

Reflection on 20 Years of Architecture

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May 9 2012



Report Documentation Page

Form Approved
OMB No. 0704-0188

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1. REPORT DATE 09 MAY 2012	2. REPORT TYPE	3. DATES COVERED 00-00-2012 to 00-00-2012			
4. TITLE AND SUBTITLE Reflection on 20 Years of Architecture		5a. CONTRACT NUMBER			
		5b. GRANT NUMBER			
		5c. PROGRAM ELEMENT NUMBER			
6. AUTHOR(S)		5d. PROJECT NUMBER			
		5e. TASK NUMBER			
		5f. WORK UNIT NUMBER			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Carnegie Mellon University ,Software Engineering Institute,Pittsburgh,PA,15213		8. PERFORMING ORGANIZATION REPORT NUMBER			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)			
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)			
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	Same as Report (SAR)	11	

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This material is based upon work funded and supported by the Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

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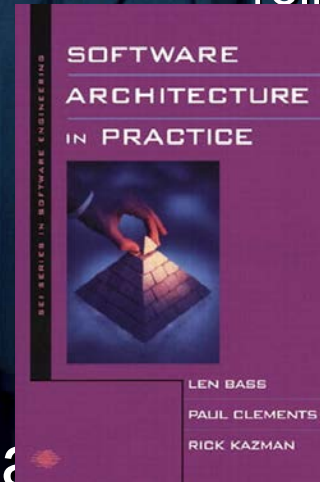
In 1992

flight sim

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reliability
security
performance
KEY ATTRIBUTES

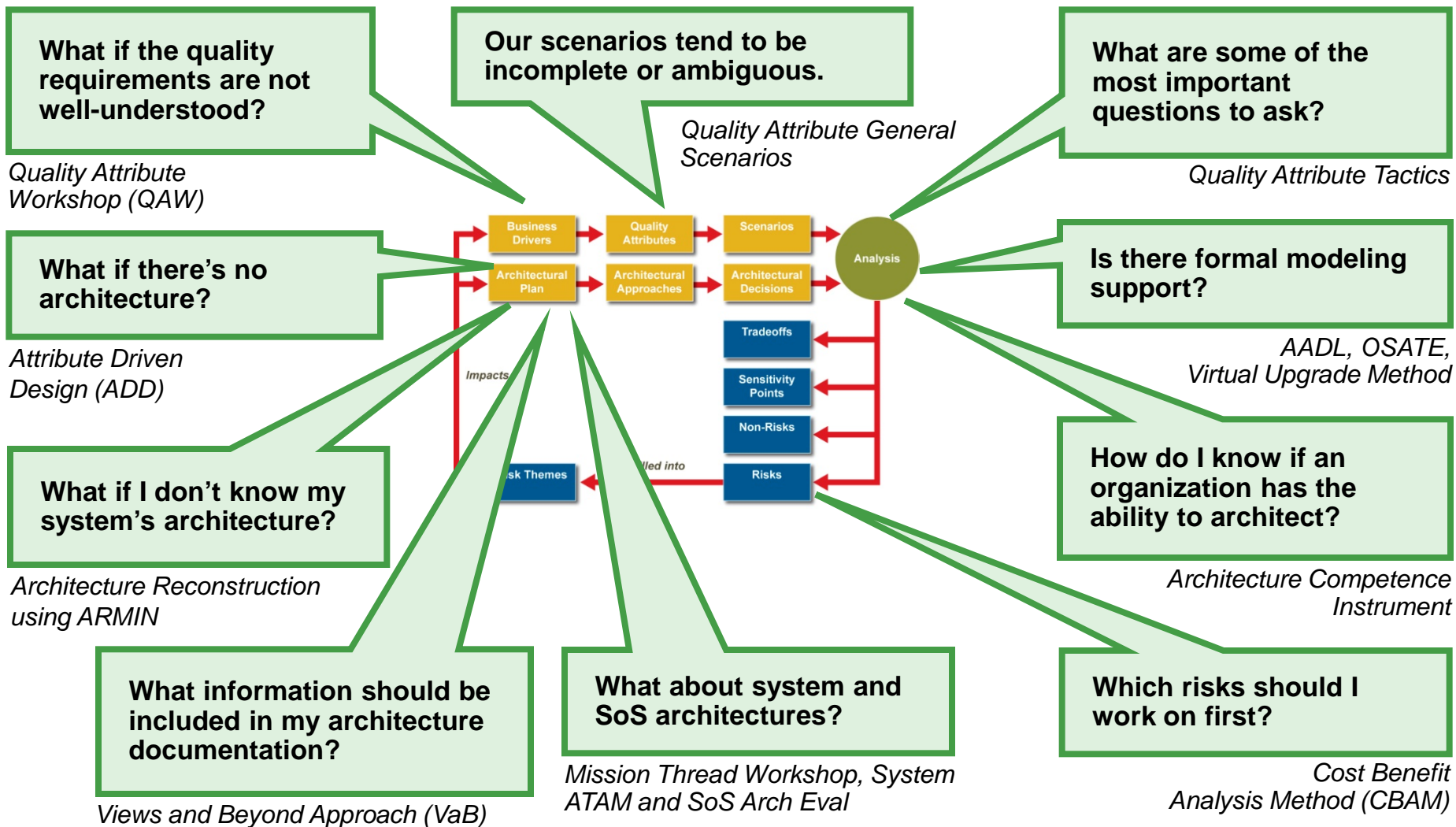


usage
ADLS definitions

SOFTWARE ARCHITECTURE



From Architecture Evaluation....



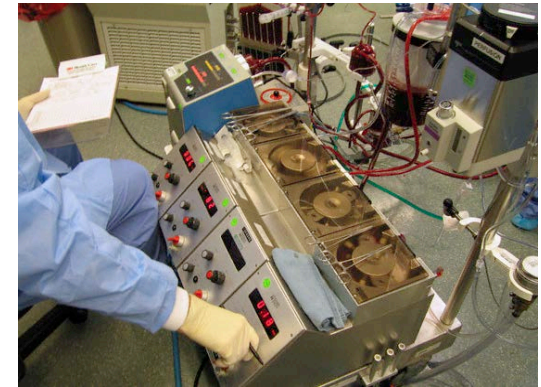
.. to Architecture-Centric Engineering



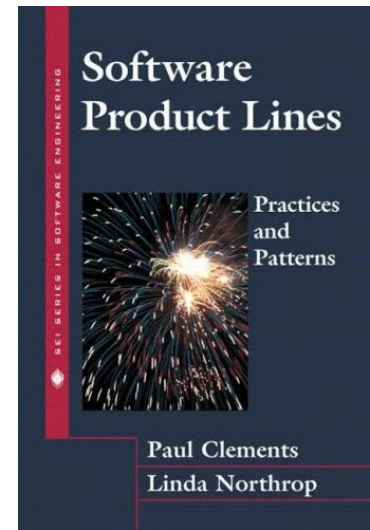
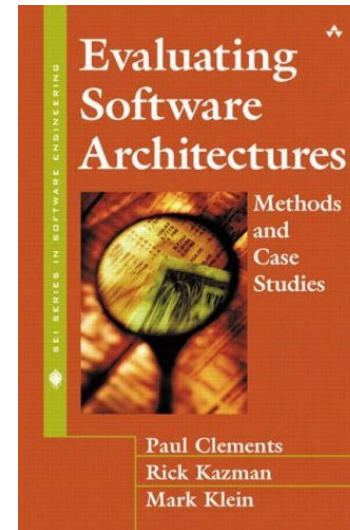
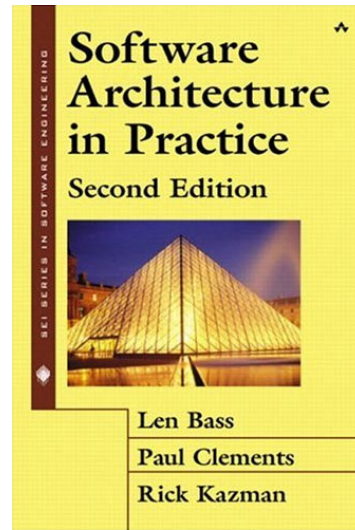
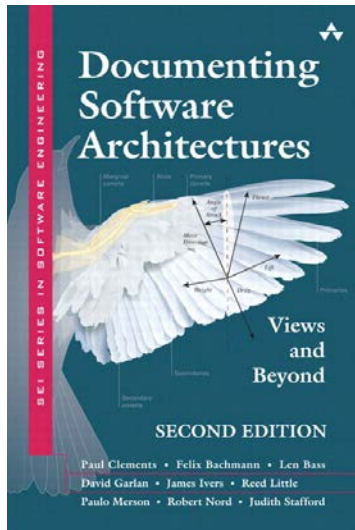
Architecture is of enduring importance because it is the right abstraction for performing ongoing analyses throughout a system's lifetime.

Architecture-Centric Engineering (ACE) is the discipline of using architecture as the focal point for performing ongoing analyses to gain increasing levels of confidence that systems will support their business and mission goals.

The SEI developed principles, methods, foundations, techniques, tools, and materials in support of creating, fostering, and stimulating widespread transition of the ACE discipline.



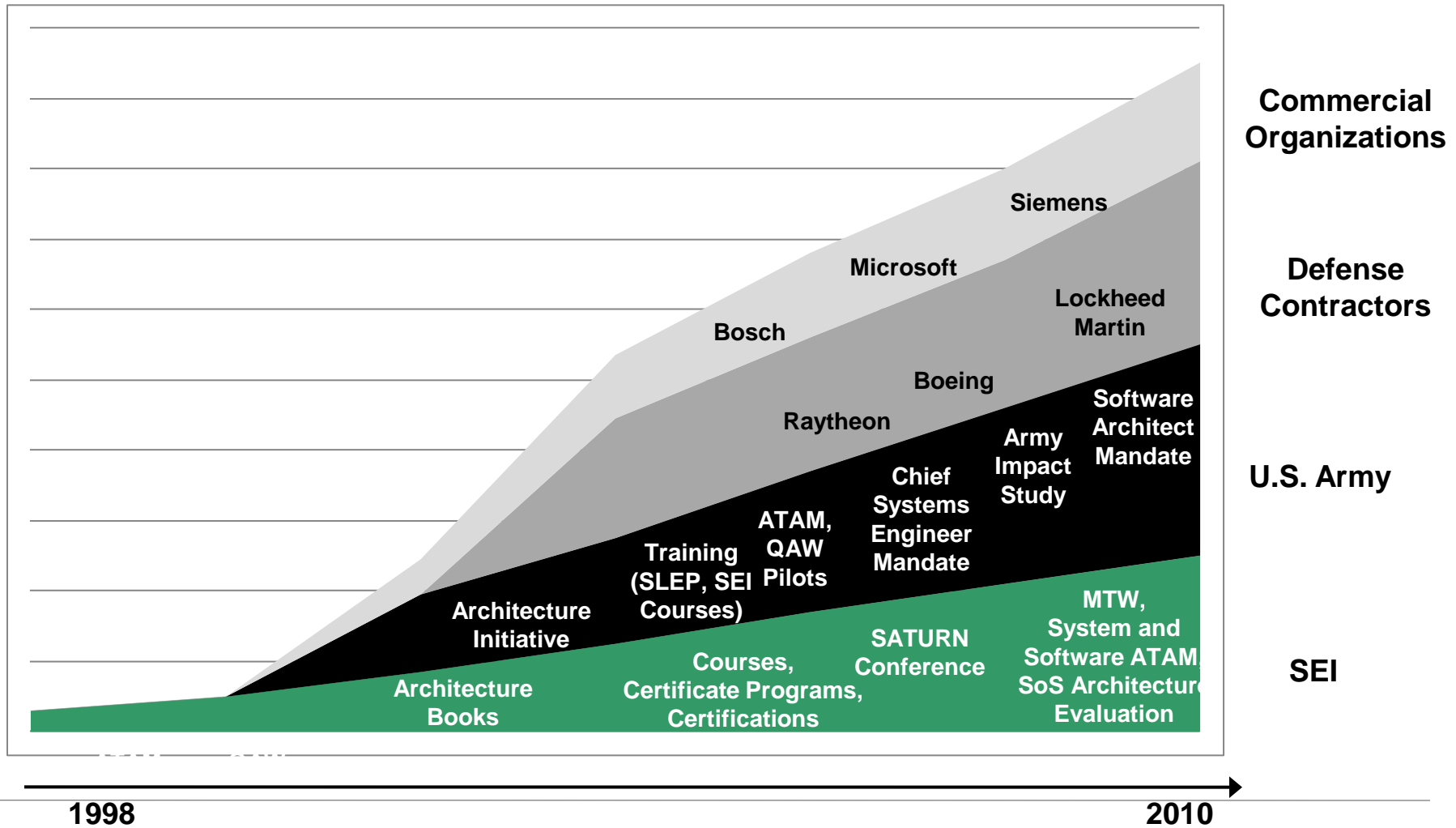
Our View: ACE Requires One Must



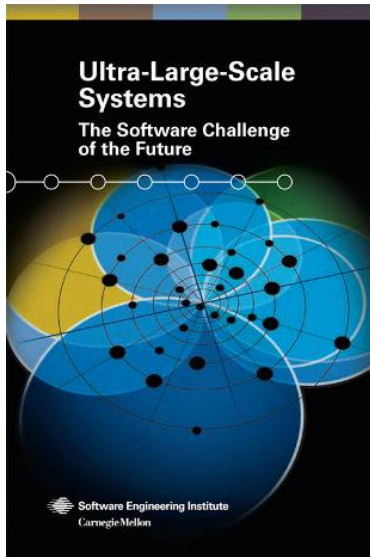
- *explicitly focus on quality attributes*
- *directly link to business and mission goals*
- *explicitly involve system stakeholders*
- *be grounded in state-of-the-art quality attribute models and reasoning frameworks*



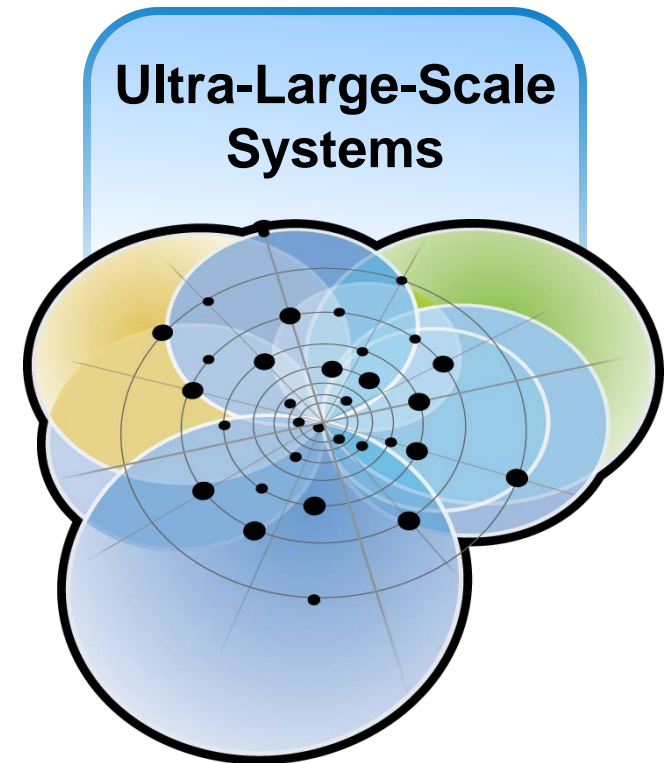
Trends in Institutionalizing Architecture Practices



Epiphany in 2006

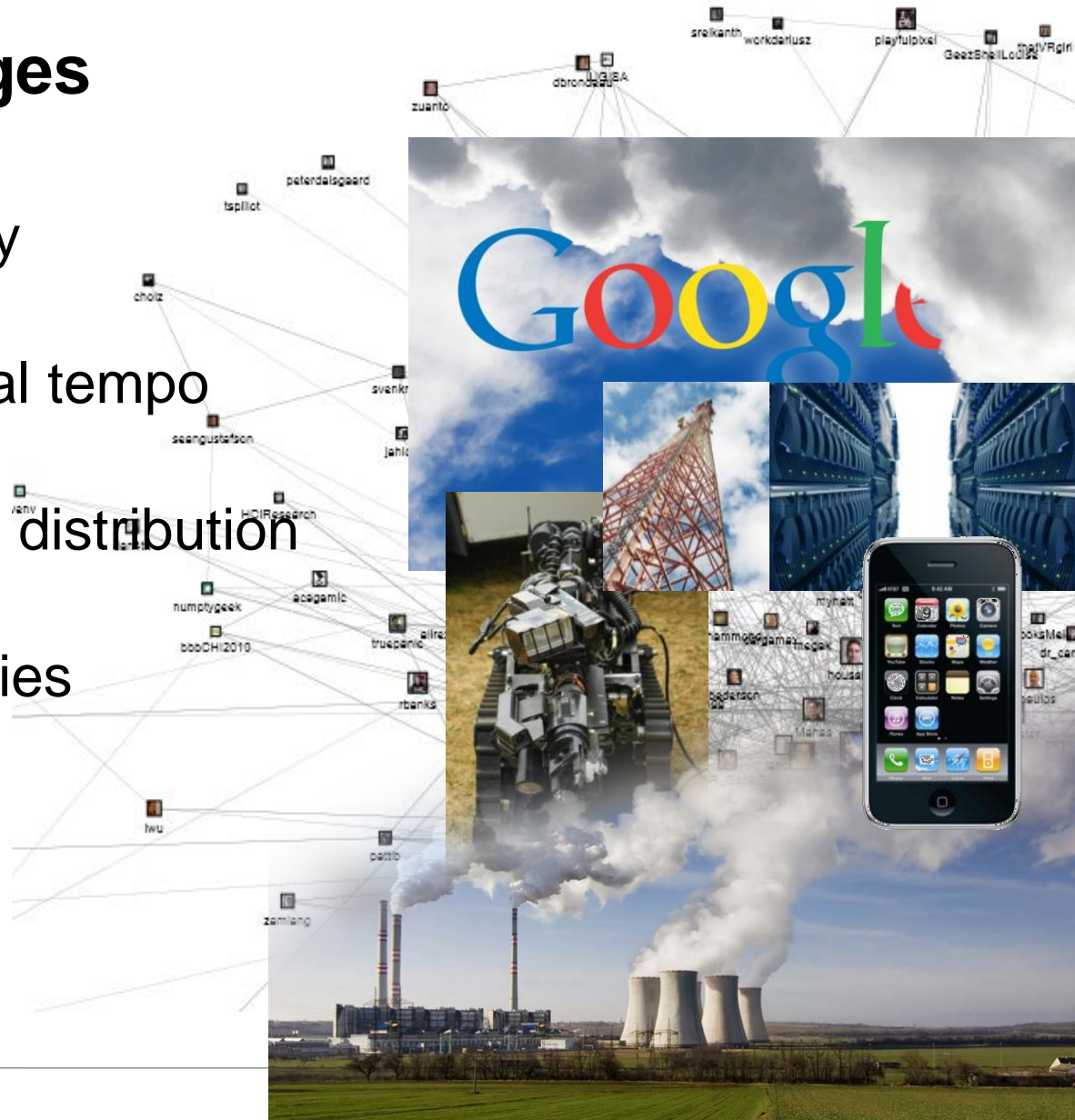


- Decentralization
- Inherently conflicting, unknowable, and diverse requirements
- Continuous evolution and deployment
- Heterogeneous, inconsistent, and changing elements
- Erosion of the people/system boundary
- Normal failures
- New paradigms for acquisition and policy



Today's Challenges

- Scale and complexity
- Increased operational tempo
- Decentralization and distribution
- Disruptive technologies



Architecture Challenges

- What is the architecture of a socio-technical, cyber-physical system?
- What are the quality attributes that apply? And what are the underlying models?
- How can stakeholders be involved?
-



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