



COMPAS DDS

KONGSBERG

COMPAS BUS (Common Object and Message Passing System) provides a mechanism for distribution of messages between software components in a distributed system. A COMPAS BUS system can span several processors, with various communication media between the processors.

COMPAS BUS is compliant with the Data Distribution Service (DDS) specification which standardizes the software application programming interface (API) by which a distributed application can use "Data-Centric Publish-Subscribe" (DCPS) as a communication mechanism. The DDS specification is governed by the Object Management Group (OMG).



COMPAS BUS DDS

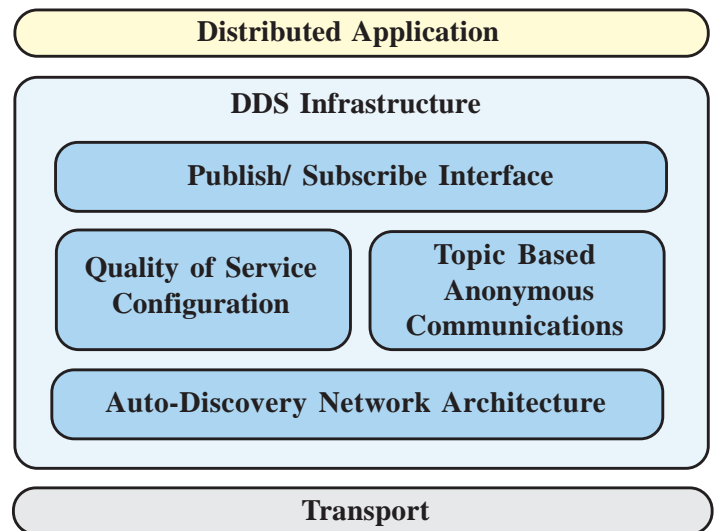
COMPAS BUS is the well proven KONGSBERG middleware used as infrastructure for many systems, including US Army (SLAMRAAM), USMC (CAC2S), Spain, Greece, Turkey and Norway. The DDS compliance gives COMPAS BUS a standardized API and Quality of Service (QoS).

Real Time Aspects

COMPAS BUS DDS is designed to be used in a mixed Real-Time and non Real-Time environment.

- Unlike other related products all identifications are pre-allocated, removing the need for a name-server and a binding phase.
- Communication is based on asynchronous messages.
- No allocation happen when sending and receiving messages.
- Graceful degradation - loss of one node does not stop nodes trying to transmit.
- Minimal critical regions - all transmissions are non-blocking, sending threads are not blocked (for asynchronous messages).
- Direct delivery of internal (in a process - or RT OS) messages.

COMPAS BUS DDS Architecture



SW Component Structure



Quality of Service

QoS can be used to configure data distribution parameters for each data set in an application. Through QoS configuration COMPAS BUS DDS ensures low overhead and efficient data distribution.

The COMPAS BUS DDS QoS parameters are:

- Deadline
- Destination Order
- Durability
- Entity Factory
- Group Data
- History
- Latency Budget
- Lifespan
- Liveliness
- Ownership
- Ownership Strength
- Partition
- Presentation
- Reader Data Lifecycle
- Reliability
- Resource Limits
- Time-Based Filter
- Topic Data
- Transport Priority
- User Data
- Writer Data Lifecycle

Persistent Message Management

Some data messages represent the "last known state" of something, rather than an actual event. This class of data occurs so frequently in C3I systems that a collection of support mechanisms is provided to the application programmer by the Persistent Message Management (PMM) subsystem.

Redundant Message Management

The Redundant Message Management (RMM) subsystem provides mechanisms to application programmers to support the construction of redundant applications.

Summary

COMPAS BUS DDS provides an API for sending and receiving data. It is independent of OS specific network programming. You can just put COMPAS BUS DDS in your system and it ensures easy and efficient data distribution. The publish-subscribe model makes it very easy to control the data flow in your system.

Technical Details

- Operating System: Solaris, VxWorks, Windows, Linux
- Language interfaces: C, C++,Ada and Java
- Development libraries for C,C++,Ada and Java
- Build tools including IDL parser and code generator
- Test drivers and message viewer

For more information:

www.kongsberg.com

E-mail: office.kda@kongsberg.com

Phone: +47 32 28 82 00

Fax: +47 32 28 86 20



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