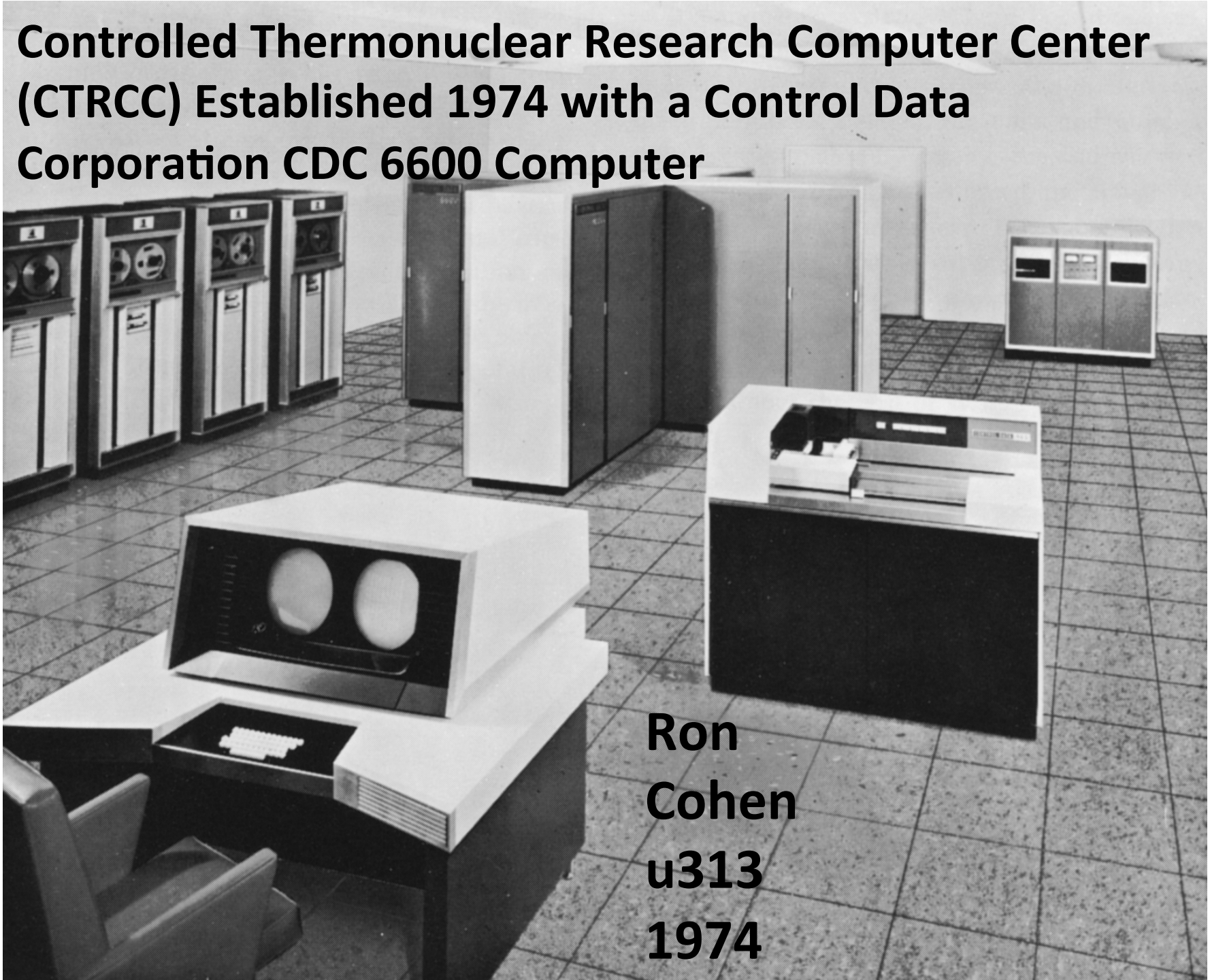
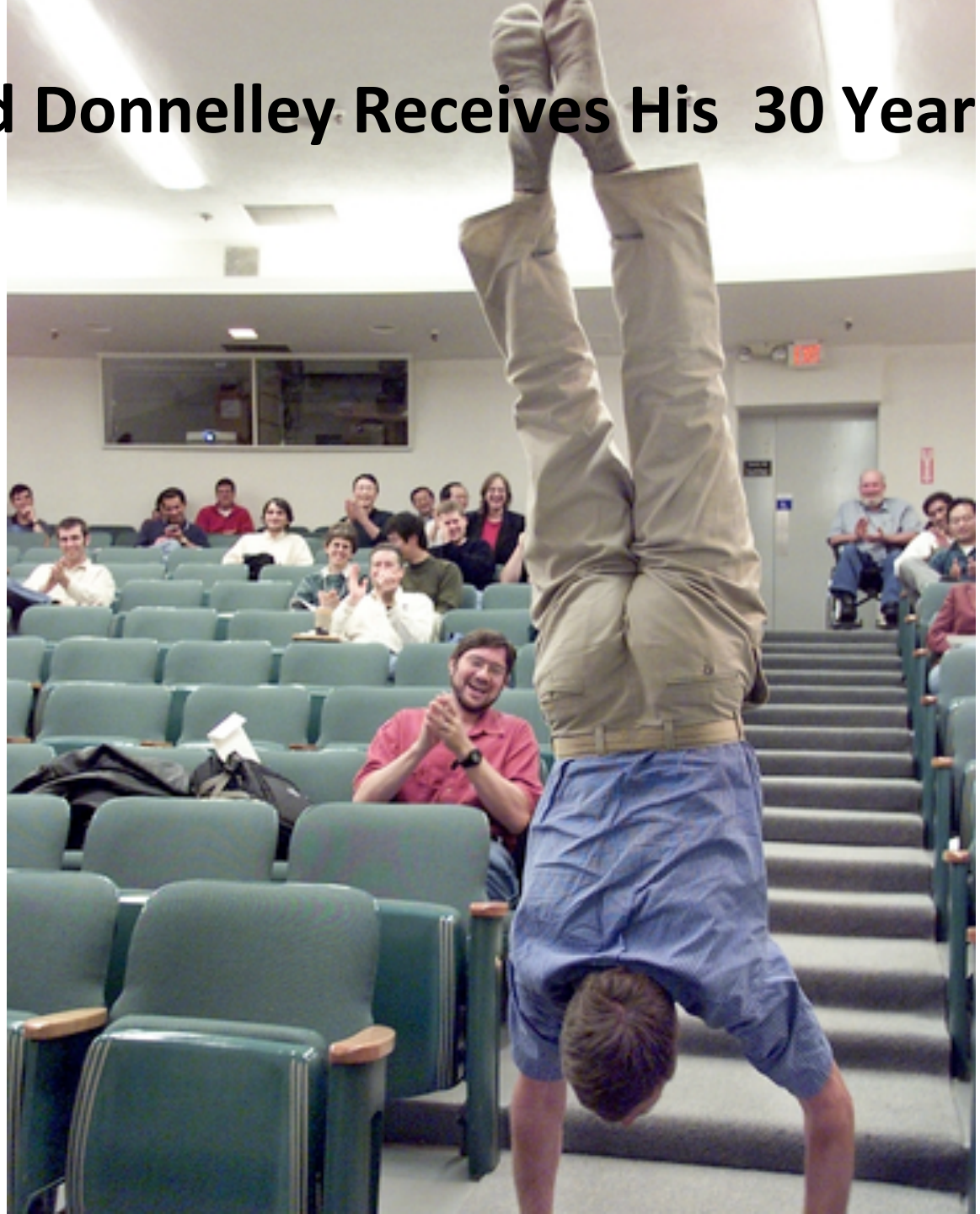
NERSC Through the Years - Reminiscences

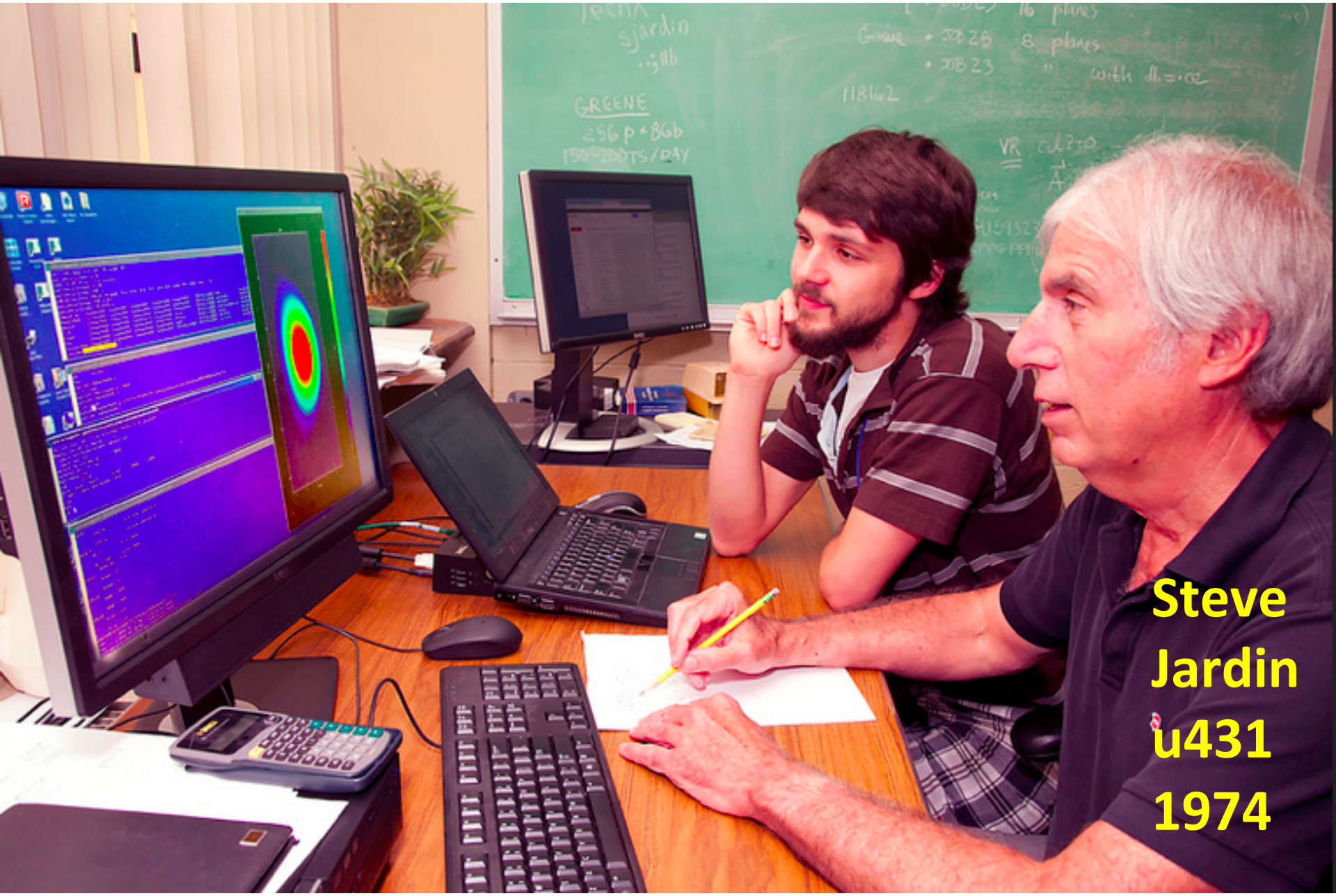
Who	Year	Login	Participation	Login Now	Usage (hours)
Ron Cohen	1974	u313	in person	rcohen	
Jed Donnelley	1974	jed	in person		
Steve Jardin	1974	u431	remote	u431	**18,112,354 (#18)**
Michel McCoy	1974	u714	in person		
Bill Nevins	1974	u30143	in person	u30143	
Jean Shuler	1974	u712	in person		
Bill Johnston	1975	u7316	in person		
Tom Rognlien	1975	u356	in person	rognlien	
Kirby Fong	1976	u745	to be read		
Choong-Seock Chang	1977	u405	remote	cschang	**4,377,334 (#104)**
Bruce Cohen	1977	u3054	In person	u3054	
Alice Koniges	1979	u713	in person	akoniges	**220,849**
Vickie Lynch	1979	u227	in person	vlynch	**71,300**
David Culler	1980	u7172	in person		
Bill Lester	1981	u15066	remote	lester	
Dan Hitchcock	1984	u1414	to be read		
Bill Kramer	1986	u11996	in person	kramer	
Rob Ryne	1988	u2539	in person	ryne	**1,458,585 (#293)**
Jon Bashor	1991	jbashor	in person	jbashor	
Peter Nugent	1994	u10329	in person	nugent	**15,630**
Horst Simon	1995	u11971	in person		
Manos Mavrikakis	2000	manos	remote	manos	
Alan Aspuru-Guzik	2002	aspuru	remote	aspuru	


Controlled Thermonuclear Research Computer Center (CTRCC) Established 1974 with a Control Data Corporation CDC 6600 Computer
Ron
Cohen
u313
1974

Jed Donnelley Receives His 30 Year Pin in 2002

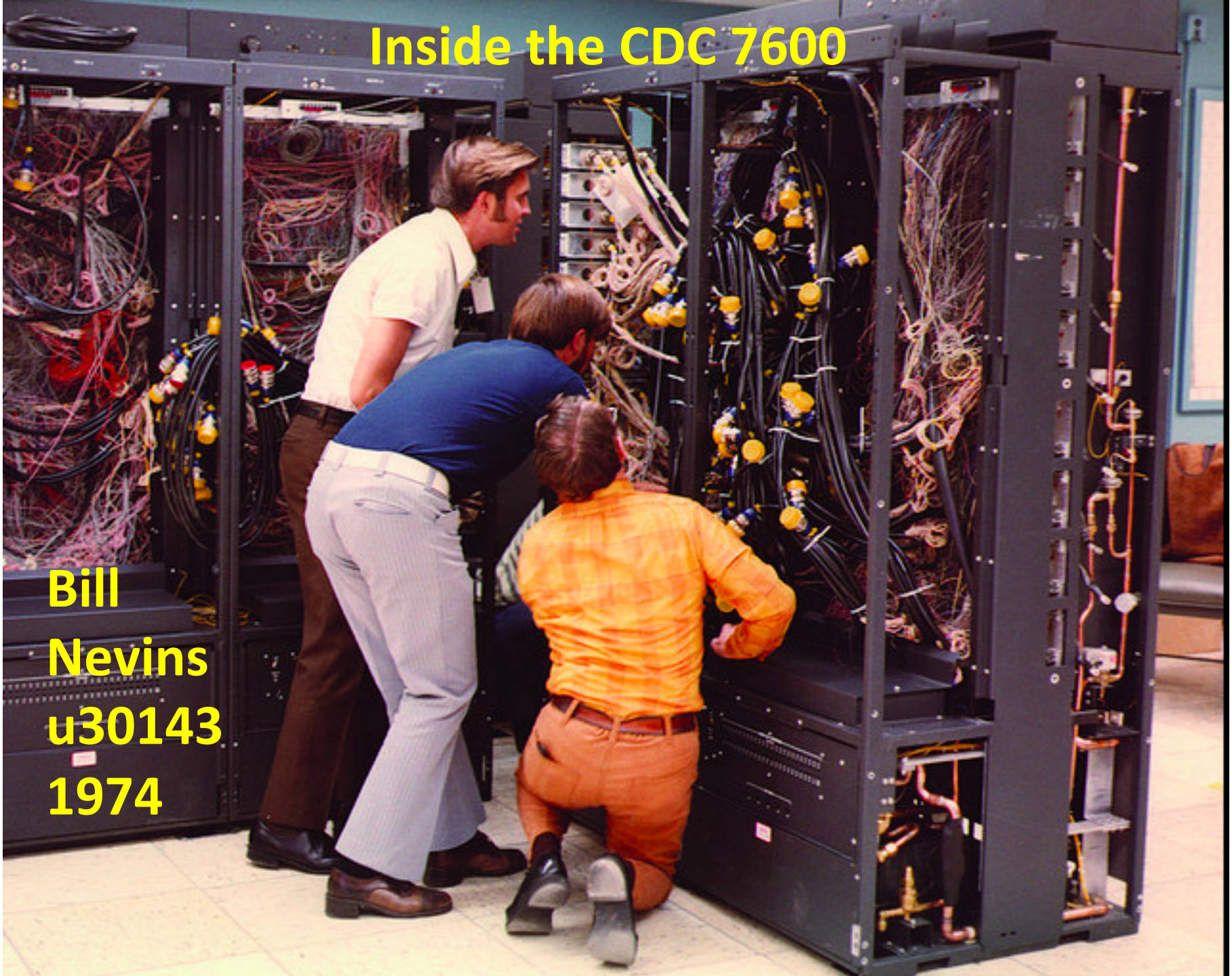


Jed
Donnelley
jed
1974

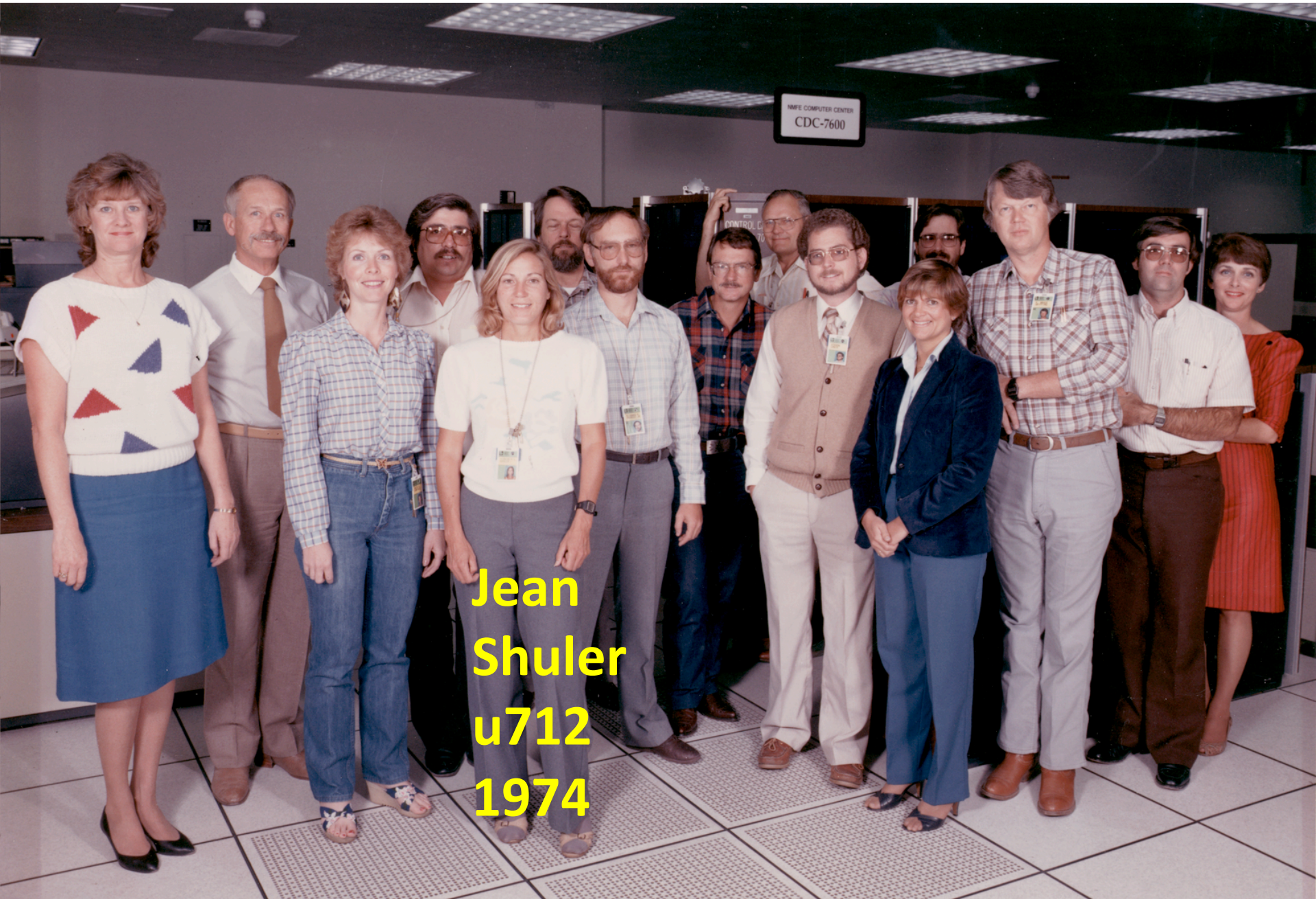

Steve
Jardin
u431
1974

By mid 1970s Livermore had 4 CDC 7600s and 2 CDC STARs




Inside the CDC 7600
Bill
Nevins
u30143
1974

In 1975 a CDC 7600 Replaced the CDC 660



MFEnet, Precursor to Esnet, Started in 1976.

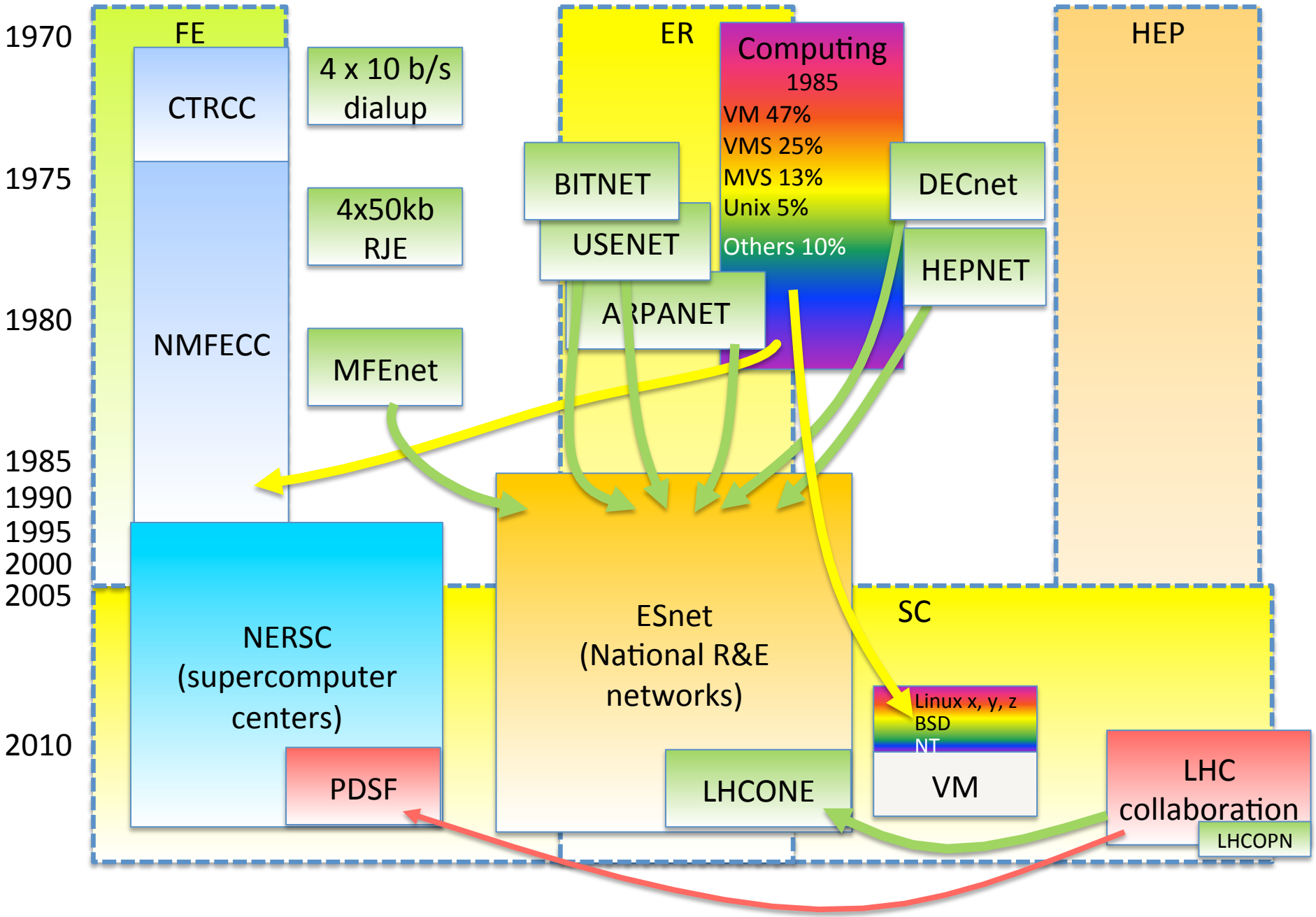
NERSC and ESnet are the result of discipline-specific facilities evolving to multi-discipline facilities and to the convergence of technologies.



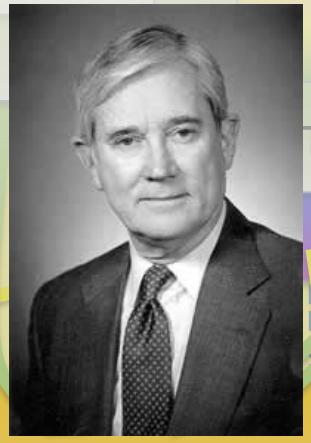


Bill Johnston
u7316
1975

Consolidation and convergence: the predominate characteristics of the history



Much of the core of today's Office of Science can be attributed, in part or in whole, to one man



Alvin Trivelpiece

1970
1975
1980
1985
1990
1995
2000
2005
2010

FE
4 x 10 b/s
dialup
CTRCC
NMFECC
4x50kb RJE
MFEnet
ER
BITNET
DECNet
HEPNet
HEP
MFE
MFECC (NERSC)
ESnet
ALS
APS
CEBAF
RHIC
SNS
ITER
Hu. Genome
NERSC
PDSF
ESnet
LHCONE
VM
LHC collaboration
LHCOPN

John Killeen - Director of CTRCC/NMFECC/ NERSC from 1974 - 1991




Kirby
Fong
u745
1976

UCRL-53313

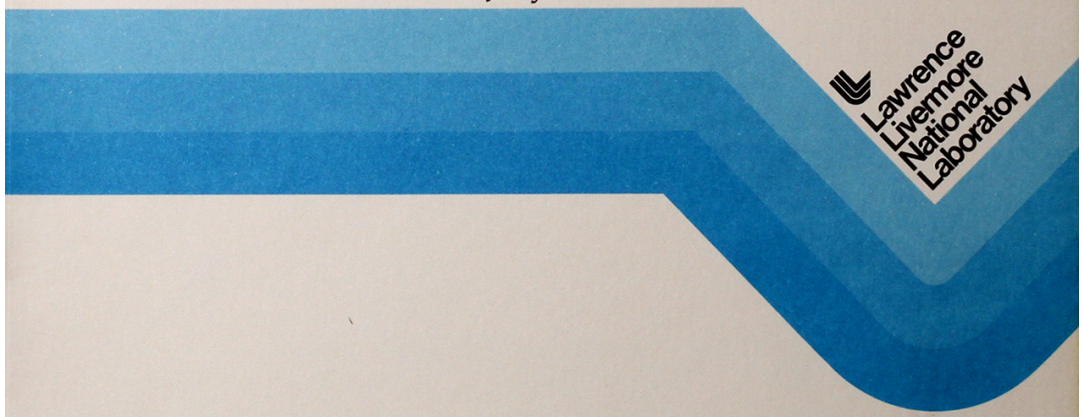
SLATEC Common Mathematical Library Source File Format

Kirby W. Fong

Thomas H. Jefferson

Tokihiko Suyehiro

July 1982




NATIONAL
MFE COMPUTER
CENTER



SOFTWARE—PRACTICE AND EXPERIENCE, VOL. 15(1), 87–103 (JANUARY 1985)

The NMFECC Cray Time-Sharing System

KIRBY W. FONG

National Magnetic Fusion Energy Computer Center at the University of California, Lawrence Livermore National Laboratory, Livermore, California 94550, U.S.A.

SUMMARY

The National Magnetic Fusion Energy Computer Center (NMFECC) at the Lawrence Livermore National Laboratory (LLNL) has implemented a simple, yet powerful interactive operating system, the Cray Time-Sharing System (CTSS), on a Cray-1 supercomputer. CTSS augments the multi-programming batch facilities normally found in supercomputer systems with many of the interactive services typical of interactive minicomputer systems. This paper gives some of the historical background leading to CTSS and gives an overview of the system that emphasizes the strong points or unusual features such as multiple channels, decentralized control of resources, priorities and program scheduling, system recovery, and on-line documentation.

KEY WORDS Supercomputers Operating systems Time-sharing Interactive

OVERVIEW AND ASSUMPTIONS

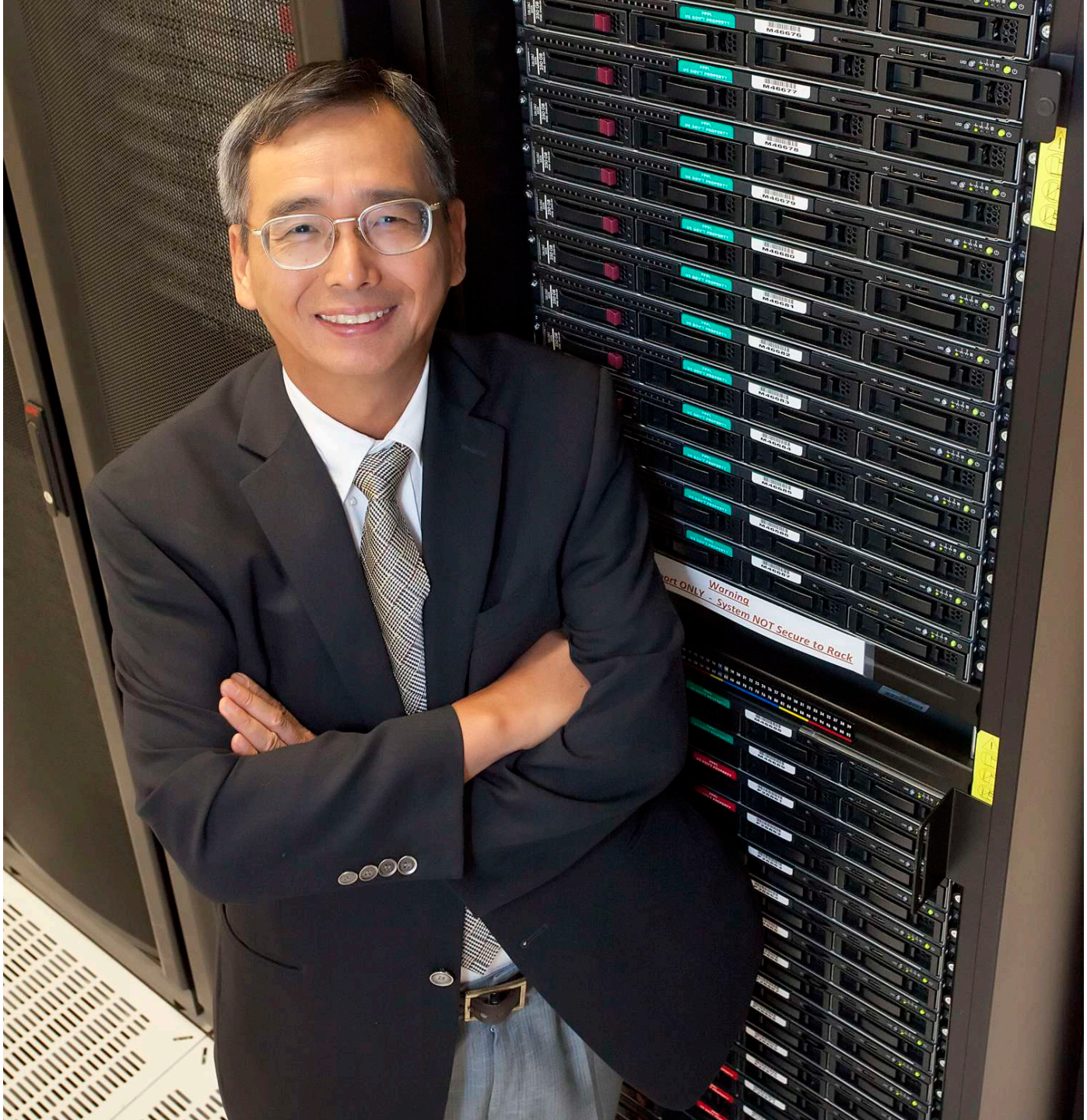
To derive the greatest benefit from a supercomputer, one must have an idea of how it can and should be used. The NMFECC believes that interactive computing is the foundation for full beneficial use of supercomputers as well as for smaller computers. Not all supercomputers are suitable for interactive use;[1] however, the Cray-1 is suitable. If a machine can interact, it should. Since interactive use of supercomputers is at variance with the conventional wisdom about these machines, we begin by explaining the reasons for this approach.

First, interactivity opens the door to more productive use of the user's time if the appropriate program development tools are available. This reason[2] applies to computers of any size. Although text editors then become feasible, text editing is not the principal reason for wanting an interactive system. After all, one could use an interactive front-end machine to repair one's source code. The real reason is to reduce the calendar time needed to develop programs. This goal can be achieved if the system has a symbolic, dynamic debugging program that assists users in finding errors rapidly. A secondary benefit of fast debugging is that users are inclined to be more adventurous and innovative in their programming if they know that new features can be implemented quickly. Debugging of major programs frequently cannot be done on any other machine than the supercomputer because they are usually machine or system dependent or use library routines available only on the supercomputer. Any attempt to debug through a front-end machine usually degenerates into the insertion of debug print statements in the source or the taking of memory dumps from the supercomputer.

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Received 21 January 1983
Revised 20 September 1983 and 21 May 1984


LOCAL





Choong-Seock Chang
u405
1977

In 1978 a Cray-1 Arrives at the National Magnetic Fusion Energy Computer Center (NMFECC)





Assembling the Cray 1

Alice Koniges
u713
1979

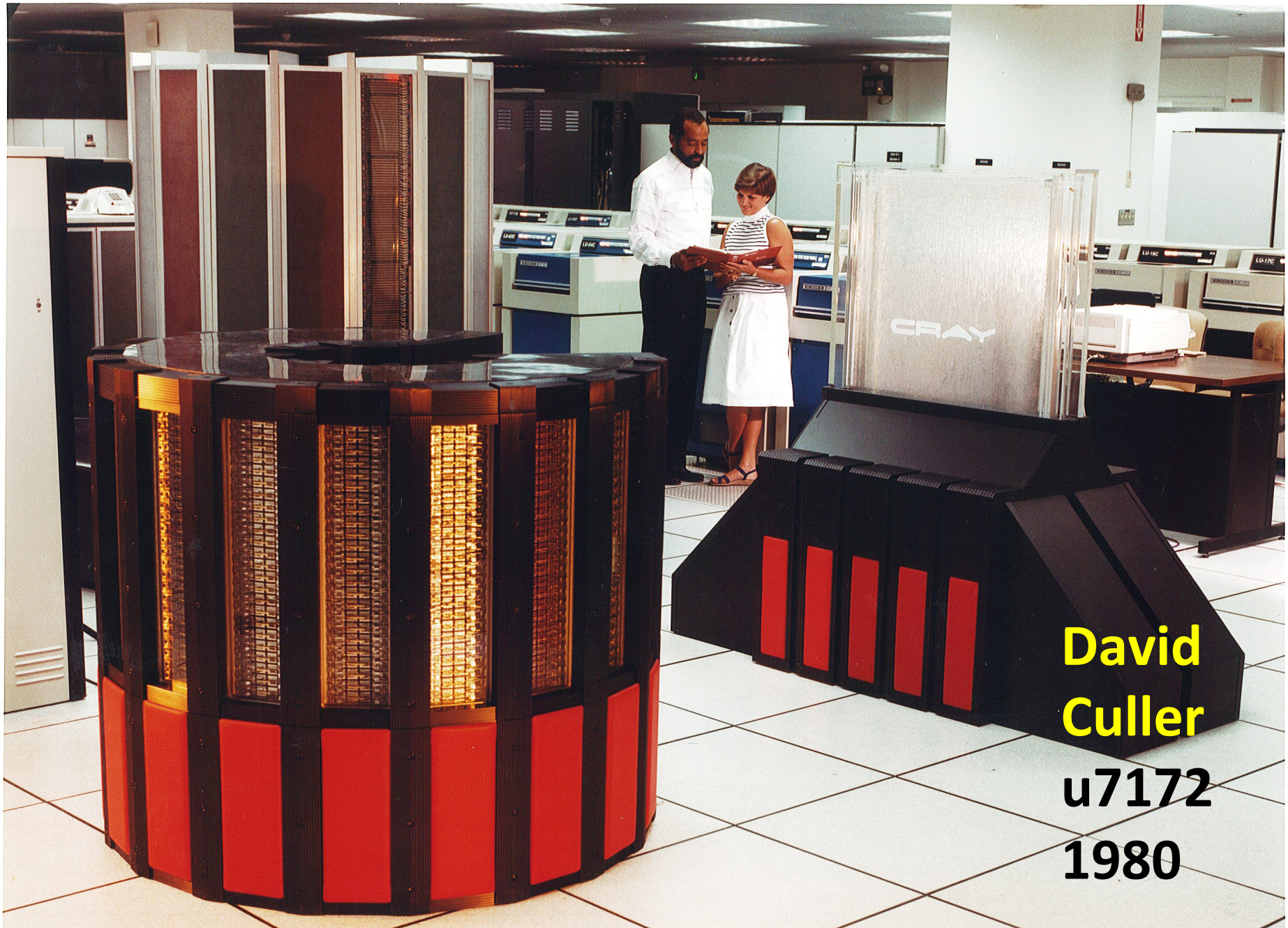
The Cray-1 in the Livermore Machine Room

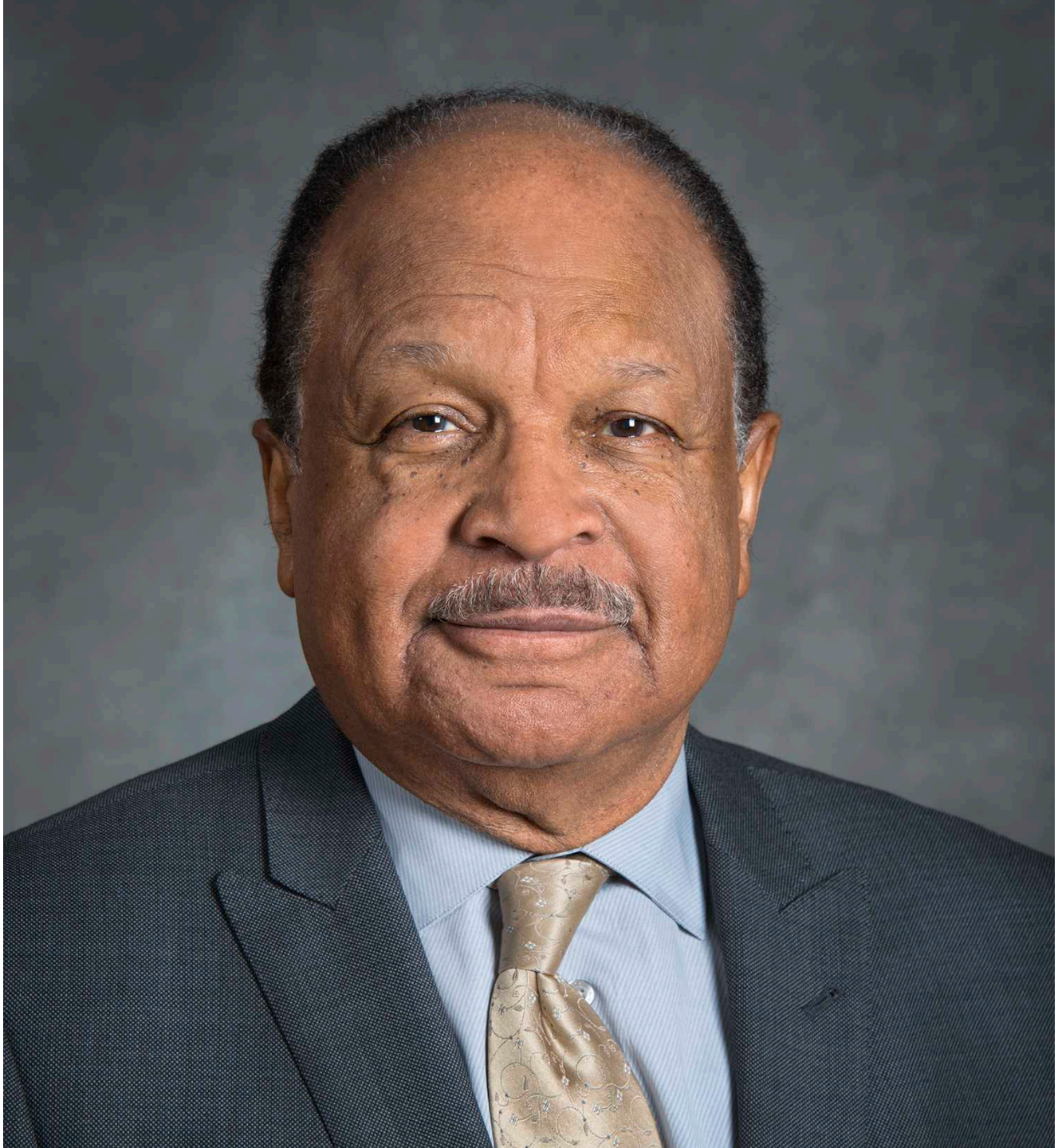




Manos Mavrikakis
manos
2000

World's First Cray-2 Installed at NMFECC in 1985





Bill Lester u15066 1981

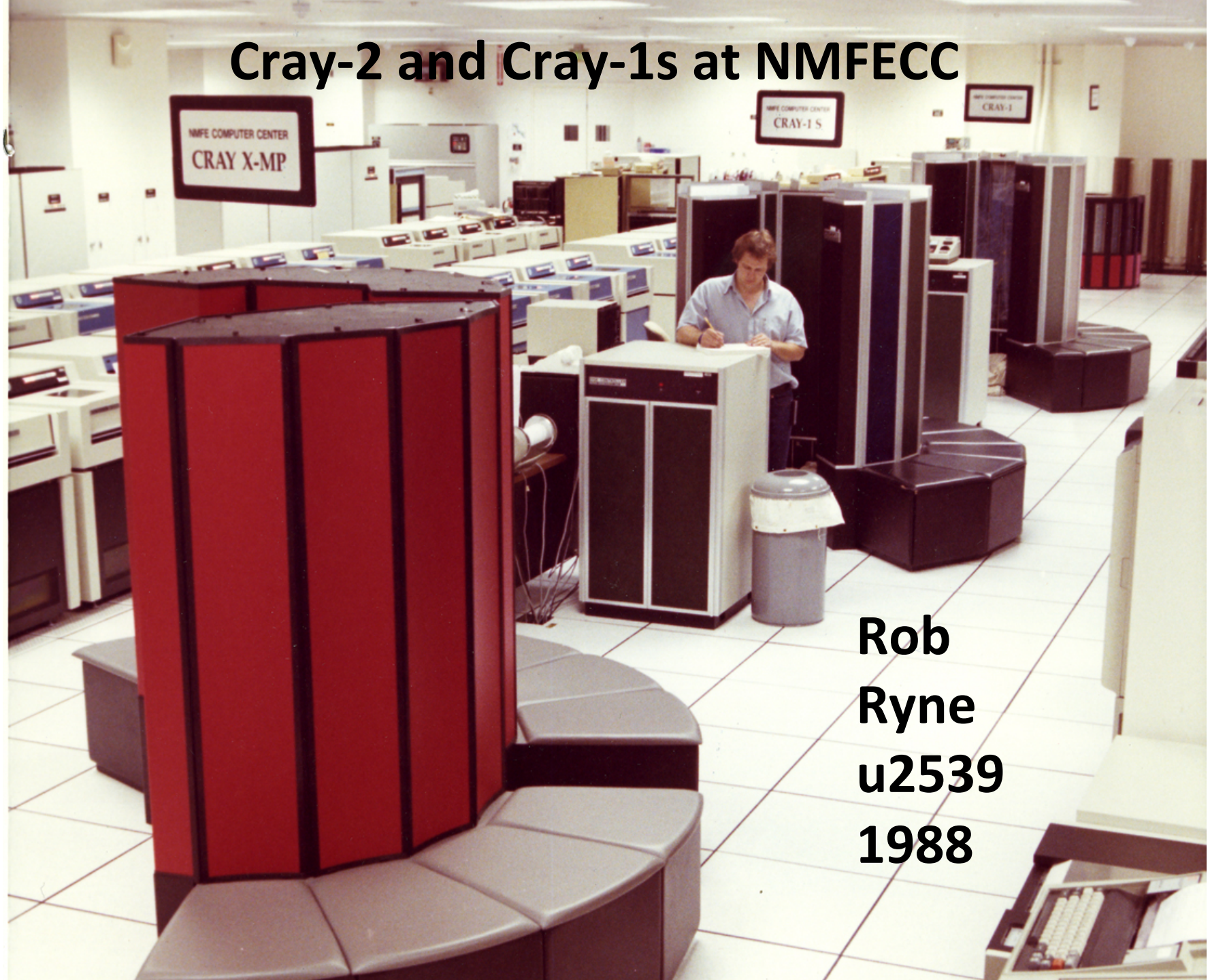


Dan Hitchcock u1414 1984

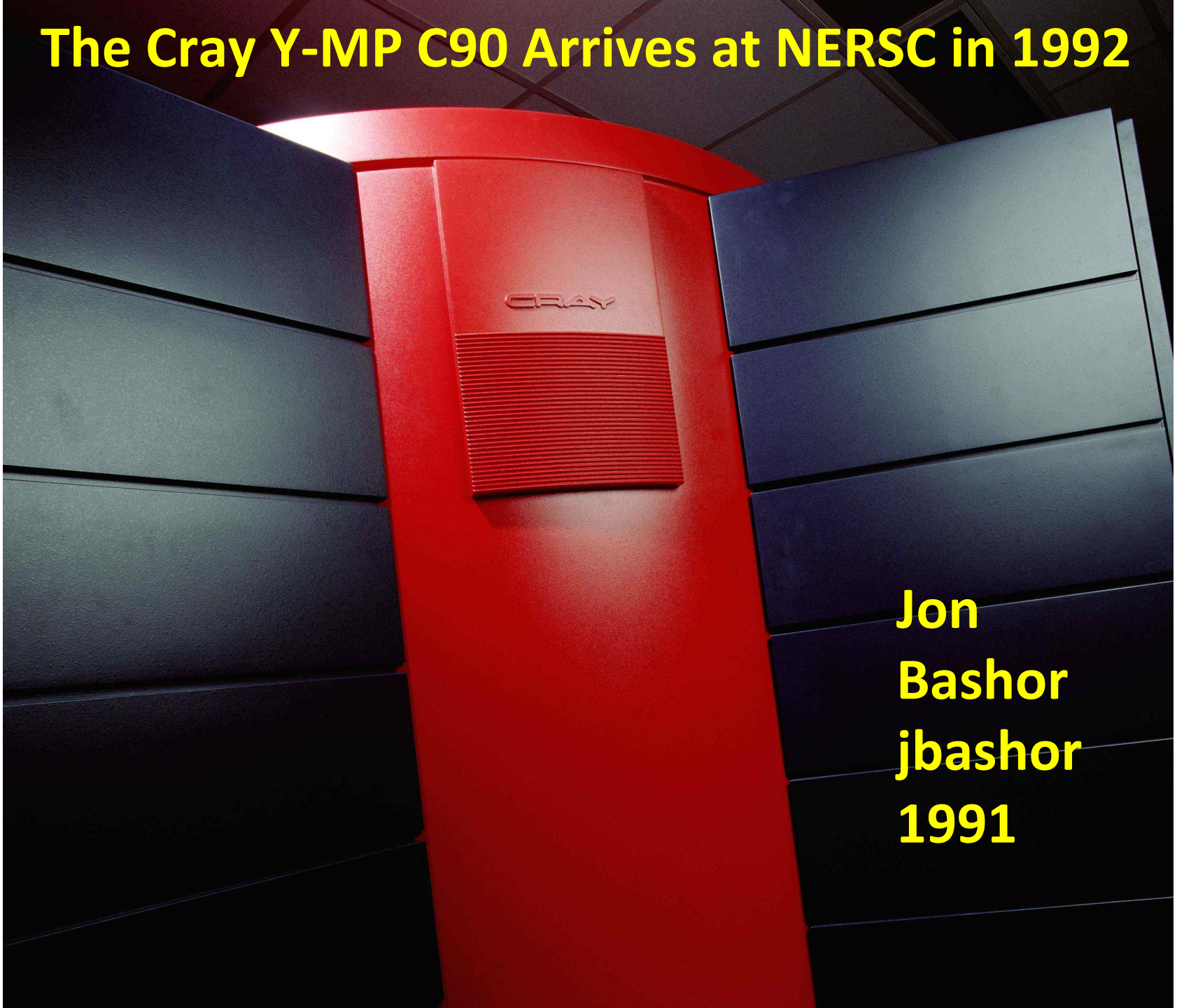
Bill Kramer with the IBM SP Seaborg - 2003



Cray-2 and Cray-1s at NMFECC



Rob
Ryne
u2539
1988


The Cray Y-MP C90 Arrives at NERSC in 1992
CRAY
Jon
Bashor
jbashor
1991

TUESDAY'S Newsline

Published twice weekly for employees of the University of California Lawrence Livermore National Laboratory Tuesday, August 27, 1991 Vol.16 No. 63

New NERSC director setting speedy pace

By Jon Bashor

Bill McCurdy likes to do things fast. That approach will serve him well as the new director of the National Energy Research Supercomputer Center, he says.

"Computers represent the fastest-changing technology ever in human history," said McCurdy, his eyes bright with enthusiasm, "and we've got to be able to move with those changes."

Maintaining the lead in supercomputers, though, is like trying to hit a moving target, McCurdy says. Supercomputing is now evolving from using several super machines like Crays to parallel computers and workstations, combining the power of many smaller machines.

"It's like having a load to pull and deciding whether to use six Clydesdale horses or 60,000 chickens," McCurdy said. "The chickens give you a lot more power, but it's a bigger challenge to harness them efficiently."

McCurdy said the challenge facing NERSC is to respond to the constant changes in technology without interrupting computing services provided to 4,500 subscribers at national laboratories, universities and industry around the country.

And that service has to be strong enough to keep those subscribers equipped with leading-edge computing and networking conditions.

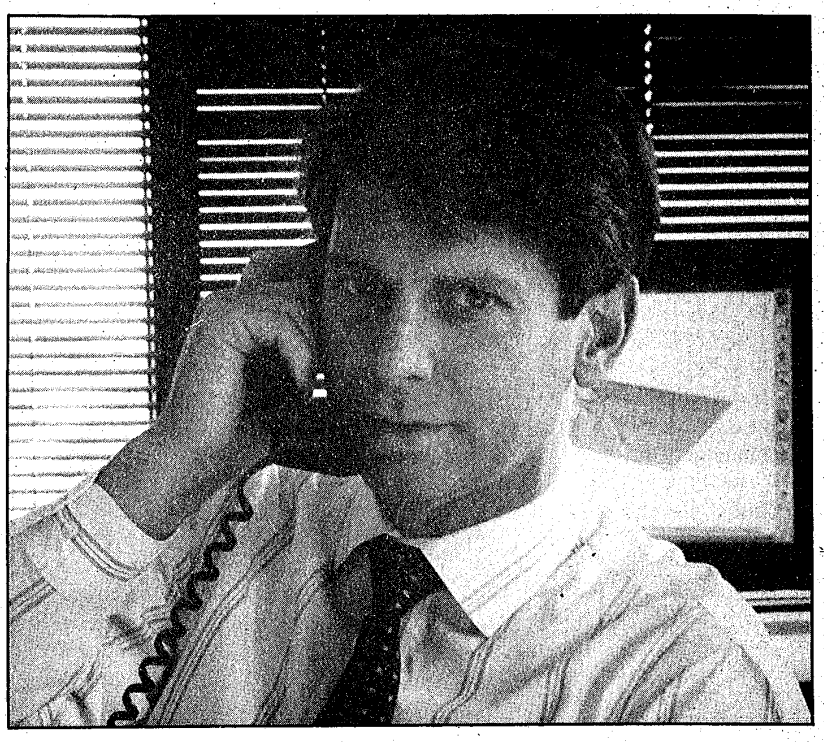
From Ohio

Almost half of NERSC's services are devoted to fusion energy research, while basic energy research accounts for about 20 percent. High energy and nuclear physics make up 18 percent of the center's work, with the remainder divided among research on the Superconducting Super Collider, health and environmental programs and applied mathematics.

McCurdy, 42, came to the Lab July 22 from Ohio, where he was founding director of the Ohio State University Supercomputer Center. He played a lead role in securing grants to buy a Cray X-MP/24 and Cray Y-MP/864 for the Ohio center.

McCurdy, who was a professor of chemistry at Ohio State, earned his doctorate in chemistry at California Institute of Technology.

He was chosen to head NERSC because of his vast knowledge of national and institutional roles of large-scale computing, said Bob Borchers, associate director for Computation. His new assignment puts him in charge of 100 employees and a $35 million annual budget.



New NERSC Director Bill McCurdy has been on the go since he arrived here at the Lab last month.

"Progress in computing is accelerating — and our ability to respond to technological change has to accelerate with it," McCurdy said.

Computers change so quickly that last year's leading-edge systems may be today's junk. And computers have become so much a part of our world that the general public rarely gives them more than passing notice.

"It's a revolution happening so fast that the public is inured,"

Continued on back page

The Cray T3E Mcurie Arrives at NERSC at LBNL in 1997



NERSC Installed Seaborg, an IBM SP, in 1999



Alan Aspuru-Guzik with a Molecular Flow Battery

