

OMG Software-Based Communication Workshop
Applicability of OMG Standards to
the Software Radio Community

15 September 2004, Washington, DC

Prologue

We do not know one millionth of one percent about anything.

- Thomas Edison

Talking Points

- ▶ The OMG has a large collection of specifications around middleware and infrastructure services.
- ▶ The SCA has adopted the OMG has its primary standards organization for infrastructure software.
- ▶ The SCA references several OMG Specifications and has developed variations of the API for other OMG Standards.

A Perspective

There are

existing and emerging OMG Specifications

not currently in software radio standards that should be considered to help better serve the goals of

application portability, reduced development cost, and continuous technology insertion

in existing and future software radio developments.

**The software radio community needs to help ensure the
OMG Specifications continue to meet the
development and operational needs of their products.**

Today's Agenda

- ▶ Standards are Good, Right?
- ▶ OMG Standards in the SCA – who's leading whom?
- ▶ Are there any Standards left behind?
- ▶ Can we facilitate change and adoption?
- ▶ Our experience with Standards being proliferated.
- ▶ Wrap-Up.
- ▶ Moving forward.

Please Specify in Moderation!

“At a minimum use Minimum CORBA...”

- ▶ What do radio developers use beyond minimum CORBA?
- ▶ Can you develop a waveform application using min CORBA?

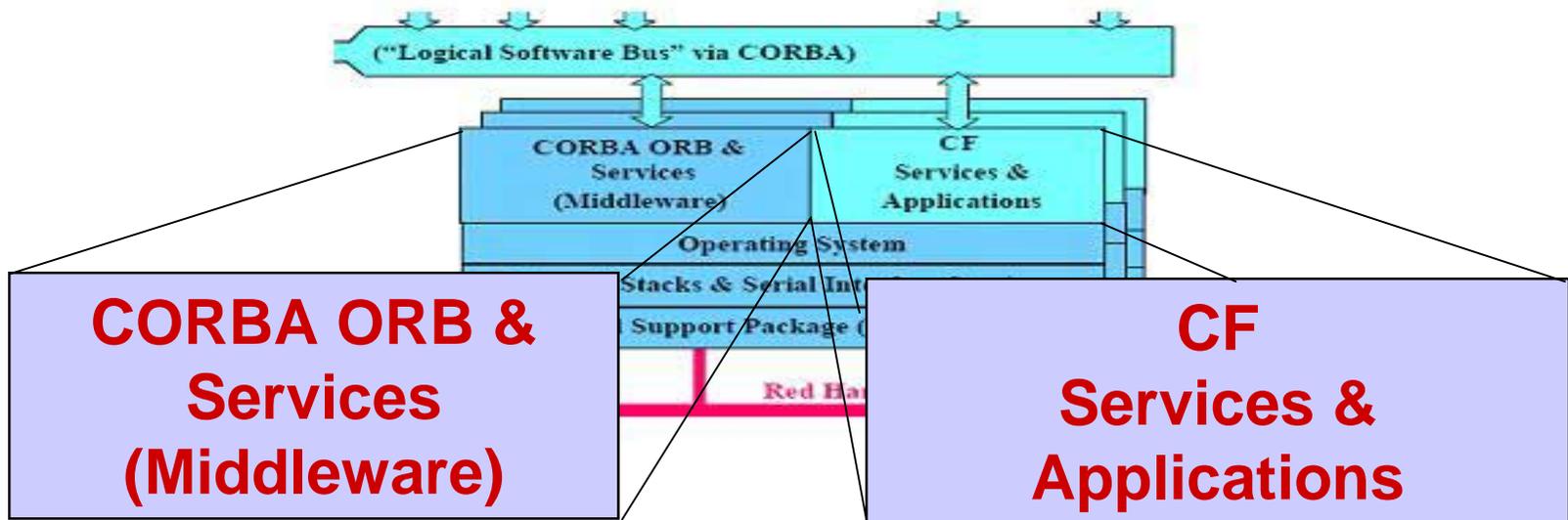
“...SCA will become a commercially approved standard”

- ▶ Involving more OMG Specs (and OMG experts) will facilitate passing the spec entirely to the standards organization.

“...build on commercial frameworks ...”

- ▶ OMG Specifications are meant to have implementations!
- ▶ Make implementations of the SCA commercially available as products!

Where does the OMG play a part?



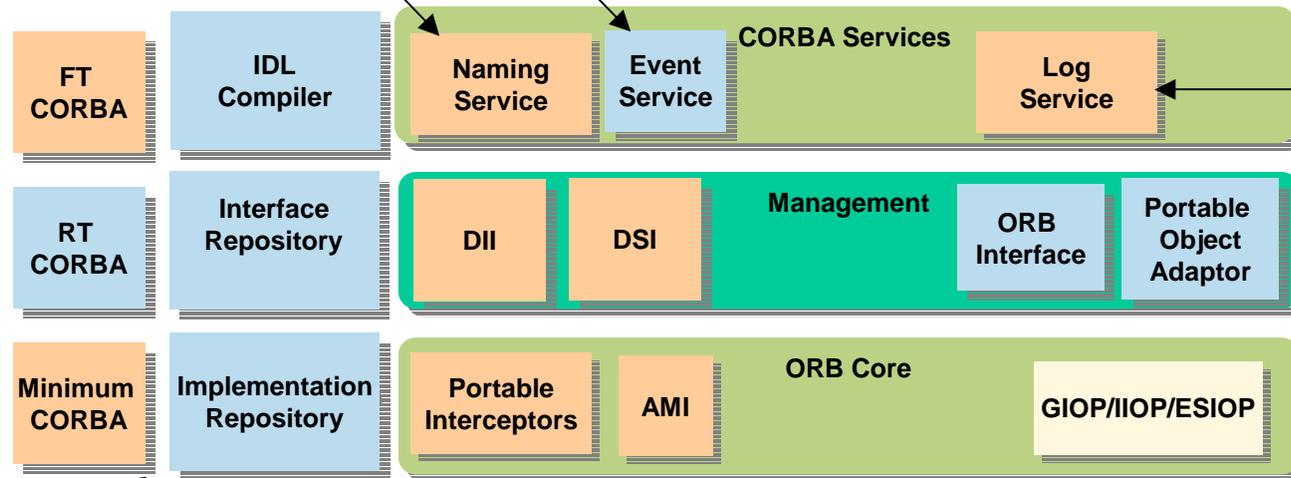
SCA OMG Standards

2) **OMG Document formal/00-11-01: Interoperable Naming Service**

OMG Document formal/02-09-02: Naming Service v1.2

3) **OMG Document formal/01-03-01: EventService v1.1**

OMG Document formal/01-03-01: EventService v1.1



4) **formal/03-11-03: Lightweight Log Service v1.0**

Supersedes Log Service

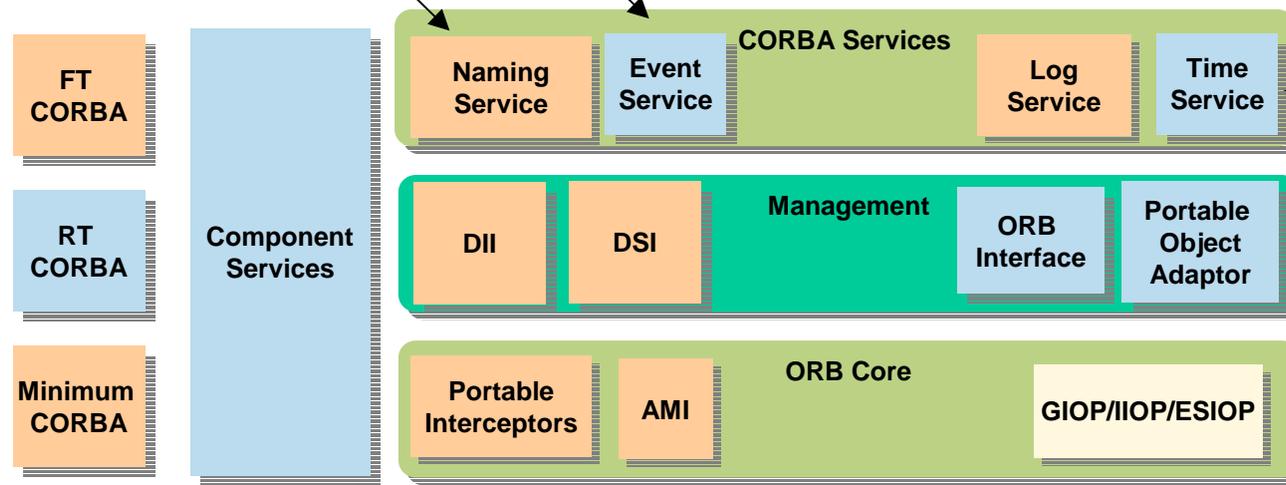
1) **OMG Document orbos/98-05-13, May 19, 1998**

OMG Document formal/02-08-01: Minimum CORBA v1.0

SDR OMG Initiatives

1) **OMG Document ptc/04-02-03: Lightweight Services (Naming)**

2) **OMG Document ptc/04-02-03: Lightweight Services (Event)**



3) **ptc/04-02-03: Lightweight Services (Time)**

4) **OMG Document ptc/03-11-03: Lightweight CCM**

5) **OMG Document dtc/04-05-04: PIM and PSM for Software Radio Components**

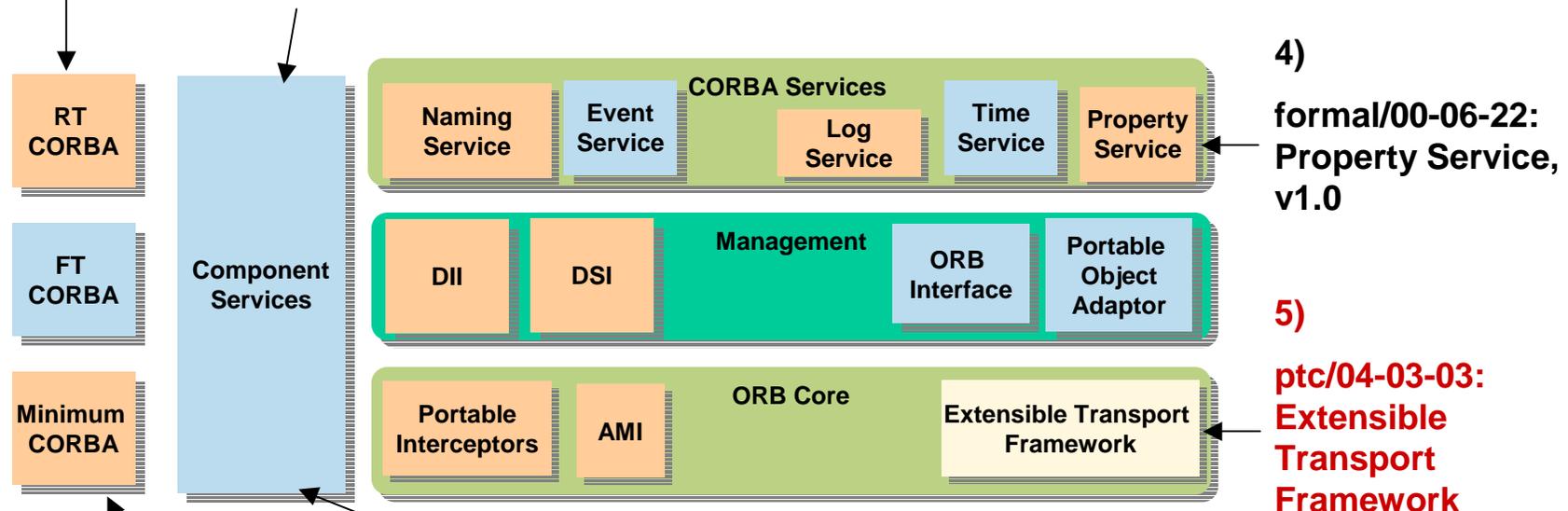
6) **OMG Document sbc/04-04-04: Software Radio Common Services**

Other Applicable OMG Initiatives

3) **OMG Document formal/02-08-02: Real-Time CORBA, v1.1 (Static)**

1) **OMG Document ptc/03-07-08: Deployment and Configuration**

2) **OMG Document ptc/03-08-07: Online Upgrades**



4) **formal/00-06-22: Property Service, v1.0**

5) **ptc/04-03-03: Extensible Transport Framework**

6) **OMG Document mars/03-06-12: QoS for CORBA Components**

7) **OMG Document mars/03-06-11: Streams for CORBA Components**

8) **OMG Document realtime/04-06-07: Minimum CORBA Update**

Other Specifications

- ▶ OMG Document realtime/04-02-14 (High Assurance ORB)
- ▶ OMG Document realtime/02-06-30 (High Performance Enablers)
- ▶ OMG Document realtime/04-02-08 (Power Conservation Services)
- ▶ OMG Document formal/04-04-02 (Wireless Access and Terminal Mobility, v1.1)

Who's Leading Whom

- ▶ The “Lightweight” Specifications are primarily driven by the JTRS software radio community.
- ▶ Are the Specifications vastly different from their “big brothers”?
- ▶ Efforts are underway to expand the SDR-driven initiatives to other domains.

Facilitating Adoption

- ▶ SCA change proposal (CP) process fast but targeted.
 - ▶ Need to minimize the effect on programs.
 - ▶ Adapt or adopt?
- ▶ Commercial adoption happens when its cheap.
 - ▶ Cheap when have a large number of implementers.
 - ▶ Specifications need applicability.
- ▶ Interpretation leads to “standards within standards”.
 - ▶ Find the right balance of forward thinking and practicality.
 - ▶ Testing tools, processes.

Quiz

What part of this computer is still a standard?



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Experience

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Wrap-Up

- ▶ The OMG has many existing specifications which make a strong foundation for a software radio infrastructure.
- ▶ The software radio community is active in the OMG creating new specifications to meet the demands of their systems.
- ▶ If standards are to be used they should be adequately specified and the resulting solutions adequately tested to the specifications.
- ▶ Commercial adoption will come when standards are simple, easily implemented, and are implemented I.e. COTS.

Recommendations

- ▶ A “coalition” of support around the specification initiatives in the SW Radio SIG should be made.
- ▶ A more extensive study of applicable OMG Specifications should be made.
- ▶ A suite of tests and test tools should be created to ensure compliance of the CORBA products and the applications use of the OMG Standards.

Epilogue

There is always a better way.

- Thomas Edison