

Product Line Issues
GSAW Feb 21-23, 2001

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Raytheon Products

Raytheon

Command, Control, Communication
and Information Systems

- **Raytheon Delphi - 1990**
 - Mission Management C++ libraries
 - Heavy use of inheritance
 - HCL utilities
- **Control Channel Toolkit (CCT) - 1998**
 - Government and Contractor funded
 - Command and Control C++ framework
 - Component-based architecture
- **ECLIPSE & Perigee - 1999**
 - Commercial Satellite Command and Control Products
 - NT based, C++, FORTRAN, C, Microsoft Office
 - Low end pricing
- **EQUINOX - 2000**
 - Mission Management Product
 - Web-based (browser), J2EE architecture, Java

Issues

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Command, Control, Communication
and Information Systems

- **Not Invented Here**
- **Government is Different Than Commercial Customer**
- **Technology Passes Product By**

Product Line Issues

Not Invented Here

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Command, Control, Communication
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- **Issue:**
 - Evaluators easily exclude the solution by analysis since its “Not EXACTLY my Solution”
 - New people to the project can build something quicker than learning the existing
 - Large libraries
 - Generality results in added complexity

Product Line Issues Not Invented Here

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- **Solution:**
 - Management (or Customer) requirements force staff down the reuse path
 - After learning curve, most developers will WANT to use the product they know

Government is Different Than Commercial Customer

- **Issues:**
 - **Some Government Customers are demanding products and licenses, not reuse**
 - Hoping to save money by sharing costs across users
 - Willing to not over-specialize
 - **Some Government Customers Just Want to Reuse, Not Licensing**
 - **Want artifacts (code, documentation, etc.)**
 - No long term ties, ability to switch maintainer organization
 - Maintenance benefits not their concern
 - Require artifacts that commercial customer don't need (and will not pay for)
 - **Control of the code**
 - **Mission so critical they have to have source**

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- **Solution:**
 - **Pick a path for each product based on potential sales**
 - **Give them what reuse they want**
 - **Original product artifacts provided but never updated**
 - **Maintenance provided for fee**
 - **Escrow source artifacts**

Product Line Issues

Technology Passes Product By

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Command, Control, Communication
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 - Life cycle of commercial products less than 2 years
 - Life cycle of government programs are 5-10 years
 - Technology innovations introduced constantly

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- **Solution:**
 - Technology roadmaps
 - Component architecture so evolutionary improvements can be made (focus on interfaces)
 - Be willing to throw the old away