

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

---

An ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) White Paper  
Prepared for FrontRange Solutions

October 2012



IT & DATA MANAGEMENT RESEARCH,  
INDUSTRY ANALYSIS & CONSULTING

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

## Table of Contents

- IT Management in a Virtualized World..... 1
- The Maturing IT Organization..... 2
- Dimensions of Virtualization and Cloud Computing ..... 4
  - Strategies for Tackling a Virtual IT Environment..... 5
- Service Management as a Vehicle for Accelerating Cloud Computing,  
Virtualization and IT Maturity..... 6
- FrontRange Solutions’ Hybrid IT Service Management Approach..... 8
- EMA Perspective—On the Horizon..... 10
- About FrontRange Solutions ..... 10



# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

## IT Management in a Virtualized World

Managing enterprises is a different proposition than it was just ten years ago. Globalization and multiculturalism are important drivers of business strategy. Competition is tough and resources are limited. Corporate leaders depend on a growing number of capabilities for business effectiveness, with Information Technology (IT) high among their more creative resources. Technology can be a unique catalyst for business growth—an enabler that supports the organizational mission and can deliver competitive advantages when creatively applied to established and emerging business challenges.

Several trends in IT are working together to help accelerate IT value. These market shifts include the increasing virtualization of technology, acceptance of service-based management methodologies and Cloud computing as a new delivery model for IT functions and services. Maturity in technology, organizational culture and IT operations are all significant contributors to success in effectively assimilating these more dynamic, self-adaptive technologies. Establishing a strong base in client management technologies such as systems, network and applications management is also necessary to facilitate the management of more dynamic infrastructure and software environments.

IT Service Management (ITSM) is now a well-established approach for managing IT that places corporate needs ahead of more technically defined, device- or component-centric approaches to management. The service management evolution began more than a decade ago when both IT and business executives recognized that business objectives had to be closely aligned with IT strategies and resources if IT services were going to grow in relevance and value while optimizing costs. Over the last five to seven years, a growing number of enterprises have begun to adopt best practices such as the Information Technology Infrastructure Library (ITIL). Research conducted by ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts, [\*The Aging Help Desk: Migrating to a Modern Service Desk\*](#), found that 64% of all participants had either adopted or planned to adopt ITIL v3 with similar response to ITIL's v2. This growing maturity has led to the deployment of an increasingly mature crop of software solutions in support of business-focused service management.

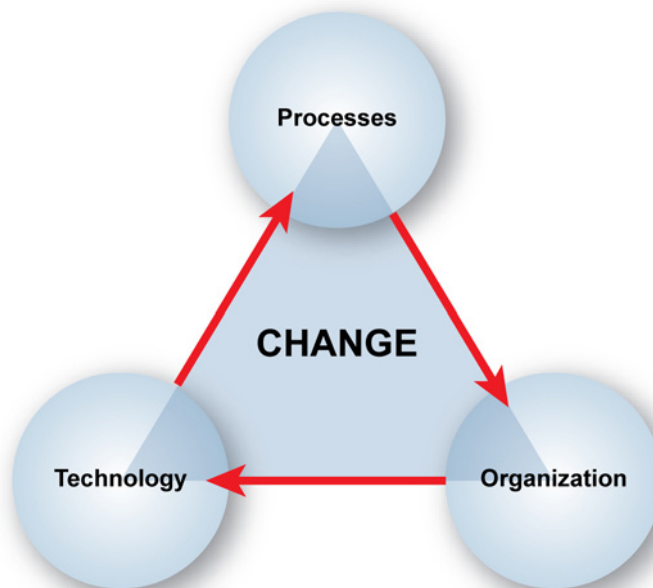


Figure 1: Components of Evolving IT Maturity

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

Coincident with service management maturation, virtualization and Cloud computing have been on a separate, but connected path of progress. Drivers for these technologies are quite similar to ITSM and include reduction of IT capital and operational costs, improved service quality, and increased flexibility and agility for the business. Both virtualization and Cloud computing involve the abstracted application of technology infrastructure. Virtualization is used to apply IT resources when and where they are needed. Cloud computing works with virtualization systems to create an internal or external on-demand structure for accessing IT resources through private or public networks, often through self-service and automated means.

Virtualization, Cloud computing and ITSM all represent a rich set of options that can create competitive advantage for the enterprise. Yet, each is on its own imperfect path to maturity. Very few, if any, organizations have adopted ITSM fully. EMA research indicates 87% of respondents were planning ITSM initiatives strategically at the enterprise level with approval from business executives, while only 3% of respondents report that all ITSM initiatives have been completed. Virtualization continues to evolve within unique domains, with an initial focus on software, server, storage and network technologies. Virtualization is a well-established trend—71% of 245 respondents on North America had deployed server virtualization at some level, and 41% had deployed “internal cloud” as of Q1 EMA research.

---

Virtualization, Cloud computing and ITSM all represent a rich set of options that can create competitive advantage for the enterprise.

---

Yet, 52% of participants in recent EMA research on Cloud computing are implementing a hybrid model of both off-premise and on-premise Cloud strategies. The reality of the market is that IT will be operating in an environment where it capitalizes on aspects of all of these domains. It will be a hybrid model where some IT functions are virtualized and others are not, some service management disciplines are adopted first and others wait for the longer range plan, and Cloud computing is used to generate a variety of public and private services. EMA sees the amount of virtualization versus physical infrastructure varying by organization, according to each company's needs, maturity and budget.

The outlook is excellent for organizations that can use this multi-faceted environment to best serve the companies in which they operate. At the same time, one must recognize that the new “bright and shiny” dimensions of IT do not dictate abandoning tried and true technologies. Advancements are only possible by building on that which is proven. People, communication, organizational culture and process development play as strong a role, if not stronger, in successful “virtualized” IT operations, than do headlong investments in new technologies and services without a clear eye to context, value and tradeoffs.

## The Maturing IT Organization

Virtual computing and service management at any level is at its heart a vision for managing and extending business value to the larger organization. This evolution has been possible only as effective Service Management, Asset Management and Client Management solutions have advanced, as adaptive infrastructure technologies and more effective management capabilities build upon each other. Solid management technology holds the underpinning of it all.

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

One of the primary success factors in moving ahead with new computing trends—especially virtualization, Cloud computing and service management—is the capacity (or ability) for the enterprise and the IT organization to take advantage of them. This often means that the staff inside and outside of IT must have reached a level of maturity where services can be published and consumed effectively. To achieve this, IT organizations must become more aware of processes that cross individual and organizational boundaries, including those that touch line of business clients. Technology investments are important, and can open the door to new ways of working, but in the end, they can only support what organization, culture and dialog can contribute to the “business of IT.” EMA defined an IT maturity model that is now well-established and has evolved as technology has advanced. It characterizes four IT maturity levels that represent typical IT organizations.



Figure 2: EMA IT Maturity Graphic

Phases are characterized by the following:

- **Reactive** – management processes are initiated by events in the infrastructure, and namely when an incident occurs. Dealing with these incidents typically involves manual action and scripting. Toolsets are domain-specific and while they may contain automation and workflow capabilities, these features are usually not in use. Communication with the business at large is not well developed. Currently, EMA estimates that 20% of enterprises are operating in a *Reactive* mode.
- **Active** – the *active* maturity phase continues to take a very operationally-oriented approach to management. However, it begins to develop repeatable procedures with some automation and documents them for future use. These steps are very often domain-specific, and limit integration across silos. Approximately 35% of enterprises are at the *Active* phase of IT maturity.
- **Proactive** – IT begins to look ahead from a strategic standpoint at the *proactive* level of maturity. Processes are developed out of problem management and routine processes are developed to address cross-domain requirements. Metrics are established to measure business results within IT and shared with executive management. Communication with the business has improved at this stage such that IT leadership and professionals understand their roles within the business. The *Proactive* phase of IT maturity is the largest group estimated at 35% of all companies.
- **Dynamic** – the *dynamic* stage of evolution is the endgame of IT maturity. IT is now communicating well with the organization and building its strategy around changing business needs. Automation and cross-domain integration are the norm rather than the exception. Workflows and processes across IT and the business are well-developed. IT data provides input for real business decisions, and business areas can automatically & dynamically exploit largely virtualized IT resources. EMA expects this group to be the largest growth area over time, currently estimated at 10% of IT organizations on average.

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

In a virtualized IT world, organizations can begin taking advantage of virtualization within technology silos themselves at the *reactive* phase of maturity. IT can advance to the *active* phase where multiple technologies are deployed for virtualized systems only when the management capabilities are available to look beyond isolated technology components and devices. IT develops further expertise around virtualization and begins the preparation for ITSM within this context.

At the *proactive* management level, silos are being managed together, recognizing the need to support the business from a services perspective with standardized services. Finally, *dynamic* organizations are able to take advantage of Cloud-based service management. Services are available directly to users through self-service catalogs where they can be provisioned. This is completely transparent to the entire infrastructure supporting the Cloud. Standardization is a requirement for both virtualization and services. Without standardized offerings, organizations cannot define and deliver services nor can they move to virtualized environment where technology resources are constantly being shifted according to changing needs.

As CIOs move increasingly toward the world of “service broker” and IT organizations become increasingly eclectic in how resources, including human resources, are utilized, the “Dynamic Business-Driven” model becomes a new baseline. This means evolving beyond the territorial, domain-centric approach in which IT is organized purely according to skills, which is a static, academic model, and creating a much more business-aware environment in which every individual recognizes his or her role as a “service provider.” Needless to say, technology can do a lot to support this transition, but it is fundamentally one of mindset and culture—and as such will require time, planning, dialog and realism in defining tangible, pragmatic goals.

---

*Dynamic organizations are able to take advantage of Cloud-based service management.*

---

## Dimensions of Virtualization and Cloud Computing

Cloud computing and virtualization are interrelated and often confusing terms, each in and of itself. Is there a difference? Do the two go hand in hand? Sorting out these technologies and then identifying the components that make the most sense for your enterprise requires forethought and planning. Contrasting each technology definition offers insight and grounding to apply to their application.

EMA defines virtualization as:

*“A technique for abstracting (or hiding) the physical characteristics of computing resources from the way in which other systems, applications, or end users interact with those resources.”*

The Cloud computing definition EMA subscribes to is that of U.S. National Institute of Standards and Technology (NIST). The NIST definition explains that Cloud computing is

*“A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”*

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

In this NIST description, the network can be public or private. Requirements are that resources be pooled and reusable, rapidly reconfigurable and accessible without staff intervention. While theoretically Cloud computing could be possible without virtualization, in reality almost all Cloud services depend upon some type of virtualized capability—whether it's in the infrastructure or in the application itself. When it's an external service versus a “private” internally provided capability, Cloud adds to a political dimension to virtualization that can offer added advantages in terms of flexibility, but also constraints in terms of management requirements, supervision, accountability, and assimilation into best practices.

---

In reality almost all Cloud services depend upon some type of virtualized capability.

---

Five fundamental characteristics are included with the NIST definition of Cloud computing. These include:

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

Recent EMA research, [The Responsible Cloud](#), validates these definitions. In this study, participants indicated a typical use-case for Cloud computing that involves the ability to offer access to standardized IT services across the LAN or WAN, as and when they are needed, by reusing and repurposing existing IT resources. Chargeback (or “showback”) is typically applied to enable “pay-as-you-go” consumption of IT services. Private Cloud services, or those operated solely for the use of a single organization, are currently the most popular. Cloud computing is therefore an opportunity for IT to diversify in ways that provide better, more direct, more cost-effective, user-initiated business services.

Virtualization, on the other hand, is an effective means for utilizing resources efficiently and is valuable in its own right. It offers consumers the ability to use resources according to the changing needs of the organization. Virtualization is generally part of Cloud computing architectures—Cloud then extends beyond to include service provider functionality in a transparent way. Routine tasks like provisioning are automated, enabling business users to initiate the rollout of standardized service offerings, and provided via self-service delivery vehicle.

## Strategies for Tackling a Virtual IT Environment

- **Assess your IT organization's level of maturity** – consider typical behaviors for each level of maturity and determine which phase your organization fits within at the present time. Planning can then begin for advancing maturity level by taking steps forward. For instance, if your organization is Reactive, then one such step would be to look at ways in which proactive planning can take place on all levels of technology—domains, process and people.
- **Create a solid foundation of Client Management tools** – underlying tools must be in place to support the virtual IT environment as well as an IT organization's march up the maturity curve. Questions must be asked to determine how prepared the organization is to tackle virtual computing.



# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

Do client, asset and inventory management capabilities exist and have processes been developed and refined to support them? Are systems, network and desktop management tools fully implemented and integrated across solutions to support ITSM operations as well? Can the silo-based tools that are required to manage at the technical level scale up to the problem of managing virtualized IT environments?

- **Define and prioritize business services** – a maturing IT organization begins to appreciate the requirements of the business. Major requirements ultimately must become services supported and delivered by IT. Priorities must be given in order to use IT resources wisely. Definitions are represented in the service catalog and then made available to users for provisioning as needed. This activity does not take place until the third phase of IT maturity.
- **Integrate existing tools across domains** – supporting services as described above demand a cross-technology perspective. Network and systems tools must be integrated with client management and the service desk. Similarly, change management can function only when it understands the relationships of technology components as well as the layers of technology that must be in place to support services and later a virtualized environment.
- **Take advantage of virtualization technologies according to maturity level** – early stages of implementing virtualization occur even at the earliest phase of IT maturity. Silo-based virtualization can be used when IT is operating in a *reactive* mode. Multiple technologies can then be deployed during the *active* phase where IT begins to build bridges across silos with virtualization technologies. This progression continues in the *proactive* management phase building more and more links across technologies and building the services perspective using both core management technologies as well as virtualization toolsets. All builds to the goal of seamless Cloud-based virtualization in the *dynamic* phase of maturity.
- **Use a building block approach to advance to Cloud computing** – the maturity phases essentially provide a building block approach where each piece of the foundation evolves as the capacity of staff and process evolve. At the core, basic management technologies must exist first to support IT. Each phase introduces new ways to support the business and link across technologies to capitalize on the integration and intricacies of combined insight. Successful organizations will approach this process a step-at-a-time. Virtualization will by its very nature work to accelerate the process as it inherently brings domains together.

## Service Management as a Vehicle for Accelerating Cloud Computing, Virtualization and IT Maturity

Service management has reached a point in its development where IT organizations can begin to look ahead and apply a significant stock of best practices to new challenges. Service management is at the heart of effective Cloud computing—services are the very reason for creating a Cloud computing environment. Without the need to deliver services rapidly and efficiently to the business, there would be no requirement for elastic and flexible computing environments.

IT needs to be able to determine those services that will return the highest value to the business, and needs to be able to demonstrate the relative value propositions of in-house versus outsourced and Cloud versus traditional approaches. The entire lifecycle of the service beginning with definition



# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

and moving through provisioning, management and capacity planning is critical to effectively manage service quality and hence support the business. The financial and user-focused dimensions of service management, service consumption data, and the service catalog for presentation and deployment, all play a role in service management within the Cloud architecture.

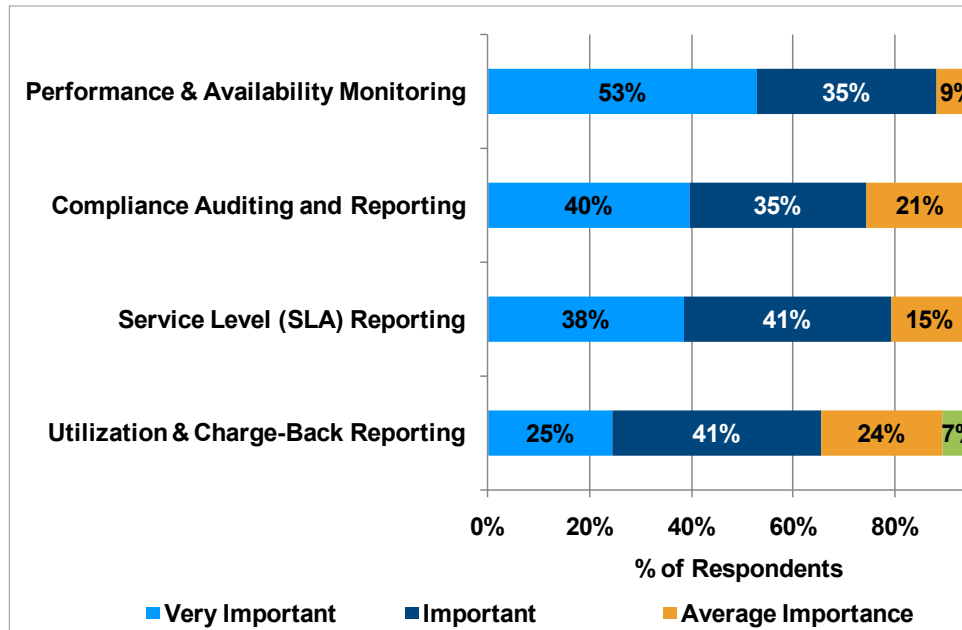


Figure 3: Importance of Service Management Disciplines in Cloud Computing

Service management is also a means for accelerating the virtualized IT world and increasing IT maturity. The essential characteristics of Cloud computing—on-demand self-service, broad network access, resource pooling, rapid elasticity and measured service—will require effective service management, workflow and automation if they are to be optimized and governed. The alternative is to risk a chaos of invisible dependencies that could easily bring down critical business services and humiliate IT. Cloud-based service management offers the enterprise a set of business focused and policy-driven services and then delivers the on-demand self-service measurements endemic to effective use of Cloud capabilities. Service management becomes the “face” of the Cloud for both private and public Cloud deployments.

Client Management support is necessary for this far-reaching goal. Service management underpins Cloud-based computing. Each of the following must be integrated into the overall strategy:

- **Discovery and infrastructure awareness** – particularly in order to understand the infrastructure relationships as they are utilized for services.
- **Automation of IT management tasks and process automation** – to help streamline processes for operations as well as service delivery.
- **Configuration and change management** – at the Configuration Management System (CMS) layer to ensure that change management is handled in a way that does not interrupt service delivery.

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

- **Service level management** – service delivery must be measured across virtualized delivery so that individual services and overall Cloud infrastructure can be measured.
- **Problem and incident management** – to ensure issues are addressed proactively and to minimize service quality impacts.
- **Service catalog** – the key to on-demand self-service for the Cloud representing an entitlement-based menu of service offerings for users.
- **Voice Automation** – capabilities to enable agile, cost-effective self-service.
- **Best practices and process** – central to defining the mechanics and automated workflows that will operate in the virtual domain.

The concept is simple and yet the value can be immense. The service catalog provides visibility into IT's offerings for the enterprise—what services are being offered, what costs are associated with a given service level, and the ability to provision that service or retire it as needed. Services in today's technology environment begin and end on the fly—driving a need for agility, flexibility and immediacy. The service catalog has been identified in many EMA research studies as a critical initiative.

Enterprise Management Associates' *The Responsible Cloud* research showed that 14% of respondents had adopted service catalogs as a means of offering, or publishing, Cloud-related services to users, while an additional 21% had definite plans to do so within twelve months; ITSM research has shown that over half of enterprises have the service catalog high on its priority lists. Service catalog deployments are most effective when they are “actionable”—providing not just an online list of available service offerings, but also the means to order those services from IT. Underneath the service catalog front-end, all other service delivery mechanisms can engage to support Cloud-based service management.

A service management system provides the visibility, control and automation needed for efficient Cloud delivery in both public and private implementations. The result of service management for the Cloud is that automation handles all the work based on workflows, policies and process. In this way, services can be provisioned consistently each time and delivered to the group of users that authentically has the right to access those services. The service catalog is similar to the model used by corporations working to bring external corporate product offerings to market—another domain where standardization becomes important. When they're used with Cloud services, service management capabilities provide the visibility, control and governance to optimize on-demand, dynamic environments while minimizing risks and failures.

---

The service catalog provides visibility into IT's offerings for the enterprise.

---

## FrontRange Solutions' Hybrid IT Service Management Approach

FrontRange is the global leader in Hybrid IT Service Management (ITSM) solutions for organizations of all sizes. With its suite of HEAT applications, FrontRange is the only ITSM provider in the world that delivers Service Management software with fully integrated Voice Automation and Client Management capabilities on-premise and in the cloud. HEAT manages millions of service interactions a day for more than 15,000 leading organizations around the world. FrontRange customers deliver world-class service while maximizing operational efficiencies with reduced cost and complexity.

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

With HEAT Hybrid IT Service Management solutions organizations can easily **request** a service or change, automatically **approve** and authorize the request, **plan** for appropriate remediation measures, automatically **deploy** the changes to the end users, **monitor** compliance and service level agreements and **control** their services portfolio on an ongoing basis to ensure enhanced service quality and customer satisfaction.



Figure 4: FrontRange HEAT Hybrid IT Service Management Process Lifecycle

With its suite of HEAT applications, the FrontRange Hybrid IT Service Management solution is the most:

- **Flexible** – Standardize on a single service management solution with “fit-for-purpose” cloud and on-premise deployment models that allows for the use of both operating and capital expense budgets (including a hybrid option that leverages both).
- **Advanced** – The most advanced IT Service Management solution in the world with fully integrated voice-enabled capabilities that enhances efficiency and reduces service resolution costs by up to 70%.
- **Complete** – With end-to-end, integrated client management capabilities that enables the standardization of business processes across the enterprise and improves the mean time to repair (MTTR) by up to 75%.

FrontRange ITSM builds on the company’s long-time expertise in the service desk with FrontRange HEAT to deliver an ITIL-based solution complete with a Configuration Management System (CMS) and support for all the major ITIL disciplines. These disciplines include the service catalog as required for virtual computing environments and integration with Client Management for IT operational tasks such as provisioning and problem management/remediation.

# Hybrid IT Service Management: A Requirement for Virtualization and Cloud Computing

## EMA Perspective—On the Horizon

Many IT organizations are excited about the prospects of incorporating Cloud-based and virtual computing technologies into their present/future vision. At the same time, many of these same organizations have been educated and taken many steps on the road to IT service management maturity. But Cloud is a means to improved efficiency,

---

Cloud is a means to improved efficiency, not an end in itself.

---

not an end in itself, and companies should not overlook the need to connect business goals and priorities. Now, IT has an opportunity to capitalize on its hard work in domain management, service management and virtualization to leverage Cloud services for increased resiliency and efficiency.

For both public and private Cloud, the service catalog will offer companies the “front office” including the important customer-facing aspects such as on-demand self-service, standards for resource pool allocation, user-driven service levels, and usage-based billing. The catalog then is the means for service providers and IT shops to implement e-commerce within a private Cloud, as many retailers have done in the public Cloud.

This is made possible due to the investments that have been made by IT for decades in both infrastructure and service management. These investments include domain-based management, inventory and discovery, client management, process automation, Configuration Management Systems (CMS), service desk solutions, and now IT financial management technologies. All of this progress fits together to support virtual and Cloud computing today and provide significant value to the enterprise.

EMA believes that Cloud computing can have many benefits for the enterprise. In the short term, it can promote service standardization and resource efficiency, to lower the cost of IT and improve service levels. *The Responsible Cloud* research showed that over 75% of enterprises report CapEx and/or OpEx savings on average over 20%. In the long term, it should eliminate costly bottlenecks and deliver fee-based self-service, making IT a strategic partner to a dynamic and agile business. However, IT is unlikely to experience a purely Cloud-based, virtual environment in the foreseeable future. Most IT shops will reap benefits capitalizing on a hybrid design where Cloud computing and virtualization are deployed for segments of business services.

FrontRange Solutions is offering a well-focused and pragmatic approach to manage virtualized infrastructures from a lifecycle perspective without requiring a labyrinth of complex and costly management applications. FrontRange Solutions’ attention to automation, integration between the service desk and configuration management in operations, and balanced service management portfolio bodes well for FrontRange customers seeking to assimilate the values of Cloud and virtualized environments while minimizing risks to service impact.

## About FrontRange Solutions

FrontRange is the global leader in Hybrid IT Service Management (ITSM) solutions for organizations of all sizes. With its suite of HEAT applications, FrontRange is the only ITSM provider in the world that delivers Service Management software with fully integrated Voice Automation and Client Management capabilities on-premise and in the cloud. HEAT manages millions of service interactions a day for more than 15,000 leading organizations around the world. HEAT enables customers to deliver world-class service while maximizing operational efficiencies with reduced cost and complexity. FrontRange is headquartered in Pleasanton, California.

For more information, please visit [www.fronrange.com](http://www.fronrange.com)

### **About Enterprise Management Associates, Inc.**

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals and IT vendors at [www.enterprisemanagement.com](http://www.enterprisemanagement.com) or [blogs.enterprisemanagement.com](http://blogs.enterprisemanagement.com). You can also follow EMA on [Twitter](#) or [Facebook](#).

---

This report in whole or in part may not be duplicated, reproduced, stored in a retrieval system or retransmitted without prior written permission of Enterprise Management Associates, Inc. All opinions and estimates herein constitute our judgement as of this date and are subject to change without notice. Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies. "EMA" and "Enterprise Management Associates" are trademarks of Enterprise Management Associates, Inc. in the United States and other countries.

©2012 Enterprise Management Associates, Inc. All Rights Reserved. EMA™, ENTERPRISE MANAGEMENT ASSOCIATES®, and the mobius symbol are registered trademarks or common-law trademarks of Enterprise Management Associates, Inc.

**Corporate Headquarters:**

5777 Central Avenue, Suite 105  
Boulder, CO 80301  
Phone: +1 303.543.9500  
Fax: +1 303.543.7687  
[www.enterprisemanagement.com](http://www.enterprisemanagement.com)  
2088.082912

