

# Six questions when evaluating monitoring solutions for OpenStack

Choosing the right monitoring solution for your OpenStack cloud is an important decision. Your critical applications are a direct link to your customers, and poor performance and outages can have a serious impact on your company's reputation and revenues.

We've helped thousands of companies implement APM, and we know what it takes to be successful. So, before you make a decision, here are six things we'd strongly recommend that you consider:

## 1. How much time and effort will it take to configure?

OpenStack gives you flexibility, hyper scale and room to grow. However, increased complexity is the price you pay for this freedom. There are just too many ongoing projects and deployment architectures, and not enough knowledge around how the pieces should work together. If not handled smartly, this complexity can soon detract from the benefits for which you implemented OpenStack in the first place.

This smart handling should start at the implementation of the monitoring solution. Most commercial and open source monitoring tools offering partial visibility into OpenStack avoid talking about how much effort you will have to invest in their configuration, let alone in their maintenance. They never mention that you'll have to modify files, set permissions, and run command lines for every OpenStack component in order to get that – partial – visibility. Apply this to a large-scale, hyper-dynamic environment and soon you will find yourself hiring more and more staff only for administering a number of monitoring tools.

Monitoring OpenStack with Dynatrace, on the other hand, is ridiculously easy. Dynatrace has only one agent, works out-of-the-box, requires zero configuration, and integrates with all common deployment automation mechanisms. The Dynatrace agent automatically discovers your OpenStack cloud components and starts delivering performance metrics within minutes.



## 2. How many tools do I need to monitor resource utilization, OpenStack services, service availability and log files?

If you use OpenStack, you might want to have insights into resource utilization metrics, how your OpenStack services perform, if these services are available, and of course you want to see the log files.

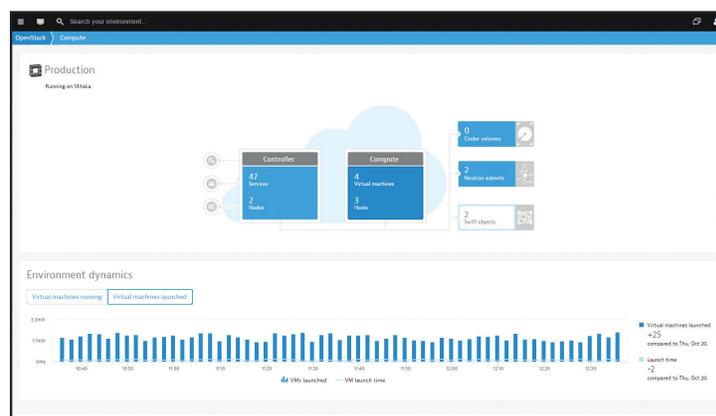
## Briefing

Companies implementing OpenStack are desperately looking for tools which provide some insights into all of these. Yes, there are a few commercial and open source tools out there providing good visibility into different OpenStack components and use cases. However, there are two major problems with these tools.

First, they provide visibility into only a very small part of your environment. Second, since these tools are only loosely integrated with each other, they have a hard time cohesively achieving 'unified monitoring'.

The result? Because they are missing the big picture, companies running different monitoring tools for different silos quickly realize that they are unable to identify the root cause of a performance issue. Or, to find the team responsible for fixing it. In these circumstances, how could they reduce MTTR and downtime? And with a number of separate tools, how could they ever see performance trends or predict capacity needs?

Dynatrace, on the other hand, is an all-in-one OpenStack monitoring solution. It provides insights into resource utilization, OpenStack services, service availability and log files on a single dashboard.



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No other monitoring tool on the market today can do this. And, by allowing your development and operations teams to work with one monitoring platform, you can bring them closer together, solve issues quicker, and focus on delivering value for the business.

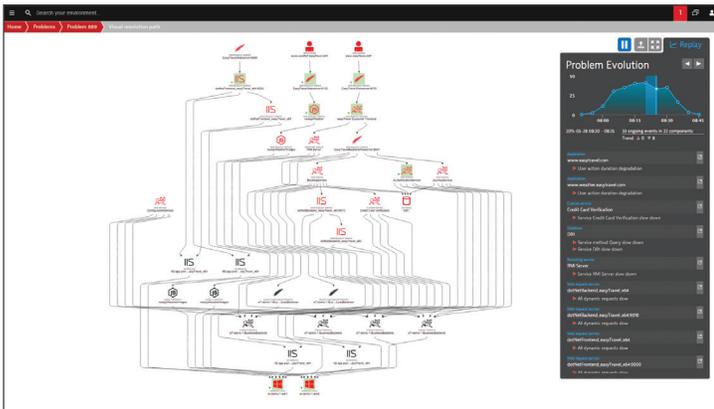
### 3. How fast can I identify issues and find the root cause?

Alert overload is one of the biggest time suckers for modern businesses — this is what we see at companies that implement countless monitoring tools to look at datacenters, hosts, processes and services. When any of these components fail or slow down, it can trigger a chain reaction of hundreds of other failures, leaving IT teams drowning in a sea of alerts. APM solutions with a traditional alerting approach like AppDynamics provide you with countless metrics and charts, but then it's up to you to correlate those metrics to determine what is really happening.

Dynatrace is the only solution that goes beyond correlation to give you causation. This means that we give you the answer to an end user-impacting issue, not just a bunch of alerts.

#### How do we do it?

It starts with better, more complete data. We automatically discover, map and monitor all the dependencies from the user click to the back-end services, code, database and infrastructure. In other words, we connect all the dots.



Get a single problem notification that identifies the root cause of the problem.

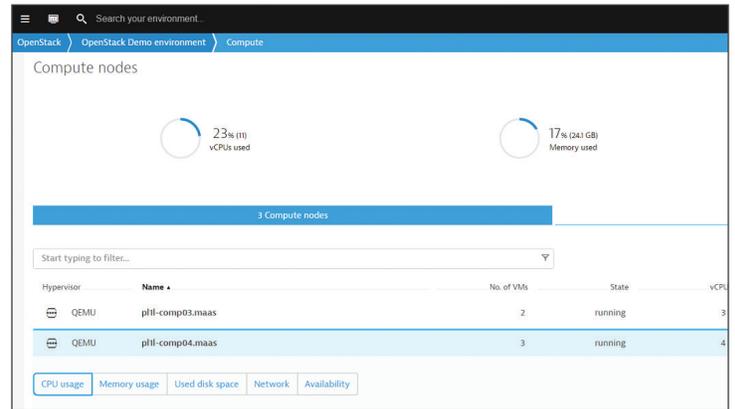
Second, we apply artificial intelligence to analyze the data. We examine millions or even billions of dependencies to identify, with a high degree of certainty, the actual cause of the problem. This is key because application environments are quickly reaching a tipping point of complexity, where it is impossible for a human being to effectively analyze the data.

### 4. How does the solution handle performance baselining for ultra-dynamic environments?

Correctly setting up alert thresholds is crucial to effective application performance monitoring. But that can involve a lot of time-consuming and potentially error-prone manual effort with traditional APM tools like AppDynamics —especially because most of them rely on averages and transaction samples to determine normal performance.

Averages are ineffective because they are too simplistic and one-dimensional. They mask underlying issues by “flattening” performance spikes and dips. Sampling lets performance issues slip through the cracks—creating false negatives. This is especially problematic in modern hyper-dynamic cloud- and microservice-based environments.

The far more accurate and more useful approach is to use percentiles based on 100% gap-free data, like Dynatrace does. Looking at percentiles (median and slowest 10%) tells you what's really going on: how most users are actually experiencing your application and site.



Dynatrace identifies over- and undersized workloads and assists in locating resource bottlenecks — thereby helping you improve overall application performance and customer experience.

#### How does Dynatrace auto-baselining work?

We use artificial intelligence to pin down all the baseline metrics related to the performance of your applications, services, and infrastructure — from back end through user experience at the browser level. Outliers don't skew baseline thresholds — so you don't get false positives. 100% gap-free full-stack data means you catch every single degradation, even those that materialize rapidly in ultra-dynamic environments — no false negatives.

Such intelligent and automatic baselining allows Dynatrace to detect anomalies at a highly granular level and to notify you of problems in real time.

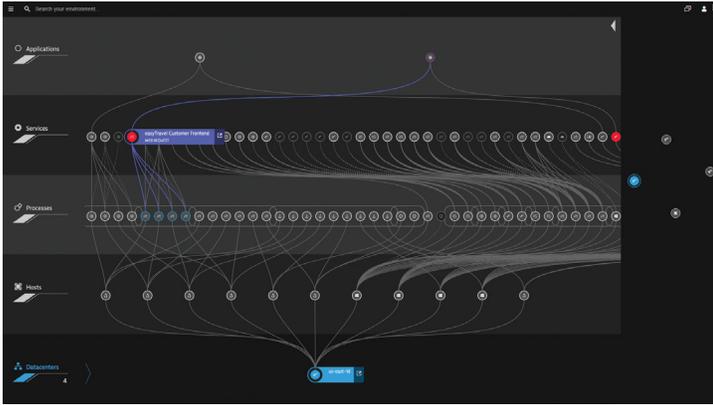
### 5. Will the monitoring solution scale with my business needs?

Picking a monitoring solution that gives you real time insights into critical OpenStack setup is important, but ensuring that it will not crash and burn as you expand your environment is crucial. Therefore, one of the key challenges for modern app-based businesses is the scalability of their IT monitoring.

You can keep deploying more and more monitoring tools for each silo to ensure the system limits are not reached, but this quickly becomes very hard to maintain and can add a lot of extra cost in terms of both licensing and hardware. Soon questions like these will come up:

- How far will this scale?
- How long until I'll need a newer, faster, or bigger one?

Modern application environments based on OpenStack run thousands of nodes with multiple hypervisor technologies, distributed across datacenters around the globe. Managing a bunch of monitoring solutions used to be nearly impossible at this scale.



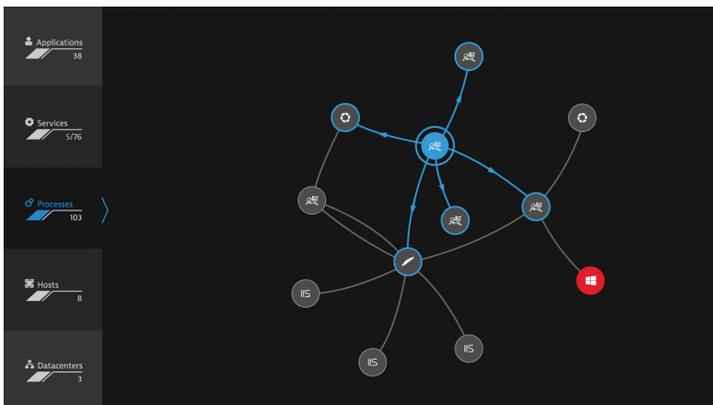
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Dynatrace was built with the world's largest application environments in mind and scales to any size. We defined an approach to ensure performance and scalability over the application lifecycle — from development to production. We work with our customers to make performance management part of their software processes going beyond performance testing and firefighting when there are problems in production.

## 6. Is my goal just firefighting at infrastructure level, or is it also performance improvement over the entire technology stack?

If you're looking for an OpenStack monitoring solution, chances are it's because you are struggling with performance problems at the infrastructure level. Of course that is a natural place to start; a solid IT infrastructure is the backbone of any agile, scalable and successful business. But to reach the next stage of maturity as an IT organization, it's important to think beyond just infrastructure.

IT organizations that are able to proactively improve and optimize performance gain credibility with the business and are looked on as strategic enablers of business value.



Our unique Smartscape technology takes the application topology and discovery information and builds an intuitive, interactive visualization.

## Learn more at [dynatrace.com](https://dynatrace.com)

Dynatrace has redefined how you monitor today's digital ecosystems. AI-powered, full stack and completely automated, it's the only solution that provides answers, not just data, based on deep insight into every user, every transaction, across every application. More than 8,000 customers use Dynatrace to optimize customer experiences, innovate faster and modernize IT operations with absolute confidence.

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Dynatrace tracks every build moving through your delivery pipeline, every operations deployment, all user behavior, and the impact on your supporting infrastructure. Dynatrace integrates with whichever technology stack you build on and whichever container based technology you're using to orchestrate and manage your dynamic application environments on top of OpenStack, providing a holistic view of your application, the technology stack, and OpenStack.

Through analytics and artificial intelligence, you can start building what users want, remove what's not needed, and optimize the remaining system to be lean, agile, and innovative.

## Conclusion

Choosing a monitoring solution for your OpenStack cloud is a business-critical decision. It's important to think strategically, and to broaden the evaluation beyond just IT operations and firefighting use cases.

Only Dynatrace offers:	AppDynamics and open source tools
Auto-discovery of your OpenStack cloud	none
All-in-one solution providing insights into resource utilization, OpenStack service performance, service availability, and log files	none
Auto-baselining	none
Automatic problem analysis and root cause identification	none

## Dynatrace Digital Performance Platform — it's digital business...transformed.

Successfully improve your user experiences, launch new initiatives with confidence, reduce operational complexity and go to market faster than your competition. With the world's most complete, powerful and flexible digital performance platform for today's digital enterprises, Dynatrace has you covered.