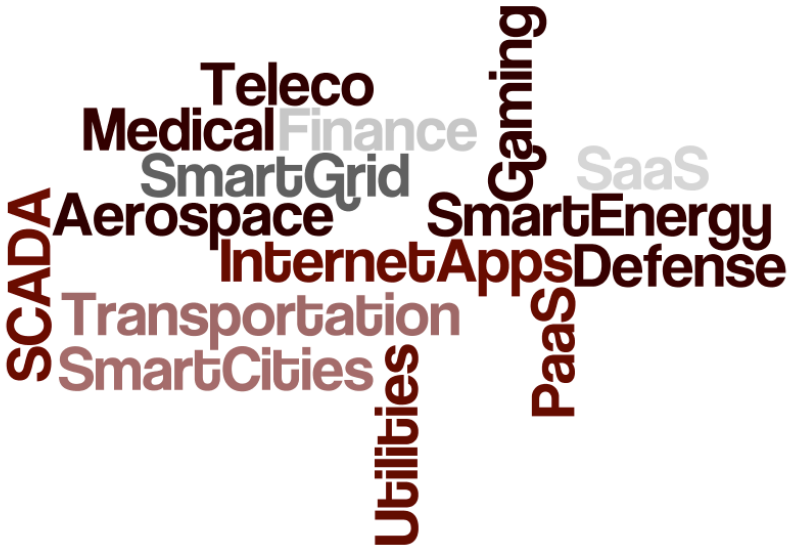
OpenSplice | DDS



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OpenSplice DDS

PrismTech

- A privately-held UK Company with Worldwide operations
- Specialized in High Performance Communication Middleware and Tools
- R&D Centres in Canada, France, Netherlands, and UK
- A Gartner "Cool Vendor"

OpenSplice DDS

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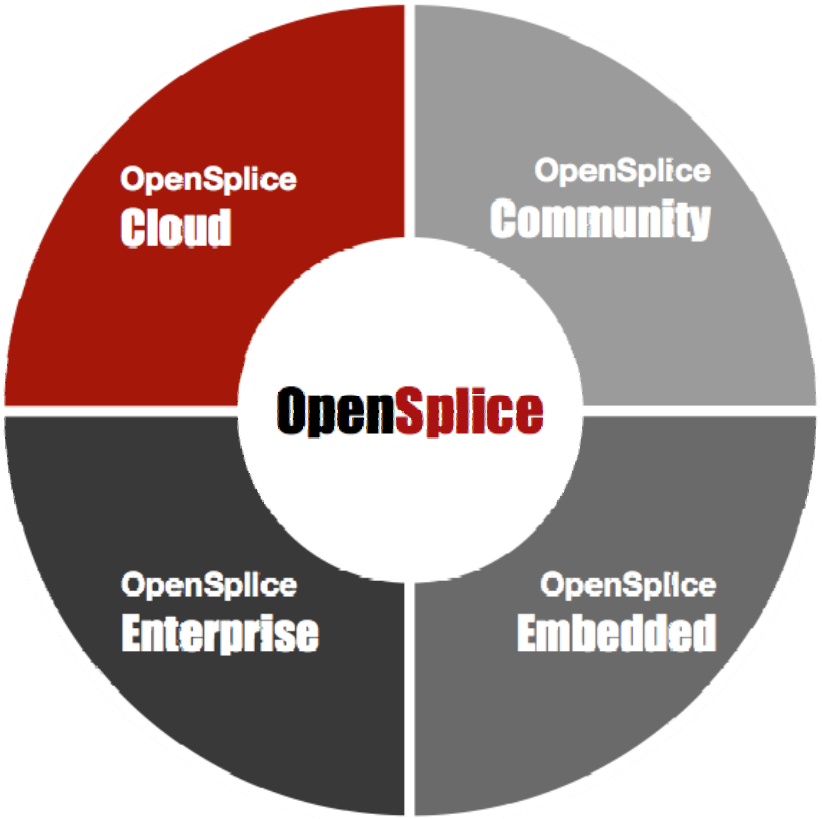
DDS Everywhere Platform

- A DDS-based, interoperable product family addressing systems needs from **Embedded** and **Mobile** to **Enterprise** and **Cloud**
- An **Open Source** core providing **free access** to the OpenSplice Ecosystem, **security of supply** and a **vibrant**, **innovative community**



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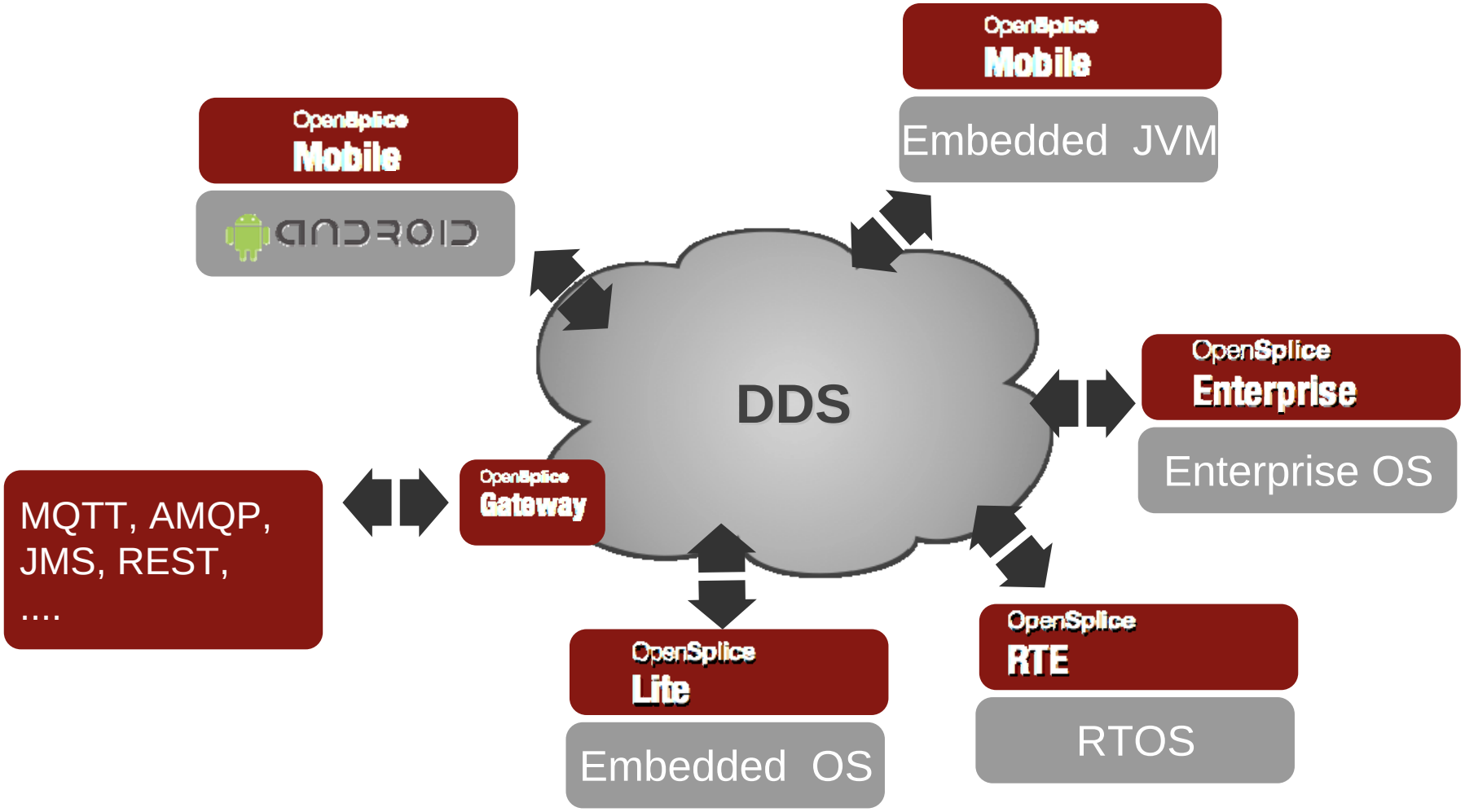
DDS Everywhere!



Use Cases

Defense and Aerospace

Integrated Modular Vetronics

Training & Simulation Systems

Naval Combat Systems

Air Traffic Control & Management

Unmanned Air Vehicles

Aerospace Applications

OpenSplice DDS

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Commercial Applications

Agricultural Vehicle Systems

Large Scale SCADA Systems

Smart Cities

Train Control Systems

Complex Medical Devices

High Frequency Auto-Trading

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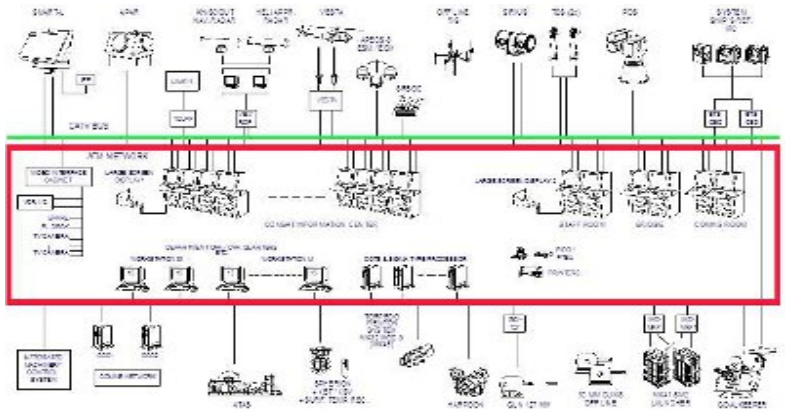
Defense & Aerospace

Thales Naval Netherlands

TACTICOS Combat Management System

- OpenSplice DDS used at core of THALES TACTICOS Combat Management System
- Deployed in 18 navies on 100+ ships ranging from small frigates to aircraft carriers
- OpenSplice DDS used to distribute soft & hard real-time sensor and actuator data
- Thales Naval Netherlands has depended on OpenSplice DDS and its previous implementations of over 20 years in their Combat Management Systems



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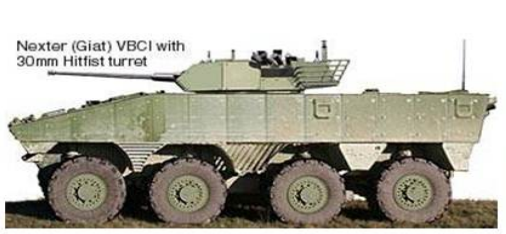
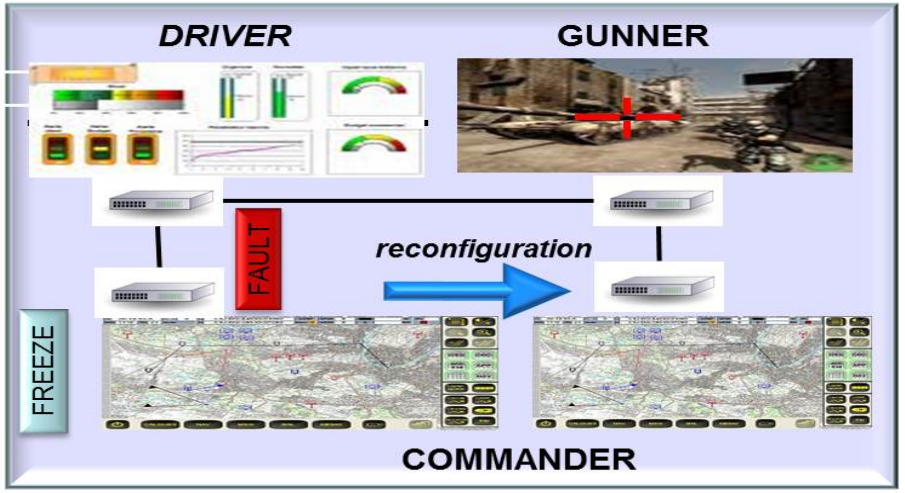
Nexter
Armoured Vehicle Systems

- Nexter manufactures Armored Vehicle for Infantry Combat systems which are used in more than 100 countries worldwide
- OpenSplice DDS is used at the foundation of the Electronics Architecture for Next Generation Military Vehicle
- OpenSplice DDS is the core for the Integrated Modular Vetronics to assure Vehicle re-configuration options and Fault Resilience
- Tactical Data Distribution using both OpenSplice DCPS Publish Subscribe and OpenSplice RMI (Remote Method Invocation)





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UAV Programs

- OpenSplice used in the UAV in-flight mission management systems
- Provides a Distributed Data Service for over 2,000 sensor targets
- OpenSplice DDS Federated (Shared Memory) architecture enables traffic shaping over low-bandwidth environments
- Federated Shared Memory also provides optimal memory management, ensuring that only a single copy of data resides on any given machine. Memory management is a key considerations for these UAV programs

OpenSplice DDS

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NASA KSC

Constellation program

- Large scale SCADA application for ground launch control
- OpenSplice DDS monitors thousands of sensors and electronic systems for next generation space vehicle programs
- NASA using OpenSplice to monitor and "roll back" data points to identify problems with launch control systems

OpenSplice DDS

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Naval Navigation Systems

- Used in sonars and navigation systems for naval forces
- OpenSplice DDS selected in order to deliver system long term availability and reliability
- OpenSplice enables the system to create redundant navigation data and environment dataflows
- OpenSplice DDS Real-Time Network Protocol is used to deliver the high performance data distribution

OpenSplice DDS

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Battlefield Tracking System

- The mission critical real-time tracking system uses OpenSplice DDS in order to monitor objects on the battlefield
- Provides key decision makers with quality track information to support situational awareness and time-critical targeting
- OpenSplice DDS locational decoupling allowing the system to scale in order to meet various deployment configurations

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Simulation

Military Training Simulations

- OpenSplice DDS used for Weapon Simulation Training systems
- Metrics from small training arms are wirelessly transmitted to simulation servers during live training exercises
- Metrics are collected to provide real-time diagnostics to simulation servers
- OpenSplice DDS used to link to several HLA Based systems to form a network of simulators

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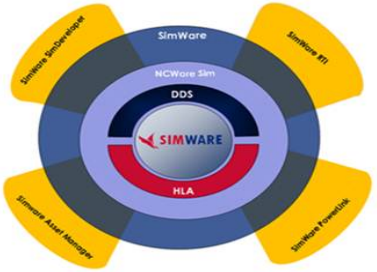
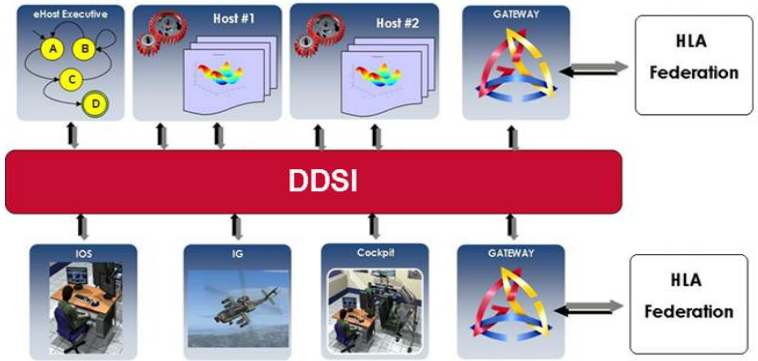
Nextel NADS

Nextel Aerospace Defence & Security

- Nextel Aerospace Defence & Security (NADS) is a leading European company providing Innovative Simulation and Net-Centric solutions for military & aerospace market
- OpenSplice DDS is used within the SimWare real time simulation framework and is foreseen as the replacement of the HLA communication technology





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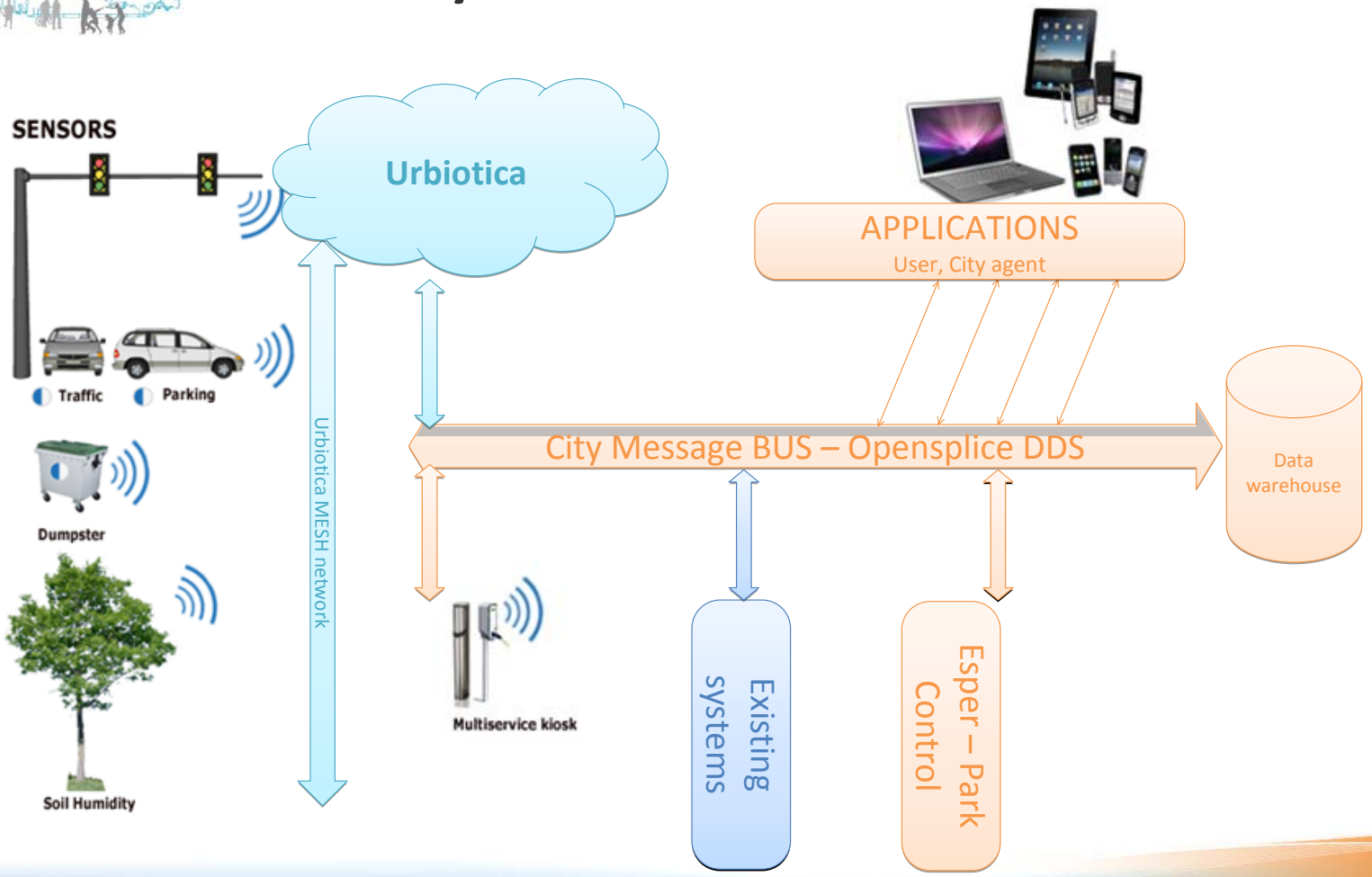
Smart Cities

City of Nice -- France

City Service - Architecture

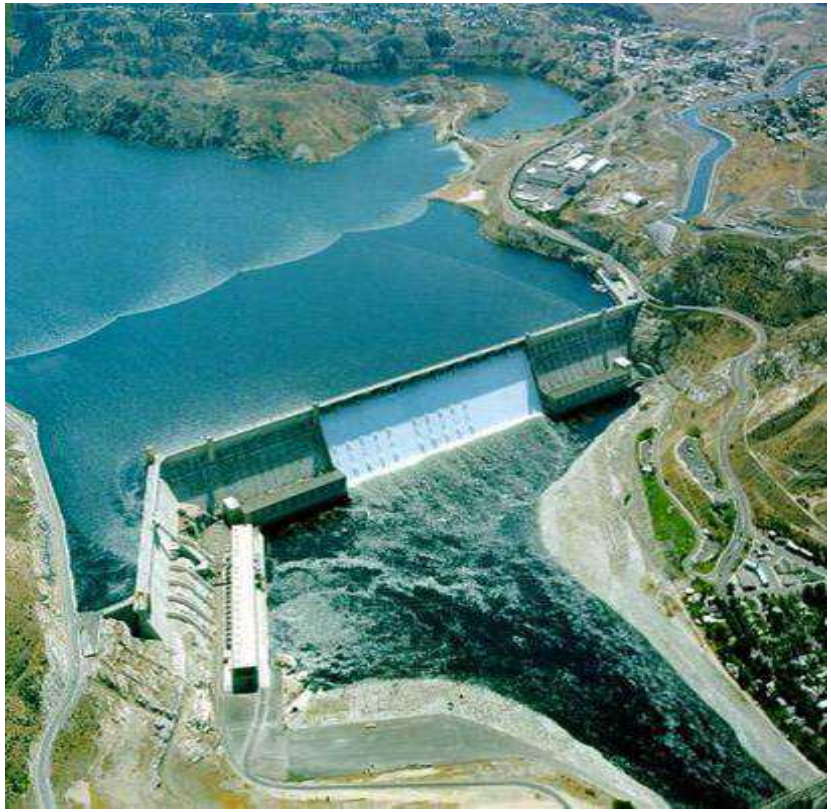


Smart-Grids

U.S. Army Corps of Engineers

Grand Coulee Dam

- The Grand Coulee Dam is the largest hydro-electric power plant in the United States
- The dam network connects a 40,000-point SCADA system controlling 30 generators and the transmission switchyard
- In September 2011 USACE successfully deployed using OpenSplice DDS



OpenSplice DDS

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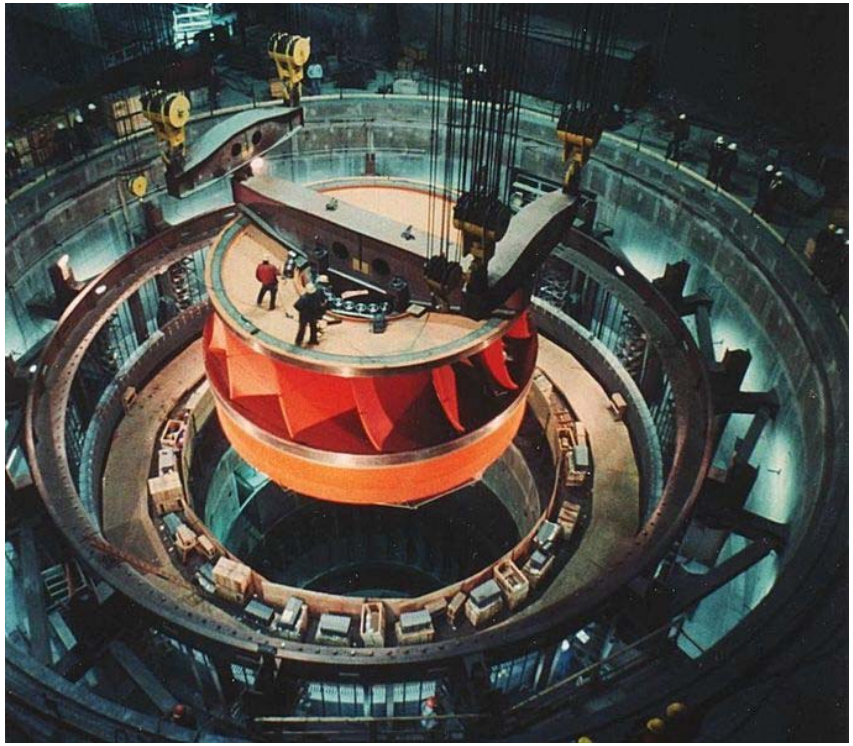
Grand Coulee Dam

- OpenSplice DDS is used as the communication mechanism for the Generic Data Acquisition and Control System (GDACS)
- The dam network connects a 40,000+ point SCADA system controlling 30 generators and the transmission switchyard
- OpenSplice DDS was selected because of its unique scalability, determinism, and robustness in presence of overload situations



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Cool Vehicles

Agricultural Vehicle Systems

- GPS data correction to improve accuracy enabling automated steering, precision ploughing, seeding, fertilizing and spraying
- Tethered control between combine harvester and grain cart enabling unloading on-the-go
- OpenSplice DDS is used to distribute data between the components inside the Combine system
- Communications between the Combine and the Grain Carts is made possible using the OpenSplice DDS DDSI network protocol
- The OpenSplice Unicast networking capability allows OpenSplice DDS to run over ad-hoc wireless networks

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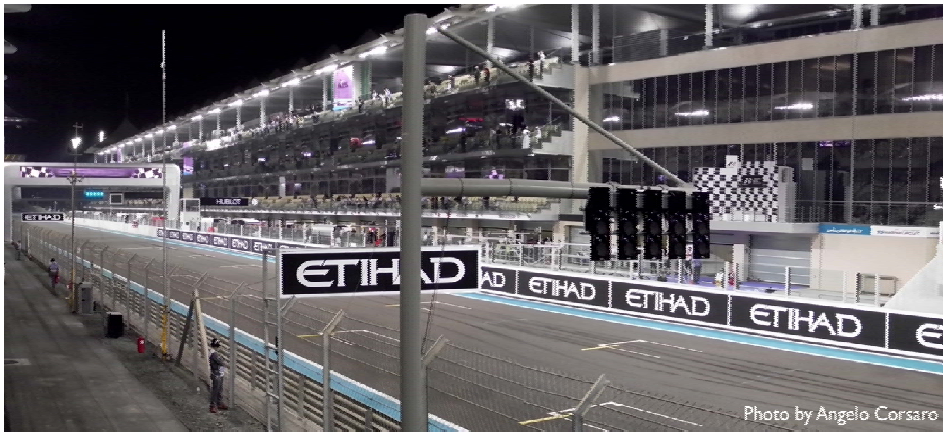
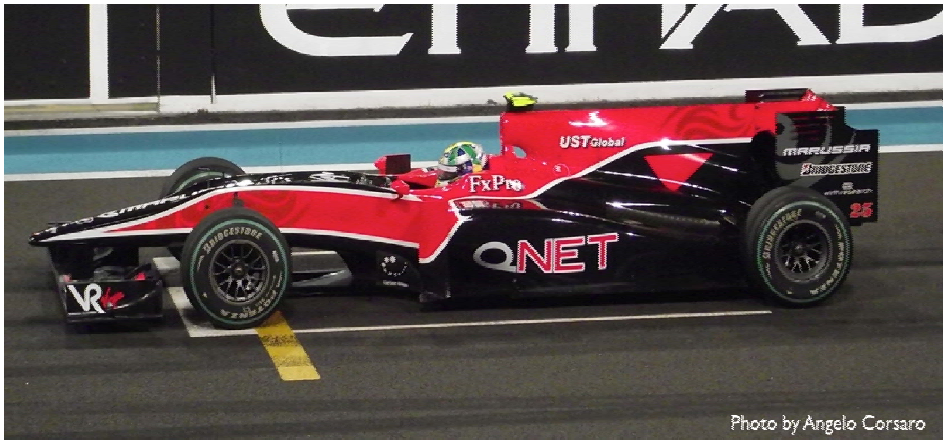
Race Car Video Feed

- Successfully proved OpenSplice DDS for distributing racing car video





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Transportation

CoFlight

EU Air Traffic Control

- Large ATM program to replace existing Flight Data Processors (FDPs)
- OpenSplice DDS connects the most critical components of the CoFlight FDP running at a SWAL-2 assurance level
- OpenSplice DDS distributes and caches 6GBytes worth of flights data plans over redundant LANs
- OpenSplice DDS distributes the "external" Flight Data Plan to Controllers, Control Towers, etc.
- OpenSplice DDS Gateway provides interoperability with other Interoperable Centers Pan-European

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Train Control System

- Scalable train control system for country-wide route setting processes
- Hierarchical distributed control-system with WAN and LAN scope
- OpenSplice chosen over other messaging technologies for its real-time characteristics as well as scalability

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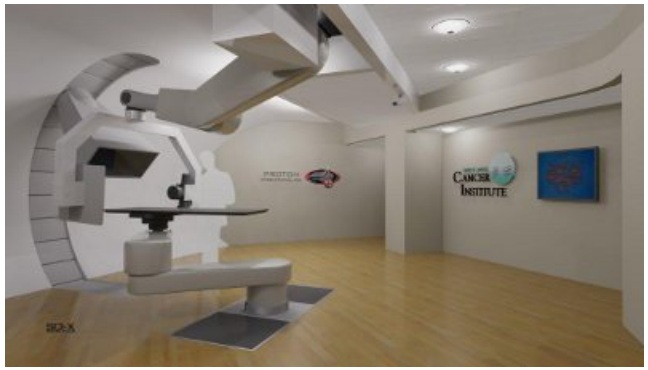
OpenSplice DDS

Medical

Complex Medical Devices

- OpenSplice is used in technologically advanced scanning and treatment devices
- OpenSplice monitors sensors within the devices in real-time
- OpenSplice data logging and advanced networking capabilities seen as key



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Financial

High Frequency Auto-Trading

- OpenSplice DDS used as ultra-low latency infrastructure in High-Frequency Auto-Trading to:
  - Distribute Market Data
  - Distribute and share financial instruments among auto-trading components

OpenSplice DDS

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