Center for Systems and Software Engineering

– A Brief Overview –

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History and Mission

• CSE Established in 1993
• Merged in 2006 with SAE to form CSSE
• Directed through 12/31/2008 by Barry Boehm
• Intended to provide an environment for research and teaching
  – large-scale software design and development processes
  – generic and domain specific software architectures
  – software engineering tools and environments
  – collaborative system design
  – the economics of software engineering
• Objective is to solve problem of academic as well as industrial relevance
Industrial Affiliates

• Currently 34 industrial affiliates
  – 12 from commercial industry
  – 8 from aerospace industry
    • including LMCO
  – 6 from the Government
  – 6 FFRDCs and Consortia
  – 2 international

• Additionally
  – 3 visiting associates
  – 5 university affiliates
Academics

• Over 30 PhDs conferred since inception
• MSCS with emphasis in SE
• LMCO’s Architecting Certificate and Advanced Degree program
  – Systems and System-of-Systems Architecting
Software Architecture Research

• Modeling
  – xADL
  – UML
  – FSP
  – MTS
  – Crystal growth

• Analysis
  – Reliability
  – Availability
  – Energy Consumption
  – Memory Usage
  – Latency
  – ...

Software Architecture Research

• Implementation
  – Architectural frameworks/middleware
• Deployment
  – QoS-based optimization
• Dynamic adaptation
  – Policy-driven
• Architectural styles
• Software connectors
• Architectural recovery
  – Syntactic vs. semantic
  – Architectural smells
Software Architecture Research
-Domains-

• Hand-held computing
• Embedded systems
• WSNs
• Robotics
• Grid
• Scientific computing
• Biologically-inspired computing
Last, but not least!