

HP CloudSystem Matrix

The Foundation for Government Cloud



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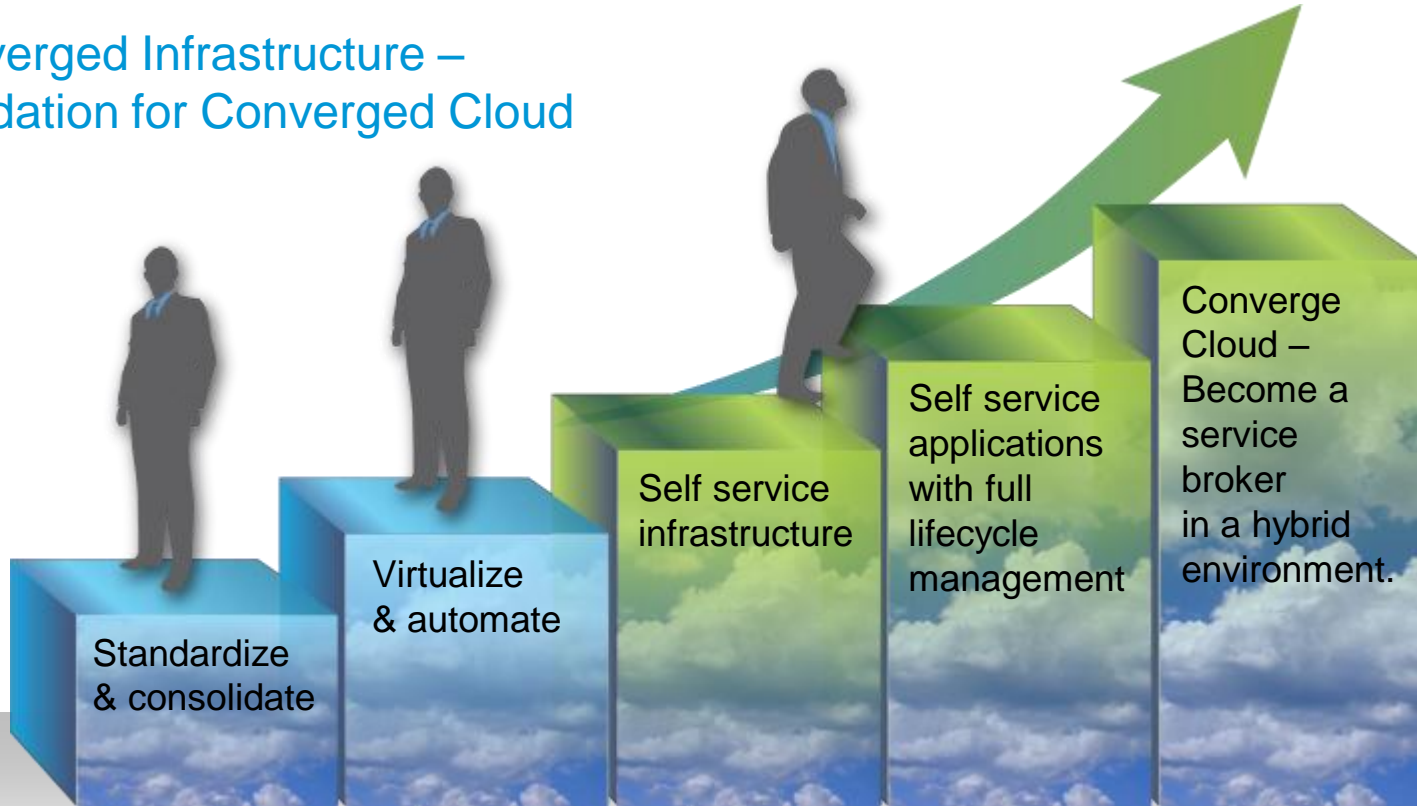
Increasing Demands Driving More to the Cloud



Deliver the right services at the right time based on customer needs

Customers will evolve at different speeds

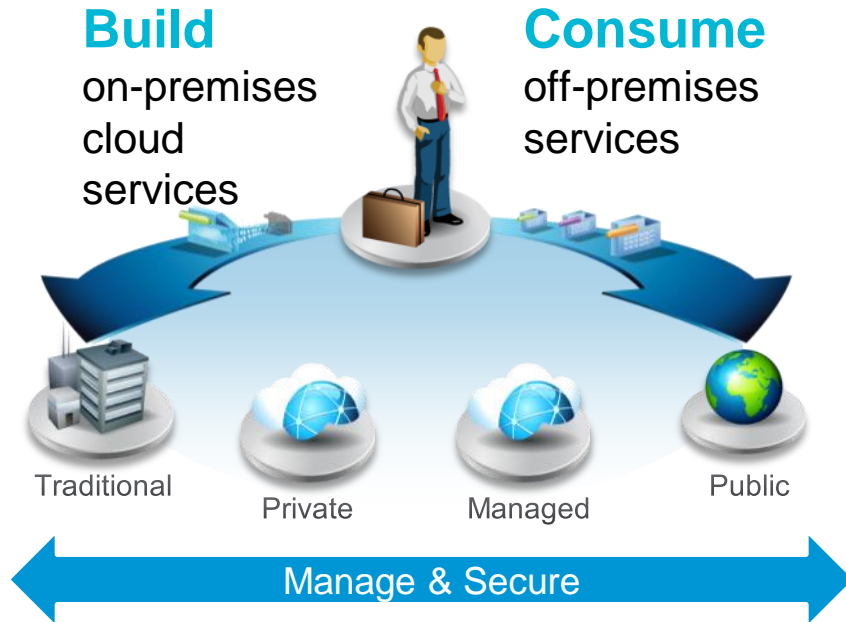
HP Converged Infrastructure –
the foundation for Converged Cloud



IT transformation to “strategic service broker”



"Services Anywhere" with hybrid delivery



IT Imperatives

- Build & consume right mix of services based on service requirements
- Leverage best of traditional IT, private, managed & public cloud
- Manage & secure hybrid environment to reap value & mitigate risk

HP Converged Cloud

Hybrid delivery based on common architecture across traditional & all cloud models



Choice

- **Open**...standards-based across all delivery models
- **Heterogeneous**...hypervisors, development, infrastructure
- **Extensible**...partner ecosystem

Confidence

- **Security**...across info, apps, infrastructure, delivery models
- **Management** ...end to end
- **Automation**...for cloud based architectures & processes

Consistency

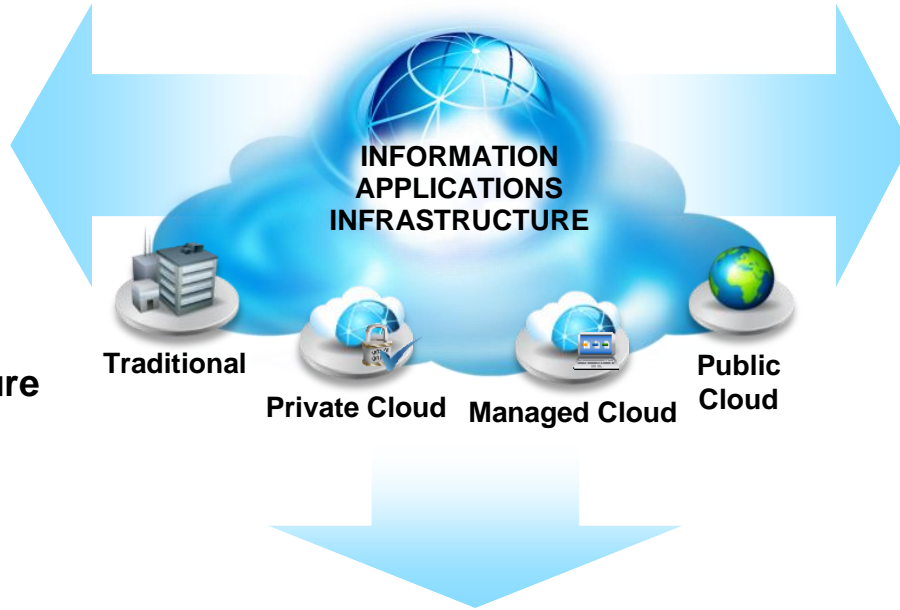
- **Common architecture**...across all delivery models
- **Portability**...for flexibility & optimization
- **Consumption experience**...one simple model

HP Converged Cloud portfolio

BUILD, MANAGE & SECURE

(across all models)

- **CloudSystem**
- **IT Performance Suite**
- **Converged Infrastructure**



CONSUME

Off-premise services

Managed Cloud

- Enterprise Cloud Services
- IT Performance Suite Services
- Autonomy Protect & Promote Services

Public Cloud

- HP Cloud Services

PROFESSIONAL SERVICES

Consulting & implementation

Financing

Education



HP CloudSystem

The most complete, open, integrated system to build and manage clouds

Services in minutes, managed for a lifetime

Intelligent automation and lifecycle management

Reduced complexity

Integrated and supported by single vendor, pre-packaged service design tools

No vendor lock-in

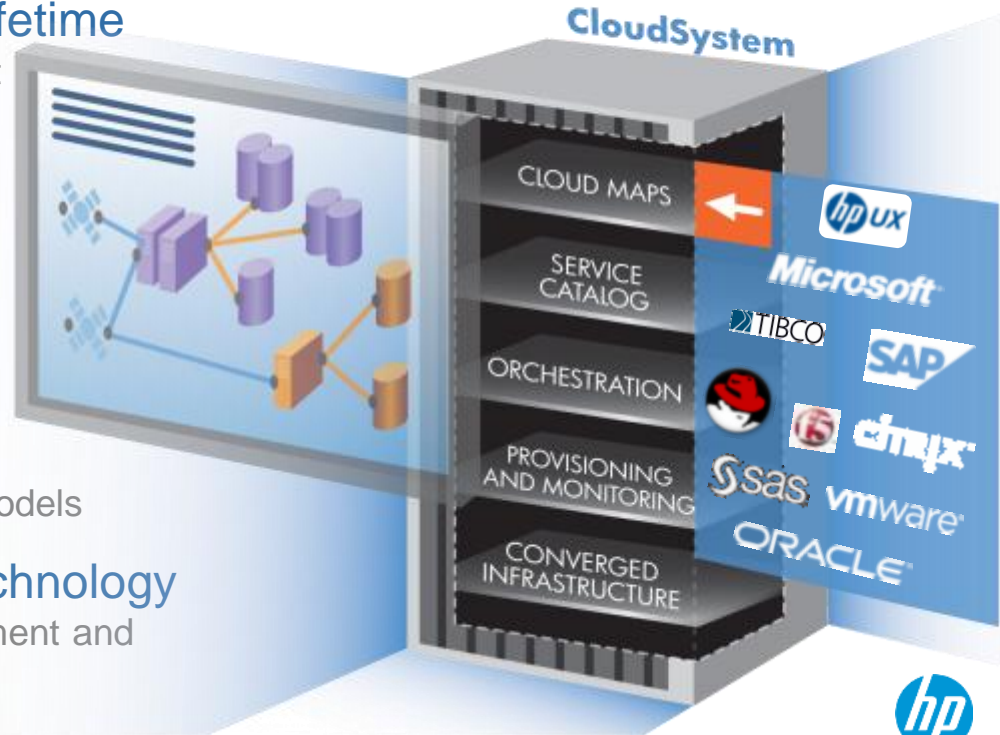
Open, heterogeneous

Built to adapt

Flexible, scalable, all service and deployment models

Built on proven, marketing leading technology

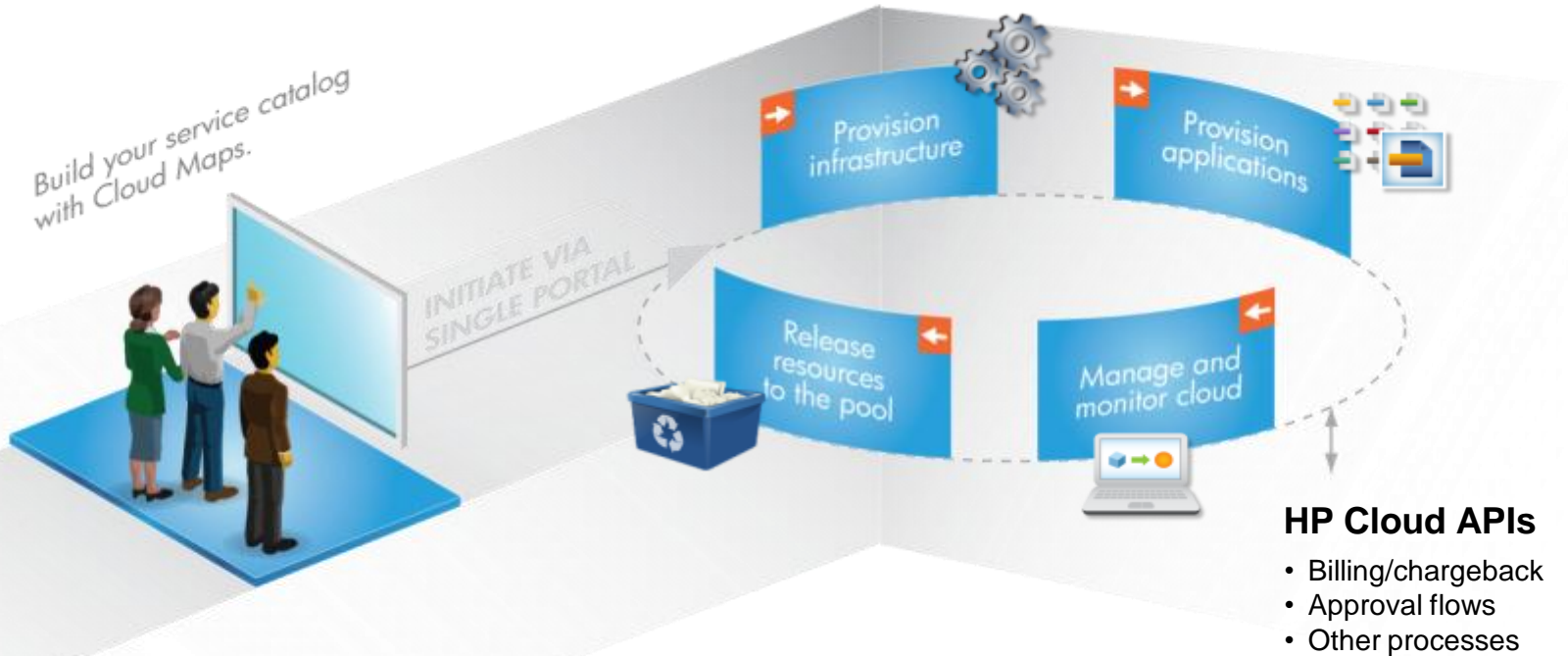
Converged Infrastructure, Automation, Management and Security Software



Build and manage cloud services

Automating the entire lifecycle with HP CloudSystem

Build your service catalog
with Cloud Maps.



HP CloudSystem: Delivered as three integrated offerings

IaaS for enterprises



PaaS and SaaS for enterprises



XaaS for service providers



HP CloudSystem Matrix

- Converged Infrastructure
- Matrix Operating Environment

HP CloudSystem Enterprise

- Converged Infrastructure
- Matrix Operating Environment
- Cloud Service Automation

HP CloudSystem Service Provider

- Converged Infrastructure
- Matrix Operating Environment
- Cloud Service Automation
- Aggregation Platform for SaaS



HP CloudSystem Matrix

Build and manage IaaS



Provision infrastructure and applications in minutes for physical and virtual.

Reduce TCO up to 56%¹ with built-in infrastructure life-cycle management.

Integrated by design including heterogeneous environments.

Built on proven HP BladeSystem technologies

¹ Compared to traditional infrastructure, based on analysis with the BladeSystem and BladeSystem TCO calculators: <http://www.hp.com/go/matrixtco>



HP CloudSystem Matrix 7.1

Design and provision IaaS in minutes

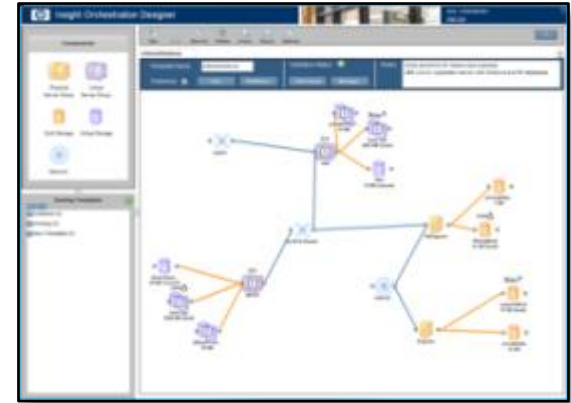
- Physical and virtual from a self-service portal
- **NEW!** Expanded bursting: HP Cloud Services and Amazon
- **NEW!** Reduce service sprawl with increased configuration flexibility

Optimize infrastructure confidently

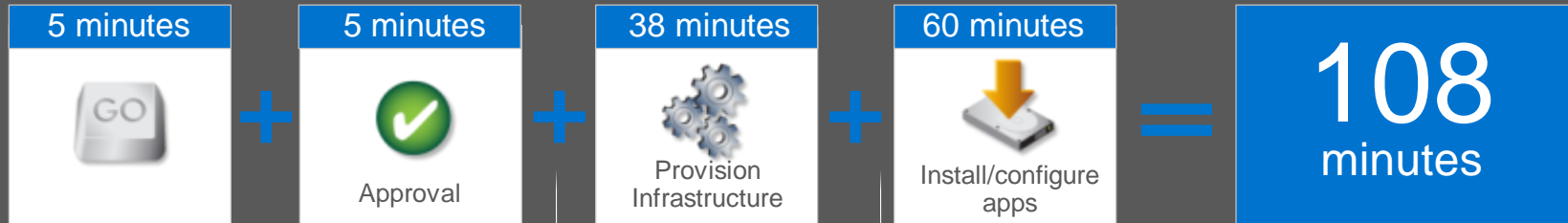
- Capacity planning with analytics and show back
- **NEW!** Cloud cost management – built-in and partner integration

Protect continuity of services

- Automated, cost-effective failover
- **NEW!** Manage service recovery in DR situations



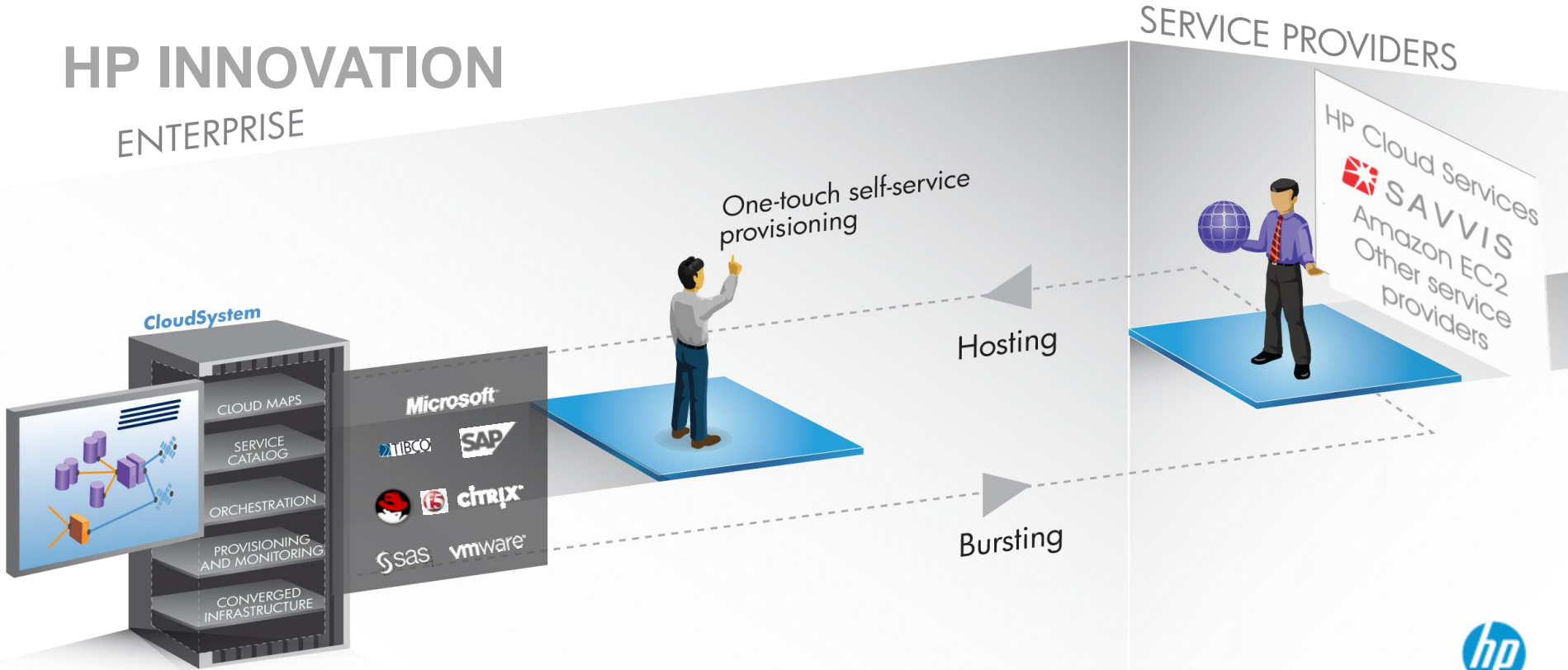
Sample “e-shopping” application infrastructure template



HP CloudSystem unique bursting capability

HP INNOVATION

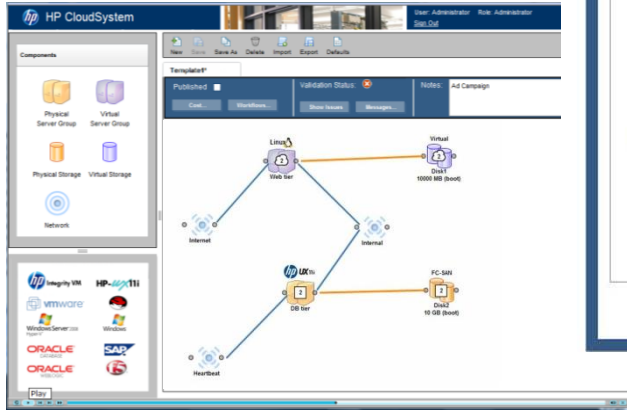
ENTERPRISE



HP CloudSystem out-of-the-box bursting

More governance and control

- **NEW!** Expand out-of-the-box bursting to HP Cloud Services and Amazon EC2, in addition to Savvis
- **NEW!** Specify public/private cloud deployment during service template design



NEW! Build a cloud in a day with HP CloudSystem Matrix software

Start with any virtualized system

- Any x86 server supported by VMware or Microsoft Hyper-V
- HP VirtualSystem



Add HP CloudSystem Matrix software

Delivered through Matrix OE

- Service designer
- Service catalog
- Self service portal
- Automatic provisioning
- Capacity planning



Accelerate the path from virtualization to cloud

- Customer installable
- Start with a trial version
- Extendable to HP PaaS/SaaS software

www.hp.com/go/trycloudsystem



HP Cloud Maps

Rapidly create cloud services

- Navigate the steps to create a service catalog yourself, quickly and consistently
- For popular applications like Microsoft®, Oracle, SAP, and VMware
- Easy to import and integrate into your environment



HP Innovation

Workflows

Deployment scripts

Sizers

Best practice templates

White papers

www.hp.com/go/cloudmaps



100+ HP Cloud Maps for industry's most popular applications

Leveraging decades of HP experience with leading ISVs



www.hp.com/go/cloudmaps



Resource AG

A SWISSCOM COMPANY

resource

Leading SAP Full Service Provider in Switzerland. Plans, develops, implements and operates SAP solutions for medium-sized and large enterprises.

PROBLEM	Complex offer process at prices which are too high, inflexible contract periods and time-consuming project implementation.
SOLUTION	Standardized offering with customer-specific adaptability based on integrated, speedily available resources in the HP CloudSystem Matrix.
RESULT	Flexible and fast offer process with unparalleled price/performance ratio, fast implementation and highest possible quality and availability.

Binding offers within **7 days**. Productive rollout of new customers within **1 week**.

Price point **20%** lower than for comparable services.

ROI of the project within **11 months**.



Matrix customers experiencing the benefits of rapid service delivery

RESOURCE

Resource AG
A SWISSCOM COMPANY

“Binding offers within 7 days. Productive rollout of new customers within 1 week. ROI of the project within 11 months.”



HP CloudSystem Matrix Conversion Services

Convert into a new CloudSystem Matrix or expand an existing Matrix while reusing current BladeSystem hardware



Your existing investment might include...

c7000 Enclosures
Server Blades
Virtual Connect
Matrix

+



Conversion Assessment
Additional HW, SW, Services*
Integration Services**

=



Your resulting environment becomes...

HP CloudSystem
Matrix

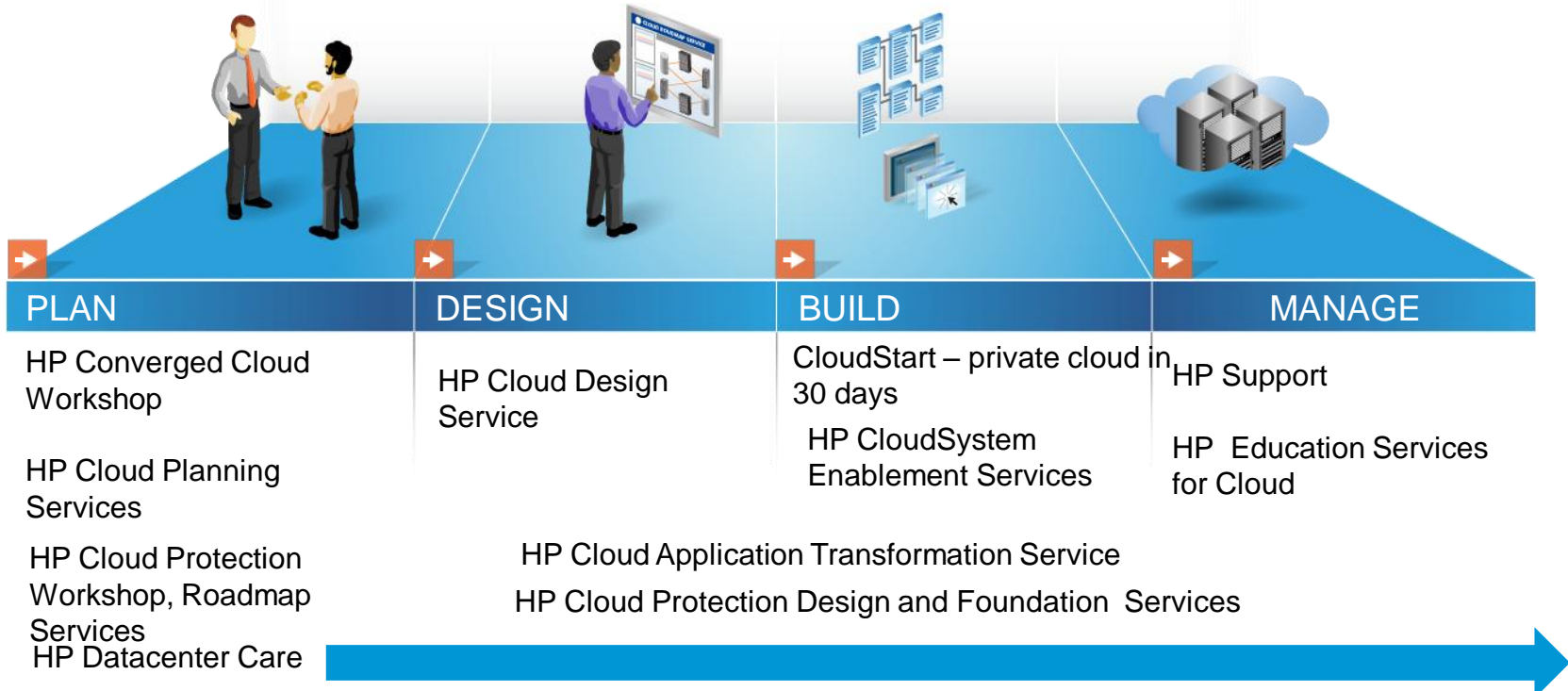
Subject to change without notice.

* If not already existing
** Required



Confidently evolve to converged cloud

Professional services to plan, build and manage your solution



Start now



- Participate in a HP Converged Cloud Workshop
- Start your cloud journey with HP CloudSystem Matrix software www.hp.com/go/trycloudsystem
- “Start small & grow tall” with HP CloudSystem
- Visit us at the product showcase or online at www.hp.com/go/cloudsystem

HP CloudSystem Matrix

Build and manage IaaS



The most complete integrated system to build and manage private cloud and Infrastructure as a Service

Building on proven and market-leading blade and infrastructure management technology

Enabling enterprises to regain control and service providers to drive top line growth

www.hp.com/go/matrix

www.hp.com/go/matrixdemos

www.hp.com/go/cloudsystem

www.hp.com/go/matrixusecases

www.hp.com/go/cloudservices



Thank you



What is Cloud Computing?

Elastic • Pay-per-use • Networked • Shared • On-demand

DEPLOYMENT MODELS



Public



Private



Hybrid

SERVICE MODELS

SaaS

Software as a Service

Applications, business logic, and information layered on platform services

PaaS

Platform as a Service

App components, middleware and database layered on infrastructure service

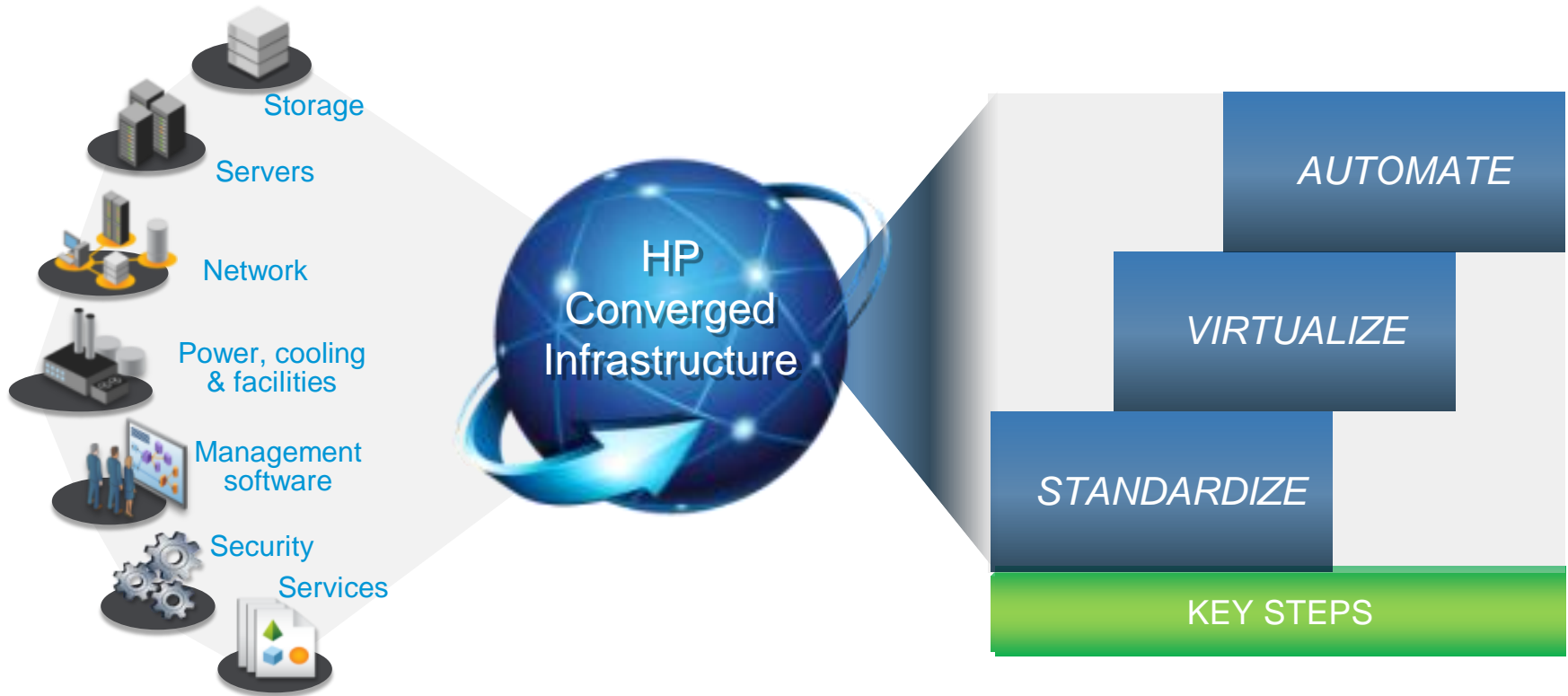
IaaS

Infrastructure as a Service

Standardized, virtual pools of shared server, storage, network and software infrastructure

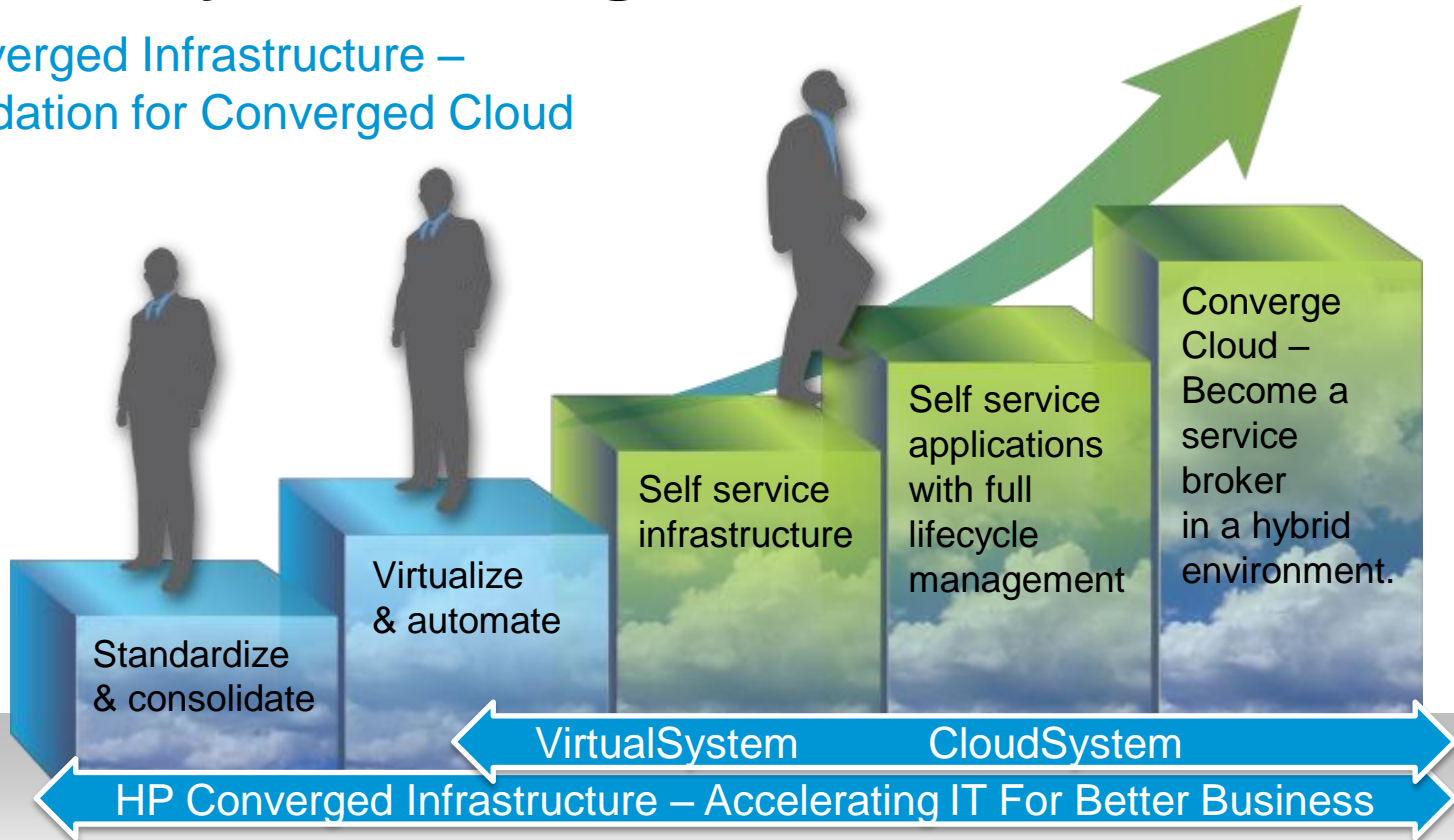


Cloud starts with a Converged Infrastructure



The journey to convergence and cloud

HP Converged Infrastructure –
the foundation for Converged Cloud



The problem with today's infrastructure

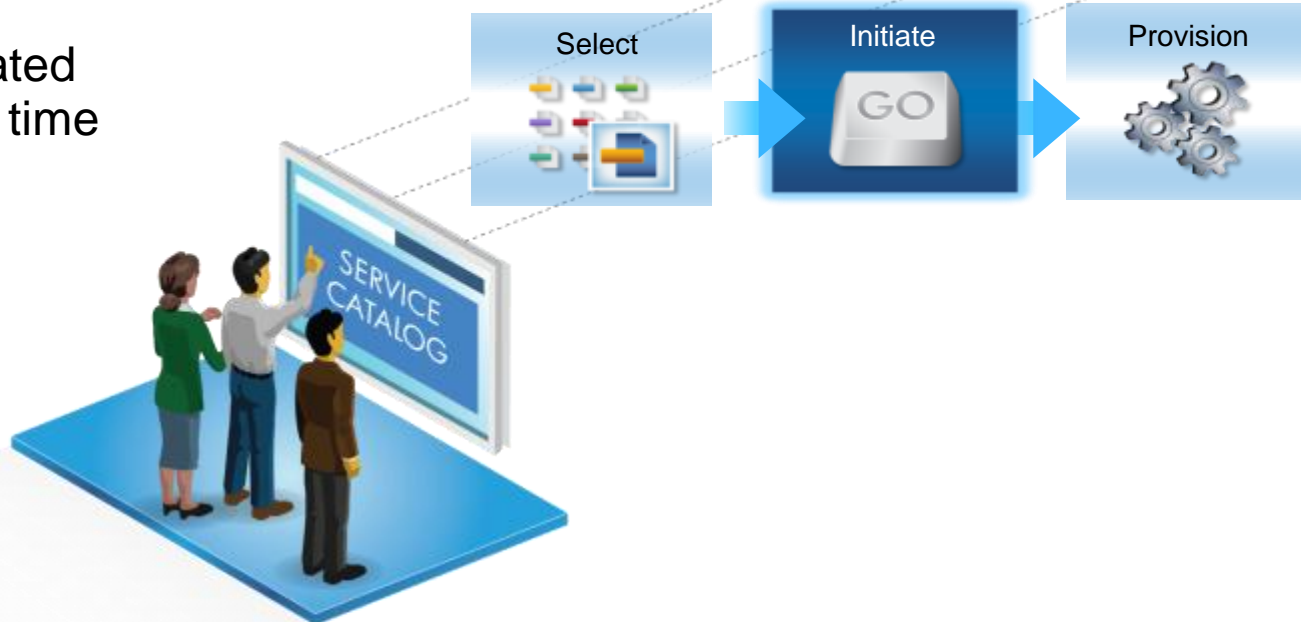
- Many people
- Many steps
- Many errors



The right approach to

Build and manage your Infrastructure as a Service

A few automated steps, in less time



Competitive Landscape

Vendor	Reference Architecture	Pre-configured System (Servers, Storage, Network)	Cloud Solutions
HP	HP Reference Architectures HP Smart Bundles	VirtualSystem	CloudSystem
IBM	BladeCenter Foundation for Cloud	PureFlex System	PureFlex+SmartCloud
VCE (EMC + Cisco)	N/A	vBlock	vBlock + vCloud
NetApp + Cisco	FlexPod	X	FlexPod + 3 rd party
Cisco	Cisco Validated Designs	X	Intelligent Auto. Cloud + UCS
Oracle	Oracle Reference Architectures	X	ExaLogic Elastic Cloud
EMC	VSPEX	X	X
Dell	Dell Reference Architectures	vStart	VIS



New Save Save As Delete Import Export Defaults

Template1* Template2* Template3* Template4* ClusterTemplate1

Published Recoverable Customizable
Cost... Workflows... Validation Status: Show Issues Messages... Notes: Cluster Template

Components

Physical Server Group Virtual Server Group

Physical Storage Virtual Storage

Network Trunk

Existing Templates

Published (0)

Working (2)

- ClusterTemplate1 (05/27/12 15:46)
- SingleTemplate1 (05/26/12 21:55)

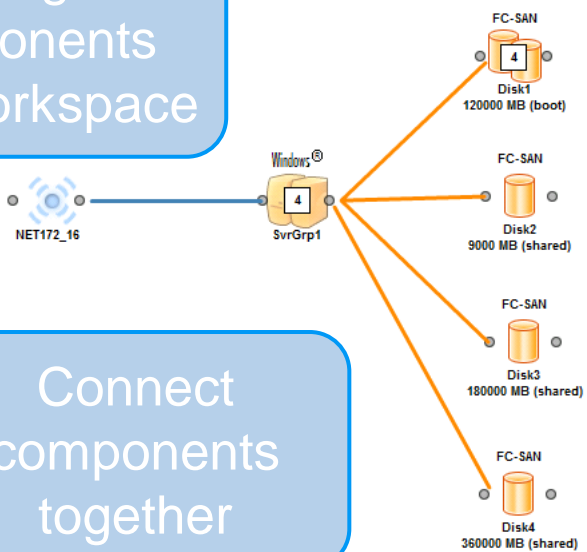
New Templates (4)

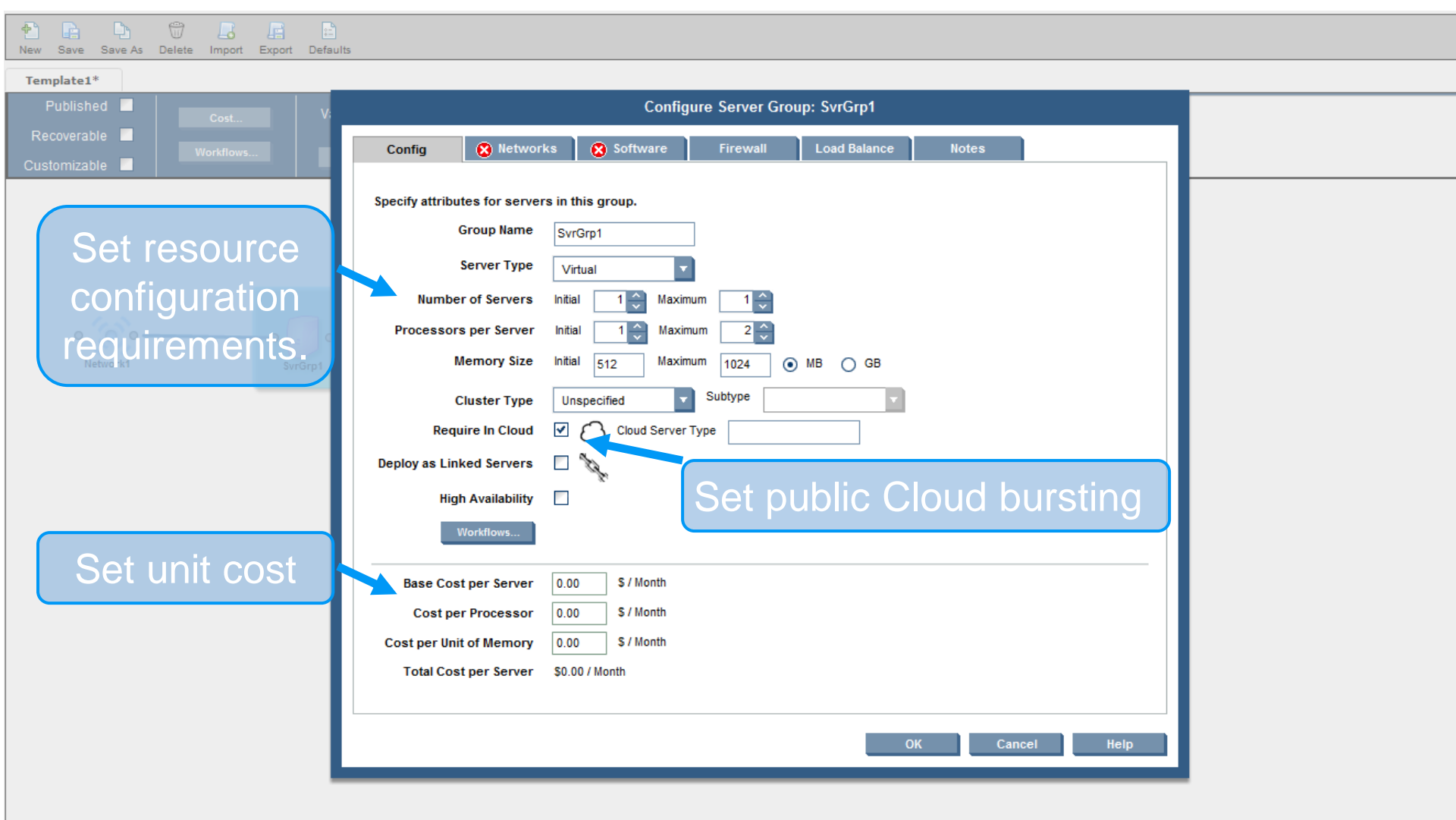
Drag components onto workspace

Storage may be shared across servers

Networks can be internal to app or public

Connect components together





Configure Server Group: SvrGrp1

Config

Networks

Software

Firewall

Load Balance

Notes

Specify attributes for servers in this group.

Group Name


Server Type


Number of Servers Initial Maximum

Processors per Server Initial Maximum

Memory Size Initial Maximum MB GB

Cluster Type Subtype

Require In Cloud  Cloud Server Type

Deploy as Linked Servers 

High Availability

Workflows...

Base Cost per Server \$ / Month

Cost per Processor \$ / Month

Cost per Unit of Memory \$ / Month

Total Cost per Server \$0.00 / Month

OK

Cancel

Help

Set resource configuration requirements.

Set unit cost

Set public Cloud bursting

View and submit available templates.

View Details New Edit Delete Create

- Name
- ClusterTemplate1
- SingleTemplate1

Create Service From Template: ClusterTemplate1

Required Field *

Service Name: * A unique name with up to 0 remaining characters

Previously used "1234" for ClusterTemp_5_30

Hostname Completion: * Enter up to 2 remaining characters.

Email:

Notes:

Lease Start: Now
 05/30/2012 2:30 PM

Lease End: Never
 06/29/2012 2:30 PM

Custom Attributes:

Available Server Pools **Selected Server Pools**

Total Cost: \$690.75 / Month

Billing Code:

Submit Options Cancel help

Create a service instance

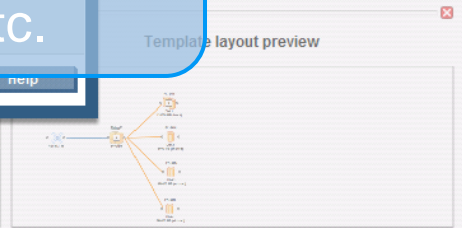
Host name customization visualized

Lease end dates protect against stale VMs, etc.

List of servers in template: ClusterTemplate1

Hostname *	OS Type	Manual	Physical	\$0.00 / Month	SvrGrp1	2.0 GB	1	1.0 GHz x86 64-bit
cluster#01	Windows 2008	Manual	Physical	\$0.00 / Month	SvrGrp1	2.0 GB	1	1.0 GHz x86 64-bit
cluster#02	Windows 2008	Manual	Physical	\$0.00 / Month	SvrGrp1	2.0 GB	1	1.0 GHz x86 64-bit
cluster#03	Windows 2008	Manual	Physical	\$0.00 / Month	SvrGrp1	2.0 GB	1	1.0 GHz x86 64-bit

* "#" characters will be replaced by a user-specified pattern on service create.



	HP CloudSystem Matrix software (for virtual)	HP CloudSystem Matrix Solution (for physical & virtual)
IaaS cloud functionality	Self-service portal, drag & drop service designer, service catalog, auto provisioning, capacity planning, show back /charge back; Cloud API; (recovery mgmt only supported on HP servers)	
Solution components	Standalone software (Matrix OE)	Hardware (HP BladeSystem w/Virtual Connect) Software (VCEM, Matrix OE) Services (Installation & Startup services)
HP Installation and Startup service	Customer installable for virtual environment; HP service is optional	Installation and startup included in solution
Virtual server provisioning	Yes (leverages VM templates)	Yes (can leverage VM templates or other means to deploy VMs)
Physical server provisioning	No. Can be upgraded to support physical servers only with HP BladeSystem with Virtual Connect	Yes (uses deployment server)
Storage provisioning	VM DataStore for VM provisioning (e.g. iSCSI for VM deployment, NFS for VMware)	FC SAN for physical provisioning (can be combined w/ VM DataStore for VM provisioning)
3 rd party x86 server support	Yes. Can run on and manage VMs on 3 rd party servers	Yes. Runs on HP servers, can manage VMs on 3 rd party servers
Central Management Server (CMS)	Supported on both physical and virtual servers	Recommended on physical server
QuickSpec	http://h18004.www1.hp.com/products/quickspecs/13050_div/13050_div.pdf	http://h18004.www1.hp.com/products/quickspecs/13297_div/13297_div.pdf

