



Performance Troubleshooting

Cloud Insights

Dave Grace , Tony Lavoie
April 20, 2020

This PDF was generated from https://docs.netapp.com/us-en/cloudinsights/concept_faq.html on May 19, 2020.
Always check docs.netapp.com for the latest.

Table of Contents

- Performance Troubleshooting..... 1
 - How can I create a list of all the greedy resources in my environment? 1
 - Can Cloud Insights give one place to diagnose performance problems? 1
 - Can Cloud Insights help with my 7-mode to cDOT migrations? 2
 - How “real time” is Cloud Insights performance monitoring? 2
 - Why is my "Total" different from my "Read" plus "Write"?..... 2

Performance Troubleshooting

This FAQ answers common questions about Cloud Insights performance troubleshooting.

How can I create a list of all the greedy resources in my environment?

Cloud Insights's correlation analytics help with identification of greedy and degraded resources for a "specified" service path. The correlation feature's generated analysis is performed in real time while viewing each object. The analysis provided greatly reduces the time necessary for troubleshooting performance issues and identifying root cause. Exploring generated violations of defined performance policies are one point of entry to discovering greedy or degraded resources. Cloud Insights's anomaly detection capabilities may also be used as a more proactive approach to identifying an application infrastructure's greedy or degraded resources before they become service disruptions. Both widgets and dashboards using the latest query capability help to filter, sort and visualize resources with higher than expected IOPS (greedy), Utilization or Latency.

Can Cloud Insights give one place to diagnose performance problems?

Yes. Performance Troubleshooting in Cloud Insights can be approached in multiple ways. Cloud Insights has a number of alerting methods possible. SNMP, Syslog and emailed Alerts are used commonly. Emailed Alerts allow users to quickly click and launch to the impacted resources within Cloud Insights. A global search window allows administrators to simply type in a resource name to begin analyzing the situation.

Cloud Insights's Violation Dashboard allows users to prioritize efforts based on the number of events, the duration and the time of day. An example of various alerting types would be Latency, IOPS, Utilization, Severity, business unit or even application.

Cloud Insights's correlation analytics helps administrators compare objects with the impacted resource and determines their impact to IOPS, Latency, Utilization, CPU and BB credits.

Cloud Insights's latest advances in anomaly detection and ethernet monitoring provide a more aggressive and proactive approach to detecting deviating resource behaviors before they become service disruptions or outages.

Cloud Insights's Query technology and Widget dashboards allows for pinpoint specifics in organized views that targets problem areas within the Datacenter.

Can Cloud Insights help with my 7-mode to cDOT migrations?

Yes, Cloud Insights provides an invaluable understanding for existing workload demand and post migration validations. Cloud Insights's role in modernizing today's datacenter allows for change management simulations, pre-migration optimization planning and defining the right tier of service. Cloud Insights effortlessly collects and correlates the business impact across thousands of NFS shares and Fibre channel paths in multi-vendor environments with just a few clicks. From migration to tech refreshes, Cloud Insights is providing a pathway to reliable, right-sized migrations and mitigating unplanned service disruptions.

How "real time" is Cloud Insights performance monitoring?

Cloud Insights is considered near-real-time for both on-premises and hybrid cloud data center management. While polling of data sources can be configured to occur more often, most users don't get significant analytical benefit from having a performance collection interval for most devices of less than 5 minutes. More frequent collection can put unnecessary burden on the objects under management and the analyses performed. Of course, there may be circumstances where a more granular collection is required, and fortunately Cloud Insights allows complete flexibility including configurable device inventory and performance polling intervals to suit your specific data center environment needs.

Why is my "Total" different from my "Read" plus "Write"?

In some instances, you may notice that the Total for a counter is not equal to the sum of Reads plus Writes for that counter. There are a few instances where this could happen.

IOPS: In addition to reads and writes, a storage array or other asset will process internal operations unrelated to the workload data flow. These are sometimes referred to as "system", "metadata", or simply "other" operations, and can be attributed to internal processes such as snapshots, deduplication, or space reallocation. In these cases, to find the amount of system operations for a given asset, subtract the sum of Read and Write IOPS from the Total IOPS. The sum of Read plus Write IOPS is the total IOPS directly related to your data flow.

Latency: The total response time (latency) for an operation can sometimes be reported as less than the write response time, because the total response time is a time-weighted average. I/O workloads will often consist of more read than write operations, with the writes typically observing larger latencies. For example, if a workload performed 10 read operations with an average latency of 5ms, and 5 write operations with an average latency of 10ms, the total weighted average latency will be calculated as the number of reads times the average read latency, plus the number of writes times the average write

latency, divided by the total number of I/O operations, e.g. $(10 * 5 + 5 * 10) / (10 + 5) = 6.33\text{ms}$.

Copyright Information

Copyright © 2020 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.