

# Results from Background Survey

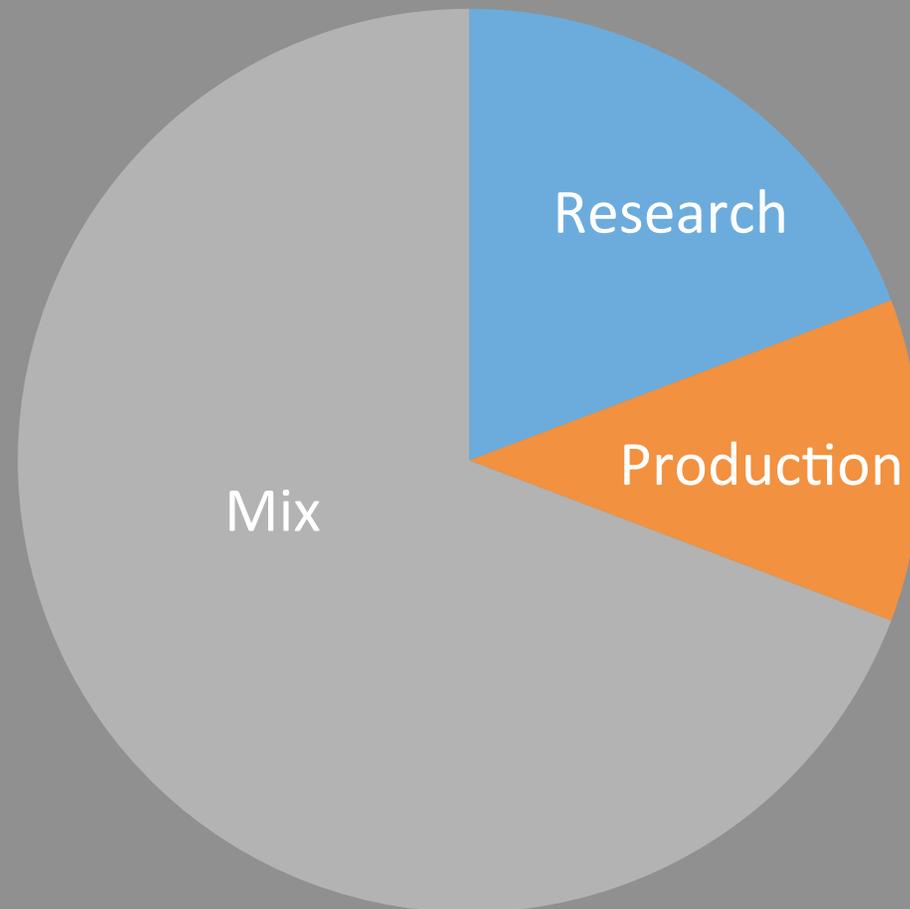
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DOE ASCR SWP4XS Workshop  
January 13, 2014

# Overview

- Responses
  - 23 (2 responses covered multiple codes)
  - Reported data only from workshop attendees
- Data
  - Each code represents a data point
  - Quantitative and Qualitative
  - Qualitative Data coded by Lois, Hans, Phil and me

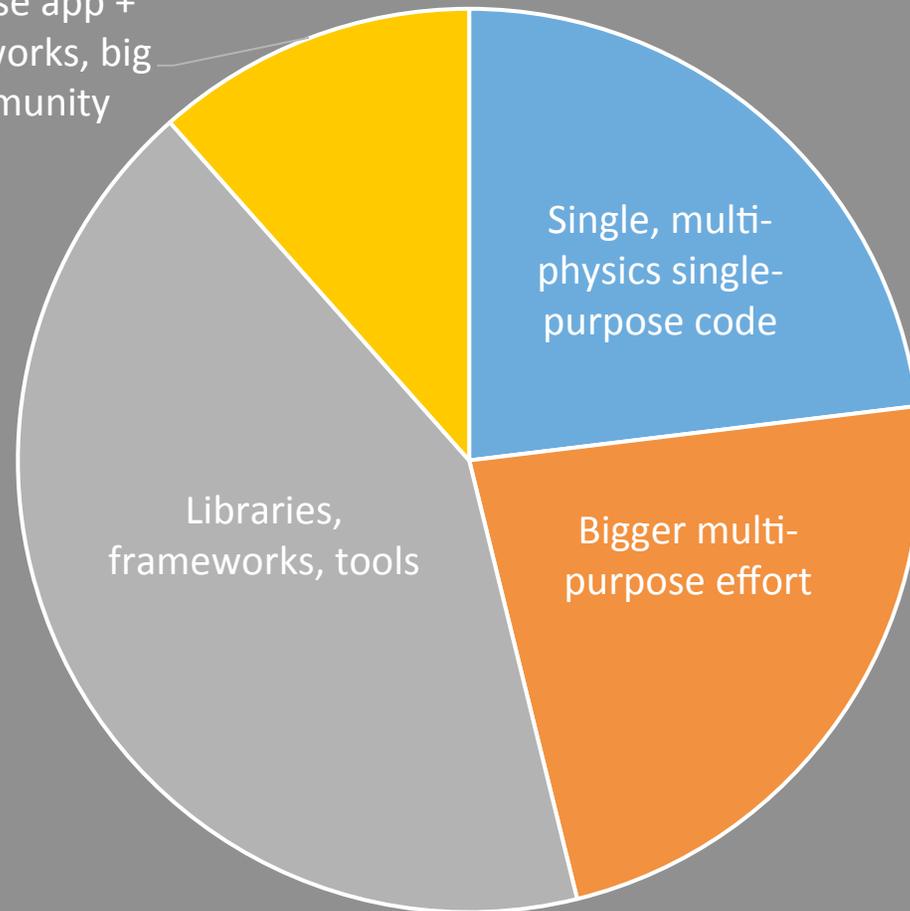
# Current Status

# Research vs. Production Code

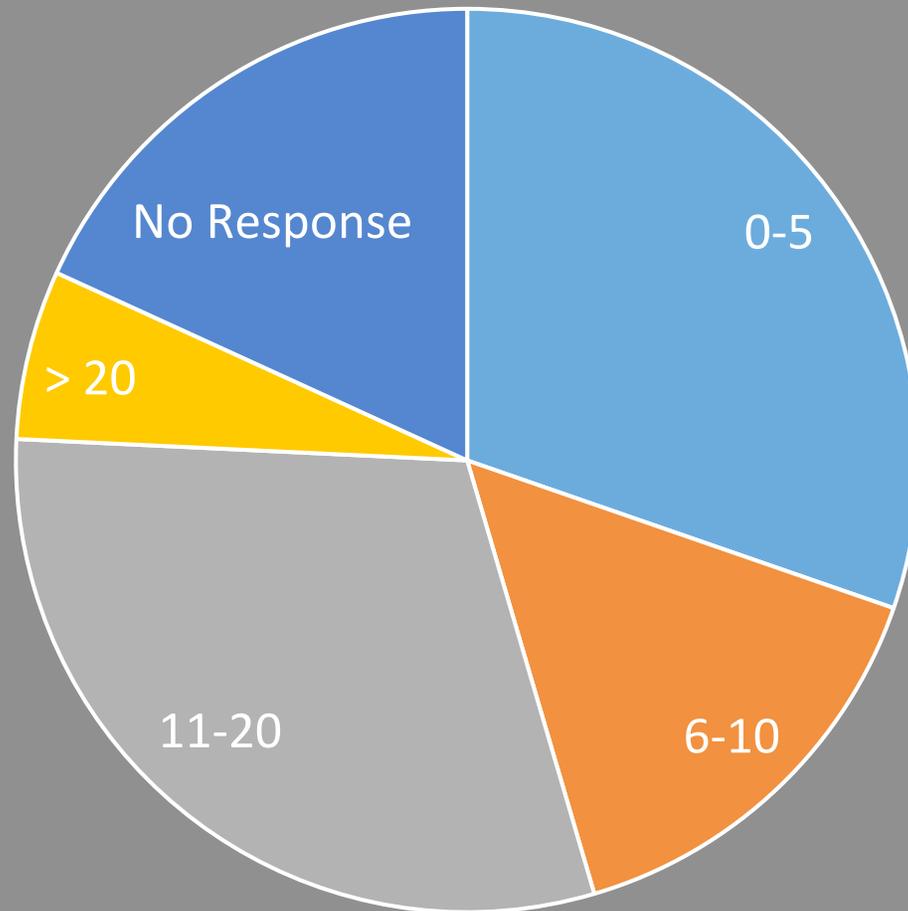


# General Code Type

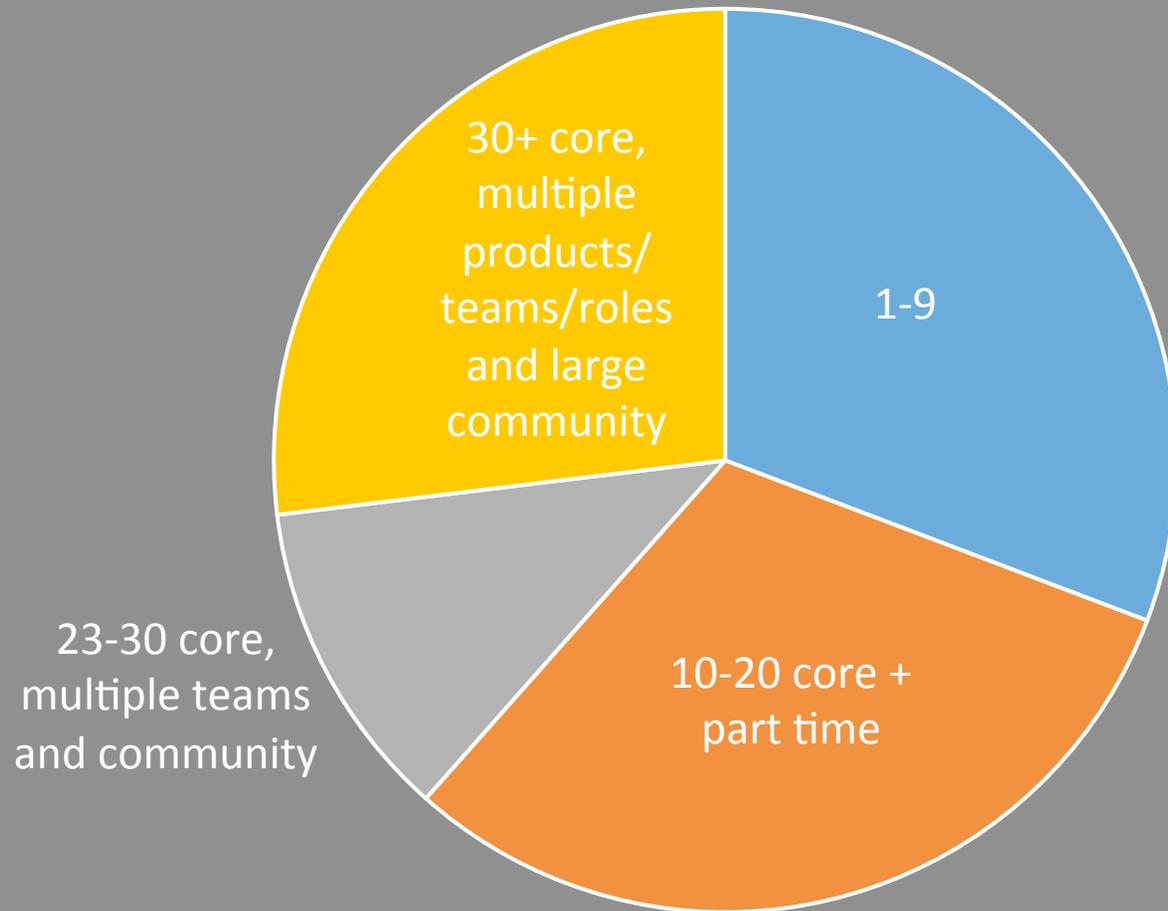
Big effort, multi-  
purpose app +  
frameworks, big  
community



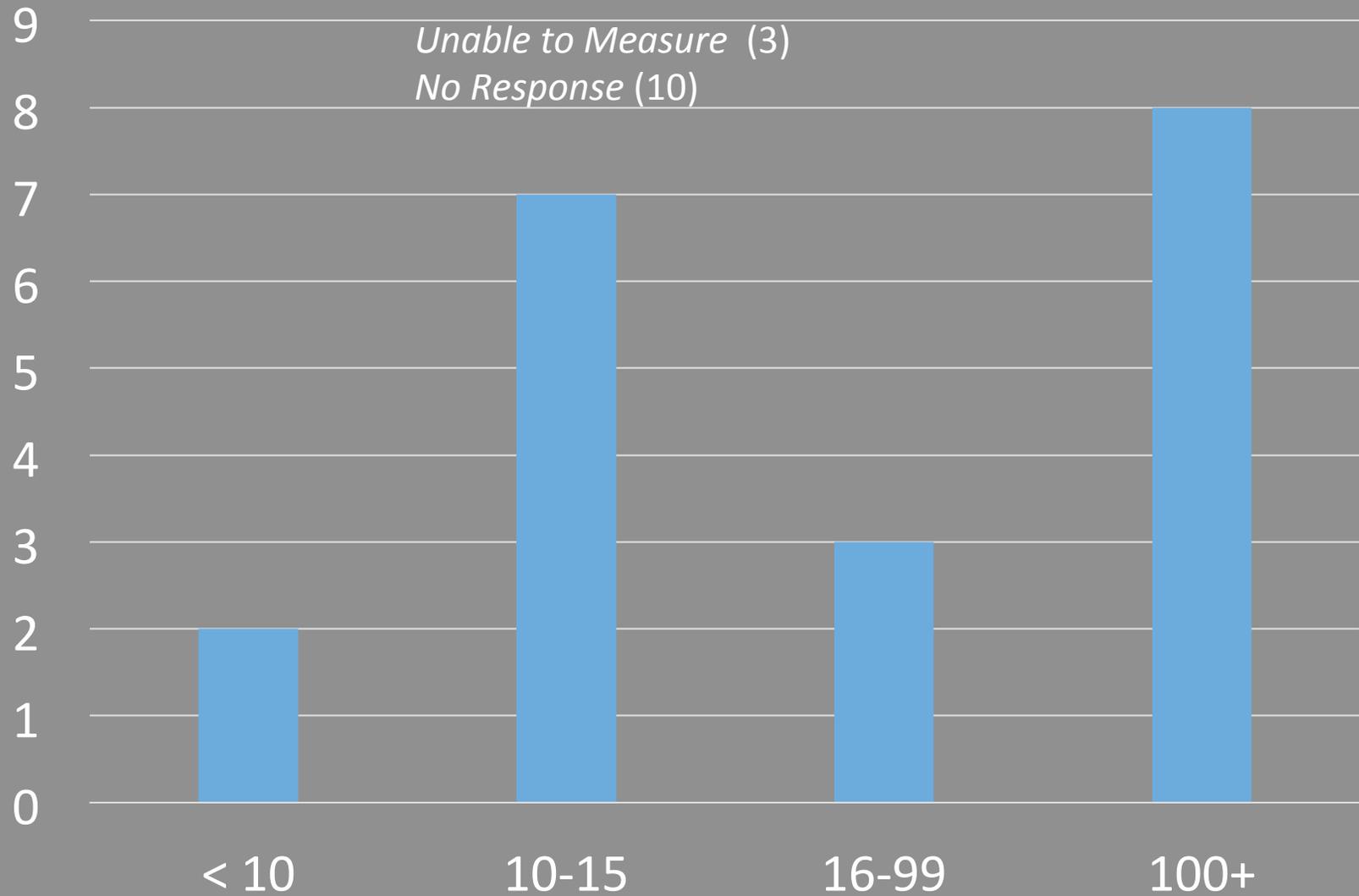
# Age of Code Base (Years)



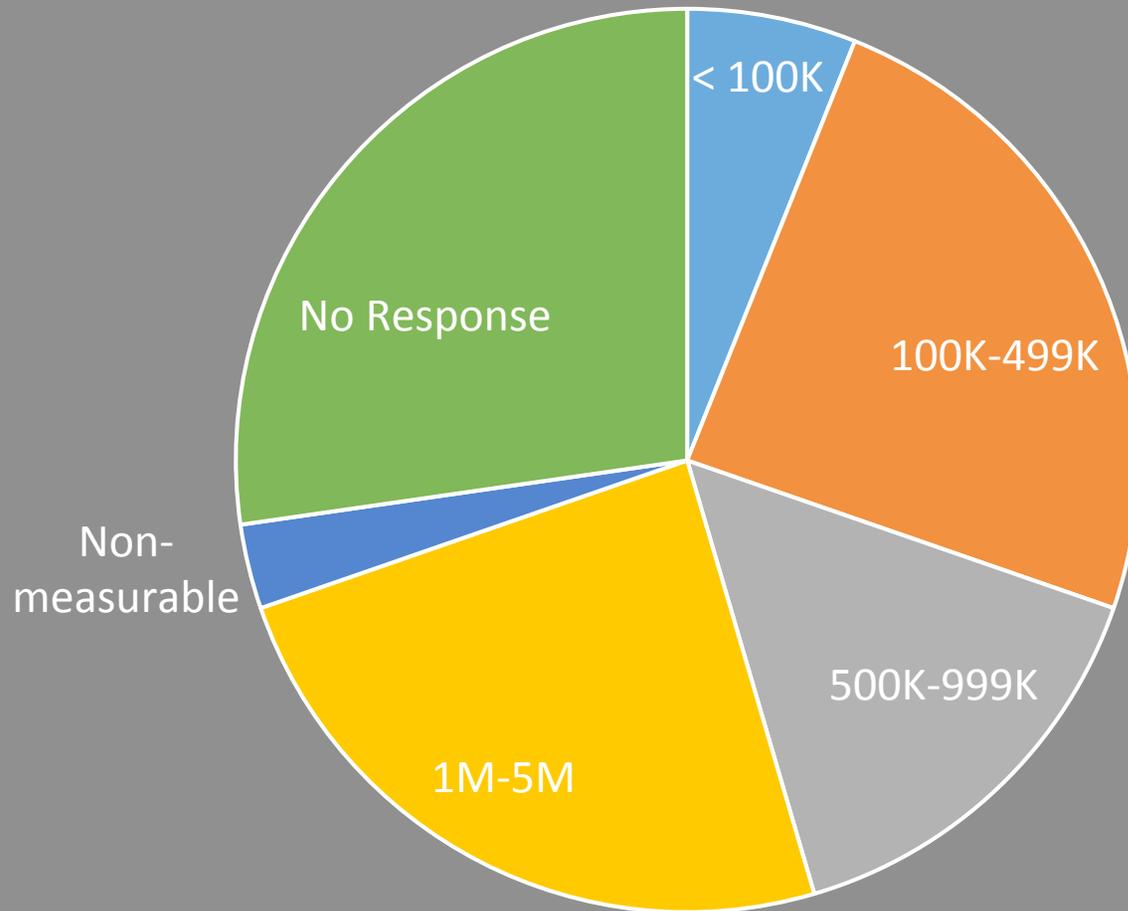
# Size of Current Development Team



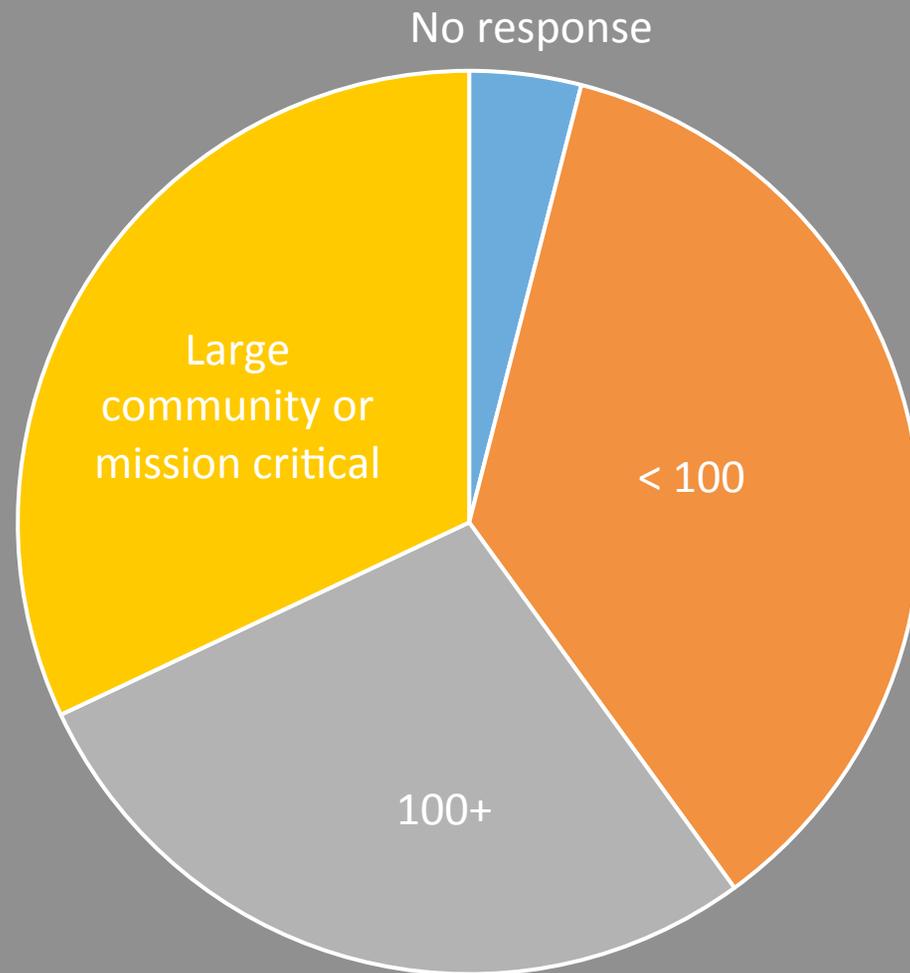
# FTEs Over Life of Project



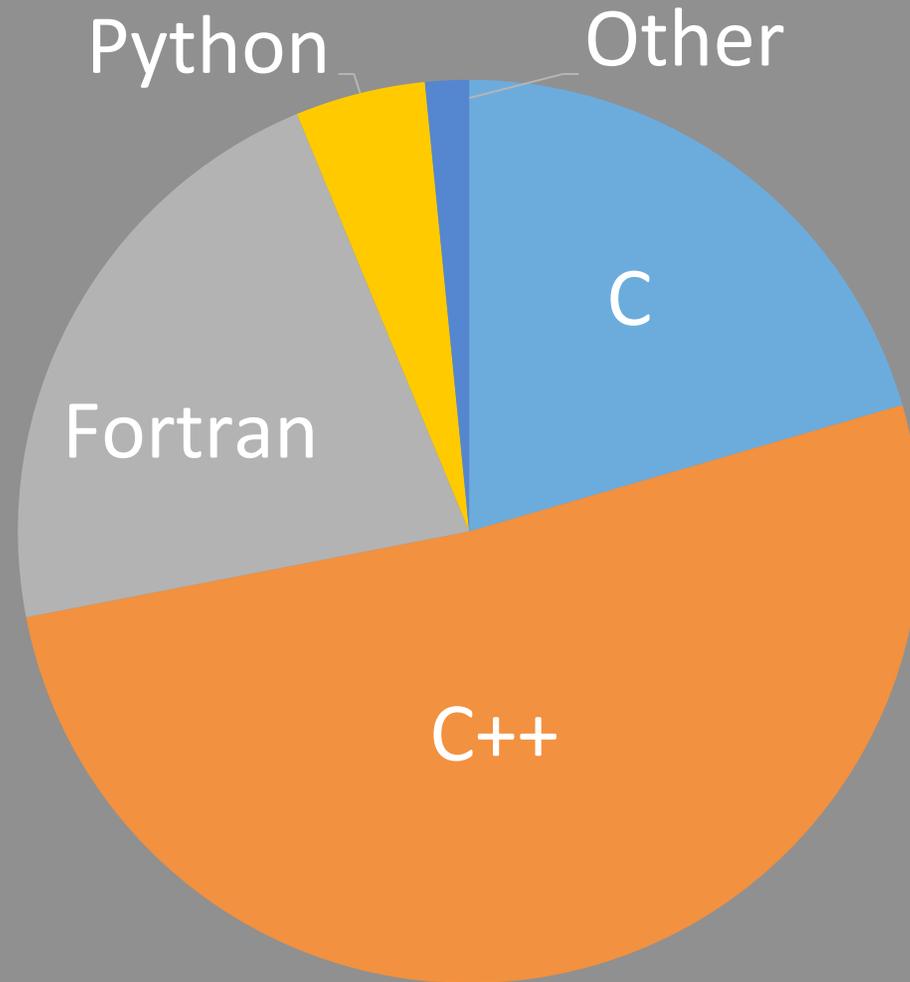
# Code Size



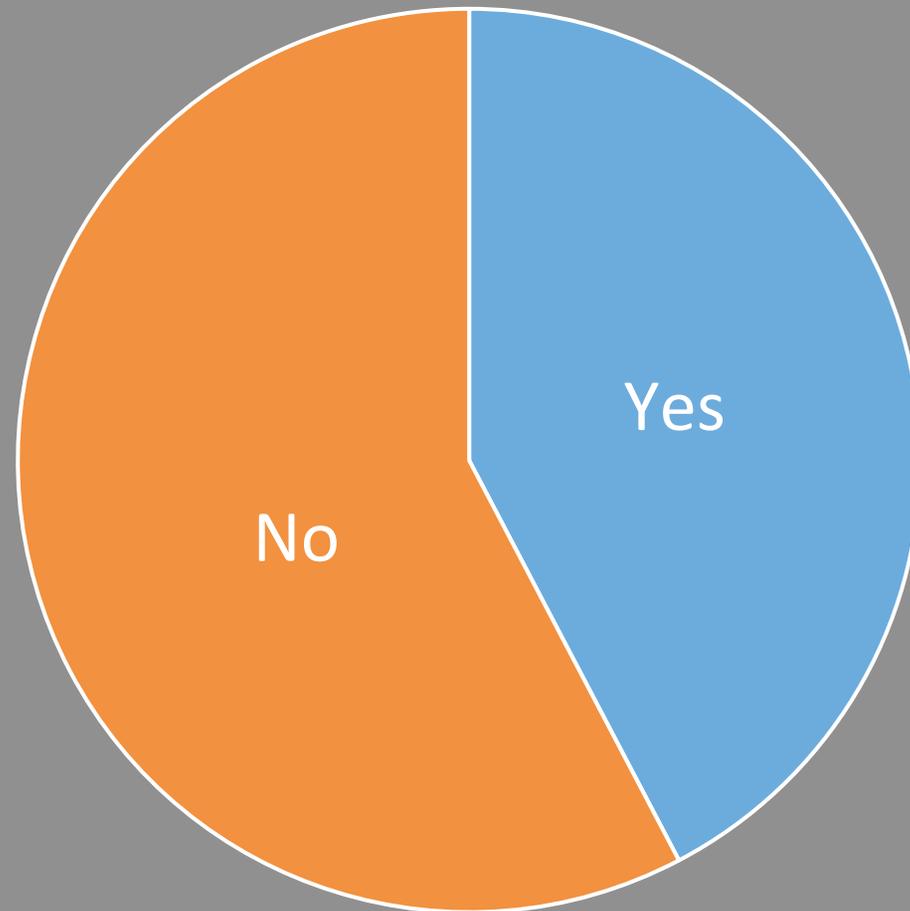
# Number of Users



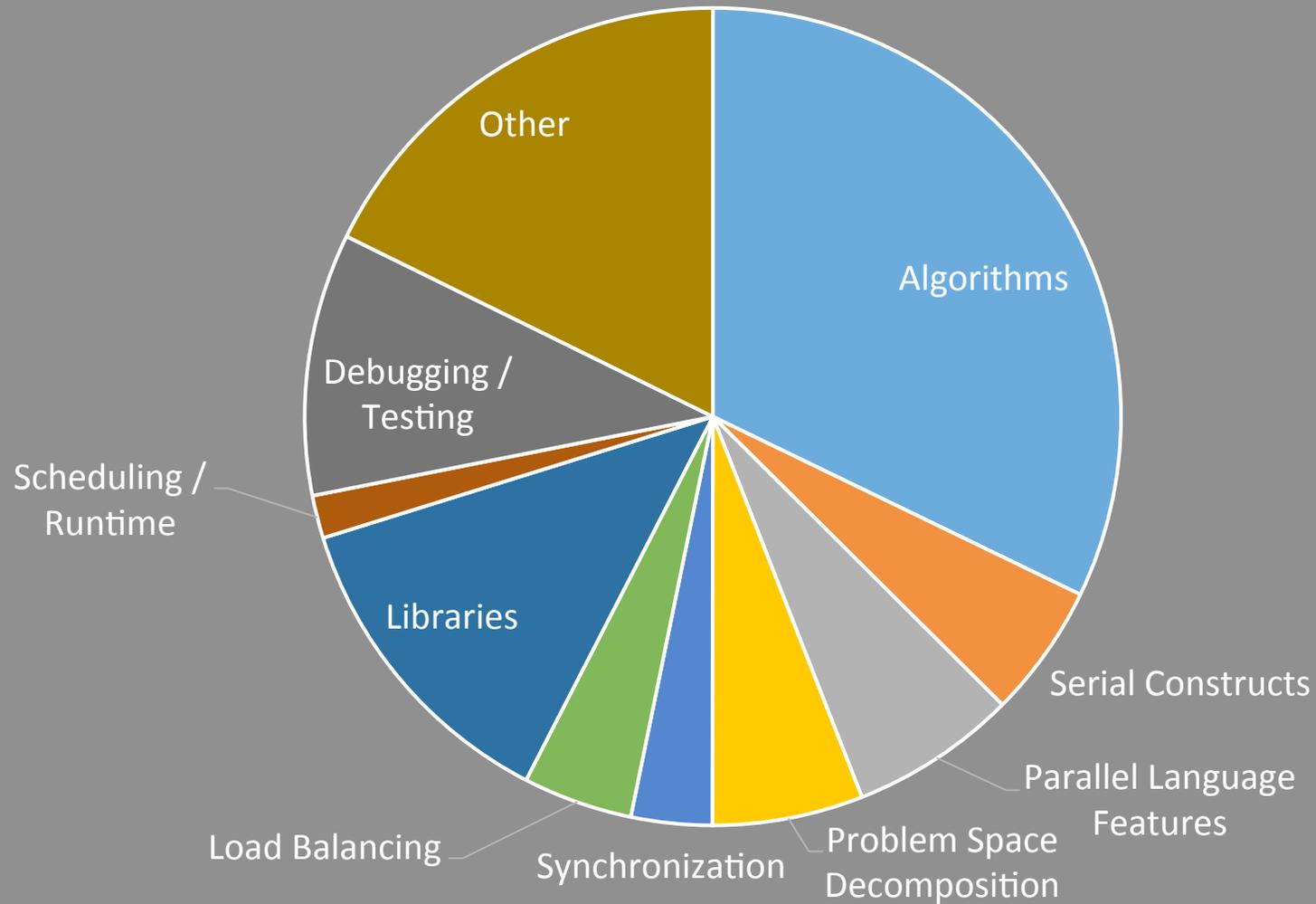
# Language Usage



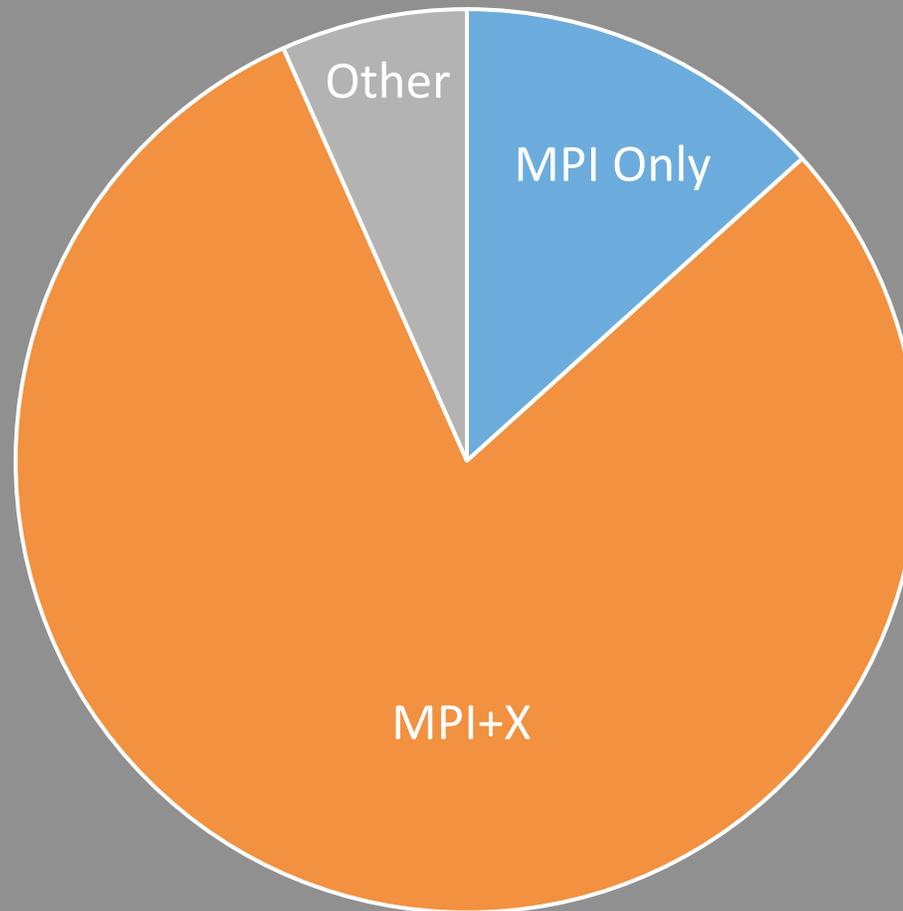
# Use Formal V&V Process



# Source of Defects



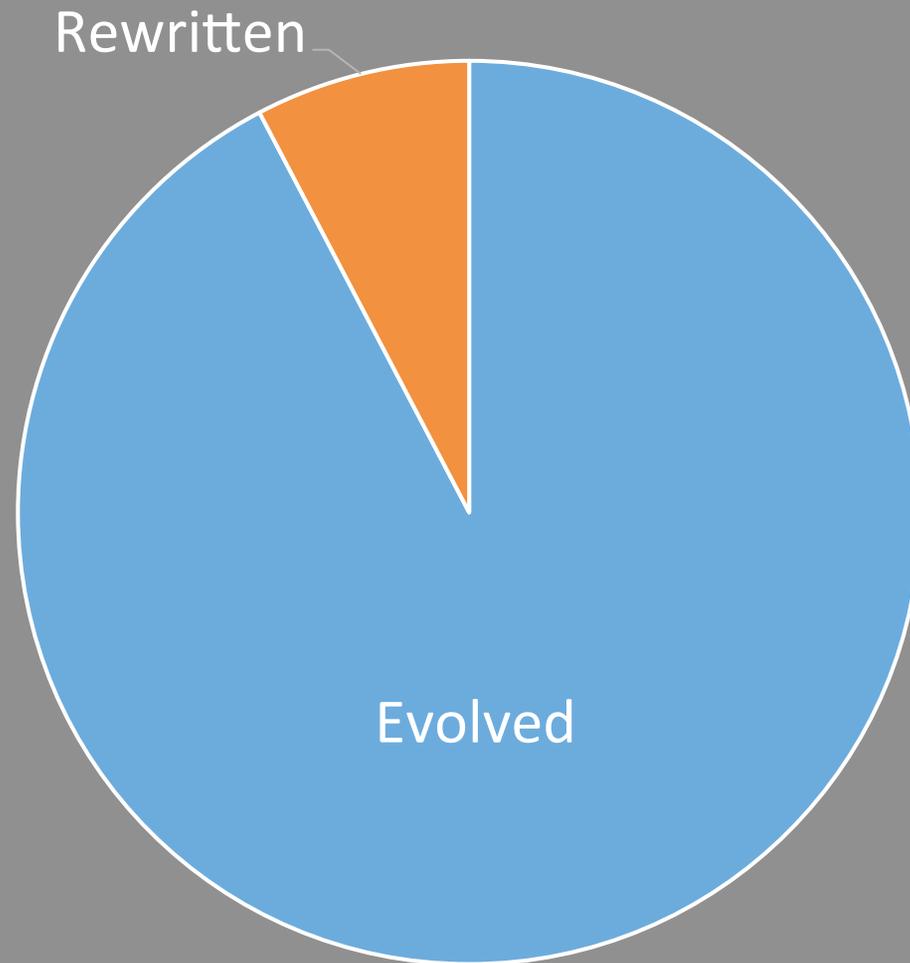
# Current Parallelization Approaches



X =  
OpenMP  
OpenCL  
Pthreads  
TBB  
CUDA  
Accelerators

# Moving to Extreme Scale

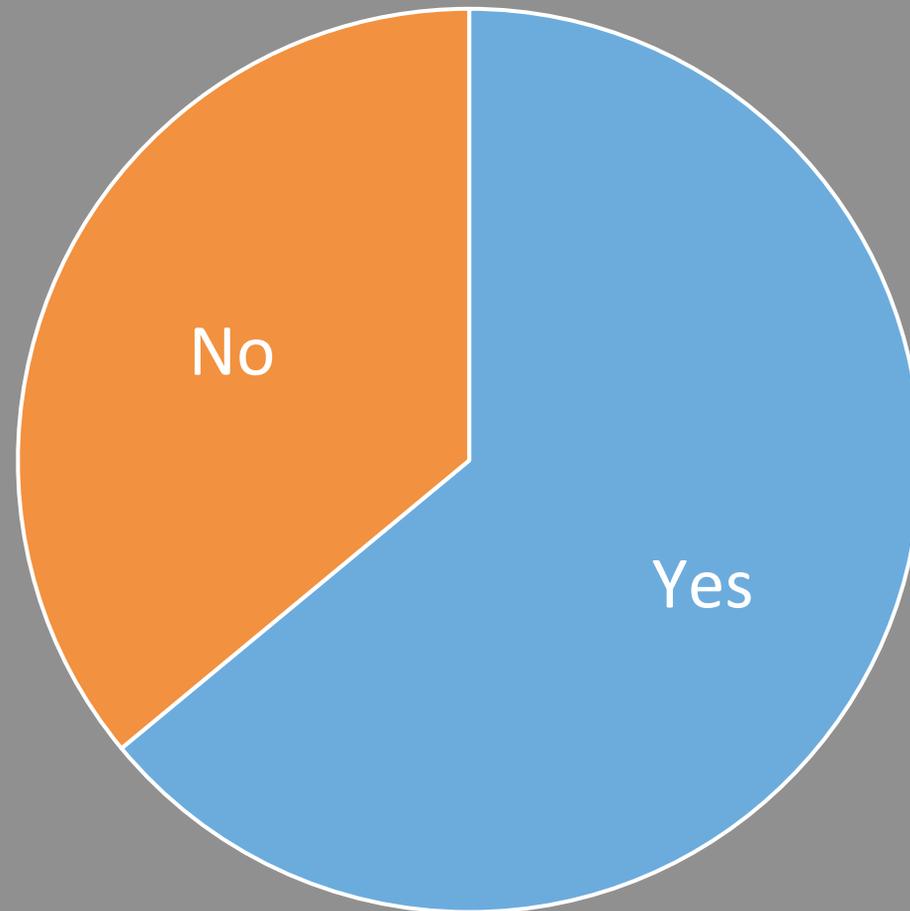
# Code Evolved or Rewritten for Extreme Scale



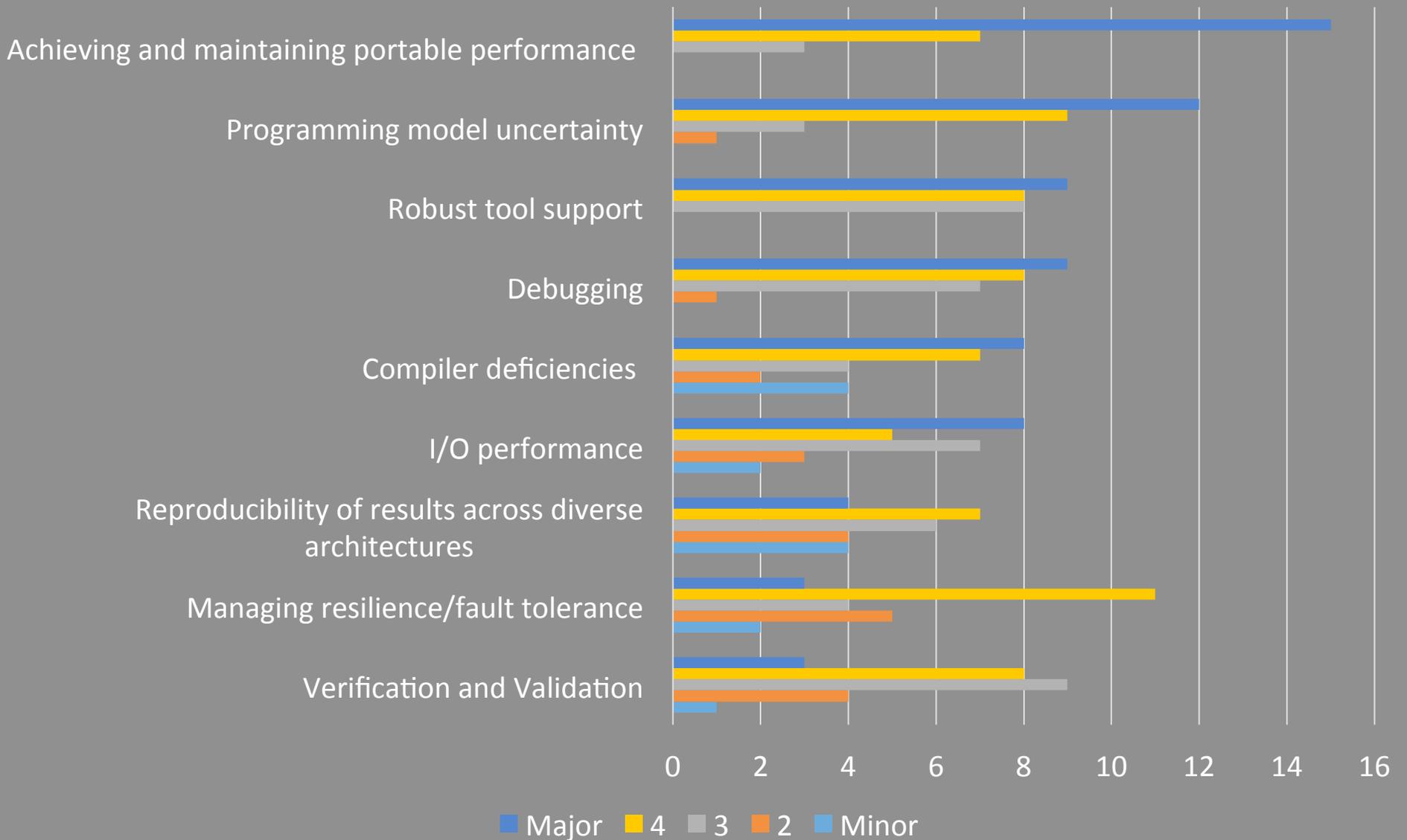
# Parallelization Approaches for Extreme Scale

- Common Answers
  - MPI+X, where X is
    - OpenMP
    - OpenCL
    - OpenACC
    - Pthreads
    - Intel TBB
    - CUDA
    - Accelerators
  - Other programming models and abstractions
- *“Everything is under consideration ... will do what is necessary”*

# Consider Radically Different Programming Model for Extreme Scale?



# Concerns Moving to Extreme Scale



# Thank You

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