



# IBM Software Network 2013

## Fare partnership con il Software IBM

Roma, 24 - 25 gennaio 2013

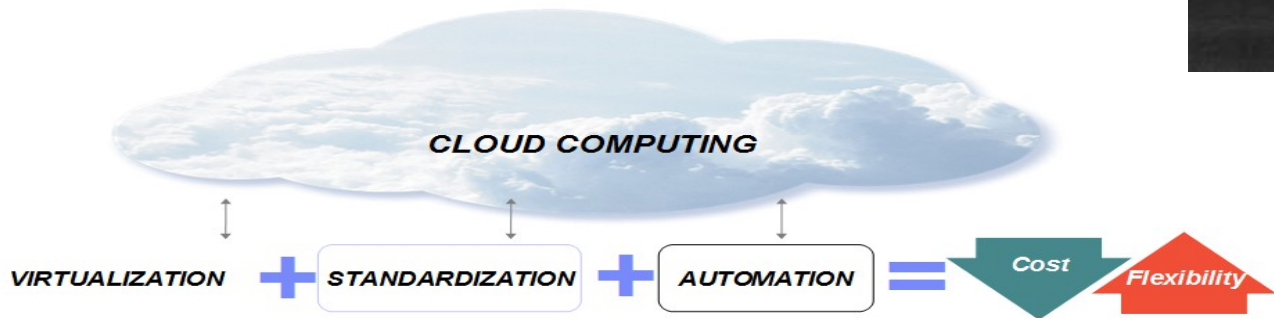
**Guido Schiaffino**  
SmartCloud & Governance:  
la trasformazione  
dell'automazione in  
innovazione



## How will you manage cloud computing?

## Virtualized is not Cloud

- Do you have a service management strategy across your data center, public cloud services, and private cloud?
- What is your governance model?
- What type of quality of service do your customers, suppliers, and customers expect and demand?



# Business Services: Visibility, Control and Automation

SEE  
 your Business



Visibility

MANAGE  
 your Business



Control

IMPROVE  
 your Business



Automation

# SmartCloud Monitoring

A single tool for all physical, Hypervisor, VMs  
predict cloud problems before clients are impacted - provide historical and short-term reporting

**Scorecard Widget**  
Last Update: 10/3/11 12:15 PM

	Datacenter	Cluster	Server	Storage	Network
⊙	Austin	Austin_Prod	⊗	⊗	✓
⊙	RTP_SAPM	Test_Cluster	⚠	⚠	✓
⊙	RTP_SAPM	BladeCenter_Cluster_32bit	⚠	✓	✓
⊙	RTP_SAPM	Development_Cluster	⚠	✓	✓
⊙	RTP_SAPM	BladeCenter_Cluster_64bit	✓	✓	✓
⊙	RTP_SAPM	xSeries_Cluster	✓	✓	✓

6 items

---

**Cluster Architecture View**  
Austin\_Prod

Category	Item	Count
Guests	Windows Guests:	7
	Linux Guests:	5
	Other Guests:	0
	Unknown:	5
Data Stores	Data Stores:	13
	NFS:	6
	VMFS:	7
VMs	VMs:	17
	Powered On:	17
	Running:	14
Physical Storage	SAN Volumes:	0
	NAS Volumes:	24
	Total Volumes:	24
ESX Servers	Servers:	4
	Effective Servers:	4
	Maintenance Mode:	0
Virtual Network	Physical NICs:	8
	Physical NICs Down:	0

---

**Cluster Servers**  
Austin\_Prod

Stacked bar chart showing server status: Unavailable (purple), Maintenance (orange), Effective (yellow), Total (green).

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**Cluster CPU (GHz)**  
Austin\_Prod

Stacked bar chart showing CPU usage: Used (light orange), Effective (orange), Total (green).

---

**Cluster Memory (GB)**  
Austin\_Prod

Stacked bar chart showing memory usage: Allocated (purple), Used (light orange), Effective (orange), Total (green).

---

**Cluster Storage Capacity (GB)**  
Austin\_Prod

Stacked bar chart showing storage capacity usage: Allocated (purple), Used (light orange), Effective (orange), Total (green).

## SmartCloud Monitoring

A single tool for all physical, Hypervisor, VMs  
predict cloud problems before clients are impacted - provide historical and short-term reporting

➤ **Health dashboards** to provide an instant, consolidated glimpse into cloud health.

### Health Dashboards



➤ **What-If** capacity planning scenarios.

### Capacity Assessments



➤ **Performance Analytics** for right-sizing of virtual machines.

➤ **Policy-Based** optimization to put workloads where they'll perform best, not just where they'll fit.

### Integrated Monitoring



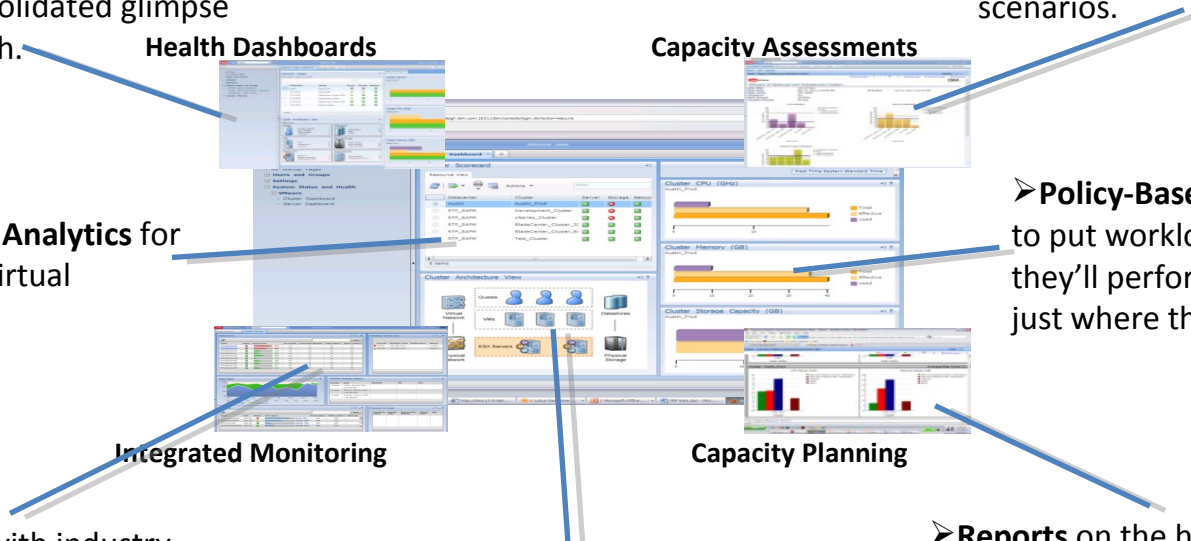
### Capacity Planning



➤ **Integration** with industry-leading Tivoli service management portfolio.

➤ **Topology views** of the key interrelated components of the cloud.

➤ **Reports** on the health trends of cloud components and workloads, powered by Cognos.



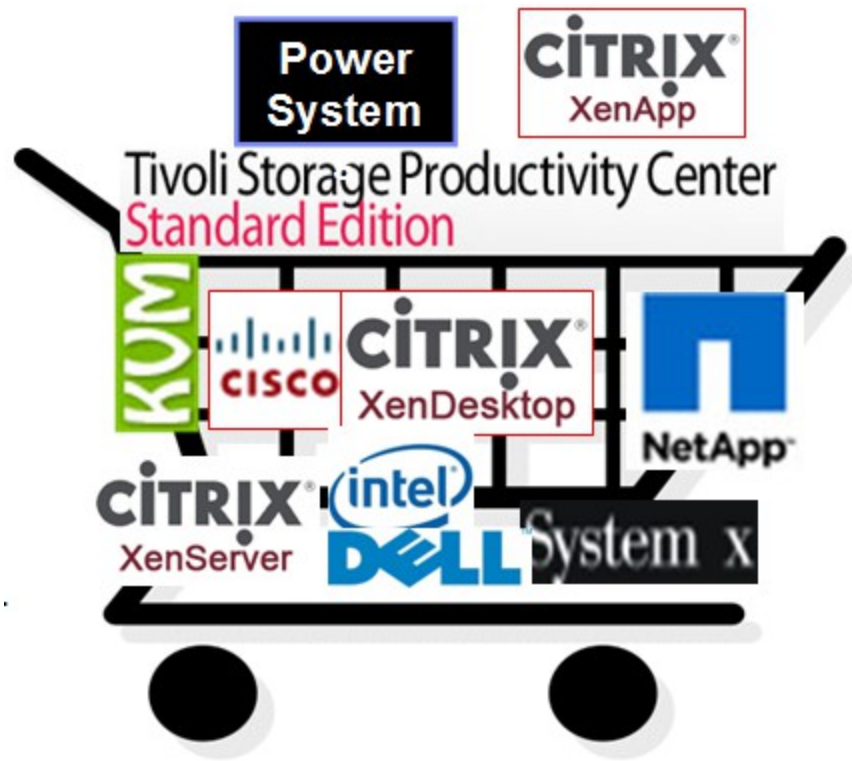
## Monitoring Agents

### ITM for Virtual Environments Today:

- VMware
- KVM
- NetApp
- Network Monitoring Agent
- Citrix XenServer
- Citrix XenApp
- Citrix XenDesktop
- Cisco UCS

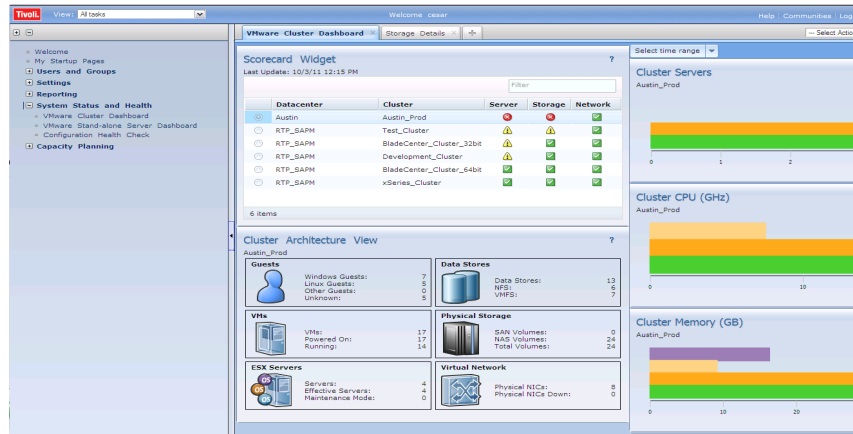
### ITM 6.2.3 OS Monitoring

- Windows, UNIX, Linux, iOS, Agent-less OS Monitoring
- Power Systems
- Log Monitoring
- Agent Builder

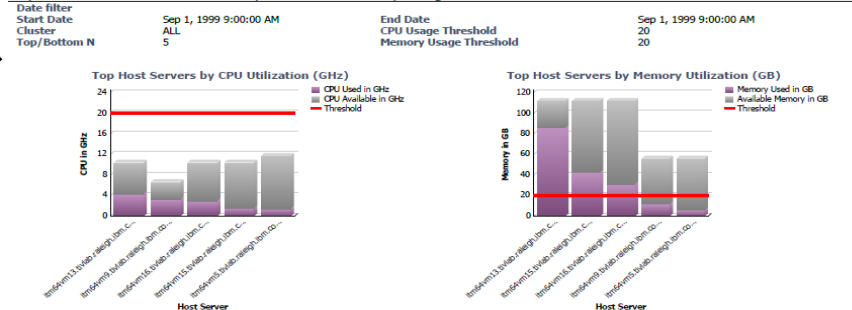


# SmartCloud Monitoring Health Dashboards

- Dashboards with holistic view of health of whole environment
- Out of the box contextual views of health (availability, performance and capacity) in the complete context of the virtual environment to include physical and virtual server, storage and network resources.
- Integrates across our tool set to merge physical & virtual data – TPC, ITNM, ITM, TADDM & ITMfVE
- Views with performance and capacity reports for assessment of environment and long term trend analysis.



Top or Bottom N Host Servers by CPU and Memory Usage



# SmartCloud Monitoring Health Dashboards

Icons represent the highest severity ITM Situation

Click on icon to drill down to detailed page

Graphs on the right represent the selected cluster

Right Click to run reports in context

The screenshot displays the IBM SmartCloud Monitoring Health Dashboard. At the top, there's a navigation bar with 'Welcome cesar', 'Help', 'Communities', and 'Logout'. Below this is a search bar and a 'Filter' input. The main content area features a table with columns for Cluster, Server, Storage, and Network. The 'Austin\_Prod' cluster is selected, and its details are shown in a sidebar on the right. The sidebar includes sections for 'Cluster Arch', 'Guests', 'VMs', 'Physical Storage', 'ESX Servers', and 'Virtual Network'. The 'Cluster CPU (GHz)' and 'Cluster Memory (GB)' graphs are visible, showing 'Used', 'Effective', and 'Total' values. The 'Cluster Storage Capacity (GB)' graph is also present at the bottom right.

Cluster	Server	Storage	Network
Austin_Prod	⊗	⊗	⊗
RTP_SAPM	⚠	⚠	✓
RTP_SAPM	⚠	✓	✓
RTP_SAPM	⚠	✓	✓
RTP_SAPM	✓	✓	✓
RTP_SAPM	✓	✓	✓

Cluster Arch: Austin\_Prod

Guests: 13 (Other: 6, Unknown: 5, VMFS: 7)

VMs: VMs: 17, Powered On: 17, Running: 14

Physical Storage: SAN Volumes: 0, NAS Volumes: 24, Total Volumes: 24

ESX Servers: Servers: 4, Effective Servers: 4, Maintenance Mode: 0

Virtual Network: Physical NICs: 8, Physical NICs Down: 0

Cluster CPU (GHz): Austin\_Prod (Used: ~15, Effective: ~35, Total: ~40)

Cluster Memory (GB): Austin\_Prod (Allocated: ~15, Used: ~10, Effective: ~35, Total: ~40)

Cluster Storage Capacity (GB): Austin\_Prod



## SmartCloud Monitoring Capacity Management: *Why is Capacity Management Important?*

- **Helps consolidate and reduce costs**
  - Reduces HW and labor costs
  - Reduces number of physical servers required to run workloads
  - Reduce number of required licenses
  
- **Helps ensure application availability**
  - Are any resources overloaded? When will physical resources reach their limits?
  - Have there been any significant changes in my environment between two weeks?
  - Ensure supply can meet demand
  - Ensure business policies are met
  
- **Helps optimize resource utilization**
  - Right size virtual machines
  - Identify trends for workload balancing

# See how many new VMs can be hosted based on the resource constraints of the current infrastructure

Tivoli Integrated Portal - Windows Internet Explorer

localhost

View: All tasks

Welcome spadmim

Common Reporting

Work with reports

Viewer - VMware VI Number of Workloads for Clusters or Host Servers

Go

Show more parameters

WORLOAD PLACEMENT FOR CLUSTERS OR HOST SERVERS - USER-DEFINED DEPLOYED VM PROFILE

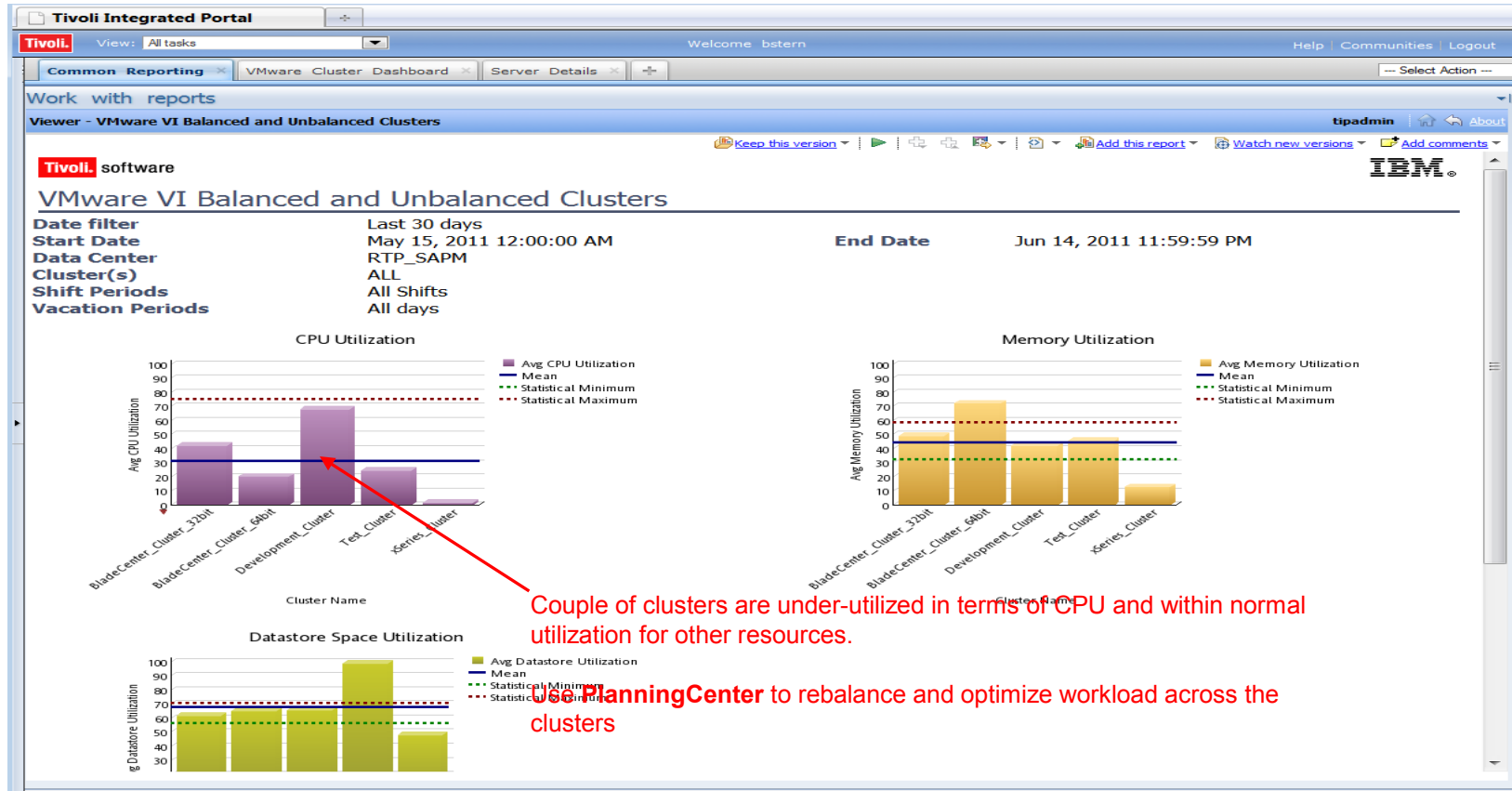
Resource	Cluster Name	Server Name	VM Profile based on user-defined resource used by all VMs on this server	Available Capacity (before applying Buffer)	Buffer	Available Capacity (after applying Buffer)	Number of VMs that can be placed on the server based on User-defined VM Profile
CPU (GHz)	Cluster A	ibm64-vm1.zvlab.nasleigh.ibm.com	2	22,569	2	20,569	11
		ibm64-vm2.zvlab.nasleigh.ibm.com	2	22,969	2	20,969	11
<b>CPU (GHz)</b>							<b>22</b>
Datastore Space Usage (GB)	Cluster A	ibm64-vm1.zvlab.nasleigh.ibm.com	10	128.03	2	126.03	12
		ibm64-vm2.zvlab.nasleigh.ibm.com	10	71.03	2	69.03	7
<b>Datastore Space Usage (GB)</b>							<b>19</b>
Memory Usage (MB)	Cluster A	ibm64-vm1.zvlab.nasleigh.ibm.com	256	5,620.82	1,024	4,596.82	21
		ibm64-vm2.zvlab.nasleigh.ibm.com	256	4,192.21	1,024	3,168.21	16
<b>Memory Usage (MB)</b>							<b>37</b>
<b>Number of VMs that can be added to this cluster or group of servers</b>							<b>19</b>

This report lets the user do what-if analysis to determine the number of additional virtual machines that can be placed on a cluster or group of servers based on the average historical usage and other user inputs. The Server Hostnames are the names of datastores for the Datastore Space Usage(GB) instead of server hostnames. VM Profile is the amount of resources that would be consumed by each Host Server averaged for the Data Center, Cluster and the Host Server chosen. Available Capacity (before applying Buffer) is the amount of resources available on a whole for each Host Server before applying the Buffer value. Buffer is the amount of resources that cannot be allocated. Available Capacity (after applying Buffer) = Available

Storage is a constraint

- From CPU perspective can host up to 22 new VMs
- From RAM perspective can host up to 37 new VMs
- Storage constraints do not allow more than 19 new VMs

# Found Clusters to Balance Load



# SmartCloud Application Performance management

**Tivoli** software

## Resource Dashboard (1)

Back
Edit

### Tivoli Trader - Resource Dashboard

#### Transaction Performance

Response time: 3,334ms

Requests: 248

Percent available:

Percent slow:

Transaction status:

Server status:

Client status:

#### WAS Status - v52540032ac-2

Server status: Connected

Hung threads total: 0

JVM memory used: 172,831Kb

CPU used(%):

Conn pool used(%):

Heap used(%):

GC real time(%):

#### DB Status - v525400caea17

Instance status: Active

BP hit ratio(%): 71%

Max failed SQL stmts(%): 5%

Buffer used(%):

Conn entry used(%):

#### HTTP Status - v5254001a7c4d

Server status: Running

Failed requests rate: 0.012

Server failures rate: 0.113

#### WAS Status - v52540032ac-1

Server status: Connected

Hung threads total: 0

JVM memory used: 172,831Kb

CPU used(%):

Conn pool used(%):

Heap used(%):

GC real time(%):

#### DB Status - v525400a62844

Instance status: InActive/Busy

BP hit ratio(%): 0%

Max failed SQL stmts(%): 0%

Buffer used(%):

#### HTTP Status - v525400684dce

Server status: Running

Failed requests rate: 0.032

Server failures rate: 0.860

#### Channel Status - v525400684dce

Channel status: Normal

Critical errors: 0

Event count: 0

Click each Group Widget to drill down to **Domain Dashboard** for health of the particular resource

# SmartCloud Cost Management

## Cost management capabilities for Providers and their Clients

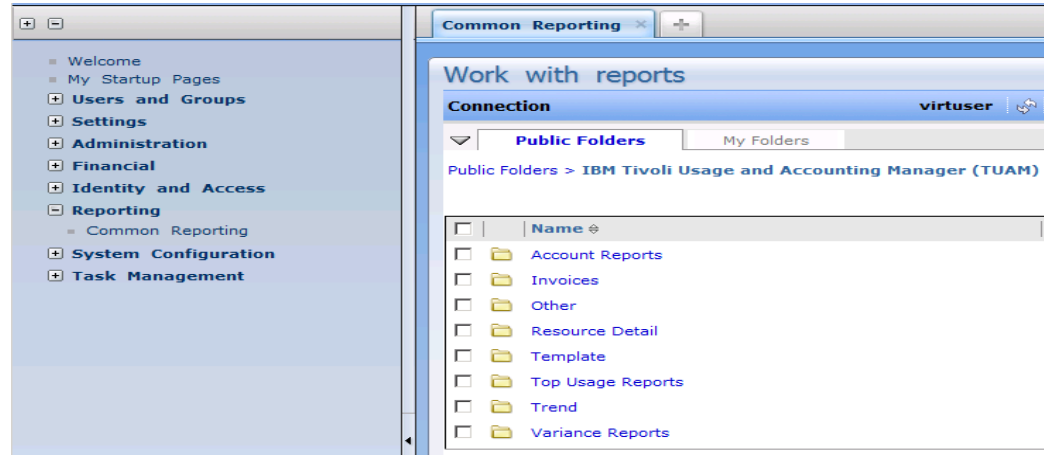
Metering and accounting for projects and servers in self-service environments

### Metering

- **Server hours:** The time a server is allocated to a project (in h)
- **CPU hours:** Time one or more CPUs are allocated to a server (in h)
- **Memory hours:** The time multiplied by MB of memory allocated to a server (in MB h)
- **Storage hours:** The time multiplied by GB of storage allocated to a server (in GB h)

Accounting information for projects can be defined for teams

Collection of metering data can be activated or deactivated by customer



The screenshot displays the IBM SmartCloud Cost Management web interface. On the left is a navigation menu with the following items: Welcome, My Startup Pages, Users and Groups, Settings, Administration, Financial, Identity and Access, Reporting (with a sub-item 'Common Reporting'), System Configuration, and Task Management. The main content area is titled 'Common Reporting' and 'Work with reports'. It shows a breadcrumb path: 'Public Folders > IBM Tivoli Usage and Accounting Manager (TUAM)'. Below this, there is a list of folders for reporting, each with a checkbox and a folder icon:

<input type="checkbox"/>	Name
<input type="checkbox"/>	Account Reports
<input type="checkbox"/>	Invoices
<input type="checkbox"/>	Other
<input type="checkbox"/>	Resource Detail
<input type="checkbox"/>	Template
<input type="checkbox"/>	Top Usage Reports
<input type="checkbox"/>	Trend
<input type="checkbox"/>	Variance Reports



# Why the Future of Cloud is Hybrid?

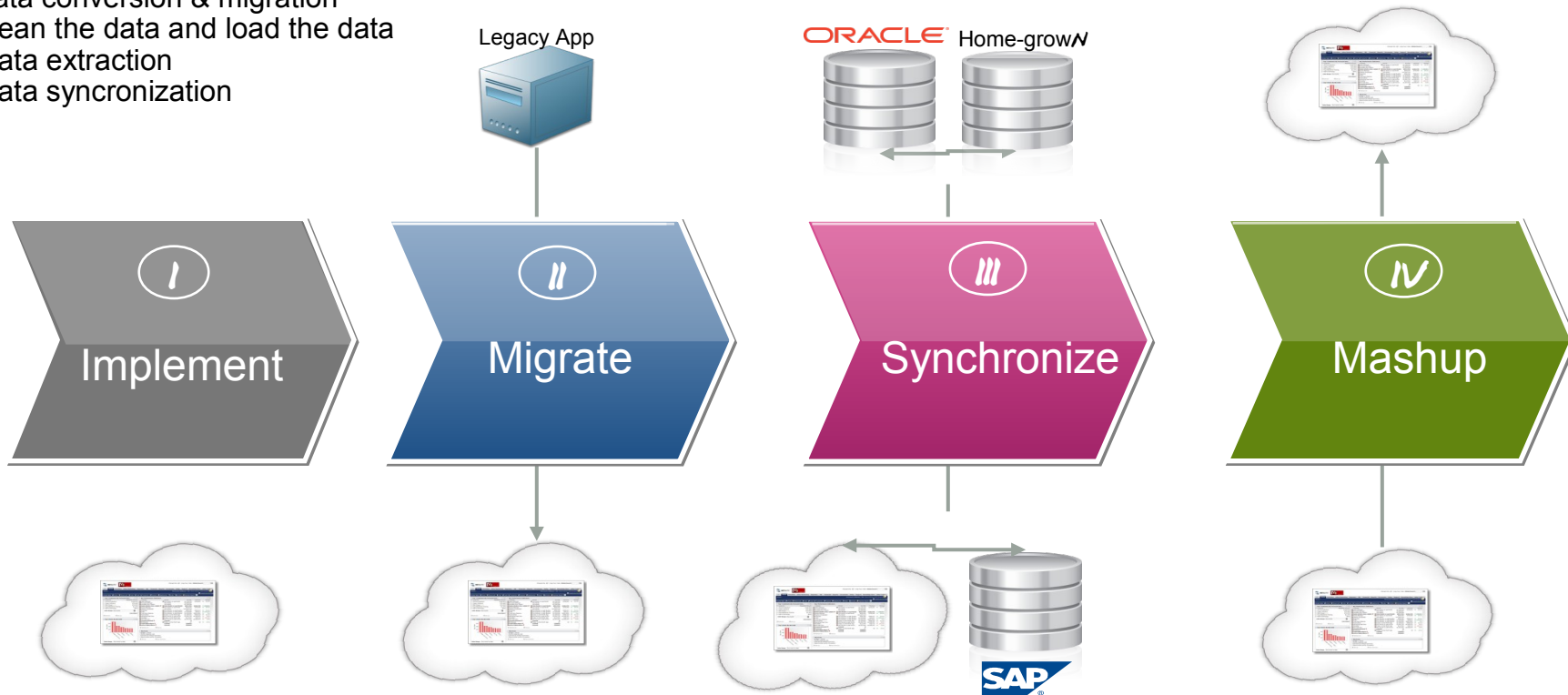
## Customer Challenge



- Developers and Line-of-Business owners increasingly turn to cloud services (SaaS, IaaS) to meet their resource needs
- **Impact:**
  - IT loses its centralized view and control of all owned resources, unaware of overall costs and data relocation
  - Company data and resources may not be properly handled or safeguarded, putting business and reputation at risk

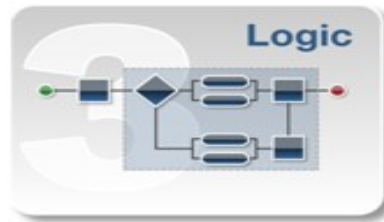
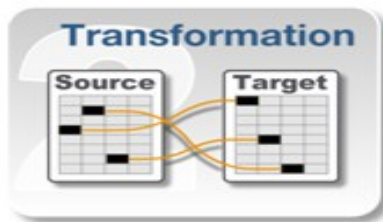
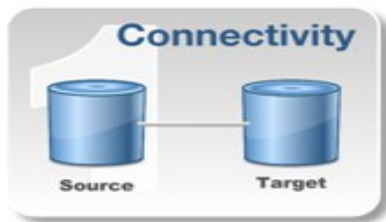
# Comprehensive Cloud Integration Capabilities for Rapid Success

- data conversion & migration
- clean the data and load the data
- Data extraction
- Data synchronization





## 4 main steps to data integration



# Websphere Cast Iron Cloud Integration Solution Overview

## Integration-as-a-Service



WebSphere Cast Iron Live

## Integration on Premise



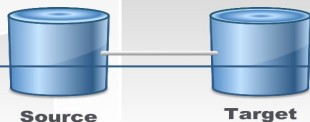
WebSphere Data Power Cast Iron XH40



WebSphere Cast Iron Hypervisor Edition

## What Our Integration Solution Does

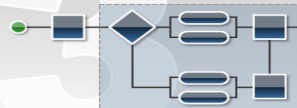
### Connectivity



### Transformation



### Logic

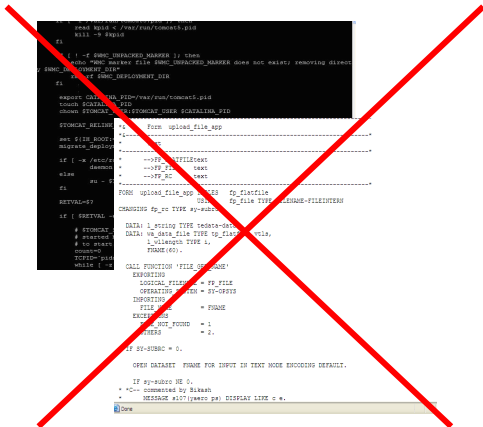


### Management

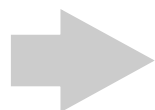
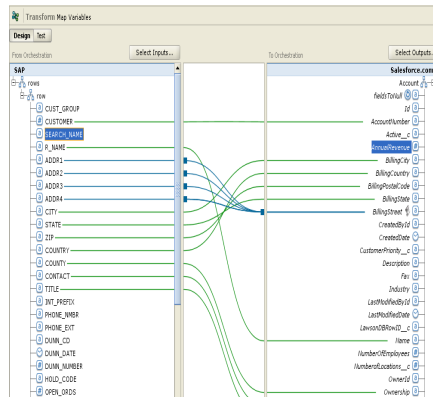


# Simple: "configuration, not coding" Approach

## No Coding



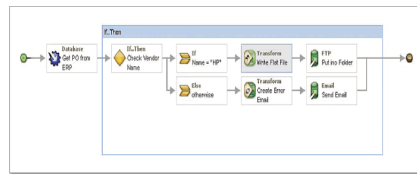
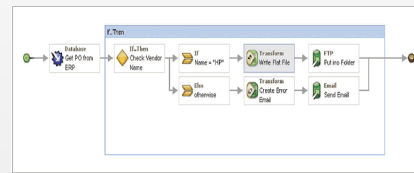
## Beyond Configuration



## Preconfigured Templates (TIPs)

### Configuration

1. Introduction
2. Oracle Table Creation
3. Edit Configuration Properties
4. Verify Oracle connectivity
5. Update the Oracle Table Information
6. Map the Database fields
7. Sample Input Data
8. Verify Integration



## Library of Template Integration Processes = Best Practices



CAST IRON CLOUD™

User: cpattabhiram@castiron.com [log out](#)

Template Processes

Integration Manager

Browse the Cast Iron repository of Template Integration Processes (TIPs) and Packaged Integration Processes (PIPs).

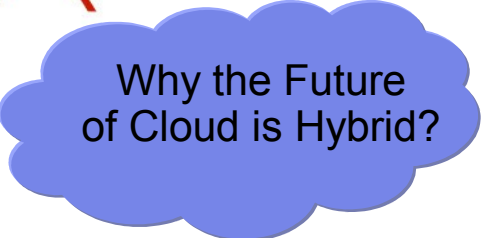
salesforce

Search

 Advanced

Category	Name	Source	Target	Version
USECASES	<b>T0081 - NetSuite Customers to salesforce.com Accounts</b>	NetSuite	salesforce.com	1.0
USECASES	<b>T0053 - Salesforce Opportunities To SAP Sales Orders</b>	salesforce.com	SAP	1.0
USECASES	<b>T0044 - Salesforce Accounts to Microsoft CRM</b>	salesforce.com	Microsoft CRM	1.0
USECASES	<b>T0043 - Microsoft CRM Accounts to salesforce.com</b>	MSCRM	salesforce.com	1.0
USECASES	<b>T0032 - SQL Server Account to Salesforce Account</b>	SQL Server	salesforce.com	1.0
USECASES	<b>T0054 - Salesforce Opportunity to NetSuite Account</b>	Salesforce.com	NetSuite	1.0
USECASES	<b>T0066 - Netsuite Inventory Items to Salesforce Products</b>	HTTP	NetSuite	1.0
USECASES	<b>T0007 - RightNow Organizations to Salesforce Accounts</b>	RightNow	salesforce.com	1.0
USECASES	<b>T0003 - Salesforce Accounts To SAP Customers (Get Updated)</b>	salesforce.com	SAP	1.0
USECASES	<b>T0100 - Synchronize Customers from SAP to Salesforce.com</b>	SAP	Salesforce.com	1.3
USECASES	<b>T0031 - Post an XML file to salesforce.com Account</b>	XML File (HTTP)	Salesforce.com	1.0
USECASES	<b>T0005 - Salesforce to RightNow Contact Sync</b>	Salesforce.com	RightNow	1.0
USECASES	<b>T0004 - Salesforce Accounts to Netsuite Customer Synchronization</b>	Salesforce.com	NetSuite	1.0
USECASES	<b>T0006 - Synchronize Accounts between NetSuite and Salesforce.com</b>	NetSuite	Salesforce.com	1.0
USECASES	<b>T0042 - Attach PDF File to a Salesforce.com Account</b>	PDF File (FTP)	Salesforce.com	1.0
USECASES	<b>T0040 - Pick Up a CSV File and Load it into Salesforce.com</b>	CSV File (FTP)	Salesforce.com	1.0

▼ Details



## Why the Future of Cloud is Hybrid?

### Hybrid model helps you ...

- Offer the flexibility of the public cloud and the accountability of private cloud
  - Leveraging elasticity on demand (ex: seasonal peaks)
  - Controlling, securing, backing up data locally
  - Help client balancing level of autonomy and privacy
- Ease adoption of public cloud
  - Maintain data locally and processing in the cloud
  - Require less CAPEX

### ... but raises the bar for service management

- How to manage private and hybrid cloud configurations seamlessly?
- Which cloud computing reference architecture to rely on?
- Are automated tools and best practices available?

## IBM Hybrid Cloud Solution – Core features

Application Data Integration	Ability to access public application data using the out-of-box capability of the WebSphere Cast Iron appliance
Resources provisioning	Ability to request and provision IBM SmartCloud Enterprise and Amazon EC2 hybrid resources through Tivoli Service Automation Manager GUI
Workload governance and management	Workload resources can be automatically balanced based on the dynamics of the system load. Resource Overflow and Underutilization thresholds on Event Correlation Service on Impact, TivSAM rules on ILOG BRMS*, and TSAM escalations and actions
Monitoring integration	Unified resource monitoring for off-premise resources in IBM SmartCloud Enterprise and Amazon EC2 through Tivoli Enterprise Monitoring Server. Integrated monitoring dashboard creates a single pane of glass for monitoring of off-premise resources
User Directory Synchronization	Unified user management between on-premise user directory and Lotus Live

## Tivoli Service Automation Manager

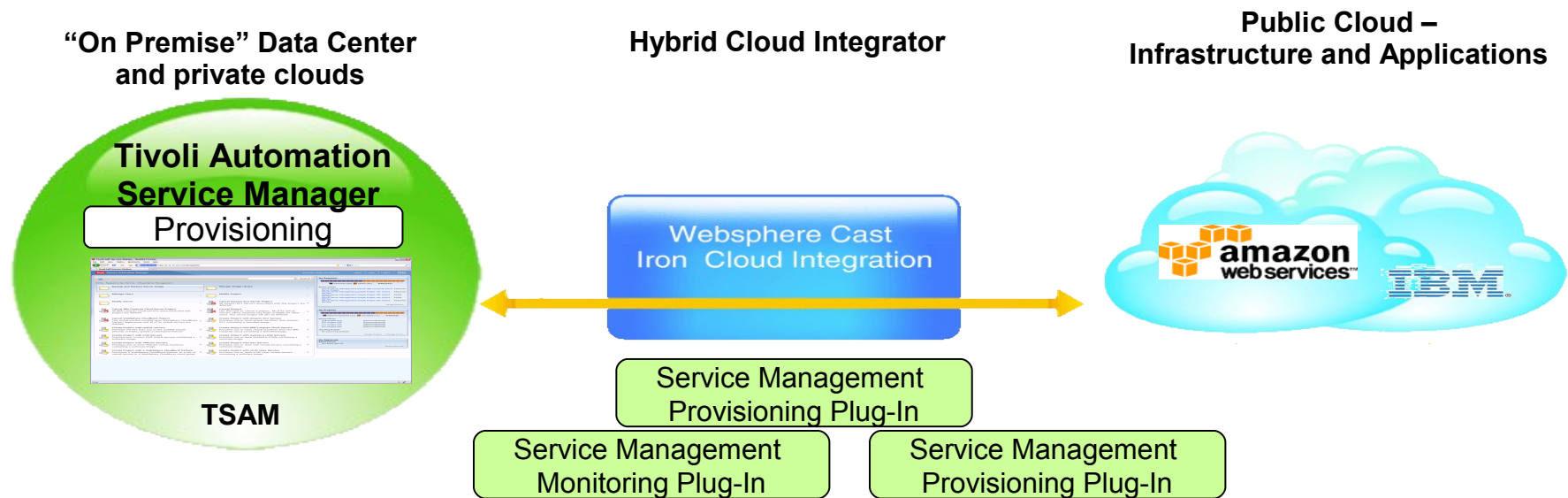
# Provides the software capabilities to request, fulfill, and manage cloud and virtualization services

- Simplifies user interaction with IT
  - User friendly **self-service interface** accelerates time to value
  - **Service catalog** enables standards to drive consistent service delivery
- Delivers provisioning to enable automation to lower cost
  - **Automated provisioning** and de-provisioning speeds service delivery
  - Provisioning **policies** allow release and reuse of assets
- Integrates with key offerings to deliver advanced capabilities
  - Included with **IBM CloudBurst**
  - Integrated with **WebSphere CloudBurst Appliance**
  - Integrated with **Tivoli Usage and Accounting Mgr**



# IBM Hybrid cloud solution: Provisioning using Tivoli Automation Service Manager and Websphere Cast Iron Cloud Integration

Client wants to begin provisioning off-premise resources using their existing on-premise service automation installation:



**IBM Value:** Client extends service request automation into their off-premise “cloud” infrastructure using the same TSAM service automation management solution as those on premise.



# enabled by Federated Service Catalog

The screenshot displays the Tivoli Self Service Station interface in a Mozilla Firefox browser window. The main content area is titled "Request a New Service - Virtual Server Management" and lists various service options. A red box labeled "Public" highlights the "Create Project with Amazon EC2 Servers" and "Create Project with IBM Compute Cloud Servers" options. A green box labeled "Private" highlights the "Create Project with VMware Servers" and "Create Project with Xen Servers" options. On the right side, there are three activity dashboards: "My Requests" (64 Resolved, 63 Failed, Total 127), "My Projects" (21 Decommissioned, 11 Canceled, Total 32), and "My Approvals" (No recent activity).

**Public**

- Create Project with Amazon EC2 Servers
- Create Project with IBM Compute Cloud Servers

**Private**

- Create Project with VMware Servers
- Create Project with Xen Servers

**My Requests**

Resolved (64) Failed (63) Total (127)

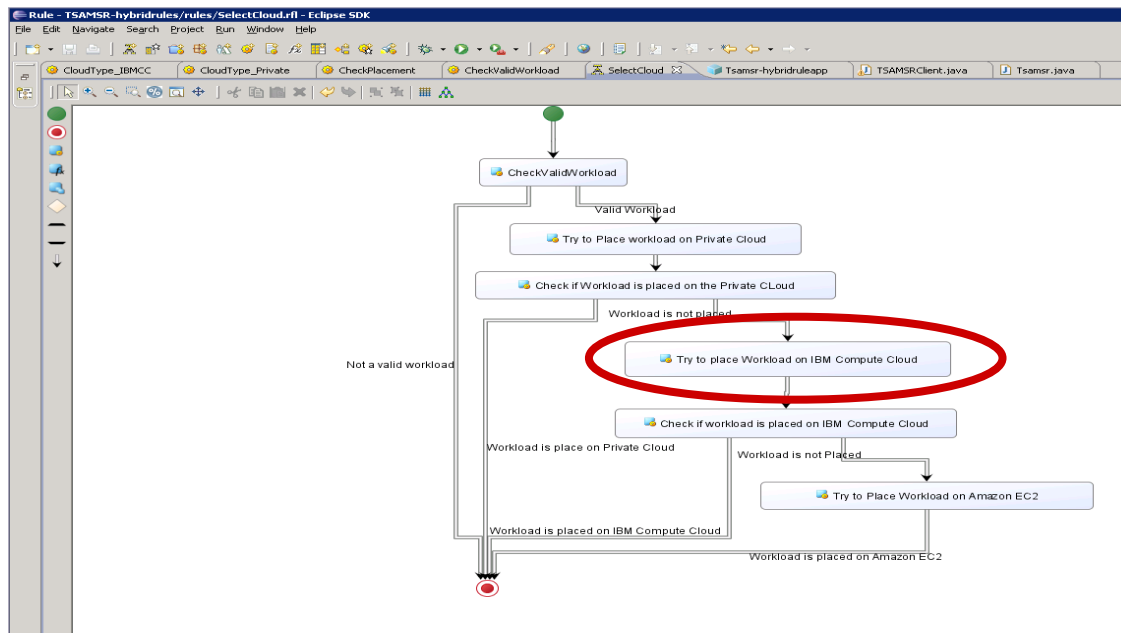
**My Projects**

Decommissioned (21) Canceled (11) Total (32)

**My Approvals**

No recent activity

... enables policy-based provisioning



*IF*

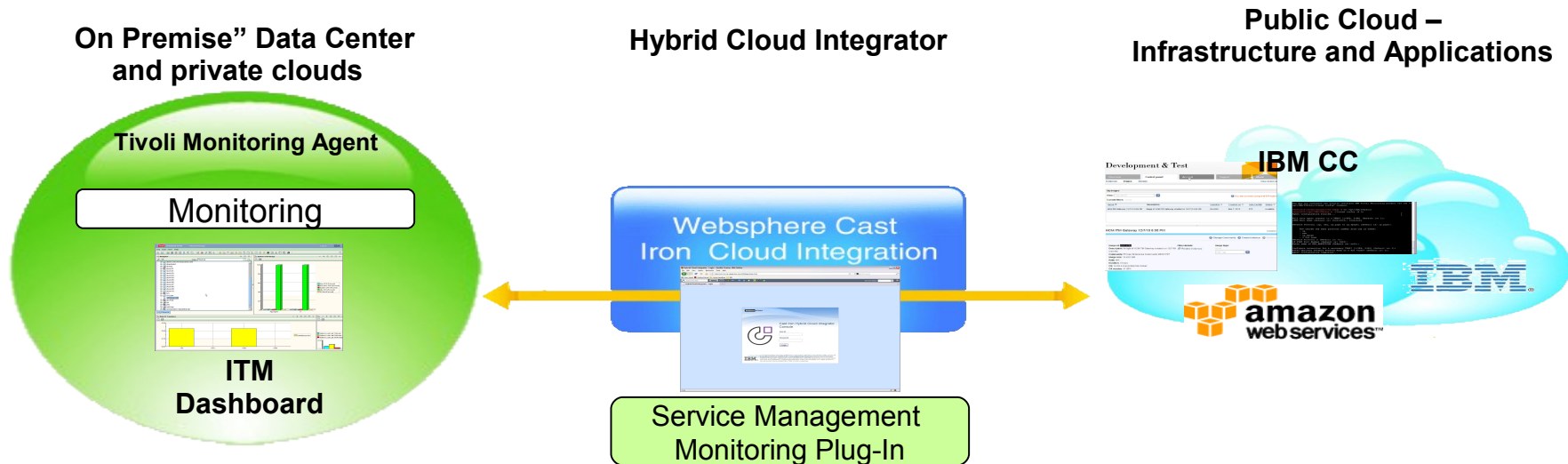
PMRDPCLCPR WORKLOADTYPE of 'the Service Request' contains 'Linux OS for Test'

*THEN*

set the PMRDPCLCPR PLACEMENT of 'the Service Request' to 'IBM SCE';

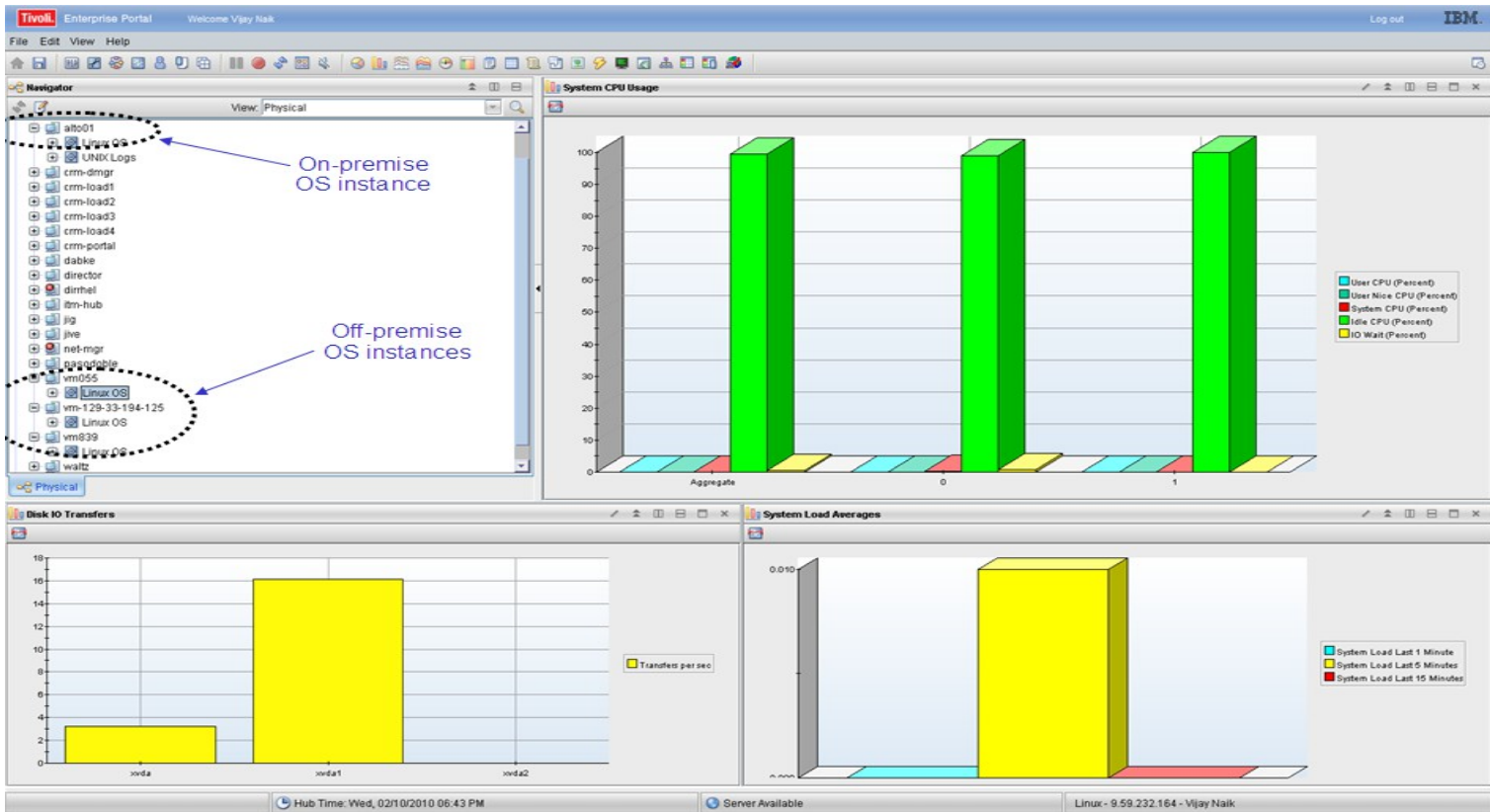
## IBM Hybrid cloud solution : Monitoring using Tivoli Monitoring agents

Client wants to begin monitoring off-premise resources using their existing on-premise monitoring installation:



**IBM Value:** Client gains visibility into their off-premise “cloud” infrastructure using the same ITM monitoring solution as those on premise.

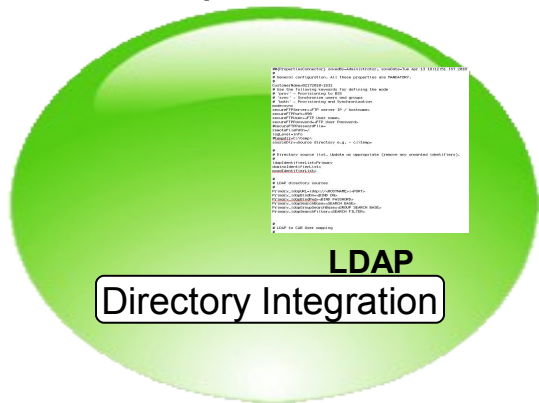
# ... enables Unified Workload Monitoring



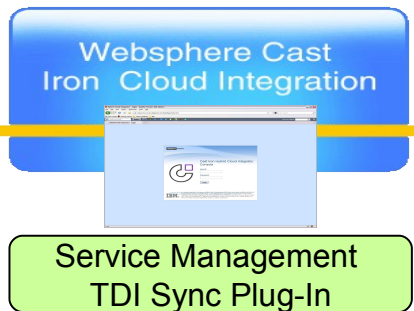
# IBM Hybrid cloud solution : Directory Integration

Client wants to manage access to off-premise resources and data using the user directory maintained on premise:

**“On Premise” Data Center and private clouds**



**Hybrid Cloud Integrator**



**Public Cloud – Infrastructure and Applications**

