ADLINK
Leading EDGE COMPUTING

An ADLINK Industry White Paper

Providing Real-time Operational and Situational Awareness for IoT Systems



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Vortex Insight provides users with operational and situational awareness during the development, the testing and the deployment phases of the ADLINK DDS based system. Vortex Insight enables monitoring and supervision of Vortex applications whether running on a Local Area Network (LAN) or deployed in Clouds.

Overview

Vortex Insight is a web-based tool that can be used to monitor and manage a Vortex-based system from any location and on any device. It provides views of a Vortex system including statistics associated with DDS entities and system elements active in a live environment. It also provides **configurable dashboards** for monitoring system behavior through **graphs** and charts of **statistics**, including resource usage. Vortex Insight allows users to control the configuration and the **QoS of Vortex** applications, services and systems.

Vortex Insight is well integrated with Vortex OpenSplice DDS product as well as the other ADLINK DDS products.



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Key Benefits

Vortex Insight **reduces the time to identify the cause of problems** in both systems under development, testing and deployment.

- It monitors and manages a system from any location and on any device through any HTML 5 web browser in a secure way through https and secure websockets
- It monitors 'non-functional' properties, such as **Memory** and **CPU usage** of the system in order to optimize its performance and isolate problems
- It provides **real-time operational intelligence** and visibility in a deployed system through detailed statistics and alerts
- It reduces ultimately the need to send technical support engineers on site to identify problems in a deployed system

Key Features

Vortex Insight includes a number of different tools that provide **logical**, **physical** and **data-centric** views of the system. Each tool is described below.

Domain Browser – provides an overall logical view of the domain. This is including information on nodes in the domain (i.e. virtual or physical machines), DDS services running on each node such as durability services, Record and Replay services etc. as well as the DDS aware applications running on each node. The key DDS computational objects each application uses such as the domain participants, the publishers and the subscribers, readers and writers are visualised in a hierarchical view.

The Domain Browser can be used to display in real-time changes to the system, including the entities being created or disposed, facilitating continuous monitoring and visibility of the system.

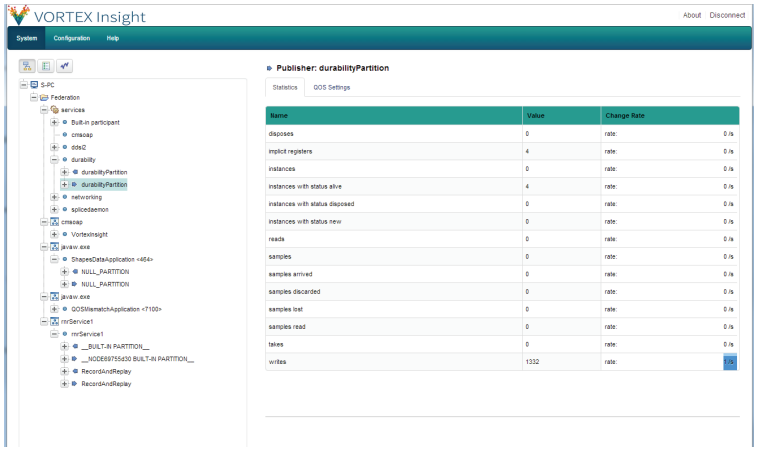


Figure 1: Domain Browser

The Domain Browser provides summary information and aggregated statistics for each application such as the total number of subscribed and published topics, plus the number of readers and writers. Users can drill down to reveal live statistics on individual entities such as a reader or writer. The Domain Browser can also be used to display information on the **QoS Policy** settings for each participant, publish or subscriber, reader or writer in the system.

You can also create your own view providing your own filtering criteria as in the figure shown below:

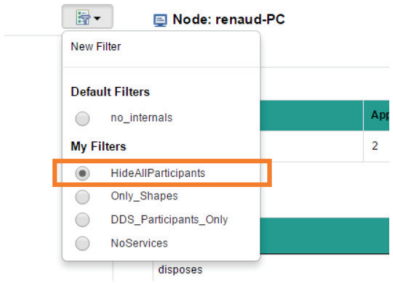


Figure 2: Logical views creation

Topic Browser – provides a **data-centric view** of topics registered in the system. It shows information for each topic such as QoS Policy settings. The Topic Browser also includes a **QoS Compatibility graph** for topic, reader and writer entities. It enables users to easily identify incorrectly configured quality of services settings.

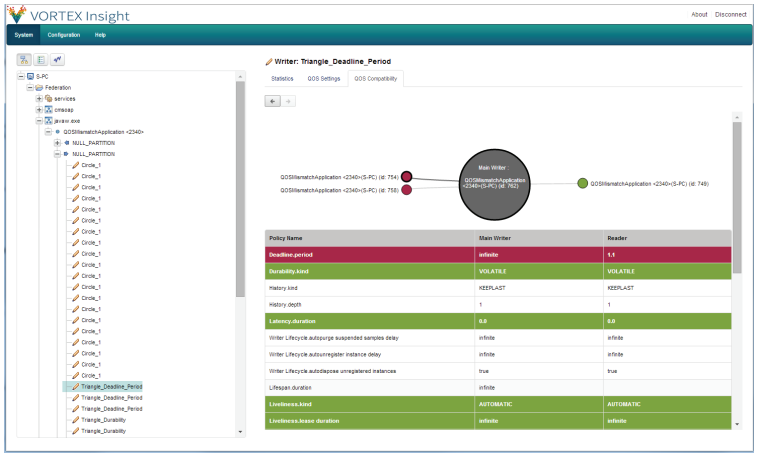


Figure 3: Topic Browser – QoS Settings

You can not only visualise the topic names in your DDS domain, but you can also display the data types and structures of each topic.

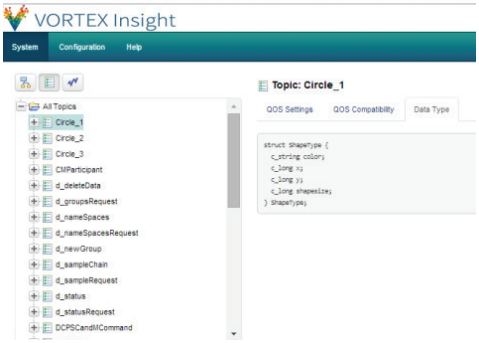


Figure 4: Topic Browser – Data type management

Monitor – provides threshold-based traffic monitoring for topics and participants. It enables users to easily set a threshold, by specifying a threshold type (e.g. writes per topic), threshold value (e.g. 6000 writes), threshold interval (e.g. 60 seconds) which defines the time interval over which the number of writes is calculated, and finally the sampling rate (e.g. 1 second) which defines the frequency at which monitored statistics are updated. A **threshold timeline graph** displays the amount of traffic at each interval for a topic or a participant. From the graph a user can easily identify if a threshold has been exceeded and drill down further into the graph to determine which entities (e.g. writers) have contributed to traffic threshold being exceeded.

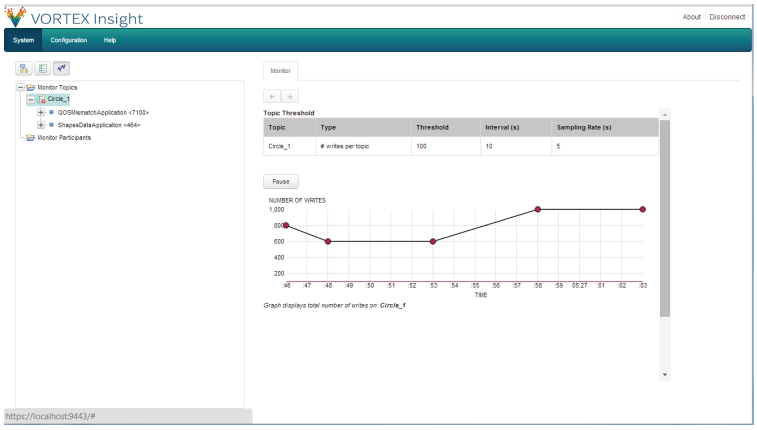


Figure 5: Monitor Tool

A Node Monitor is also provided as part of the Domain Browser and enables the monitoring of information and statistics of each machine's resources and applications present in the domain such as CPU information and statistics, Operating System information, Memory statistics.

For applications this includes, Process information, Process memory statistics, Process CPU statistics.

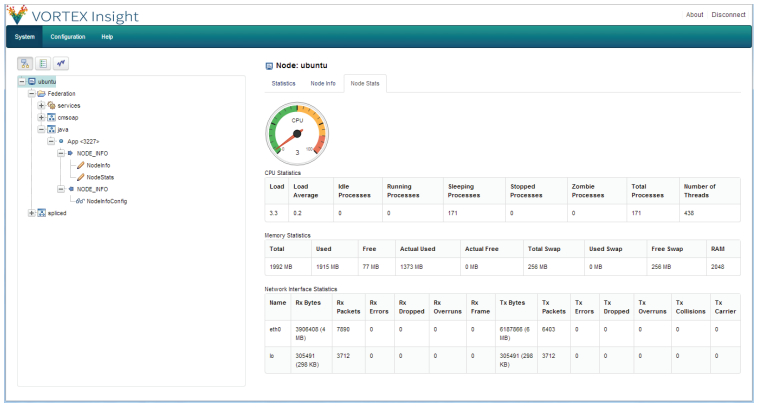


Figure 6: Node Monitor

Summary of Vortex Insight Benefits

Vortex Insight provides users with a range of benefits, including:

- Monitor and manage a system from any location and on any device (with appropriate web browser support)
- Monitor non-functional properties of the system in order to optimize its performance
- Real-time operational intelligence and visibility in a deployed system through detailed statistics and alerts
- Reduce the time to identify the cause of problems in both a system under development or a deployed system
- Reduce the need to send technical support engineers on site to identify problems in a deployed system
- Thin client Web-based GUI tool that runs on leading web browsers - Internet Explorer, Google Chrome, Mozilla Firefox, Opera
- An Open architecture tooling framework REST API enables users to create custom supervisory tools and applications
- Part of a family of interoperable IoT enabling technologies – ADLINK DDS Intelligent Data Sharing Platform

For More Information

For further information regarding Vortex Lite availability, platform support and pricing please e-mail: ist_info@adlinktech.com or visit: www.adlinktech.com

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