Product Line Issues
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Raytheon Products

• 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

• Not Invented Here
• Government is Different Than Commercial Customer
• Technology Passes Product By
Product Line Issues

Not Invented Here

• 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
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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
Product Line Issues

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

• Issues:
  – Life cycle of commercial products less that 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