



CORAL Goals and Strategy

CORAL Vendor Meeting

May 31, 2013



U.S. DEPARTMENT OF
ENERGY

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CORAL

Agenda

Coral Vendor Meeting Agenda – May 31, 2013		
7:30 – 8:00	Coffee / Tea	
8:00 – 8:30	CORAL Goals & Strategy	Susan Coghlan
8:30 – 9:15	CORAL draft technical requirements	Al Geist
9:15 – 10:00	CORAL application benchmarks	Matt Leininger
10:00 – 10:30	Q&A session	
10:30	Plenary session concludes - Break for private sessions	

What is CORAL

- DOE's Office of Science (DOE/SC) and National Nuclear Security Administration (NNSA) signed an MOU agreeing to collaborate on HPC research and acquisitions
- Collaboration grouping was done based on common acquisition timings and is a win-win. It reduces the number of RFPs vendors have to respond to and number of reviews Labs go through and allows pooling of R&D funds
- Los Alamos, Sandia, and Lawrence Berkeley National Labs are collaborating on the first of these joint acquisitions for the Trinity and NERSC-8 systems with the RFP expected to be released soon.
- **CORAL** is a **C**ollaboration of **O**ak **R**idge, **A**rgonne, and **L**awrence Livermore Labs to acquire three systems for delivery in 2017.

CORAL Joint NNSA & SC Leadership Computing Acquisition Project

Current DOE Leadership Computers

Titan (ORNL)
2012 - 2017



Sequoia (LLNL)
2012 - 2017



Mira (ANL)
2012 - 2017



Objective - Procure 3 leadership computers to be sited at ANL, ORNL and LLNL in CY17

Leadership Computers run the most demanding DOE mission applications and advance HPC technologies to assure continued US/DOE leadership

Approach

Competitive process - one RFP (issued by LLNL) leading to 2 R&D contracts and 3 computer procurement contracts

For risk reduction and to meet a broad set of requirements,
2 architectural paths will be selected

Once Selected, Multi-year Lab-Awardee relationship to co-design computers

Both R&D contracts jointly managed by the 3 Labs

Each lab manages and negotiates its own computer procurement contract, and may exercise options to meet their specific needs

Understanding that **long procurement lead-time may impact architectural characteristics and designs** of procured computers

CORAL Procurement Model

Two Diverse Architecture Paths



Why Diversity?

- **Promote a Rich HPC ecosystem**
 - Important to DOE and National Competitiveness
 - Competition of ideas
 - Price competition
- **Different applications may favor different architectures**
 - Which could help in meeting DOE mission needs
- **Risk mitigation**
 - Mission requirements must be met even in the face of delays or failure of one system or a particular vendor's product
 - Avoid single point of failure among all systems

How are we going to decide the two winners?

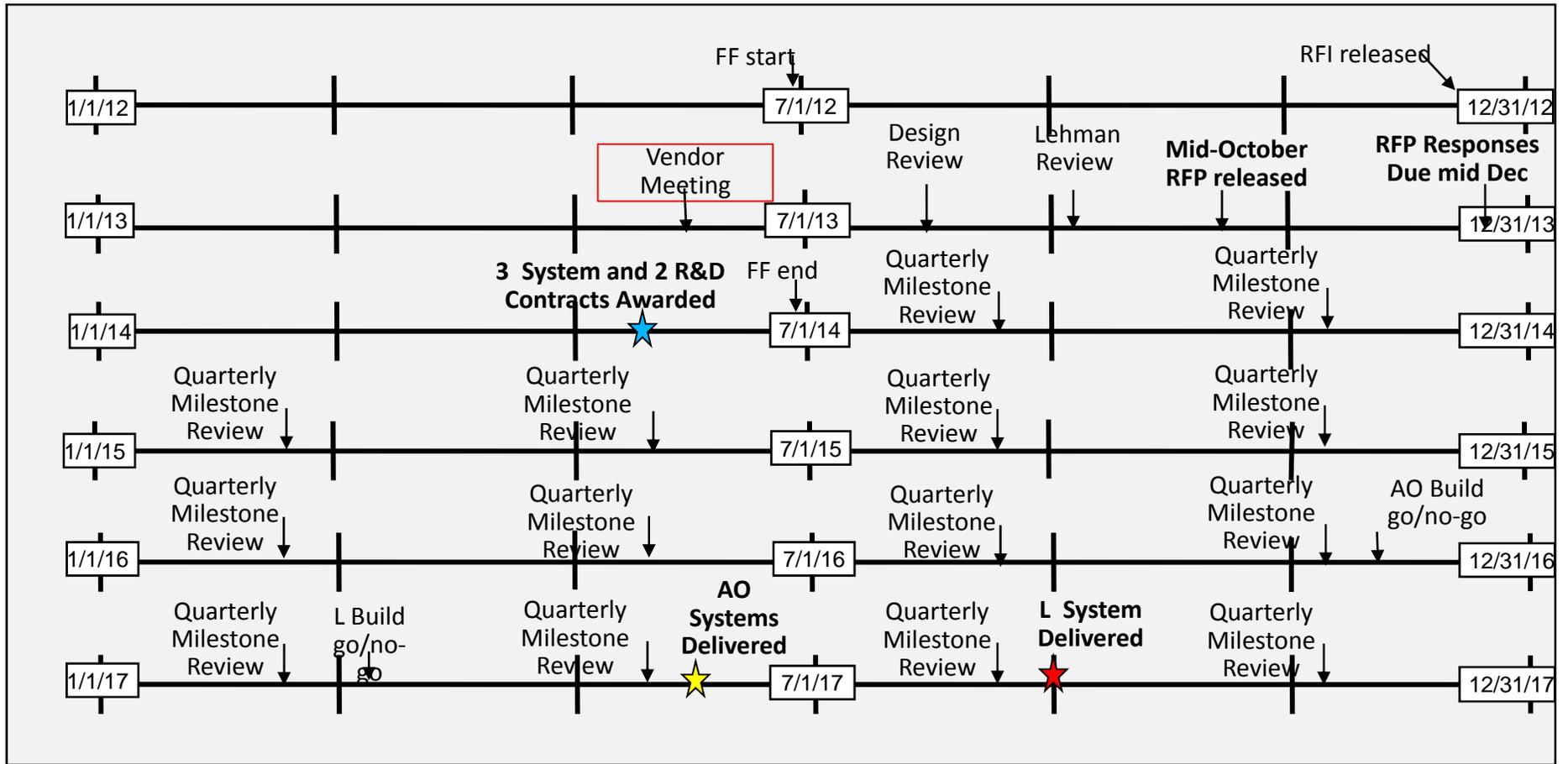
Process:

- CORAL intends to select two best value offerors to award 2 R&D contracts and 3 build contracts
- **Criteria:**
- Diversity is required - portfolio risk evaluation
- DOE mission requirements - the best combination of solutions
- Proposal risk evaluation
- Technical proposal excellence; projected performance on the benchmark applications is the most important single criterion
- Price and feasibility of schedule and performance
- Supplier attributes (more definition is on the web site)

Procurement approach designed specifically for acquiring leadership computers

- Long-term contractual partnership with vendors
- Few mandatory requirements; many targets
 - Targets are performance achievements that both parties reasonably believe could be achieved depending on the R&D; converted to traditional mandatory requirements
 - Evaluate the level of achievement of the system as a whole rather than an assessment of performance of each target individually
- R&D contracts coupled to Build contracts
 - R&D results are basis for GO/NO-GO decisions in build contracts
- **Obligations of the Parties article** acknowledges the risk associated with acquiring technology that does not exist at contract award; addresses performance obligations and price changes when, for instance, the results of R&D fail to support the requirements defined in the subcontract

Draft Procurement and Delivery Timeline



AO=ANL-ORNL
L=LLNL

★ CORAL contracts awarded

★ AO systems delivered

★ L system delivered

Vendor opportunity to ask questions on process and comment on the Draft Technical Specifications

- At this meeting
- Or by e-mail after the meeting to Gary Ward at *ward31@llnl.gov*
- To be most effective, we need comments by July 15th and at the very latest by *mid-August*
- Send comments to Gary Ward at *ward31@llnl.gov*
- All documents and an FAQ will be maintained on the CORAL website: *TBD*
- Benchmarks website <https://asc.llnl.gov/CORAL-benchmarks/>
 - is being maintained with source codes, input decks, output at scale, and directions.

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