



POLARSYS

Open Source Tools for Embedded Systems

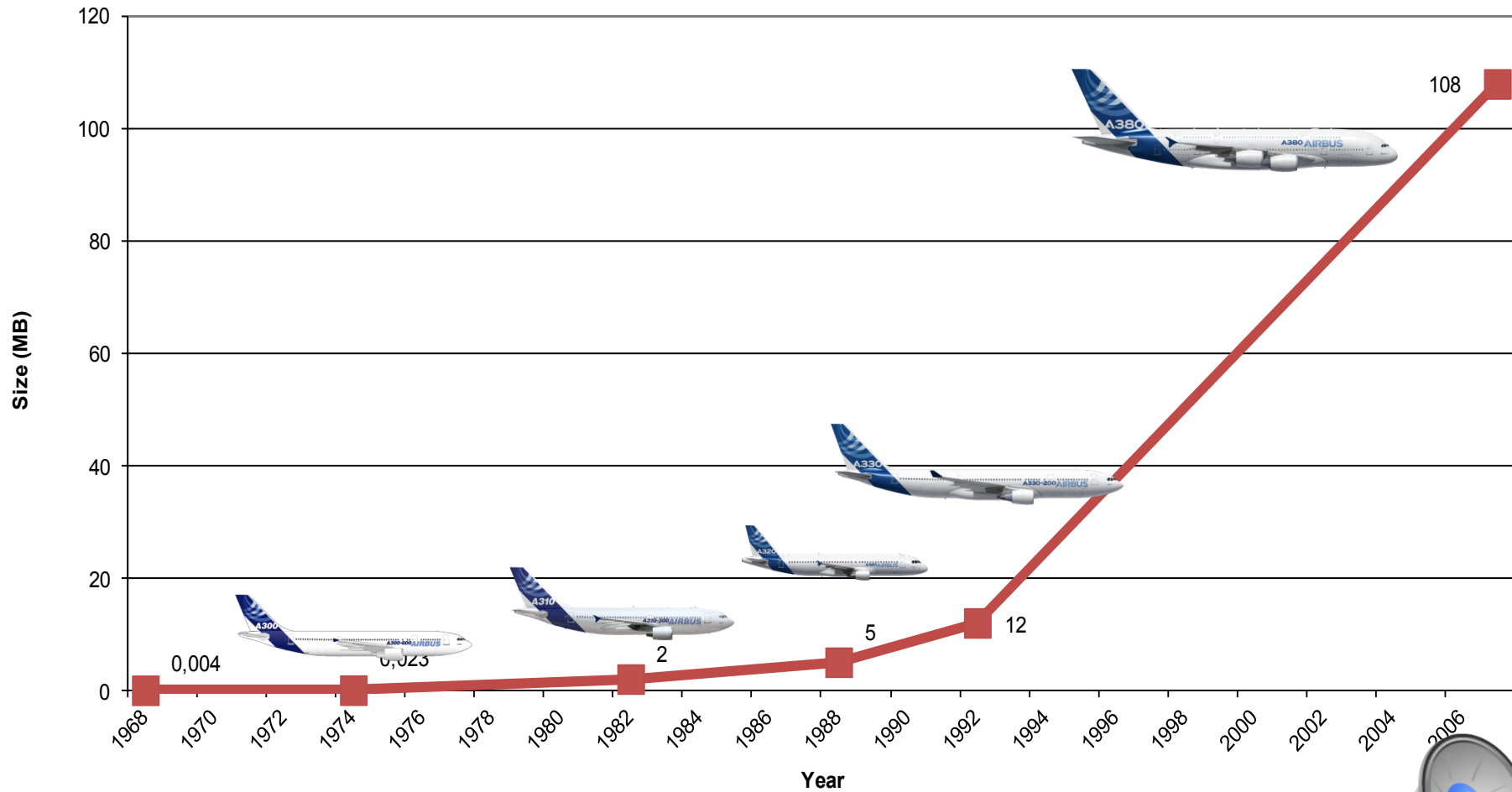
Industrial Working Group

SAE AeroTech Congress

September 2013



Airbus Aircraft Embedded Software



Closed Innovation Drawbacks



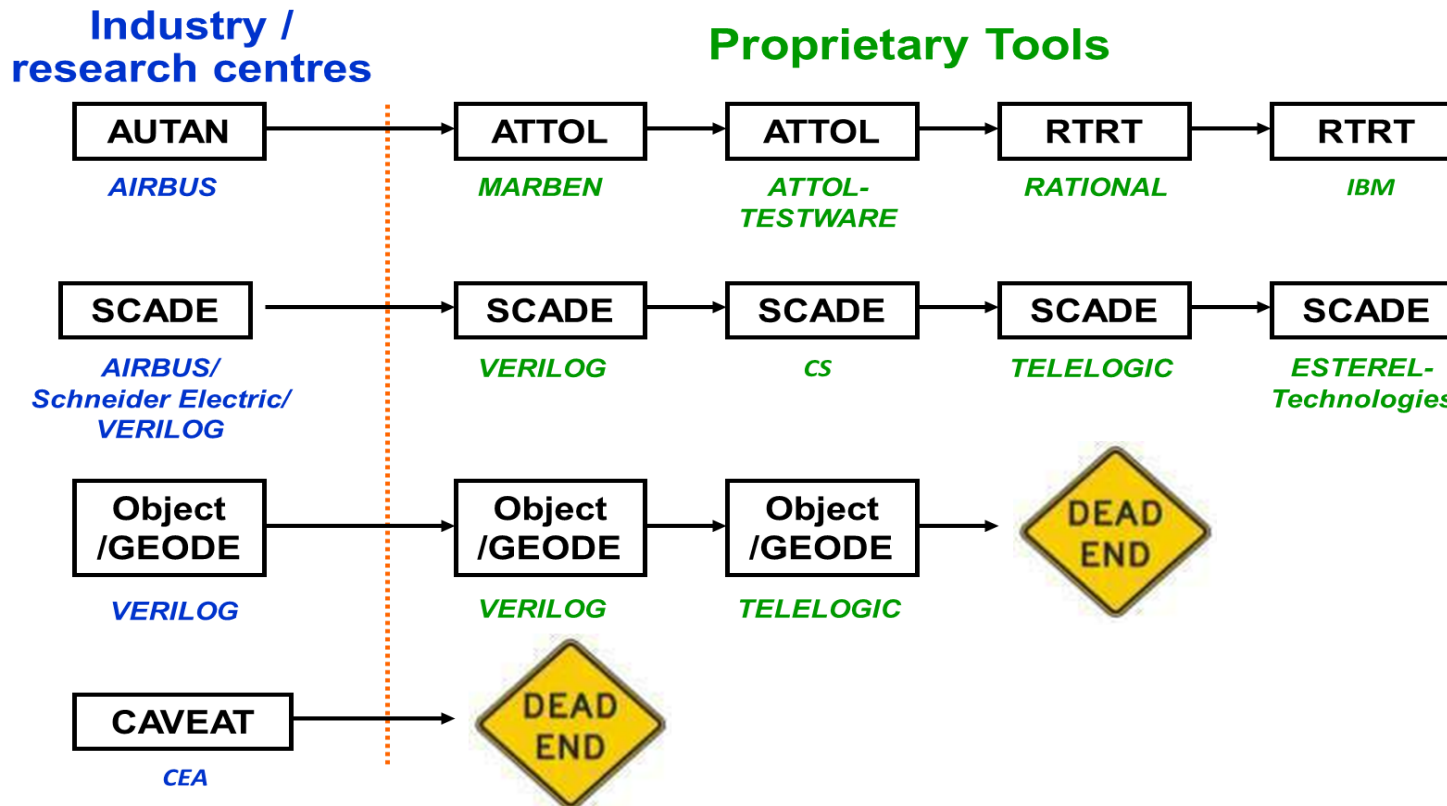
Adaptations are unsustainable with closed data format

Some innovations do not have a business case for tool vendors

Industrial users end up paying large amounts for improvements which can then be used by competitors who have a normal license cost



Mastering? Continuity?

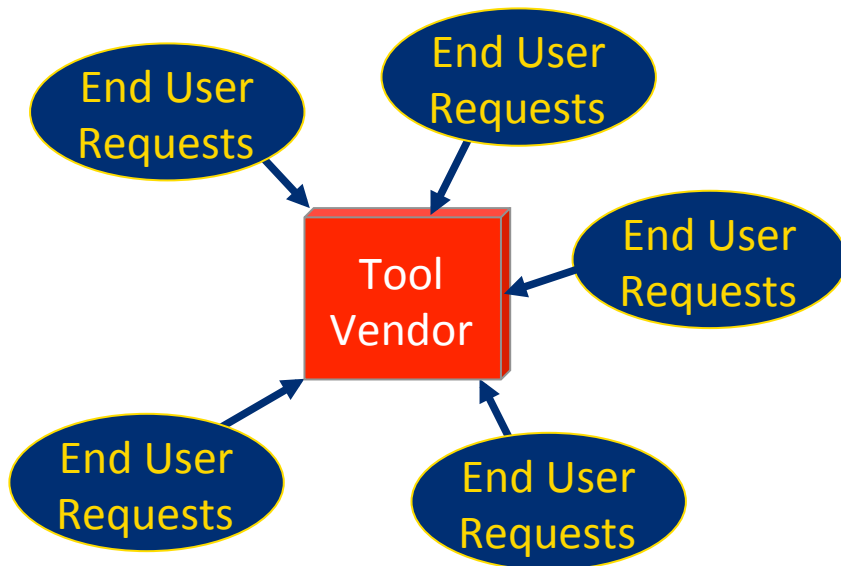


Niche tool vendors may get acquired by larger companies, disappear or change their technical focus

Product strategy change, products may also vanish



Control and Secure your Destiny!



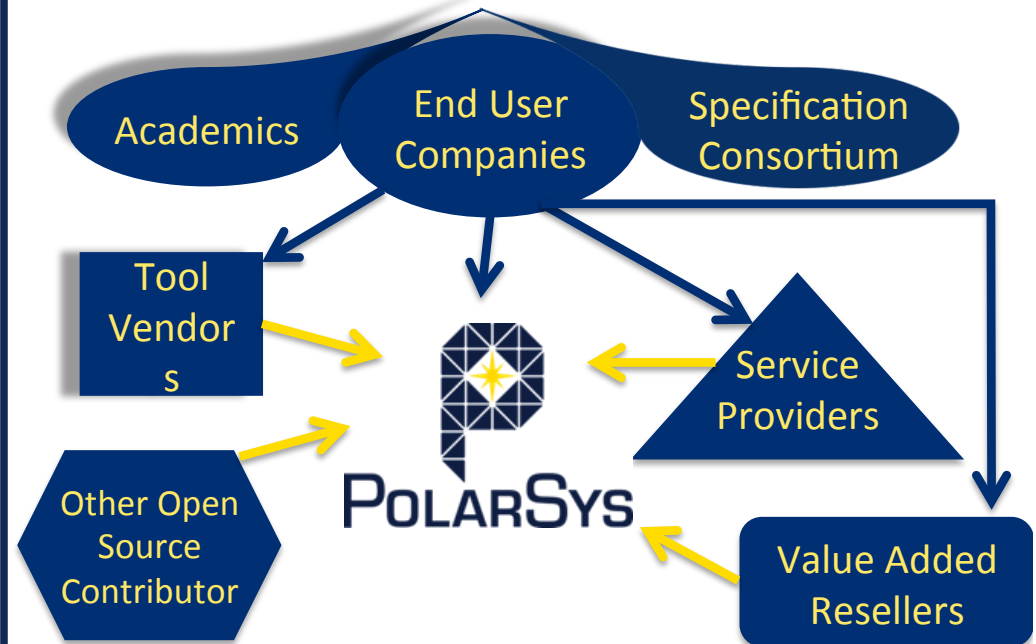
Typically less than **20%** of Requests For Enhancement (RFE) get into the tool



Proprietary Tool Vendor Ecosystem

No lock-in!

You or many third party can add features



100 % of RFE are able to get into the tool
e.g. **80%** generic, **20%** as user extensions



PolarSys Open Source Ecosystem





Internal Synergies



Synergies between development, services, research, etc.

Protects investment in improvements projects

The whole is greater than the sum of its parts



Open Source or Commercial?



PolarSys tools give you both!

Open Source with:

- commercial support
- commercial bug fixes
- commercial contract to add features
- etc.





Make or Buy?



PolarSys tools give you both!:

- In one project you **buy** a PolarSys tool from a supplier
- In the next project you can **make** your own very specialized feature in the same tool



Aeronautics Long Life Cycle



AIRBUS A300 Life Cycle

Program began in 1972, production stopped in 2007

2007-1972 = 35 years...

Support will last until 2050

2050-1972 = 78 years!



**On board software development
for very long lifecycle products**



PolarSys First Year Members



THALES



Atos



COMBITECH



Many Universities / Research Centers





PolarSys Working Group

- ✓ Open Innovation to create better methods and tools
- ✓ Software tools for critical systems
- ✓ Interoperability based on Open Standards
- ✓ Foster exchanges between academics and industrial partners
- ✓ Quality and maturity assessment
- ✓ Very Long Term Support for more than 10 years

 **Technologies**

 **Members**

 **About Us**

Component Highlight

TOPCASED migrates to PolarSys

One of the original reasons why PolarSys has been created is for organizing the Very Long Term Support of TOPCASED. Now that PolarSys begins to be operational, it is time to start migrating TOPCASED components to their new home. This migration will occur component by component and step by step: preparation of the source code, adaptation of the dependent plug-ins, code freeze, IP

Events

SAE AeroTech Congress and Exhibition

Date & Time:

September 24, 2013 - 12:00 to September 26, 2013 - 13:00

Join us for the [SAE AeroTech](#) conference in Montreal this September.

[Read more](#)

News

PolarSys talk at SAE Aerotech

Dominique Toupin, from **Ericsson** and **Patrick Farail** from **Airbus**, will present a talk entitled: [More](#)

New Community link

Maybe you have noticed the new [Community](#) item on PolarSys front page? [More](#)





PolarSys Tool Landscape

Software Tools for Reliable Embedded Systems

Discipline

- Requirement
- System Engineering/Design
- SW/HW Development
- Quality
- Configuration Management
- Test / Verification & Validation
- Maintenance
- Process
- Field Engineering / Monitoring

Tool Type

- Modeling: DSL, UML, SysML
- Compiler, Debugger, Tracer
- Static Analysis
- Simulation/Emulation
- Integrated Development Environment
- SW Configuration Management
- Issue Tracker
- Project Reporting, Documentation





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Tool Example

Papyrus, Sirius

GCC/Clang, GDB, LTTng

LLVM Clang, Frama-C

QEMU

Eclipse CDT

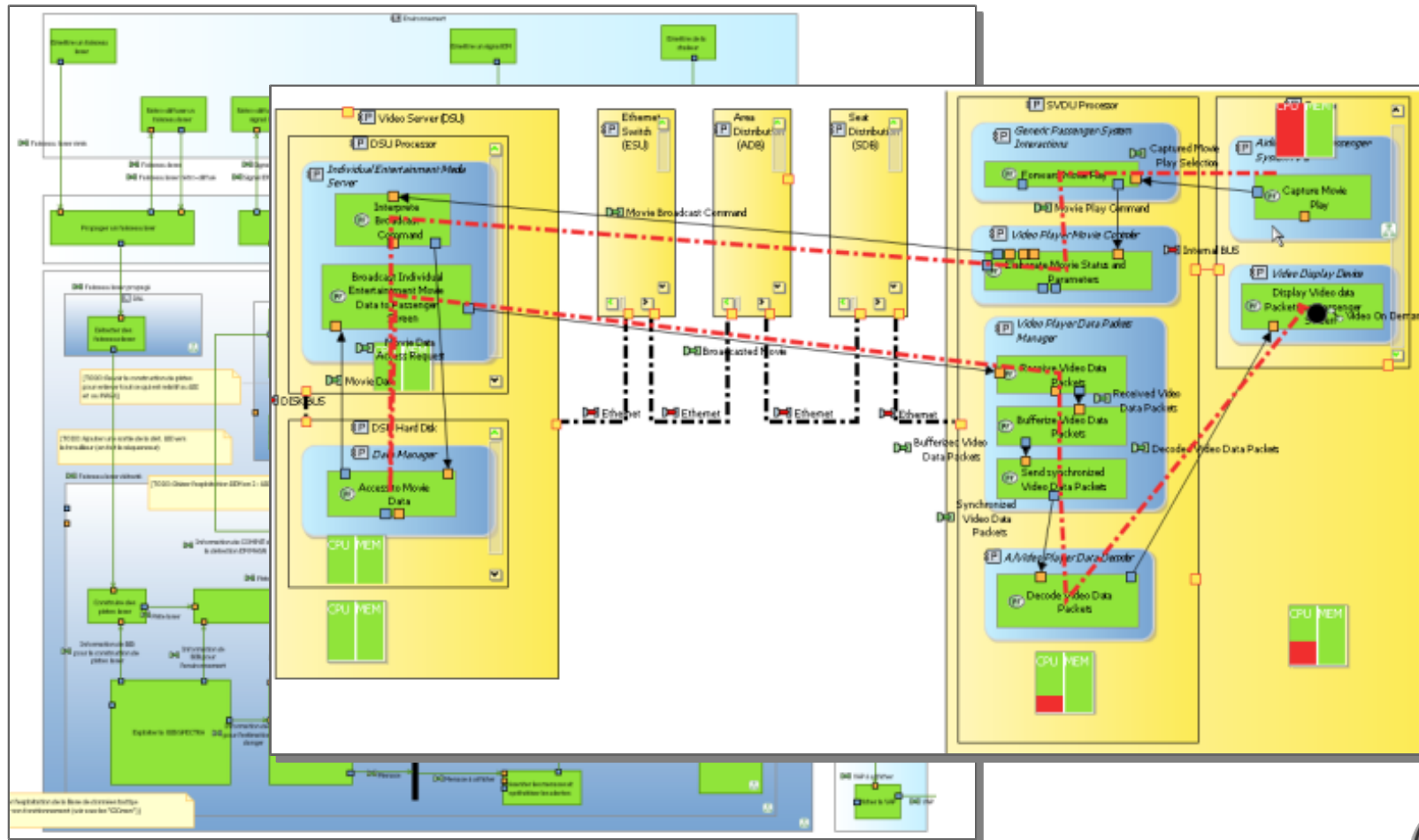
EGit, Gerrit

Tuleap

Sonar, Intent



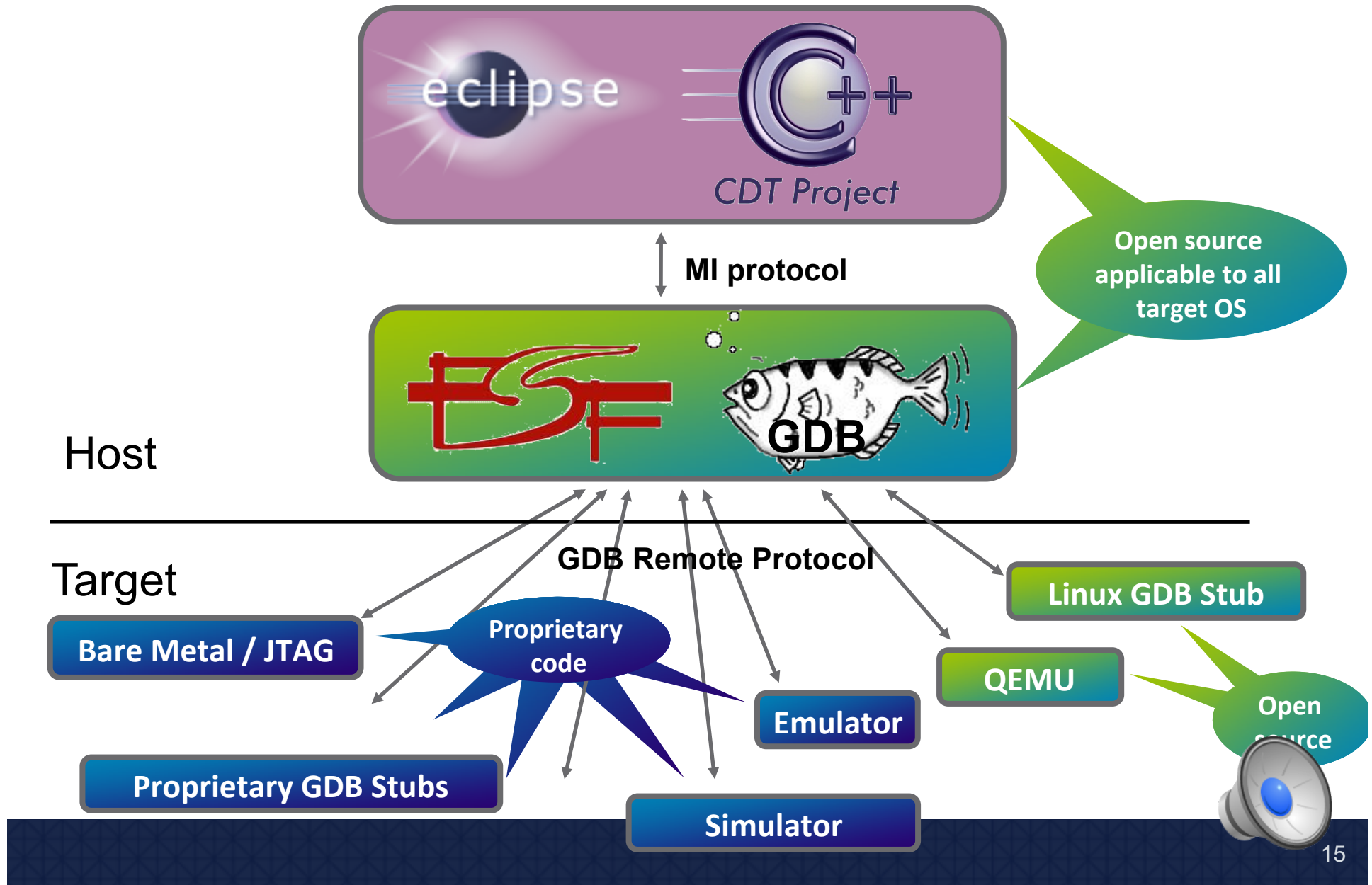
Tool Example: System Modeling



CSDM 2010, Jean-Luc Voirin, "Model-driven Architecture building for constrained Systems"



Tool Example: Debugging



PolarSys Ecosystem Eclipse Working Group



- Open Innovation
- Commercial services around open source components
- Quality and maturity of tools
- Fostering exchanges between academics and industrial partners
- Very Long Term Support
- Documents and qualification kits required for certification DO178, ISO26262, ECSS 40, etc.



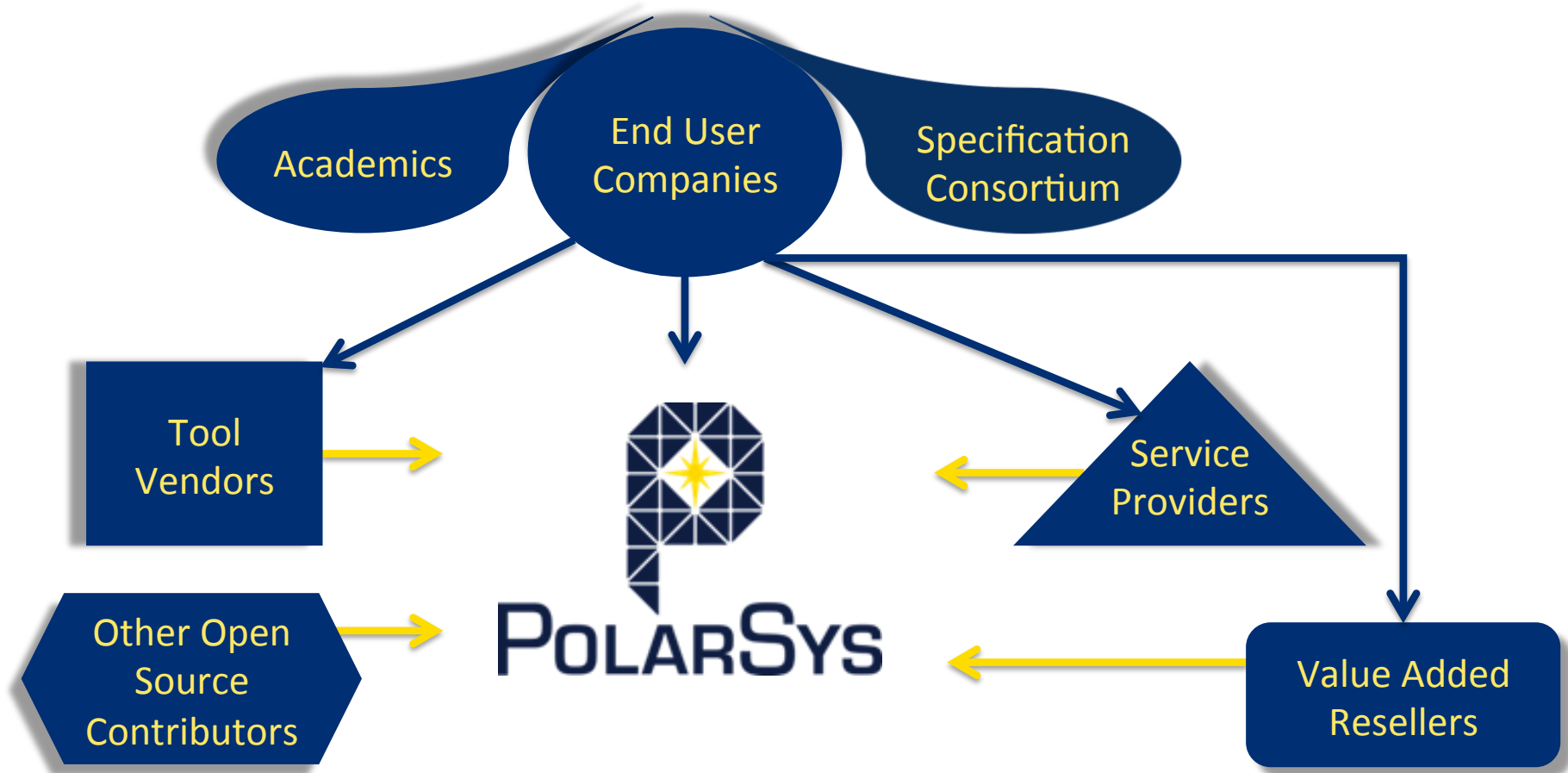
PolarSys Ecosystem Eclipse Working Group



- Legal agreement to share intellectual property rights
- Ability to pool resources to innovate on new technologies and standards
- Project governance and process to ensure a level playing field
- IT infrastructure to facilitate collaboration between a distributed team
- A technology platform
- Marketing & Communication



PolarSys Ecosystem Eclipse Working Group





- Automotive
- Aeronautic
- Aerospace
- Defense
- Energy
- Health
- Telecom
- Train

