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PRISMTECH
Powering Netcentricity

Migrating to OpenSplice DDS

Agenda

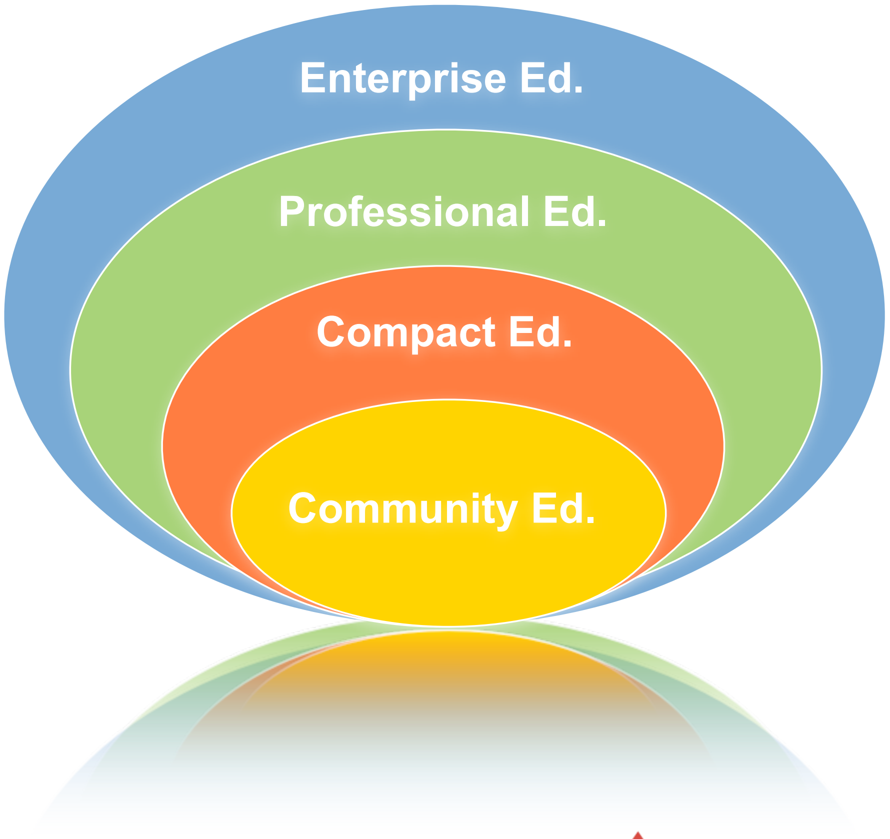
- Background
- Why OpenSplice DDS?
- Migration Use Cases
- Migrating...
- Concluding Remarks

13th Jan 2009 - The Big News

- PrismTech embrace the perspective that "**The Future of Software is Open Source**" and in alignment with its vision, strategy, and pedigree, releases **Open**Splice | **DDS** as Open Source Software
- This release, provides the Open Source Community with access to the most advanced and field proven extreme performance data distribution technology
- This release, sets a **landmark in middleware history**!

OpenSplice DDS v4.1

- Product reorganized into Editions
  - Community Edition
  - Compact Edition
  - Professional Edition
  - Enterprise Edition
- Product Editions provide a a growing set of functionality to address the needs of increasingly more sophisticated users
- The Community Edition is Open Source
- Compact, Enterprise and Professional Edition are available only through Commercial Subscriptions



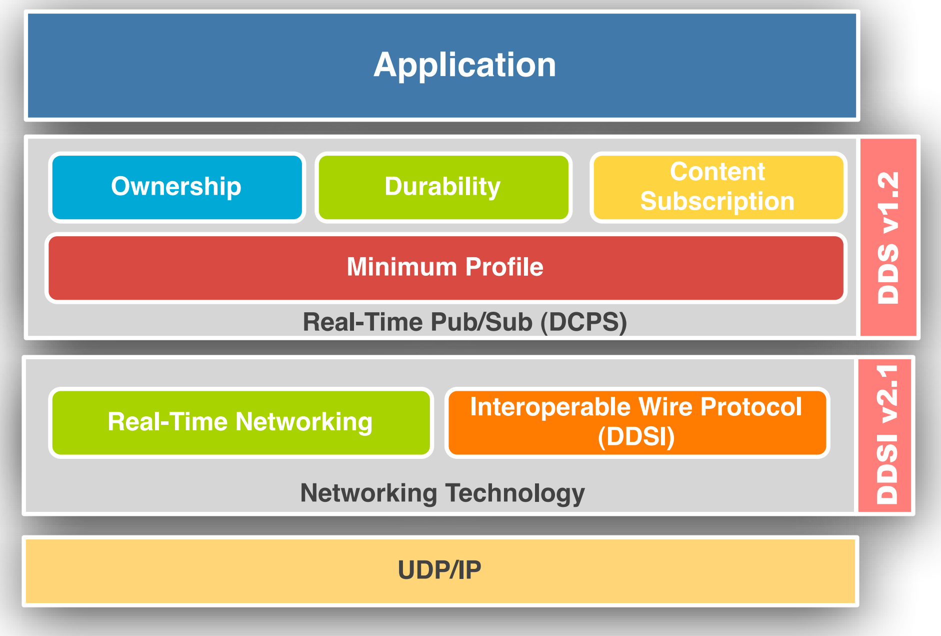
Community Edition

Features

- OMG DDS v1.2 DCPS
  - Minimum Profile
  - Content Subscription Profile
  - Durability Profile
  - Ownership Profile
- Networking
  - DDSI v2.1 Implementation
  - Real–Time Networking Implementation

Licensing

- LGPLv3



Open Source LGPL Licensed Edition -- The Best Way to Get Started with DDS

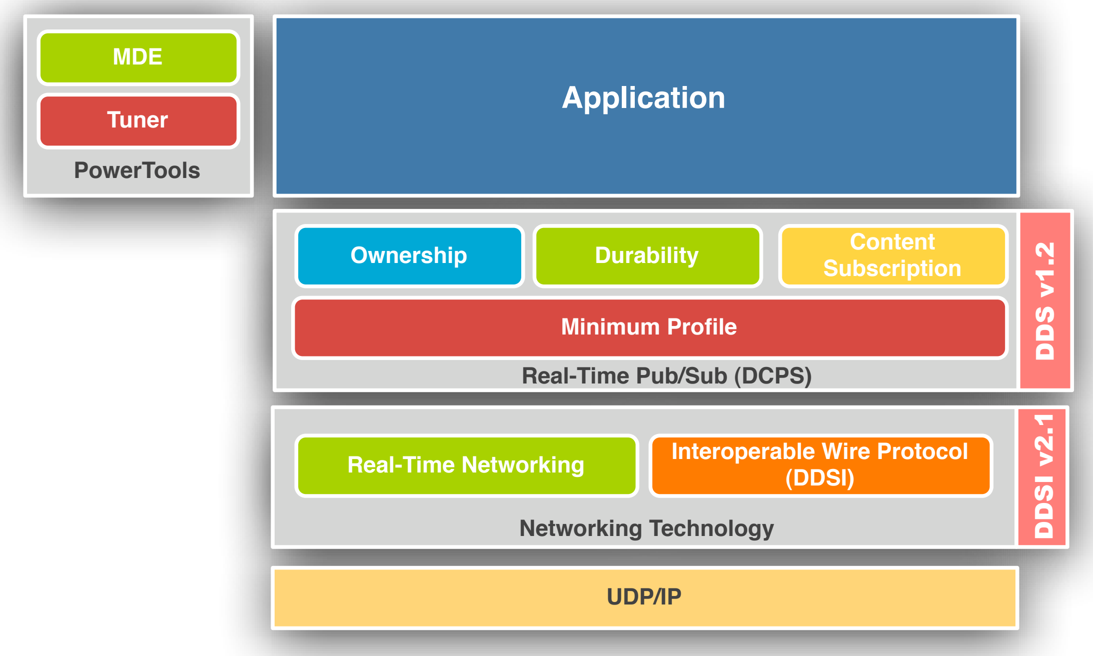
Compact Edition

Features

- OMG DDS v1.2 DCPS
  - Minimum Profile
  - Content Subscription Profile
  - Durability Profile
  - Ownership Profile
- Networking
  - DDSI v2.1 Implementation
  - Real-Time Networking Implementation
- PowerTools
  - MDE PowerTools
  - Tuner

Licensing

- Commercial



Commercially Supported, Boosting Your Development with PowerTools

Proprietary Information - Distribution without Expressed Written Permission is Prohibited.

OpenSplice DDS

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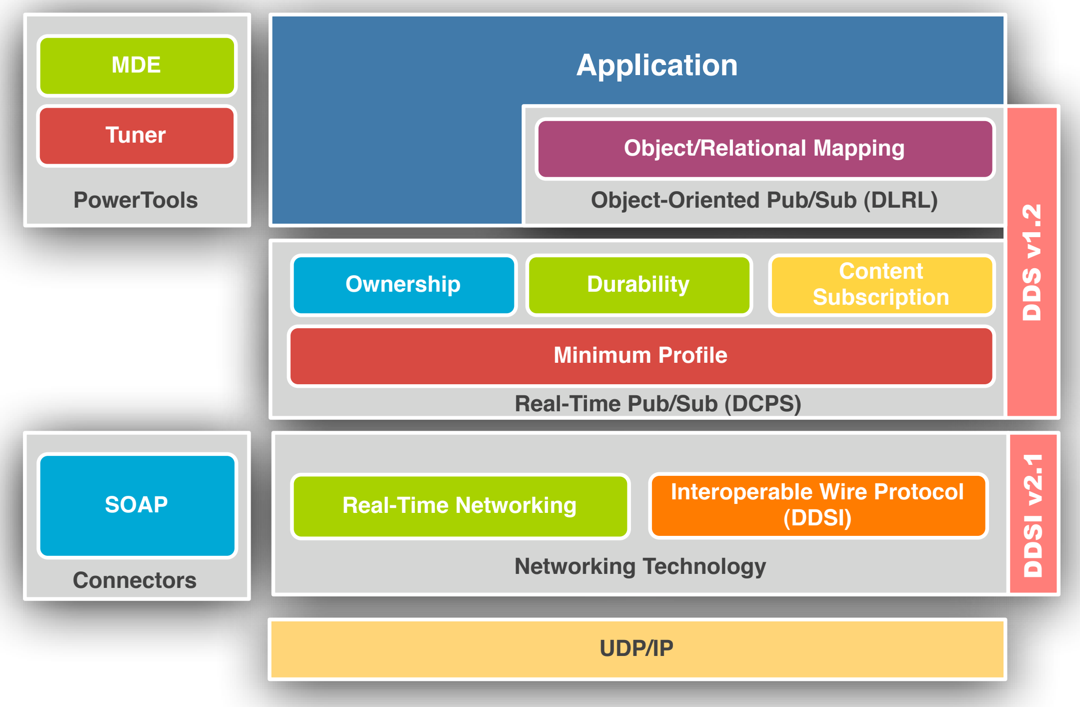
Professional Edition

Features

- OMG DDS v1.2 DCPS+DLRL
  - Minimum Profile
  - Content Subscription Profile
  - Durability Profile
  - Ownership Profile
  - Data Local Reconstruction Layer
- Networking
  - DDSI v2.1 Implementation
  - Real-Time Networking Implementation
- PowerTools
  - MDE Power Tools
  - Tuner
- Connectors
  - SOAP Connector

Licensing

- Commercial



Unleash the Full Power of the DDS Technology!

OpenSplice | DDS

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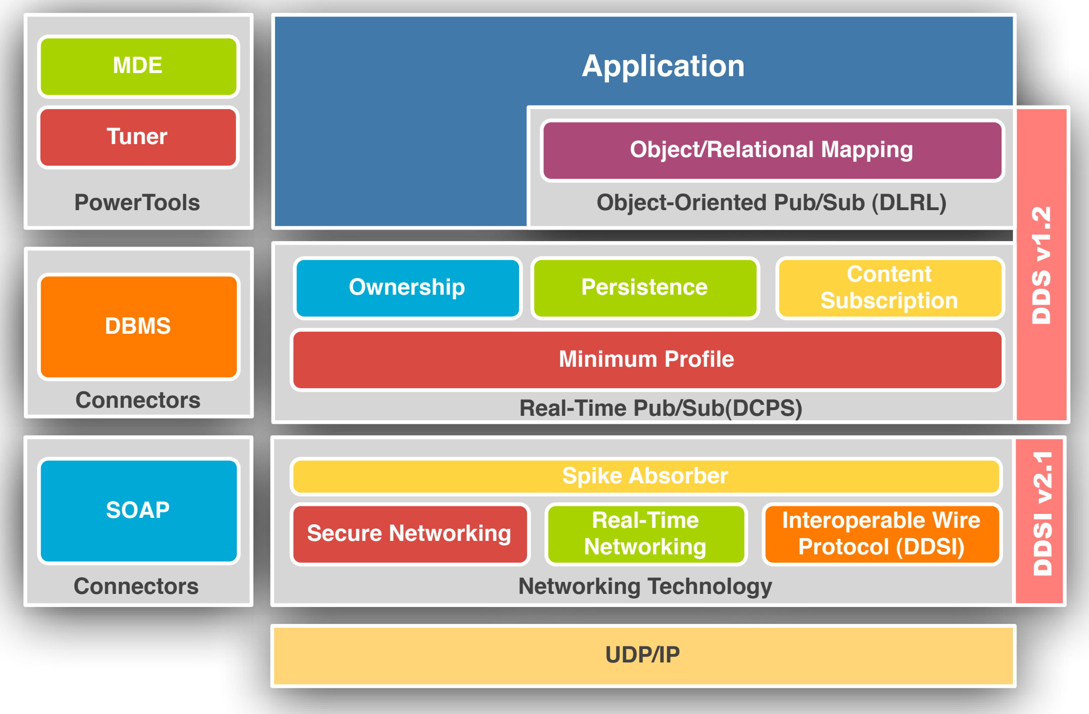
Enterprise Edition

Features

- OMG DDS v1.2 (DCPS+DLRL)
  - Minimum Profile
  - Content Subscription Profile
  - Durability Profile
  - Ownership Profile
  - Data Local Reconstruction Layer
- Networking
  - DDSI v2.1 Implementation
  - Real-Time Networking Implementation
  - Spiked Absorber
  - Secure Networking
- PowerTools
  - MDE Power Tools
  - Tuner
- Connectors
  - SOAP Connector
  - DBMS Connector

Licensing

- Commercial



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OpenSplice|DDS

Connect Your Enterprise Seamlessly and in Real-Time!

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- **Why OpenSplice DDS?**
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Advantages

- Strategic Advantages
- Technical Advantages
- Financial Advantages

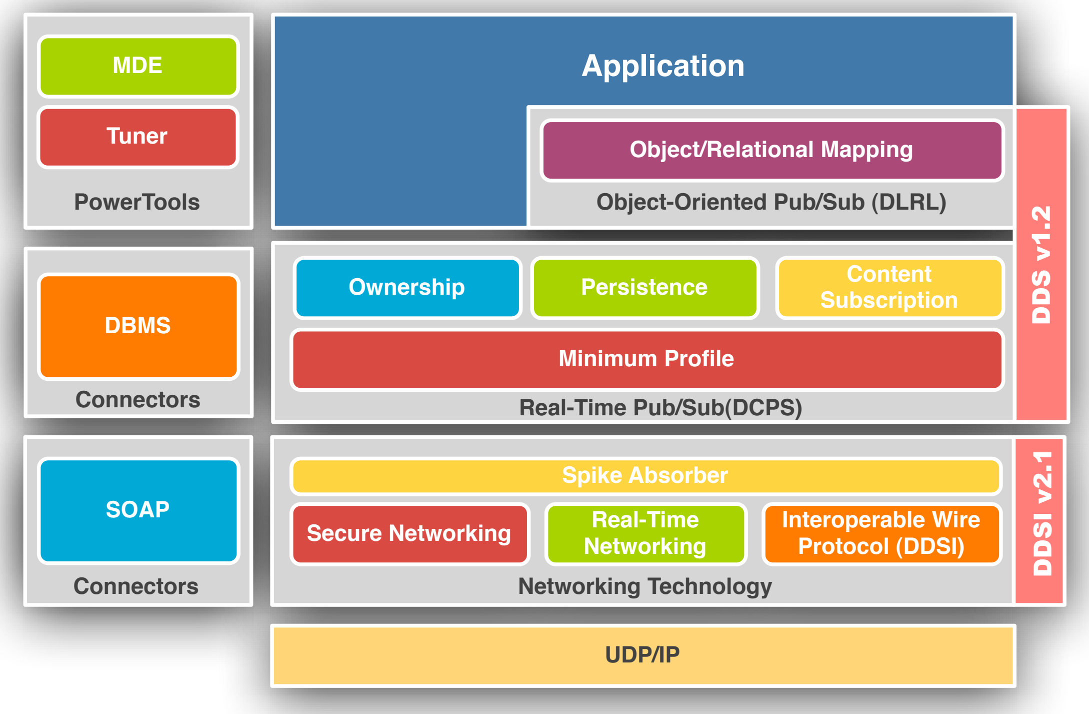
Strategic Advantage

Open Source & Standard Based

- Catalyzing Lead-User Innovation
- Innovate -> Standardize -> Dominate
- Integration Lingua-Franca
- Larger Talent Pool
- Security of Supply
- Ecosystem

Technical Advantages

- Complete OMG DDS Implementation
  - DCPS
  - DLRL
  - DDSI
- Advanced Networking Technology
- Performance
  - Ultra Low-Latency
  - Ultra High Throughput
- Rich set of Connectors
  - DBMS
  - SOAP
  - CORBA Cohabitation
- Modeling Tools
  - **PowerTools:** Eclipse-based MDA Tools
  - **Sparx EA:** UML Tool



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OpenSplice DDS

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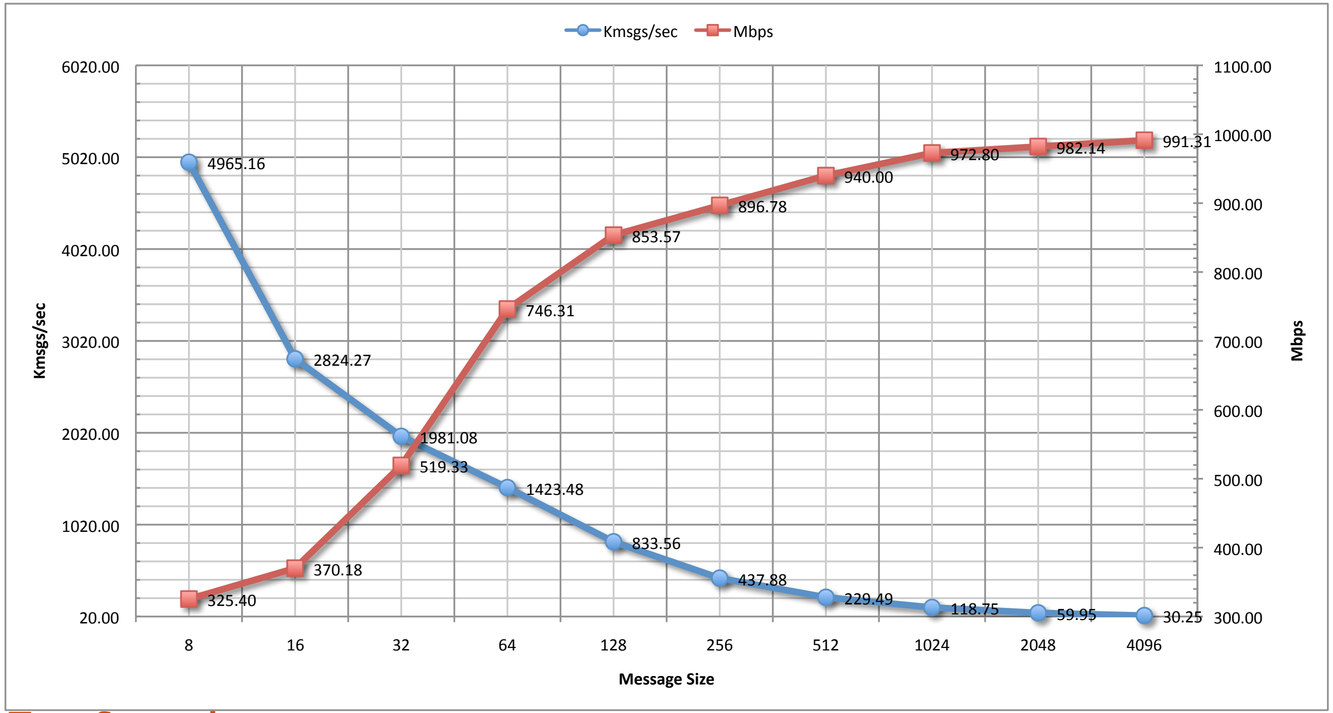
Performance

Throughput



Test Scenario

- Single Threaded Application (multi-threaded networking service)
- 8192 bit message batches

Latency

- 85usec

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OpenSplice DDS

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Financial Advantages

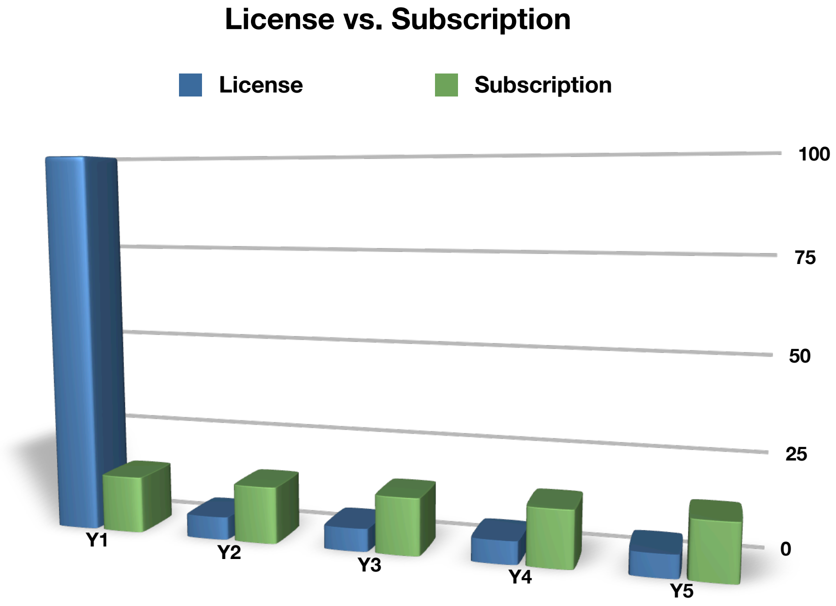
OpenSplice DDS subscriptions provides key advantages:

Community Edition

- Free like free beer!

Commercial Editions

- Cash/Flow Friendly
- Lower Total Cost of Ownership (TCO)
- Flexible model to tune needs vs. subscription



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Scaling-our Your DMBS

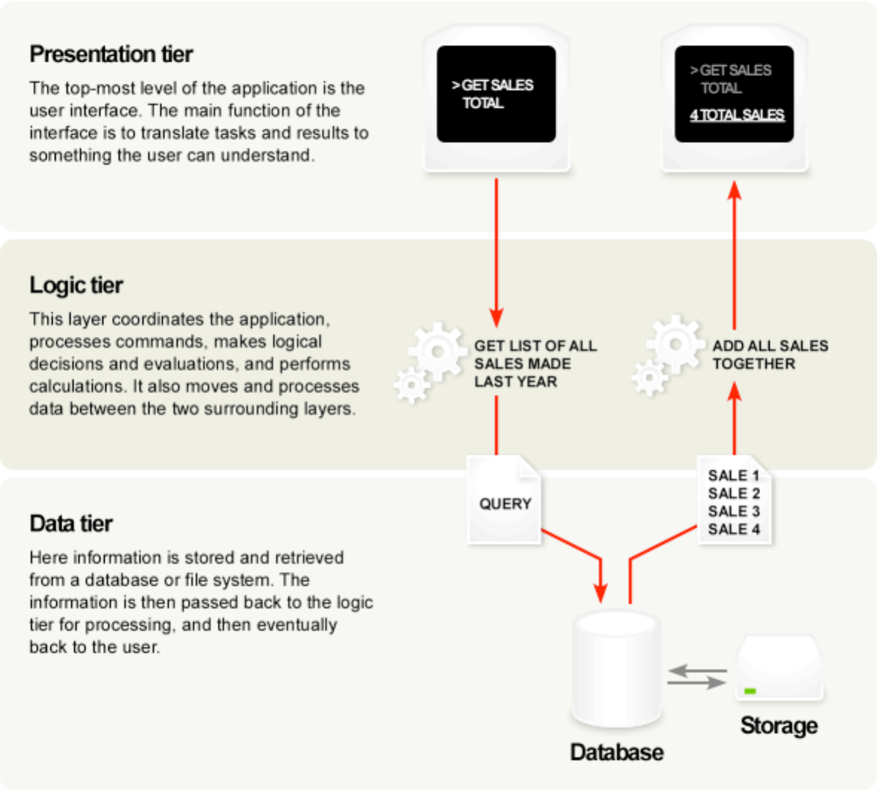
Scaling-out DBMS

Problem

- Your system relies on a DBMS in order to store/ persist data
- This centralized approach is making it hard for your application to scale to the required level of performance
- Scaling the the data-tier is expensive

Solution

- Leverage OpenSplice DDS to scale out your system



Presentation tier

The top-most level of the application is the user interface. The main function of the interface is to translate tasks and results to something the user can understand.

Logic tier

This layer coordinates the application, processes commands, makes logical decisions and evaluations, and performs calculations. It also moves and processes data between the two surrounding layers.

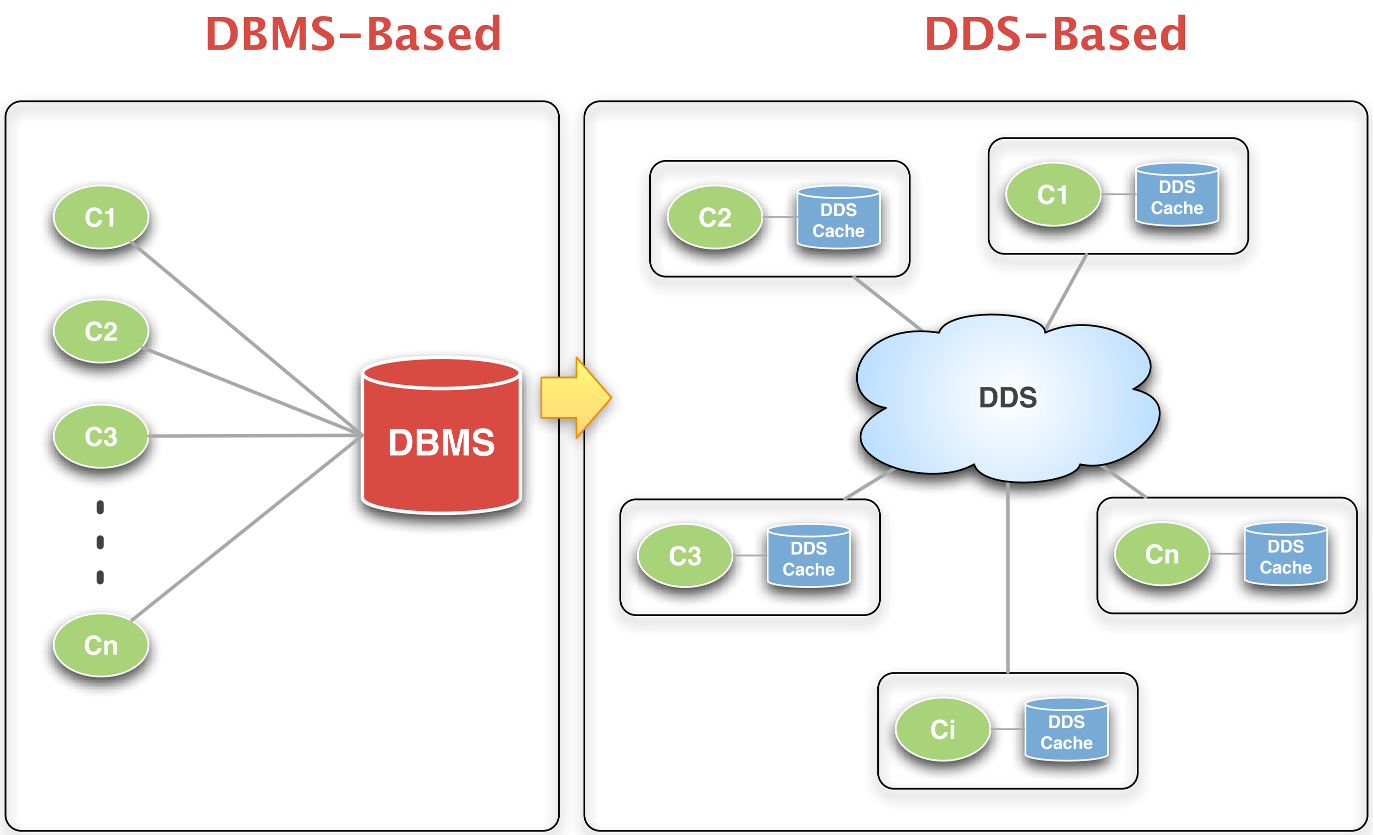
Data tier

Here information is stored and retrieved from a database or file system. The information is then passed back to the logic tier for processing, and then eventually back to the user.

Solution #1: DDS Only

Detailed Solution

- Completely replace the DBMS with OpenSplice DDS
- DBMS SQL Queries become DDS Queries on Subscribed Topics



DBMS-Based

DDS-Based

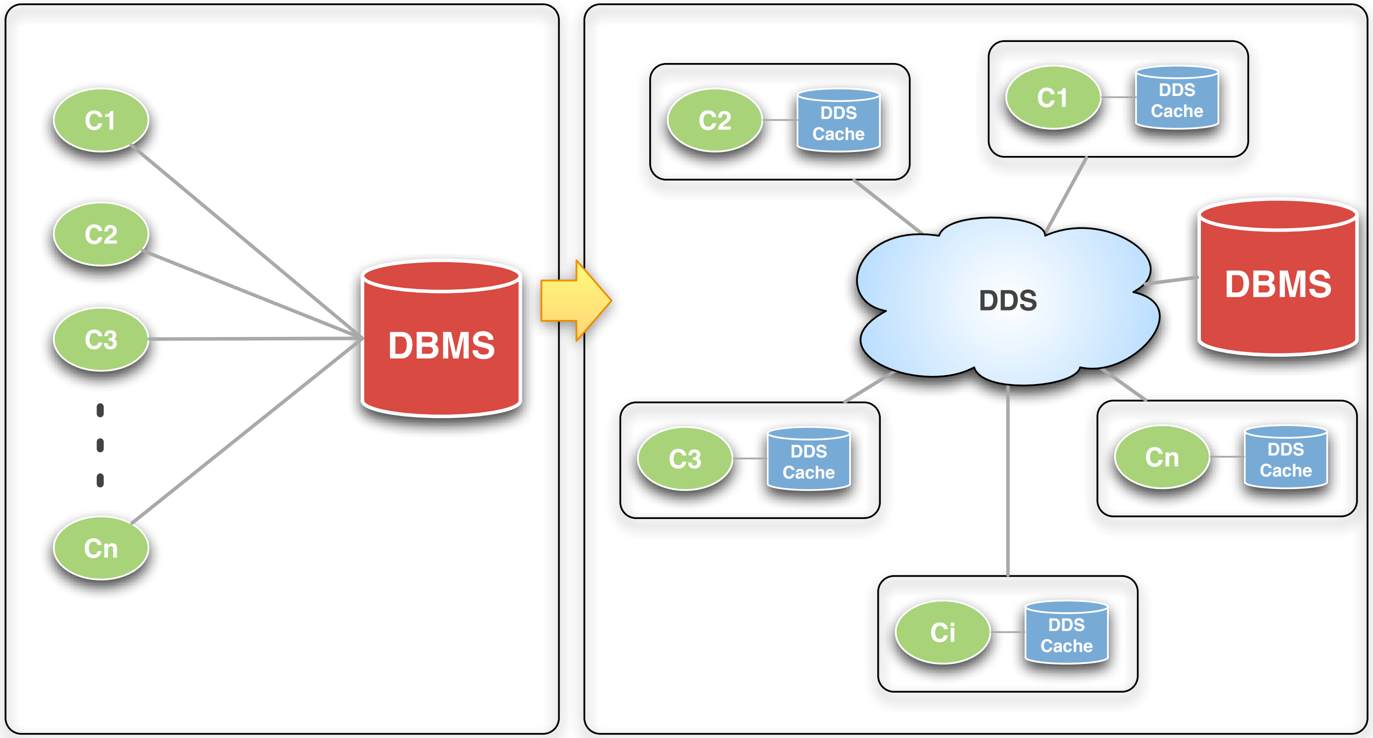
Solution #2: DDS + DBMS

Detailed Solution

- The DBMS is used for ensuring transactional behaviour
- The DBMS is used for few complex queries that cannot be handled by DDS
- All other access are via DDS

DBMS-Based

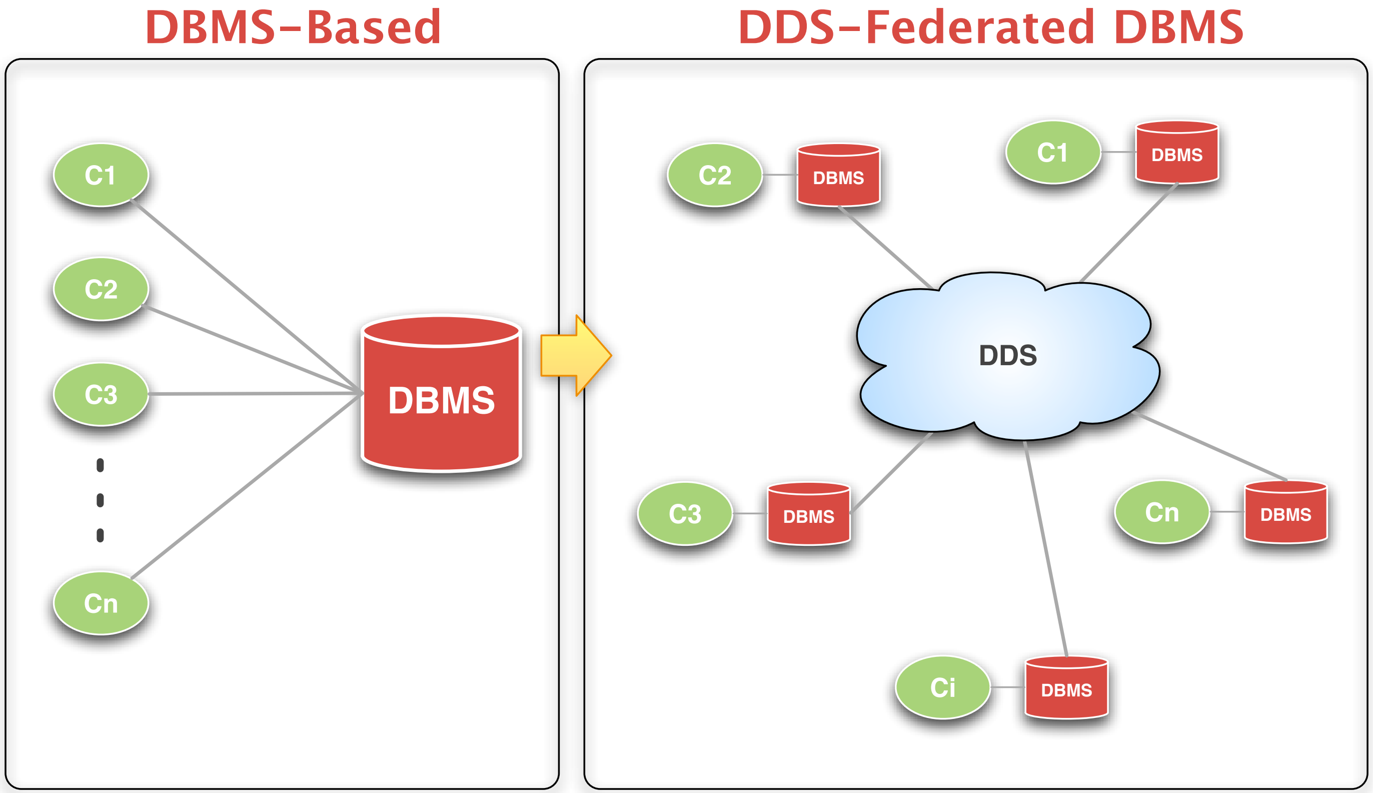
DDS+DBMS-Based



Solution #3: DDS-Federated DBMS

Detailed Solution

- Scale out the DBMS by co–locating the DBMS with every client
- Transparently federate the DBMS by means of DDS
- Notice that the application does not require any change



From “Another DDS” to OpenSplice DDS

Moving to OpenSplice DDS

There are at least two ways in which you could move to OpenSplice DDS

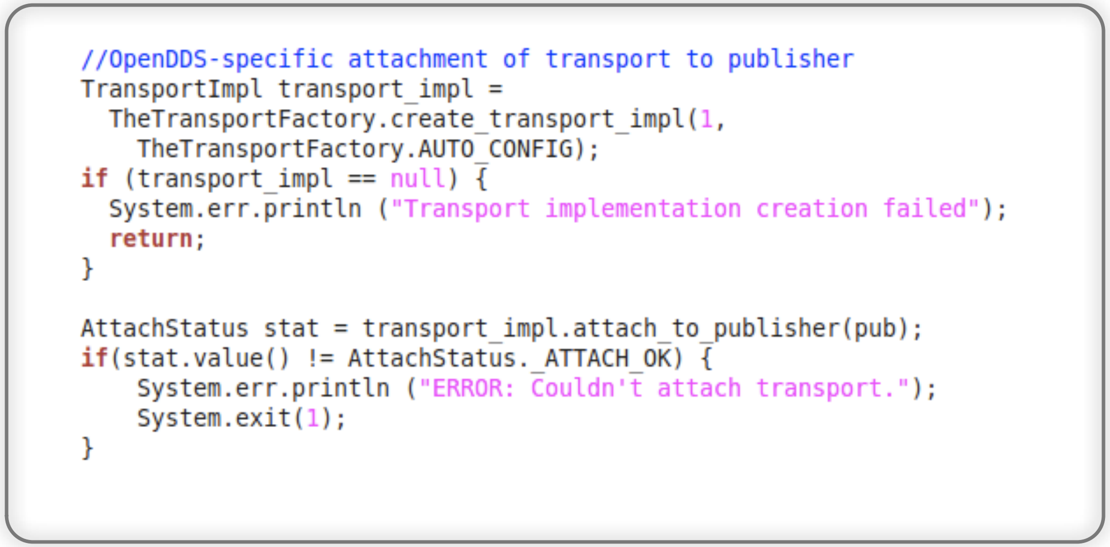
- **Total Swap**
  - Your existing and future applications will run on OpenSplice DDS
- **Incremental Swap**
  - You have legacy that will still need to run on other DDS implementation
  - Next generation applications will run on OpenSplice DDS

Total Swap

Technology Porting

- In this approach you port existing code to OpenSplice DDS
- Since OpenSplice DDS is **strictly** compliant with the OMG standard, and requires **zero proprietary** API for writing or configuring DDS application, you'll simply need to remove code

Remove this code!



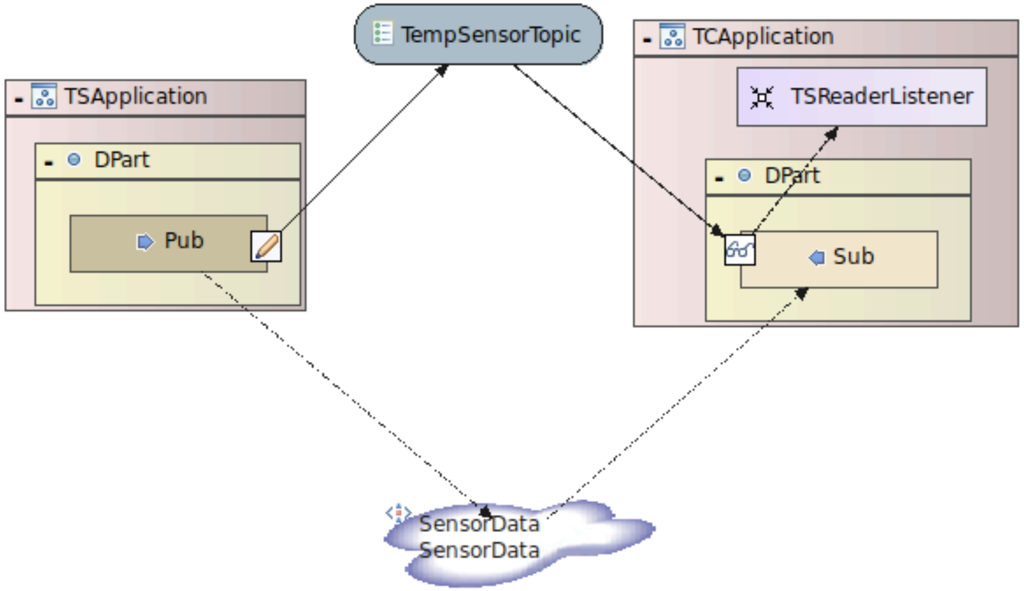
```
//OpenDDS-specific attachment of transport to publisher
TransportImpl transport_impl =
  TheTransportFactory.create_transport_impl(1,
    TheTransportFactory.AUTO_CONFIG);
if (transport_impl == null) {
  System.err.println ("Transport implementation creation failed");
  return;
}

AttachStatus stat = transport_impl.attach_to_publisher(pub);
if(stat.value() != AttachStatus._ATTACH_OK) {
    System.err.println ("ERROR: Couldn't attach transport.");
    System.exit(1);
}
```

This example shows some OpenDDS-specifc API that have to be called in order to configure the transport. Other DDS Implementation might require the use of similar API. OpenSplice DDS does not require any API to configure transports or anything else.

Total Swap

Business Logic Reuse

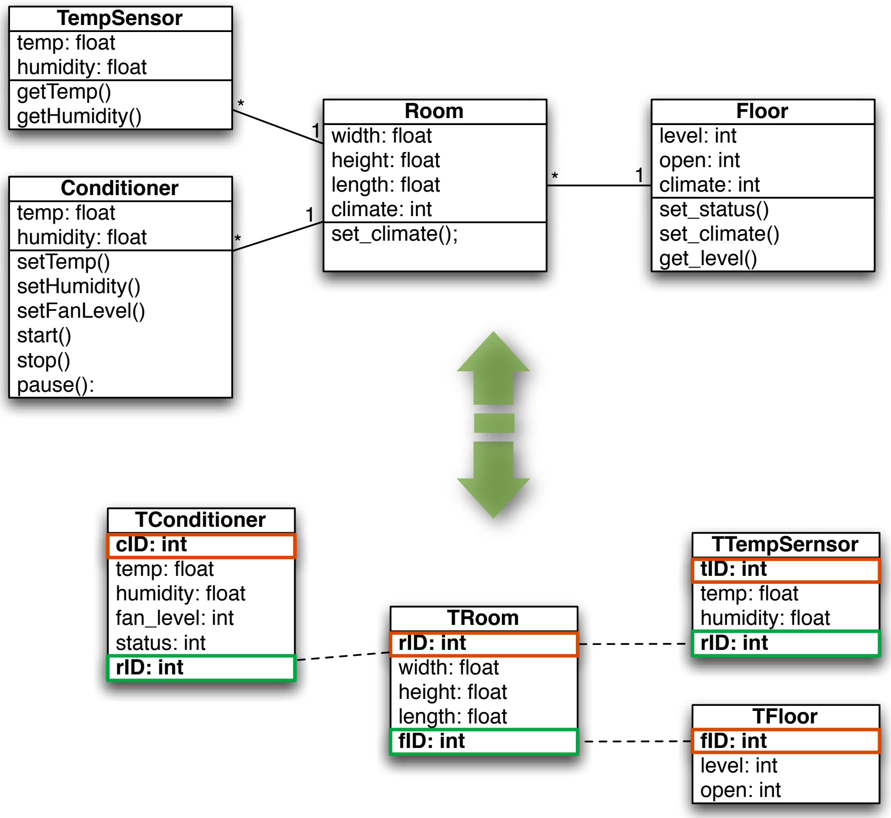
- Leverages the MDA approach
- Model your existing application with OpenSplice DDS power tools, then reuse the existing business logic to implement the model



Total Swap

Hiding Away Pub/Sub

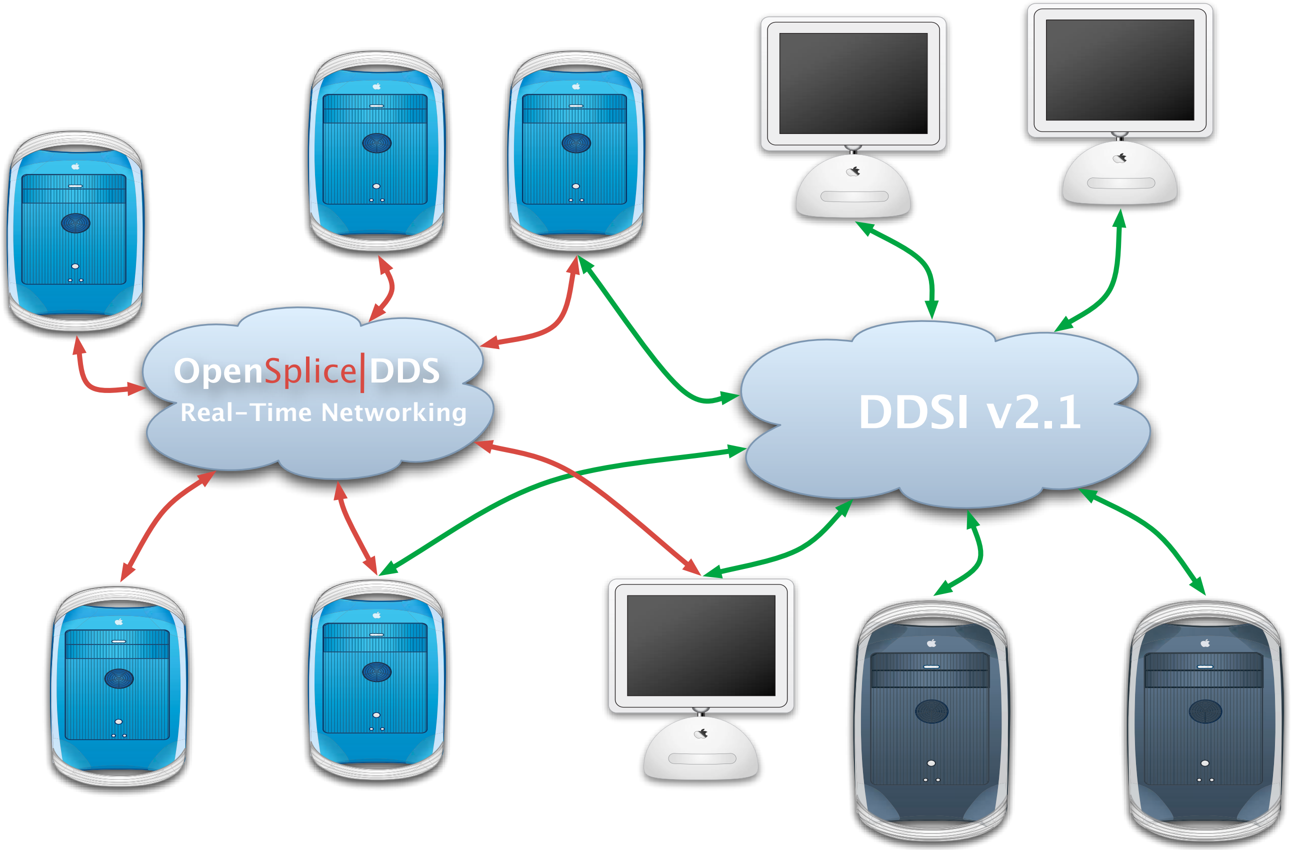
- The Data Local Reconstruction Layer (DLRL) can be used in order to hide away the Pub/Sub details and provide application with “Business Objects”
- “Business Objects” state is then mapped to specific set of topics that are subject to distribution
- In essence, if the topic model is seen as a Distributed Relational Model, this approach suggest to do local ORM reconstruction to map business objects



Incremental Swap

Integration via DDSI

- New applications written on OpenSplice DDS can be deployed to use:
  - Native Real-Time Networking
  - DDSI v2.1
- DDSI can be used to let OpenSplice DDS-based application interoperate with legacy applications developed for another DDS implementation



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Migrating from other Pub/Sub Technologies

Migration Tactics

Code Porting

- Porting leveraging equivalent functionalities is the approach most commonly taken
- This approach is typically not too hard as Pub/Sub APIs are often similar, and DDS provides a sub-set of the functionalities typically found in other Pub/Sub systems

Business Logic Reuse

- With OpenSplice DDS the business logic reuse is facilitated by two technologies
  - MDE PowerTools
  - Data Local Reconstruction Layer
- The MDE approach requires to model the existing application and reuse the business logic to implement the model
- The DLRL approach allows to completely hide the Pub/Sub aspect to the business logic

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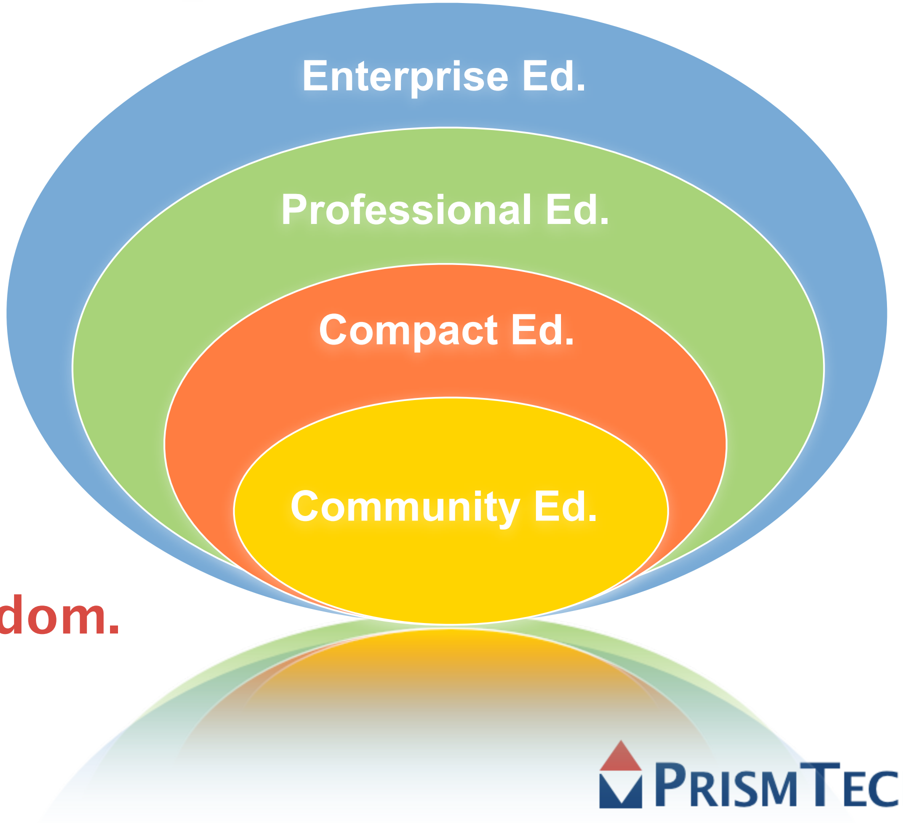
Concluding Remarks

- OpenSplice DDS is now available as Open Source Software under LGPL Licensing
- This release provide users with access to the most powerful extreme performance data distribution technology available on the market
- A set of added value Editions along with a very rich set of Services is available through PrismTech
- A vibrant and innovative community is swiftly being established around OpenSplice DDS
- In addition, migrating to OpenSplice DDS is very straight-forward!

OpenSplice | DDS

Delivering Performance, Openness, and Freedom



Embrace Performance, Openness and Freedom.
Join the OpenSplice DDS Community

Online Resources

OpenSplice DDS

Delivering Performance, Openness, and Freedom

- http://www.opensplice.com/
- emailto:openslicedds@prismtech.com

- http://www.opensplice.com

- http://dds4u.blogspot.com

- http://www.youtube.com/OpenSpliceTube

- http://www.dds-forum.org
- http://portals.omg.org/dds