

***BARNSTORMERS, BOEING,
BOMBERS, & BUCKS***

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PETAFLIPS 2

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BARNSTORMERS



- ◆ ***PIONEERS***
- ◆ ***INNOVATORS OF TECHNOLOGY***
- ◆ ***DISCOVERED & OVERCAME LIMITS***
- ◆ ***SET NEW HEIGHT (CAPACITY) RECORDS***
- ◆ ***SET NEW SPEED (CAPABILITY) RECORDS***
- ◆ ***THEY WERE THE INDUSTRY...***



BOEING



- ◆ ***NEW INDUSTRY BEGAN***
- ◆ ***ACCESS TO THE “COMMON MAN”***
- ◆ ***AMORTIZATION ACROSS A LARGE CUSTOMER BASE***
- ◆ ***BIG VOLUMES = BIG MONEY***
- ◆ ***FAA STANDARDIZATION (COTS INDUSTRY)***
- ◆ ***BARNSTORMERS LEFT BEHIND...***



REMEMBER THE GOOD OLÍ DAYS WHEN

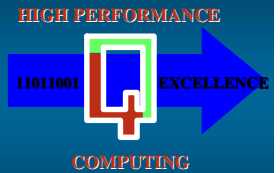


- ◆ ***WE RULED THE SKIES***
- ◆ ***WE WERE THE ONLY GAME IN TOWN***
- ◆ ***WE HAD THE BUILDERS' FULL ATTENTION***
- ◆ ***WE WERE THE UNCHALLENGED EXPERTS***
- ◆ ***SO DO WE NOW CRASH AND BURN?***





BOMBERS



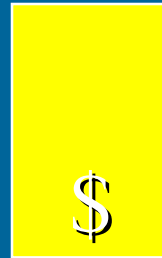
- ◆ ***SO HOW DO WE BUILD THIS?***
- ◆ ***NO BUSINESS MODEL TO SUPPORT NRE***
- ◆ ***INSUFFICIENT CUSTOMER BASE***
- ◆ ***BOMBERS ARE DEEMED NATIONAL STRATEGIC RESOURCE***
- ◆ ***USG SUPPORTS HIGH RISK HIGH PAYOFF RESEARCH***
- ◆ ***VENDORS IN BUSINESS BUILD PRODUCTS***



BUCKS



Production



Development



Research

Examples: Stockpile Stewardship, Cryptology, Space Sciences, Weather. The Mission.

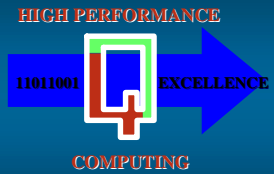
Products: 0 to 1 vendor generations out.

Time Frame: 0 to 2 years away.

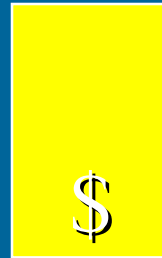
Comments: Bulk of money. Limited product flexibility. Little to no technology risk.



BUCKS



Production



Development



Research

Examples: DoE Interconnect PATHFORWARD, NSA Vendor Partnership Programs.

Products: 2 vendor generations out.

Time Frame: 3 to 5 years away.

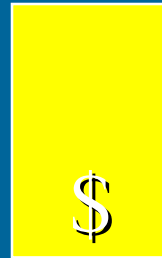
Comments: Greatest vendor product flexibility. Moderate risk, moderate payoff.



BUCKS



Production



Development



Research



Examples: HTMT, Quantum Computing, etc.

Products: 3+ vendor generations out.

Time Frame: 5+ years away.

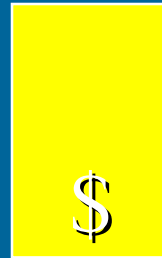
Comments: Still in the labs. Not on vendor radar screens. Highest risk, highest payoffs.



HOW IS THIS FUNDED?



Production



Development



Research



MISSION BUDGETS



NON-MISSION USG



PROGRESS...BUT AT WHAT RATE?



- ◆ ***LARGE PROCUREMENTS WILL NOT GET US THERE FAST ENOUGH***
 - ***BULK OF MONEY GOES TO COMPONENT EXPENSES***
 - ***THIN VENDOR MARGINS***
 - ***DIVERSION OF RESOURCES***
 - ***EVOLUTIONARY INCREMENTALISM***
 - ***RECIPE FOR MIDDLE SEAT IN “BOEING COMPUTER”***
- ◆ ***WE CAN'T BUY OUR WAY OUT OF THIS***



SHORTFALLS



- ◆ ***WHERE ARE THE HPC RESEARCH FUNDS? (WHERE'S WALDO?)***
 - ***NOT MUCH (ANY) IN AGENCY BUDGETS***
 - ***NOT IN DARPA?***
 - ***NOT IN NSF?***
 - ***HOW DOES THE PITAC HELP?***
 - ***EXAMPLE: HTMT CRISIS***

- ◆ ***HPC CUSTOMERS NEED TO PRESENT UNITED FRONT TO SURVIVE***



WHAT SHOULD WE DO?



- ◆ ***COOPERATE AT FAR GREATER LEVELS***
- ◆ ***ESTABLISH RELIABLE R&D USG FUNDING***
- ◆ ***PETAFLUPS:***
 - ***EVALUATE UTILITY OF COMPETING ARCHITECTURES***
 - ***SOFTWARE MUST INFLUENCE DESIGNERS***
 - ***APPLICATIONS: WHAT DOES / DOESN'T WORK? HOW DO WE RESPOND?***
 - ***WRAP UP WITH FIRM CONCLUSIONS & RECOMMENDATIONS. TO WHOM?***