Vendor Landscape: Cloud Management Solutions

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

Cloud management is a rapidly maturing and evolving market comprised of proprietary and open source vendors coming from multiple backgrounds with varied feature sets and targeting very different customers.

This Research Is Designed For:

✓ Organizations looking to deploy private or hybrid cloud services on commodity hardware or on existing virtualized infrastructure.

✓ Service providers looking for the best solution for their target customers, on their existing technologies, within their geographical region.

This Research Will Help You:

✓ Understand what’s new in the cloud management market.

✓ Evaluate cloud management vendors and products for your enterprise needs.

✓ Determine which products are most appropriate for particular use cases and scenarios.
Executive Summary

Info-Tech evaluated nine competitors in the Cloud Management market, including the following notable performers:

**Champions:**
- **Citrix** CloudPlatform offers flexible hypervisor and hardware deployment options with the support of a mature vendor and a strong open source community.
- **Abiquo**’s capabilities to integrate with existing systems, in combination with its stand out self service functionality make it a great solution for enterprises needing a private or hybrid cloud.
- **VMware.** A virtualization force with a solid foundation for private cloud deployments, offering standout performance monitoring and drill down capabilities.

**Value Award:**
- **Citrix.** A hardened open source solution with a simple price per socket annual subscription model, Cloud Platform offers the most functionality for the price.

**Trend Setter Award:**
- **Flexiant**’s unique customization and whitelabeling, integrated billing, and it’s ability to support multiple hypervisors, make it a standout solution that’s ahead of the curve in advanced features.

**Info-Tech Insight**

1. **Match features to use case.** Solutions targeting service providers often have broader hypervisor support and chargeback functionality, but tend not to integrate with VMware vSphere.

2. **Evaluate hypervisor support.** Most solutions support both VMware ESX and KVM, but few support Microsoft Hyper-V or Citrix XenServer. As hybrid cloud scenarios become more commonplace, it will be important for service providers to select a solution that supports the install base of its clients. Enterprises should look to solutions that can be layered on existing hardware, whether commodity servers, blade systems or virtualized infrastructures with storage.

3. **Consider Amazon hook-ins for bursting scenarios.** If there is a strong use case for public cloud integration for seasonal or project-based variation in requirements for resources, capability to integrate with Amazon using its APIs is a plus.
# Market Overview

## How it got here

- **Getting the NIST of it.** Many enterprises view “private cloud” simply to mean near 100% virtual, but a private cloud requires so much more. Previously, vendors were scrambling to put together the features of private cloud as defined by the National Institute of Standards and Technology (NIST): on-demand self service, broad network access, resource pooling, rapid elasticity and measured service.

- **Public cloud reached maturity.** Between 2010 and 2012, Info-Tech customers reported a 200% increase in Infrastructure-as-a-Service deployments (source: Info-Tech). In addition, Amazon’s storage cloud (S3) went from 262 billion to 762 billion objects stored in 2011.

- **Server virtualization made private cloud accessible.** VMware and Citrix, both strong players in server virtualization, built management solutions to deliver private cloud as an additional layer on existing virtual infrastructures. Organizations are now more than 50% virtualized and routinely deploying production applications on virtual machines (source: Info-Tech).

## Where it’s going

- **Move beyond the checkNIST of features.** Everyone has the core functionality put forward by the NIST definition. Organizations must now look at out-of-the-box capabilities beyond these features to determine what business need a solution will solve for the organization.

- **Bringing public cloud in-house (and vice versa).** Many cloud management solutions are aligning their security models, virtual networking and API strategy with that of Amazon and other public cloud vendors to provide their customers with ability to migrate workloads seamlessly between owned and non-owned clouds for bursting, or bolstering DR/BC capabilities.

- **Market momentum now in service provider market.** Many regional hosting and managed services providers are looking for a means of offering cloud services to their customers. Info-Tech predicts significant market growth in this market the next 12-18 months.

- **Future market will be in mid-to-large enterprise.** Many enterprises see the potential benefit of cloud automation on commodity hardware, but already have investment in server virtualization on traditional storage.

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**Info-Tech Insight**

As the market evolves, capabilities that were once cutting edge, like self service, elasticity, and measured service, become default and new functionality becomes differentiating. Service providers should assess capabilities for self service, product white labeling and hypervisor agnosticism, and enterprises should consider capability to integrate with Amazon and VMware.
Cloud Management 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:

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Description</th>
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<tbody>
<tr>
<td>Abiquo.</td>
<td>Feature-rich, pure-play cloud vendor with broad hypervisor and hardware support targeting the enterprise.</td>
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<tr>
<td>CA Technologies.</td>
<td>Combining its strong roots in systems management with application delivery focused AppLogic solution acquired from 3Tera, CA has a compelling cloud management solution.</td>
</tr>
<tr>
<td>Citrix.</td>
<td>Combining its strong virtualization portfolio with IP acquired from Cloud.com, Citrix Cloud Platform is a mature production-ready out-of-the-box solution fit for service providers and enterprises.</td>
</tr>
<tr>
<td>Eucalyptus.</td>
<td>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.</td>
</tr>
<tr>
<td>Flexiant.</td>
<td>With roots in the service provider market, Flexiant targets service providers in Europe, and has exceptional dashboard customization, and integrated billing capabilities.</td>
</tr>
<tr>
<td>Nimbula.</td>
<td>Pure play cloud management vendor focused on delivering private cloud capabilities on top of commodity hardware for enterprise customers.</td>
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<tr>
<td>OpenStack.</td>
<td>Founded by Rackspace Hosting and NASA, and with a large contingent of supporting technology vendors, OpenStack is an open source project that is a good fit for those with highly technical operations teams.</td>
</tr>
<tr>
<td>Virtustream.</td>
<td>Delivering cloud solutions for organizations with stringent security and compliance requirements, Virtustream excels and deploying legacy and enterprise apps in the private, virtual private and public cloud.</td>
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<tr>
<td>VMware.</td>
<td>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 server virtualized stack.</td>
</tr>
</tbody>
</table>
## Cloud Management criteria & weighting factors

### Product Evaluation Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Features</td>
<td>The solution provides basic and advanced feature/functionality.</td>
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<tr>
<td>Usability</td>
<td>The solution’s user and administrative interfaces are intuitive and easy to use.</td>
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<tr>
<td>Affordability</td>
<td>The three year TCO of the solution is economical.</td>
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<tr>
<td>Architecture</td>
<td>The solution has flexible deployment options and comes out-of-the-box as a unified solution.</td>
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</table>

### Vendor Evaluation Criteria

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

### Criteria Weighting:

- **Features**: 20%
- **Usability**: 30%
- **Architecture**: 30%
- **Affordability**: 20%

### Vendor:

- **Viability**: 25%
- **Strategy**: 30%
- **Reach**: 15%
- **Channel**: 30%
The Info-Tech Cloud Management Vendor Landscape

**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 trendsetters 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 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.

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

<table>
<thead>
<tr>
<th>Product</th>
<th>Overall</th>
<th>Features</th>
<th>Usability</th>
<th>Afford.</th>
<th>Arch.</th>
<th>Overall</th>
<th>Viability</th>
<th>Strategy</th>
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<th>Channel</th>
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* Vendor declined 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.
**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.

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

Average Score: 67

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

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**

<table>
<thead>
<tr>
<th>Feature</th>
<th>What it is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metering</td>
<td>To enable admin tracking of aggregate compute, network, and storage utilization.</td>
</tr>
<tr>
<td>Template/Image Library</td>
<td>Availability of a template or image library for rapid provisioning of new (virtual) machines.</td>
</tr>
<tr>
<td>Role-based Access</td>
<td>Customizable permissions-based access for different classes of users.</td>
</tr>
<tr>
<td>RESTful APIs</td>
<td>APIs based on the REST architecture to enable integration of third-party systems (e.g. billing systems, CRM).</td>
</tr>
<tr>
<td>Private/Public Cloud Integ.</td>
<td>Manage and migrate internal and external cloud resources seamlessly through a single interface.</td>
</tr>
</tbody>
</table>

**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.

If Table Stakes are all you need from your Cloud Management 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 1 point for each feature the product inherently provided. Some categories were scored on a more granular scale with vendors receiving half points.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advanced Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Monitoring</td>
<td>Provide visibility into the performance of servers/VMs, network, storage.</td>
</tr>
<tr>
<td>Quota Management</td>
<td>Create maxima to end users’ consumable resources</td>
</tr>
<tr>
<td>Embedded Billing &amp; Chargebacks</td>
<td>Out-of-the-box capabilities to bill customers/business units for resource utilization</td>
</tr>
<tr>
<td>Whitelabeling &amp; Customizability</td>
<td>Control of the look and feel of admin/end-user portals for purpose of branding and optimization.</td>
</tr>
<tr>
<td>Automated Approvals</td>
<td>Event triggered automation of approvals and notifications for self service.</td>
</tr>
<tr>
<td>Cost Visibility</td>
<td>Real time visibility for the end-user in terms of costs of provisioned resources.</td>
</tr>
<tr>
<td>Hypervisor Agnosticism</td>
<td>Manage VM guests on ESX, KVM, Hyper-V, Open Source Xen, and XenServer Hypervisors.</td>
</tr>
<tr>
<td>vSphere Integration</td>
<td>Hook in to vSphere to take advantage of HA and DRS features.</td>
</tr>
<tr>
<td>Non-virtualized Infrastructure</td>
<td>Provision, manage, and automate non-virtualized server workloads.</td>
</tr>
<tr>
<td>AWS Integration</td>
<td>Support for APIs hooking into Amazon Web Services.</td>
</tr>
</tbody>
</table>

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stop Lights) in the Appendix.
Each vendor offers a different feature set; concentrate on what your organization needs

<table>
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<td>Citrix</td>
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Legend: 
- ![Feature fully present](green): Feature fully present
- ![Feature partially present/pending](yellow): Feature partially present/pending
- ![Feature Absent](red): Feature Absent

For an explanation of how Advanced Features are determined, see Information Presentation – Feature Ranks (Stop Lights) in the Appendix.
Citrix offers a hardened solution with a proven production track record

**Champion**

Product: CloudPlatform  
Employees: 8,449  
Headquarters: Fort Lauderdale, FL  
Website: citrix.com  
Founded: 1989  
Presence: NASDAQ: CTXS  
FY11 Revenue: $2.21B

### Overview

- Citrix CloudPlatform is a commercially available and fully supported version of the open source Apache CloudStack project. Citrix contributed acquired Cloud.com (2011) CloudStack to the Apache Software Foundation in April of 2012.

### Strengths

- CloudPlatform has proven to be a mature solution with over 150 paid customers deployed in large production environments, including service providers (NTT, GoDaddy), enterprises (Nokia, BechTel) and Web 2.0 companies (Zynga, NetFlix, Samsung).
- Citrix has a strong cloud portfolio spanning servers, networking, and desktops, but also offers flexibility by supporting multiple hypervisors (XenServer, ESX, OVS, and KVM).
- Single management console is accessible via command line interface, web-GUI, or orchestrated using APIs, and includes a guided configuration as a simple launch option for new users.
- Supports Amazon APIs for hybrid cloud deployments.

### Challenges

- CloudPlatform requires purchase of CloudPortal Business Manager to enable visibility to end users around costs.
- There is a perception that Open Stack is currently getting more developer support. That said, over 100 companies have contributed CloudPlatform code, and many are active in both communities, including Cisco, IBM, Red Hat, and SUSE.
Cost effective and with flexible deployment options, but lacks in integrated billing and customizability

Vendor Landscape

Value Index

100
1st out of 9

Product

Vendor

What we’re hearing

“India has a highly price-sensitive market, and Citrix was able to not only hit the price point required, but help us go from production to market in less than nine months.”

Mara McMahon, Director of Product Management, Global Data and Mobility Solutions at Tata Communications

“CloudStack’s ability to integrate into our existing environment was a huge plus for us in terms of decreasing time-to-market and improving overall cost savings.”

Ashok Kalle CEO and Founder, Pathway Communications

Features

Info-Tech Recommends:

Citrix CloudPlatform should be on the shortlist of any enterprise or service provider looking to deploy a Cloud on top of either virtual infrastructure and storage or commodity servers, with flexible options and broad hardware and hypervisor support.
VMware is a virtualization juggernaut with a solid foundation for private cloud deployments

**Champion**

- **Product:** vCloud Suite 5.1
- **Employees:** 11,000+
- **Headquarters:** Palo Alto, CA
- **Website:** [VMware.com](https://www.vmware.com)
- **Founded:** 1998
- **Presence:** NASDAQ: VMW
- **FY11 Revenue:** $3.76B

**Overview**

- VMware vCloud Suite puts together a simplified unified suite comprised of VMware’s tools for service provisioning, cloud management and automation, and business management, all built on top of its market leading server virtualization software.

**Strengths**

- VMware’s innovation around server virtualization, and vision for Software Defined Datacenter, make it a solid choice for cloud automation, as vCloud Suite benefits from advanced vSphere capabilities, and automated DR with Site Recovery Manager.
- vCloud Networking and Security combines vShield Edge, application security services and new VXLAN protocol to deliver software-defined networking and security, which simplifies management and scalability eases integration with third-party network and security solutions.
- VMware has a well established channel program and global reach, with significant existing install base to draw from.

**Challenges**

- Now branded as vCloud Automation Center (vCAC), recently acquired DynamicOps adds a layer of provisioning capabilities on top of existing vCloud tools to create a “cloud storagefront.” However, DynamicOps capabilities to support lifecycle management of physical, non-vSphere hypervisors, and AWS are outside the vCloud Suite EULA.

3 year TCO for this solution falls into pricing tier 8, between $250,000 and $500,000

Pricing (provided by vendor)

$1 $1M+
Integration with vSphere enables standout performance monitoring and drill down capabilities

Info-Tech Recommends:

VMware vCloud Director should be a consideration for any organization that has invested in VMware, or has customers invested in VMware.

What we’re hearing

“It comes with a pre-existing portal with a user-friendly interface. The back end lets you publish applications that are offered through a catalog. Offerings can be configured to meet differing levels of service. The solution met our needs from a security standpoint. And it ties into our VMware vSphere estate, so it leverages our existing virtualized infrastructure.”

David Janusz, IT Architect, Experian
Abiquo offers a feature-rich pure play cloud management solution

### Champion

<table>
<thead>
<tr>
<th>Product</th>
<th>Abiquo 2.0</th>
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<tr>
<td>Employees</td>
<td>30+</td>
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<td>Headquarters</td>
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<td>Website</td>
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### Overview

- Abiquo is a pure play cloud management vendor focused on the enterprise. Building on its first release in 2009 along with now over $18M in funding, Abiquo offers a feature-rich solution with flexible integration with virtualized infrastructures.

### Strengths

- Support for multiple, concurrently deployable hypervisors – including VMware ESX/ESXi, Microsoft Hyper-V, Citrix XenServer, Xen Community, Virtual Box and KVM – creates flexibility for customers in avoiding vendor lock-in.
- Extensive and fully-integrated self service capabilities, with stand out “show-forward pricing” enabling customers to see what resources will cost before they are provisioned.
- Clean, intuitive GUI, with solid white labeling and customizable open source presentation layer based on jQueryUI.
- Solution is deployable out-of-the-box on commodity hardware, but also provides visibility into Cisco UCS and NetApp storage.

### Challenges

- Integration with public cloud solutions, such as Amazon AWS, is not supported out of the box for cloud bursting.
- Abiquo’s biggest challenge will be gaining market share from juggernauts like VMware and Citrix that have inroads with their existing install base and broad partner support.
Broad hypervisor support and relatively easy to use, but Amazon integration is not a strong point

**Vendor Landscape**

**Product**

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**What we’re hearing**

“In addition to providing best-of-breed features like business policy, Abiquo is the only cloud management vendor to support Windows and Linux on all major hypervisors simultaneously.”

Joe McMillen, CEO,

“With Abiquo’s Cloud management platform, we can sell and implement managed private Clouds to large enterprise customers quickly, while leveraging our existing infrastructure and billing system.”

Raj Vrach, CTO, i2k2 Networks

**Value Index**

N/A

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

**Features**

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**Info-Tech Recommends:**

Abiquo is a solid solution for both enterprise customers and service providers looking for cloud management that integrates with existing systems and virtual infrastructure.
Eucalyptus is a mature pure play solution for creating Amazon-like, and Amazon-compatible, private clouds

**Market Pillar**

- **Product:** Eucalyptus 3
- **Employees:** 90
- **Headquarters:** Santa Barbara, CA
- **Website:** [eucalyptus.com](http://eucalyptus.com)
- **Founded:** 2009
- **Presence:** Privately held

---

### Overview

- Started in 2007 at UC Santa Barbara, Eucalyptus is an open-source platform specifically built to support private and hybrid clouds. Eucalyptus claims to be the most widely deployed IaaS cloud software platform, with over 25,000 cloud starts annually.

### Strengths

- Announced in March of 2012, Amazon Web Services (AWS) interoperability through AWS API is a strong point with Eucalyptus, enabling use of the same AWS-compatible tools for both private and public cloud environments.
- Eucalyptus’ modular and open source approach makes for straightforward customization; custom component interfaces can replace existing component interfaces (i.e. cloud controller, cluster controller, node controller, storage controller, Walrus).
- Ability to layer management on top of existing infrastructure with built in high availability capabilities makes it a flexible solution, with support for VMware ESX(i) and vSphere, KVM, and Xen.

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### Challenges

- Non-support of Microsoft Hyper-V may be a hindrance for some enterprise customers that Eucalyptus is targeting. However, with its open framework, it has the ability to add Hyper-V support.
- Eucalyptus does not target the service provider market and therefore does not provide billing/chargebacks out of the box, but has available APIs for integration with existing systems.

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*The vendor declined to provide pricing, and publicly available pricing could not be found*
Eucalyptus has standout interoperability with Amazon AWS and built-in high availability

Vendor Landscape

Product

Vendor

What we’re hearing

“\(\text{We wanted to make sure it was easy to move applications back and forth between AWS and Red Cloud. Eucalyptus’ support of the AWS APIs was an important selling point and this functionality provided the flexibility our users were looking for.}\)“

David Lifka, Director, Cornell Center for Advanced Computing & Red Cloud

“\(\text{The Eucalyptus compatibility with AWS is excellent. We move heavy workloads back and forth with no problems. I think of the two as one Cloud. At peak hours, we process more than 1.5 million concurrent users with this solution.}\)“

Thorsten Lubinski, CTO, Plinga

Features

Info-Tech Recommends:

Enterprises looking to deploy an Amazon-like cloud in-house with transparent integration with Amazon Web Services should look no further, but don’t expect out-of-the-box billing capabilities or cost visibility for end-users.
CA Technologies’ application focus brings simplified configuration and deployment

**Market Pillar**

- **Product:** CA AppLogic 3.5
- **Employees:** 13,200
- **Headquarters:** Islandia, NY
- **Website:** ca.com
- **Founded:** 1976
- **Presence:** NASDAQ: CA
- **FY12 Revenue:** $4.81B

CA Technologies’ application focus brings simplified configuration and deployment.

**Overview**

- CA Technologies Cloud Solutions leverage its larger systems, data, and service management portfolio. CA AppLogic, the centerpiece of these solutions, was acquired from 3Tera, a pure play cloud management company founded in 2006.

**Strengths**

- CA AppLogic’s unique, “application-centric” approach packages up apps as a single software object including the OS, middleware, storage, network components, and all of the associated pieces required to run the app, thereby simplifying configuration and deployment.
- AppLogic capitalizes on CA Technologies strong systems management capabilities to enable management of mirrored storage on the IP SAN for continuous availability.
- Visio-like GUI has an intuitive structure for pairing each app with relevant back-end resources.

**Challenges**

- Despite strong Microsoft partnership, CA AppLogic does not directly support Microsoft Hyper-V; customers require CA Automation Suite for Clouds to support this platform.
- CA Technologies’ large portfolio of Cloud Solutions can be difficult to navigate and differentiate.
AppLogic is backed by solid CA Technologies support, but is lacking in integrated billing and self-service capabilities.

CA Technologies AppLogic is a good fit for existing CA customers, or those looking for an app-focused solution that simplifies management of applications in virtual environments.
Flexiant provides a great all-in-one solution for European service providers

**Innovator**

- **Product:** Cloud Orchestrator 2.0
- **Employees:** 50
- **Headquarters:** Edinburgh, Livingstone, UK
- **Website:** flexiant.com
- **Founded:** 2009
- **Presence:** Privately Held 100+ paid customers

**Overview**

- With roots in hosting company XCalibre Communications founded in 1997, Flexiant is now a pure play cloud management vendor. First launched in 2007, Cloud Orchestrator is now implemented by over 100 European service providers.

**Strengths**

- 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.
- Flexible and integrated billing capabilities, quota and permission management, and alerts tied to resource utilization, make the solution easy to create product offerings and rebrand to suit the needs of the service provider.
- Flexible deployment options with multi-hypervisor support; existing customers deploy on anything from commodity servers, Nutanix, Cisco UCS, HP cloud system matrix, and more.

**Challenges**

- Aggregate monitoring and reporting of resource utilization is not yet supported in the dashboard.
- Event-based triggering for automated approvals has not yet been implemented.
- Integration with public clouds is not supported; Flexiant focuses on organizations that typically provide their own cloud services.

3 year TCO for this solution falls into pricing tier 5, between $25,000 and $50,000

Pricing provided by vendor.
Customizability and white labelling functionality is a standout with Flexiant, but don’t expect public cloud integration

**Vendor Landscape**

- **Leading Product**
- **Champion**
- **Innovator**
- **Emerging Player**
- **Market Pillar**
- **Trailing Product**

**Product**

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**Value Index**

98

2nd out of 9

**What we’re hearing**

“The granularity of Flexiant’s metering and billing engine is a huge benefit for any organization… And this functionality is all ‘out-of-the box’ with minimal set up required based on individual business requirements.”

Mark Smurthwaite, CEO, TransEnt

**Features**

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**Info-Tech Recommends:**

Flexiant’s out-of-the-box billing and white labeling capabilities and customizability make it a great choice for European service providers.
Nimbula is a quick to deploy solution with single access point for the CIO

**Innovator**

- **Product:** Nimbula Director
- **Employees:** 45+
- **Headquarters:** Mountain View, CA
- **Website:** nimbula.com
- **Founded:** 2009
- **Presence:** Privately Held
  - 6+ paid customers
  - 200+ free downloads

**Overview**

- Nimbula is a promising relative newcomer to the cloud management space, with leadership roots in both Amazon and VMware. Nimbula targets enterprise customers looking to implement Amazon-like private clouds.

**Strengths**

- With typical deployments on top of commodity x86 servers, using VMware or KVM hypervisors, Nimbula Director is able to get up and running very quickly out-of-the-box.
- Nimbula Director offers the CIO one point of access control for both private and public cloud (with Amazon API integration) that hides credentials from end users and creates a single audit trail.
- Single security model for private and public cloud leverages Nimbula Security Lists (similar to Amazon web security groups), to enable a scalable distributed self-service firewall.
- Orchestration enables simple deployment of applications with complex network and security configurations and policy.

**Challenges**

- Nimbula Director connects to ESX directly and does not support VMware capabilities, such as High Availability and Dynamic Resource Scheduler enabled through vCenter.
- No integrated chargebacks/showbacks out of the box.
- Focused on building clouds on commodity hardware, Nimbula may not be appropriate for high performance workloads.

3 year TCO for this solution falls into pricing tier 7, between $100,000 and $250,000

Pricing provided by vendor.
Nimbula cites quick setup and single point of access as strong points

Limited to enterprise customers on VMware or KVM, Nimbula’s unique approach to cloud management simplifies permissions management and enables a single point of control and access for both private and public clouds.

“EPAM tested several systems that claimed to be “EC2-like.” However, Nimbula Director provided a better solution out of the box… Federation to [Amazon] EC2 was a critical part of the project.

Eli Feldman, VP, Cloud Solutions and Services Technology, EPAM Systems
Virtustream offers customizability, security and legacy application support in the cloud

**Emerging Player**

- **Product:** xStream 2.0
- **Employees:** 125
- **Headquarters:** Bethesda, MD
- **Website:** [virtustream.com](http://virtustream.com)
- **Founded:** 2008
- **Presence:** Privately Held
  Implementation number unknown

**Overview**

- Virtustream is a cloud solution provider focusing on complex and secure enterprise IT environments in private, virtual private, and public cloud. Virtustream’s xStream cloud management software is used by over 15,000 organizations worldwide.

**Strengths**

- With recent acquisition of Enomaly, Virtustream expanded its global presence to China, capitalizing on existing partnerships, and enables what will be Xstream Exchange for buying and selling cloud resources, based on Enomaly’s SpotCloud.
- Enterprise and legacy application support is a differentiator, with claims of industry leading SLAs and app performance, and deployments of databases, CRM, and ERP in the cloud.
- Customization, security, and compliance are cited as strengths; xStream customers meet standards including NIST 800-53 (Defense), DIACAP (Gov), ISO27001, and HIPAA (Healthcare).

**Challenges**

- Currently integration with Amazon through APIs is not a supported feature.
- Self-service capabilities are currently lacking, with no end users cost visibility or automated approvals.
- No integration with VMware vCenter for HA and DRS; however, hypervisor support for VMware ESX, KVM, Xen, and others.
Virtustream’s capability to move complex environments to the cloud is unique, but its self services capabilities are limited.

Info-Tech Recommends:

Virtustream is worth a look for both enterprises and service providers, but those with complex environments should definitely have Virtustream on their short list.
OpenStack is an open source option for those with highly technical in-house skill sets

**Overview**
- OpenStack is an open source IaaS project founded by Rackspace Hosting and NASA, which has grown to a community of over 180 companies and 3300 individuals.
- OpenStack Software is freely available under Apache license.

<table>
<thead>
<tr>
<th>Product</th>
<th>OpenStack Open source</th>
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<tr>
<td>Employees</td>
<td>NA</td>
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<td>Website</td>
<td><a href="http://openstack.org">openstack.org</a></td>
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<td>Founded</td>
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**Overview**
- OpenStack currently has a large contingent of technology vendors behind it - including AT&T, Cisco, Dell, HP, IBM, Intel, NetApp, and Red Hat - making it a project with huge potential.
- Flexibility is a significant benefit of OpenStack, cited as having no proprietary hardware requirements, support for most hypervisor platforms (although KVM and XenServer are recommended), and ability to integrate with legacy and third-party technologies.
- Potential cost savings through free licensing, as well as increased customizability are obvious potential benefits to deploying this open source solution.

**Strengths**
- OpenStack Software is not an out-of-the-box deployment and requires “highly technical operations teams” to implement. It is currently not intended for the average business.
- Code is not certified by OS or hardware vendors, making support for existing infrastructure a potential hindrance.
- Existing self-service capabilities are limited.

**Challenges**
- The vendor declined to provide pricing, and publicly available pricing could not be found.
OpenStack is cost effective, flexible, and hardware agnostic, but it takes considerable expertise to get up and running.

Organizations with highly technical operations teams may have what it takes to take advantage of the cost savings with open source software, but don’t look to OpenStack for something running out-of-the-box.
Identify leading candidates with the **Cloud Management Vendor Shortlist Tool**

The Info-Tech **Cloud Management Vendor Shortlist 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

---

**Custom Vendor Landscape™ and Vendor Shortlist**

Your customized Vendor Shortlist is sorted based on the priorities identified on the Data Expiry tab. Scores are calculated using the Client Weightings and the assigned Info-Tech Vendor Landscape scores. Vendors are ranked based on the computed Average Score. The Average Score is the average of the weighted average Vendor Score and the weighted average Product Score. A custom Vendor Landscape™ has been generated as well, placing the weighted average Vendor Score against the weighted average Product Score.
Consider whether software was made for enterprises or service providers before drafting up your shortlist.

Solutions targeting service providers often have broader hypervisor support and chargeback capabilities, but less typically integrate with vSphere.

**1. Target Customer**

**Enterprise**
- abiquo
- CA Technologies
- Citrix
- Eucalyptus
- Nimbus
- Virtustream
- VMware

**Service Provider**
- Abiquo
- CA Technologies
- Citrix
- Flexiant
- OpenStack
- Virtustream
- VMware

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*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.

For an explanation of how Scenarios are determined, see [Vendor Landscape Methodology: Information Presentation](#) in the Appendix.
Ensure the solution supports existing virtual infrastructure before making a cloud management investment

VMware ESX and KVM are supported by most vendors, while Citrix XenServer and Microsoft Hyper-V support is more sparse.

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.

For an explanation of how Scenarios are determined, see Vendor Landscape Methodology: Information Presentation in the Appendix.
An open source solution can require a different approach than a proprietary solution.

Organizations with a savvy operations and development group or a tight budget should consider open source solutions.

**Open Source vs. Proprietary**

**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.

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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 and Lead 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, a half point to each feature that is partially present or pending in an upcoming release, and zero points to features that are deemed to be absent. 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 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 (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 (Stop Lights)

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 Stop Lights.

Stop Lights are determined as follows:

1. A single point is assigned to each evaluated feature that is regarded as being fully present, a half point to each feature that is partially present or pending in an upcoming release, and zero points to features that are deemed to be fully absent.
   - 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 in evidence.
   - 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.
   - Pending means all aspects and capabilities of the feature, as described, are anticipated to be in evidence in a future revision of the product and that revision is to be released within the next 12 months.

2. Feature scores are converted to Stop Lights as follows:
   - Full points become a Green light.
   - Half points become a Yellow light.
   - Zero points become a Red light.

3. Stop Lights 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”.

<table>
<thead>
<tr>
<th>Stop Lights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Features</strong></td>
</tr>
<tr>
<td>Feature 1</td>
</tr>
<tr>
<td><img src="image1" alt="Green" /></td>
</tr>
</tbody>
</table>

Yellow shows partial availability (such as in some models in a line).
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.

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

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Value Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>80</td>
</tr>
<tr>
<td>C</td>
<td>40</td>
</tr>
<tr>
<td>D</td>
<td>30</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
</tr>
</tbody>
</table>

Average Score: 52

Those solutions that are ranked as Champions are differentiated for point of reference.
Vendor Landscape Methodology: Information Presentation – Price Evaluation

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

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.
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.
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.

<table>
<thead>
<tr>
<th>Vendor Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Champion Award</strong> is presented to solutions in the Champion zone of the Vendor Landscape.</td>
</tr>
<tr>
<td><strong>Trend Setter Award</strong> is presented to the most original/inventive solution evaluated.</td>
</tr>
<tr>
<td><strong>Best Overall Value Award</strong> is presented to the solution with the highest Value Index score.</td>
</tr>
</tbody>
</table>
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 / Stop Lights detailing the individual feature scores of the evaluated product.
- Info-Tech’s Value Index ranking for the evaluated solution.
- 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

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
- VMware vSphere (ESXi)
- Windows 2008 and Linux servers supported.
Product Pricing Scenario

**Infrastructure:**
- Consolidated blade server architecture featuring 2 socket Xeon x5670 (6 core) 98GB memory
- FC SAN Array with RAID 5.
- 10 Gigabit Ethernet
- VMware vSphere (ESXi)
- Windows 2008 and Linux servers supported.

**Pricing Requirements:**
- 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.

**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