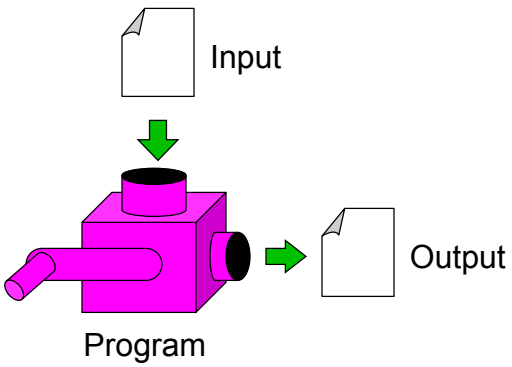
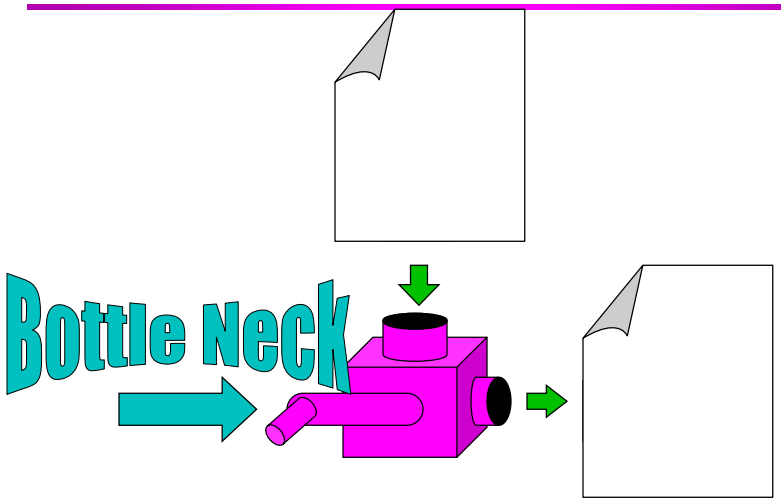
A Pictorial Introduction to Components in Scientific Computing

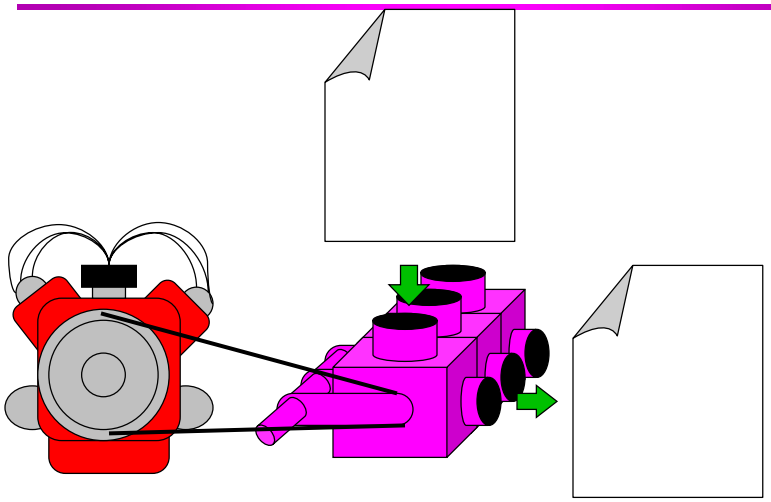
Once upon a time...



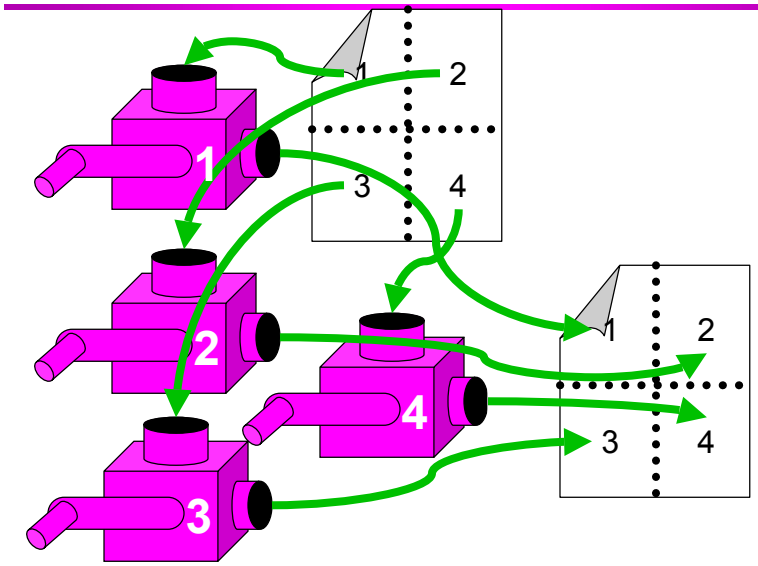
As Scientific Computing grew...



Tried to ease the bottle neck



SPMD was born.



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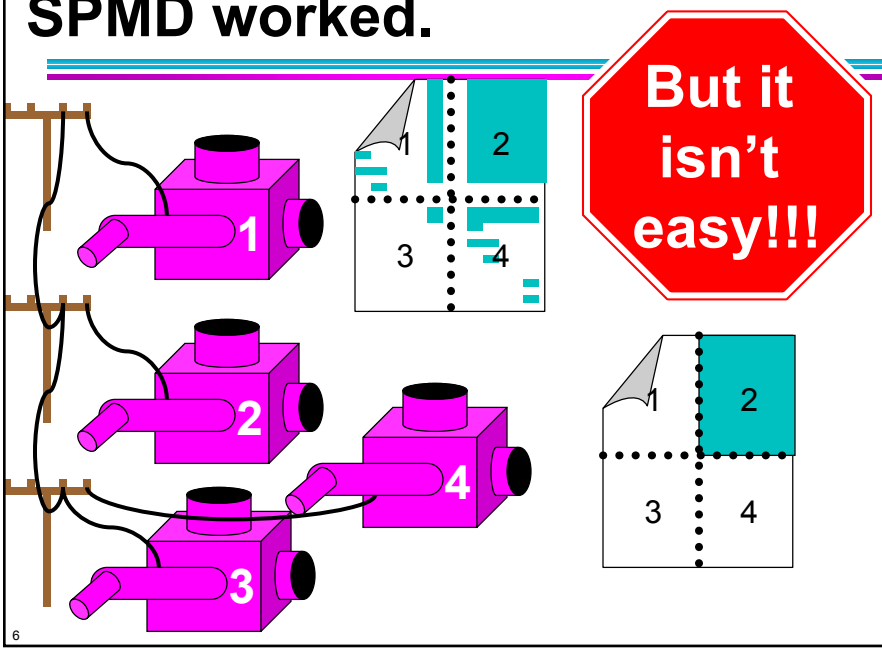
SPMD worked.



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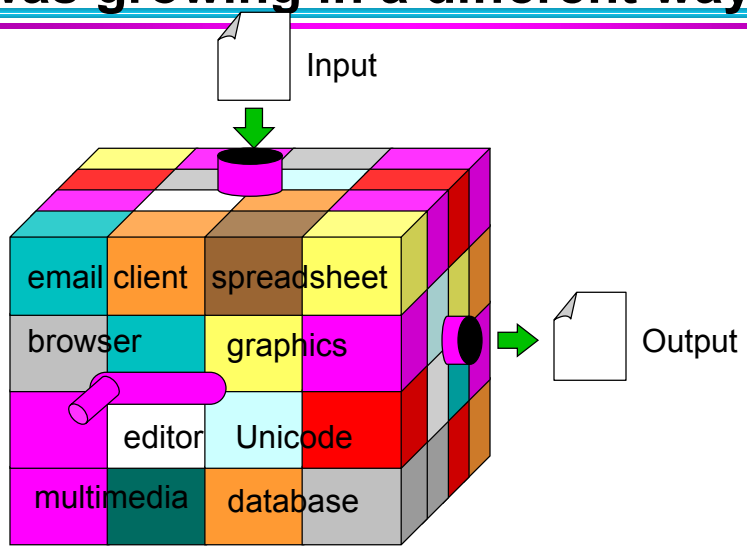
Meanwhile, corporate computing was growing in a different way



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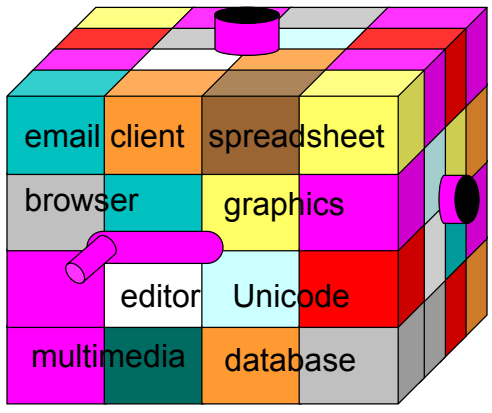
This created a whole new set of problems → complexity



- **Interoperability across multiple languages**
- **Interoperability across multiple platforms**
- **Incremental evolution of large legacy systems (esp. w/ multiple 3rd party software)**

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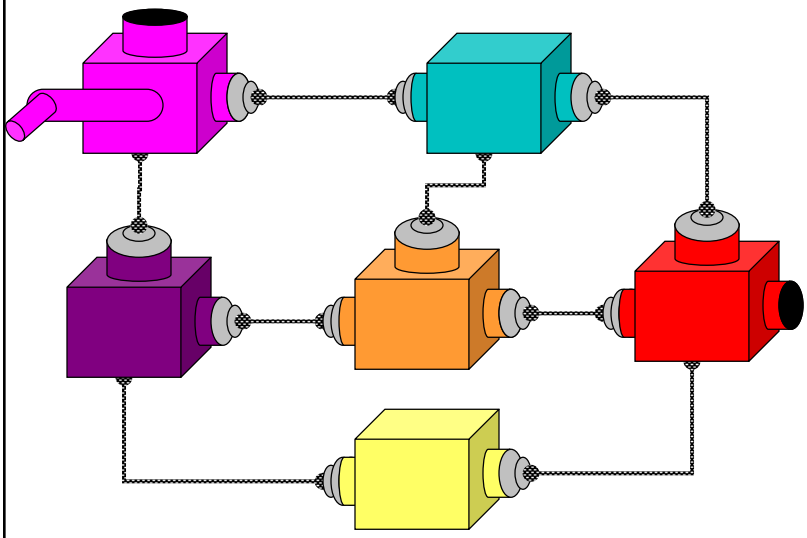
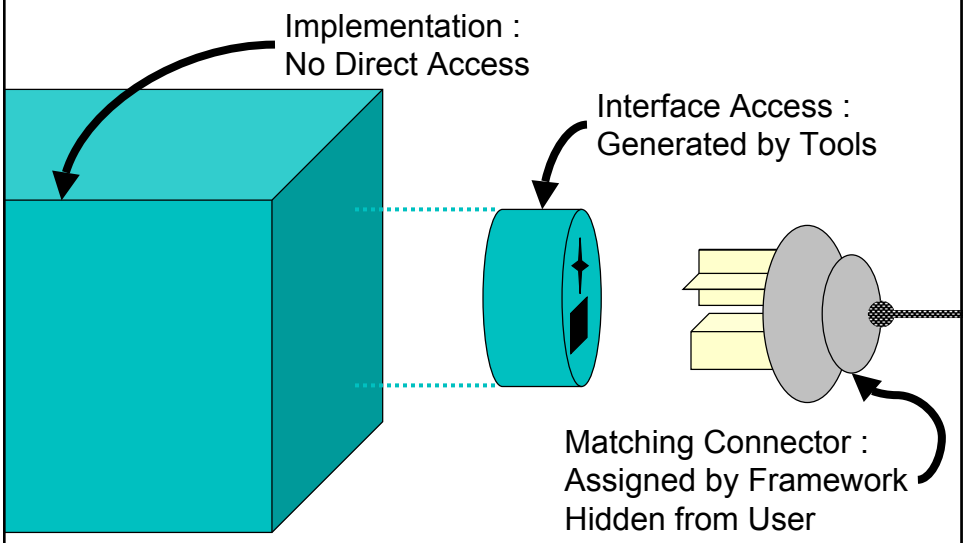
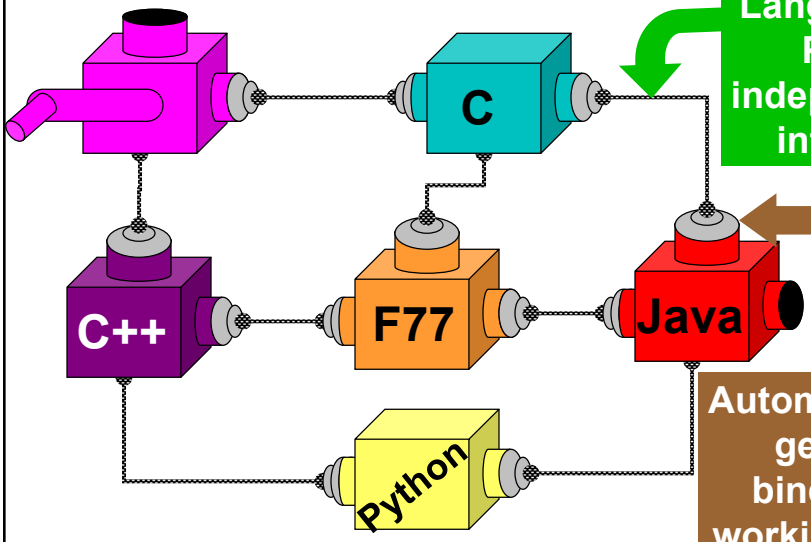
Component Technology addresses these problems



So what's a component ???



1. Interoperability across multiple languages



Language & Platform independent interfaces

Automatically generated bindings to working code

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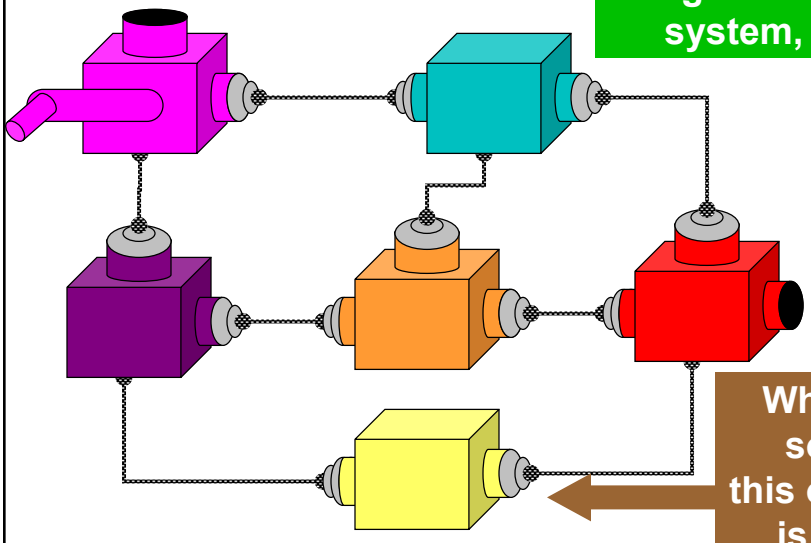
2. Interoperability Across Multiple Platforms

Imagine a company migrates to a new system, OS, etc.



What if the source to this one part is lost???

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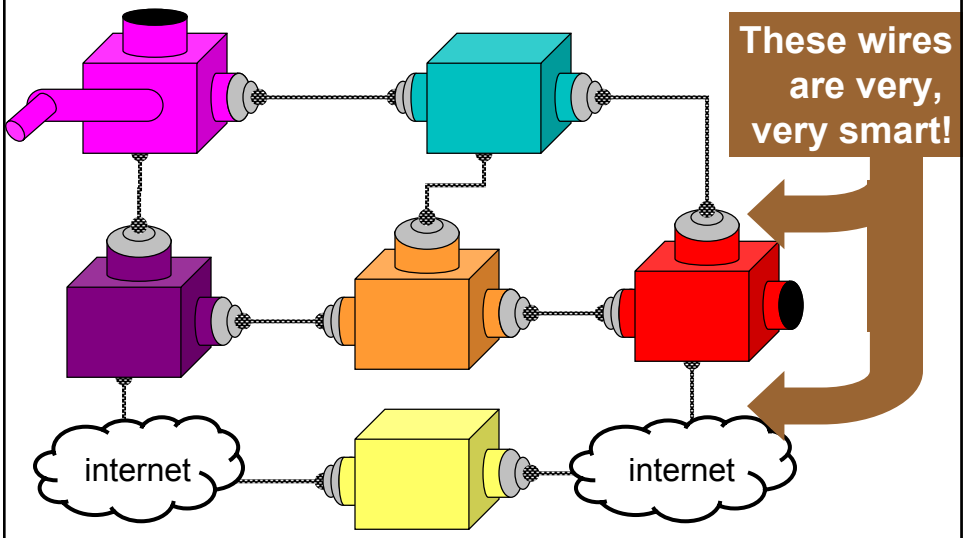
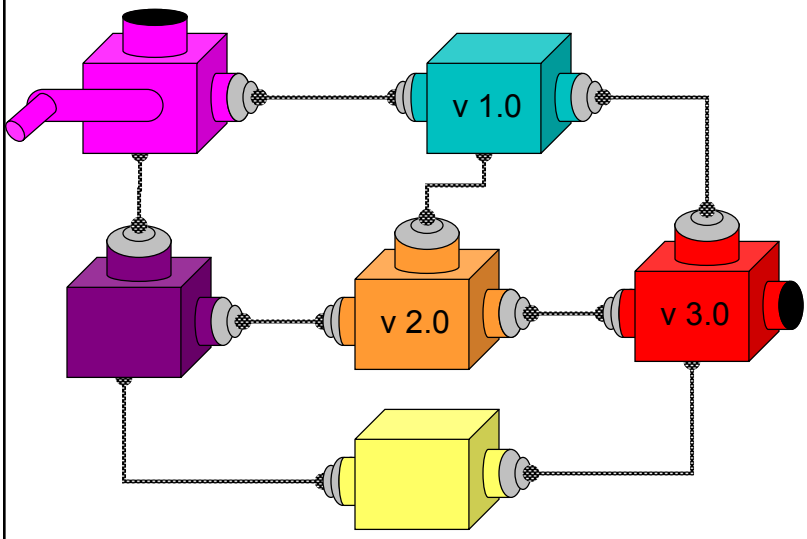
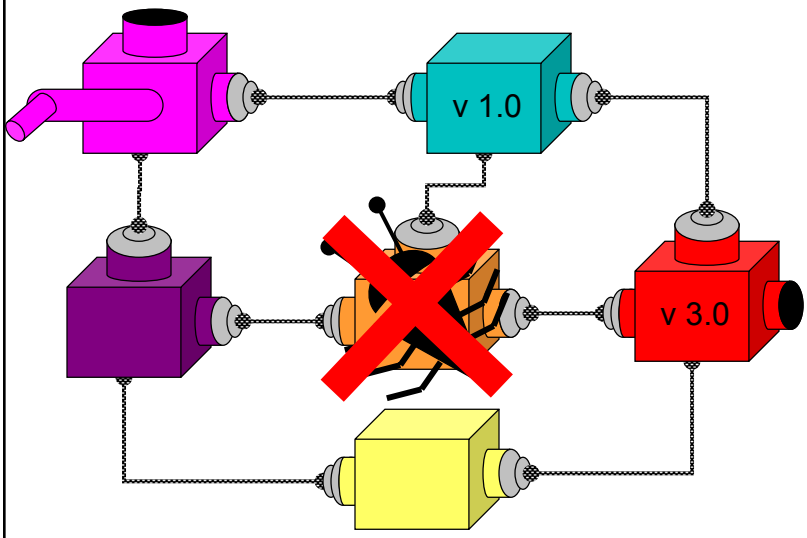
Transparent Distributed Computing



3. Incremental Evolution With Multiple 3rd party software



Now suppose you find this bug...



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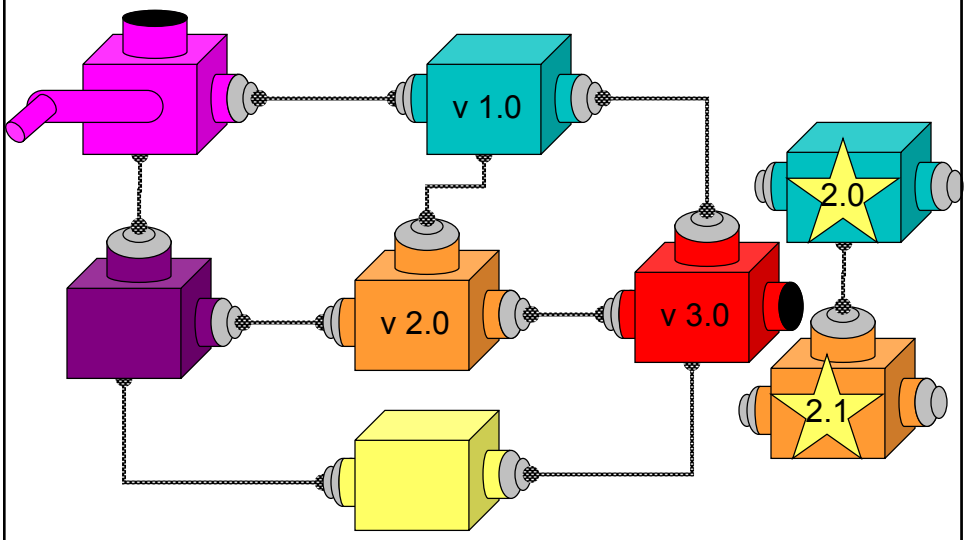
Good news: an upgrade available
Bad news: there's a dependency



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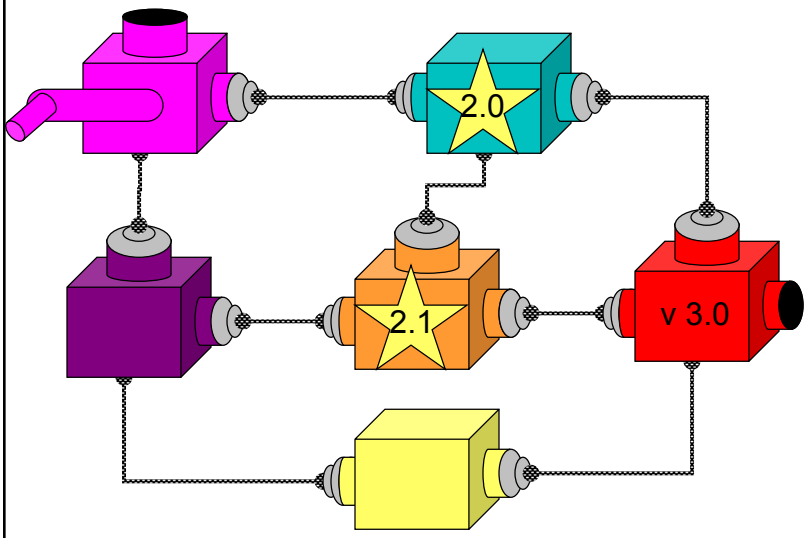
Great News:
Solvable with Components



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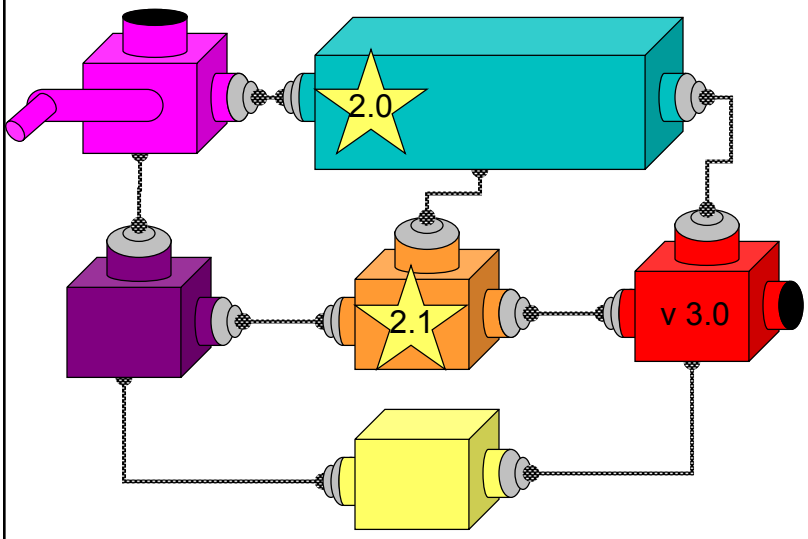

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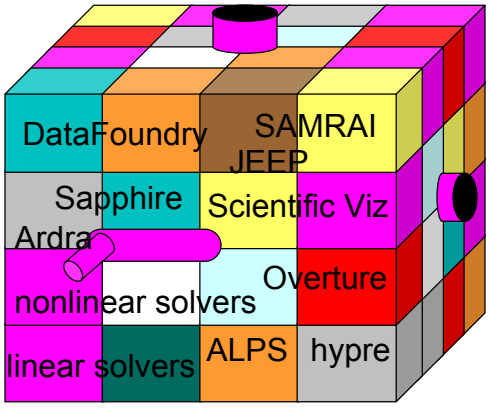
Why Components for Scientific Computing → Complexity



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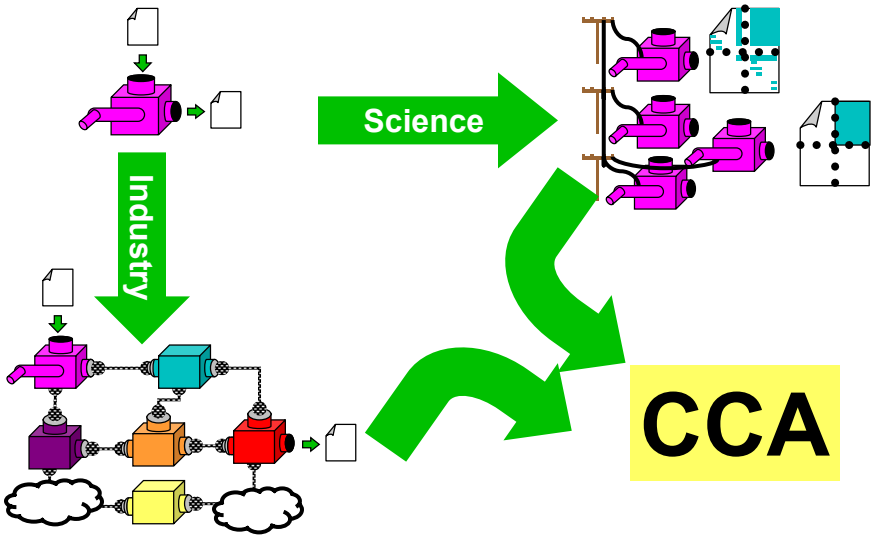
The Model for Scientific Component Programming



The End

Next: Intro to Components