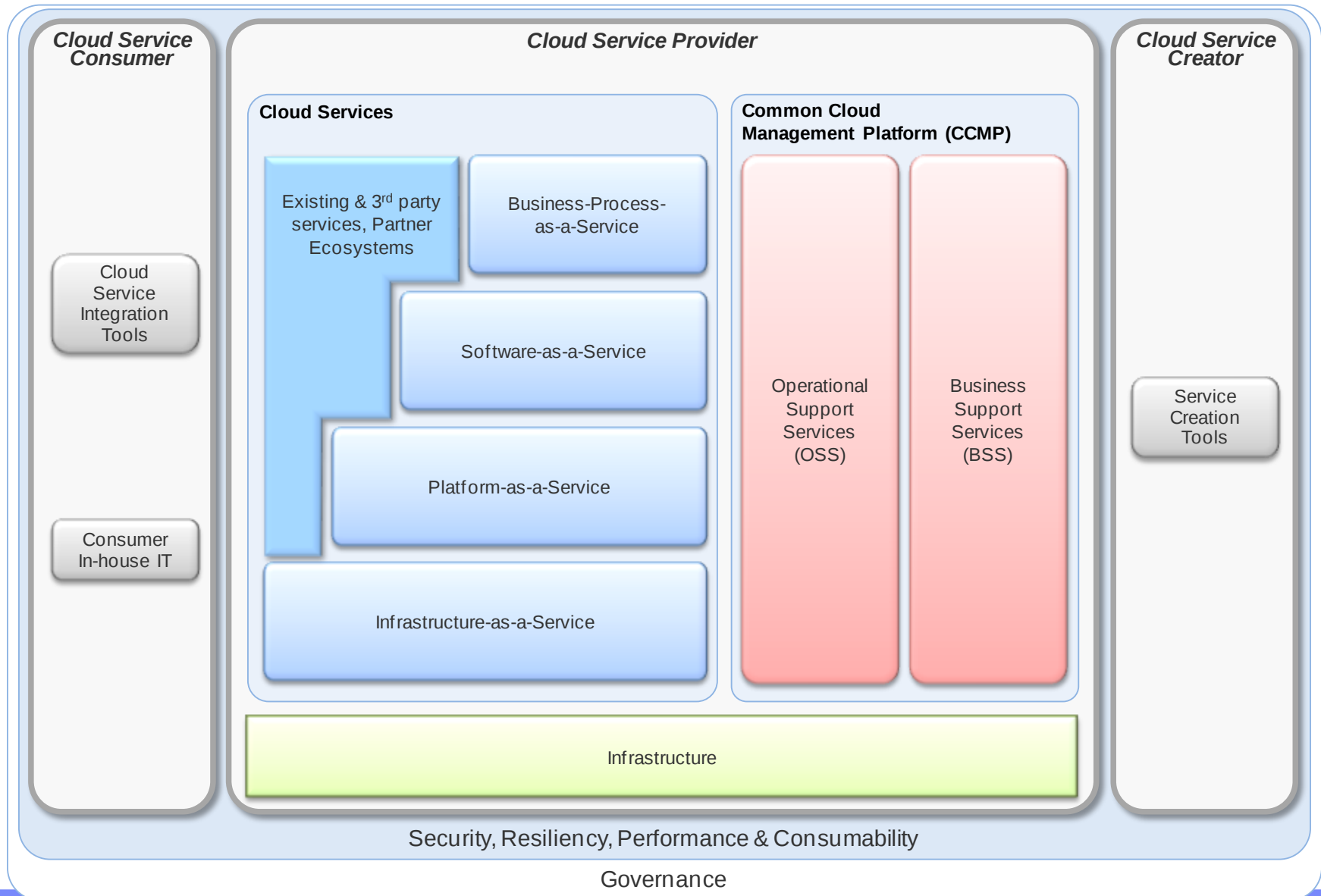
云服务的基本特性

共有特性	详细信息
Advanced virtualization (先进的虚拟化技术)	所有的IT资源，包括服务器，存储，网络，系统软件和中间件通过池化和虚拟化来提供一个独立高效的信息系统基础架构
Standardized Offerings (标准的服务选项)	统一相关可用的服务，并且通过服务目录的方式供用户通过类码表的方式进行调用
Rapid Provisioning (快速的服务提供)	IT和网络的能力与容量使用对应标准实现自动化快速部署，而不需转换对应资源的所有权
Elastic Scaling (弹性的扩展)	实现根据需求变更而进行计算资源的扩展和收缩
Flexible Business Model (灵活的商业模式)	基于使用率的定价，灵活的支付方式，面向服务的消费和订购模型使得IT服务的定价更灵活

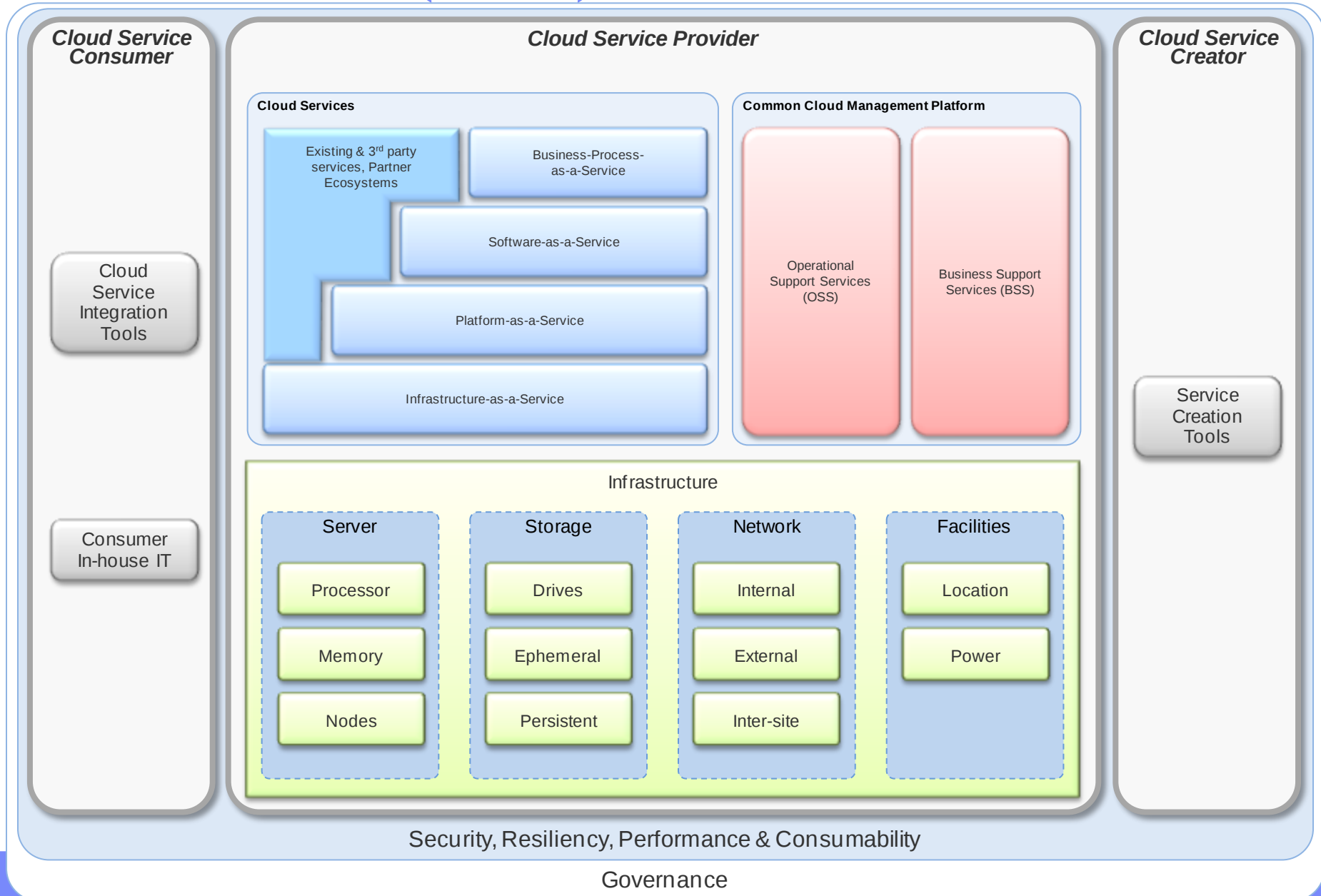
云平台建设的两个维度



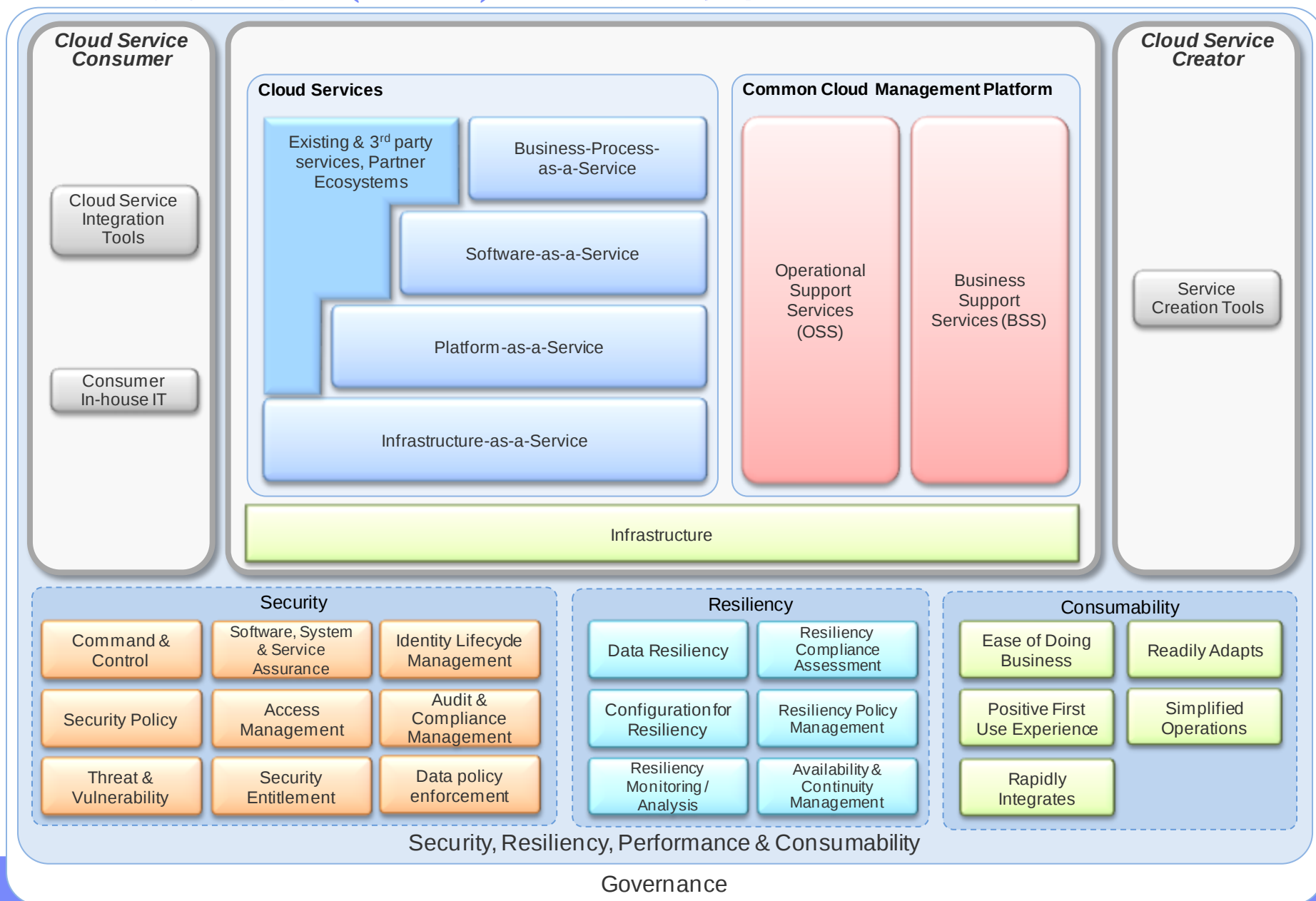
IBM云计算参考架构 (CC RA) 2.0



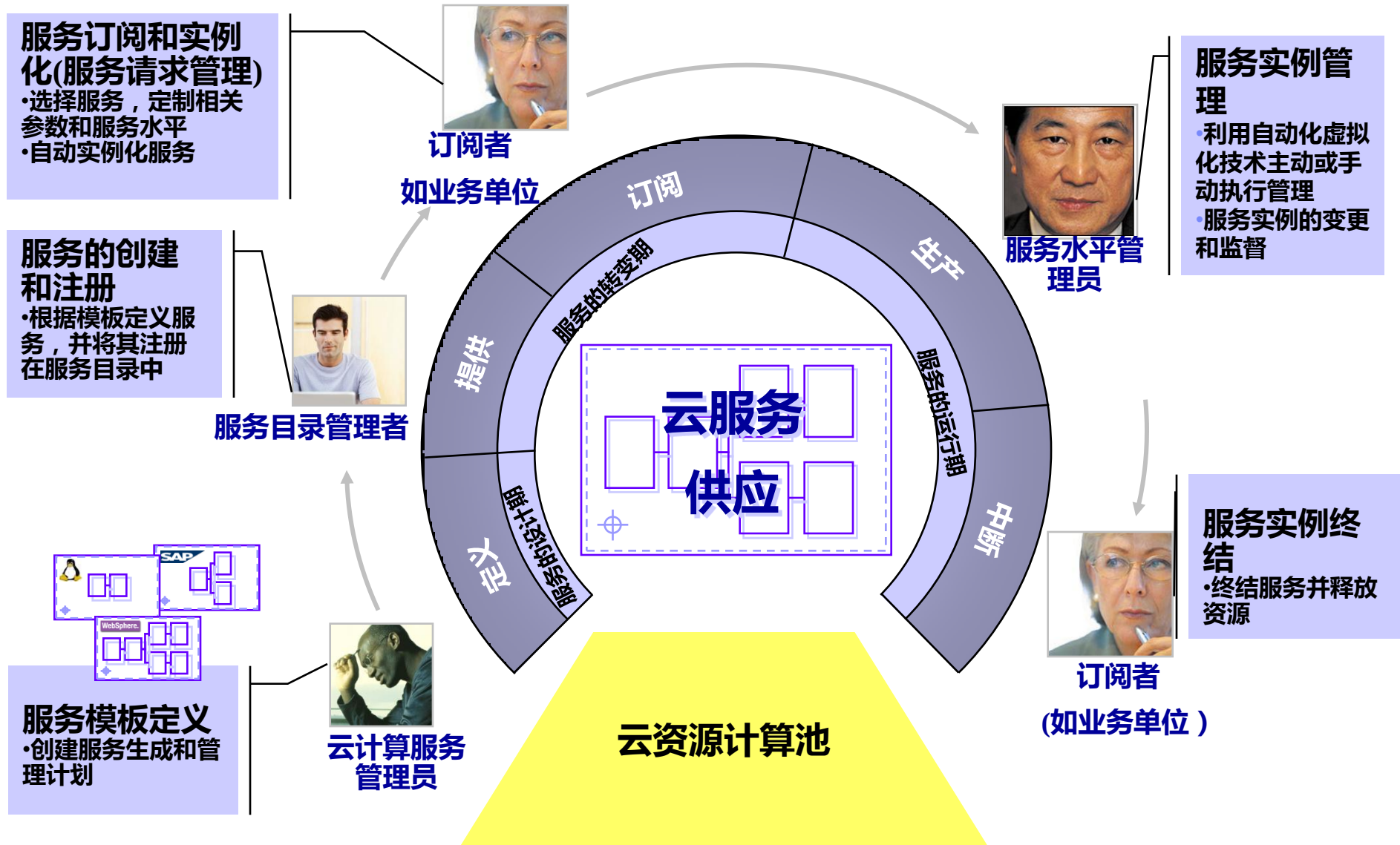
IBM云计算参考架构 (CC RA) 2.0 – 基础架构



IBM云计算参考架构 (CC RA) 2.0 – 安全、多租户、性能 和业务处理



基于服务的云计算供应链管理



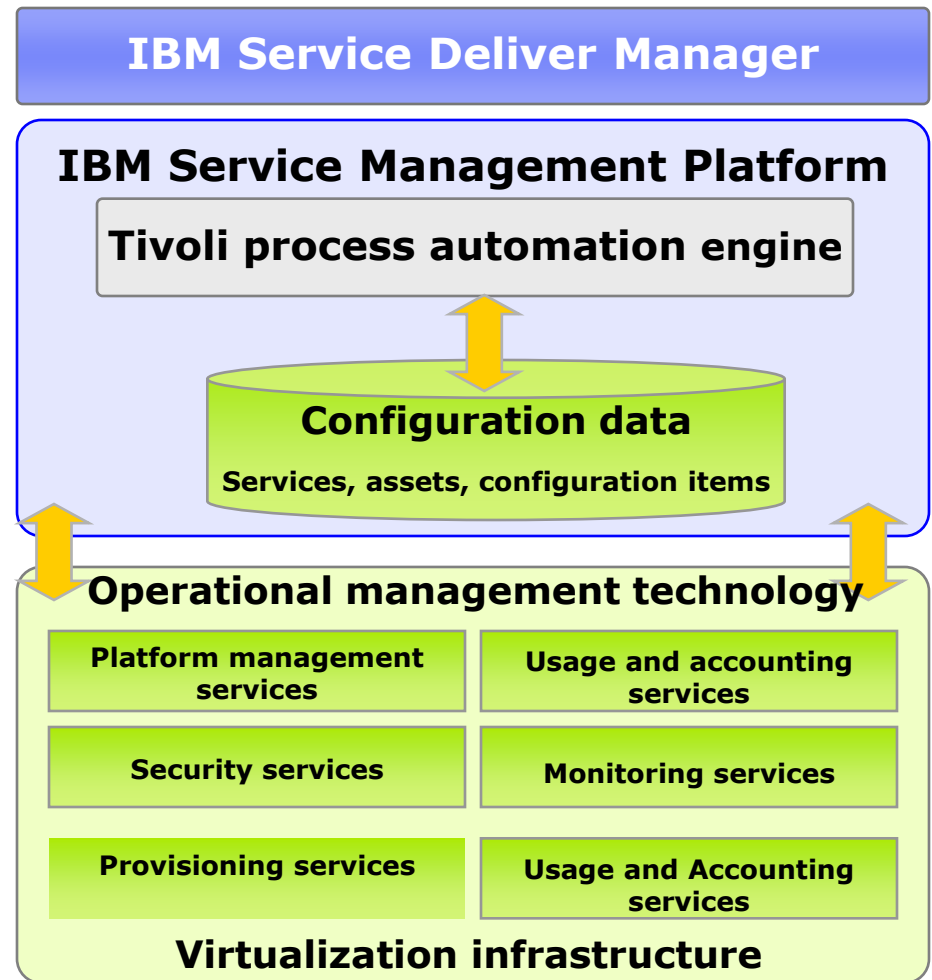


IBM云服务管理平台

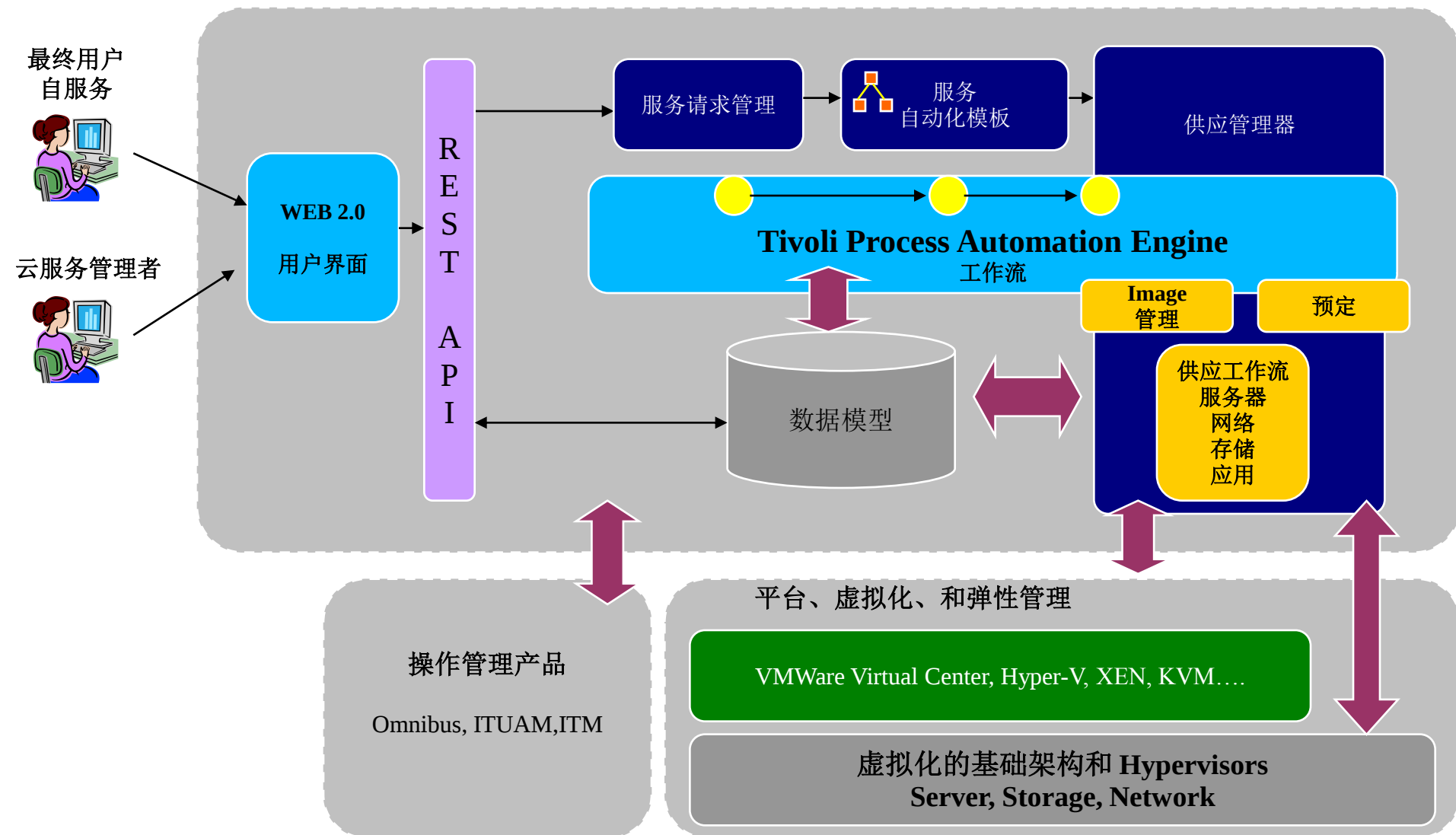
IBM Service Deliver Manager

-- 提供管理云环境的聚合管理能力

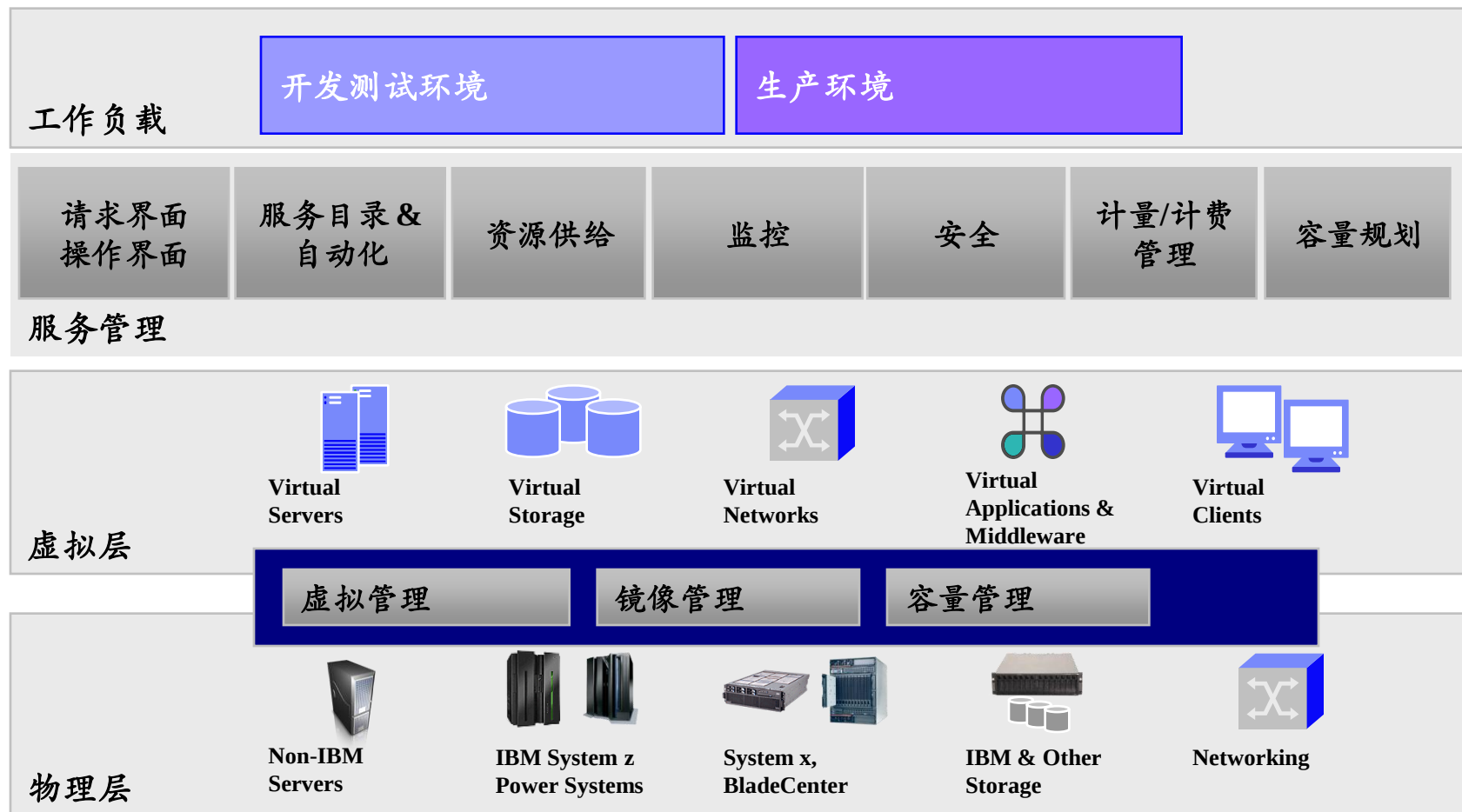
- 基于IBM服务管理平台
- 提供云计算管理所需的流程编排技术、流程、人员、数据管理
- 虚拟化资源的快速供应
- 整合：
 - 云计算监控管理
 - 云服务计量计费



IBM解决方案的逻辑架构



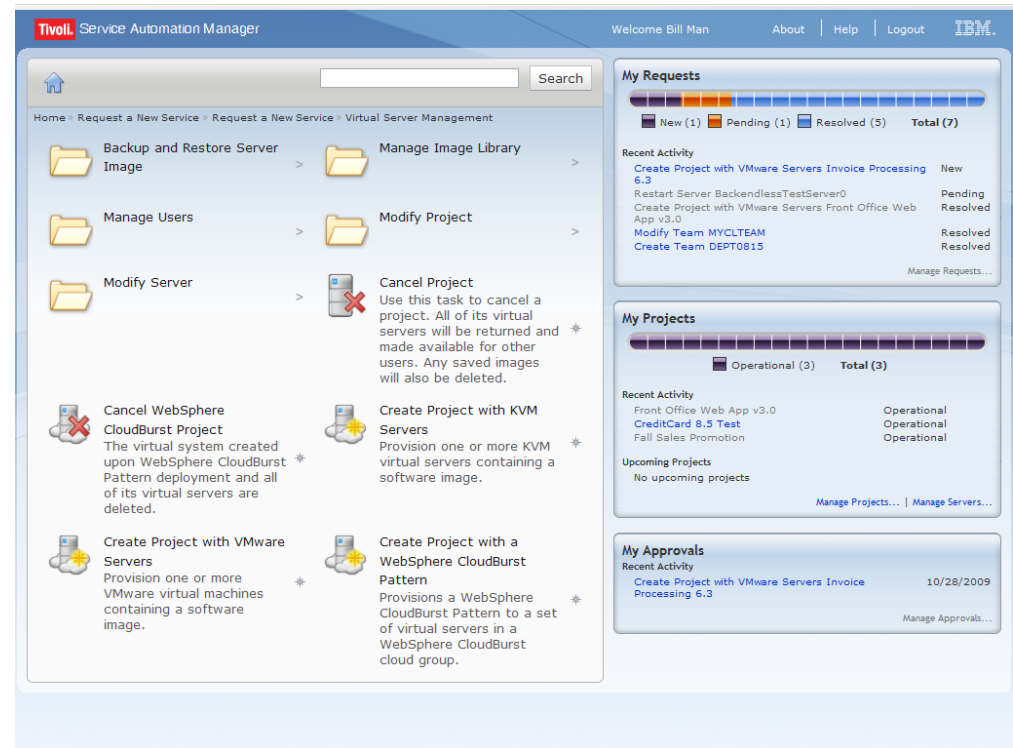
功能模块构成



1. 服务自动化管理

ISDM是IBM在实现云服务自动化上的策略性产品

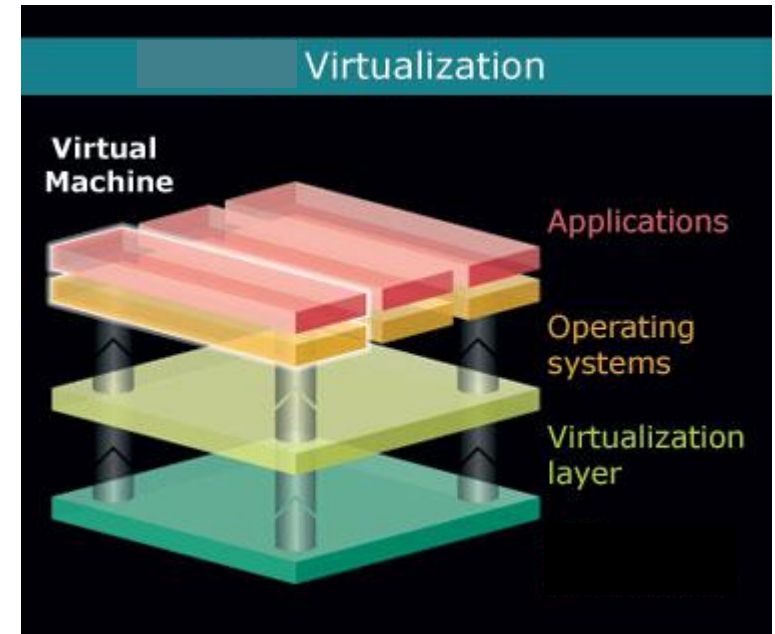
- 自动服务供应
- 领先的镜像管理
- 多租户服务目录
- 可以基于开发API进行扩展
- Web 2.0自服务门户
- 基于向导的服务创建



#1: 平台/虚拟化管理

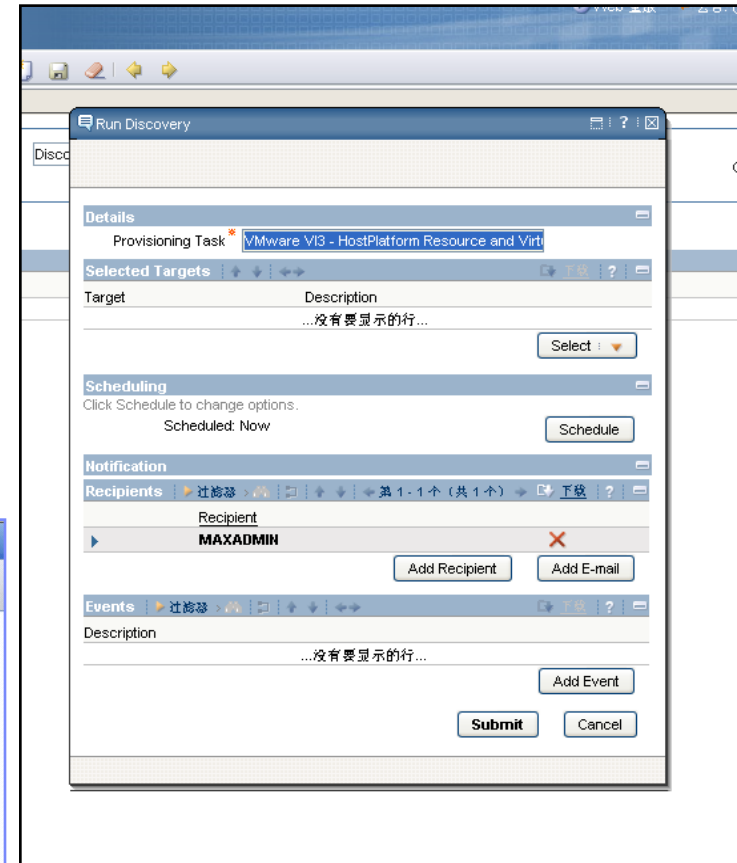
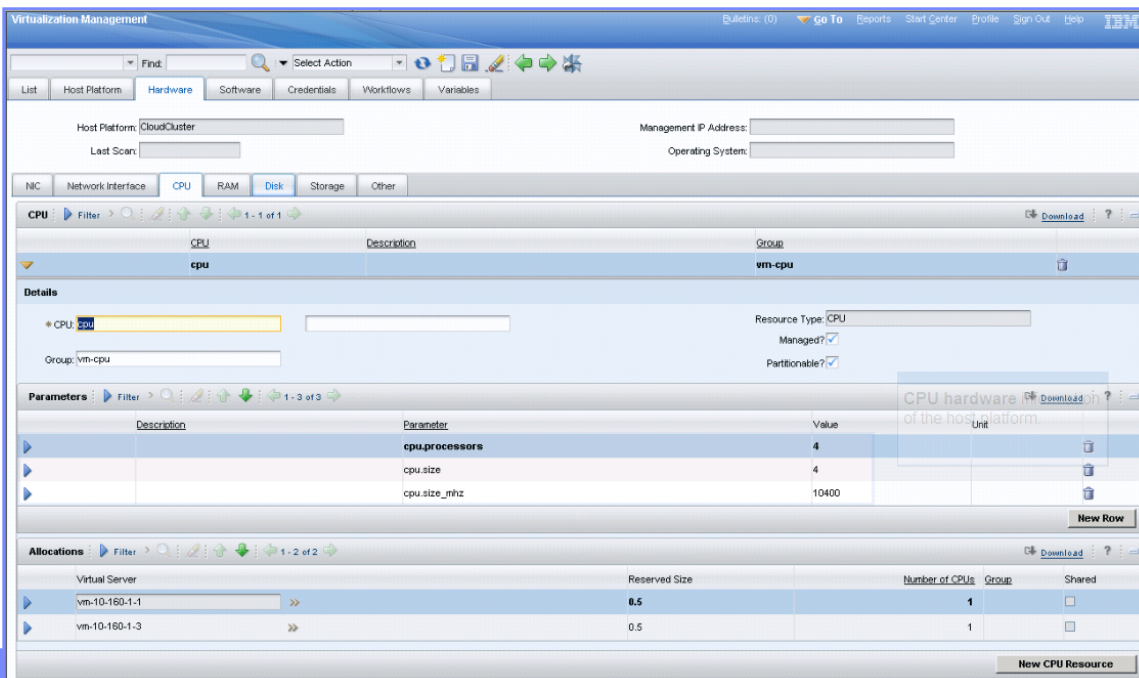
- 提供虚拟技术独立性，支持广泛的虚拟化平台：

- Vmware
- Hyper-V
- KVM
- Xen
- PowerVM



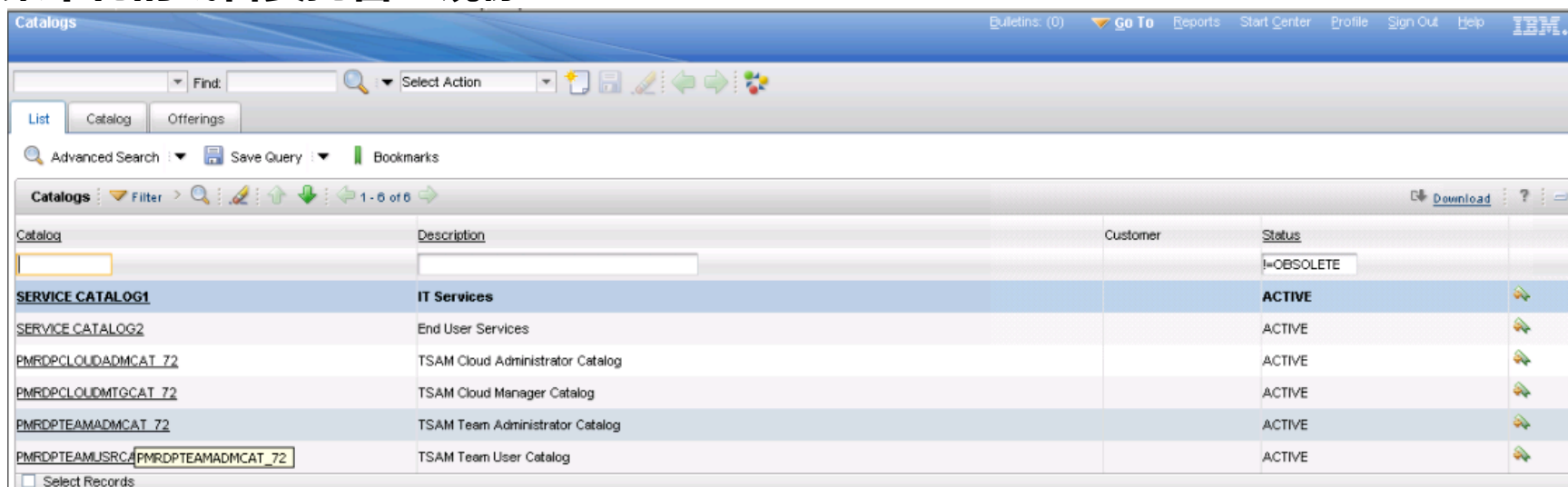
#2: 云计算资源配置发现和管理

- 确保云平台配置信息的正确、完整和实效性
- 对物理资源和虚拟资源进行自动发现保持配置的同步
- 提供资源的合规管理



#3: 云服务供应目录

- 所有云服务的单一存储库
- 允许最终用户更方便获取资源
- 支持商业服务的快速交付
- 基于导航来导入新的服务模板到服务目录中
- 基于客户需求的镜像管理
- 集中化的或者委托管理镜像



The screenshot displays the IBM Cloud Catalogs web application. The interface includes a top navigation bar with links like 'Bulletins: (0)', 'Go To', 'Reports', 'Start Center', 'Profile', 'Sign Out', and 'Help'. Below this is a search bar with a 'Find:' field and a 'Select Action' dropdown. The main content area shows a table of catalogs with columns for 'Catalog', 'Description', 'Customer', and 'Status'. The table lists several catalogs, including 'SERVICE CATALOG1' (IT Services) and 'SERVICE CATALOG2' (End User Services). A 'Download' button is visible in the top right corner of the table area.

Catalog	Description	Customer	Status
			OBSELETE
SERVICE CATALOG1	IT Services		ACTIVE
SERVICE CATALOG2	End User Services		ACTIVE
PMRDPCLLOUDADM CAT_72	TSAM Cloud Administrator Catalog		ACTIVE
PMRDPCLLOUDMTGCAT_72	TSAM Cloud Manager Catalog		ACTIVE
PMRDPTEAMADM CAT_72	TSAM Team Administrator Catalog		ACTIVE
PMRDPTEAMUSRC/PMRDPTEAMADM CAT_72	TSAM Team User Catalog		ACTIVE

#4: 提供云计算自服务门户

- 用户在需要时提交服务请求
- 可以方便地管理自动批准策略，并且可以根据需要扩展到复杂的批准流程
- 消除资源请求的手工操作
- 基于 RESTful Web2.0 API 来实现和现在门户的集成

The screenshot displays the Tivoli Service Automation Manager web interface. The top navigation bar includes the Tivoli logo, the text "Service Automation Manager", and user information "欢迎 黄庆春" (Welcome Huang Qingchun). There are links for "关于" (About), "帮助" (Help), and "注销" (Logout), along with the IBM logo.

The main content area is titled "Virtual Server Management" and contains a grid of service requests. The "Create Project with VMware Servers" option is highlighted with a blue border. Other options include "Cancel Project", "Create Project with KVM Servers", "Create Project with System p LPAR Servers", "Create Project with Xen Servers", and "Create Project with a WebSphere CloudBurst Pattern".

On the right side, there are two summary panels:

- 我的请求 (My Requests):** Shows a progress bar with 1 resolved (已解决) and 1 failed (Failed) request, totaling 2 (总计 2). Recent activities (最近活动) include "Create Project with VMware Servers" (网景版本200911测试01) which is resolved (已解决), and another "Create Project with VMware Servers" (网景版本200911测试) which failed (Failed).
- 我的项目 (My Projects):** Shows a progress bar with 1 executable (可运行) project, totaling 1 (总计 1). Recent activities (最近活动) include "网景版本200911测试01" which is executable (可运行). It also mentions "即将来临的项目" (Upcoming projects) and states "没有即将来临的项目" (No upcoming projects).

#5: 自动化的主动供应

- 计算资源可以在数分钟内被供应
- 当云计算资源不再需要时被快速归回到资源池
- 可以基于角色进行客户化
- 供应模式
 - 镜像供应
 - 流供应
- 供应对象
 - ✓ 虚拟化资源
 - ✓ 软件和应用

Create Project with VMware Servers

Provision one or more VMware virtual machines containing a software image.

Resource Group Used to Reserve Resources
VMware Cloud Pool ☒ Monitoring Agent to be Installed

*Image to be Deployed

Select	Name	CPU's	Memory	Storage
☒	RHEL53	1	1 GB	10 GB
☐	SLES10	1	1 GB	10 GB

Select software to install

Available Software

Selected Software

- IBM WebSphere Application Server V6.1
- DB2 Universal Database Enterprise Server E

Configure Software

DB2 UNIVERSAL DATABASE ENTERPRISE SERVER EDITION - VERSION 9

Resources

To adjust the settings of the requested resources, press the setting button. After making the necessary adjustment, press the setting button to save the configuration.

Servers

*Number of Servers to be Provisioned

1
6 available at above configuration and schedule

CPU

Virtual 1
Physical 0.5

Memory

Main 1 GB
Swap 0 GB

Disk

Local 10 GB

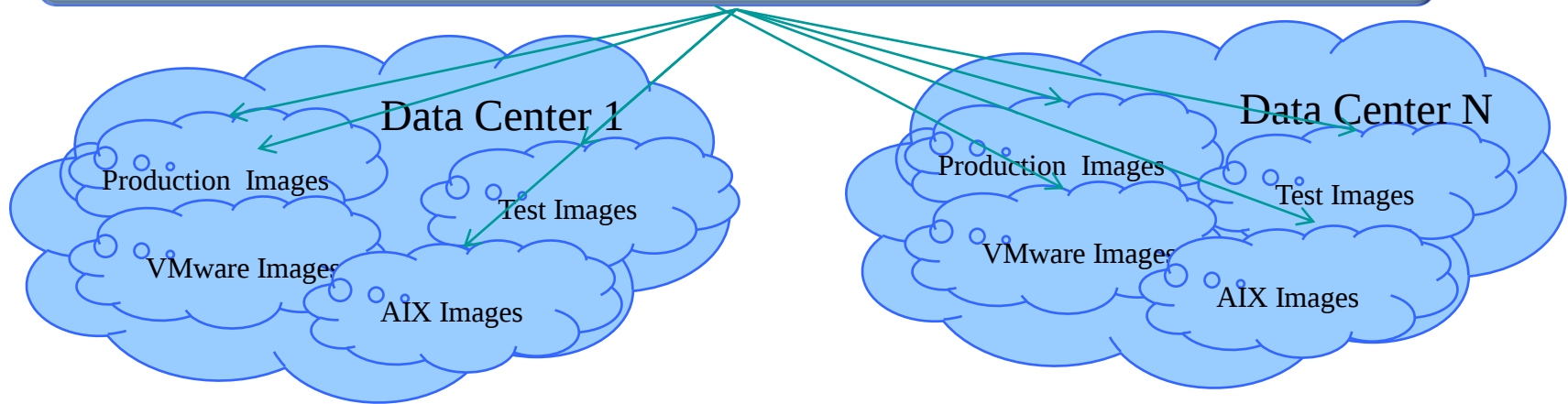
☐ Save an image of each server when the project reaches its end date and is being decommissioned

☐ Keep existing saved images after the project has been decommissioned

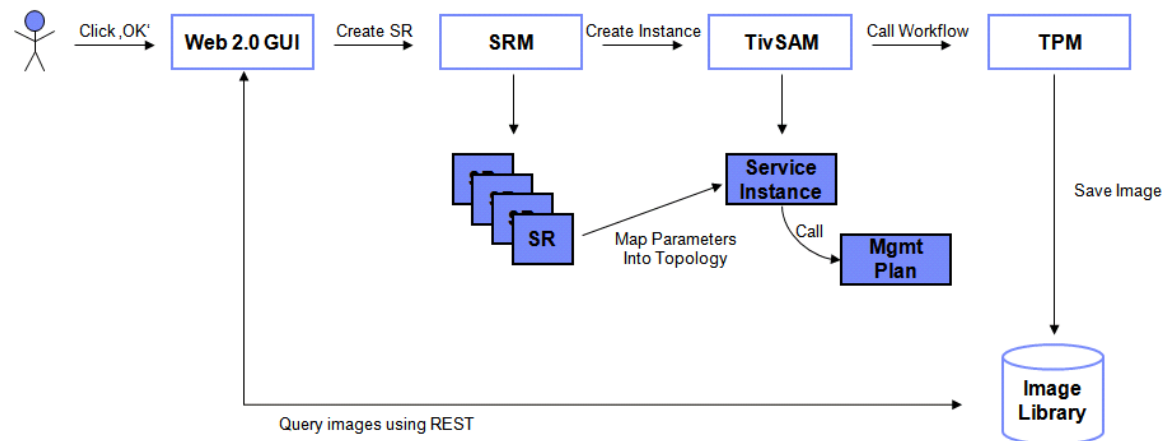
OK Cancel

#6: 镜像的生命周期管理

Image Lifecycle Management of IBM Service Deliver Manager



- 联邦的主和实例镜像管理
- 跟踪版本、所有者和部署
- 基于OVF的镜像内容跟踪
- 跟踪出处管理 (Parent/child)
- 管理复制
- 联邦IBM或者非IBM的镜像存储库



#7: 软件供应和远程配置

- 基于软件模板或者服务拓扑来提供服务目录
- 在服务请求中配置软件参数
- 提供软件的自动配置

Create Project with VMware Servers

Provision one or more VMware virtual machines containing a software image.

General

*Project Name: StepbyStep *Team to Grant Access: TIDE

Project Description: Sample Project for Step by Step documentation

*Start Date: 11/5/2010 *Start Time: 9:17 AM *End Date: For this duration

2 Months

Requested Image

Resource Group Used to Reserve Resources: VMware Cloud Pool ☒ Monitoring Agent to be Installed

*Image to be Deployed

Select	Name	CPUs	Memory	Storage
☒	RHEL53	1	1 GB	10 GB
☐	SLES10	1	1 GB	10 GB

Select software to install

DB2 UNIVERSAL DATABASE ENTERPRISE SERVER EDITION - VERSION 9

*ESE ☒

*CLIENT ☒

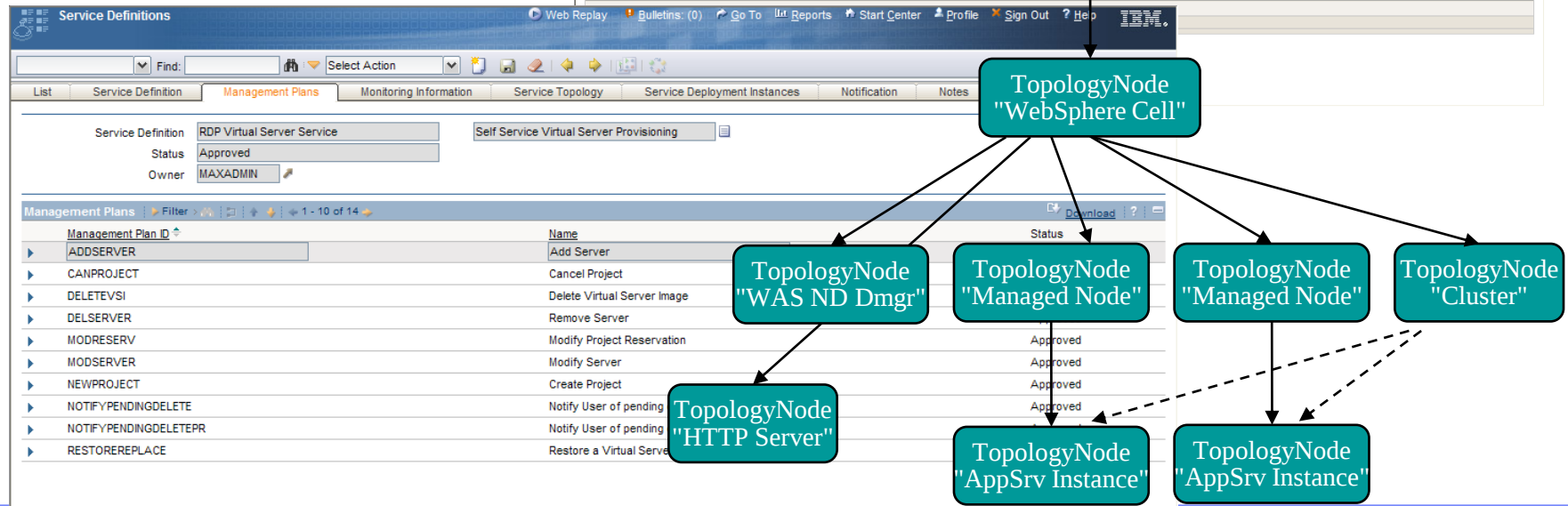
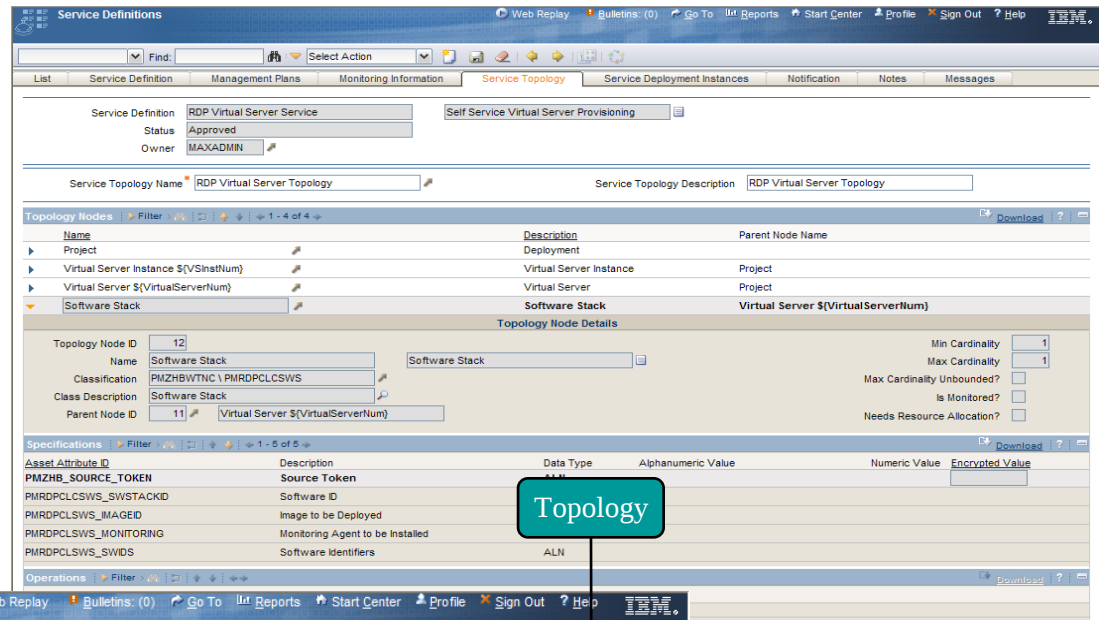
*install-path: /opt

*uninstall_delete_users ☐

OK Cancel

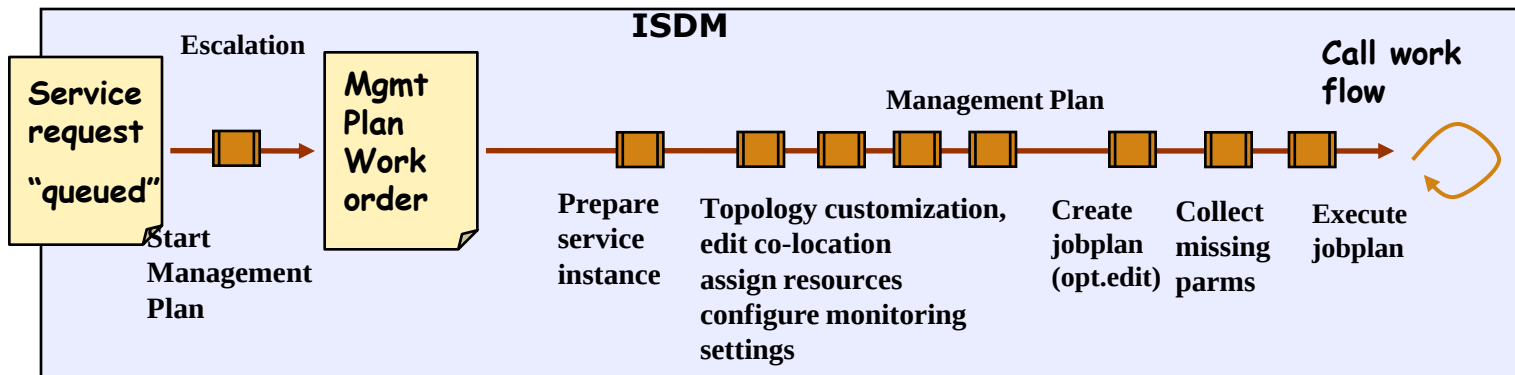
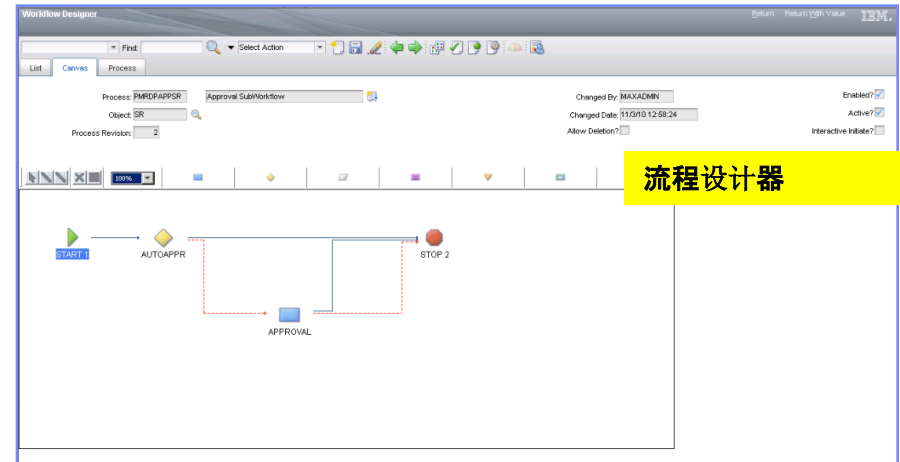
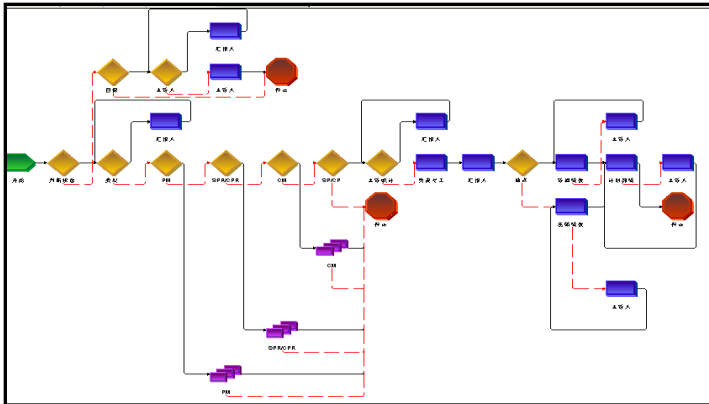
#8: 复杂部署逻辑创建和实例化

- 完整的数据模型定义
- 部署复合应用
- 基于构建计划和定义的逻辑进行自动部署



#9: 客户化的流程和管理计划

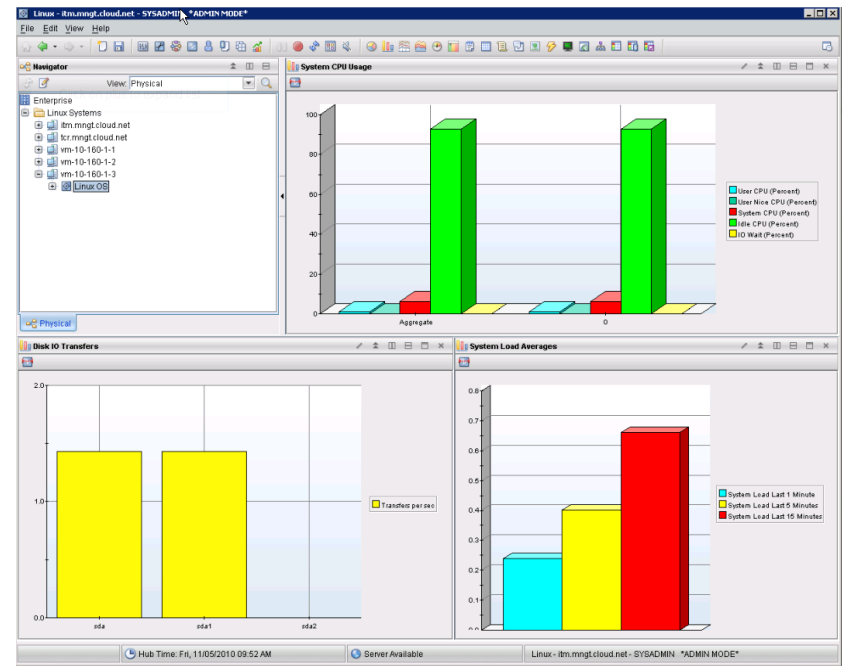
- 实现云计算资源的流程化管理
- 提供满足客户需求的流程定制
- 确保云计算资源使用遵循企业管理流程



2. 集成的监控、计量、报告和用户服务

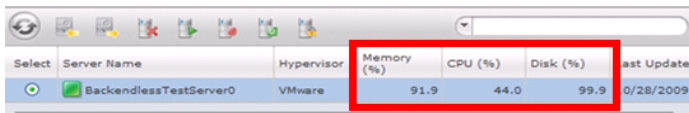
提高整个云服务系统的可靠性和可管理能力

- 开箱即用的监控
- 整合的使用计量
- 提升标准化
- 能源更为有效



#1: 主机和虚拟化系统的监控和事件集成

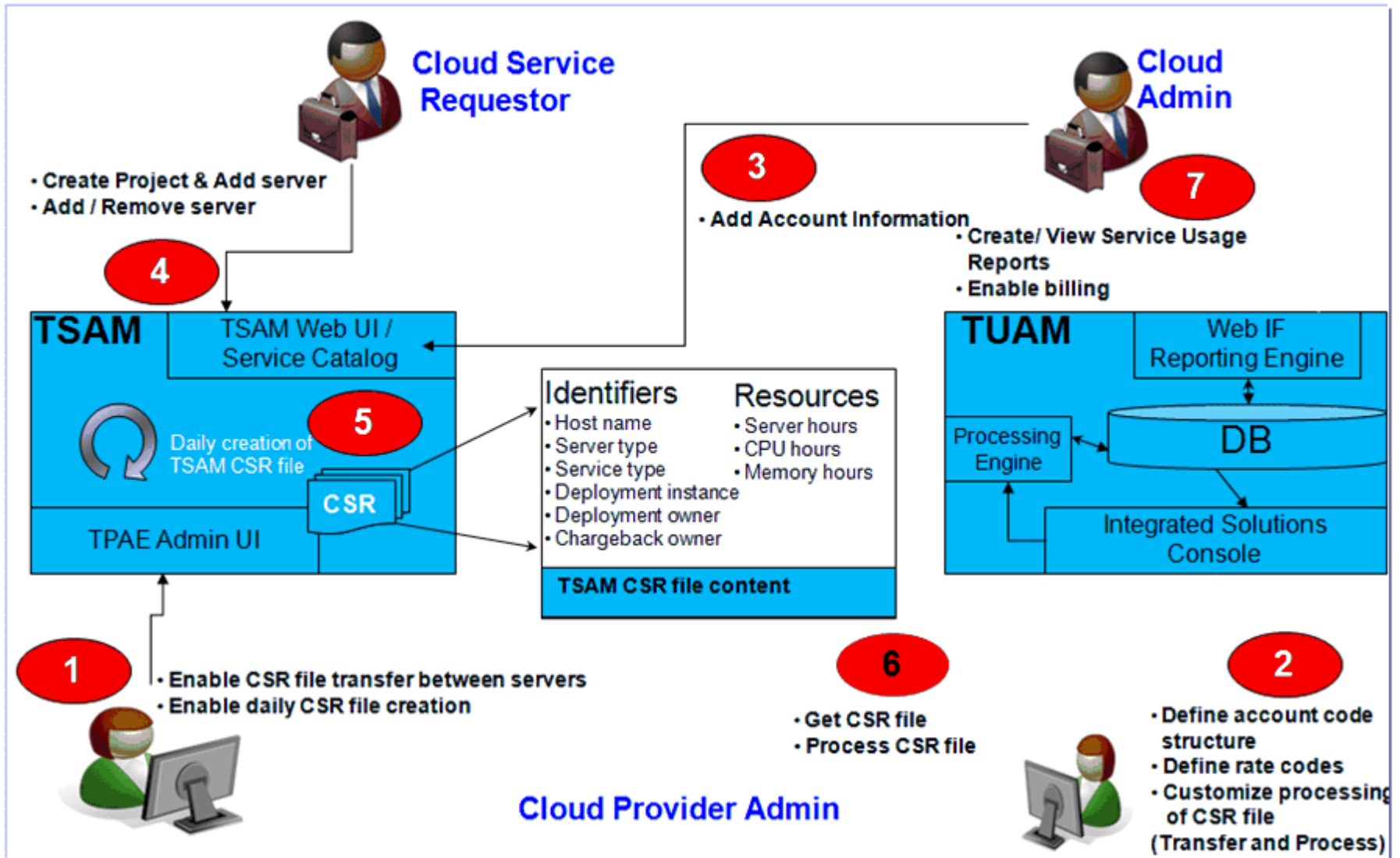
- 监控平台基于：
 - 虚拟主机监控
 - 虚拟客户机监控
 - 服务性能管理
 - 集中事件管理
- 基于IBM Omnibus 来建立集中的监控事件平台，包括存储和网络
- ISDM集成ITM来实现集成的、基本的资源监控展现



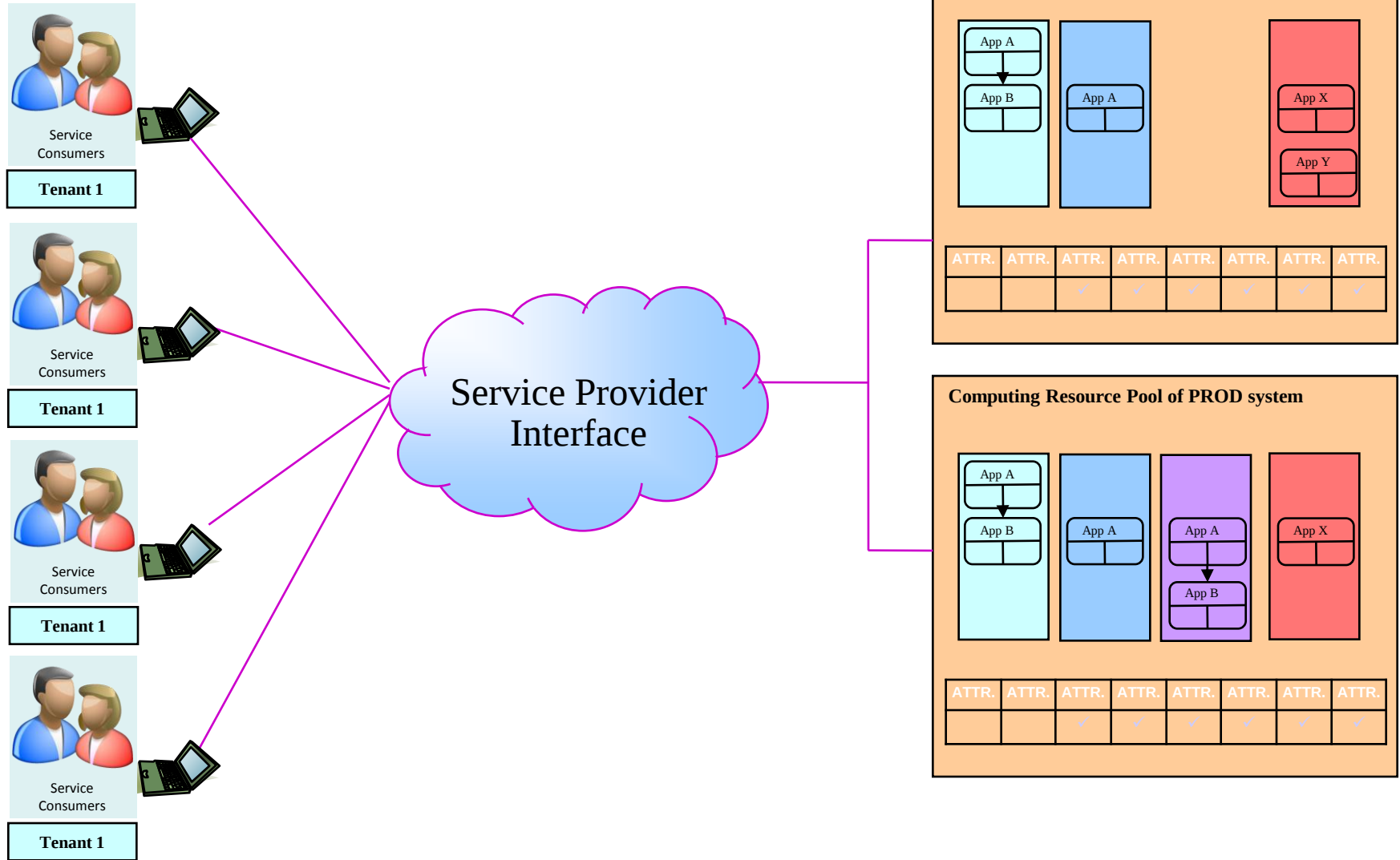
Select	Server Name	Hypervisor	Memory (%)	CPU (%)	Disk (%)	Last Update
☒	BackendlessTestServer0	VMware	91.9	44.0	99.9	0/28/2009

#2: 使用计量和计费

- 基于部门、用户和租户来了解费用、资源占用、通知。

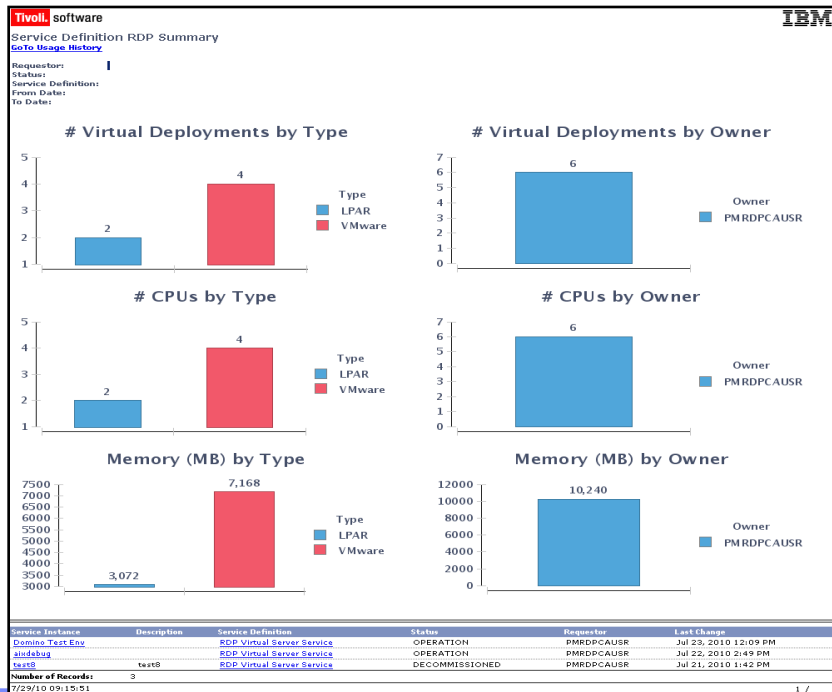


#3: 管理和确保多租户的服务水平



#4 报告

- Tivoli提供统一的报告系统 – Tivoli Common Reporting.
- 从多个数据源生成报告:
 - 服务请求
 - 资源监控
 - 资源使用和配置



Tivoli software **IBM**

What computers are in the data model?

ADX 9L Version: 5.3 Version: 5.3

Computer	Computer ID	Computer Type	Provisioning Group	Compliance Status	Software	Patches
vmv122006014013	9211			No compliant check	Software	Patches
vmv122006014011	9456			No compliant check	Software	Patches

Number of Computers: 2

Red Hat Enterprise Linux AS release 4 (Update 5) Version: 4.0

Computer	Computer ID	Computer Type	Provisioning Group	Compliance Status	Software	Patches
team-pcc	9678			No compliant check	Software	Patches

Number of Computers: 1

Unknown Version: Unknown

Computer	Computer ID	Computer Type	Provisioning Group	Compliance Status	Software	Patches
06-82EDH	8670			No compliant check	Software	Patches
122.8.46.231	7450	VMware		No compliant check	Software	Patches
122.8.46.233	7478	VMware		No compliant check	Software	Patches
122.8.46.243	7450	VMware		No compliant check	Software	Patches
122008046101	7708			No compliant check	Software	Patches
ESX3.5	7937	VMware Cluster		No compliant check	Software	Patches
ESX4.0	7517	VMware Cluster		No compliant check	Software	Patches
VMware Template -- SLES10-SP3-64-Template	7962			No compliant check	Software	Patches
VMware Template -- Win03R2-SP2-32-Template	8463			No compliant check	Software	Patches
ZH-PS70-10p-SN06E2903	8673	LPAR		No compliant check	Software	Patches
ZH-pS5A-38p-SN0682EDH	8651	LPAR		No compliant check	Software	Patches
hmc	8643			No compliant check	Software	Patches
pS5A-38p	8666			No compliant check	Software	Patches
pc-00506445E46	8203			No compliant check	Software	Patches
tempNlcServer	7002			No compliant check	Software	Patches
vain1	8701			No compliant check	Software	Patches
vain2	8708			No compliant check	Software	Patches
vain3	8715			No compliant check	Software	Patches
vain4	8733			No compliant check	Software	Patches
vain5	8746			No compliant check	Software	Patches
vis1	8718			No compliant check	Software	Patches
vis2	8745			No compliant check	Software	Patches
virtualcenter	7015			No compliant check	Software	Patches

Number of Computers: 23

VMware Template -- SLES10-SP3-64-Template Version: unknown

Computer	Computer ID	Computer Type	Provisioning Group	Compliance Status	Software	Patches
vmv122006014013	9500			No compliant check	Software	Patches
vmv122006014013	9543			No compliant check	Software	Patches
vmv122006014014	9881			No compliant check	Software	Patches

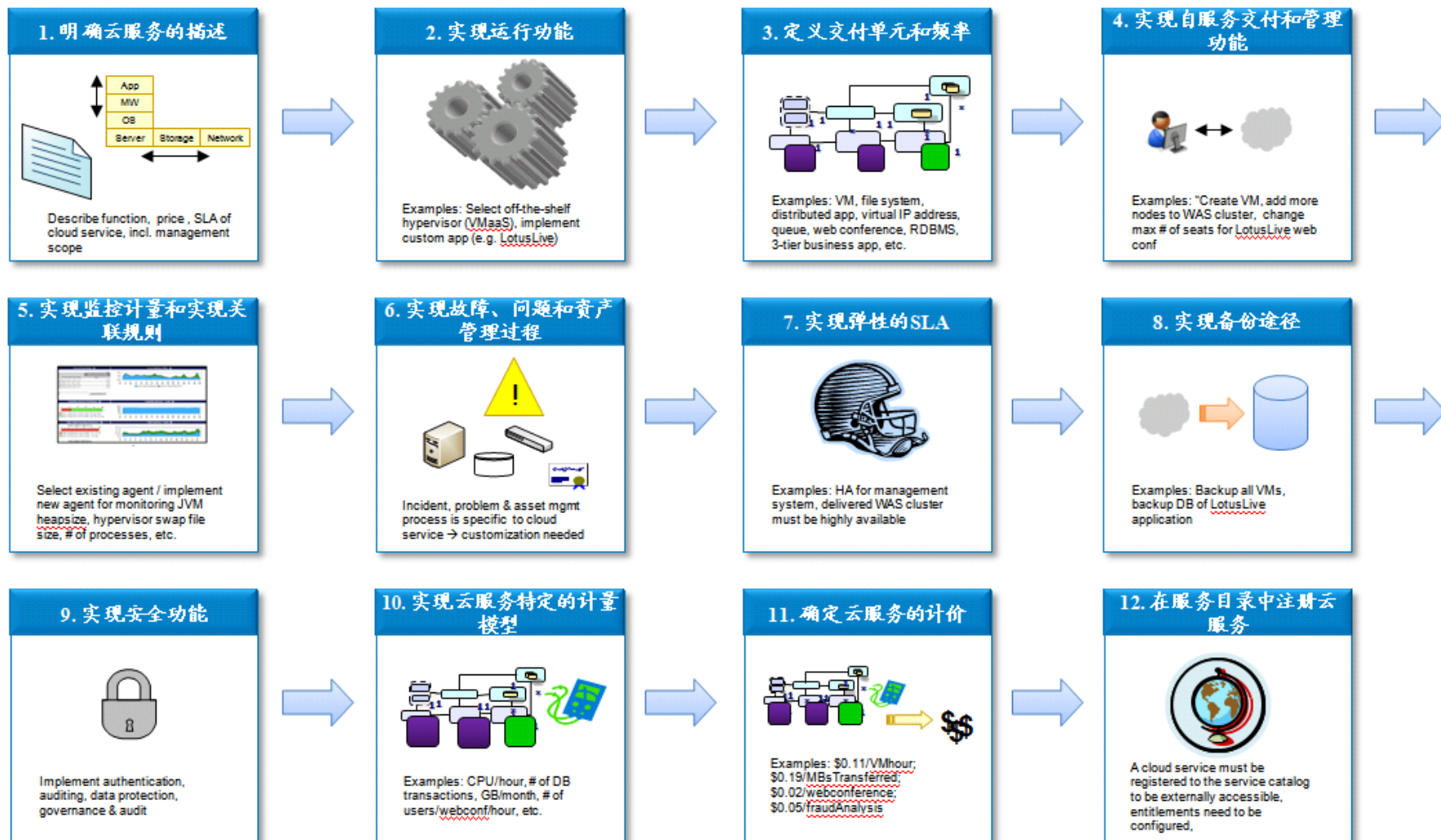
Number of Computers: 3

VMware Template -- Win03R2-SP2-32-Template Version: unknown

Computer	Computer ID	Computer Type	Provisioning Group	Compliance Status	Software	Patches
vmv122006014015	9958			No compliant check	Software	Patches

Number of Computers: 1
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