

MANAGING THE CLOUD: AUTOMATION

The ability to automate almost all aspects of infrastructure operation is absolutely necessary to meet many of the cloud's requirements, especially around scaling, elasticity and rapid provisioning.

CLOUDSCAPE

4 FINDINGS

- Despite what many vendors would have you believe, virtual infrastructure alone is not equivalent to the cloud. **PAGE 3**
- True clouds, whether hosted or on-premises, must offer the illusion of infinite capacity. **PAGE 3**
- To do so, they must handle common chores – especially provisioning and intelligent placement – without human intervention. **PAGE 5**
- The only way to accomplish this is with a set of technologies we call automation. **PAGE 1**

5 IMPLICATIONS

- Traditional enterprise software vendors with automation wares may be able to sell not only to enterprises with cloud aspirations but also to managed hosters. **PAGE 1**
- This widespread acknowledgement of the importance of automation to the cloud has sparked a gold rush. **PAGE 9**
- The proliferation of cloud automation offerings has created considerable market confusion. **PAGE 1**
- If everyone is offering highly specialized cloud-creation infrastructure, then effectively, no one is. **PAGE 1**
- Automation technology can be classed into more than a dozen types – by technology, approach or the kind of problem being addressed. **PAGE 6**

1 BOTTOM LINE

- We offer a preliminary taxonomy of these various types of automation technology. The vendors surveyed here are divided into the following groups: application deployment automation; application fabrics; bare-metal provisioning; cloud enablement; cloud networking; cloud on-ramps; cloud-based dynamic IT (or test lab automation); configuration monitoring; HPC for the cloud; IT process automation (or runbook automation); miscellaneous; open source server automation; self-service provisioning; and VM lifecycle management. These categories are fluid and overlapping.

DECEMBER 2009

REPORT SNAPSHOT

TITLE	Managing the Cloud: Automation
ANALYST	Rachel Chalmers, Research Director, ICE
RELEASE DATE	December 2009
LENGTH	66 pages

ABOUT THIS REPORT

Like large-scale virtual infrastructure before it, the true cloud will need automation to manage the complexity and scale of the configuration and deployment work required. It's widely recognized that active automation, well beyond mere passive management, is what takes ordinary virtual infrastructure and makes it a candidate for true, elastic cloud-based service delivery. This widespread acknowledgement of the importance of automation to the cloud has sparked a gold rush. Public and private vendors are all jockeying to be the sellers of picks and shovels to the managed services firms and enterprises that will presumably be building out the cloud.

The proliferation of cloud automation offerings has created considerable market confusion. A closer look at the significant sample of vendors already covered by The 451 Group starts to reveal some striking patterns. Automation technology can be classified into a dozen or so types – by technology, approach or the kind of problem being addressed. This report offers a preliminary taxonomy of these types, and the associated vendors. It examines the automation ecosystem, from configuration tools to physical and virtualization automation frameworks. It also covers sector M&A activity and adjacent markets.

ABOUT CLOUDSCAPE

CloudScape, the new interdisciplinary research and advisory program from The 451 Group and Tier1 Research, provides detailed insight, advice and analysis targeting cloud practitioners.

CloudScape draws on the unique expertise of The 451 Group, with its 10-year history of in-depth analysis of grid, utility and cloud computing, and Tier1 Research, the leading analyst company covering hosting, Internet infrastructure and IT services.

Insight is delivered via daily commentary, long-format reports, analyst advisory services, events and webinars.

TABLE OF CONTENTS

ABOUT CLOUDSCAPE	1
SECTION 1: EXECUTIVE SUMMARY	1
1.1 KEY FINDINGS	1
1.2 METHODOLOGY	2
1.3 THE STORY SO FAR	3
SECTION 2: HOW IT WORKS	5
<i>Figure 1: Cloud Automation Vendors by Type</i>	6
2.1 APPLICATION DEPLOYMENT AUTOMATION	8
2.2 APPLICATION FABRIC	8
2.3 BARE-METAL PROVISIONING	8
2.4 CLOUD ENABLEMENT	9
2.5 CLOUD NETWORKING	9
2.6 CLOUD ON-RAMPS	9
2.7 CLOUD-BASED DYNAMIC IT (TEST LAB AUTOMATION).	9
2.8 CONFIGURATION MONITORING	10
2.9 HPC FOR THE CLOUD	10
2.10 IT PROCESS AUTOMATION	10
2.11 MISCELLANEOUS	10
2.12 OPEN SOURCE	11
2.13 SELF-SERVICE PROVISIONING	11
2.13 VM LIFECYCLE MANAGEMENT	11
SECTION 3: VENDOR PROFILES	12
3.1 PUBLICLY TRADED VENDORS	12
<i>BMC Software</i>	12
CA	13
<i>Citrix Systems</i>	14
EMC	14
<i>Hewlett-Packard</i>	15
IBM	16
Microsoft	17

<i>Novell</i>	.17
<i>Quest Software</i>	.18
<i>Red Hat</i>	.18
<i>VMware</i>	.19
3.2 PRIVATELY HELD VENDORS	.20
<i>3tera</i>	.20
<i>Abiquo</i>	.21
<i>Appistry</i>	.22
<i>Arjuna Technologies</i>	.22
<i>Cfengine</i>	.23
<i>CloudShare</i>	.24
<i>Cloudsoft</i>	.25
<i>Cohesive Flexible Technologies</i>	.25
<i>CPlane by LAYERZngn</i>	.26
<i>Cycle Computing</i>	.27
<i>DTO Solutions</i>	.28
<i>DynamicOps</i>	.29
<i>Elastra</i>	.29
<i>Embotics</i>	.30
<i>Enigmatec</i>	.31
<i>Enomaly</i>	.32
<i>Eucalyptus</i>	.32
<i>Evident Software</i>	.33
<i>fluidOps</i>	.34
<i>Fortisphere</i>	.35
<i>Hatsize</i>	.35
<i>HexaGrid Computing</i>	.36
<i>Hyper9</i>	.37
<i>LineSider Technologies</i>	.38
<i>LinMin</i>	.39
<i>Majitek</i>	.40
<i>ManageIQ</i>	.41
<i>Nolio</i>	.41

Opalis (acquired by Microsoft)43

Opscode44

Parallels44

Phurnace Software45

Platform Computing46

Racemi47

Reductive Labs.48

Reflex Systems.49

RightScale50

RNA Networks.51

rPath52

SkyTap53

Stratavia.54

Surgient54

Tripwire56

Univa UD57

Veeam58

VKernel59

VMLogix.59

Vubble60

VMOps61

XCalibre62

SECTION 4: M&A **64**

Figure 2: Automation M&A – \$3bn in Three Years64

Figure 3: Public-Private Partnerships Point to Likely M&A Hotspots65

SECTION 5: ADJACENT MARKETS **66**

5.1 CAPACITY PLANNING66

5.2 CLOUD PERFORMANCE MANAGEMENT66

5.3 CONVERGED FABRIC66

INDEX OF COMPANIES **67**

ABOUT THE 451 GROUP

The 451 Group is a technology analyst company. We publish market analysis focused on innovation in enterprise IT, and support our clients through a range of syndicated research and advisory services. Clients of the company — at vendor, investor, service-provider and end-user organizations — rely on 451 insights to do business better.

ABOUT TIER1 RESEARCH

Tier1 Research covers consumer, enterprise and carrier IT services, particularly hosting, colocation, content delivery, Internet services, software-as-a-service and enterprise services. Tier1's focus is on the movement of services to the Internet — what they are, how they are delivered and where they are going.

© 2009 The 451 Group, Tier1 Research and/or its Affiliates. All Rights Reserved. Reproduction and distribution of this publication, in whole or in part, in any form without prior written permission is forbidden. The terms of use regarding distribution, both internally and externally, shall be governed by the terms laid out in your Service Agreement with The 451 Group, Tier1 Research and/or its Affiliates. The information contained herein has been obtained from sources believed to be reliable. The 451 Group and Tier1 Research disclaim all warranties as to the accuracy, completeness or adequacy of such information. Although The 451 Group and Tier1 Research may discuss legal issues related to the information technology business, The 451 Group and Tier1 Research do not provide legal advice or services and their research should not be construed or used as such. The 451 Group and Tier1 Research shall have no liability for errors, omissions or inadequacies in the information contained herein or for interpretations thereof. The reader assumes sole responsibility for the selection of these materials to achieve its intended results. The opinions expressed herein are subject to change without notice.



*Analyzing the Business
of Enterprise IT Innovation*



Better perspective from the top in independent tech research