

## VENDOR PROFILE

### Mu Dynamics Private Vendor Watchlist Profile

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#### IDC OPINION

Mu Dynamics tests the embedded software in a wide variety of networked equipment types (telecommunication, manufacturing, etc.). Customers are increasingly recognizing the importance of testing software for security faults and performance issues before product deployment. As more embedded systems are networked, the danger of known and unknown vulnerabilities creeping into code becomes greater. The cost of fixing these problems in a production environment grows. Associated service disruptions from failures or degradation in service exacerbates the total cost. The company came into existence to proactively eliminate the high cost of service, application, and network downtime for network operators and their vendors. Mu's solution automates a systematic and repeatable process that identifies hard-to-detect sources of potential downtime within IP services, applications, and underlying networks. We believe Mu Dynamics is a company to watch because:

- The security of networks is increasingly critical and unproven, especially as telecom networks shift to IP-based networks.
- Compared with open source tools in the "fuzzing" area, Mu offers automation, faster performance, and better reporting.

#### IN THIS VENDOR PROFILE

This IDC Vendor Profile analyzes Mu Dynamics, a company playing in the network and service management market, and reviews key success factors: market potential, technology/solution, corporate strategy, force multipliers, and customers. Leveraging IDC's expert understanding of the competitive landscape and future outlook, this document highlights company and market information tailored to the investment professional's needs.

## SITUATION OVERVIEW

### Company Overview

Mu Dynamics, based in Sunnyvale, California, plays in the network and service management market. Company details are provided in Table 1.

Figure 1 shows the cumulative Watch Factor score for Mu Dynamics versus the Watch Factor average score for all companies ranked by the Private Vendor Watch service at the time of publication.

Figure 2 shows the breakdown scores for Mu Dynamics. The sections that follow detail the reasons for those scores.

**TABLE 1**

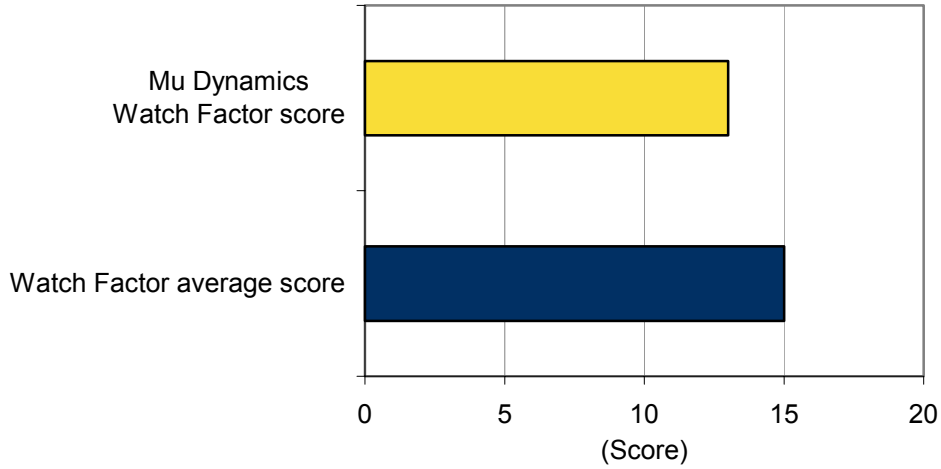
#### Mu Dynamics Company Snapshot

Category	Details
Functional and secondary markets	VoIP, IMS, and IPTV NGN architecture buildout; software development life cycle; worldwide application vulnerability assessment software
Founding year	2005
Number of employees	50
Number of customers	50
Company location	Sunnyvale, California
Web site	<a href="http://www.mudynamics.com">www.mudynamics.com</a>
Funding initiatives	None
Investors	Accel Partners, Benchmark Capital, DAG Ventures, Focus Ventures
Sales channels	Both direct and indirect
Revenue estimate	Not disclosed

Source: IDC, 2008

**FIGURE 1**

Mu Dynamics Watch Factor Score Versus Watch Factor Average Score

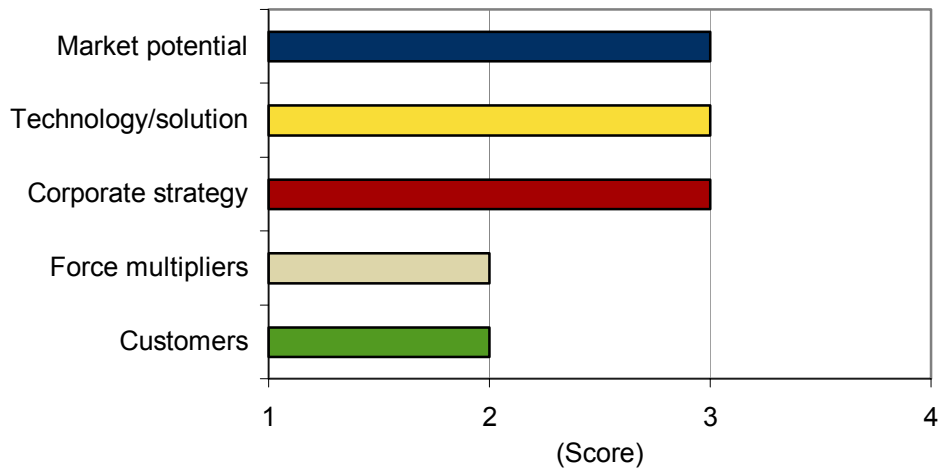


Note: The Watch Factor average score reflects the average score for all private companies scored by the Private Vendor Watch service at the time of publication.

Source: IDC, 2008

**FIGURE 2**

Mu Dynamics Watch Factor Score Breakdown



Note: Scores are based on a scale of 1–4, where 1 = weak and 4 = strong.

Source: IDC, 2008

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## **IDC Watch Factor Scores**

IDC Watch Factor scores measure private companies based on a set of defined success factors:

- ☒ **Market potential:** Strength of the market and the potential for the company to grow within the market
  - ☒ **Technology/solution:** Strength and differentiators of the product/solution
  - ☒ **Corporate strategy:** Potential exit strategy and company leadership, vision, and funding
  - ☒ **Force multipliers:** Number of valuable partnerships and opportunities, as well as channel strategy
  - ☒ **Customers:** Existing and potential customers and vertical audiences
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## **Market Potential**

### ***Market***

At this time, the closest market to Mu's offering that IDC sizes is worldwide application vulnerability assessment software. This market totaled \$110 million in 2006. (IDC is still working on 2007 numbers.) From 2006 to 2011, IDC forecasts a 33% CAGR for this market.

If Mu remains independent, we would expect significant growth. If it acquires other testing tools and expands into performance management, Mu could grow into a sizable systems and security management company. However, there will always be the temptation to sell the company to a larger vendor.

### ***Market Disruption***

Disruption in the market is happening, and Mu is uniquely positioned to take advantage of it. Service providers and enterprises are moving to IP services and applications to leverage the cost, speed, and flexibility advantages that IP has to offer. The challenge they are facing is that IP is inherently more complex and more fragile than their prior infrastructures. This shift is resulting in the market disruption opportunity for Mu Dynamics. Existing solutions in the market are not able to ensure the level of reliability, availability, and security that service providers and enterprises demand for their IP services and applications. Mu's unique solution is able to proactively provide a much higher level of service assurance for customers than other solutions on the market.

Mu has focused its product-development efforts around some rapidly growing market spaces. IP multimedia services (IMS) is a major telco trend, and Mu wrote the benchmark paper *IMS Forum Reliability and Availability Analysis*. Mu also has driven SIPit event interoperability events including VoIP applications and software testing for this developing market. Likewise, VoIP and Internet protocol television (IPTV) are also new telecommunications services for which Mu customers depend upon Mu-4000.

### ***Competitive Landscape***

Although Mu does not compete directly with these vendors, the leaders in this market are IBM (via the Watchfire acquisition), HP (via the SPI Dynamics acquisition), Application Security, Fortify, and Beyond Security. Mu competes mostly with open source "fuzzers" and a few small vendors.

Although IDC does not have the market size for fuzzers, Mu Dynamics competes with open source technologies SPIKE, SULLY, and GFS. Companies in the open source area include VDA Labs and Immunity Security. More commercial competitors include Beyond Security and Codenomicon. Aside from Beyond Security, all these companies are very small.

Large vendors that have acquired small vendors can prove highly competitive in marketing, as well as channels and direct sales.

Competing with open source vendors is difficult because licenses are free and the general-purpose license (GPL) must be respected. Outside this market, however, several security companies have used open source code to build successful commercial businesses.

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## **Technology / Solution**

### ***Mu-4000 Service Analyzer Appliance***

Service analyzers automate the ability to proactively analyze a network product or application for inherent weaknesses that cause unexpected application, service, or network downtime. While some of these problems arise from increasingly complex IP infrastructure buildout, others are due to known and unknown vulnerabilities. Mu offers three product modules: a service-level traffic variations module (dozens of families of protocol mutations), a published vulnerability module (Mu's automated proactive service assurance identifies reliability, availability, and security issues to address, and characterizes product, application, or service quality), and a denial of service (DoS) module that comprises the stateless packet, the traffic pattern, and a service monitor used to characterize the effect on the service. Stateless packets from Layer 2 through Layer 7 can be easily modeled using the intuitive editor. Various parts of each stateless packet can also be randomized to generate arbitrary variations of this packet. Over 40 templates are shipped with Mu-4000, representing well-known attacks (e.g., SYN flood, SIP INVITE DoS, Slammer Worm, and Ping of Death). Mu-4000 transmits the DoS traffic statelessly against a service and uses any instrumentation to assess the effects on the ongoing health of that service.

Mu Dynamics proactively eliminates the high cost of service, application, and network downtime. Mu's solution automates a systematic and repeatable process that identifies hard-to-detect sources of potential downtime within IP services, applications, and underlying networks. Mu helps network operators and their vendors eliminate downtime and reduce customer churn through proactive service assurance. Operators leverage Mu's automation throughout their respective product and service deployment life cycles. Product vendor suppliers to network operators also depend on Mu to build higher-quality products throughout their software development life cycle (SDLC).

Mu Dynamics' thorough negative analysis and stateful protocol fuzzing engine is well integrated to an automated analysis and test harness to clearly identify programming flaws that create reliability, security, and service availability issues. Mu's system automatically details any weakness and facilitates repair by generating targeted remediation toolset. Mu-4000 also documents whether the target software or hardware properly handles valid traffic or is impaired by the processing of invalid traffic. The unique ability to offer the three modules noted previously in this document (service-level traffic variations, published vulnerabilities, and DoS) helps the network operator pinpoint weaknesses in a wide range of products and services that was not previously possible. Even with a tripling of man power or resources, many Mu customers find they are getting far more ROI and preventing service degradation or weaknesses far more effectively than previously possible — faster, better, and less expensively.

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## **Corporate Strategy**

### ***Leadership***

Dave Kresse, CEO, was previously vice president and general manager of the storage management and application integration business unit at NetApp [Nasdaq: NTAP], where he led the company's rapidly growing application integration and data/storage management software business.

Ajit Sancheti, VP product management and cofounder, as well as Kowsik Guruswamy, CTO and cofounder, developed the first intrusion detection and prevention systems developed by OneSecure, a company acquired by NetScreen Technologies and now a key part of Juniper Networks' Security Products group.

### ***Exit Strategy***

Mu firmly states that its management and investors intend to build a standalone company around NGN service deployment (e.g., VoIP), network product development, and ultimately network applications analysis testing. If this plan holds, Mu would eventually plan to go for IPO. If market conditions remain soft, we believe that Mu Dynamics may seek to be acquired by a software analysis, larger product development, security, and/or testing vendor.

Although the company claims that Mu and its investors want to "build a company," we believe that the company is most likely to be acquired by a larger network test and measurement vendor, such as those discussed in *Worldwide Network Test and Measurement 2008–2012 Forecast and 2007 Market Shares* (IDC #211881, April 2008). As discussed in that document, the network test vendors are consolidating into a handful of top vendors with broad portfolios, none of which have security depth today. Possible acquirers include Spirent Communications, a player in need of growth strategies, and Ixia, a player with a war chest to use to support its IP/Ethernet growth strategies.

### ***Key Acquisitions***

There have been no key acquisitions so far.

### ***Current Investors***

Mu just completed a Series C funding round for \$10 million and has now raised a total of \$24 million in funding to date. The funds will accelerate the company's rapid market expansion, particularly among tier 1 network operators and their vendors.

Table 2 displays a detailed funding history for Mu Dynamics.

**TABLE 2**

**Mu Dynamics Detailed Funding History**

Round	Date	Amount	Investors
A	2005	\$4 million	Accel Partners, Benchmark Capital
B	2006	\$10 million	DAG Ventures, Accel Partners, Benchmark Capital
C	2008	\$10 million	Focus Ventures, Accel Partners, Benchmark Capital, DAG Ventures

Source: IDC, 2008

### **Force Multipliers**

#### ***Partners***

- Armed Forces Communication and Electronics Association (AFCEA)
- CableLabs
- CT Labs
- IMS Forum
- IANS — Institute for Applied Network Security Instrumentation, Systems, and Automation (ISA) Society
- NSS Labs
- PCI Security Standards Council Process Control Systems Forum (PCSF)
- SANS Institute
- SIPit
- Storage Networking Industry Association (SNIA)
- Telecommunications Industry Association (TIA)

### ***Partnership Opportunities***

- ☒ Network equipment, vulnerability assessment/management, and network professional services teams

### ***Channel/Sales Strategy***

Today Mu is a direct sales model in North America, a hybrid model in EMEA, and channel in APAC. This model should remain consistent as long as the company is focused on service providers and vendors. As it expands into additional customer segments, the model may change, based on go-to-market considerations.

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## **Customers**

### ***Key Customers***

- ☒ ABB, Alcatel, Cox Communications, F5, Honeywell, Juniper, Motorola, Network Appliance, Redback Networks, Sprint, Starent Networks, SonicWALL, Telkom Indonesia, and Veraz Networks (Clientele includes one-third of the world's 15 largest service providers and cable operators including the largest operators in Europe and Asia.)

### ***Key Audiences***

- ☒ Telecommunications companies, cable operators, service providers, and large hardware vendors

### ***Geographic Reach***

Current geographic reach includes North American, European, and Asian markets. Further expansion is planned throughout Europe and Asia, slated in the next 12–18 months.

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## **FUTURE OUTLOOK**

### **Challenges and Opportunities**

#### ***Challenges***

Interest in this class of solution is acknowledged, but converting this into customers that buy is unproven. The company also has difficulty in translating its complex products into readily understood marketing messages. It also competes with open source products that are largely free. The product's price is quite a considerable amount.

#### ***Opportunities***

The security of networks is increasingly critical and unproven, especially as telecom networks shift to IP-based networks.

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## ESSENTIAL GUIDANCE

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### Reason to Watch

Mu Dynamics tests the embedded software in a wide variety of networked equipment types (telecommunication, manufacturing, etc.). Customers are increasingly recognizing the importance of testing software for security faults and performance issues before product deployment. As more embedded systems are networked, the danger of known and unknown vulnerabilities creeping into code becomes greater. The cost of fixing these problems in a production environment grows. Associated service disruptions from failures or degradation in service exacerbates the total cost.

### Differentiators

The major differentiator for Mu Dynamics is its focus on networks and security integrity together as a testing solution. Compared with open source tools in the fuzzing area, Mu offers automation, faster performance, and better reporting. In general, these benefits are judged to effectively offset its high-priced products.

## LEARN MORE

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### Related Research

- ☒ *Worldwide Network Test and Measurement 2008–2012 Forecast and 2007 Market Shares* (IDC #211881, April 2008)
- ☒ *Worldwide Security and Vulnerability Management Software 2007–2011 F*(IDC #207658, August 2007)

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