

# **Some Things About Eric**

**Experience and Expertise**

**Leadership Challenge**

**Projects**

**Vision**

A dark, moody photograph showing a person's arm and shoulder. The person is wearing a dark suit jacket over a white shirt. The lighting is dramatic, with strong highlights and shadows, creating a professional and sophisticated atmosphere.

# Experience and Expertise

# What Would I Look For in a Manager?

## Technical/People Skills/Best Management Practices

- Technical managers have a greater range of solutions available
- By combining technical, organizational, and interpersonal options technical managers make better decisions, establish better communication, and make more efficient use of resources at hand
- Technical managers and their teams can build their own tools to facilitate problem solving
- Technical managers can communicate with a greater range of audiences, both technical and non technical

**But most often a manager has only one area of expertise.**

# What I Can Offer as ACI Director, Technically Speaking

Technical achievements, like these:

- HPC - supported/managed seven TOP500 supercomputers
- Data Storage - administered SGI's Data Migration Facility running on 5 racks of disks mapped to 4 Redwood robot silos
- Non-Relational Databases - programmed and administered Nosql DB - Cassandra, 5 nodes
- Big Data - 100 node production hadoop cluster
- Linux System Administration - production servers with over 4 billion transactions per day

And certifications, like these:

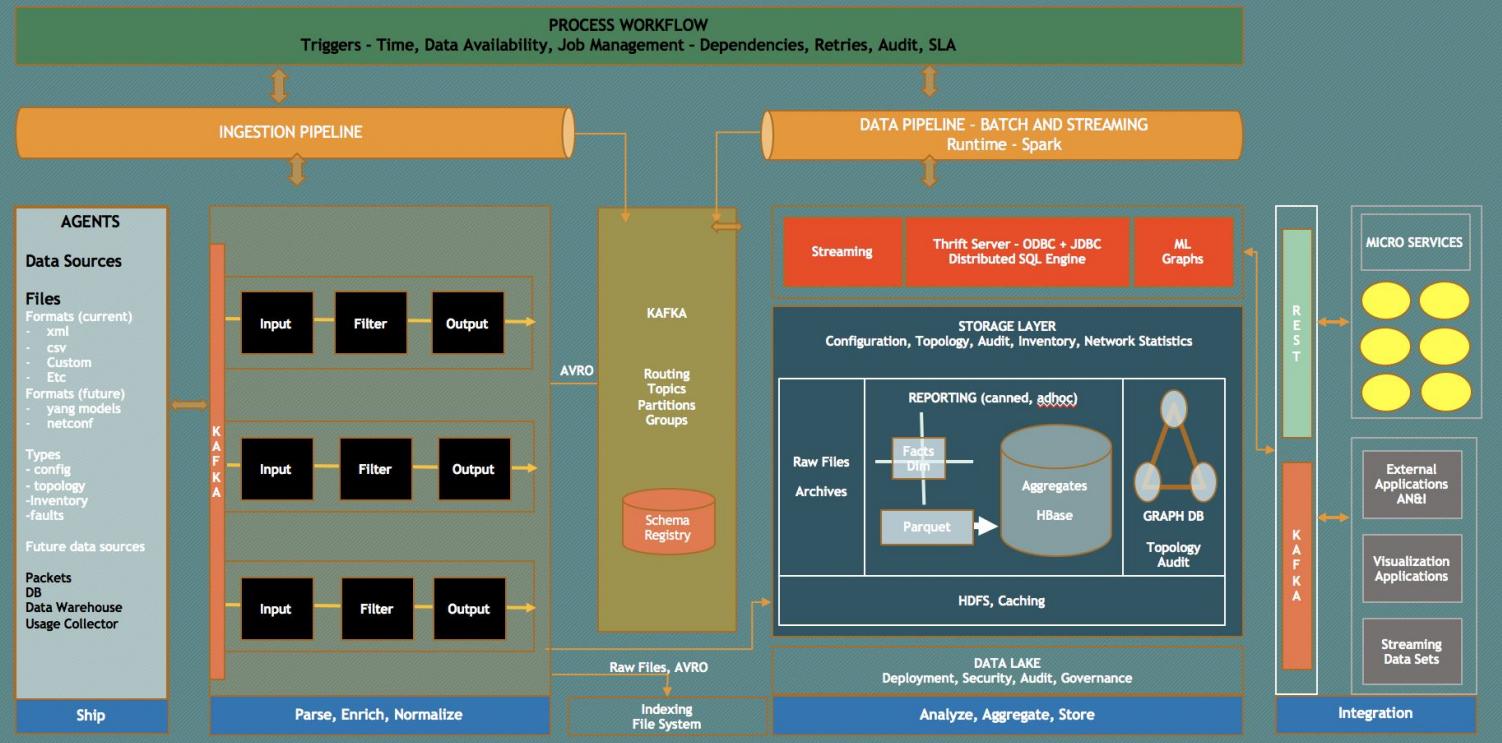
- Hortonworks, Cloudera, Databricks Spark, Mellanox Infiniband

And organizational experience, like this:

- NOAA - responsible for a \$50 million dollar contract to federal government
- Rutgers - cross-campus: shibboleth & condor
- Yap State Government of Federated States of Micronesia - re-architected Education Database system
- Pulsepoint - the merger (and the overhaul/puppetization of production) - data center mergers, infrastructure merger

# I can also build things like this:

## AT&T NETDB Network Management



# What I Can Offer as ACI Director, Practically Speaking

Most importantly, the unique ability to weave together tech know-how, people skills and best practices in management methods.

- People Skills/Customer Relations
- Project planning
- Operations expertise
- Purchasing dependencies
- Tech Chops
- Concept to completion follow through
- Time management for self and team
- Forming networks and connections built on goodwill
- Ability to listen and pay attention
- Ability to gently tweak and shift team culture
- Finding viable short cuts, good investments and win-win situations
- Organizational awareness
- Exceptional problem solving and analytical thinking
- Ability to see issues from multiple viewpoints
- Lots of Patience

# Experience Beyond Campus

## Research Technology Grants and Contracts

- Support for Raytheon's \$50 million winning bid for NOAA's supercomputing initiative
- Support for numerous Rutgers grants including Dr. Parashar's NIH grant for a Blue Gene supercomputer

## Scientific Discovery

- Supported the formation of Global Organization for Earth System Science Portals (GO-ESSP)
- Support and partial redesign of NOAA Operational Model Archive and Distribution System (NOMADS), which has served ½ petabyte of data globally over the past decade

## National and Regional Scientific Computing Initiatives

- Helped create the state-wide CI-ACT (under NJEDGE), Campus champion (under both Teragrid and XSEDE)
- Built supporting infrastructure for nation-wide NWave initiative (under NOAA)

## Curriculum

- Taught college level courses and developed curriculum at Rutgers/SCI, NYU, and Parsons School of Design.

# Extra Expertise

## Guitar Operation

Also mandolin, bass, ukulele, tenor banjo, mountain dulcimer

Studied at Julliard and with Dave Van Ronk, Adrian Belew, Steve Khan, Joy Askew. Taught at National Guitar Workshops.

## Pro Junk-Fixing

Restoration of 18th Century High-style English Furniture, including pieces from the Metropolitan Museum of Art.  
Handled over \$20 million worth of objects.

## Junk Detective

Lectured at Parson School of Design and NYU on detecting fake antiques. Led tours of antique furniture at The Metropolitan Museum of Art.

## Vaguely Artsy

Graphics Design national design award, Federal Government & Princeton University web work, logo for GFDL  
Accessibility work on government websites

## I Dig the Dead Archeology

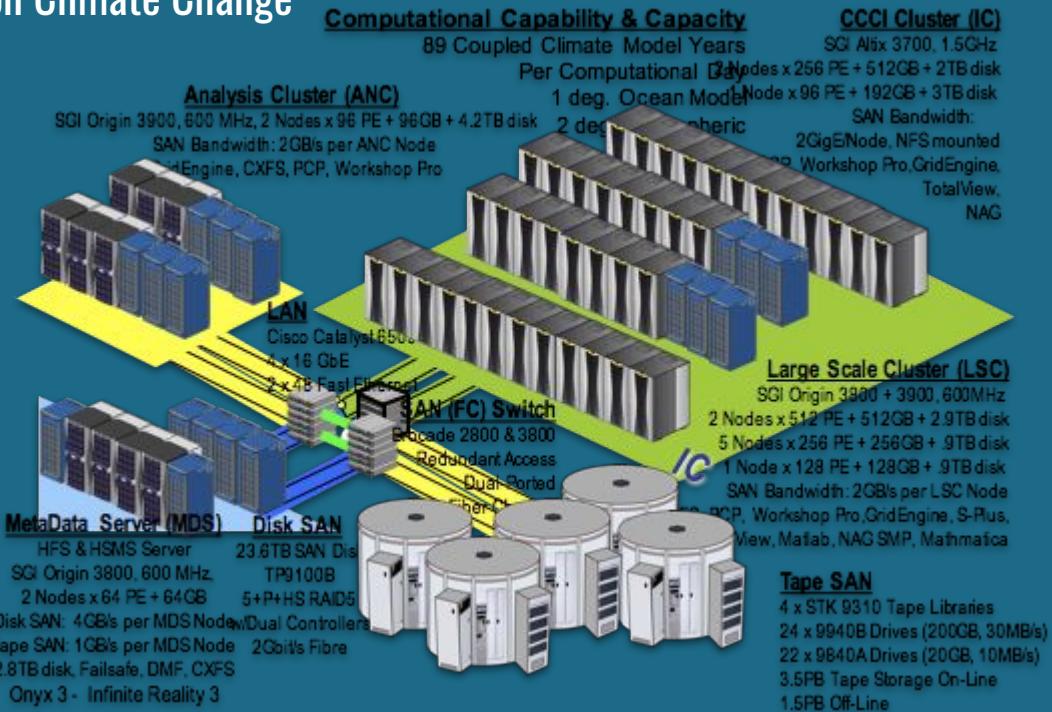
Pre-classic Mayan culture field work in Belize.  
Laboratory work at Cambridge University and Rutgers University.

The background of the slide is a blurred photograph of a winding road or path through a landscape. The road curves from the bottom left towards the top right, with trees and foliage visible along its sides. The overall color palette is dominated by shades of green and blue.

# Leadership Challenge

# Leadership challenge as Site Manager/Senior Technologist for Raytheon at the Geophysical Fluid Dynamics Laboratory, Princeton University/NOAA

- Huge government purchasing contract
- Deadline: UN's Intergovernmental Panel on Climate Change
- \$50 Million up for grabs
- Vendors: Raytheon, SGI, Intel

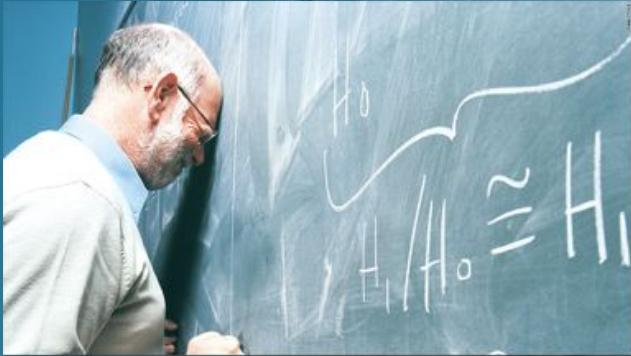


**Deadline for IPCC assessment data for global warming  
is coming up and the code is NOT running  
on the GFDL Supercomputer.**



# Problem Solution

Delivery of contracted compute hours	Team installed additional machines
Large number of changes to the system as part of troubleshooting	Initiates change review board to manage risk and communicate clearly with Federal Government
Over 100 people directly involved in this project	Coordinated dozens of experts: hardware vendors and different divisions of SGI, and Feds
Growing tensions between Feds, SGI, Raytheon and Intel	Managed all tasks among slightly hostile groups. Able to create a small group of key people where we shared information “off the record” to facilitate problem solving; this lead to ultimately understanding the problem
Clear communication among a dozen plus groups	Managed communications and sensitive information among many groups. Set up and managed a daily status call and mailing. Set up smaller groups to inform different management trees
Accountability to federal government	Maintained relationship with Fed: review board, daily status, troubleshooting,
Stabilizing the problem	Led to stabilizing system by discovering faulty Intel chips through “off the record” group discussion, resulting in Intel delivered thousands of new chips (which we installed)
Not enough time to stream data to IPCC repository	Personally transferred 188 TB of data to disk, involving weeks of round the clock data transfer & shipped disks to meet deadline.



## A year of problem solving

led to

**The Nobel Peace Prize  
2007**

**IPCC**  
INTERGOVERNMENTAL  
PANEL ON  
CLIMATE CHANGE



Intergovernmental Panel on Climate Change (IPCC)  
Prize share: 1/2



Photo: Ken Oppermann  
**Albert Arnold (Al) Gore Jr.**  
Prize share: 1/2

and the establishment  
of a GFDL data portal at  
**http://nomads.gfdl.noaa.gov**  
still in use today

Chrome File Edit View History Bookmarks People Window Help

nomads.gfdl.noaa.gov

About us Research Products and Services Reference Contact

**gfdl's data portal**

CMIP3  
CMIP5  
CMIP6  
Ocean Data Assimilation Experiments (ODA)  
North American Regional Climate Change Assessment Program (NARCCAP)

NMME Experiments

The US National Multi-Model Ensemble (NMME) is an experimental multi-model seasonal forecasting system consisting of coupled models from US modeling centers including NOAMERICAN, NOAA/GFDL, NCAR, NASA, and Canada's CMC.

CMIP5  
CMIP6  
ODA  
NARCCAP  
NMME  
GFDL Data  
GFDL Model  
GFDL User  
GFDL Home Page

Public Data Files  
DataCan Created  
DataCan Requests  
Ocean Data Assimilation  
Pacific Modeling System

Public Source Code  
MDK restoration  
MDK documentation  
MDK beta source code

Related Sites  
National Oceanic and Atmospheric Administration  
NOAA  
U.S. Department of Commerce

# Projects

# OARC Projects

- Dr. Weber
- Ldap shell scripts for admins
- Viz tools: xdmod, inam
- Nontuberculous mycobacteria (NTM) database
- lmod & module work for Sirius' Gaussian software
- Cert'd Infiniband professional
- Organizing the Hill Center Storage (and clean up effort)
- Mailing list automation/cutover
- Aci-ref support
- Scripting of account creation
- Support and Planning of Computer Science Department use of Hadoop
- Slurm/google cloud compute for Dr. Yang
- Support for Mitrofanova's grant using Hadoop
- Debugging Hai java/pig code for Dr. Weber
- MediaWiki
- OIT Liaison for cloud admin/billing – Google/AWS/Azure
- Project planning first-steps
- Microsoft Admin for OARC
- Veracrypt install and support for Dr. Davidow's team
- CloudyCluster
- Stateful installs via warewulf

# Previous Projects

- Rutgers: Internet2 membership & shibboleth, also condor HTC
- Rutgers: Negotiated for Winlab gear on Rutgers busses
- AirisData: AT&T inventory networking resources databases redesign
- PulsePoint: Overhaul/puppetization of production, data center and infrastructure merger
- PulsePoint: high availability for production
- NOAA/GFDL: Nomad data systems - NOAA Operational Model Archive and Distribution System
- NOAA/GFDL: Altix supercomputer bid/install/support



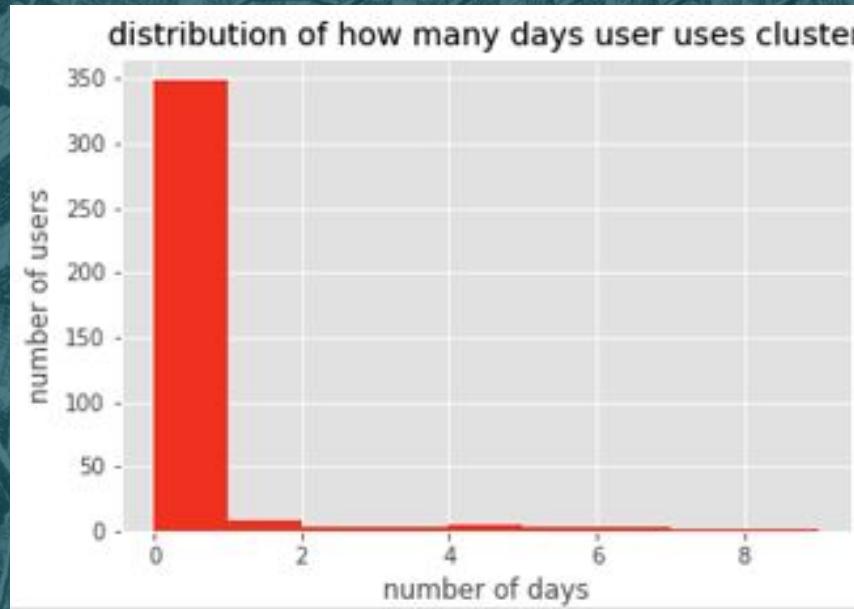
**Vision**

# My Vision for OARC

Make research easier  
by leveraging technology.



# Our Challenge: Serving the Users



More than half the users abandon the cluster after a single day.

While “free” is a great way to bring users in, it doesn’t help keep them.



# Our Future Challenges

## Scaling

What if everyone shows up?

## Cloud Compute

What if the cloud is even cheaper?

## Post-Early Adopters

“How do we support at scale?”

## Less Savvy Users

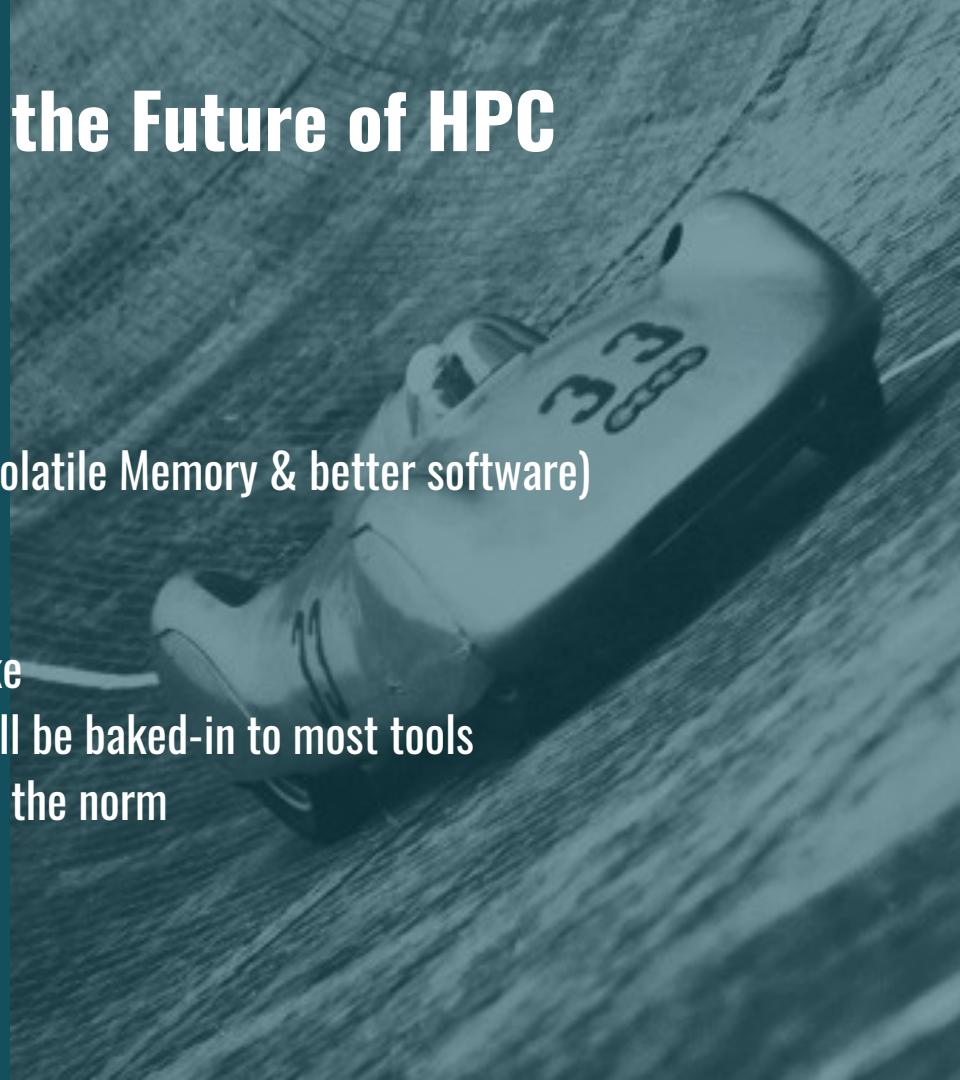
How do we teach at scale?

# My Vision for the ACI Team

- Reduce risk of change to increase response time, quicken training, and widens who can do what
- Adopt techniques from other communities such as devops & agile
- Reduce work in process and increase throughput
- Improve “left workflows” and build “right workflows”
- Use Canvas and Sakai for user training and reeducation
- Create Virtuous Cycles
- Develop users-helping-users communities
- Create ‘advisory panels’ of users for “trial balloons”
- Make on-ramp for new users easier
- Make experts more expert
- Make everyone a better generalist
- Make investigation/troubleshooting easier
- Make cross-system support easier
- Prototype rapidly and with little effort
- Accentuate the positive, minimize the negative within the team
- Improve communications while shortening meetings
- Improve morale!

# Bonus Material: My Vision of the Future of HPC

- Complex systems are easier to build
- Targeted systems are easier to build
- Wider abstractions regarding storage (Non-Volatile Memory & better software)
- Lots of tailored solutions for niche problems
- Less traditional HPC in the future
- Hardware becomes even more commodity-like
- “Cutting edge tech” like machine learning will be baked-in to most tools
- Self-monitoring/self-healing designs become the norm





# Thank You!

Please contact me with any questions:

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