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The next-generation of NASA Supercomputers

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THE NEXT-GENERATION OF NASA SUPERCOMPUTERS

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CAN YOU ANSWER THESE NASA COMPUTING QUESTIONS?
TEST HOW YOU COMPARE TO THE EXPERTS

Dr. Tsendgar Lee, Program Manager, NASA High-End Computing Program
Dr. Henry Neeman, Director, OU Supercomputing Center for Education and Outreach
Dr. Stephen Wheat, Professor of Computer Science, Oral Roberts University

Dr. Tsendgar Lee | Dr. Henry Neeman | Dr. Stephen Wheat

1. WHY ARE SUPERCOMPUTERS MORE IMPORTANT THAN REGULAR COMPUTERS?

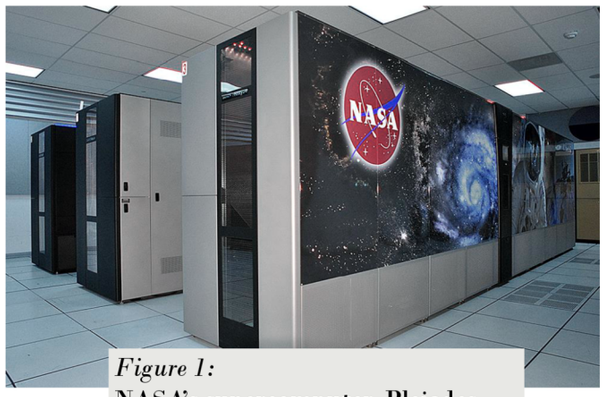

Figure 1: NASA's supercomputer, Pleiades

A. Powerful Simulator

B. Can work with the latest software

C. Can configure with all hardware

THE SCIENTISTS COMMON ANSWERS

A: POWERFUL SIMULATOR

- Supercomputers are important in the development of verifying/validating theories. A powerful simulator. Huge models, data sets, can be validated.

2. WHAT IS THE BIGGEST OBSTACLE FACING NASA SUPERCOMPUTING CURRENTLY?

Figure 2: Computing time requests to NASA Advanced Supercomputing Division vs allocated requests for 2017

A. Lack of technological knowledge

B. Too advanced technology

C. Budget

C: BUDGET

- Budget is the most important constraint. Budget does not increase as the scope of NASA missions' increase. The supercomputing community has the technical knowledge on how to make better supercomputers, but exceeding the budget allotted.

3. WHAT IS THE BIGGEST ADVANCEMENT IN THE FIELD OF SUPERCOMPUTERS?

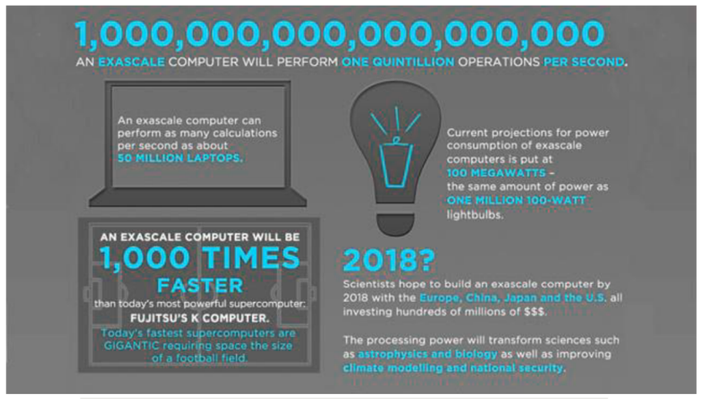

Figure 3: The future of supercomputing: the exaflop

A. Smaller hardware and chips, more compact platforms

B. Faster computer, lower power consumption

C. High bandwidth memory allowing faster data flow

C: HIGH BANDWITH MEMORY FROM MEMORY TO PROCESSOR

- High bandwidth memory allows for more and faster data flow from the memory to the processor.

Abstract

For some of the biggest and most interesting problems, people have used some of the biggest and most interesting computers. This is the general area of High Performance Computing (HPC) or Supercomputing. One organization with a long and storied history with supercomputing is the National Aeronautics and Space Administration (NASA). The supercomputers at NASA have a variety of missions including weather forecasting to helping astronauts at the International Space Station. As problems continue to grow complex, the growth of supercomputing seems inevitable.

Scan the QR code to get the contact information on participating in NASA-sponsored research grant opportunities

References

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