

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

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Table of Contents

Executive Introduction 1

 Enter HP 1

The Growing Role of Analytics for IT Operations and Beyond..... 1

 Next-Generation IT Analytic Values in the Real World 2

HP’s New Operations Analytics Platform..... 3

 HP Operations Analytics Applications 4

 HP Operations Analytics Architecture 5

 Service Health Analyzer..... 6

 Operations Manager *i* (OM*i*) 7

EMA Perspective..... 7

 HP Operations Analytics in Context: Why One IT Organization in Transportation is Looking to HP for Operations Analytics 8

About HP 9



HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

Executive Introduction

As IT organizations face dramatic challenges in response to changing technology and business pressures, it's clear that a "business as usual" approach can all too easily lead to a "going-out-of-business" result. The size, scale and ecosystem interdependencies of many IT organizations, are redirecting management and monitoring requirements away from deterministic methods of working, to optimizing a far more dynamic set of non-deterministic relationships and patterns across a sprawling universe of application and infrastructure, partner and supplier, and third-party service provider interdependencies.

Moreover, technology advances such as cloud computing, big data, analytics and mobility bring new opportunities to IT, just as they are forcing IT organizations to rethink traditional ways of working.

Finally, the "consumerization of IT" and the already evident presence of a more savvy, more demanding and far less passive consumer base – is changing the very face of IT towards becoming more value-driven and less of a back-office cost center. The rise of BYOD is just one example of this. With the sprawling growth of user device choices and mobile applets, IT's consumer population is already sourcing solutions on an individual basis to suit their unique needs.

While adapting IT organizations to this brave new world can't be done by technology alone, technological advances in service management in general, and analytics more specifically, are already becoming essential foundations in more progressive IT organizations seeking new levels of IT efficiency, relevance and value.

One area where these trends are strikingly evident is the Operations Center – where multiple domains often collide in a growing requirement for provisioning, delivering and optimizing a broad array of services far more quickly than ever before. These challenges can and often do require the need not only of core operations professionals to work together more efficiently, but also for the Security Operations Center and the Network Operations Center (NOC) to share resources in facing what are often interconnected issues.

Enter HP

Given these requirements, and the still elusive allure of "big data" in optimizing IT efficiencies, HP's introduction of Operations Analytics has all the makings of a visionary industry event. This new platform, which provides a unique vehicle for supporting advanced analytics capabilities over a wide variety of structured and unstructured data sources, represents the industry's very first true example of an extensible, platform-scalable, analytics architecture.

HP's introduction of
Operations Analytics
has all the makings of a
visionary industry event.

This white paper looks at the context and the vision behind HP's Operations Analytics platform as a foundation for a truly next-generation approach to IT Operations, and IT more generally.

The Growing Role of Analytics for IT Operations and Beyond

In Q4, 2012, EMA introduced the results of an extensive program of research focused on what it called "Advanced Performance Analytics" or "APA." This included looking at trends across 42 deployments in seeking insights into newly emerging "big data" and "analytics" capabilities growing out of more operationally-centric performance management solutions.

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

EMA focused on analytics emerging across the industry optimized for unearthing answers to stubborn and often persistent problems that cannot be resolved by more siloed, or linear approaches. These capabilities are beginning to open the door to identifying patterns and solutions hidden to traditional management tools targeting standard KPIs with one-dimensional variances. They are also beginning to facilitate dramatically improved levels of efficiency across IT by enabling far more holistic and integrated insights across a wider variety of sources.

Some of the key qualities behind these solutions as they are emerging are:

- **Breadth of analytic heuristics** – Next-generation IT analytics capabilities will mirror BI tools in their range of heuristics, and above all else in their capacity to assimilate and process huge amounts of data. In terms of analytics, these emerging solutions may span everything from self-learning and self-adaptive, real-time predictive heuristics, to advanced data collection and trending via OLAP for historical and what/if use cases.
- **Breadth of data source** – Unlike traditional monitoring tools, these next-generation solutions will become highly eclectic in data source – spanning events, time series, log files, flow, transactional data, structured and unstructured data as well—either directly, or through assimilation from other sources.
- **Modularity** – Next generation analytics tools for IT will need to enable modular values to support a growing number of stakeholders for a growing number of use cases. These may range from pure *performance management*, to *business impact* advances shared by business and IT constituencies, to *change impact and capacity optimization*. *Integrated security capabilities* and support for *DevOps* are also key to some of these analytic deployments.
- **Unique contextual insights** – whether through service modeling, topology-defined interdependencies, CMDB integrations, or through analytics directly, or some combination of the all three, next-generation analytics for IT will deliver added advantages in terms of context, relevance and appropriateness for individual stakeholders. These stakeholders will range from executive, to IT professional, to non-IT business stakeholders interested in better understanding the business impact of IT services.

As next-generation analytics for IT evolve, they will begin to minimize or even potentially eliminate the finger pointing from siloed tool sets.

Next-Generation IT Analytic Values in the Real World

As next-generation analytics for IT evolve, they will begin to minimize or even potentially eliminate the finger pointing from siloed tool sets. They will be able to bring new levels of context and insight to persistent problems that have only been understood in the past from a single myopic perspective, much like the blind men and the elephant, each seeing the creature from only what it can touch.

It is telling that in EMA's *Operationalizing Cloud* research as far back as 2011, cloud adopters enjoyed the following set of efficiencies from a "Integrated Service Management Dashboard with Advanced Analytics."

- 1.8 times more likely to reduce management complexity
- 1.4 times more likely to reduce capital costs via cloud
- 1.7 times more likely to free up resources for strategic projects
- 1.9 times more likely to improve service resilience via cloud

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

- 1.4 times more likely to accelerate deployment of existing services via cloud
- 1.4 times more likely to increase infrastructure flexibility and agility via cloud
- 1.8 times more likely to expand revenue channels via cloud
- Twice as likely to deliver business model enhancements via cloud

Figure 1: An Integrated Service Management Dashboard with Advanced Analytics Delivered the Following for adoptions of cloud computing, including public and private cloud, SaaS, IaaS and PaaS. From EMA's "Operationalizing Cloud."

There are lots of reasons for these kinds of gains, but one of them is clearly the fact that cloud computing requires a faster time to value across a truly cross-domain vision.

Here are some of the other core values from operations-centric analytics as witnessed in EMA's current APA research:

- **Toolset optimization and consolidation** – deployments of next-generation IT analytics can expect to find new ways for optimizing existing investments and minimizing redundancies. The flexibility to take in different sources spanning applications performance, network performance, systems and database, security, event management, service desk, mainframe and other environments can deliver both unique contexts for understanding disparate data sets, as well as reduce the requirement to have a hodgepodge of separate tools, each with its own myopic focus.
- **Fast Time to Value** – With the right vision and focus, many next-generation solutions, especially those with fully realized analytic functions, and/or self learning capabilities, are already beginning to deliver surprisingly fast time to value. EMA is already witnessing ten-to-one or better advantages in time to value as next-generation analytics begin to supersede traditional monitoring solutions.
- **More effective problem resolution** – Above all, next-generation IT analytics will minimize Mean-Time-to-Repair (MTTR) and often prevent problems from occurring before the impact IT service consumers. This is in large part because of their capabilities to assimilate non-deterministic information from many multiple sources and place it in a larger context.

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HP's New Operations Analytics Platform

HP's new Operations Analytics platform, (Operations Analytics Version 2) introduced in June, 2013, goes a long way toward enabling a new way of working for IT—in which combined insights from many multiple sources can support next-generation levels of IT efficiency. It can provide unique analytic insights across structured and unstructured data relevant to everything from user behavior, service level violations, security threats and identity management, application and infrastructure performance issues, transitions to virtualization and cloud, and configuration changes. In other words, it can assimilate valuable insights impacting IT governance, business impact, operational health, DevOps, security, and a host of other use cases.

HP Operations Analytics is a cornerstone of a HP's yet larger analytics vision (see Figure 2), Operations Intelligence. Operations Intelligence brings together self-learning and self-adaptive predictive analytics,

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

model-driven BSM insights, a broad array of integrations including third-party integrations, along with the powerful, foundational platform offered by Operations Analytics. This report will provide a balanced feel for both HP Operations Analytics and the yet broader parameters of Operations Intelligence as they will evolve together in the near future.

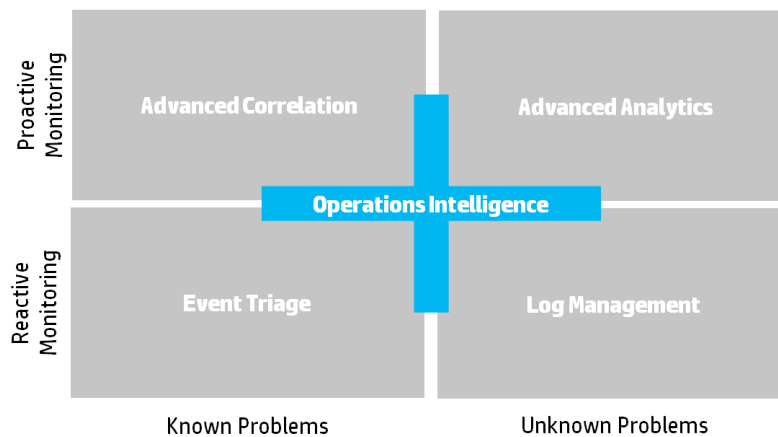


Figure 2: HP's Operations Intelligence vision unifies a full range of analytic and monitoring capabilities unified through powerful integrations, including third-party integrations, as well as service modeling and modular, use-case-driven support for phased adoption.

HP Operations Analytics Applications

As both a platform and a vision, HP Operations Analytics offers a highly modular and adaptive approach to tackling new and even unforeseen problem sets. Similarly, Operations Analytics' breadth of stakeholder support, while centered in operations, can also include engineering and architecture, cross-domain service management, on-line operations, executive IT and executive non-IT, and DevOps as examples.

HP Operations Analytics Version 2 comes with out-of-the-box analytic applications:

- **IT Search** – At the heart of Operations Analytics is an analytic dashboard that can draw eclectically from all of its sources to provide contextually relevant insights based on individual stakeholder priorities. The solution leverages natural language query with powerful, Google-like search engine capabilities.
- **Guided Trouble Shooting** – This analytic application supports a specific type of Q&A interaction so that, for instance, an operator may get a phone call regarding a service performance issue, and search on the service in question. Guided Troubleshooting may propose some search suggestions automatically. The Operator can select from these and execute a search. Then Guided Troubleshooting provides a prioritized list of anomalies based on relevance to the performance issue. From this, the operator can identify the actual problem and, through Guided Trouble Shooting get a recommended fix. It does this by digging deeper across multiple datasets with cascaded searches to refine the analytics.

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HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

- **Visual Analytics** – (see Figure 3) HP's Operations Analytics Visual Analytics offers compelling and easily assimilated views of 'outliers' by day and by hour- based on requested content. These well-designed visualizations are optimized to lead the eye to focus on hotspots and trends and assist in formulating judgments. For instance, they might map server and systems type components, or end user experience-related latencies in an application such as Microsoft Exchange or SAP, or KPIs regarding everything from bandwidth to CPU utilization. Visual Analytics can also provide insights based on geographical, organizational and other criteria.

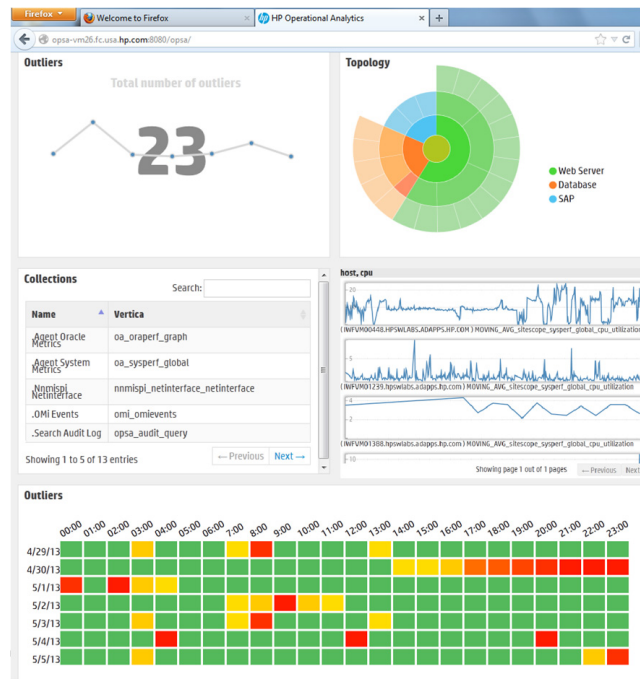


Figure 3: HP's Operations Analytics Visual Analytics offers compelling and easily assimilated views of 'outliers' by day and by hour- based on requested content.

As HP Operations Analytics evolves, it will also begin to support a growing number of community-developed applications through a partnerships with other vendors, as well as through unique customer or services development activity.

HP Operations Analytics Architecture

To appreciate the breadth of HP Operations Analytics platform both as it is today, and as it's evolving, it's worth looking a little more closely at its present foundational components:

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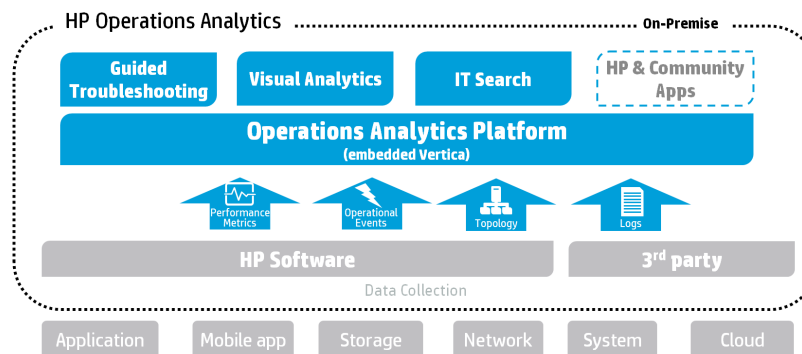


Figure 4: The HP Operations Analytics Architecture leverages the Vertica Analytics Platform as a foundation for analytics and analytic extensibility, data federation, and clustering. ArcSight Logger provides added value in terms of search for searching and indexing unstructured data.

Vertica Data Warehouse – Vertica provides uniquely powerful big-data capabilities newly optimized to support Operations Analytics and fully integrated with it. Moreover, it provides added strengths in data normalization to support a wider variety of analytic needs.

ArcSight Logger – HP rightly describes ArcSight Logger as a “Universal Log Management” capability. It can assimilate structured and unstructured data from more than three hundred log sources, as well as associated events, with a single view of data taken from HP and third-party monitoring sources. ArcSight Logger also has powerful security management capabilities. ArcSight Logger is designed to enable incremental advantages in more holistic, non-deterministic analysis, while providing a stairway to longer term strategic gains.

OpsAnalytics Collector Appliance – can collect data directly from HP and selected third-party sources. It leverages Apache Flume capabilities for moving large amounts of log data reliably to a central data store. HP Operations Analytics also offers agent-based capabilities for collecting data from non-HP sources.

Service Health Analyzer

Service Health Analyzer (SHA) is the industry’s first predictive analytics tool built on top of a fully dynamic service model (HP’s Run-time Service Model or RtSM) to correlate metric abnormalities with real time topology. SHA is also self-learning and self-adaptive. SHA performs analytics, advanced correlation and anomaly detection on performance data. EMA dialogs with HP SHA deployments have been resoundingly positive in terms of both its efficiencies and its ease of administration. Here are just two quotes:

- “We tested HP’s Service Health Analyzer (SHA), and a couple of hours after initial deployment we had identified a problem we might otherwise have missed.”
- “We looked at IBM, CA, Managed Objects, and Troux, and SMARTS – but found the HP technology a great approach a lot of detail and able to do better integration without having to learn fifteen different code sets.”

Service Health Analyzer (SHA) is the industry’s first predictive analytics tool built on top of a fully dynamic service model.

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

Currently, SHA consumes data directly from HP BSM, including a wide variety of HP and third-party sources. In the future, Service Health Analyzer will also be able to leverage data directly from HP Operations Analytics as a fully integrated application.

Operations Manager *i* (OMi)

While not directly a part of HP Operations Analytics, OMi provides a complementary set of advanced correlation and other analytic capabilities and may receive alerts from HP Service Health Analyzer when anomalies occur. OMi also serves as a powerful integration point across many HP and even third-party solutions. It leverages HP's Business Service Management (BSM) platform with rich insights into application-to-infrastructure interdependencies via its Run-time-Service Model (RtSM). OMi correlates events/metrics/ and topology-related information to determine root cause. The history of correlated events are a vital data source for Operations Analytics when collected from OMi.

EMA Perspective

HP is in fact one of only a handful of vendors that both fully understands, and is prepared to deliver on, the transformative values of next-generation analytics for IT. HP clearly recognizes the need for more holistic, assimilative analytic capabilities capable of breaking the “deterministic” or “stable and precise” modus operandi that will handicap IT organizations from managing and optimizing the more dynamic, ecosystem-dependent world of the future.

HP's total analytics vision, which includes Operations Analytics, Service Health Analyzer, and the advanced correlation and other analytics strengths of OMi all come together under the yet larger banner of HP Operational Intelligence. This represents nothing less than the industry's first, full bodied support for both predictive analytics and warehouse-enabled “big data” in a meaningfully, unified package optimized to support the transformative demands facing IT today. (What HP likes to call “the new style of IT.”)

HP's total analytics vision represents nothing less than the industry's first, full bodied support for both predictive analytics and warehouse-enabled “big data” in a meaningfully, unified package.

Moreover, Operations Analytics, in itself, provides the industry's first true architectural foundation with the extensibility to deliver the full range of IT analytic needs over time in an integrated, and holistic way.

EMA looks forward to watching HP's Operations Analytics vision continue to evolve through future deployments and a continued growth in functionality. Its adoption should become game-changing for the industry as it brings industry-unique richness to the next-generation analytics challenge. HP's commitment to advances in both technology and process should help IT deliver increased value to both its immediate service consumers, and to the business and organizational outcomes that IT services enable more broadly.

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

HP Operations Analytics in Context: Why One IT Organization in Transportation is Looking to HP for Operations Analytics

EMA spoke to a transportation-sector IT organization in North America planning for Operations Analytics in 2013.

Could you describe us with a little background on your role and your organization?

There are about 800 people in our IT organization including software developers. For the last several years I've had a role involving support for architecture and planning for various tools surrounding IT Operations. In our environment we have to support a mix of everything from Microsoft to Red Hat Linux and AIX, Solaris and mainframes as well as a mix of networking equipment.

As such I've been involved with support for a wide variety of HP and non-HP tool sets, including HP Operations Manager, NNMi, and ArcSight Logger just to mention a few. Once we move to integrate and consolidate our toolset investments and value we're going to be bringing in HP Operations Manager i Software and ultimately Operational Analytics which will help with both HP and non-HP investments. Some of these include Microsoft SCOM, eHealth and Wily from CA, as examples. We also have a UCMDB initiative underway to support more effective change management and control.

What types of business applications are you supporting?

We are supporting our company's critical business operations applications, or applications that we depend on to run our transportation business safely and effectively. So these are mission critical services.

What is your business driver for moving to Operations Analytics?

We have a lot of moving pieces that we want to integrate in order to leverage more cohesive diagnostics and analytics. The near-term goal is to be able to store, access and ultimately analyze our data through a single "manager of managers" environment. To have a single point of query. At this point we want the information easily accessible and in one place. The longer term for us is to do more predictive analysis of problems, to detect them more proactively and reduce recurrences.

Who do you see as your key stakeholders?

The core stakeholders will be our Operations Center team in the first phase. They're not so much the subject matter experts, but the group responsible for getting the right people on the phone and helping to focus their attentions effectively. As a next phase, I expect to have some business stakeholders involved – those who care about the business outcomes of our application services in running our transport operations. And moving forward from this, as a third phase, especially with increasing mobile access, I expect more of the subject matter experts to profit more directly from our Operations Analytics deployment.

HP Operations Analytics: a New Analytics Platform to Support the Transformation of IT

Has there been any resistance to the Operations Analytics initiative on the part of your stakeholders?

Actually, no. Upper management is very supportive. And our Operations Center/ NOC people are very enthusiastic. Pretty much everyone is eager to move in this direction. Most of Operations has been overwhelmed with the amount of work they're expected to do. So anything that relieves that pressure is beneficial. This is different from some other initiatives I've seen where people are unconvinced or reluctant to give up their existing tools and their existing ways of working.

How did you select HP?

We already had ArcSight Logger in place, even before HP purchased it, and were happy with what it could do. We could see the value for IT Operations – in terms of bringing information together from multiple sources in a different format for a more historical point of view. I also saw value in bridging the worlds of security and IT operations. Especially since sometimes a performance issues have a security root cause.

We did evaluate different solutions from other vendors, such as from CA and IBM, as well as considered a number of smaller vendors. But we had a good history with HP, and we liked HP's capabilities for integrating other third-party solutions with their own.

About HP

HP creates new possibilities for technology to have a meaningful impact on people, businesses, governments and society. The world's largest technology company, HP brings together a portfolio that spans printing, personal computing, software, services and IT infrastructure to solve customer problems.

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