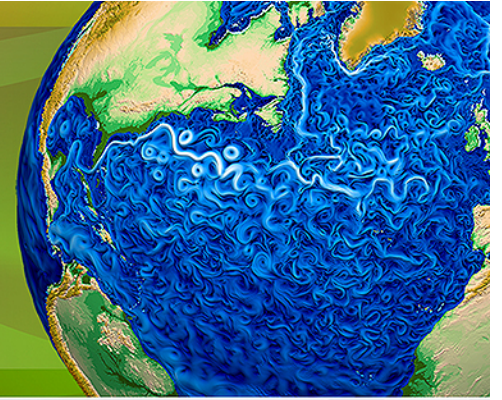




Accelerated Climate Modeling
for Energy

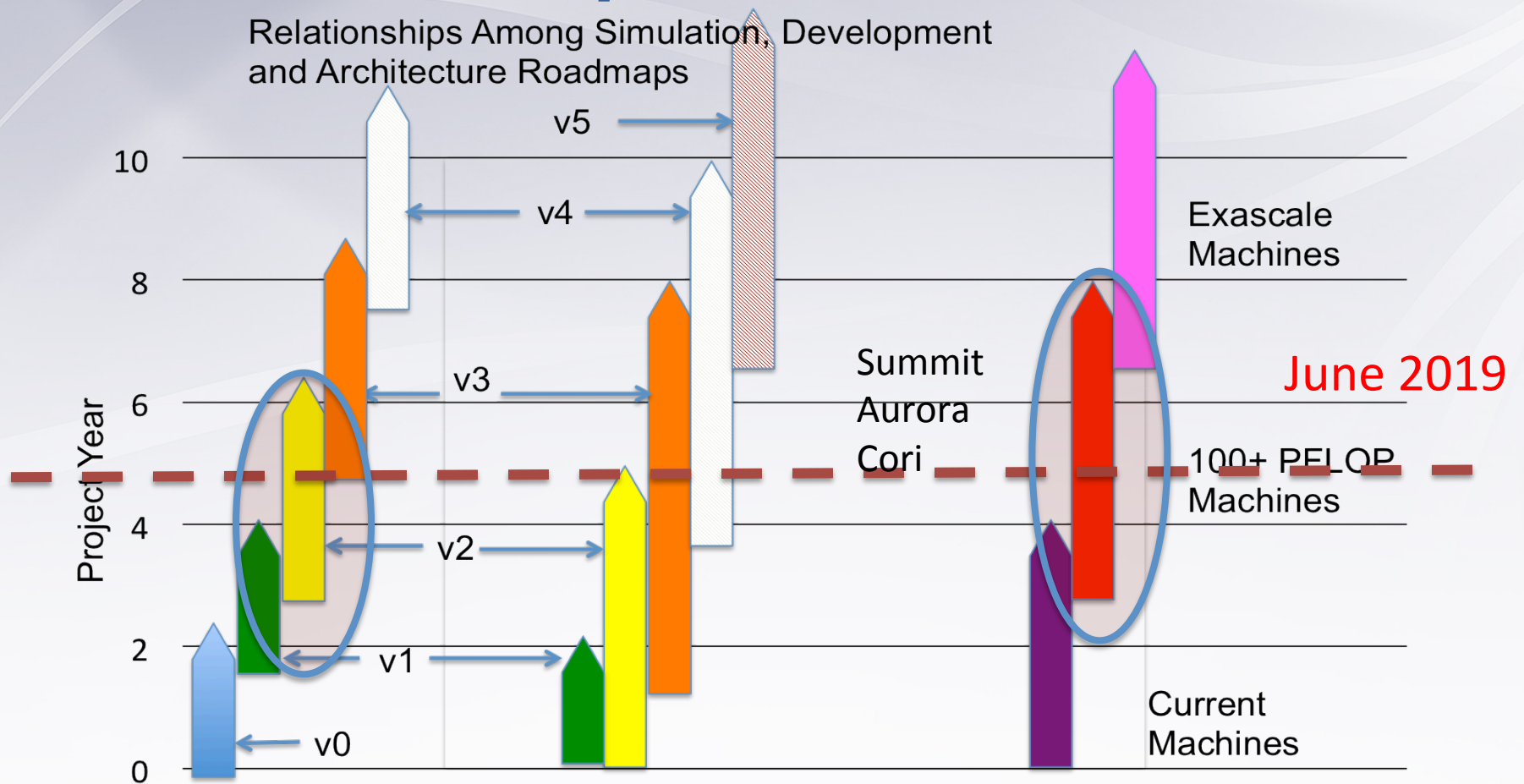


V2 Development Cycle

David C. Bader
ACME Council Chair
June 8, 2016

ACME Roadmap

Relationships Among Simulation, Development and Architecture Roadmaps



Five Years

100 PFLOP Machines executing production v2

Defining computational abstraction now for v2 and v3

Incorporate ECP, SciDAC and CMDV

Science Developments

Programming Model(s)

Performance Improvements

Infrastructure

Science Developments

- v1 is starting framework
- Development Priorities Established from Experimental Plan – 12/1/16
 - Effort quantification
 - Performance cost estimate
 - Diagnostics needed
- Prototyped and unit test – 7/1/17
 - No developments will be accepted that do not have prototype and unit test
- “Smoke Test” coupled system complete 10/1/17
- Components complete 7/1/18

Programming Model(s) and Performance Improvements

- Target Machines
 - Cori, Aurora
 - Summit
- Start with moving v1 to new programming model prototype(s) 7/1/17
 - Data Structures
 - Libraries
 - Coupler
 - Coupled system tests
- Smoke Test” coupled system complete 10/1/17
- Components complete 7/1/18
- Coupled system complete

Infrastructure

- Standardize development workflow (development ,integration, testing)
- Harden v1 production workflow
 - Provenance
 - Data catalog
 - Data distribution and archive/stewardship
- Compsets and Compset repository
- Tools
 - Tool and Diagnostics Repositories
 - Documentation
- Observational data
 - standards (CF-compliance?)
 - provenance