

## 4.2.7 Manageability

### [Return to Non-Functional Requirements](#)

- **[char]Please Review**

**Manageability** is most important during the second half of a **System Lifecycle** phases (i.e. operation, maintenance, support). Manageability can greatly influence the recurring costs and can increase the chances of a failure. Often a system that hard to manage is described as fragile since the smallest of changes can have dire consequences on the systems functionality.

*Manageability directly influences a system's **reliability**, **availability**, **security**, and **safety**, thus being a key ingredient of system dependability.*

*Just like security and safety, manageability is generally hard to retrofit in complex systems—it is always easier to build it in from day one. However, in the absence of means to measure manageability and to quantify the various tradeoffs, it is difficult to get the design right. We proposed a manageability metric that combines management workloads and weightings based on real world studies with direct measurement of the number of steps involved in management tasks and their duration. <sup>1)</sup>*

- [02\\_types](#)
- [04\\_costs](#)
- [06\\_system](#)
- [08\\_software](#)

## DDS Specifics

### [Return to the Top](#)

**Data Distribution Service (DDS)** can not solve all of a systems(or projects) **Maintainability** issues, however, by DDS's design, it can eliminate or reduce the Manageability issues that could arise from using DDS.

Table 1: DDS role in helping Manageability

Kinds of Management	Description
<b>Health Monitoring, Logging, and Alerting</b>	Although there are currently no <a href="#">DDS</a> standards for that directly supports System Monitoring, each of the DDS Vendors have sets of tools which can be used for that purpose. These tools include <ul style="list-style-type: none"><li>• Development and troubleshooting including specialized network sniffers, modeling tools, and code generators</li><li>• System monitoring and administration including terminals, shared memory management tools, recorders and replayers</li><li>• Functional, systems and performance testing</li><li>• Federated <a href="#">Discovery</a></li><li>• Bridges to other <a href="#">Message-Oriented Middleware (MOM)</a> products</li><li>• Topic aggregators</li></ul>
<b>Configuration and Control</b>	DDS uses a standardized Discovery process which eliminates most of need for configuration. Some <a href="#">DDS Vendors</a> offer specialized or advanced tools that aid in tuning DDS configurations and discovering performance issues
<b>Deployment and Updates</b>	DDS <a href="#">Extensible and Dynamic Topic Types for DDS (DDS-XTypes)</a> allows for planned evolution of the <a href="#">Datatypes</a> within a <a href="#">ddsapplication</a> . For example, adding or removing fields in a <a href="#">Data Structure</a> , changing the basic type from an int16 to an int32, etc.
<b>Asset Discovery and Inventory</b>	DDS automatically registers all <a href="#">Data Writer</a> and <a href="#">Data Reader</a> allowing them to be discovered. It is possible

1)

[Toward Quantifying System Manageability](#), George Cadea, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, Accessed 20 July 2020, [https://www.usenix.org/legacy/event/hotdep08/tech/full\\_papers/candea/candea\\_html/index.html](https://www.usenix.org/legacy/event/hotdep08/tech/full_papers/candea/candea_html/index.html)

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