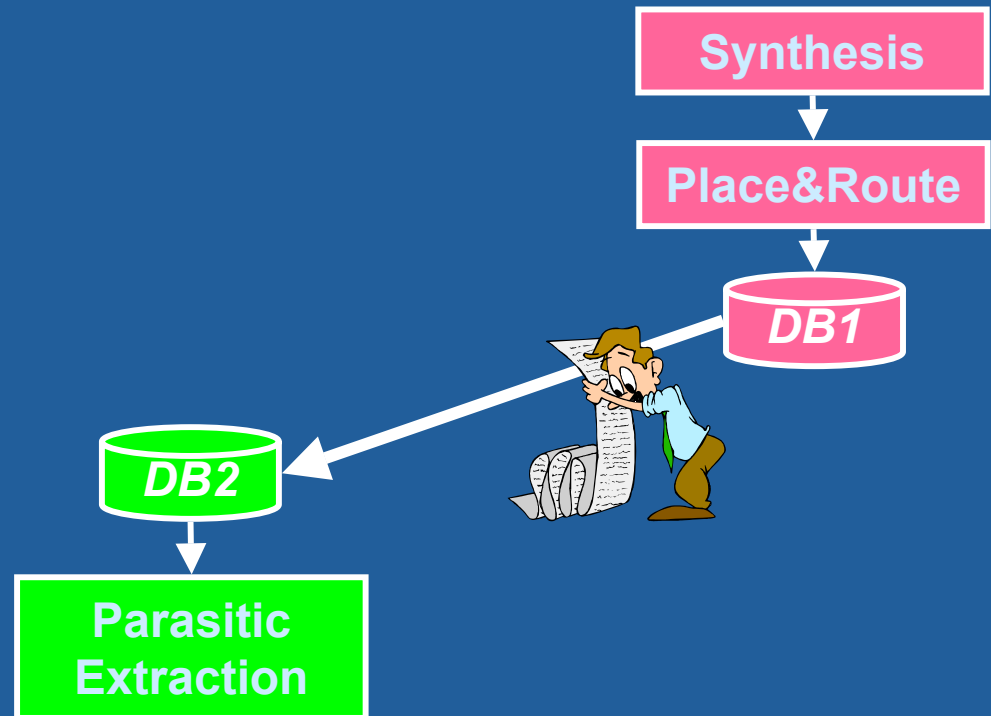


The GoldenGate Working Group

Facing the Challenges of
CAD System Integration



2004 - Synopsys
Interoperability Forum

Jim Wilmore
April 1, 2004

The GoldenGate Working Group Update



2004 - Synopsys
Interoperability Forum

Jim Wilmore
April 1, 2004

What is OpenAccess?



- The OpenAccess Coalition is a consortium of 23 EDA vendor and user companies
- The OpenAccess DB technology supports design data containing hierarchical connectivity with associated physical details; it includes:
 - Information Model and C++ API
 - Reference Implementation
 - Available free as compiled libraries and as source code



[<http://www.si2.org>](http://www.si2.org)

What is Milkyway?



- The Milkyway database, originally from Avant! tools, is central to Synopsys' Galaxy interoperable architecture
- The Milkyway DB technology supports design data containing hierarchical connectivity with associated physical details; it includes:
 - Information Model and C API
 - Reference Implementation
 - Available free as compiled libraries for development of interoperating tools -> MAP-in



<http://www.synopsys.com>

More MW and OA Similarities



- Persistent data
 - Organized as separate Views of Cells in Design Libraries
- Readers / Writers
 - Many common file formats
- Extension language interfaces
- “the *other* database”
 - How do I get there from here?



The GoldenGate Challenge

- How do we get from here to there?
 - Without the GoldenGate there could be half a dozen bridges, each with its own twists and turns.
- Can we collaborate on design details?
 - For efficiency
 - For robustness
- How do we get here from there *and back to here again?*



GoldenGate Working Group Participation

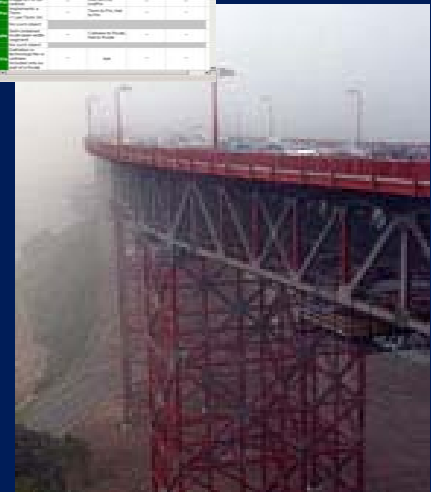


- Participants included:
Cadence, HP, IBM,
Intel, LSI Logic, Motorola, Philips,
Renesas, Si2, ST Microelectronics, and *Synopsys*
- *Synopsys has unique technical knowledge of Milkyway for accurate mapping of Information Models and APIs*

GGWG Accomplishments & Status



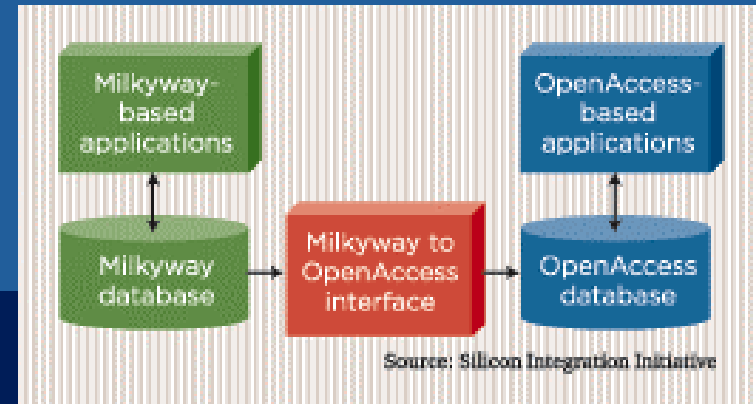
- MAP-in access for GGWG CAD-User Companies
 - Ability to exchange MW information in GGWG
- Clarify plan to distribute bridge functionality
- Mapping document completed
 - Identifies focused subset of *common* objects (**DEF, LEF**)
 - Specifies primary mapping relationships
- Completed survey among GGWG/OAC members
 - Identifies requirements and time frame
- GGWG calls for development resources

A screenshot of a software application window. The window title is "Green Gate Working Group". It contains a table with multiple columns and rows. The table is divided into two main sections: "Completed Objects Table" on the left and "Green Gate Working Group" on the right. The "Completed Objects Table" has columns for "Object Name", "Object Type", "Object ID", and "Object Status". The "Green Gate Working Group" section has columns for "Group Name", "Group Type", "Group ID", and "Group Status". The table is color-coded with purple and green headers.

GoldenGate

– Construction Begins

- Cadence responded to calls from GGWG for contributed bridge technology
 - GGWG survey results confirmed plans by multiple member companies of the need for the MW2OA interface in 2004
 - Cadence will develop and contribute the MW2OA interface to the OpenAccess user community
- End user demand was instrumental in bringing Cadence to this decision



Rich Goldman: ...once Cadence migrates its customers to OpenAccess, Synopsys will provide a translator that goes in the other direction.

MW to OA Status



- OA and MW software libraries link into single executable
- Open CellView in both DBs

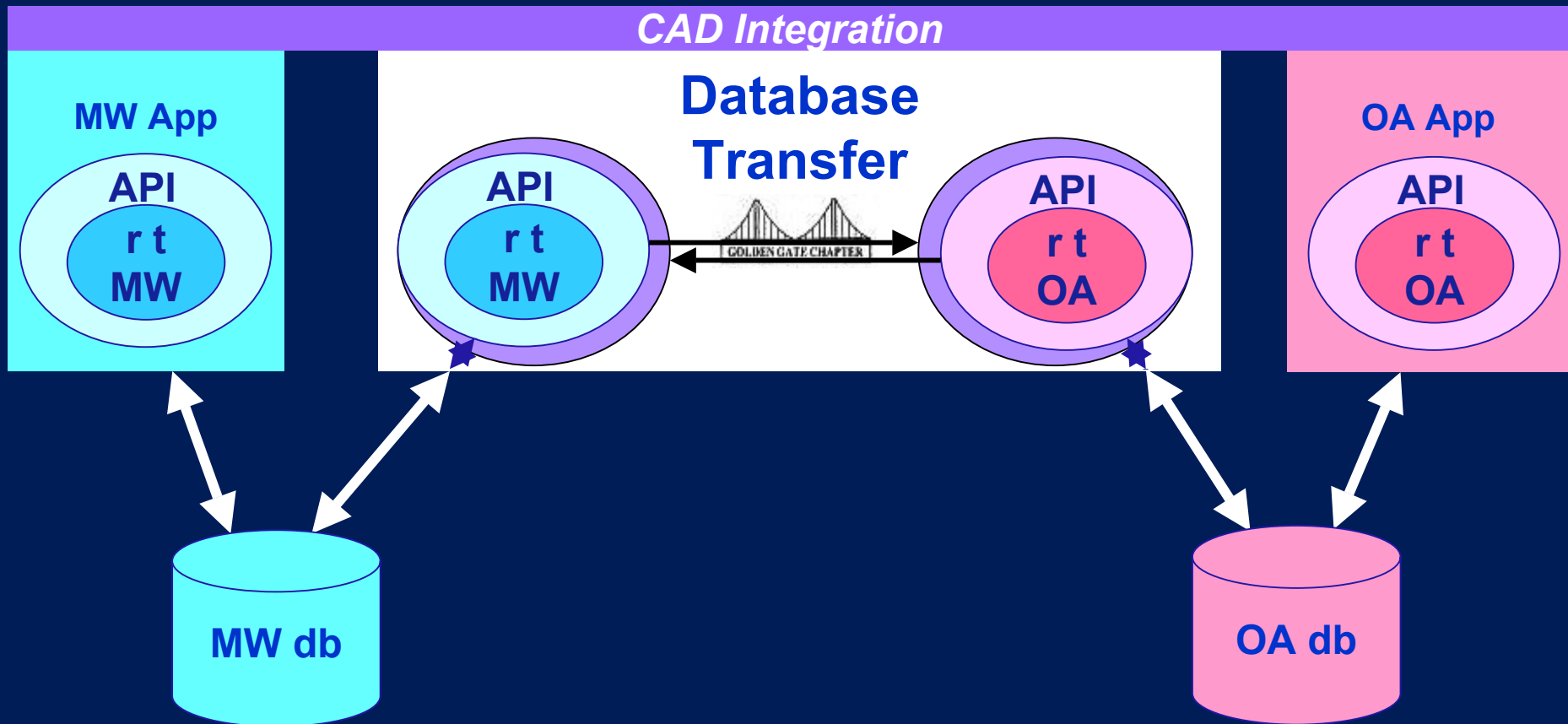
- Transfer Nets and Ports (Terms) from MW to OA
- Transfer Instances from MW to OA
- Transfer and Connect PortInsts from MW to OA (InstTerms)
- NEXT: getting Physical
 - Pins, Routes, ...



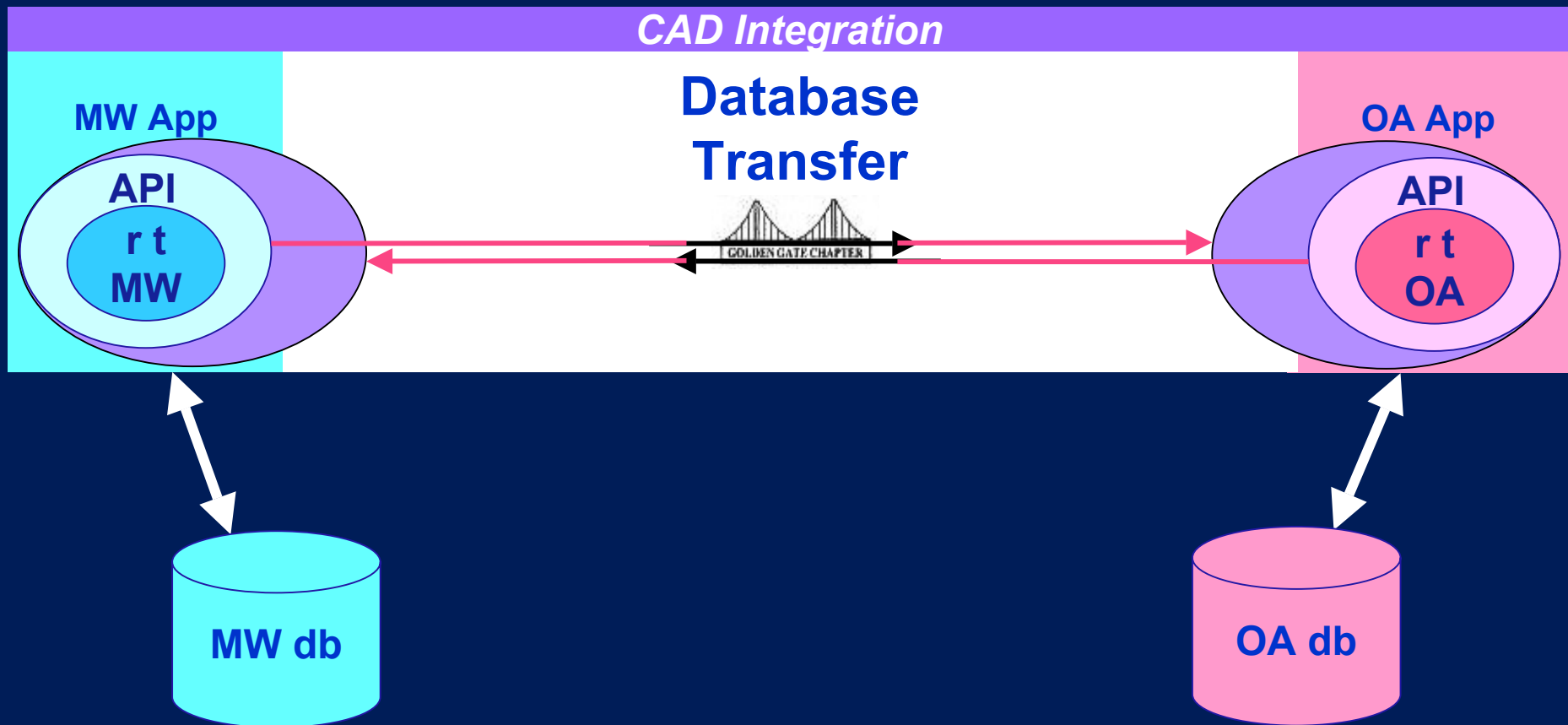
GoldenGate – Potential Futures for Interoperability



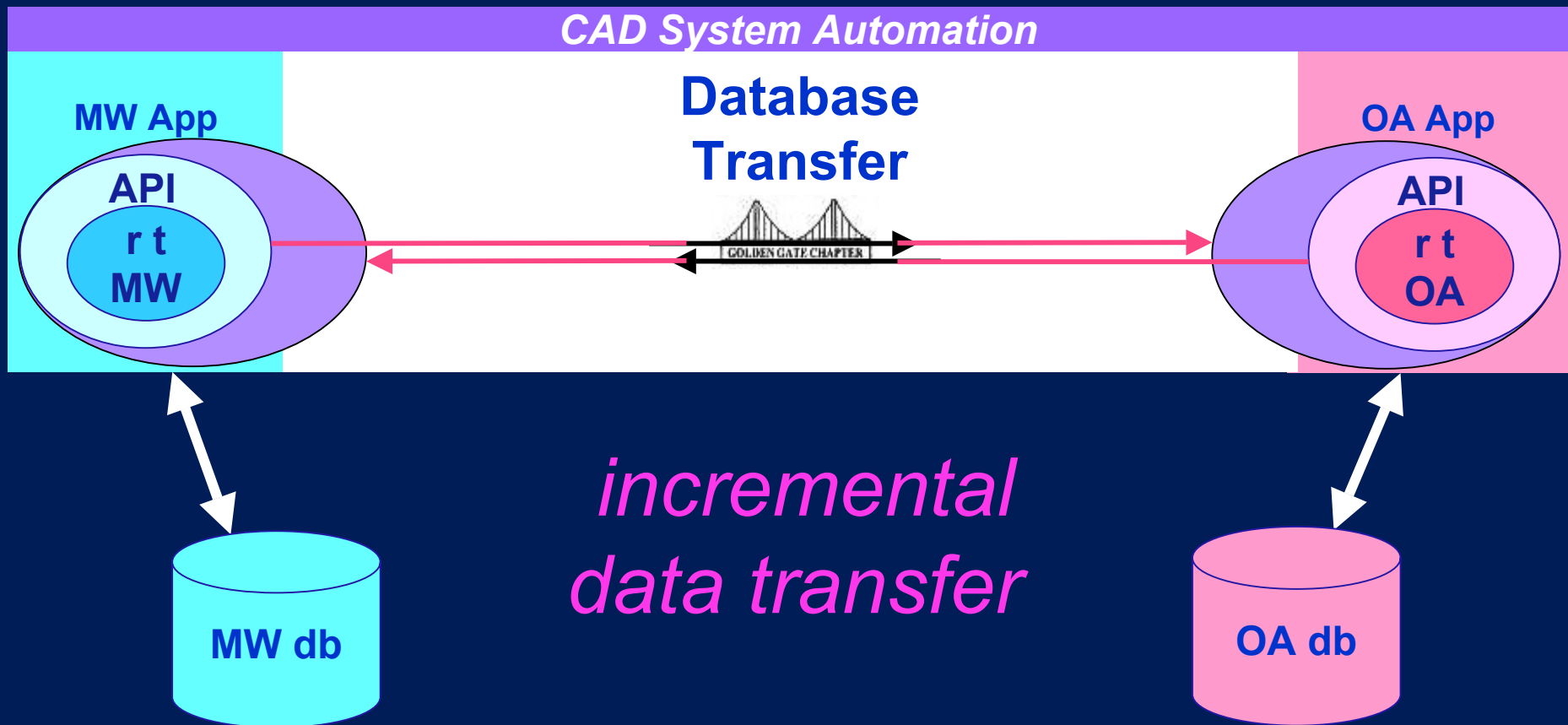
GoldenGate – Potential Futures for Interoperability



GoldenGate – Potential Futures for Interoperability



GoldenGate – Potential Futures for Interoperability





Aart DeGeus: We believe that it is important to provide our customers with strong interoperability, so we are participating with Si2 in the Golden Gate Working Group to build bridges between Milkyway and OAC.