



**Remedy IT**

Your challenge - our solution

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# Who we are

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- Remedy IT was founded in 1997
- Focus on open standards
- Our customers are active in various domains such as telecom, finance, aerospace and defense
- We deliver custom software development
- For more information take a look at our website [www.remedy.nl](http://www.remedy.nl)





# What we do

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- Technical services/consultancy company dedicated to open standards and preferable open source
- Providing consultancy, support, and training for various middleware products
- Develop open standards as member of the Object Management Group (OMG)
- Provide five CORBA products for five different programming environments (making us market leader in CORBA products)
- Only company worldwide providing multiple LwCCM implementations that support DDS4CCM and AMI4CCM
- Providing consultancy and services for DDS as middleware technology



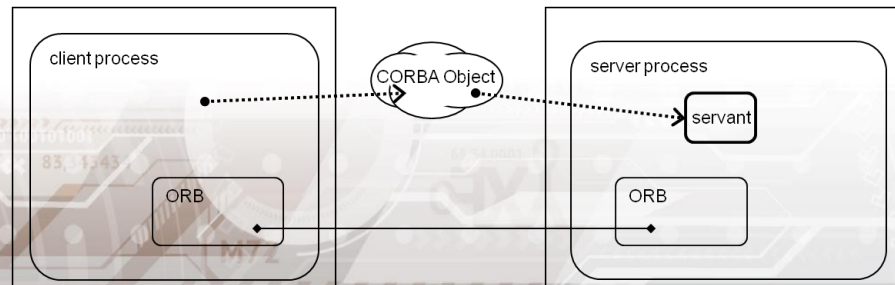


# CORBA

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- Standard enabling software applications developed in multiple programming languages and running on 1 or more systems to work together
- Applications define their services using IDL as interface definition language
- Well defined IDL definitions for its API
- IDL translates to a programming language using a so called language mapping
- Multiple implementations (open source and commercial) exist for multiple programming environments





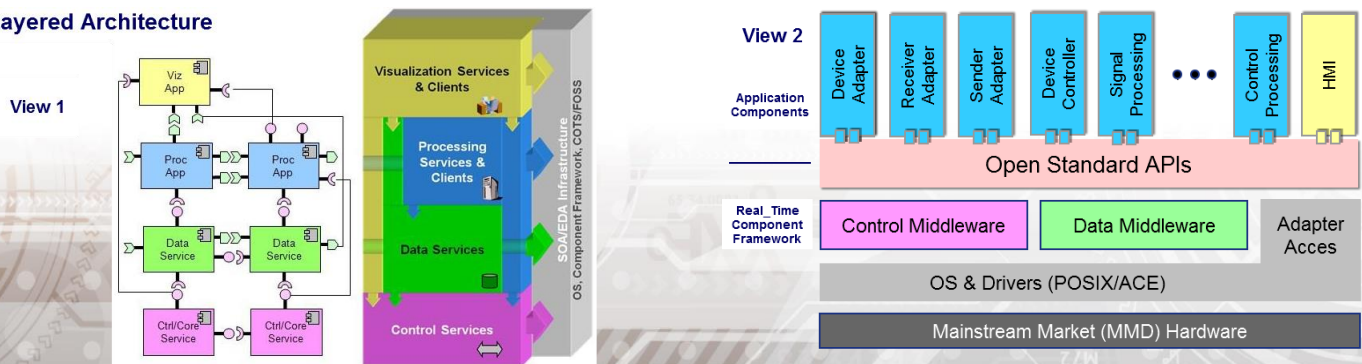
# DDS - CCM

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- Data Distribution service (DDS):
  - Real-time middleware open standard
  - Publish-Subscribe information exchange
  - Inherent support for data-oriented Event Driven Architecture (EDA)
- CORBA Component Model (CCM):
  - Component Model standard
  - Request-Response information exchange
  - Inherent support for Service oriented Architecture (SOA) and Component Based Architecture (CBA)

Layered Architecture





## DDS4CCM – AMI4CCM

- DDS for Lightweight CCM (DDS4CCM):
  - CCM+DDS real-time component standard
  - Support for request-response and publish-subscribe information exchange
  - All components and interface ports are well defined and specified in OMG Interface Definition Language (IDL)
  
- Asynchronous Message Invocation for CCM (AMI4CCM):
  - Extends CCM with support for Asynchronous Message Invocation
  - Uses the Generic Interaction Support from CCM



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# CORBA products and services

- Remedy IT provides five CORBA products for five different programming environments:
  - [TAO](#) (C++)
  - [TAOX11](#) (C++11)
  - [JacORB](#) (Java)
  - [R2CORBA](#) (Ruby)
  - [jR2CORBA](#) (jRuby)
- We provide [consultancy](#), [support](#), and [training](#) for CORBA





# DDS

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- Publish-subscribe information exchange with a rich set of Quality of Service (QoS)
- Integrated DDS with CCM through DDS4CCM
- CCM + DDS = Component Based DDS (CBDDS)
- Provide consulting and services for DDS as middleware technology





# LwCCM

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- Remedy IT is the only company worldwide providing LwCCM implementations that support DDS4CCM and AMI4CCM
- [AXCIOMA](#) is the leading C++11 implementation on the market
- CIAO is the leading C++ implementation
- We partner with modeling tool vendors to deliver component and deployment modeling
- We provide consultancy, support, and training for CCM





# Deployment and Configuration (D&C)

- OMG standard focused on deployment and configuration of component based applications
- Can be used to deploy different kinds of applications developed in different programming languages
- Data model describes the application to be deployed
- Automated deployment capabilities
- DAnCE is the C++ implementation which is shipped together with CIAO
- DnCX11 is part of the AXCIOMA suite and is an open D&C implementation which can be extended through plugins





# ACE

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- Is an Object Oriented framework for implementing distributed networked applications
- Has a rich set of C++ wrapper facades and framework components
- Is ported to a broad range of platforms, f.e. Linux, Windows, OpenVMS, VxWorks, QNX
- Is ported to a broad range of compilers, f.e. GCC, HP aCC, Intel C++, Microsoft Visual C++
- Remedy IT provides consultancy, support, and training for ACE





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# USE CASES

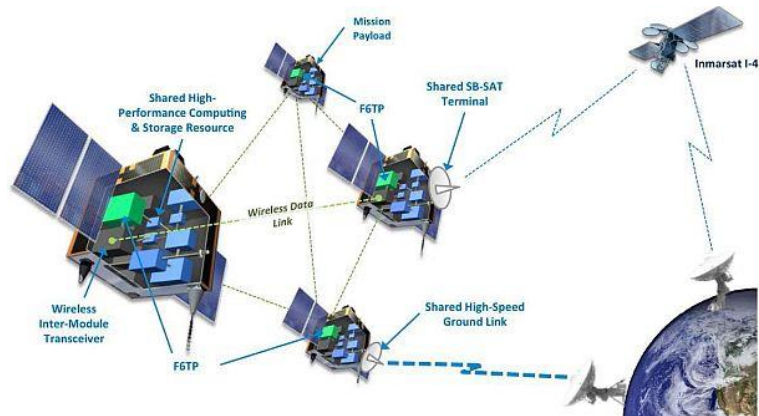


# Aerospace

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Remedy IT is participating in the DARPA System F6 program (F6 is short for Future, Fast, Flexible, Fractionated, Free-Flying Spacecraft united by Information eXchange)



F6 is a CCM Component platform which uses **CORBA** and **DDS**. In this dynamic platform, applications are added and removed in flight. The validation and verification process has to be extensive and performed on the individual applications, as well as the entire system configuration. Modularity and compositional verification techniques are essential in this process.



# Traffic Control

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**For AVE Verkehrs- und Informationstechnik GmbH we have created a large number of extensions in the TAO Real Time Event Service (RTES)**



These extensions relate primarily to the use of RTES on a WAN and the use of the IIOP Gateway. AVE makes systems for monitoring and controlling the flow of traffic on motorways. The RTES is used to send events between applications and computer systems in a generic manner.



# Defense

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## Ongoing Open Architecture (OA) project

This project has adopted the new OMG "**DDS for Lightweight CCM**" (**DDS4CCM**) standard as the foundation real-time component framework technology for its Scalable Node Architecture (SNA). SNA is targeted at distributed, real-time, embedded (DRE) and high performance computing (HPC) applications and subsystem/system architectures.

The project uses CIAO as component framework.

Remedy IT has improved and extended CIAO for usage in this project.





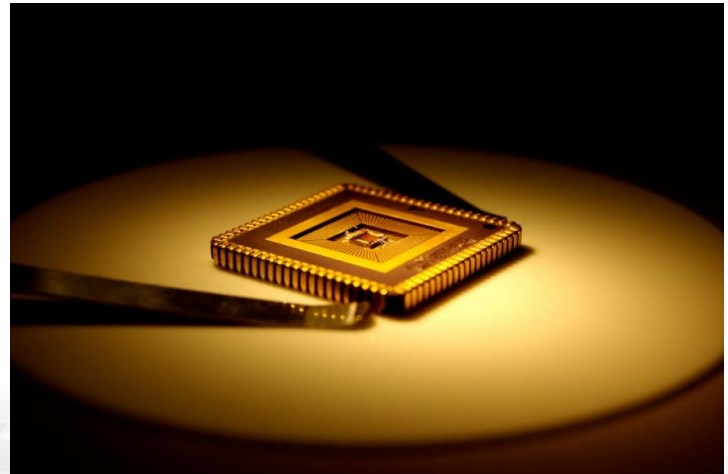
# Machine Control

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## **Development of a platform to control a new generation of chip production machines**

New machines are configured using the new platform rather than being programmed, CORBA is used for the interaction between the various software Components. The compiler independent platform is developed using ACE/TAO, it simplifies communication with machines from other suppliers.







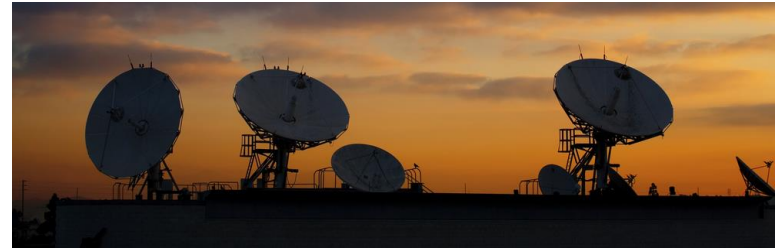
# Science

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## **R2CORBA used in the heterogeneous setting of the control system for CARMA, an array of radio telescopes in southern California**

CARMA is used for 3 mm and 1.3 mm interferometry. To increase its sensitivity for participation as a VLBI station for the Event Horizon Telescope, a



"phased array processor" was build. This new hardware system, developed independently from the rest of CARMA, is controlled via software mostly written in Ruby.

Interfacing the phased array processor with the CARMA control system, which does not use Ruby, could have posed a serious challenge, but fortunately the CARMA control system uses **CORBA** and **Ruby** now has **R2CORBA**.

Most of the control system is written in C++ and uses TAO, but the user interface is written in Python and uses omniORB. To interface with the CARMA control system, a Ruby ORB was needed.



# Science

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## Remedy IT assisted the Max-Planck-Institut für Aeronomie's Sunrise project

The Sunrise project uses multiple pc's with each a different operating system connected by Ethernet.

ACE is used for building the software parts that will transfer all images and command data between the several hosts. Using ACE, this software can be build much faster and more portable then it was before.

The **Sunrise** balloon carried solar observatory consists of a 1m aperture Gregory telescope, a UV filter imager, an imaging vector polarimeter, an image stabilization system and further infrastructure.



The first science flight of Sunrise yielded high-quality data that reveal the structure, dynamics and evolution of solar convection, oscillations and magnetic fields at a resolution of around 100 km in the quiet Sun.



# Telecom

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- CORBA is used in Telecom Network Management (TNM)
- Used to provide element management and information to heterogeneous clients
- Footprint optimized configurations are used in Wireless Base Stations





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More background information is online available at:

<https://www.remedy.nl>

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