



Software Platforms: Near and Far (Part I)

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Dan Harkey: A Short Bio

- ✓ Director, MS Software Engineering, Department of Computer Engineering, San Jose State University
 - Currently about 500 graduate students
- ✓ SJSU Pinson Endowed Chair recipient, 1996-1998
- ✓ Co-founder, SJSU Client/Server Program in 1996
- ✓ IBM 1977-2001
 - System architecture
 - Software implementation
 - Hardware design
- ✓ 13 books published in Software Architectures and implementation
 - 20 foreign editions derived from these books
- ✓ Consultant for startup companies/legal firms



Software Platforms

- ✓ Software Platforms (and their underlying hardware platforms) provide the basis for our commercial application development
- ✓ Software platforms provide:
 - Communications
 - Directory Services
 - Database access
 - Transaction Management
 - Program Execution and Management
 - A Programming Model
 - Security
 - Program Deployment and Tools
 - Systems Management
 - Etc, etc, ...

Software Platforms



- ✓ Software platforms are an accumulation of technologies developed over decades
 - Programming techniques, communication stacks, and middleware from decades ago are still present in today's systems
 - We are always adding new layers to our software platforms
 - The new layers provide new functionality and have allowed our software platforms to carry more "cargo" as time goes on
- ✓ The cargo transportation industry serves as an interesting analogy ...

Some early attempts at carrying cargo were crude



New technologies allowed our platforms to improve...



With new technology, our cargo capacity also improved ...



And became more specialized ...



... and even highly specialized



We then started to add more "horsepower" to our platform



And we added special attachments to our platforms



Some of our platforms are more nimble than others ...



And are specialized also ...



We have taken advantage of other transportation medium such as water ...



And added specialization there also

...



Other transportation mediums were also discovered ...



And improved over time



Roads, and the vehicles that use them, became a medium of cargo carrying transportation ...



That were improved ...



And expanded ...



And became larger ...



Until the size is enormous



Airplanes took advantage of yet another transportation medium



And we've improved the airline transport "platform" ...



We've developed platforms that take our cargo to outer space using one time usable space ships ...



That we have improved to become reusable space delivery platforms



We have yet to achieve the cargo delivery goals we can imagine



Warp drive Mr. Sulu!



Beam me up Scotty!

We' ve learned how to combine our cargo carrying platforms together to form a seamless delivery solution...



On land, sea, and air



We' ve learned how to add efficiency to our transportation process using containers that are reusable on sea ...



On rail ...



And on our roads



We've learned how to add security



In a variety of ways



And in some very sophisticated ways



And we've learned how to avoid overloading our cargo vehicles



We' ve used standards to avoid incompatibilities





On to Part II ...
