

I Have a Dream: ICT Problems We All Face

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Corporate Standards

Sun Microsystems

A Lesser-known Visionary

- Gas turbine combustion test laboratory used minicomputers for:
 - > Monitoring tests
 - > Controlling tests
 - > Reducing data
- Early 1970s
 - > “Hardware technology has outstripped software technology.”

Continues Today

- Current examples:
 - > Self diagnosing and correcting microprocessors and memories exist today while only preliminary attempts of similar things exist for S/W.
 - > Multiple core multi-thread microprocessors are farther along than language design for parallel processing.

Problems to Address

- Installed base
- A root of software quality
- Complexity
- Strategic vulnerability
- Education

The Installed Base

- Cannot readily absorb not take full advantage of innovations
- Portability of applications is inhibited by lock-in practices of predatory suppliers

A Root of Software Quality

- Language-specific vulnerabilities
- Inherent in many compliant compilers due to flaws in the standards to which they comply.

Complexity

- Increasing over time
 - > Homes
 - > Automobiles
- Computing environments
 - > Teletypes to network-enabled devices
 - > Free-standing to networked work stations
 - > Adventure to Pong(tm) to interactive football
 - > POTS to portable to cellular
- Use of tools for safety-critical applications lagging

Strategic Vulnerability

- Standardization of languages is stagnant
 - > Visual Basic(tm) – proprietary
 - > C#(tm) - proprietary control within consortium
 - > Java(tm) – proprietary control within open community
- None using traditional standardization methods and organizations

Education

- Short-sighted and myopic
 - > Training about implementations
 - > Limited exposure to principles

Call to Action

- As professionals, we cannot let the problems to persist.
- We must not be deterred from the solutions, no matter how difficult they may be.

Dreams

- Discard the restraints of proprietary solutions.
- Fix the language standards, and compliant implementations.
- Develop and use a new FDT, one that is simpler and less costly to use.
- Accelerate the transfer of innovations from the laboratory to the market place.
- Use language-independent tools for education.

Summary

- These issues need to be solved.
- Do the right thing.

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