

IBM SolutionsConnect 2013

Turning Opportunity into Outcomes.



Cloud and Virtualization Management

Evolve your virtual environment to a business ready cloud with IBM OpenStack based SmartCloud software solutions

Marcel Karman

Service Management Solution Architect

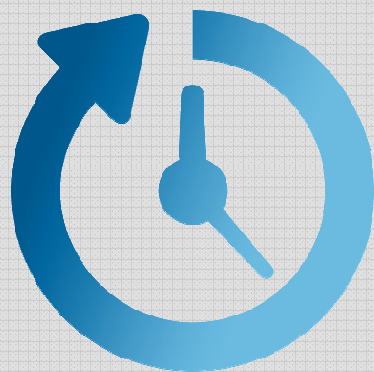
 @karmanmm



Interesting Statistics

34% of new IT Projects

deploy late

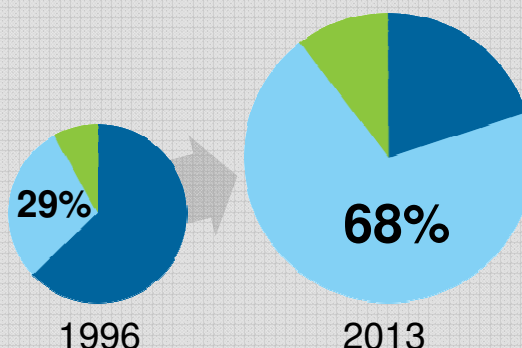


Accelerate new business solutions
to improve time to value

From a commissioned study conducted by Forrester Consulting on behalf of IBM

68% of IT

operating costs in 2013 will be for **management and administration**



Improve IT efficiency
to lower costs

- New server spending
- Power & cooling costs
- Server mgmt & admin costs

* IDC; Converged Systems: End-User Survey Results presentation; September 2012; Doc #236966

90% plan to implement cloud

by 2015

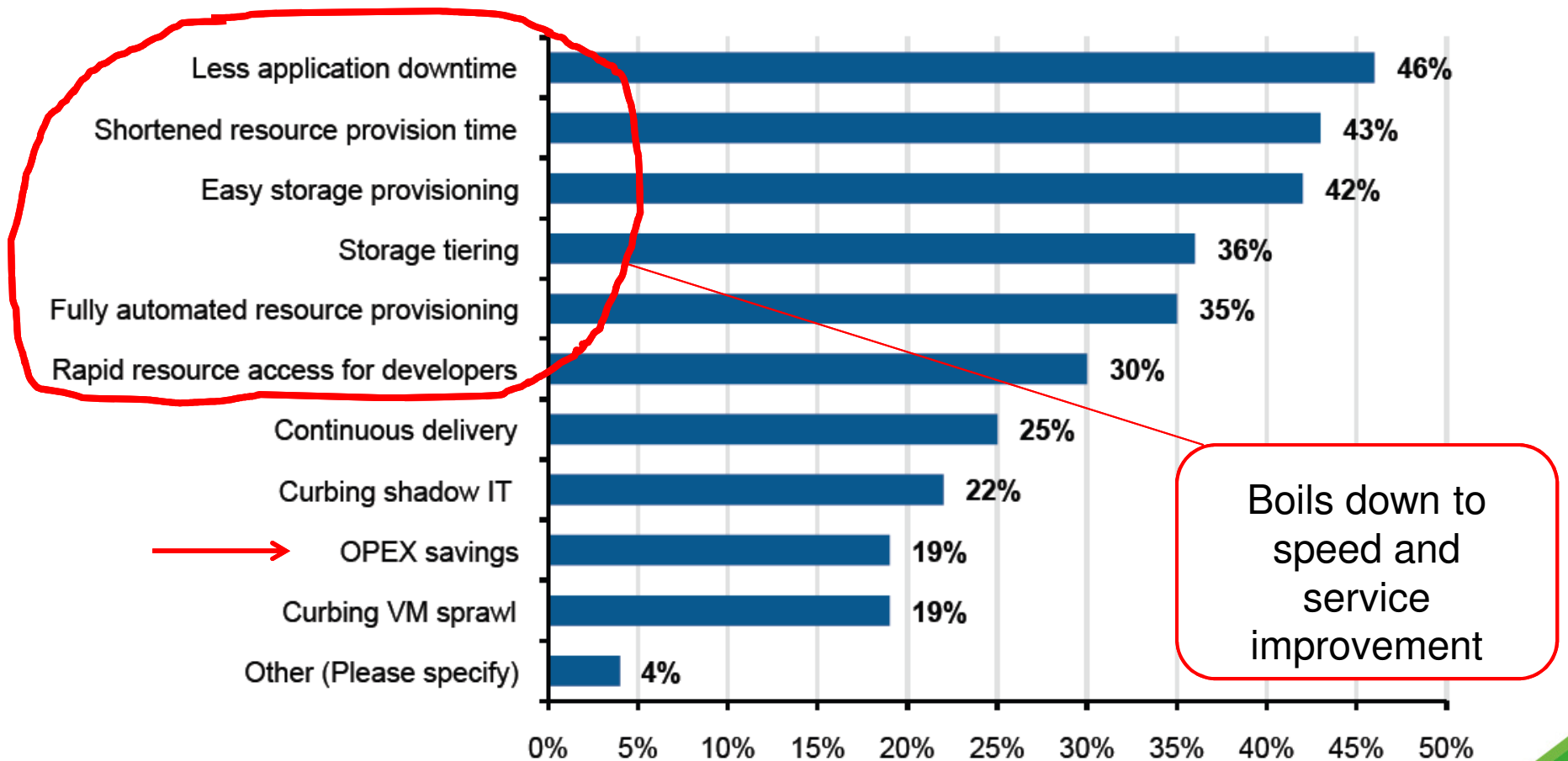


Simplify cloud transformations
for agility and cost effectiveness

* IBM GBS 2011 IBV Study, "The power of cloud: driving business model innovation"

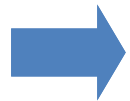
What we are hearing

What were the key strategic goals of your private cloud?



n = 2130 Respondents (EMA, IDC 2012 converged cloud study)

Agenda

- 
- What is OpenStack and who uses it?
 - SmartCloud Provisioning and Orchestration
 - Management of the cloud environment
 - Q&A

The OpenStack Goal

“Our goal is to produce the ubiquitous Open Source cloud computing platform that will meet the needs of public and private cloud providers regardless of size, by being simple to implement and massively scalable.”

- Open Source (Apache 2.0 license)
- “Linux of the datacentre”, avoid vendor lock-in, maintain workload portability
- Build a great engine, packagers will build a great car (think Linux vs RHEL/SUSW)





OpenStack Foundation: Exponential Ecosystem Growth



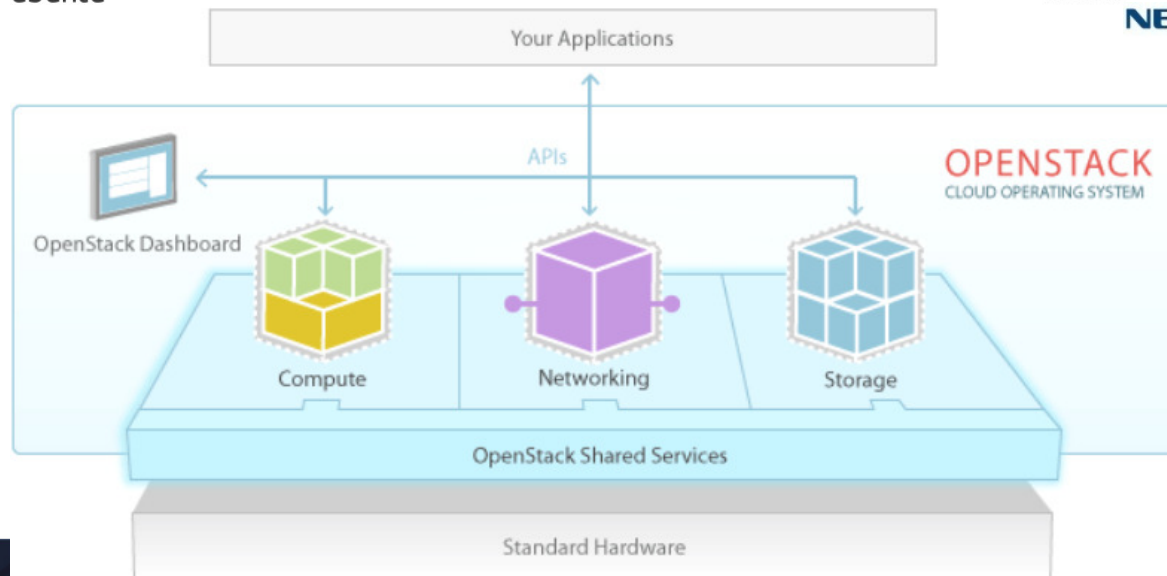
OpenStack is a global collaboration of developers & cloud computing technologists working to produce an **ubiquitous Infrastructure as a Service (IaaS) open source** cloud computing platform for public & private clouds.

Platinum Sponsors



| APR 2012 | Exponential growth in 1 YR | | APR 2013 |
|------------------|----------------------------|--|-------------------|
| 150 Contributors | | | 859 Contributors |
| 2600 Individuals | | | 8900+ Individuals |

Gold Sponsors





PayPal Uses OpenStack



- Processed more than \$26,000 in mobile payments every minute in 2012
- OpenStack runs thousands of VMs to support their self-service developer model
- Internal team manages deployment and operations, using OpenStack Compute, Storage & Shared Services

“We needed agility without sacrificing availability. By leveraging the collective innovation of the OpenStack community, we can develop and grow our private cloud much quicker without having to reinvent anything.”

Saran Mandair, senior director of PayPal infrastructure engineering



Original URL: http://www.theregister.co.uk/2013/03/28/paypal_openstack/

Paypal struggles free of VMware lock-in, goes with OpenStack

Deed heads its need for speed

By [Gavin Clarke](#)

Posted in [Cloud](#), 28th March 2013 10:59 GMT





NSA Uses OpenStack



NSA Secrets Revealed...

Nathanael Burton
Senior VP &
General Manager CIO, NSA

[[REDACTED]]

- Number of users: [REDACTED]
- Number of systems: [REDACTED]
- Number of servers: [REDACTED]
- Storage capacity: [REDACTED]
- Applications used: [REDACTED]
- Favorite color: [Blue]

openstack
summit

Organizations have a choice to make...

Open Source Only



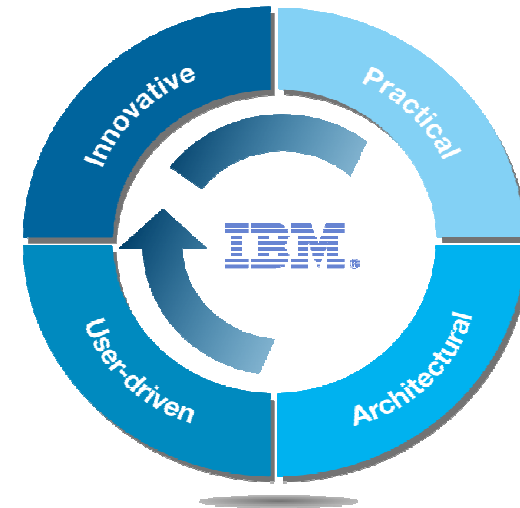
*'Some Assembly
Required'*

Proprietary



*Vendor Lock-in
Assured*

Open "Plus"



*Enterprise-ready
out of the box*

Agenda

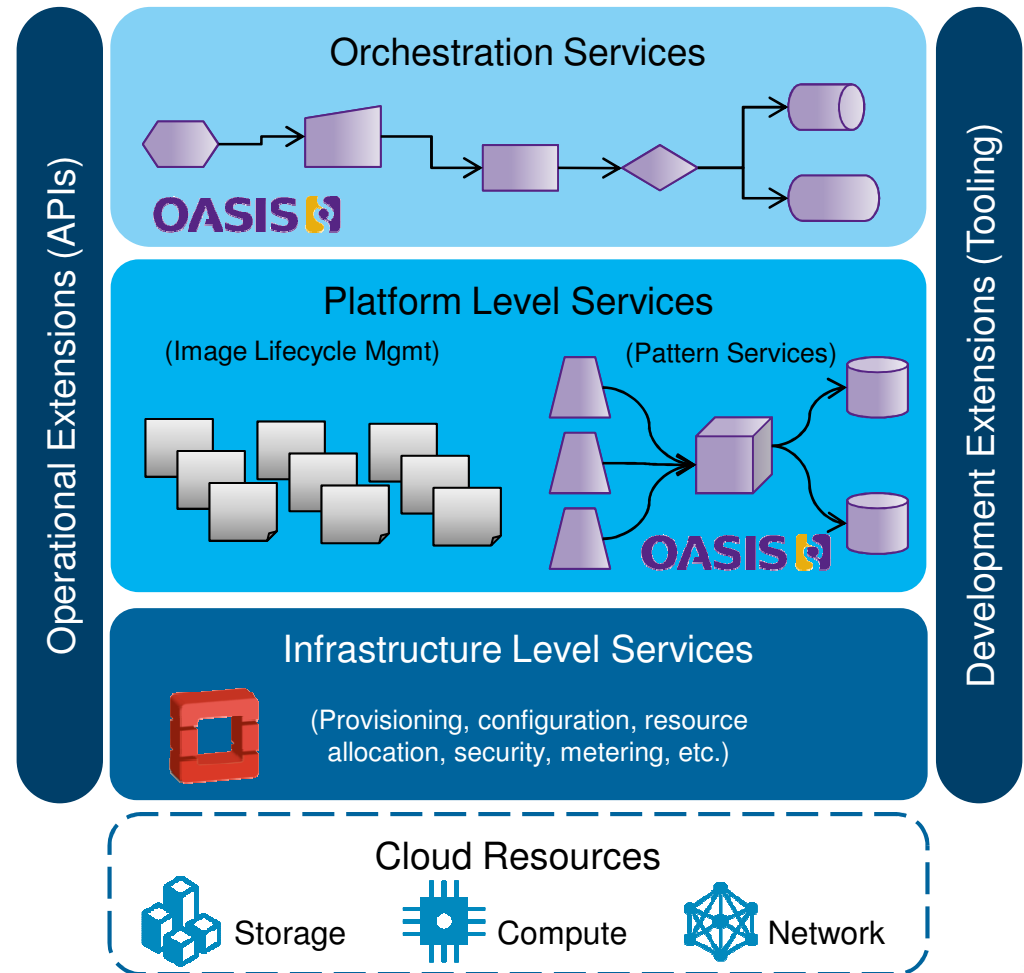
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- ➔ • SmartCloud Provisioning and Orchestration
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Capabilities of IBM's common cloud management services



Infrastructure Services:

- Highly flexible, scalable infrastructure on heterogeneous resources
- Built on OpenStack



Capabilities of IBM's common cloud management services

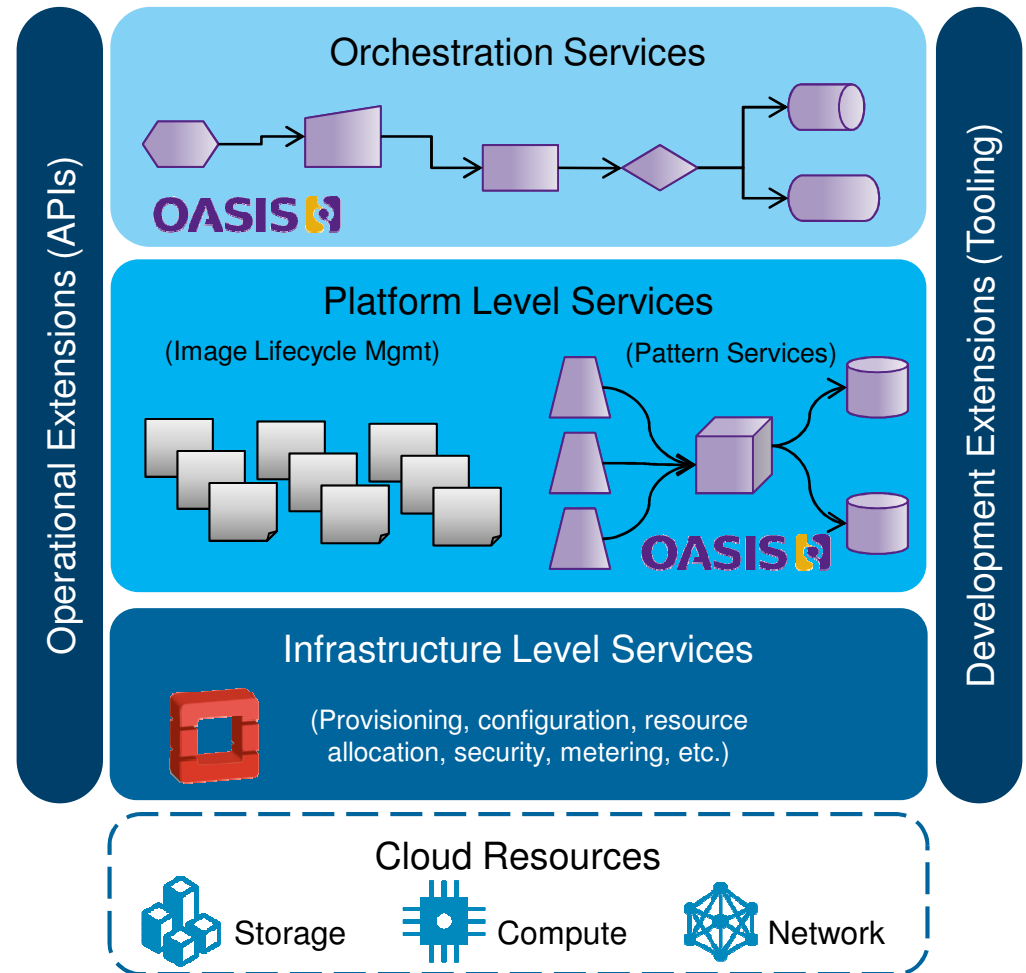


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Platform Services:

- Simplifies deployment and lifecycle management of middleware and application patterns
- Supports TOSCA from OASIS



Capabilities of IBM's common cloud management services



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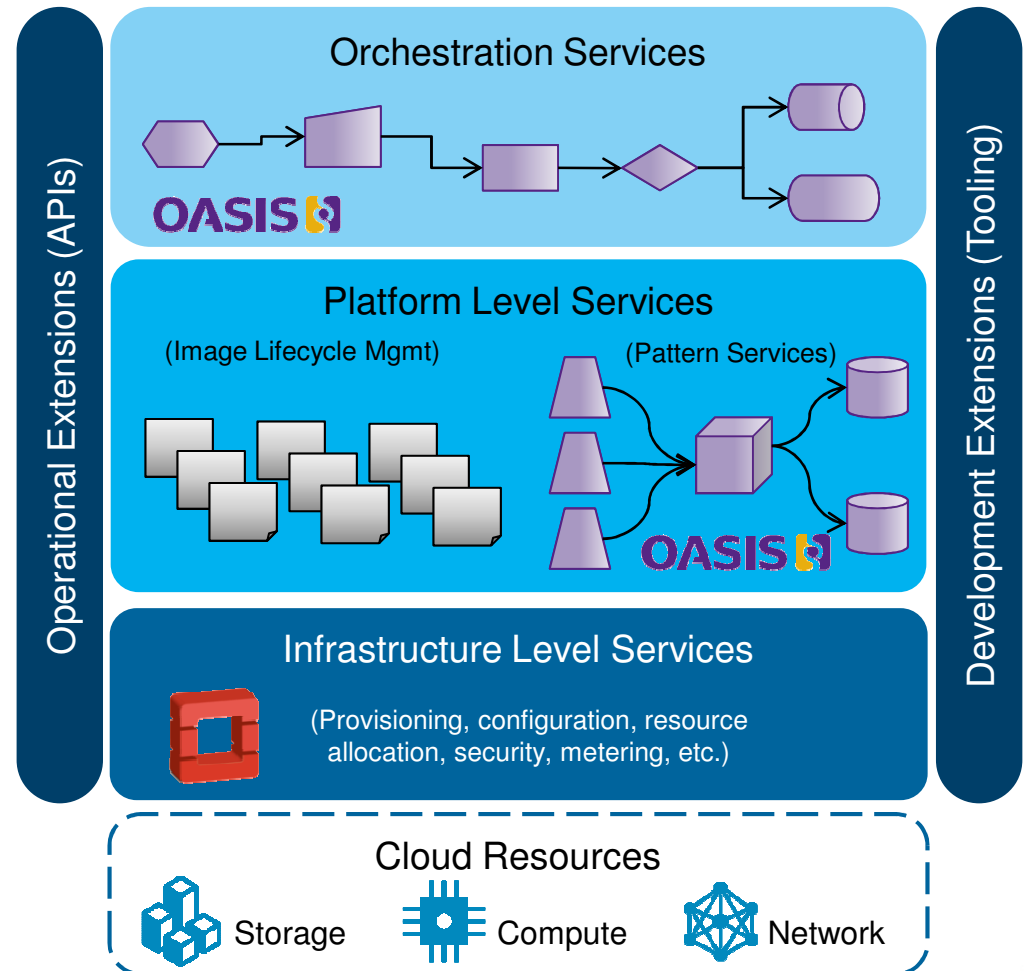
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Orchestration Services:

- Eases coordination of complex tasks and workflows, leveraging existing skills, processes and technology artifacts
- Supports OSLC from OASIS



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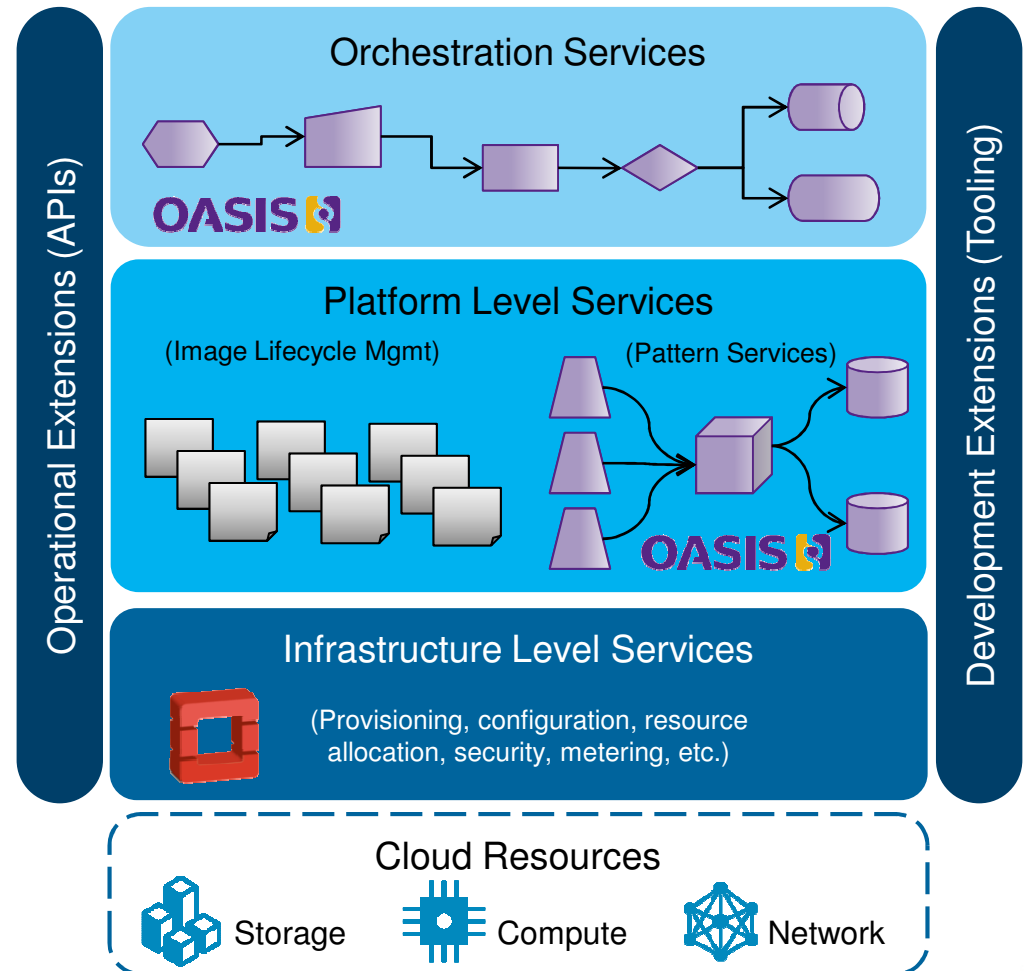
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Extensibility:

- Plug and play operational service management integration
- Rational development tooling integration
- Pre-built images, patterns, process / configuration automation





IBM SmartCloud Foundations & OpenStack

Supporting an evolutionary approach

- **Simple 3 tier structure**, with increased Client Value at each tier
- Using **open, common, standards based architecture** providing choice, flexibility, interoperability, portability
- **Clean upgrade paths with progression** to fully integrated and factory optimized PureApplication System
- **Significant customer benefits above and beyond base OpenStack**

Related Standards & Organizations

SmartCloud Orchestrator

Orchestrate Services across multiple environments and domains

Key

- Common Cloud Stack
- Factory Integrated
- Bundle Option

SmartCloud Provisioning
Automate Optimized Workloads

SmartCloud Entry
Automate IT Delivery

Customer integrated hardware

SmartCloud Provisioning
Automate Optimized Workloads

SmartCloud Entry
Automate IT Delivery

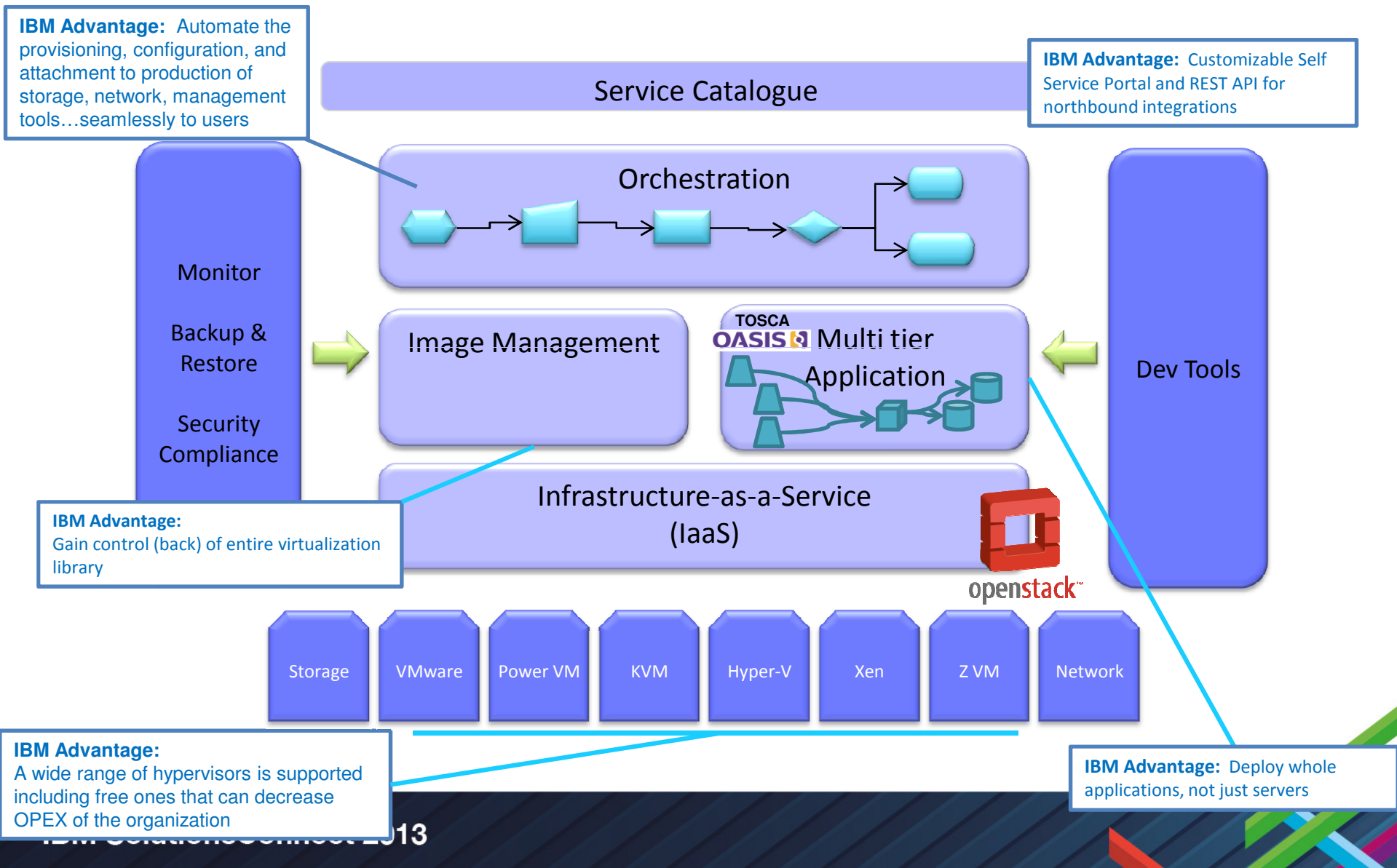
PureFlex System

Automate Optimized Workloads

PureApplication System

SmartCloud Orchestrator

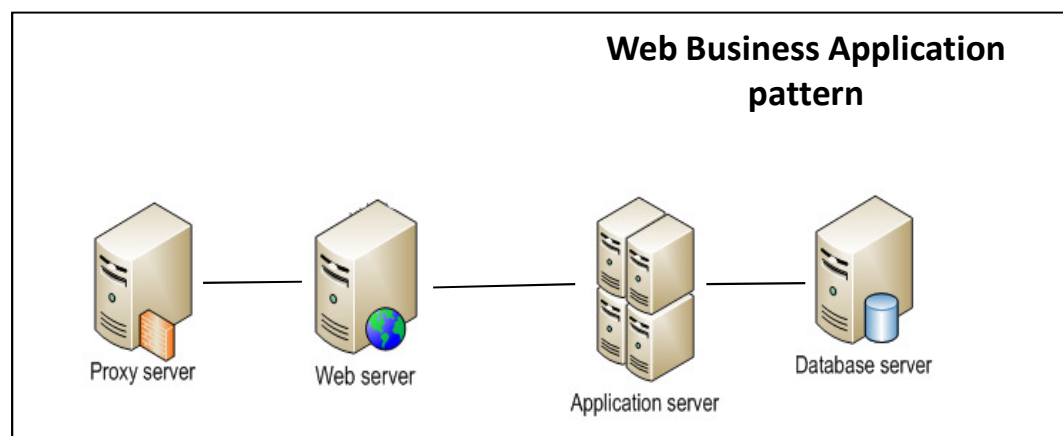
an open and scalable platform



Deploy applications via patterns

- **Rapid application deployment via virtual application patterns:** Deploy business applications in minutes
- **Dynamic, policy-based management** of elastic and scalable workloads
- Enables **third-party software deployments and custom pattern creation** to “build once” and deploy across private and public clouds
- **Visibility into cloud health** with rapid deployment of middleware topologies and application editing

**Applying
patterns for
desired topology
with one single
action**

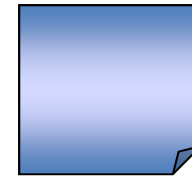


Virtual images and patching the new reality

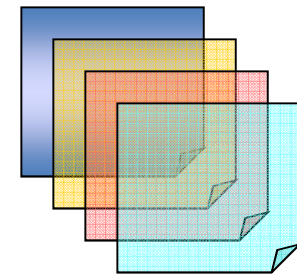
Unified physical and virtual approach



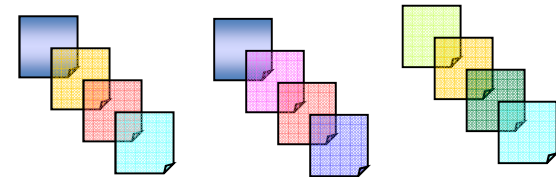
1 In the beginning, there was the **perfect image**...



2 Then users starting **making changes** and “snapshots” ...
...and what they put in the images is unknown...



3 Then they get copied to **multiple locations**...
...and some change again...



4 Then you need to apply a critical security patch...**how?** ... **where?**



Virtual Image Library capabilities



Operations

- multiple hypervisors – single view
- searchable
- check-in || check-out

Audit

- compare (dynamic) state
- introspect image content
- find vulnerabilities



A typical scenario: create a new cloud service to deploy SAP

Graphically compose the application topology

IBM SmartCloud Orchestrator - Mozilla Firefox: IBM Edition

Administrator | Help | About | Logout

Welcome | Instances | **Catalog** | Reports | Cloud | System | Patterns

Pattern Editor Editing SAP ERP Pattern Done editing

Search...

Showing parts for ESX.

Parts (6/6)

- OS Part
RHEL-57-64-CCS
4.0.0, ESX, RedHat Enterprise Linux (Red Hat Enterprise Linux Server)
- RHEL55-32-Small
RHEL55-32-Small
0, ESX, RedHat Enterprise Linux 5 (Red Hat Enterprise Linux 5 (32-bit))
- SAP-Central Instance-RHEL-61
SAP-Central Instance-RHEL-61
0, ESX, RedHat Enterprise Linux 5 (Red Hat Enterprise Linux 5 (32-bit))
- SAP-Database-DB2-RHEL-61
SAP-Database-DB2-RHEL-61
0, ESX, RedHat Enterprise Linux 5 (Red Hat Enterprise Linux 5 (32-bit))
- SAP-Dialog Instance-RHEL-61
SAP-Dialog Instance-RHEL-61
0, ESX, RedHat Enterprise Linux 5 (Red Hat Enterprise Linux 5 (32-bit))
- win2003x64.basic
win2003x64.basic
0, ESX, Microsoft Windows Server 2003 64-Bit (Microsoft Windows Server 2003, Enterprise Edition (64-bit))

Scripts (3/3)

Add-Ons (4/4)

Library of virtual templates, sw packages, script, add on (disks, network cards, etc)

Graphical editor for composing and configuring workloads

SAP-Dialog Instance-RHEL-61
0

SAP-Database-DB2-RHEL-61
0

SAP-Central Instance-RHEL-61
0

Configure ITM

Configure ITM

Configure ITM

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Orchestration in action



The screenshot displays the IBM Process Designer interface. The main workspace shows a workflow diagram starting with a 'Start' node, followed by a 'Parallel' gateway. The workflow branches into three paths: 1) 'Database?' leading to 'Add Storage Volume', 'Register Backup Agent', and 'Set DB backup policy'; 2) 'Production?' leading to 'Create Firewall Rule' and 'Create Configuration Item'; 3) 'Configure ITM'. All paths converge at an 'End' node. The left sidebar contains a 'TOOLKITS' section with various categories like 'System Data (8.0)', 'Coaches (8.0)', and 'Ticketing Automation (...)'. The bottom of the screen shows a 'Validation Errors Where Used' panel with 'Common' and 'Behavior' tabs. The 'Common' tab shows fields for 'Name', 'Name Visible', and 'Documentation'. The 'Behavior' tab shows 'Condition' set to 'Default Line' and 'Line Type' set to 'Happy Path'.

Rich tooling functions to edit, version, debug, optimize workflows

Access to rich libraries (toolkits) of reusable automation assets that enable to speed automation creation

Rich set of actions types, flow control, data handling primitives that simplify creation of complex automations

Palette of library assets enable easy workflow composition through drag and drop

Graphical editor for composing and connecting workflows

Self-service user interface



IBM SmartCloud Orchestrator

admin@admin | Help | About | Log Out

Home | Self-service | My Requests | Instances | Images & Patterns | Components | Reports | Configuration | Administration | My Inbox

Self-service

- All Offerings**
These are miscellaneous offerings with no specific categorization
- Storage and Backup Services**
These service offerings allow you to manage storage and backup services.
- Development and Test Services**
These service offerings allow you to define new development and test services.
- Software Installation**
These service offerings allow you to install software on a server.

Create MediaWiki Application Environment

Offering name: Create MediaWiki Application Environment

Description: Deploy MediaWiki with LB and FS

Offering icon: Web Icon

Category: Development and Test Services

Process: Sample Deploy Pattern


Process application or toolkit of selected Process: Sample_Support_vSys_ProcessApp

User Interface: Sample Deploy MediaWiki Pattern to Environment Profile

Process application or toolkit of selected Human Service: Sample_Support_vSys_ProcessApp

Access granted to: admin [owner]
Everyone [read] [remove]
Add more...

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Monitoring: A single tool for all (physical – Hypervisor – VMs)



➤ **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.

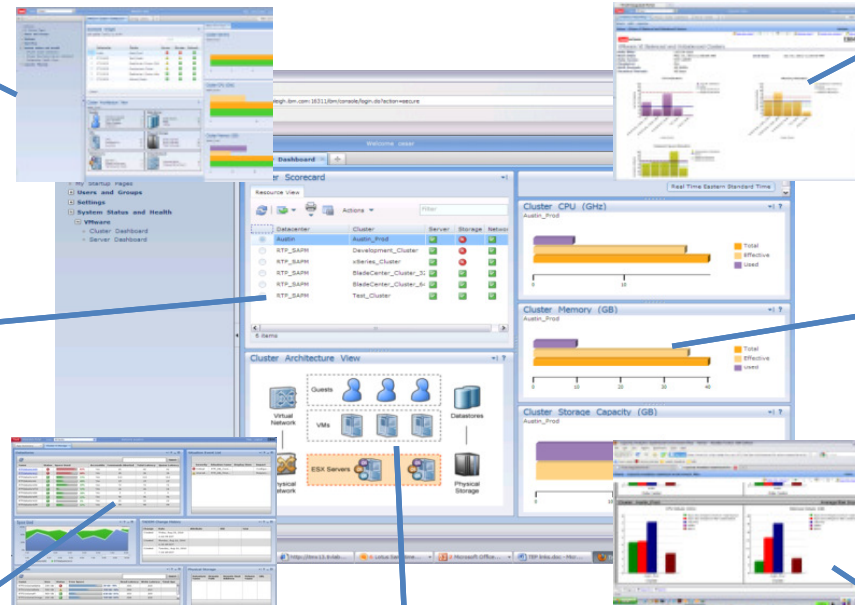
Integrated Monitoring

Capacity Planning

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

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

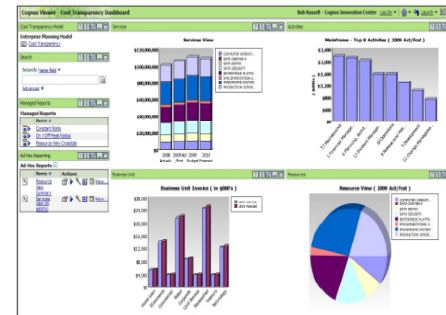
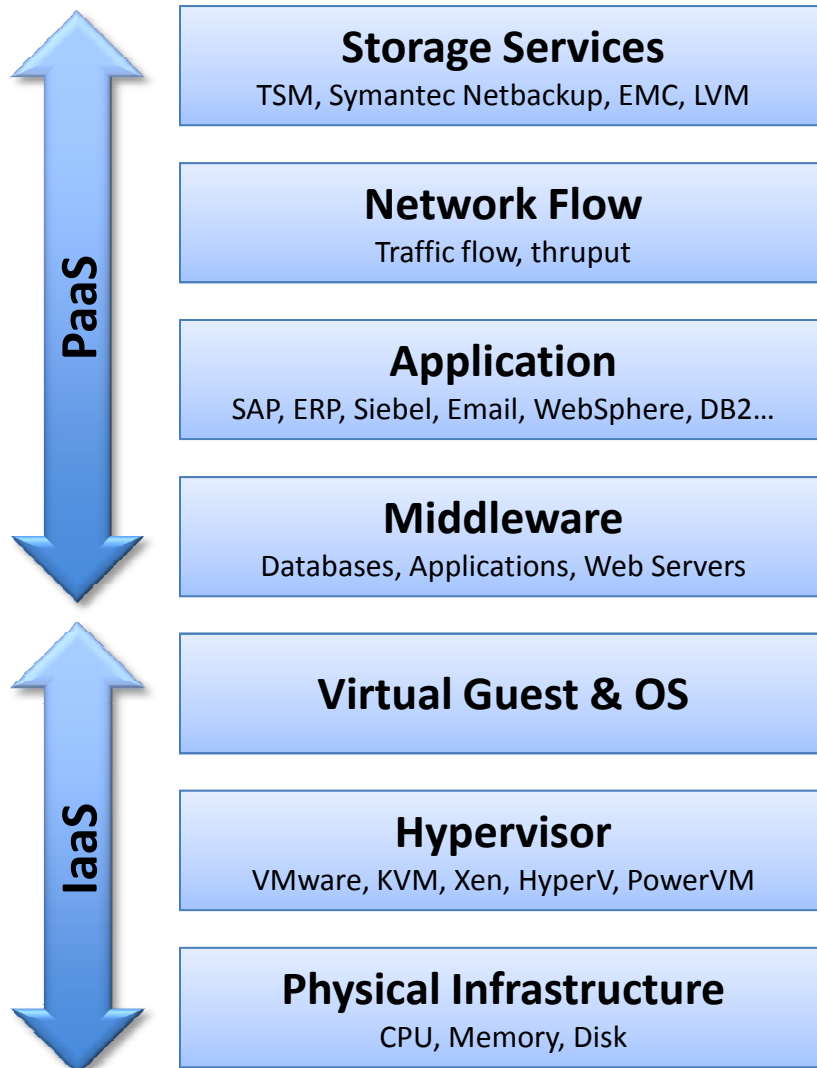
➤ **Reports** on the health trends of cloud components and workloads, powered by Cognos.



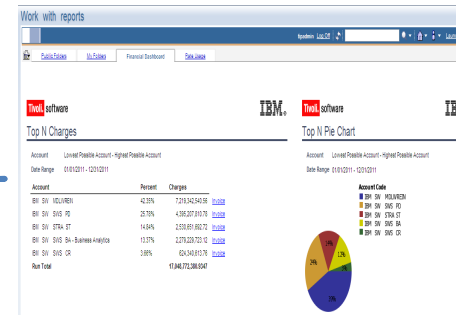


Cost management

Pricing Models, Multi-tenant, Cognos reporting



- App specific collectors
- Application usage
- Middleware usage
- Storage collectors
- Network flow collector



- Universal collectors
- Infrastructure collectors
- Virtualisation collectors

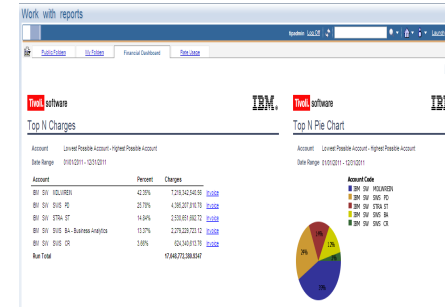
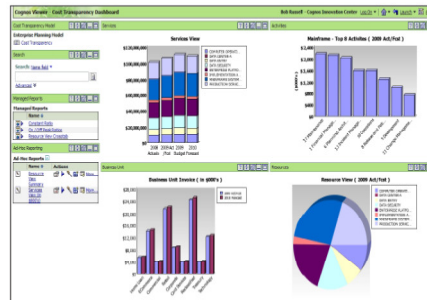


Cost Management

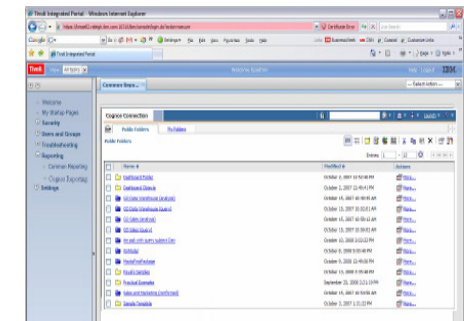
Get grip on your costs – make it visible

Visibility

End users want to see the costs incurred for services based on KPIs and volume selected



Create out-of-box role-based executive dashboards showing key cost metrics

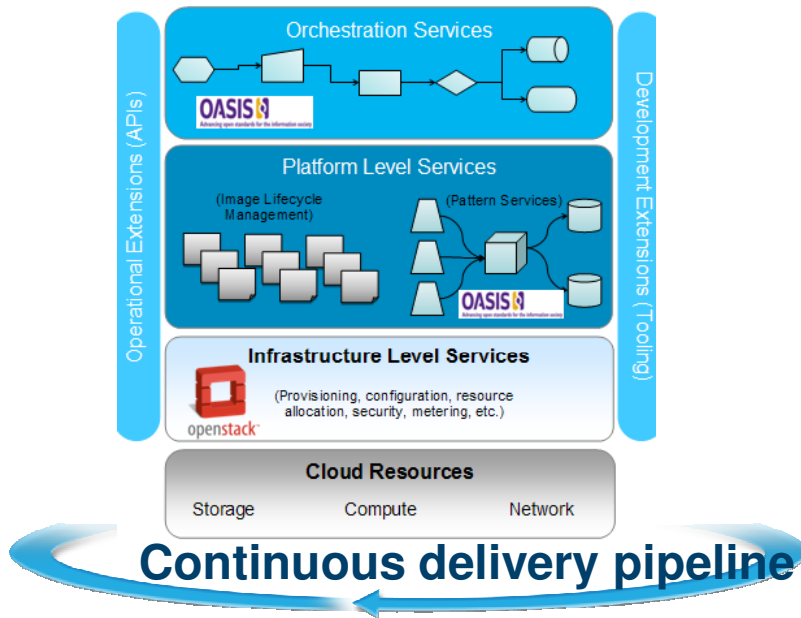


Send cost report to the end user

| Rate | | Value |
|----------------------|-------------------|--------------------------|
| Compute | Subscription | 1 Monthly Fee @ \$200.00 |
| | Large Server | 300 Hrs @ \$0.80 / Hr |
| | Small Server | 300 Hrs @ \$0.30 / Hr |
| | High Availability | 200 Hrs @ \$0.10 / Hr |
| | Nightly Backup | 5 Days @ \$2.00 / Hr |
| Total Compute | | \$560.00 |

Key takeaways

IBM SmartCloud Orchestrator



- Fully automates the deployment and lifecycle management of cloud services across resources, workloads and services
- Built on a foundation of open standards – TOSCA, OpenStack, OSLC
- Accelerated deployments with reusable workload patterns
- Unified management of heterogeneous environments
- Supports deployment of hybrid & public clouds

Reduce complexity and increase cost flexibility

Reduce time-to-market to deliver new business services

Improve administrator productivity



Cloud – It is your opportunity to grab

THANK YOU

