T3E CUG
10/7/1999

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Agenda

- Software organization (many are in attendance)
- What changes with the divestiture
- Roadmap
- Programming model
- SV2 O/S the big picture changes
- Release Plans for UNICOS
- Conclusions

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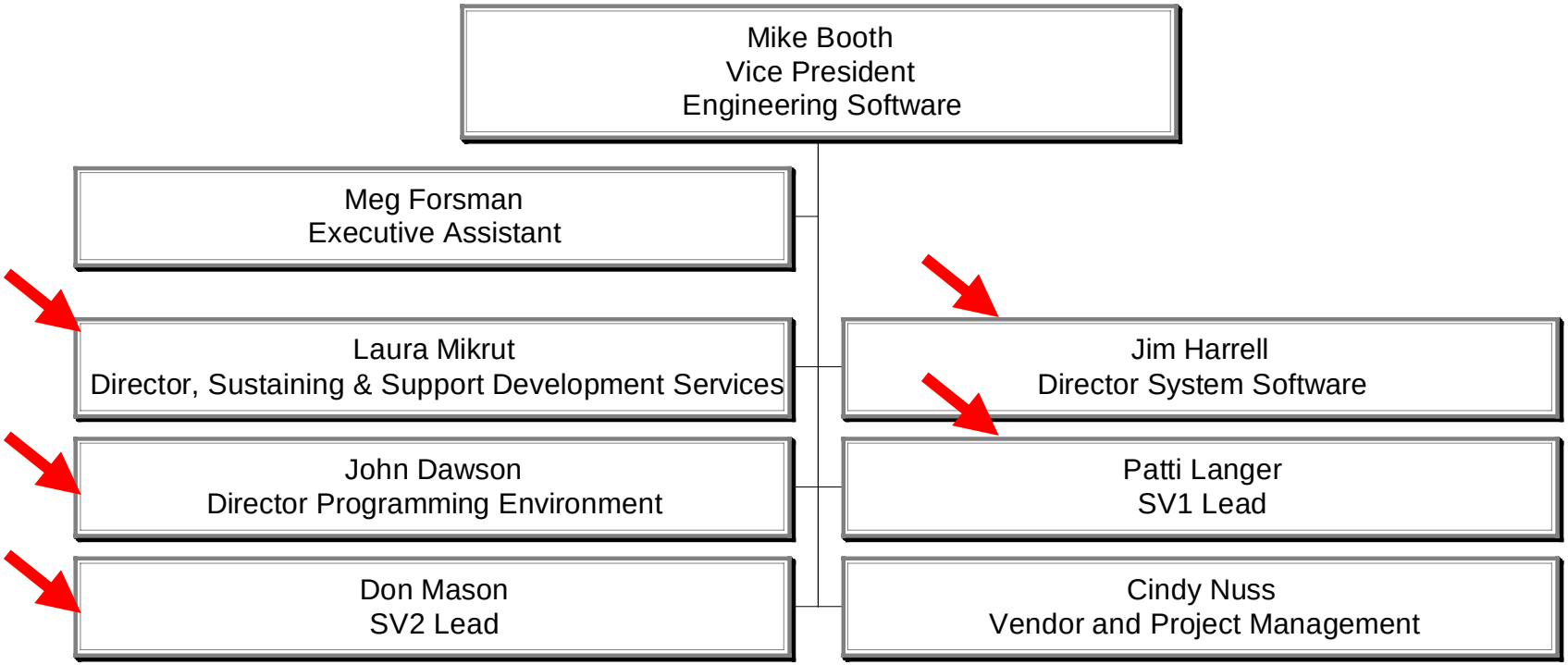
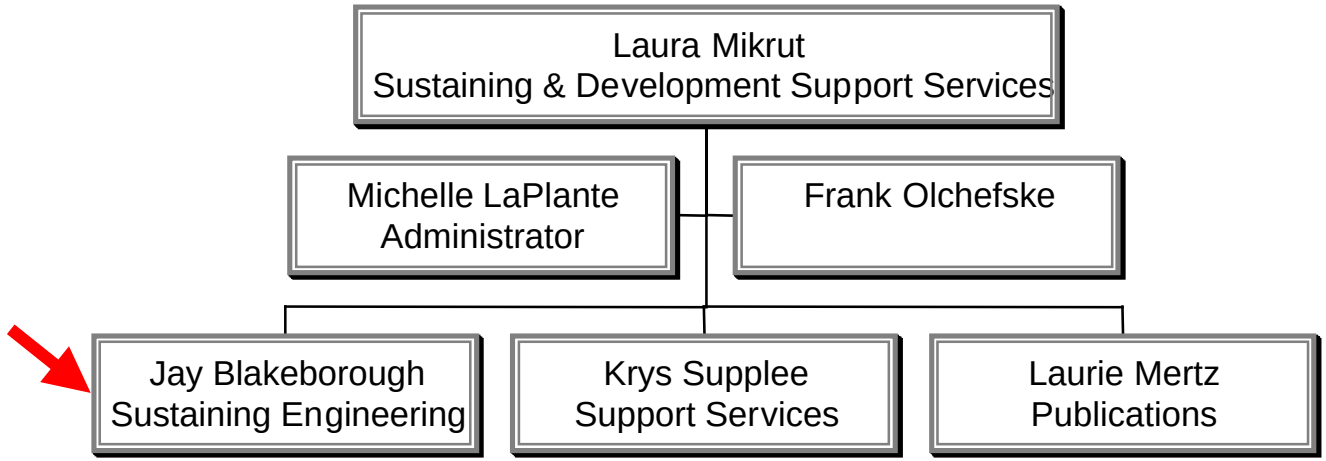
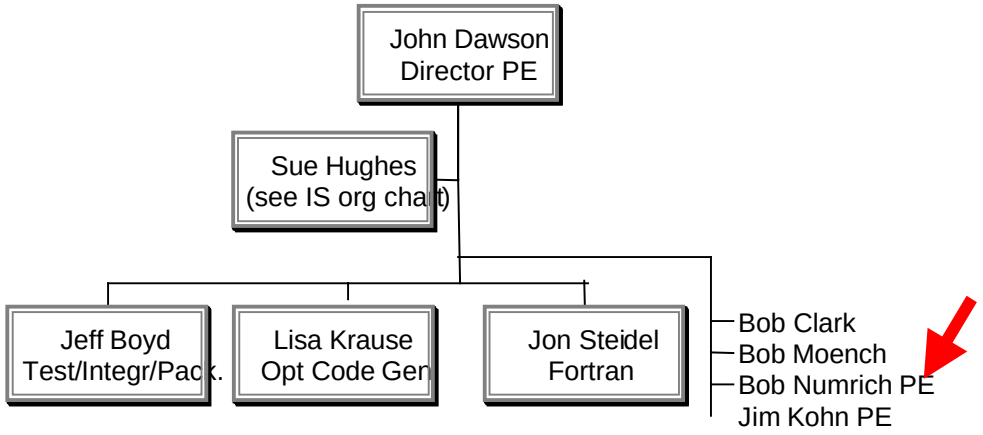
Cray Software



Cray Software



Cray Software



S/W Issues from the Split of SGI and CRI

Before divestiture:

- UNICOS and IRIX were organizationally merged
  - SV2 was a project within that organization
- The SV2 project depended upon ongoing leverage of IRIX
  - Scheduling, resilience, scaling work for IRIX was driven and leveraged for SV2
- Overall scalability story for SGI was covered with the SN product line

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Opportunities with the Split of SGI and CRI

After divestiture:

- SV2 no longer has to be rationalized in a highly populated roadmap
- SV2 becomes the follow on product to T3E, T90 and SV1
- SV2's only role is to be the most powerful supercomputer possible
  - O2k follow-on requirements of "1 virtual address space-ccNUMA-single cache domain" are not requirements for the SV2

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Opportunities with the Split of SGI and CRI

After divestiture:

- UNICOS is the critical heritage of Cray Research to carry forward
  - We have the people that brought you UNICOS
- Scalable with T3E / UNICOS/mk technology is possible in a standalone CRI company
- S/W is an independent organization that is focused on the Supercomputing market
- Roadmap is readable, clear, understandable

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Product Roadmap

Post Divestiture

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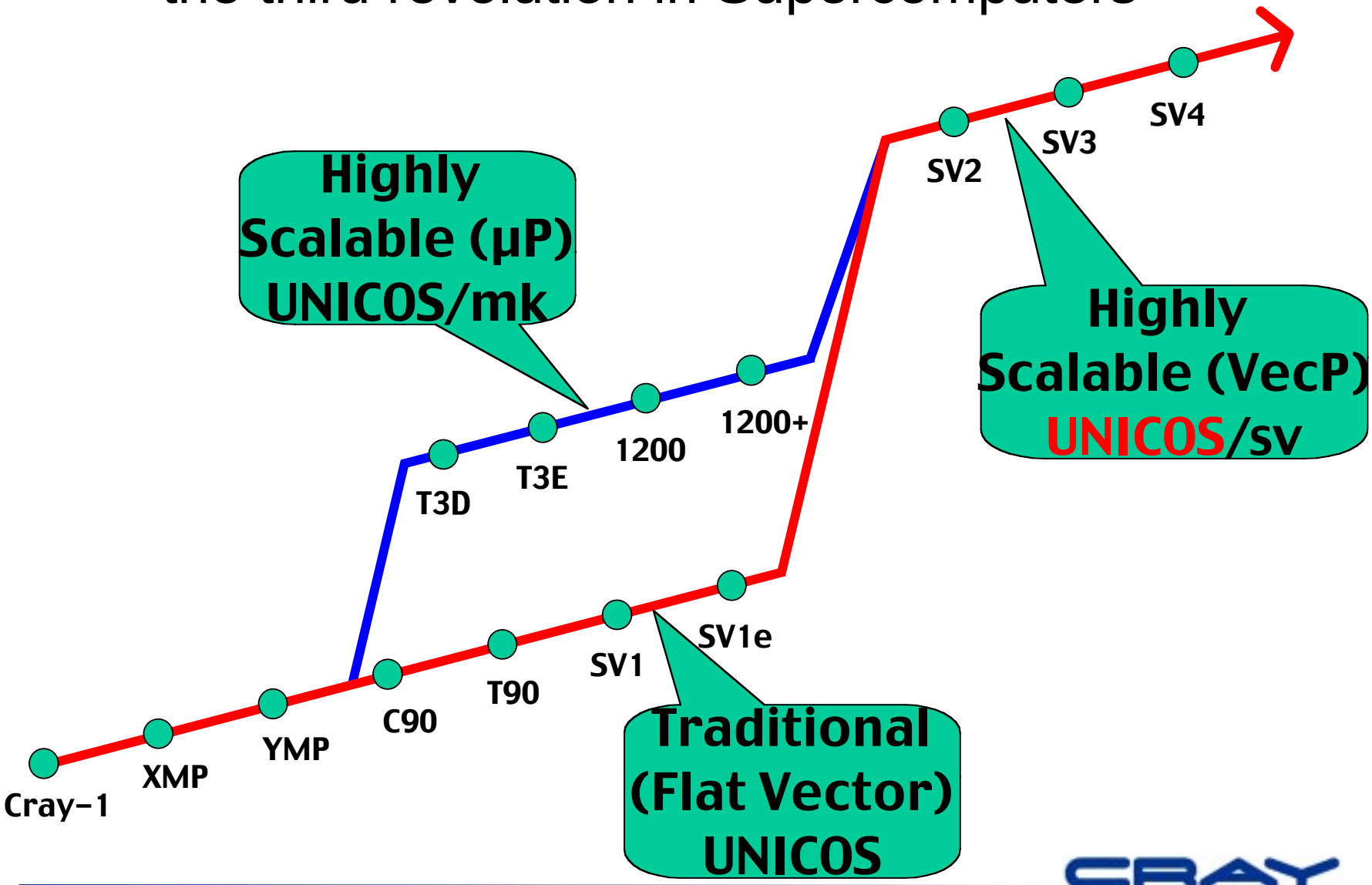
Cray Advantage
- the third revolution in Supercomputers



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Programming Model

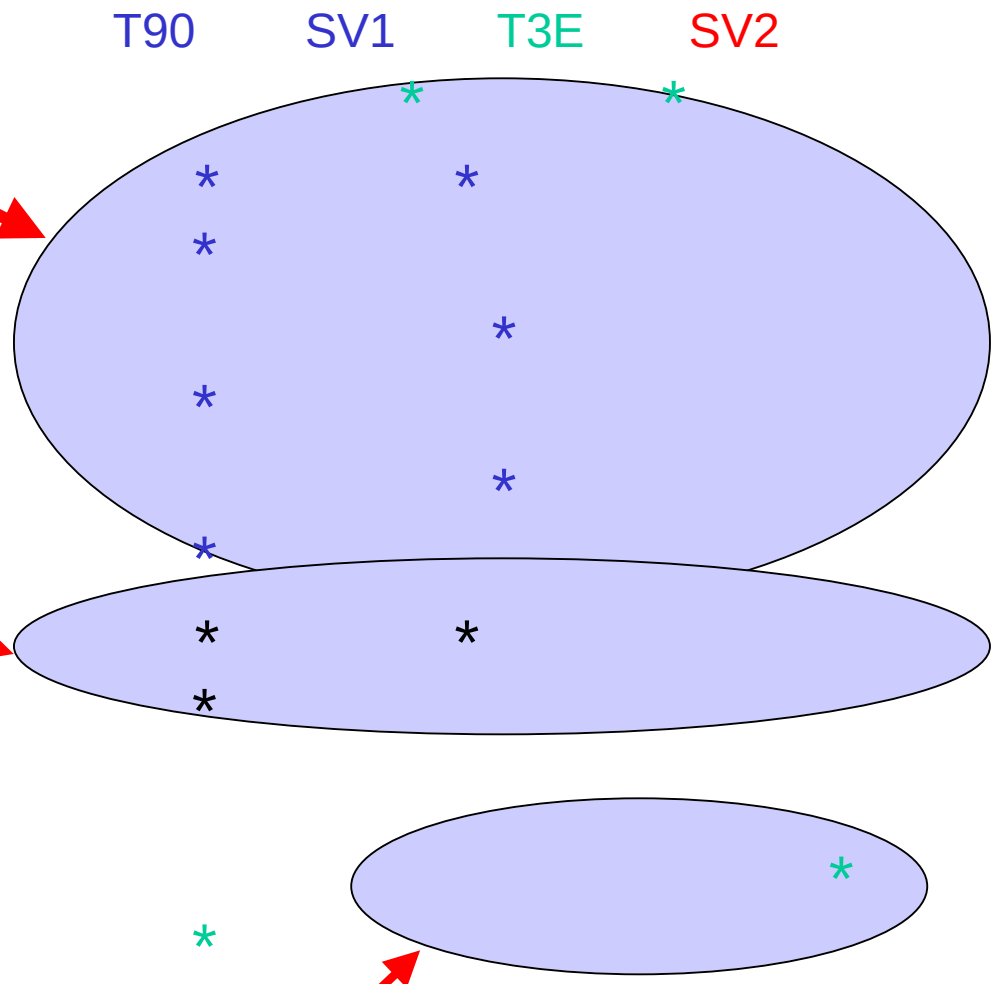
Programming Model

	T90	SV1	T3E	SV2
_ Super Scalar			*	
_ Vector	*			
_ Vector Cache	*		*	
_ MSP	*			
_ SMP				*
----------	*			
_ Dist Mem Parallel				*
	*			
	*		*	
	*			

Single PE optimizations

- Super Scalar
- Vector
- Vector Cache
- MSP
- SMP

- Dist Mem Parallel



Tasking

MPI, UPC, Co-Arrays

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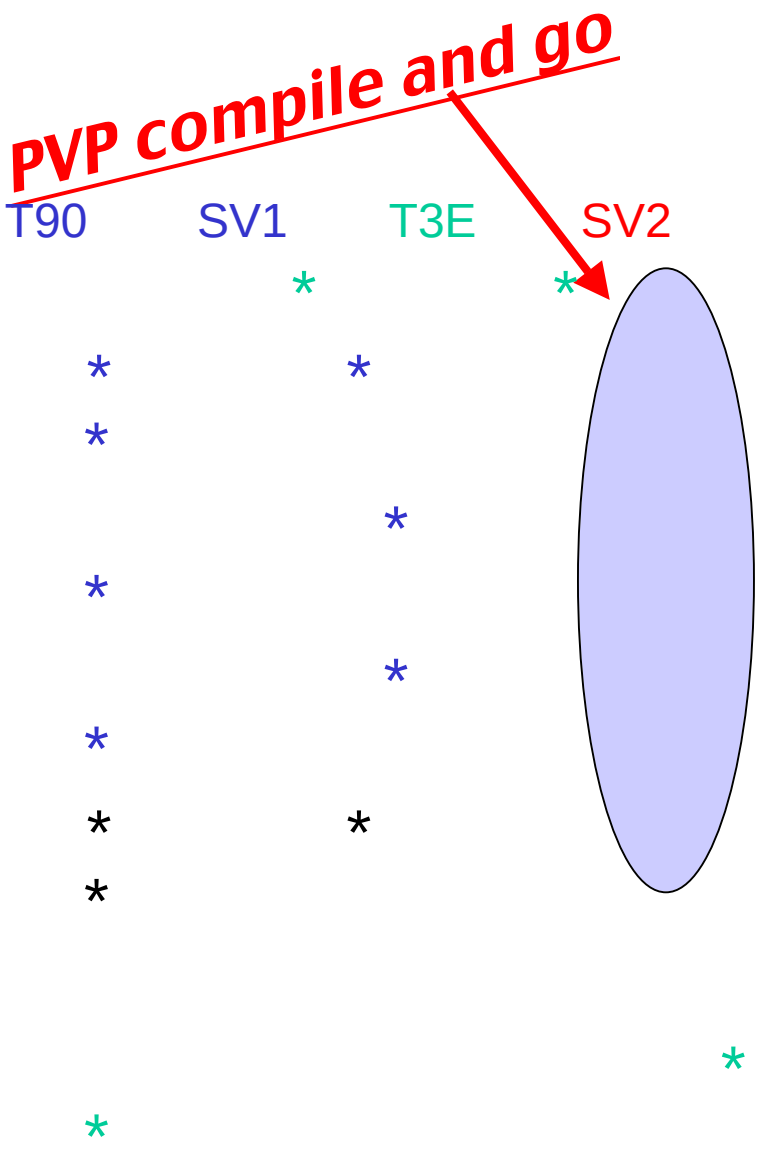
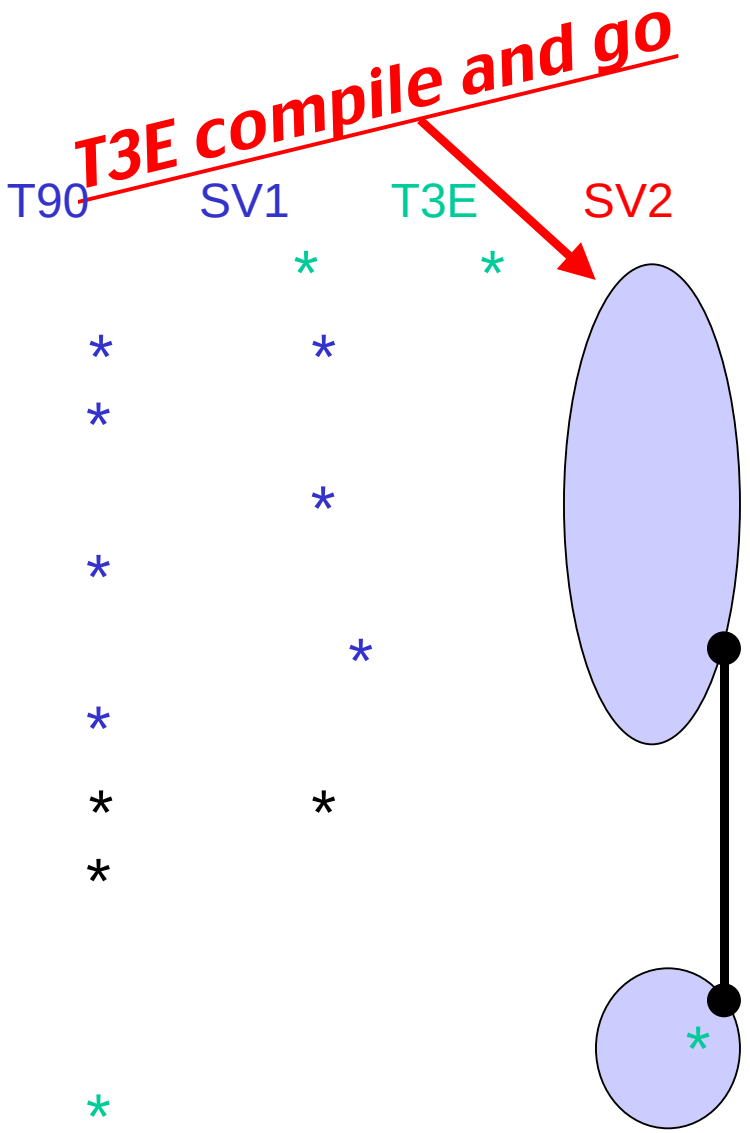
- Super Scalar
- Vector
- Vector Cache
- MSP
- SMP

- Dist Mem Parallel



- Super Scalar
- Vector
- Vector Cache
- MSP
- SMP

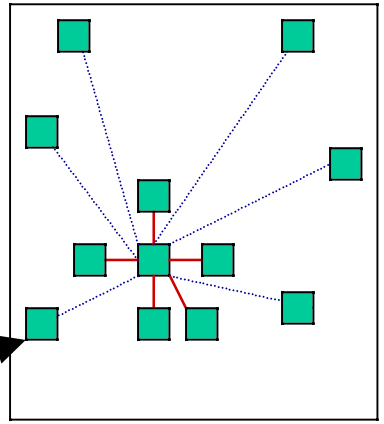
- Dist Mem Parallel



SV2 O/S the big picture changes

SV2 is enhanced to assure T3E Application performance

Hardware



SV2 Node
(4 MSPs)

SV2

Addition of Remote Translation Tables to improve performance of shmem like references across the machine

assuring scaling to 1024 MSPs for a single application

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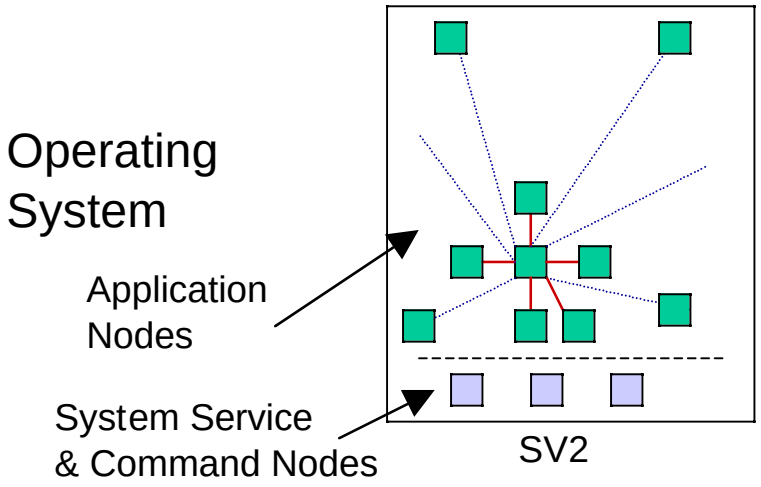
SV2 is enhanced to assure T3E Application performance



Migrating UNICOS/mk architecture to SV2; also providing T90 & SV1 application support

SV2 System Focus

- Performance
- Single System Image (not your father's cluster kludge)
- Distributed programming models
- Scaling to 1024 MSPs
- MSP/Vector and Shared Memory Parallel
- Resource management
- Resiliency

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SV2 Operating System Leverage

- Leverage from Servers
  - User File Systems and Middleware (backups, migration)
  - Network Connectivity
- Leverage on SV2 - Basic UNIX Capabilities
  - Process Management
  - Memory Management
  - File Systems
- 3rd Party Software (Totalview, EDG C/C++ front-end, etc)

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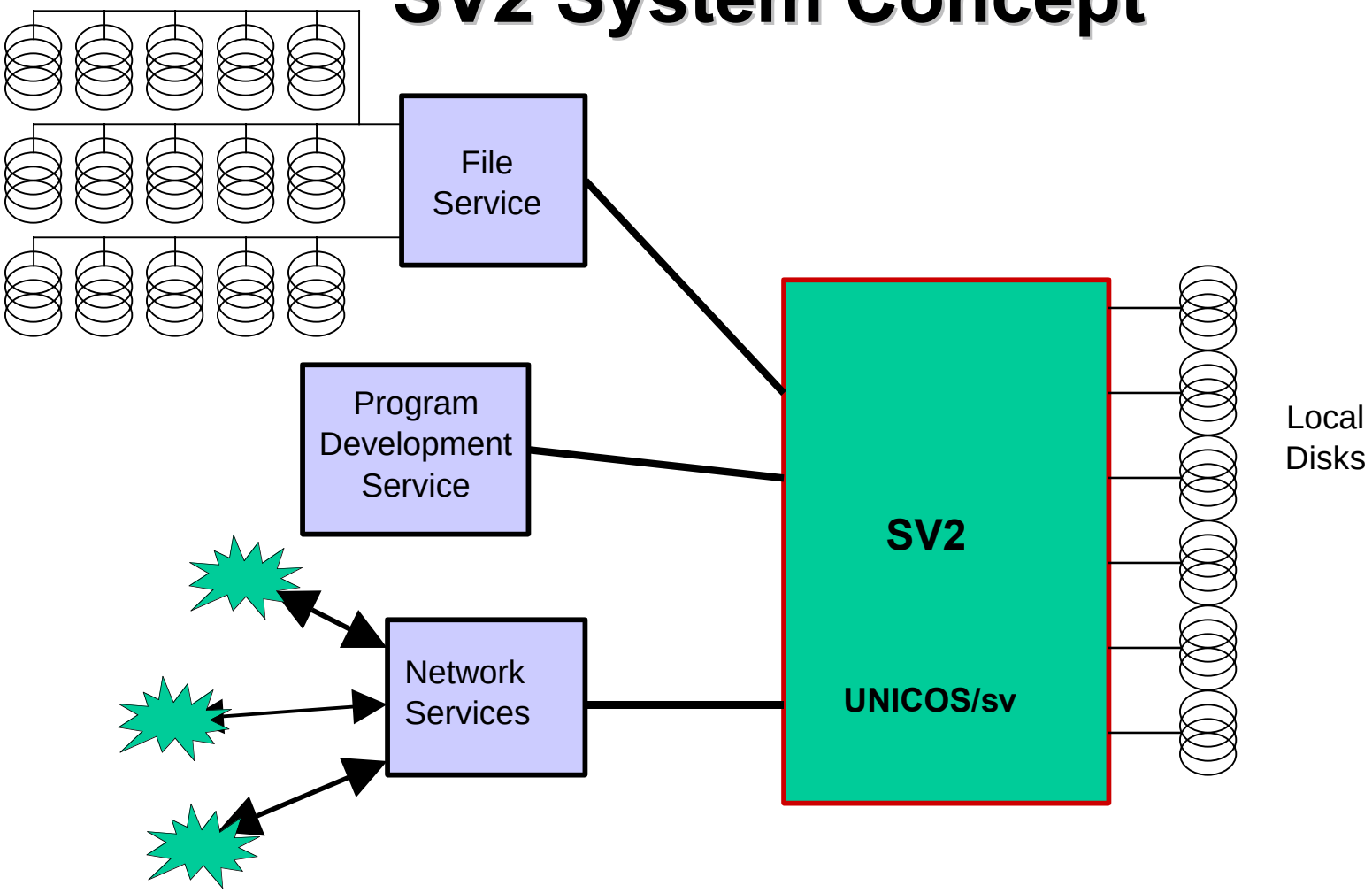
SV2 System Concept



Release Plans for UNICOS

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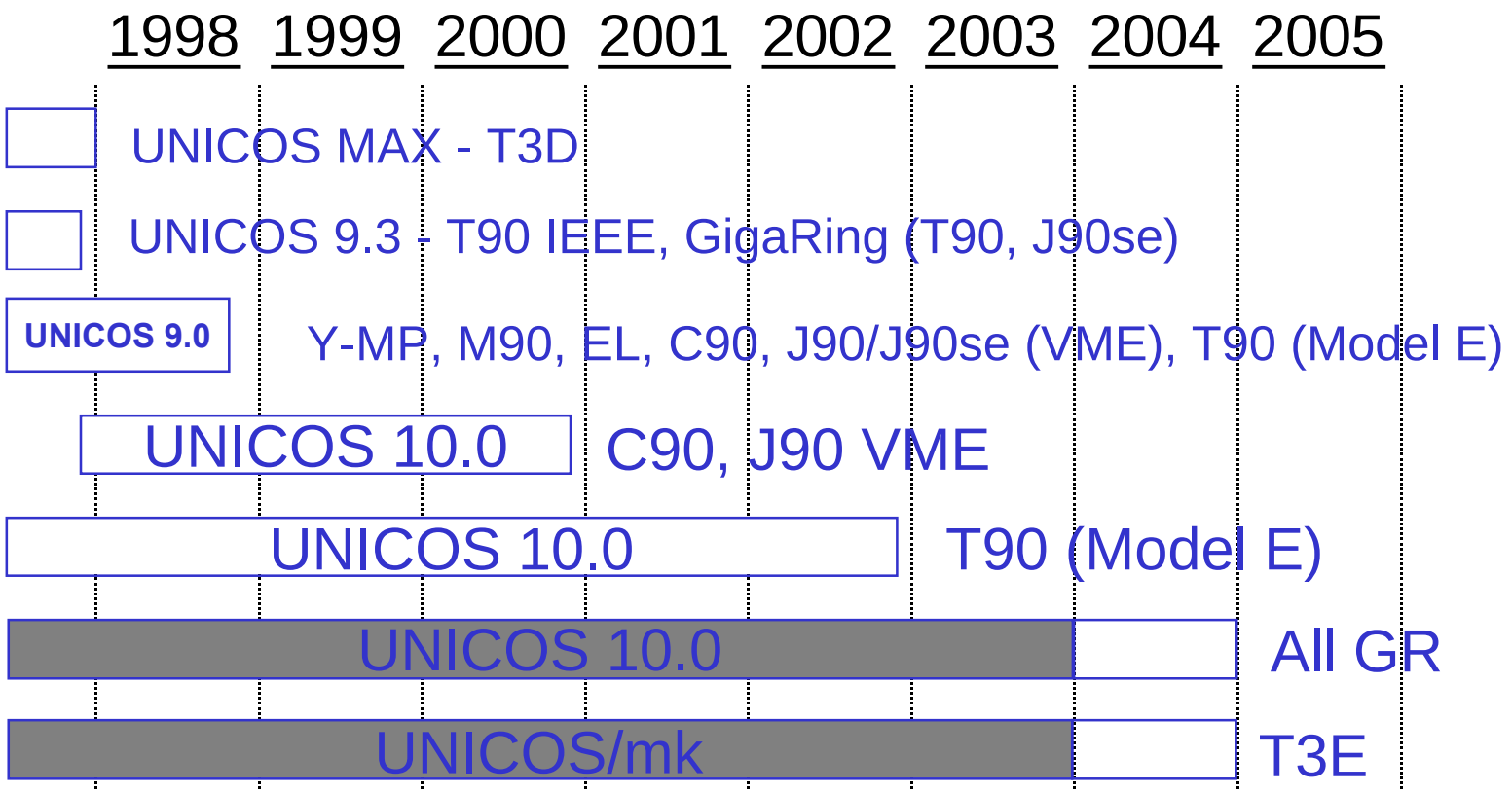
OS Software Support



Release Strategy

- UNICOS
  - No more major releases
  - Driven by number/severity of fixes; SV1 hardware
  - ~4-6 month cycle
- UNICOS/mk
  - Annual releases
  - Overlapping support starting with 2.0.5
- SWS-ION
  - Goal is 6 month release cycle
- Programming Environment
  - Goal is 6-9 month release cycle

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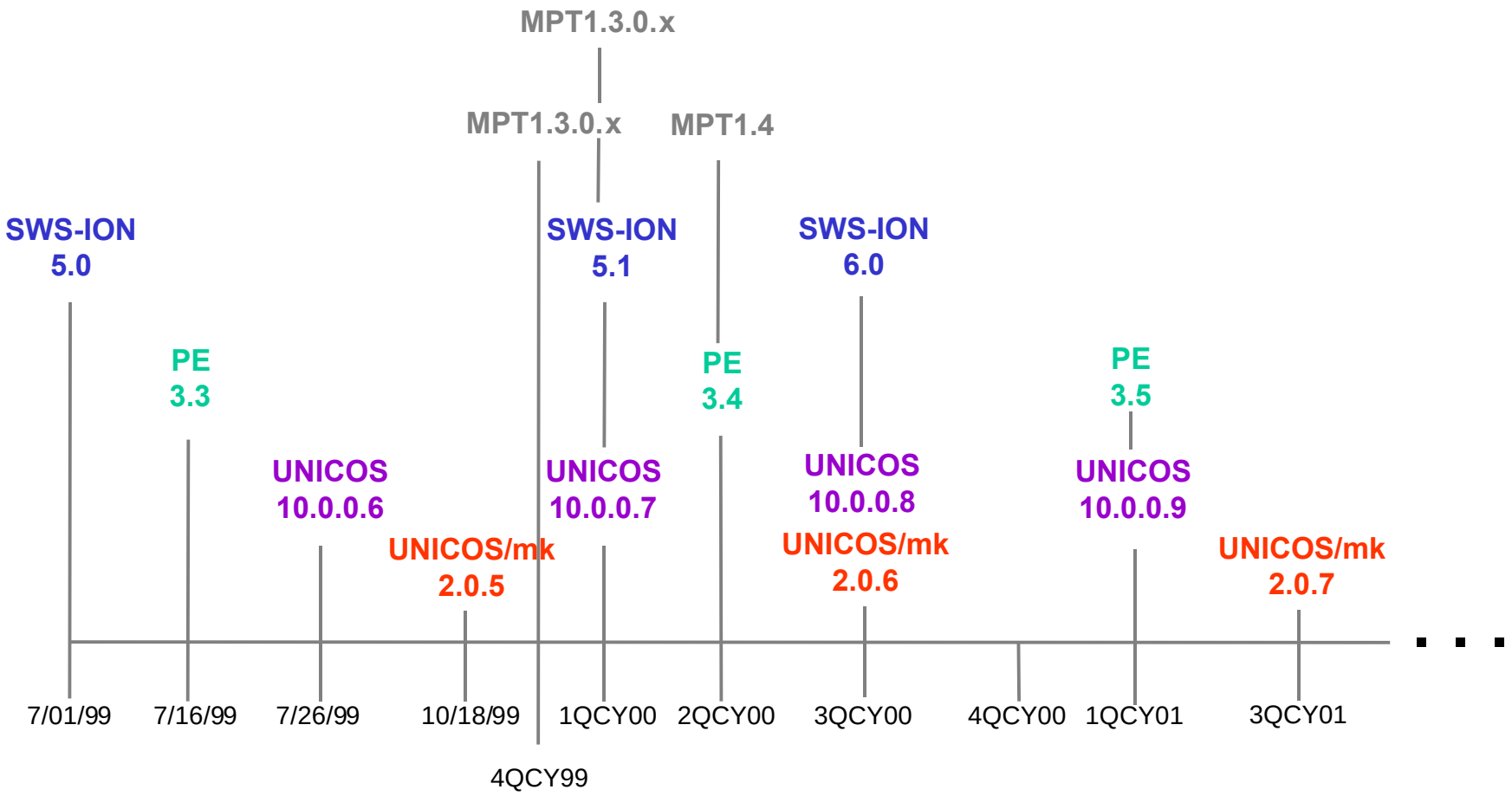
Release Schedule



Programming Environment

- 3.3 (7/16/99)
  - Initial support for (Rev-B) SV1
  - SV1 streaming (MSP) support in Fortran
  - Fortran inlining performance enhancement
- 3.4 (2Q00)
  - Continued performance enhancements on SV1
  - SV1 streaming (MSP) support in C/C++
  - Support for Supercomputing API completed
  - libsci SV1 performance enhancements

SWS-ION

- 5.0 (7/01/99)
  - O2 console (J90 & SV1 only)
  - Cluster resiliency
  - FCN initial install support
  - Solaris Y2K compliance for SWS
  - Reduce duplicate console messages
- 5.1 (1QCY00)
  - SV1 Super Cluster enhancements -- auto recovery
  - Support 36GByte drives
  - Potentially move SWS back to SUN platform

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UNICOS

- 10.0.0.6 (7/26/99)
  - SV1 Rev B support
  - SV1 VME support
  - Global UDB for SV1 clusters
  - MSP kernel support
  - SV1 cluster initial install support
  - BDS 2.2 client
- 10.0.0.7 (1Q00)
  - Dynamic MSP partitioning
  - BDS 2.1 server and 2.3 client
  - Cluster shell (clsh)

UNICOS

- 10.0.0.8 (3Q00)
  - SV1e hardware support
  - Investigating MSP support in UNICOS Under UNICOS (UUU)
- 10.0.0.9 (1Q01)
  - SV1e installation support

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UNICOS/mk

- 2.0.5 (10/18/99)
  - PE renumbering
  - Warmboot from mainframe
  - GRM global service limits
  - Dump compression
  - psched load balancer enhancement
  - psched gang scheduler slice variation for swapping
  - GRM application load-n-go with gang scheduling
  - GRM application mini-launch with gang scheduling
- 2.0.6 (3Q00)
  - Investigating persistent objects for command performance
  - BDS 2.1 server
  - Concentration on stability/performance

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MPT

- 1.3.0.x (4Q99)
  - Change default buffering for better performance (T3E-900+)
- 1.3.0.x (1Q00)
  - Performance optimizations to reduce default latency (T3E-900+)
    Courtesy of EPCC
- 1.4 (2Q00)
  - MPI-2 one-sided functionality
    Courtesy of EPCC

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Netherlands CUG

Detailed plans to be announced at next CUG

- MPT features and UNICOS/mk BDS server upgrade are examples of changed plans due to SGI/Cray split
- Bring some products out of maintenance/retirement mode
- Transition plans from SV1/T90/T3E to SV2
- Bring clarity to product lifecycle plans

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Conclusion

- Cray is back
- We are focused on Supercomputing
- UNICOS and UNICOS/mk are alive and well
- The SV2 is the follow on product to the T3E and PVP computers

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