

Data-Centric Publish-Subscribe (DCPS)

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Data-Centric Publish-Subscribe (DCPS) is the portion of the [Data Distribution Service \(DDS\) Specification](#) that addresses [Data-Centric](#) publish-subscribe communications. The [Data Distribution Service \(DDS\)](#) standard defines a language-independent model of publish-subscribe communications that has standardized mappings into various implementation languages. Connex DDS offers C, Traditional C++, Modern C++, C++/CLI, C#, and Java versions of the DCPS [API](#).

The [publish-subscribe](#) approach to distributed communications is a generic mechanism that can be employed by many different types of [applications](#). The DCPS model described in this chapter extends the publish-subscribe model to address the specific needs of real-time, data-critical applications. As you'll see, it provides several mechanisms that allow application developers to control how communications works and how the [middleware](#) handles resource limitations and error conditions.

The “data-centric” portion of the term DCPS describes the fundamental concept supported by the design of the API. In data-centric communications, the focus is on the distribution of data between communicating applications. A data-centric system is comprised of data publishers and data subscribers. The communications are based on passing data of known types in named streams from publishers to subscribers.

In contrast, in [object-centric](#) communications the fundamental concept is the [interface](#) between the applications. An interface is comprised of a set of methods of known types (number and types of method arguments). An object-centric system is comprised of interface servers and interface clients, and communications are based on clients invoking methods on named interfaces that are serviced by the corresponding [server](#).

Data and object-centric communications are complementary paradigms in a [distributed system](#). Applications may require both. However, real-time communications often fit a data-centric model more naturally.

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