Vendor Landscape: Cloud Management Platforms

Add a management layer involving abstraction and automation to your infrastructure to create a private, virtual private, public, or hybrid cloud environment.

Introduction

Everything IT is shifting to the cloud – and the rate of this shift is accelerating. Utilization of the right cloud management platform (CMP) will enable affordable, and efficient management of cloud assets.

This Research Is Designed For:

- ✓ Large enterprises looking for a solution to manage their private, public, or hybrid cloud environment.
- ✓ Hosted service providers looking to establish a foundation for providing cloud Infrastructure-as-a-Service (IaaS) to enterprise clients.
- ✓ Any organization that wishes to bolster its infrastructure automation capabilities, bringing cloud-like management to multiple pools of consolidated and virtualized infrastructure.

This Research Will Help You:

- ✓ Understand what's new in the CMP market.
- ✓ Evaluate prominent and trend-setting vendors and products against your enterprise needs.
- ✓ Determine which products are most appropriate for particular use cases and scenarios.

Executive Summary

Info-Tech evaluated ten competitors in the cloud management market, including the following notable performers:

Champions

- **VMware -** A well-rounded cloud platform extends the value proposition of the current leader in virtualization technology. vCloud provides a comprehensive and effective cloud management suite, at a surprisingly competitive price for a VMware offering.
- **Citrix -** Traditionally favored by service providers as an affordable solution with a fairly comprehensive management tool set, this value proposition is becoming increasingly attractive to enterprise clients.

Value Award:

- **Flexiant -** This vendor achieved the best Value Index score as well as a high rank in the *Innovator* quadrant. For an excellent price, Flexiant offers a comprehensive array of functionality, without the need for numerous third-party add-ons.

Trend Setter Award :

- **InContinuum -** Keep an eye on this vendor from the Netherlands. They received excellent functionality scores and are a leader in the area of pure-play CMP vendors. InContinuum will be looking to compete directly with the big players as they continue to bolster their presence and capabilities outside of Europe.

Info-Tech Insight

1. **Many Options in a Still Nascent Market**

   Interest in the cloud space is heating up, bringing ample venture capital and a flood of entrants to the market. Consider your level of risk tolerance and longer term vendor viability when selecting a solution.

2. **OpenStack a Very Rough Diamond**

   Open source options such as OpenStack seem attractive at first glance, but caution is warranted when deciding on their applicability for each specific organization. This is the beginning of a solution requiring additional finishing work. Implementation delays and cost overruns are a risk here.

3. **Elegant Offerings Beginning to Emerge**

   Core elements such as elastic self-service provisioning, as well as an array of management tools, are effectively provided by most vendors. Key differentiators to look for when selecting a platform include features boosting ease-of-use, and architectures providing solution flexibility.

How to use this Vendor Landscape

There are multiple ways you can use this Info-Tech Vendor Landscape in your organization. Choose the option that best fits your needs:

Vendor Landscape

Do-It-Yourself

Use this Vendor Landscape to help you complete your purchasing decision. The slides in this VL will walk you through our recommended evaluated vendors in this market space with supporting tools and deliverables ready for you to make your decision.

Free Guided Implementation

We recommend that you supplement the Vendor Landscape with a **Guided Implementation.**

At no additional cost to you*, our expert analysts will provide telephone assistance to you and your team at key milestones in the decision to review your materials, answer your questions, and explain our methodologies.

*Gold and Silver level subscribers only

Book a free guided implementation today!

Info-Tech is just a phone call away and can assist you with your project. Our expert Analysts can guide you to successful project completion. For most members, this service is available at no additional cost.*

Here's how it works:

1. **Enroll in a Guided Implementation for your project**
   Send an email to GuidedImplementations@InfoTech.com
   Or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.
2. **Book your analyst meetings**
   Once you are enrolled in a Guided Implementation, our analysts will reach out to book a series of milestone-related telephone meetings with you and your team.
3. **Get advice from a subject matter expert**
   At each Guided Implementation point, our Consulting Analyst will review your completed deliverables with you, answer any of your questions, and work with you to plan out your next phase.

This symbol signifies when you've reached a Guided Implementation point in your project.

*Gold and Silver level subscribers only

Guided Implementation points in the CMP Vendor Landscape

Book a Guided Implementation Today: Info-Tech is just a phone call away and can assist you with your evaluation. Our expert Analysts can guide you to successful technology selection.

Here are the suggested Guided Implementation points for the CMP Vendor Landscape:

Section 1: Shortlist Assistance and Requirements

Get off to a productive start: Discuss the market space and how vendors are evaluated. Decide on which deployment option suits you best and narrow down the options based on customized requirements.

Section 2: RFP and Budget Review

Interpreting and acting on RFP Results: Review vendors' RFPs and ensure the solution is meeting your needs. Discuss average solution pricing and what can fit into your budget.

Section 3: Negotiation and Contract Review

Purchase optimization: Review contracts and discuss best practices in negotiation tactics to get the best price for your solution.

This symbol signifies when you've reached a Guided Implementation point in your project.

To enroll, send an email to GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Market Overview

How it got here

- **Amazon sets the example:** Amazon disrupted the compute services market with low cost, pay as you go, and Infrastructure-as-a-Service, sparking a rush for competitors and enterprises to build "clouds."
- **Virtualization is not (quite) cloud:** A true cloud service is elastic, metered, and features self-service capabilities, with fully automated resource orchestration. It is these capabilities that separate clouds from mere consolidation and resource abstraction.
- **Still a nascent market:** Virtualization vendors, service hosts, and traditional management vendors are all building cloud management platforms. This space has had promising beginnings, but it is still early days.

Where it's going

- **VMware will drive commercial clouds:** VMware is leveraging its enterprise dominance, plus a key acquisition (DynamicOps for vCloud Automation Center) to bolster adoption by enterprises and service providers of cloud management platforms.
- **OpenStack a hot project, not a product:** Look for continued hype around OpenStack, with its plethora of projects and high profile contributors. The future is promising, but with multiple hands in the game right now OpenStack lacks a single product focus and champion.
- **More growth and churn:** As cloud continues to develop and grow, so too will the options for cloud management. More players, some based on OpenStack projects, will enter this market.

Info-Tech Insight

As the market evolves, capabilities that were once cutting edge become default and new functionality becomes differentiating. Instantiation templates have nearly become a Table Stakes capability and should no longer be used to differentiate solutions. Instead focus on automation capabilities and cloud architecture design tools to dramatically boost ease of use compared to previous CMP offerings.

CMP Vendor selection / knock-out criteria: market share, mind share, and platform coverage

- With vendors approaching the market from backgrounds in hosting, server virtualization, and systems management, solutions are converging on a core set of standard features, and differentiation in the market is primary around target customers and support for existing virtual infrastructure.
- For this Vendor Landscape, Info-Tech focused on those vendors that offer broad capabilities across multiple platforms and that have a strong market presence and/or reputational presence among mid and mid-large sized enterprises

Included in this Vendor Landscape:

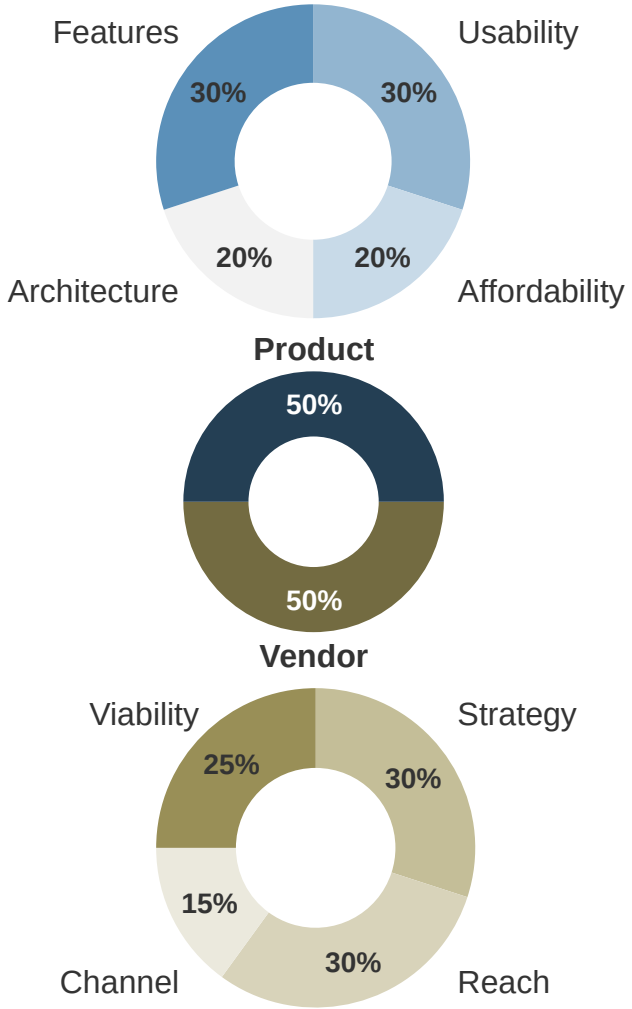
- **Abiquo.** Feature-rich, pure-play cloud vendor with broad hypervisor and hardware support targeting the enterprise.
- **CA Technologies.** Combining its strong roots in systems management with application delivery-focused AppLogic (acquired from 3Tera), CA has a compelling cloud management solution.
- **Citrix.** Shaped Cloud.com into the current open source-based Citrix CloudPlatform; a mature, production-ready, out-of-the-box solution with applicability for both service providers and enterprises.
- **Eucalyptus.** Mature open source cloud management vendor that has been providing cloud management to enterprises for over three years, with strong Amazon partnership as a standout.
- **Flexiant.** With roots in the service provider market, Flexiant targets service providers in Europe, and has exceptional dashboard customization, and integrated billing capabilities.
- **InContinuum.** A new entrant with impressive UI and an array of managerial tools for the cloud.
- **Microsoft.** In line with this vendor's relatively new focus on the cloud, System Center provides a complete solution with intuitive design and the full support of this tech behemoth.
- **OpenStack.** This solution has lots of potential, yet is far from convenient for many organizations seeking a turn-key solution.
- **Virtustream.** Delivering cloud solutions for organizations with stringent security and compliance requirements, Virtustream excels at deploying legacy and enterprise apps in the private, virtual private, and public cloud.
- **VMware.** A juggernaut in the server virtualization space with majority market share, VMware offers a great solution for existing customers looking to capitalize on VMware's ownership of the entire software defined data center.

Cloud Management Platforms criteria & weighting factors

Product Evaluation Criteria	
Features	The solution provides basic and advanced feature/functionality.
Usability	The end-user and administrative interfaces are intuitive and offer streamlined workflow.
Affordability	Implementing and operating the solution is affordable given the technology.
Architecture	Multiple deployment options and extensive integration capabilities are available.

Vendor Evaluation Criteria	
Viability	Vendor is profitable, knowledgeable, and will be around for the long term.
Strategy	Vendor is committed to the space and has a future product and portfolio roadmap.
Reach	Vendor offers global coverage and is able to sell and provide post-sales support.
Channel	Vendor channel strategy is appropriate and the channels themselves are strong.

Criteria Weighting:



The Info-Tech Cloud Management Platforms Vendor Landscape

The Zones of the Landscape

Champions receive high scores for most evaluation criteria and offer excellent value. They have a strong market presence and are usually the trend setters for the industry.

Market Pillars are established players with very strong vendor credentials, but with more average product scores.

Innovators have demonstrated innovative product strengths that act as their competitive advantage in appealing to niche segments of the market.

Emerging Players are comparatively newer vendors who are starting to gain a foothold in the marketplace. They balance product and vendor attributes, though score lower relative to market Champions.

The Info-Tech CMP Vendor Landscape:

For an explanation of how the Info-Tech Vendor Landscape is created, see Information Presentation – Vendor Landscape in the Appendix.

Balance individual strengths to find the best fit for your enterprise

*The vendor was unable to provide pricing and publically available pricing could not be found

For an explanation of how the Info-Tech Harvey Balls are calculated, see Information Presentation – Criteria Scores (Harvey Balls) in the Appendix.

The Info-Tech Cloud Management Platform Value Index

What is a Value Score?

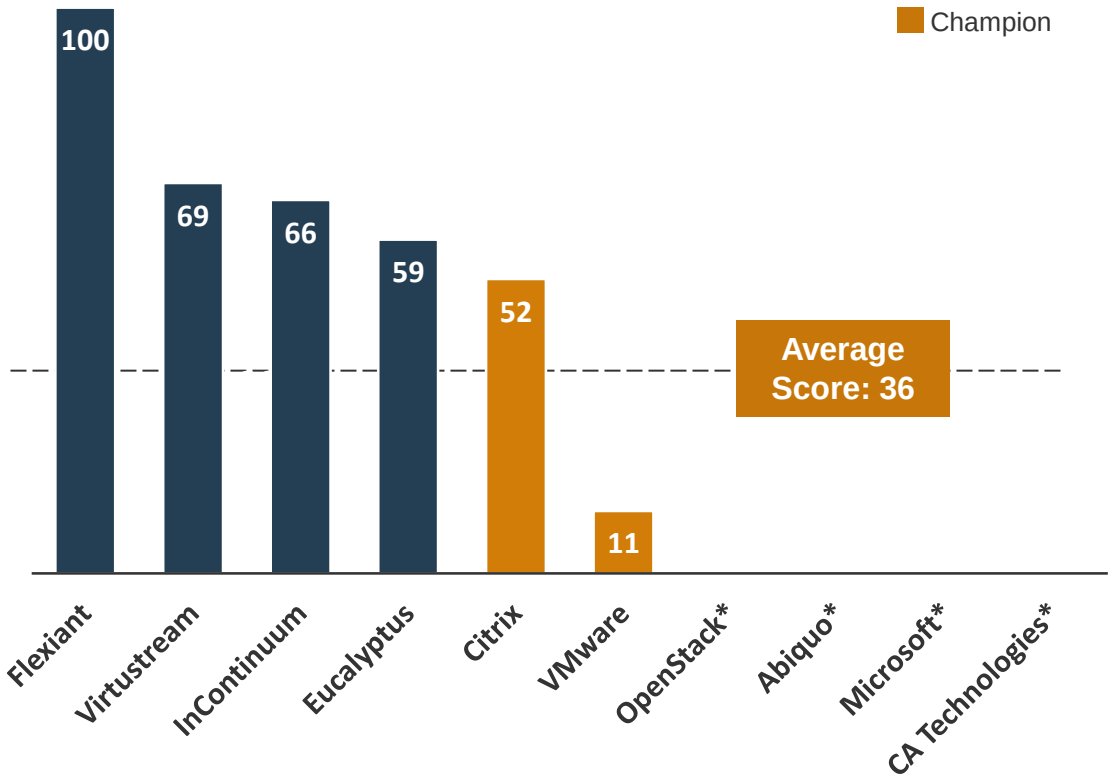
The Value Score indexes each vendor's product offering and business strength **relative to their price point.** It **does not** indicate vendor ranking.

Vendors that score high offer more **bang-for-the-buck** (e.g. features, usability, stability, etc.) than the average vendor, while the inverse is true for those that score lower.

Price-conscious enterprises may wish to give the Value Score more consideration than those who are more focused on specific vendor/product attributes.

*The vendor declined to provide pricing or publically available pricing could not be found

On a relative basis, **Flexiant** maintained the highest Info-Tech **Value Score**™ of the vendor group. Vendors were indexed against Flexiant's performance to provide a complete, relative view of their product offerings.



For an explanation of how Price is determined, see Information Presentation – Price Evaluation in the Appendix.

For an explanation of how the Info-Tech Value Index is calculated, see Information Presentation – Value Index in the Appendix.

Table Stakes represent the minimum standard; without these, a product doesn't even get reviewed

The Table Stakes

Feature	What it is:
Metering	To enable admin tracking of aggregate compute, network, and storage utilization.
Role-based Access	Customizable permissions-based access for different classes of users.
RESTful APIs	APIs based on the REST architecture to enable integration with third-party systems such as billing or CRM.
Private/Public Cloud Integration	Manage and migrate internal and eternal cloud resources seamlessly through a single interface

What Does This Mean?

The products assessed in this Vendor Landscape™ meet, at the very least, the requirements outlined as Table Stakes.

Many of the vendors go above and beyond the outlined Table Stakes, some even do so in multiple categories. This section aims to highlight the products' capabilities **in excess** of the criteria listed here.

Info-Tech Insight

If Table Stakes are all you need from your CMP solution, the only true differentiator for the organization is price. Otherwise, dig deeper to find the best price to value for your needs.

Advanced Features are the capabilities that allow for granular market differentiation

Scoring Methodology

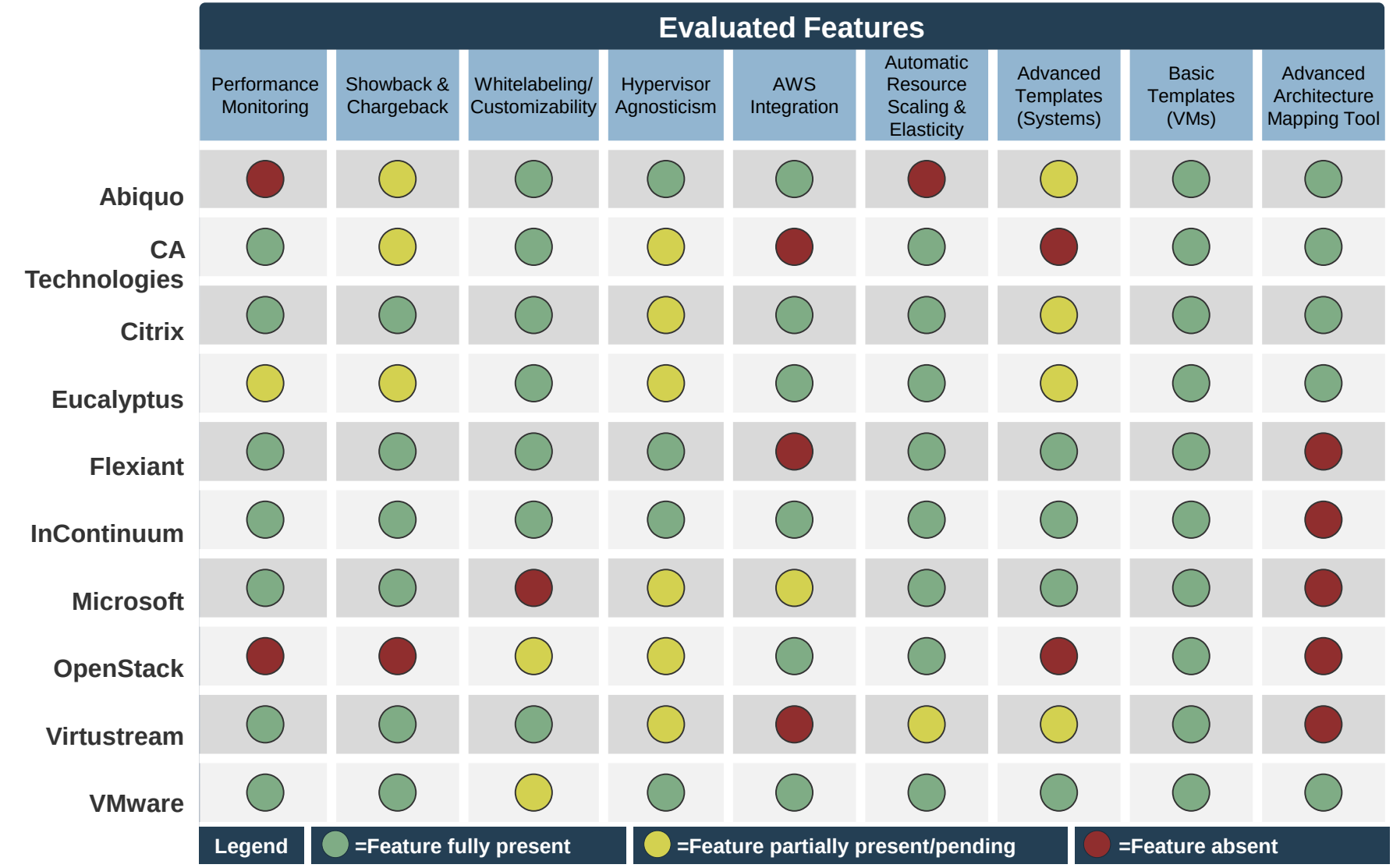
Info-Tech scored each vendor's features offering as a summation of their individual scores across the listed advanced features. Vendors were given one point for each feature the product inherently provided. Some categories were scored on a more granular scale with vendors receiving half points.

Advanced Features

Feature	What we looked for:
Performance Monitoring	Provide visibility into & control over the performance of servers/VMs, network, storage
Showback & Chargeback	Vendor provides basic functionality for both showback and chargeback
Whitelabeling & Customizability	Control of the look and feel of admin/end-user portals for purpose of branding and optimization
Hypervisor Agnosticism	Manage VM guests on ESX, Hyper-V, KVM, Open Source Xen, and XenServer Hypervisors
AWS Integration	Support for APIs hooking into Amazon Web Services
Automatic Resource Scaling & Elasticity	Automated provisioning of VMs and supporting infrastructure components to handle fluctuating workloads
VM Templates	Library of VM images, which improves the ease of instantiating virtual machines
Advanced Systems Templates	Pre-stored libraries of entire system templates (e.g. prepackaged servers, VMs, applications, and supporting infrastructure)
Advanced Architecture Mapping	Intuitive, codeless, mapping interface for structuring how servers, other physical assets, and software are provisioned; simple drag-and-drop interface

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.

Each vendor offers a different feature set; concentrate on what your organization needs



For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stoplights) in the Appendix.

Shortlist Assistance & Requirements

Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

Prior to the Guided Implementation	During the Guided Implementation	Value & Outcome
1. Have reasoning as to why a new CMP solution is being discussed. 2. Compile list of competency shortfalls and gaps at your organization.	**An Info-Tech Consulting Analyst will discuss with you:** • Review the market and understand the rationale behind the evaluation. • Decide deployment method. • Feature analysis.	**At the conclusion of the Guided Implementation call, you will have:** • An understanding of the market situation. • A narrow list of vendors with customized evaluation tool. • An RFP template to distribute to vendors.

Certain vendors cater primarily to the enterprise, some to service providers, and some to both

Look for solutions that cater to your specific use case.

1 **Target Customer**

2

3

Why Scenarios?

In reviewing the products included in each Vendor Landscape™ , certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Focus on Enterprise

Focus on Service Providers

For an explanation of how Scenarios are determined, see Information Presentation – Scenarios in the Appendix.

An open source solution can require a different approach than a proprietary solution

Consider human capital; organizations with a savvy operations and development team are in the best position to consider open-source solutions.

1

2 **Open-source vs. Proprietary**

3

Why Scenarios?

In reviewing the products included in each Vendor Landscape™ , certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Open-source

EUCALYPTUS

openstack™ CLOUD SOFTWARE

CITRIX

Proprietary

flexiant™

vmware®

virtustream® Enterprise Class Cloud™

INCONTINUUM

Microsoft

abiquo

ca technologies

For an explanation of how Scenarios are determined, see Information Presentation – Scenarios in the Appendix.

Ensure the solution supports your primary hypervisor infrastructure before making a cloud management investment

Not all solutions play well with others. Organizations planning to support multiple hypervisor types should consider which vendors are compatible.

1

2

3 Hypervisor Support

Why Scenarios?

In reviewing the products included in each Vendor Landscape™ , certain use cases come to the forefront. Whether those use cases are defined by applicability in certain locations, relevance for certain industries, or as strengths in delivering a specific capability, Info-Tech recognizes those use cases as Scenarios, and calls attention to them where they exist.

Vendors supporting vSphere /ESX

All Vendors Support This Hypervisor.

Vendors supporting Hyper-V

abiquo, Microsoft, flexiant, vmware, INCONTINUUM

Vendors supporting KVM

abiquo, CITRIX, flexiant, INCONTINUUM, openstack, virtustream, vmware, EUCALYPTUS

Vendors supporting XenServer

abiquo, CITRIX, ca technologies, INCONTINUUM, Microsoft, openstack, flexiant, vmware

For an explanation of how Scenarios are determined, see Information Presentation – Scenarios in the Appendix.

RFP & Budget Review

Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

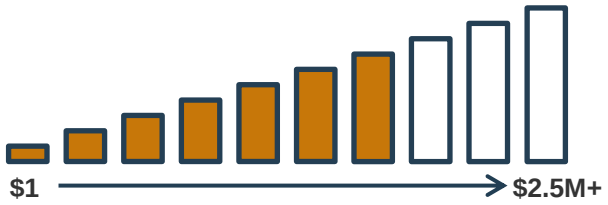
Prior to the Guided Implementation	During the Guided Implementation	Value & Outcome
1. Collect RFPs from vendors based on the template provided	**Info-Tech Consulting Analyst will discuss with you:** • Review price benchmarking • Review returned RFPs	**At the conclusion of the Guided Implementation call, you will have:** • A narrow list of vendors • Clear understanding of the capabilities of the solutions on the short list • A demo script to use during presentations with the final list of vendors

A leader in the enterprise software-defined data center, VMware takes a strong position in cloud management with vCloud

Champion

Product:	vCloud Suite including vCloud Automation Center (vCAC)
Employees:	14,300
Headquarters:	Palo Alto, CA
Website:	vmware.com
Founded:	1998
Presence:	VMW (NYSE)

3 year TCO for this solution falls into pricing tier 7, between $250,000 and $500,000



Pricing (provided by vendor / solicited from public sources)

Overview

- Founded in 1998, this powerhouse in virtualization has, in recent years, extended its capabilities into adjacent areas such as cloud management platforms. A solid offering all around, vCAC has ranked in the Info-Tech *Champion* quadrant.

Strengths

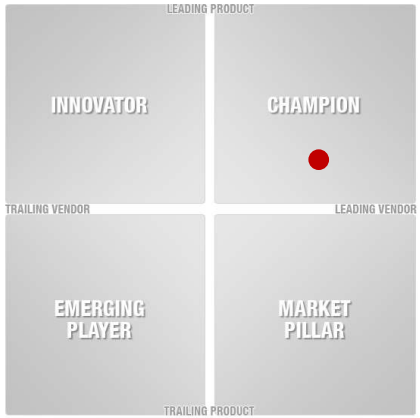
- **Usability:** Recent upgrades in v5.5 have boosted admin capabilities with the addition of drag-and-drop and recent items filters. Very granular user controls allow varying levels of managerial intervention.
- **Architecture and Vision:** VMware continues to set the standard when it comes to introducing new functionality into the core product, as well as allowing integration with supporting features. Examples of excellent supporting components include VMware's networking tools and its VSAN storage product. The application blueprint functionality allows for efficient instantiation of customized cloud systems.

Challenges

- **Graduated Licensing:** Structure is complicated and segmented with numerous add-ons. Scoping the required license structure is often confusing for IT managers who don't have experience with VMware products.
- **The Cost of Performance:** Mirroring our value index score for vCloud Suite, a reoccurring theme when talking with clients is a higher perceived cost when using VMware. Despite this common sentiment, many are willing to pay a premium for this product.

vCloud Suite with vCAC is an easy next move up the virtualization value chain for those with an existing vSphere foundation

Vendor Landscape



Value Index

11

6th out of 10

Product

Overall	Features	Usability	Affordability	Architecture
				

Vendor

Overall	Viability	Strategy	Reach	Channel
				

What we're hearing

"We liked that they were the leader in the market space... With [*VMware*] we were also able to regain a large amount of data center space."

- IT Manager, Anonymous

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool
								

Info-Tech Recommends:

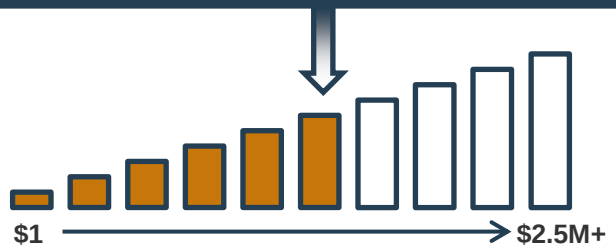
It is particularly worth considering the VMware vCloud suite if your organization already has an established virtualized environment using VMware's vSphere/ESX hypervisor. The cost to add CMP capabilities on top of vSphere is much less than buying both pieces à la carte.

Citrix is worth evaluating for most organizations looking to bolster their cloud capabilities

Champion

Product:	Citrix CloudPlatform 4.2, and CloudPortal Business Manager 2.1
Employees:	9,060
Headquarters:	Fort Lauderdale, FL
Website:	citrix.com
Founded:	1989
Presence:	CTXS (NASDAQ)

3 year TCO for this solution falls into pricing tier 6, between $100,000 and $250,000



Pricing (provided by vendor / solicited from public sources)

Overview

- CloudPlatform has been targeted at service providers as an affordable solution with a solid management tool set. Recently Citrix has been making a push to target enterprise clients and capitalize on growing private/hybrid cloud deployments.

Strengths

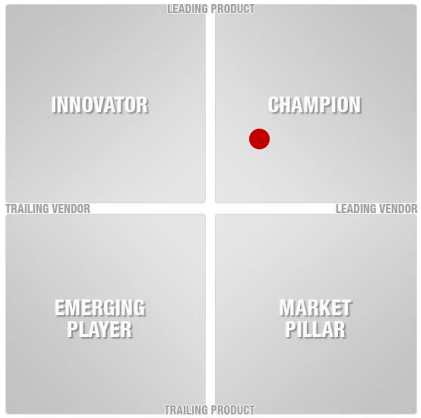
- **Future-proof Structure:** Citrix designs its software to adapt to future infrastructure changes. Automation tools such as the Citrix Autoscale Wizard provide effective tools for creating policies to enable elasticity.
- **NetScaler:** The Citrix networking add-on can substantially boost cloud application performance and availability through a number of network optimization approaches. Citrix claims a reduction in web application life-cycle costs as a result.
- **Application Awareness:** CloudPlatform is able to tailor cloud performance and resource allocation to the unique needs of each enterprise's application portfolio.

Challenges

- **No Hyper-V Support Yet:** Microsoft's hypervisor is growing in capabilities and market share. Not all cloud infrastructure will run on VMware or XenServer hypervisors. Hopefully this gap will be mitigated in future releases or Citrix risks slipping on its ability to meet market needs.

Citrix CloudPlatform has achieved the highest Value Index among CMPs in Info-Tech's *Champion* quadrant

Vendor Landscape



Value Index

52

5th out of 10

Product

Overall	Features	Usability	Affordability	Architecture

Vendor

Overall	Viability	Strategy	Reach	Channel

What we're hearing

"The strength of the Citrix offering lies in its flexibility, and also their storage background…also flexibility around networks and deployment options for customers."

- Craig McElroy, CTO, Contegix

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool

Info-Tech Recommends:

In addition to its application-centric approach, Citrix prides itself on the high level of automation that is possible to manage cloud resources. If a low level of managerial involvement is desired, or rapid resource scaling is expected, the Citrix solution is well worth considering.

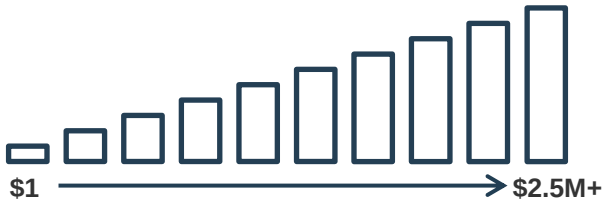
Microsoft has made significant strides with its CMP solution, earning a place in Info-Tech's *Market Pillar* quadrant

Market Pillar

Product:	System Center 2012 R2
Employees:	97,000
Headquarters:	Redmond, WA
Website:	microsoft.com
Founded:	1975
Presence:	MSFT (NASDAQ)

Microsoft

The vendor declined to provide pricing, and publically available pricing could not be found



Overview

- Microsoft has begun to focus a large amount of attention and resources on making solid offerings in the cloud space. The Microsoft offering appears to favor ease of use over powerful functionality, yet this is more than adequate for the needs of many IT managers.

Strengths

- **Reach and Viability:** Microsoft is a giant in comparison to small players such as Abiquo or InContinuum. For IT managers looking to minimize risk and to access an extensive sales and support network, Microsoft may be a good fit.
- **Comprehensive Cloud Vision:** As Microsoft continues to push Azure, managers operating their environment as a largely Microsoft shop can achieve seamless integration with System Center as the central management component.
- **Look and Feel:** SC 2012 offers a very attractive interface that is well laid out, with easy access to key managerial controls.

Challenges

- **Depth of Native Toolkit:** The Microsoft System Center offering is not nearly as in-depth in terms of functionality compared to some of the other cloud management platforms examined in this report. Native integration with third-party services such as Amazon Web services is lacking. Also, this solution does not yet match the level of customizability that is available from providers such as Flexiant.

Familiar look and feel, and ever-improving functionality, make System Center R2 a good CMP for the Microsoft-centric shop

Vendor Landscape

Product

Overall	Features	Usability	Afford.	Arch.
◐	◕	◕	○	◕

Vendor

Overall	Viability	Strategy	Reach	Channel
●	●	◕	●	●

What we're hearing

Info-Tech was unable to solicit authorized third-party reference or vendor statements for this solution.

Value Index

N/A

The vendor declined to provide pricing, and publically available pricing could not be found

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool
●	●	●	●	●	●	●	●	●

Info-Tech Recommends:

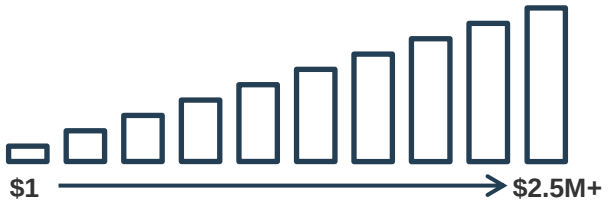
System Center 2012 is an excellent choice for organizations looking to extend their virtualization and cloud capabilities within the Microsoft product stack. Constant improvements around both Hyper-V and Azure, coupled with the massive Microsoft support organization, make a Microsoft "cloud stack" worth considering.

CA Technologies builds on its system management pedigree and some timely acquisitions for a solid CMP offering

Market Pillar

Product:	CA Technologies AppLogic
Employees:	14,000
Headquarters:	Islandia, NY
Website:	ca.com
Founded:	1979
Presence:	CA (NASDAQ)

The vendor declined to provide pricing, and publically available pricing could not be found



Overview

- A long time provider of systems management software, CA's AppLogic Platform resulted from the acquisition of CMP player 3Tera in 2010. Other important acquisitions include Nimsoft (monitoring) and most recently Layer 7 Technologies (security).

Strengths

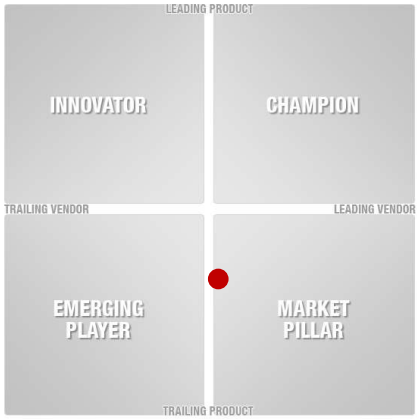
- **Application Model:** AppLogic's application model allows for easy and rapid design and implementation of complex cloud systems. After instantiation, complex systems are readily portable between data centers. Visio-like GUI has an intuitive structure for pairing each app with relevant back-end resources.
- **Networking Heritage:** AppLogic capitalizes on CA Technologies' strong systems management capabilities to enable management of mirrored storage on the IP SAN for continuous availability.

Challenges

- **Hypervisor Support:** Despite a strong Microsoft partnership, CA AppLogic does not directly support Microsoft Hyper-V. With the rise of Microsoft as a force in the virtualization space, some organizations may find this to be restrictive.
- **Complexity of Services:** CA Technologies' large portfolio of cloud solutions can be difficult to navigate and differentiate.

CA Technologies' AppLogic has continued to strengthen as a result of CA's ongoing technology acquisition strategy

Vendor Landscape



Value Index

N/A

The vendor declined to provide pricing, and publically available pricing could not be found

Product

Overall	Features	Usability	Afford.	Arch.
◐	◕	◕	○	◕

Vendor

Overall	Viability	Strategy	Reach	Channel
◕	◕	◕	◕	●

What we're hearing

"AppLogic is a turnkey system. This is a CA advantage…it's the cheapest way to run servers."

- C.A. representative

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool
●	●	●	●	●	●	●	●	●

Info-Tech Recommends:

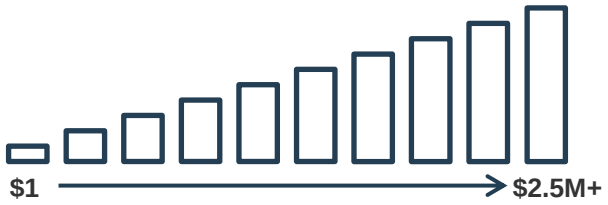
The rapid roll-out potential and simplicity of associated training has been mentioned by multiple reference clients as well as CA's product representatives. This solution is a favorable alternative to open-source solutions requiring significant integration effort, such as Openstack, making AppLogic a good choice for managers looking to minimize implementation risk around time and cost.

Abiquo provides product leadership in key areas such as ease-of-use and instantiation of cloud resources

Market Pillar

Product:	Abiquo 2.6
Employees:	50
Headquarters:	Heathrow, U.K.
Website:	abiquo.com
Founded:	2006
Presence:	Privately Held

The vendor declined to provide pricing, and publically available pricing could not be found



Overview

- Abiquo, a U.K. based pure-play cloud management provider, was one of the first entrants to focus entirely on this space. They have a strong track record with service provider clients.

Strengths

- **Advanced Architecture Mapping:** This platform contains the most impressive cloud architecture mapping capabilities of all vendors assessed. Intuitive, codeless, drag-and-drop provisioning system makes it very easy to create entire multi-tier systems in minutes.
- **Ease-of Use:** Abiquo also provides impressive flexibility and scalability around how hybrid clouds are structured. For example, a sample client uses a single platform to manage a hybrid cloud across more than six datacenters in different geographic areas. The UI in particular is intuitive and straightforward for interaction and navigation.

Challenges

- Without integrating third-party solutions, the functionality of Abiquo somewhat lags behind the leading CMP vendors. Tasks such as billing, performance monitoring, and automated resource scaling require add-ons to reach the capabilities of some competing providers.
- Has a much less extensive track record with enterprise customers looking to manage a private cloud environment.

Abiquo 2.6 has made strides over previous versions, allowing improved platform integration and improved cloud scalability

Vendor Landscape

Value Index

N/A

The vendor declined to provide pricing, and publically available pricing could not be found

Product

Overall	Features	Usability	Afford.	Arch.

Vendor

Overall	Viability	Strategy	Reach	Channel

What we're hearing

"Some new, exciting functionality is the ability to provision into Amazon. Some of your virtual data centers can be in Amazon…again with Abiquo's simple drag-and-drop to procure and configure resources."

- Abiquo representative

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool

Info-Tech Recommends:

Abiquo has shown itself to be something of a pioneer around ease-of-use, and may be particularly useful for IT departments that value simplicity. Tools enabling rapid and complex provisioning of cloud systems allow IT managers to focus on business goals rather than bolstering the internal technical capabilities required to use a cloud management platform.

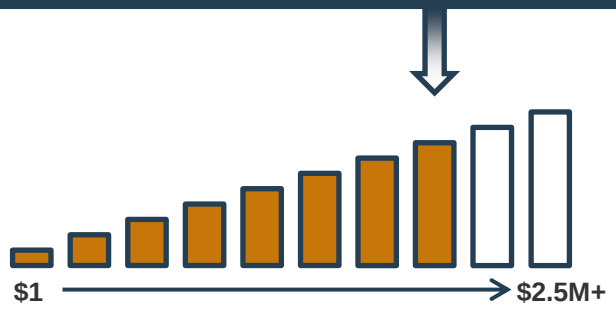
Eucalyptus provides a highly customizable, open-source CMP with affinity for AWS type functionality and AWS integration

Market Pillar

Product:	Eucalyptus 3.4
Employees:	90
Headquarters:	Santa Barbara, CA
Website:	eucalyptus.com
Founded:	2009
Presence:	Privately Held

EUCALYPTUS

3 year TCO for this solution falls into pricing tier 8, between $500,000 and $1,000,000



Pricing provided by vendor

Overview

- Started in 2007 at UC Santa Barbara, Eucalyptus is an open-source platform built to provide Amazon Web Services (AWS) functionality for private and hybrid clouds. In 2014, Eucalyptus partnered with Dell for cloud-in-a-box solutions.

Strengths

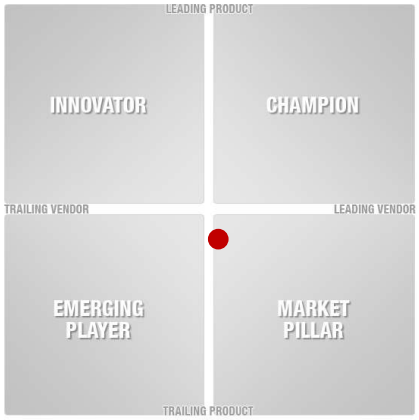
- **AWS Compatibility:** Managers looking to "build their own Amazon" and federate that with the extensive public AWS infrastructure are able to harness Eucalyptus to create a hybrid cloud environment, managed from the Eucalyptus user interface. Numerous AWS-focused APIs enable nearly seamless integration.
- **Simplicity:** As a somewhat streamlined product, Eucalyptus is fairly simple to install, configure, manage, and grow.

Challenges

- **Third Parties for Some Functions:** For example, Eucalyptus has comprehensive and granular reporting that can feed accounting/metering and performance monitoring tools but does not have those tools built in.
- **A Specific AWS-like Use Case:** AWS affinity can be both a strength and a weakness. While AWS is an unparalleled public cloud behemoth, API support for other providers is lacking. The attractiveness of Eucalyptus will rise or fall with Amazon.

Eucalyptus 3.4 is a powerful CMP in its AWS-related niche, but in other use cases it lacks the polish of some competitors

Vendor Landscape



Value Index

59

4th out of 10

Product

Overall	Features	Usability	Afford.	Arch.

Vendor

Overall	Viability	Strategy	Reach	Channel

What we're hearing

"Look out for some solid improvements in V.4 including: greater scalability and replication capabilities…and EDGE networking around virtual private cloud network capabilities."

- Eucalyptus representative

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool

Info-Tech Recommends:

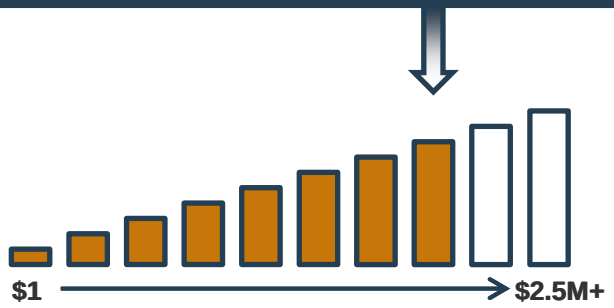
While this product has the potential to provide a familiar user interface and similar interaction experience to AWS, the level of native functionality leaves something to be desired. Numerous third-party APIs must be harnessed to extend functionality to the level expected by some organizations, particularly around native dash boarding capabilities.

For the second year in a row, Flexiant has achieved the highest product score among vendors evaluated

Innovator

Product:	Flexiant Cloud Orchestrator
Employees:	45
Headquarters:	London, U.K.
Website:	flexiant.com
Founded:	2009
Presence:	Privately Held

3 year TCO for this solution falls into pricing tier 8, between $500,000 and $1,000,000



Pricing provided by vendor

Overview

- The Flexiant Cloud Orchestrator is another offering that is very popular among service providers. The software package is simple in terms of layout and navigation, yet complete in terms of capabilities.

Strengths

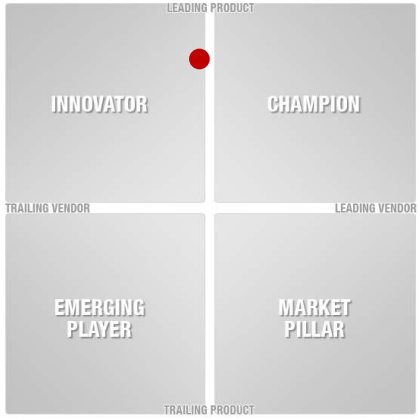
- **Highly Adaptable:** With a service provider focus, Cloud Orchestrator has standout dashboard customizability using advanced filtering capabilities, as well as moveable widgets to create the optimal view of your cloud environment.
- **Best-in-Class Templates:** The Flexiant *Bento-Box* functionality is a leading example of complex systems templates for use in cloud environments. These templates allow rapid provisioning with minimal effort and are highly customizable if desired.

Challenges

- **Geographic Reach:** Flexiant has not yet significantly penetrated the U.S. market, although rapid progress is being made. Flexiant today is more of a global player than one year ago. North American customers interviewed by Info-Tech were satisfied with the level of support.

Now a proven product: Flexiant has firmly entrenched itself as a leading incumbent in the CMP space with Cloud Orchestrator

Vendor Landscape



Value Index

100

1st out of 10

Product

Overall	Features	Usability	Afford.	Arch.

Vendor

Overall	Viability	Strategy	Reach	Channel

What we're hearing

"A cloud will only be affordable if it is designed with smart architecture – Flexiant enables a cost effective approach for architecture design."

- Akaid, Failproof Technology

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool

Info-Tech Recommends:

Cloud Orchestrator is a complete solution, offering significant flexibility and ease-of-use at a very reasonable cost.

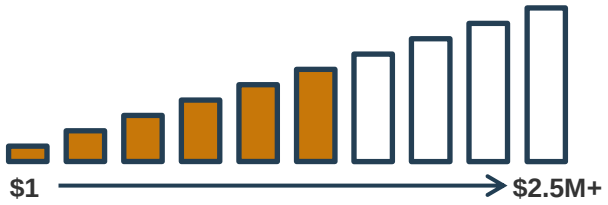
A relative newcomer, InContinuum offers an intuitive well-designed and forward-looking CMP solution

Innovator

Product:	InContinuum CloudController
Employees:	20
Headquarters:	Amsterdam, The Netherlands
Website:	incontinuum.com
Founded:	2006
Presence:	Privately Held

INCONTINUUM

3 year TCO for this solution falls into pricing tier 6, between $100,000 and $250,000



Pricing (provided by vendor / solicited from public sources)

Overview

- As a pure-play cloud platform provider, InContinuum has managed to create a highly effective, flexible, and easy-to-use offering. CloudController allows users to be as automated, or granularly controlling, as desired across a range of cloud forms.

Strengths

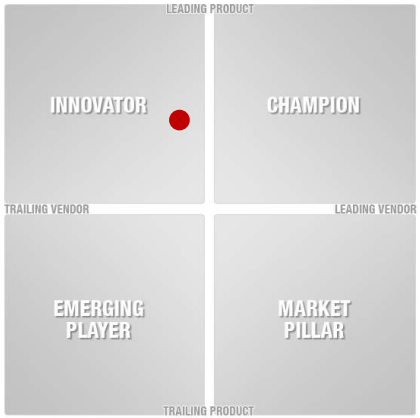
- **Automation:** CloudController allows an impressive level of native automation in numerous areas such as service provisioning, resource scaling, user management, metering/chargeback, and performance monitoring.
- **Breadth of Functionality:** In contrast to vendors with lower product scores, this out-of-the-box platform contains nearly every capability that an enterprise or service provider would require to manage today's cloud environments.

Challenges

- **Small Vendor:** The question of InContinuum's ability to thrive as it scales up across markets and product areas may be a concern for some managers.
- **Geographic Reach:** Although somewhat mediated by recent partnerships with major international players, InContinuum is still very much a European presence. However, InContinuum is making progress to bolster capabilities locally in the North American market.

InContinuum sets the standard regarding granularity of controls and custom cloud design with CloudController

Vendor Landscape



Value Index

66

3rd out of 10

Product

Overall	Features	Usability	Afford.	Arch.
				

Vendor

Overall	Viability	Strategy	Reach	Channel
				

What we're hearing

"We wanted to explore the different cloud controllers on the market and found [InContinuum CloudController] to be uniquely easy to use, even by those who aren't computer savvy."

- Dr. Clemens Jochum, Professor, Former Group CTO Deutsche Bank, Initiator of the Frankfurt Cloud Project

"A strong point was ease of installation...Within a day it was up and running."

- Michael Rohrdrommel, IT Architect, Goethe University, Frankfurt, Germany

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool

Info-Tech Recommends:

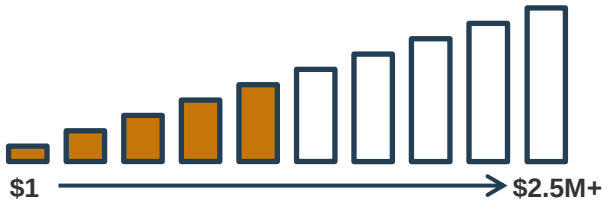
CloudController was purpose-built to satisfy the needs of managing a modern cloud. Managers looking for both granular control and flexibility around resource provisioning and user permissions will be impressed by CloudController.

Virtustream xStream provides excellent value with a reputation for supporting traditional enterprise application environments

Innovator

Product:	Virtustream xStream Cloud Management Platform 2.2
Employees:	200+
Headquarters:	Bethesda, MD
Website:	virtustream.com
Founded:	2009
Presence:	Privately Held

3 year TCO for this solution falls into pricing tier 5, between $50,000 and $100,000



Pricing (provided by vendor / solicited from public sources)

Overview

- A large portion of Virtustream's business focus is around its main role as an IaaS provider, but it licenses its xStream platform to outside customers. xStream has a reputation for handling needs of customers with complex SAP deployments.

Strengths

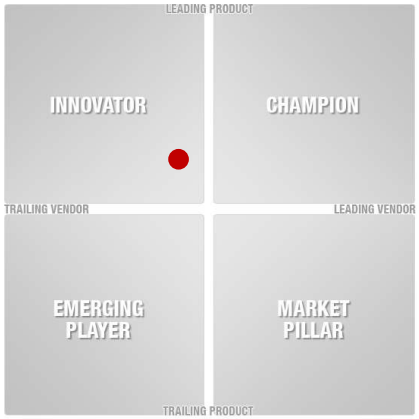
- **Affordable:** Among the pricing scenario quotes we received, Virtustream ranked as one of the most affordable vendors in Info-Tech's sample pricing scenario.
- **Multi-tenant Capabilities and Security:** Virtustream touts an ability to provide uniquely-secure hybrid cloud services as a source of competitive advantage. Application level SLAs are enabled via patented Micro VM (uVM) technology, addressing apprehension around moving key workloads off premise.
- **Client Focus:** Customers praise the client-centric approach of Virtustream – timely and effective support, as well as innovative solutions to shape the offering to each client.

Challenges

- **Hypervisor Support Gap:** No Hyper-V support yet though Microsoft's hypervisor is being deployed in more data centers.
- **Administrative Involvement:** The offering could be improved through furthering automation capabilities. As cloud services scale in size across multiple geographic regions, minimizing administrative effort becomes very important.

xStream Cloud boasts a track record of success with complex cloud deployments, particularly those integrating with SAP

Vendor Landscape



Product

Overall	Features	Usability	Afford.	Arch.
				

Vendor

Overall	Viability	Strategy	Reach	Channel
				

What we're hearing

"Their top strength is a focus on complex cloud solutions…very reliable for our SAP suite"

- Don Whittington, VP and CIO, Florida Crystals Corporation

Value Index

69

2nd out of 10

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool
								

Info-Tech Recommends:

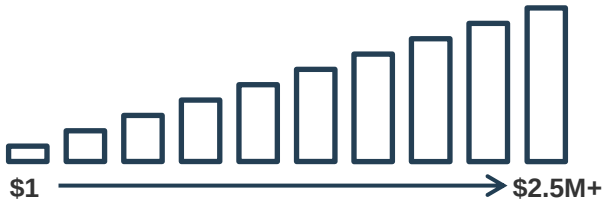
High value, coupled with this vendor's reputation for going above and beyond in terms of customer support, provides xStream with a strong value proposition. Virtustream's history as an IaaS provider means that managers seeking cloud infrastructure guidance and support will be able to harness Virtusteam's expertise when setting up their unique cloud environment.

OpenStack has lots of customization potential, yet is far from convenient for many organizations seeking a turnkey solution

Emerging Player

Product:	OpenStack Havana (Heat, Horizon, and other components)
Governance:	The OpenStack Foundation
Membership:	200+ organizations
Website:	openstack.org
Founded:	2010
Presence:	Not-for-profit Corporation

As an open-source solution backed by no single vendor, standard pricing can not be provided



Overview

- The free, open-source cloud solution from OpenStack is currently in the limelight. As it stands, we aren't sure it can live up to the considerable hype surrounding it and provide value to the typical IT organization.

Strengths

- **Rapid Development Potential:** Many developing organizations are involved with the OpenStack project, providing the potential for rapid roll-out of new internal capabilities and APIs.
- **May Become the Standard:** While not quite there yet, OpenStack has the potential to set the next status quo for cloud management platform architecture and functionality.
- **Customization Potential:** Flexibility around shaping the solution to a specific organization's needs is unparalleled with this open-source platform.

Challenges

- **Some Assembly Required:** There is a significant amount of internal planning and implementation skill required to install an OpenStack solution due to the lack of unified vendor support.
- **Uncertain Roadmap:** The development direction of OpenStack progresses rapidly, but is always in flux.
- **Unexpected Costs & Delays a Concern:** This is not a good fit if your organization is seeking a turnkey solution due to this solution's "framework" nature.

OpenStack Havana has so much potential for development in upcoming releases, yet the current state is too bare-bones for most

Vendor Landscape

Product

Overall	Features	Usability	Afford.	Arch.
				

Vendor

Overall	Viability	Strategy	Reach	Channel
				

What we're hearing

"Early adopters of OpenStack include public sector organizations with significant networking experience and in-house experience. If you are looking to build a cloud with OpenStack, make sure you have built one before. OpenStack provides plumbing and saves some effort there… but it's not the whole project."

- IT Manager, anonymous

Value Index

N/A

The vendor declined to provide pricing, and publically available pricing could not be found

Features

Performance Monitoring	Showback & Chargeback	Whitelabeling/ Customizability	Hypervisor Agnosticism	AWS Integration	Automatic Resource Scaling	Advanced Templates	Basic Templates	Advanced Arch. Mapping Tool
								

Info-Tech Recommends:

The open-ended nature of this option's capabilities and strategic direction is rightfully so a source of worry for many IT managers. While the customizability potential is huge, only organizations with ample development capabilities, financial resources, and implementation timing flexibility should consider OpenStack to fulfill their CMP needs.

Contract Review and Negotiation Tactics

Arrange a call now: email GuidedImplementations@InfoTech.com or call 1-888-670-8889 and ask for the Guided Implementation Coordinator.

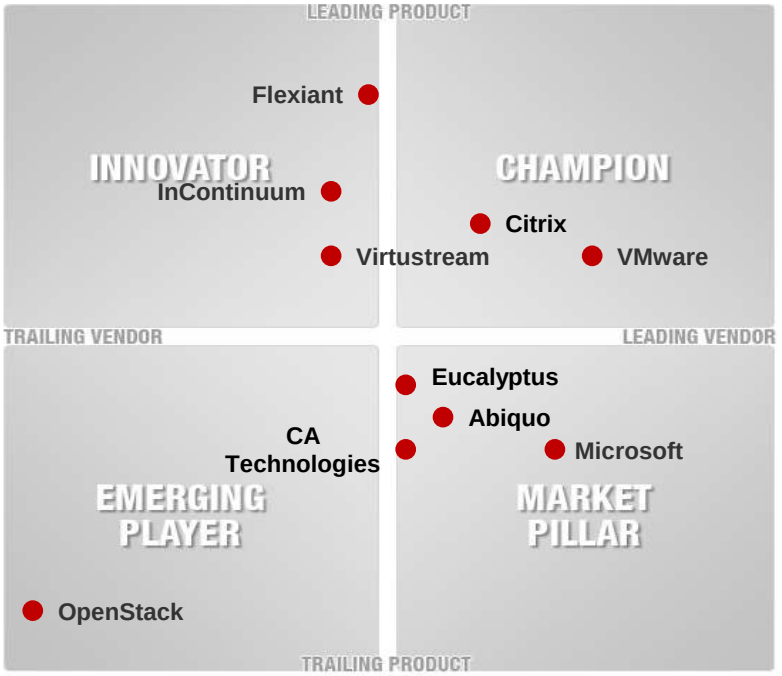
Prior to the Guided Implementation	During the Guided Implementation	Value & Outcome
1. Bring final contracts received from vendors on short list	**Info-Tech Consulting Analyst will discuss with you:** • Review contracts with clients, ensure the contract is fair and inline with industry standards • Discuss the best negotiation tactics to get the best value for your purchase	**At the conclusion of the Guided Implementation call, you will have:** • Tactics on how to get a better price on your solution • **Confidence** in the solution you are purchasing.

Identify leading candidates with the *Cloud Management Platforms Vendor Shortlist Tool and Feature Analysis Tool*

The Info-Tech *Cloud Management Platforms Vendor Shortlist and Feature Analysis Tool* is designed to generate a customized shortlist of vendors based on *your* key priorities.

This tool offers the ability to modify:

- Overall Vendor vs. Product Weightings
- Individual product criteria weightings:
  - ✓ Features
  - ✓ Usability
  - ✓ Affordability
  - ✓ Architecture
- Individual vendor criteria weightings:
  - ✓ Viability
  - ✓ Strategy
  - ✓ Reach
  - ✓ Channel



Appendix

1. Vendor Landscape Methodology: Overview
2. Vendor Landscape Methodology: Product Selection & Information Gathering
3. Vendor Landscape Methodology: Scoring
4. Vendor Landscape Methodology: Information Presentation
5. Vendor Landscape Methodology: Fact Check & Publication
6. Product Pricing Scenario

Vendor Landscape Methodology: Overview

Info-Tech's Vendor Landscapes are research materials that review a particular IT market space, evaluating the strengths and abilities of both the products available in that space, as well as the vendors of those products. These materials are created by a team of dedicated analysts operating under the direction of a senior subject matter expert over a period of six weeks.

Evaluations weigh selected vendors and their products (collectively "solutions") on the following eight criteria to determine overall standing:

- Features: The presence of advanced and market-differentiating capabilities.
- Usability: The intuitiveness, power, and integrated nature of administrative consoles and client software components.
- Affordability: The three-year total cost of ownership of the solution.
- Architecture: The degree of integration with the vendor's other tools, flexibility of deployment, and breadth of platform applicability.
- Viability: The stability of the company as measured by its history in the market, the size of its client base, and its financial performance.
- Strategy: The commitment to both the market-space, as well as to the various sized clients (small, mid-sized, and enterprise clients).
- Reach: The ability of the vendor to support its products on a global scale.
- Channel: The measure of the size of the vendor's channel partner program, as well as any channel strengthening strategies.

Evaluated solutions are plotted on a standard two by two matrix:

- Champions: Both the product and the vendor receive scores that are above the average score for the evaluated group.
- Innovators: The product receives a score that is above the average score for the evaluated group, but the vendor receives a score that is below the average score for the evaluated group.
- Market Pillars: The product receives a score that is below the average score for the evaluated group, but the vendor receives a score that is above the average score for the evaluated group.
- Emerging Players: Both the product and the vendor receive scores that are below the average score for the evaluated group.

Info-Tech's Vendor Landscapes are researched and produced according to a strictly adhered to process that includes the following steps:

- Vendor/product selection
- Information gathering
- Vendor/product scoring
- Information presentation
- Fact checking
- Publication

This document outlines how each of these steps is conducted.

Vendor Landscape Methodology: Vendor/Product Selection & Information Gathering

Info-Tech works closely with its client base to solicit guidance in terms of understanding the vendors with whom clients wish to work and the products that they wish evaluated; this demand pool forms the basis of the vendor selection process for Vendor Landscapes. Balancing this demand, Info-Tech also relies upon the deep subject matter expertise and market awareness of its Senior, Lead, and Principle Research Analysts to ensure that appropriate solutions are included in the evaluation. As an aspect of that expertise and awareness, Info-Tech's analysts may, at their discretion, determine the specific capabilities that are required of the products under evaluation, and include in the Vendor Landscape only those solutions that meet all specified requirements.

Information on vendors and products is gathered in a number of ways via a number of channels.

Initially, a request package is submitted to vendors to solicit information on a broad range of topics. The request package includes:

- A detailed survey.
- A pricing scenario (see Vendor Landscape Methodology: Price Evaluation and Pricing Scenario, below).
- A request for reference clients.
- A request for a briefing and, where applicable, guided product demonstration.

These request packages are distributed approximately twelve weeks prior to the initiation of the actual research project to allow vendors ample time to consolidate the required information and schedule appropriate resources.

During the course of the research project, briefings and demonstrations are scheduled (generally for one hour each session, though more time is scheduled as required) to allow the analyst team to discuss the information provided in the survey, validate vendor claims, and gain direct exposure to the evaluated products. Additionally, an end-user survey is circulated to Info-Tech's client base and vendor-supplied reference accounts are interviewed to solicit their feedback on their experiences with the evaluated solutions and with the vendors of those solutions.

These materials are supplemented by a thorough review of all product briefs, technical manuals, and publicly available marketing materials about the product, as well as about the vendor itself.

Refusal by a vendor to supply completed surveys or submit to participation in briefings and demonstrations does not eliminate a vendor from inclusion in the evaluation. Where analyst and client input has determined that a vendor belongs in a particular evaluation, it will be evaluated as best as possible based on publicly available materials only. As these materials are not as comprehensive as a survey, briefing, and demonstration, the possibility exists that the evaluation may not be as thorough or accurate. Since Info-Tech includes vendors regardless of vendor participation, it is always in the vendor's best interest to participate fully.

All information is recorded and catalogued, as required, to facilitate scoring and for future reference.

Vendor Landscape Methodology: Scoring

Once all information has been gathered and evaluated for all vendors and products, the analyst team moves to scoring. All scoring is performed at the same time so as to ensure as much consistency as possible. Each criterion is scored on a ten point scale, though the manner of scoring for criteria differs slightly:

- Features is scored via **Cumulative Scoring**
- Affordability is scored via **Scalar Scoring**
- All other criteria are scored via **Base5 Scoring**

In Cumulative Scoring, a single point is assigned to each evaluated feature that is regarded as being fully present, partial points to each feature that is partially present, and zero points to features that are deemed to be absent or unsatisfactory. The assigned points are summed and normalized to a value out of ten. For example, if a particular Vendor Landscape evaluates eight specific features in the Feature Criteria, the summed score out of eight for each evaluated product would be multiplied by 1.25 to yield a value out of ten.

In Scalar Scoring, a score of ten is assigned to the lowest cost solution, and a score of one is assigned to the highest cost solution. All other solutions are assigned a mathematically determined score based on their proximity to / distance from these two endpoints. For example, in an evaluation of three solutions, where the middle cost solution is closer to the low end of the pricing scale it will receive a higher score, and where it is closer to the high end of the pricing scale it will receive a lower score; depending on proximity to the high or low price it is entirely possible that it could receive either ten points (if it is very close to the lowest price) or one point (if it is very close to the highest price). Where pricing cannot be determined (vendor does not supply price and public sources do not exist), a score of 0 is automatically assigned.

In Base5 scoring a number of sub-criteria are specified for each criterion (for example, Longevity, Market Presence, and Financials are sub-criteria of the Viability criterion), and each one is scored on the following scale:

5 - The product/vendor is exemplary in this area (nothing could be done to improve the status).
4 - The product/vendor is good in this area (small changes could be made that would move things to the next level).
3 - The product/vendor is adequate in this area (small changes would make it good, more significant changes required to be exemplary).
2 - The product/vendor is poor in this area (this is a notable weakness and significant work is required).
1 - The product/vendor is terrible/fails in this area (this is a glaring oversight and a serious impediment to adoption).

The assigned points are summed and normalized to a value out of ten as explained in Cumulative Scoring above.

Scores out of ten, known as Raw scores, are transposed as-is into Info-Tech's Vendor Landscape Shortlist Tool, which automatically determines Vendor Landscape positioning (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, below), Criteria Score (see Vendor Landscape Methodology: Information Presentation - Criteria Score, below), and Value Index (see Vendor Landscape Methodology: Information Presentation - Value Index, below).

Vendor Landscape Methodology: Information Presentation – Vendor Landscape

Info-Tech's Vendor Landscape is a two-by-two matrix that plots solutions based on the combination of Product score and Vendor score. Placement is not determined by absolute score, but instead by relative score. Relative scores are used to ensure a consistent view of information and to minimize dispersion in nascent markets, while enhancing dispersion in commodity markets to allow for quick visual analysis by clients.

Relative scores are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion Raw score is multiplied by the pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process to eliminate any possibility of bias. Weighting factors are expressed as a percentage such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100% and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.
4. Overall Vendor scores are then normalized to a 20 point scale by calculating the arithmetic mean and standard deviation of the pool of Vendor scores. Vendors for whom their overall Vendor score is higher than the arithmetic mean will receive a normalized Vendor score of 11-20 (exact value determined by how much higher than the arithmetic mean their overall Vendor score is), while vendors for whom their overall Vendor score is lower than the arithmetic mean will receive a normalized Vendor score of between one and ten (exact value determined by how much lower than the arithmetic mean their overall Vendor score is).
5. Overall Product score is normalized to a 20 point scale according to the same process.
6. Normalized scores are plotted on the matrix, with Vendor score being used as the x-axis, and Product score being used as the y-axis.

Vendor Landscape

Innovators: solutions with below average Vendor scores and above average Product scores.

Champions: solutions with above average Vendor scores and above average Product scores.

Emerging Players: solutions with below average Vendor scores and below average Product scores.

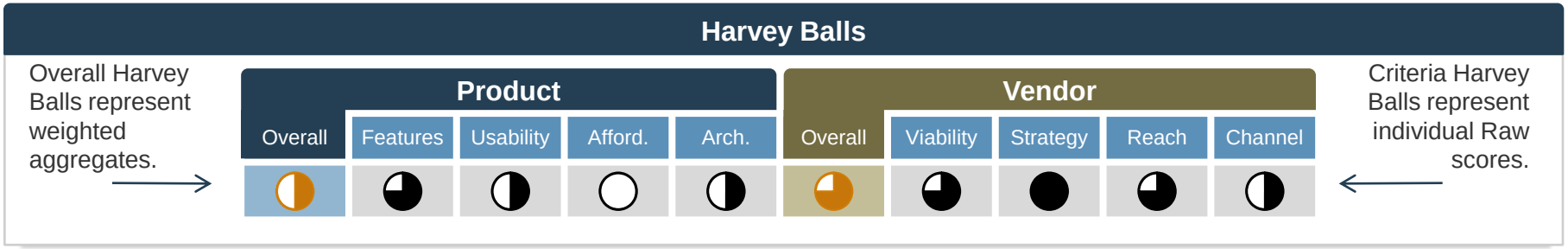
Market Pillars: solutions with above average Vendor scores and below average Product scores.

Vendor Landscape Methodology: Information Presentation – Criteria Scores (Harvey Balls)

Info-Tech's Criteria Scores are visual representations of the absolute score assigned to each individual criterion, as well as of the calculated overall Vendor and Product scores. The visual representation used is Harvey Balls.

Harvey Balls are calculated as follows:

1. Raw scores are transposed into the Info-Tech Vendor Landscape Shortlist Tool (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).
2. Each individual criterion Raw score is multiplied by a pre-assigned weighting factor for the Vendor Landscape in question. Weighting factors are determined prior to the evaluation process, based on the expertise of the Senior or Lead Research Analyst, to eliminate any possibility of bias. Weighting factors are expressed as a percentage, such that the sum of the weighting factors for the Vendor criteria (Viability, Strategy, Reach, Channel) is 100%, and the sum of the Product criteria (Features, Usability, Affordability, Architecture) is 100%.
3. A sum-product of the weighted Vendor criteria scores and of the weighted Product criteria scores is calculated to yield an overall Vendor score and an overall Product score.
4. Both overall Vendor score / overall Product score, as well as individual criterion Raw scores are converted from a scale of one to ten to Harvey Ball scores on a scale of zero to four, where exceptional performance results in a score of four and poor performance results in a score of zero.
5. Harvey Ball scores are converted to Harvey Balls as follows:
   - A score of four becomes a full Harvey Ball.
   - A score of three becomes a three-quarter full Harvey Ball.
   - A score of two becomes a half full Harvey Ball.
   - A score of one becomes a one-quarter full Harvey Ball.
   - A score of zero becomes an empty Harvey Ball.
6. Harvey Balls are plotted by solution in a chart where rows represent individual solutions and columns represent overall Vendor / overall Product, as well as individual criteria. Solutions are ordered in the chart alphabetically by vendor name.



Vendor Landscape Methodology: Information Presentation – Feature Ranks (Stoplights)

Info-Tech's Feature Ranks are visual representations of the presence/availability of individual features that collectively comprise the Features' criterion. The visual representation used is stoplights.

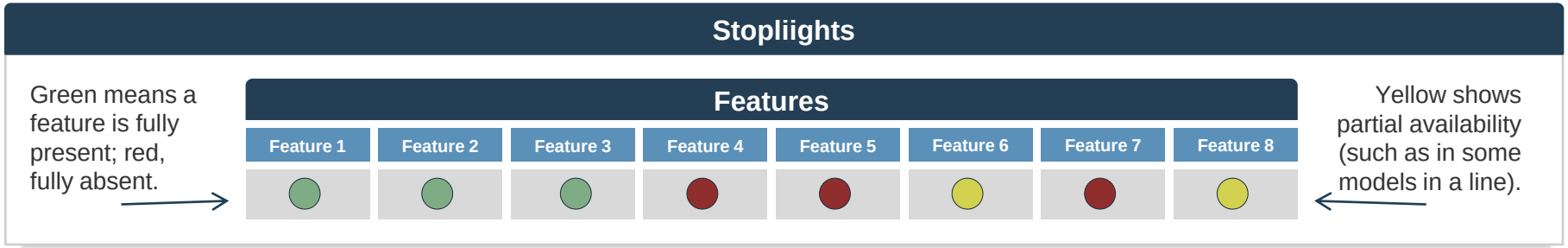
Stoplights are determined as follows:

1. A single point is assigned to each evaluated feature that is regarded as being fully present, partial points to each feature that is partially present, and zero points to features that are deemed to be fully absent or unsatisfactory.
   - Fully present means all aspects and capabilities of the feature as described are in evidence.
   - Fully absent means all aspects and capabilities of the feature as described are missing or lacking.
   - Partially present means some, but not all, aspects and capabilities of the feature as described are in evidence, **OR** all aspects and capabilities of the feature as described are in evidence, but only for some models in a line.

2. Feature scores are converted to stoplights as follows:
   - Full points become a green light.
   - Partial points become a yellow light.
   - Zero points become a red light.

3. Stoplights are plotted by solution in a chart where rows represent individual solutions and columns represent individual features. Solutions are ordered in the chart alphabetically by vendor name.

For example, a set of applications is being reviewed and a feature of "*Integration with Mobile Devices*" that is defined as "*availability of dedicated mobile device applications for iOS, Android, and BlackBerry devices*" is specified. Solution A provides such apps for all listed platforms and scores "green," solution B provides apps for iOS and Android only and scores "yellow" while solution C provides mobile device functionality through browser extensions, has no dedicated apps, and so scores "red."



Vendor Landscape Methodology: Information Presentation – Value Index

Info-Tech's Value Index is an indexed ranking of solution value per dollar as determined by the Raw scores assigned to each criteria (for information on how Raw scores are determined, see Vendor Landscape Methodology: Scoring, above).

Value scores are calculated as follows:

1. The Affordability criterion is removed from the overall Product score and the remaining Product score criteria (Features, Usability, Architecture) are reweighted so as to retain the same weightings relative to one another, while still summing to 100%. For example, if all four Product criteria were assigned base weightings of 25%, for the determination of the Value score, Features, Usability, and Architecture would be reweighted to 33.3% each to retain the same relative weightings while still summing to 100%.
2. A sum-product of the weighted Vendor criteria scores and of the reweighted Product criteria scores is calculated to yield an overall Vendor score and a reweighted overall Product score.
3. The overall Vendor score and the reweighted overall Product score are then summed, and this sum is multiplied by the Affordability Raw score to yield an interim Value score for each solution.
4. All interim Value scores are then indexed to the highest performing solution by dividing each interim Value score by the highest interim Value score. This results in a Value score of 100 for the top solution and an indexed Value score relative to the 100 for each alternate solution.
5. Solutions are plotted according to Value score, with the highest score plotted first, and all remaining scores plotted in descending numerical order.

Where pricing is not provided by the vendor and public sources of information cannot be found, an Affordability Raw score of zero is assigned. Since multiplication by zero results in a product of zero, those solutions for which pricing cannot be determined receive a Value score of zero. Since Info-Tech assigns a score of zero where pricing is not available, it is always in the vendor's best interest to provide accurate and up to date pricing. In the event that insufficient pricing is available to accurately calculate a Value Index Info-Tech will omit it from the Vendor Landscape.

Value Index

Vendors are arranged in order of Value Score. The Value Score each solution achieved is displayed, and so is the average score.

Those solutions that are ranked as Champions are differentiated for point of reference.

Vendor Landscape Methodology: Information Presentation – Price Evaluation: MidMarket

Info-Tech's Price Evaluation is a tiered representation of the three year Total Cost of Ownership (TCO) of a proposed solution. Info-Tech uses this method of communicating pricing information to provide high-level budgetary guidance to its end-user clients while respecting the privacy of the vendors with whom it works. The solution TCO is calculated and then represented as belonging to one of ten pricing tiers.

Pricing tiers are as follows:

1. Between $1 and $2,500
2. Between $2,500 and $10,000
3. Between $10,000 and $25,000
4. Between $25,000 and $50,000
5. Between $50,000 and $100,000
6. Between $100,000 and $250,000
7. Between $250,000 and $500,000
8. Between $500,000 and $1,000,000
9. Between $1,000,000 and $2,500,000
10. Greater than $2,500,000

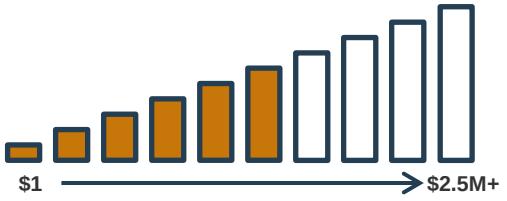
Where pricing is not provided, Info-Tech makes use of publicly available sources of information to determine a price. As these sources are not official price lists, the possibility exists that they may be inaccurate or outdated, and so the source of the pricing information is provided. Since Info-Tech publishes pricing information regardless of vendor participation, it is always in the vendor's best interest to supply accurate and up to date information.

Info-Tech's Price Evaluations are based on pre-defined pricing scenarios (see Product Pricing Scenario, below) to ensure a comparison that is as close as possible between evaluated solutions. Pricing scenarios describe a sample business and solicit guidance as to the appropriate product/service mix required to deliver the specified functionality, the list price for those tools/services, as well as three full years of maintenance and support.

Price Evaluation

Call-out bubble indicates within which price tier the three year TCO for the solution falls, provides the brackets of that price tier, and links to the graphical representation.

3 year TCO for this solution falls into pricing tier 6, between $100,000 and $150,000.



Pricing solicited from public sources.

Scale along the bottom indicates that the graphic as a whole represents a price scale with a range of $1 to $2.5M+, while the notation indicates whether the pricing was supplied by the vendor or derived from public sources.

Vendor Landscape Methodology: Information Presentation – Scenarios

Info-Tech's Scenarios highlight specific use cases for the evaluated solution to provide as complete (when taken in conjunction with the individual written review, Vendor Landscape, Criteria Scores, Feature Ranks, and Value Index) a basis for comparison by end-user clients as possible.

Scenarios are designed to reflect tiered capability in a particular set of circumstances. Determination of the Scenarios in question is at the discretion of the analyst team assigned to the research project. Where possible, Scenarios are designed to be mutually exclusive and collectively exhaustive, or at the very least, hierarchical such that the tiers within the Scenario represent a progressively greater or broader capability.

Scenario ranking is determined as follows:

1. The analyst team determines an appropriate use case.
   For example:
   - Clients that have multinational presence and require vendors to provide four hour onsite support.
2. The analyst team establishes the various tiers of capability.
   For example:
   - Presence in Americas
   - Presence in EMEA
   - Presence in APAC
3. The analyst team reviews all evaluated solutions and determines which ones meet which tiers of capability.
   For example:
   - Presence in Americas – Vendor A, Vendor C, Vendor E
   - Presence in EMEA – Vendor A, Vendor B, Vendor C
   - Presence in APAC – Vendor B, Vendor D, Vendor E
4. Solutions are plotted on a grid alphabetically by vendor by tier. Where one vendor is deemed to be stronger in a tier than other vendors in the same tier, they may be plotted non-alphabetically.
   For example:
   - Vendor C is able to provide four hour onsite support to 12 countries in EMEA while Vendors A and B are only able to provide four hour onsite support to eight countries in EMEA; Vendor C would be plotted first, followed by Vendor A, then Vendor B.

Analysts may also elect to list only the most Exemplary Performers for a given use-case. One to three vendors will appear for each of these purchasing scenarios with a brief explanation as to why we selected them as top-of-class.

Vendor Landscape Methodology: Information Presentation – Vendor Awards

At the conclusion of all analyses, Info-Tech presents awards to exceptional solutions in three distinct categories. Award presentation is discretionary; not all awards are extended subsequent to each Vendor landscape and it is entirely possible, though unlikely, that no awards may be presented.

Awards categories are as follows:

- **Champion Awards** are presented to those solutions, and only those solutions, that land in the Champion zone of the Info-Tech Vendor Landscape (see Vendor Landscape Methodology: Information Presentation - Vendor Landscape, above). If no solutions land in the Champion zone, no Champion Awards are presented. Similarly, if multiple solutions land in the Champion zone, multiple Champion Awards are presented.
- **Trend Setter Awards** are presented to those solutions, and only those solutions, that are deemed to include the most original/inventive product/service, or the most original/inventive feature/capability of a product/service. If no solution is deemed to be markedly or sufficiently original/inventive, either as a product/service on the whole or by feature/capability specifically, no Trend Setter Award is presented. Only one Trend Setter Award is available for each Vendor Landscape.
- **Best Overall Value Awards** are presented to those solutions, and only those solutions, that are ranked highest on the Info-Tech Value Index (see Vendor Landscape Methodology: Information Presentation – Value Index, above). If insufficient pricing information is made available for the evaluated solutions, such that a Value Index cannot be calculated, no Best Overall Value Award will be presented. Only one Best Overall Value Award is available for each Vendor Landscape.

Vendor Awards

Info-Tech's **Champion Award** is presented to solutions in the Champion zone of the Vendor Landscape.

Info-Tech's **Trend Setter Award** is presented to the most original/inventive solution evaluated.

Info-Tech's **Best Overall Value Award** is presented to the solution with the highest Value Index score.

Vendor Landscape Methodology: Fact Check & Publication

Info-Tech takes the factual accuracy of its Vendor Landscapes, and indeed of all of its published content, very seriously. To ensure the utmost accuracy in its Vendor Landscapes, we invite all vendors of evaluated solutions (whether the vendor elected to provide a survey and/or participate in a briefing or not) to participate in a process of Fact Check.

Once the research project is complete and the materials are deemed to be in a publication ready state, excerpts of the material specific to each vendor's solution are provided to the vendor. Info-Tech only provides material specific to the individual vendor's solution for review encompassing the following:

- All written review materials of the vendor and the vendor's product that comprise the evaluated solution.
- Info-Tech's Criteria Scores / Harvey Balls detailing the individual and overall Vendor / Product scores assigned.
- Info-Tech's Feature Rank / Stoplights detailing the individual feature scores of the evaluated product.
- Info-Tech's Raw Pricing for the vendor either as received from the vendor or as collected from publicly available sources.
- Info-Tech's Scenario ranking for all considered scenarios for the evaluated solution.

Info-Tech does not provide the following:

- Info-Tech's Vendor Landscape placement of the evaluated solution.
- Info-Tech's Value Score for the evaluated solution.
- End-user feedback gathered during the research project.
- Info-Tech's overall recommendation in regard to the evaluated solution.

Info-Tech provides a one-week window for each vendor to provide written feedback. Feedback must be corroborated (be provided with supporting evidence), and where it does, feedback that addresses factual errors or omissions is adopted fully, while feedback that addresses opinions is taken under consideration. The assigned analyst team makes all appropriate edits and supplies an edited copy of the materials to the vendor within one week for final review.

Should a vendor still have concerns or objections at that time, they are invited to a conversation, initially via email, but as required and deemed appropriate by Info-Tech, subsequently via telephone, to ensure common understanding of the concerns. Where concerns relate to ongoing factual errors or omissions they are corrected under the supervision of Info-Tech's Vendor Relations personnel. Where concerns relate to ongoing differences of opinion they are again taken under consideration with neither explicit not implicit indication of adoption.

Publication of materials is scheduled to occur within the six weeks immediately following the completion of the research project, but does not occur until the Fact Check process has come to conclusion, and under no circumstances are "pre-publication" copies of any materials made available to any client.

Product Pricing Scenario

Pricing Scenario

Mountain Enterprises is looking to build their own private cloud based on consolidated and virtualized industry standard server infrastructure. This basic characteristics of the Mountain Cloud will include:

- Compute capacity to support 500 virtual machines which are defined by a catalogue of user-selectable templates. Capacity will likely scale in future.
- A secure multi-tenant environment. As this is a private enterprise cloud, the tenants are limited to the many divisions and departments within Mountain Enterprises. Individual tenants may also have multiple environments such as test /dev environment and a production server environment.
- A self-service portal where tenants can select pre-defined application and service templates from the catalogue and have them automatically instantiated in the cloud.
- A resource monitoring and chargeback capability that can transparently show the costs of the resources consumed by the tenant on a metered basis.

Uses of the Mountain Cloud include:

- Development and pre-production testing environment
- Hosting software product demos for training
- Hosting silver and bronze level production applications
- Will also be exploring integration/federation potential with external private and public clouds

Infrastructure:

- Consolidated blade server architecture featuring 2 socket Xeon x5670 (6 core) 98GB memory, with 40 VMs per socket
- FC SAN Array with RAID 5
- 10 Gigabit Ethernet
- Windows 2008 and Linux servers supported

Expected capabilities of solution:

- **Orchestrate** all the services through management APIs
- **Automate** the provisioning and scaling of processes and services
- **Present** services to end customers (tenants) via a self-service portal
- **Monitor and meter** resource consumption for chargeback/showback

Pricing Requirement

- Licensing cost for cloud management platform. Please specify licensing model (for example, by physical host, by capacity, by VM, etc.)
- Support pricing for gold level support for the installation for three years.