



Open Standards for Middleware

and up the stack too!

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Chairman and CEO*

OMG's Mission Since 1989

- Develop an architecture, using appropriate technology, for modeling & distributed application integration, guaranteeing:
 - reusability of components
 - interoperability & portability
 - basis in commercially available software
- Specifications *freely available*
- Members include both users and vendors
 - Implementations by vendor community required
- Member-controlled not-for-profit

Some OMG Members...

Accenture

Adaptive

Alstom

Boeing

CA

CSC

EADS

Ericsson

Fujitsu

Harris

Hewlett

Packard

Hitachi

IBM

IHI Heavy Ind.

JARA

Johns Hopkins
U.

Kennedy Carter

Lockheed Martin

Micro Focus

Microsoft

MITRE

Mitsubishi
Electric

NEC

NIST

Northrop Grumman

OASIS

OIS

Oracle

PRISM

Progress

Raytheon

RTI

SAP

Siemens

Soluta.net

THALES

Toshiba

Toyo U.

UMTP

Unisys

VHA

Visumpoint

W3C

Zeligsoft



OMG's Proven Process

- OMG's standardization process is proven in practice
 - 20 years old, about 800 standards processes
 - Approximately 100 process underway now
 - International in scope, fair, neutral, open
 - Leads to *implemented, proven* standards
 - Extremely rapid (18 months)
 - Backed up with relationships with about 50 other groups (including formal ISO liaison)

OMG's Best-Known Successes

- Data Distribution Service
 - DDS™ is the widespread standard for real-time publish subscribe
- Common Object Request Broker Architecture
 - CORBA® is the language- and platform-neutral RMI standard
- Unified Modeling Language
 - UML™ is the world's standardized modeling language
- Common Warehouse Metamodel
 - CWM™ is the standard for exchanging warehouse data
- XML Metadata Interchange
 - XMI™ is the standard for exchanging UML models



Going "Up The Stack"

- OMG's history has been to address the "technology stack" from the bottom-up:
 - Object orientation
 - Distributed middleware
 - Modeling
 - Vertical market models
 - *Business management: process & rules*
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25 Vertical Market Areas

- Aerospace and Defense (middleware, modeling)
- Manufacturing (product description)
- Healthcare (services for integration)
- Telecommunications (service delivery)
- Life Sciences (genomic & chemical data)
- Government (archives, skills management, architecture)
- Robotics (localization, service delivery)
- Industrial/Utility Management (SCADA, etc.)
- Financial services (banking, insurance, trading)

Utility Involvement

- Data Acquisition from Industrial Systems
 - Proposed by ABB Automation, Alstom ESCA, Langdale
 - Real-time delivery of industrial control (e.g., SCADA) data
 - Complemented with a Historical Data Acquisition specification delivered later
 - Generic API defined in ISO-standard IDL
- Utility Management System Data Access Facility
 - Proposed by Alstom ESCA, Langdale
 - Data management for real or simulated utility systems (water, electric, etc.)
 - Generic API defined in ISO-standard IDL
- Broad support in current frameworks (ABB, Alstom, Areva, IBM, Langdale, Siemens, SISCO)

Middleware

- The age of hand-crafted middleware is long over; it's very hard to recreate best practices
 - Reliability, performance, scalability, quality, consistency, maintainability, etc.
- Though web services are popular for low-bandwidth, lossy Internet channels, in the high-performance, safety-critical, real-time systems arena, DDS reigns
- CORBA and DDS share a common interface definition language
 - Applicable to any programming or modeling language
 - Widely supported in modeling and software development tools
 - CORBA generally focused on point-to-point; DDS on publish-and-subscribe
- Millions of running systems

Data Distribution Service

- Specifically targets real-time challenge
 - Timing, reliability, quality of service control
- Code portability, application interoperability
 - API bindings for C, C++, Java
 - Interoperable protocol (also IEC 61158)
- Rapid adoption
 - Mandated by most of Aerospace and Defense industry
 - Rapid pick-up by Air Traffic Control, Transportation, Intelligence, others
 - 9 vendor implementations
- Deployed in thousands of mission-critical applications
 - Including industrial automation

To Get More Information

- **OMG General Information**
 - <http://www.omg.org/>
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