

Introducing OpenSHMEM

Presented by

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**U.S. Department of Defense



Introducing OpenSHMEM

- **University of Houston**
- **Oak Ridge National Laboratory**
- **Open Source Software Solutions**
- **Department of Defense**

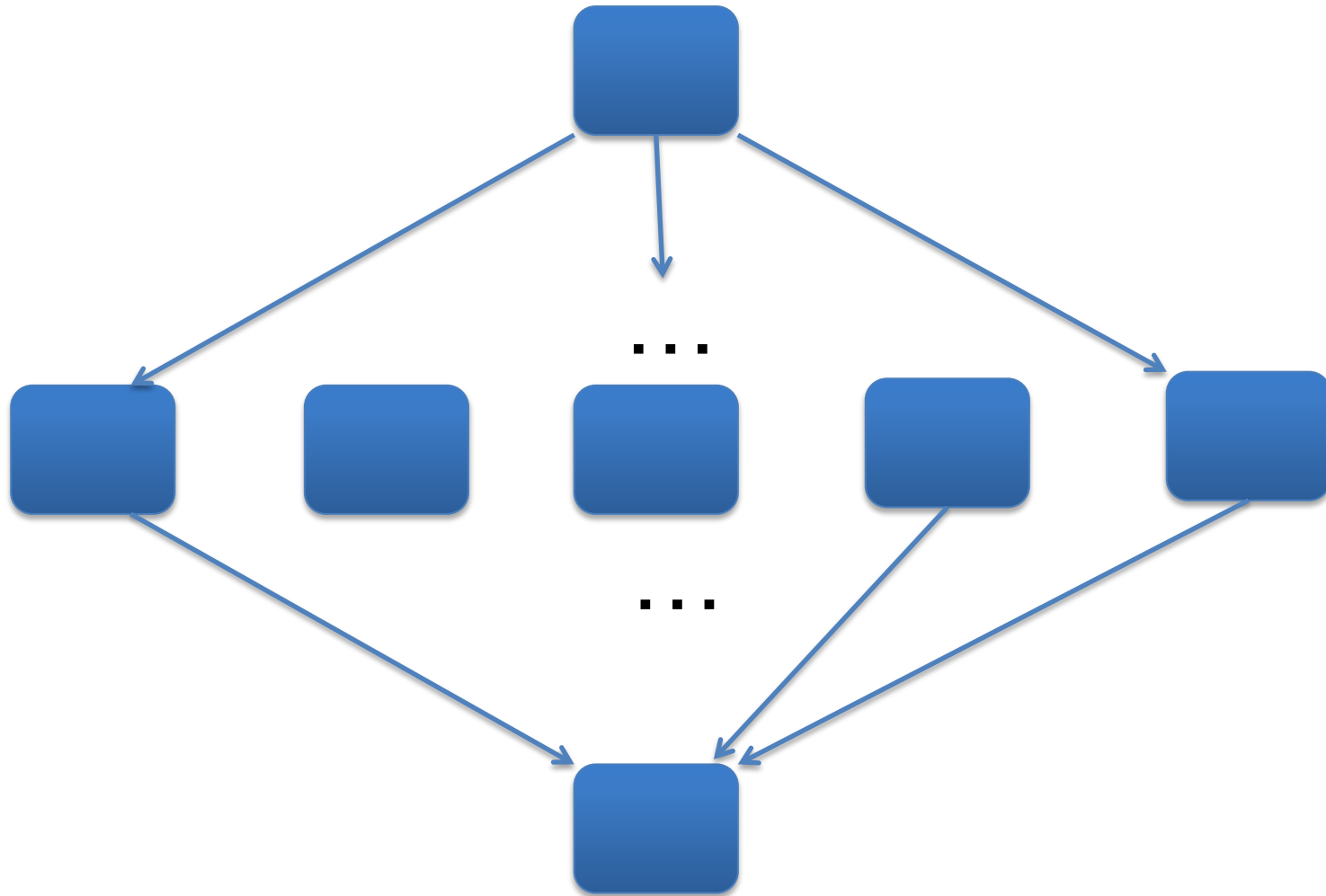
Introducing OpenSHMEM

- SHMEM is a *1-sided* communications library
- **SH**ared **MEM**ory
- C & Fortran PGAS programming model
- Point-to-point & collective routines
- Synchronizations & atomic operations
- Can take advantage of hardware offload
 - Performance benefits

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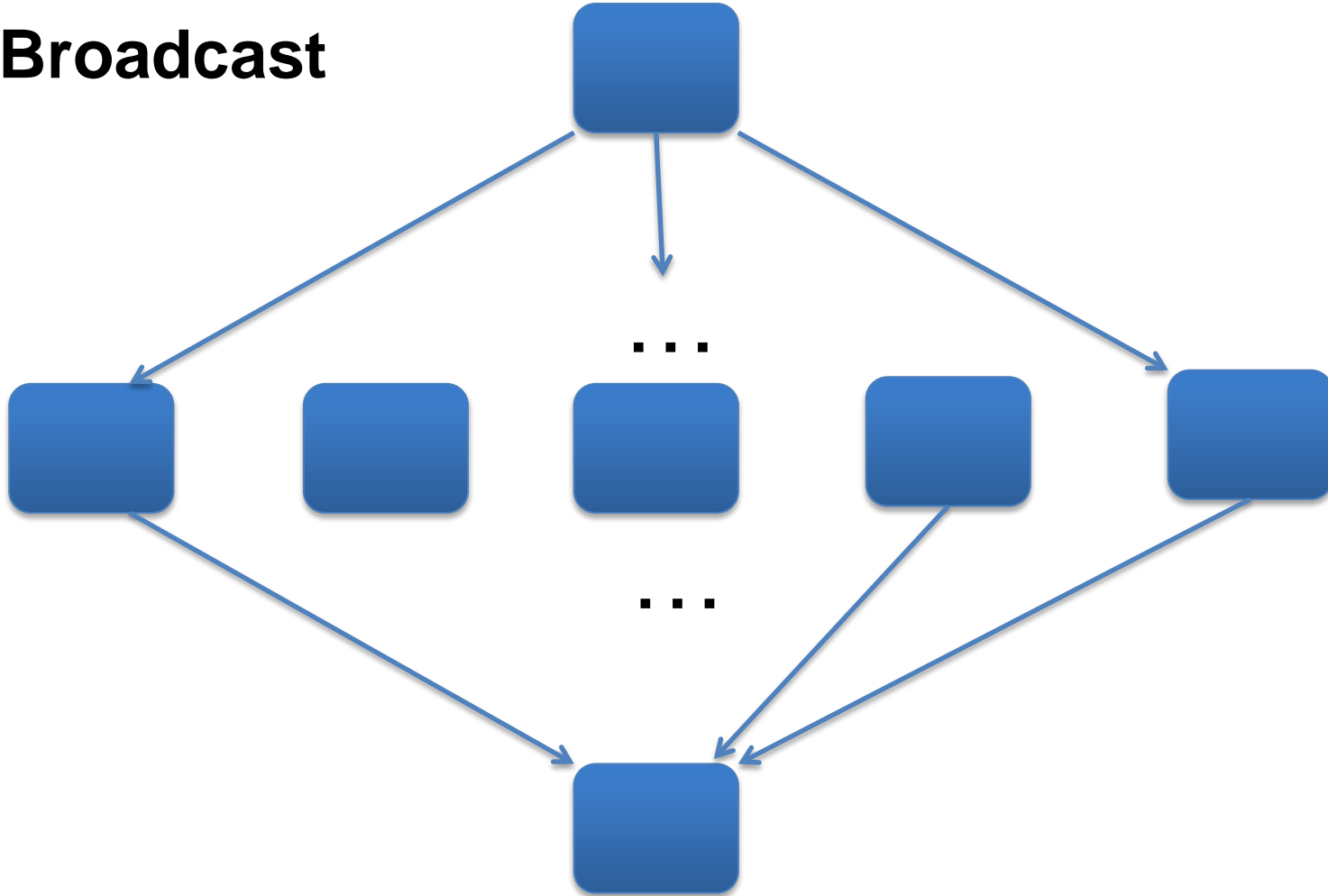
- All processors see symmetric variables
 - *Global Address Space*
- All processors have own view of symmetric variables
 - *Partitioned Global Address Space*
- A PGAS model

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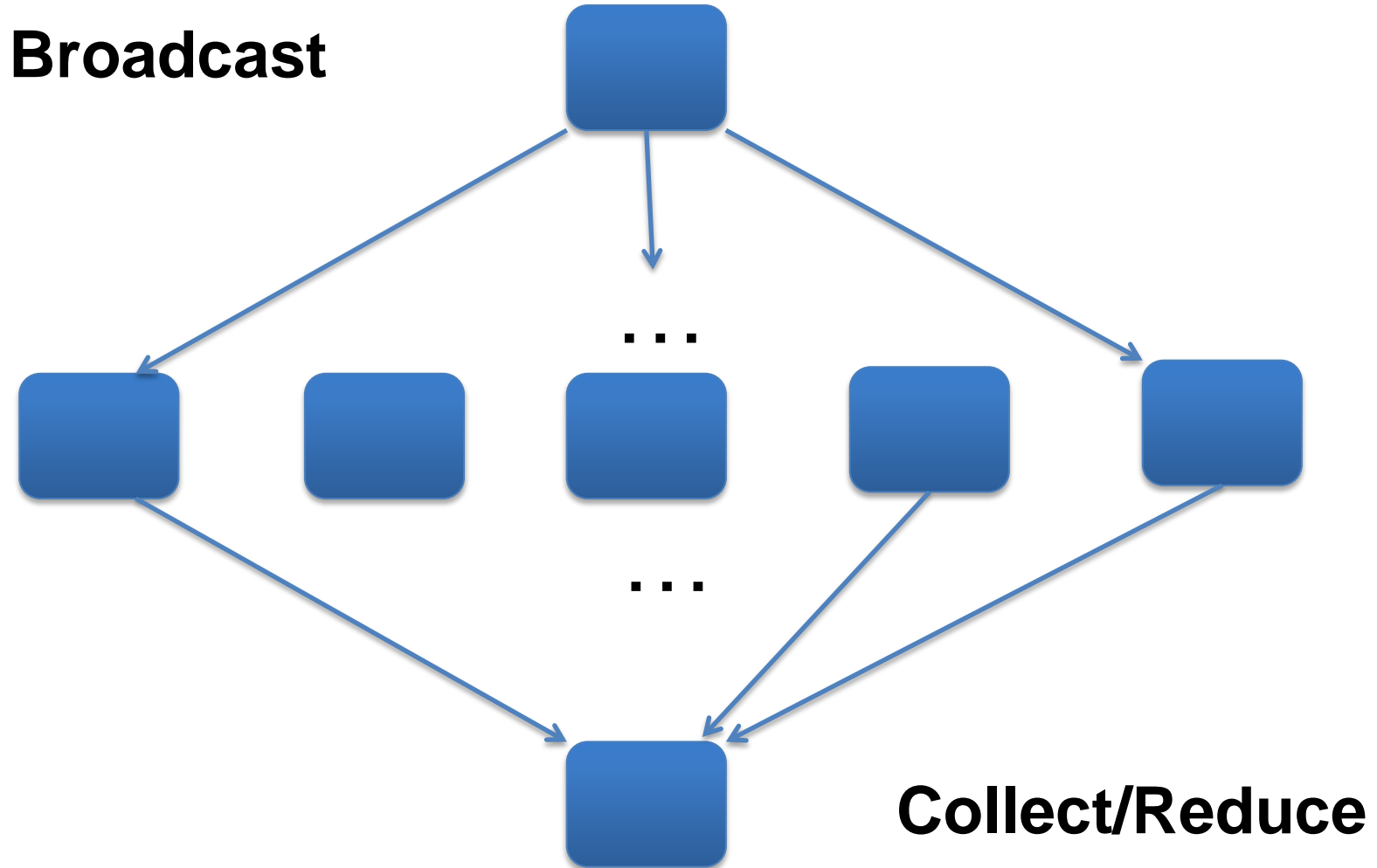


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Broadcast



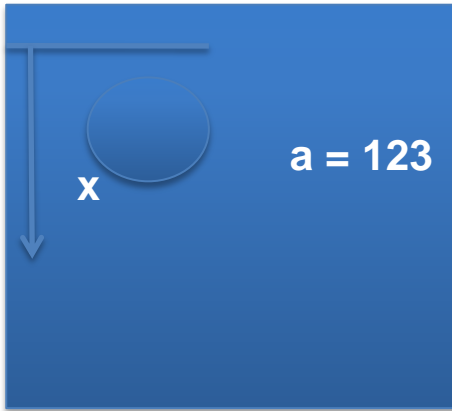
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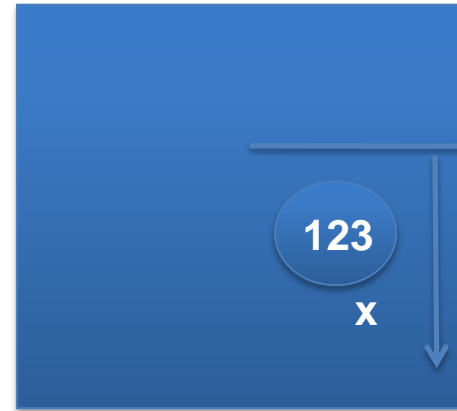
PE 0

Symmetric
memory



PE 1

Symmetric
memory

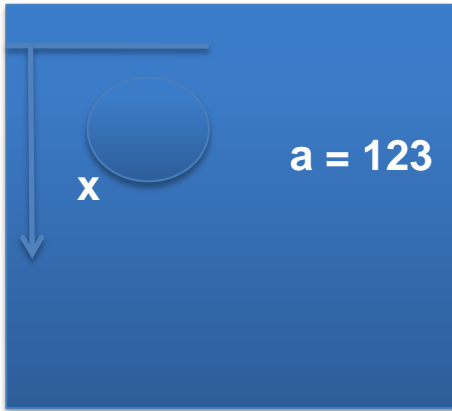


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Symmetric allocation

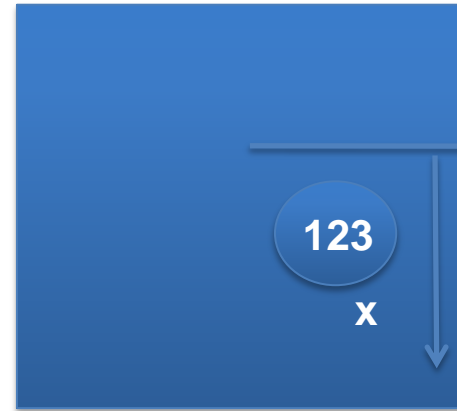
PE 0

Symmetric
memory



PE 1

Symmetric
memory



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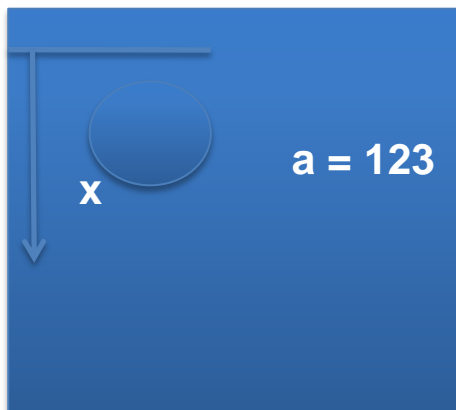
Symmetric allocation

```
x = (int *) shmalloc(sizeof(int));
```

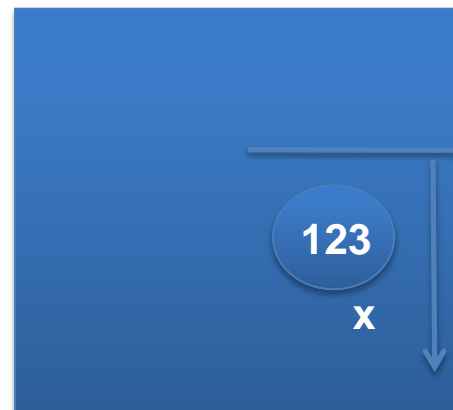
PE 0

PE 1

Symmetric
memory

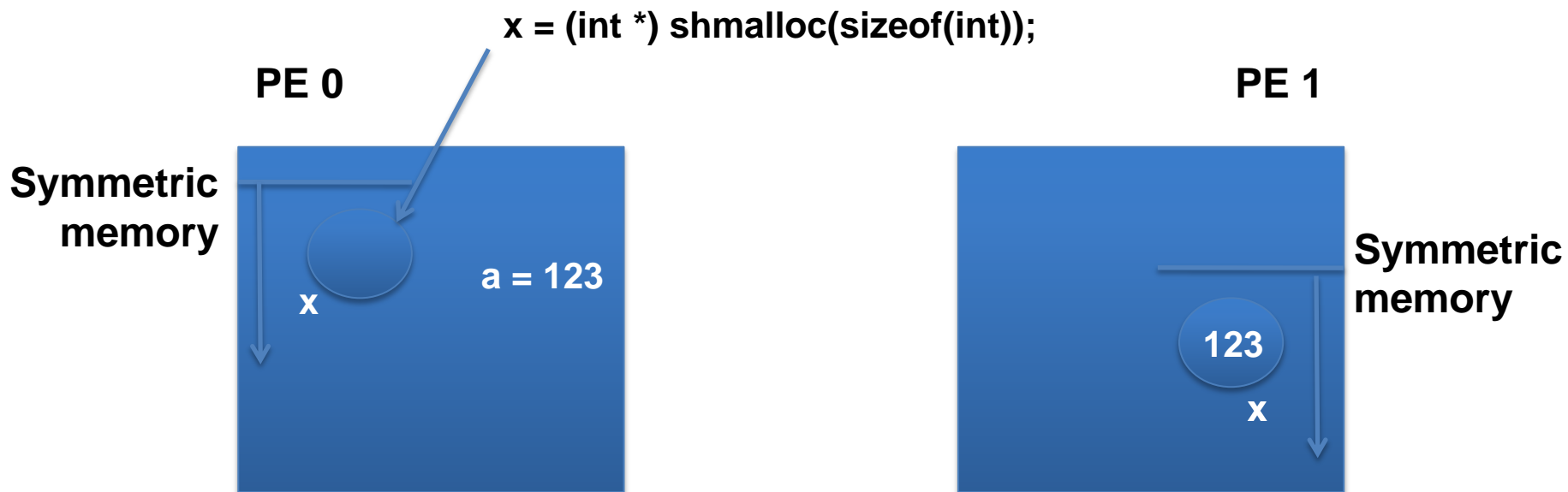


Symmetric
memory



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Symmetric allocation



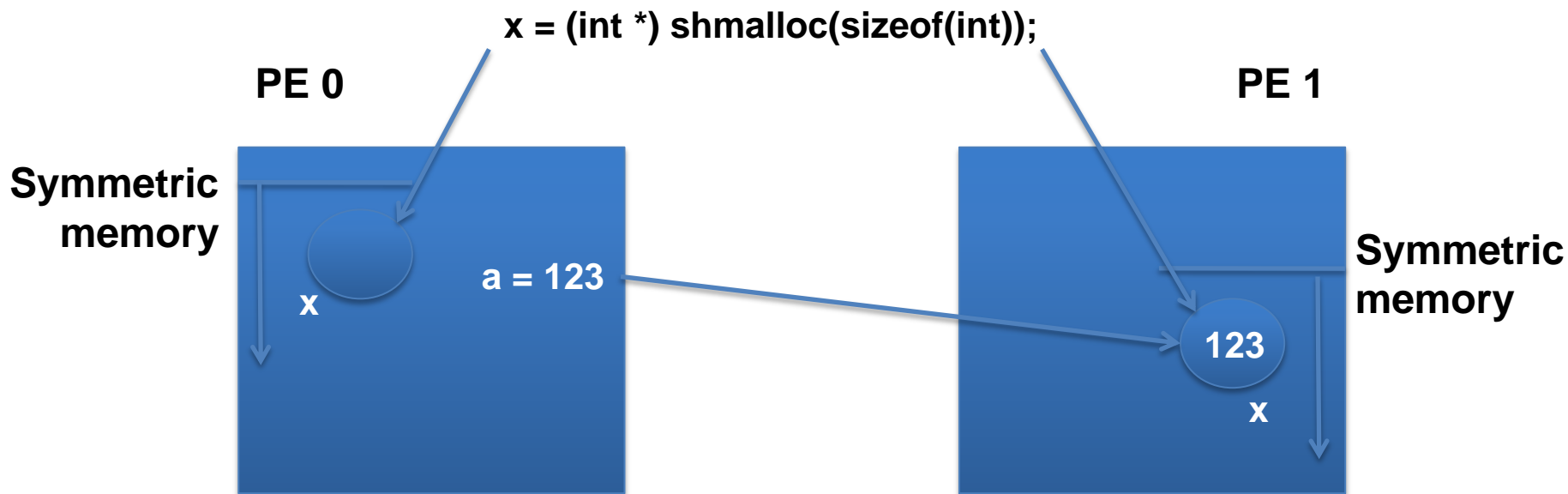
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Symmetric allocation



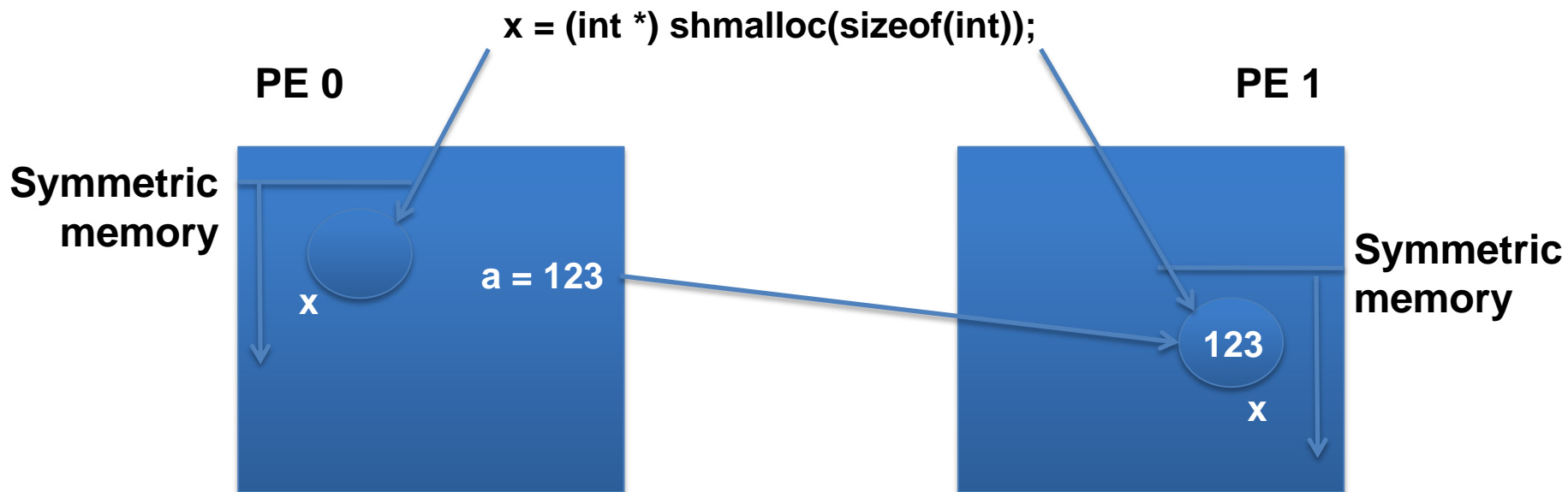
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Symmetric allocation



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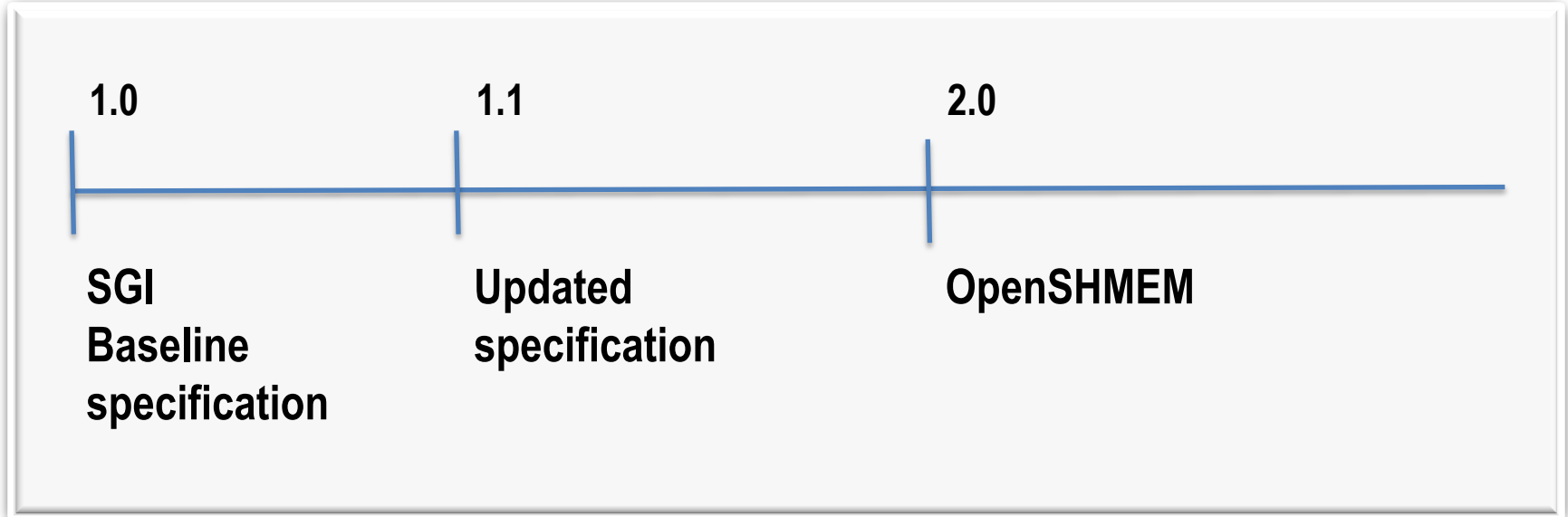
Symmetric allocation



Put to symmetric memory

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From SHMEM to OpenSHMEM



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Outreach and participation

- **Community web site (under construction)**
 - Wiki
 - Documentation: FAQ, cheat sheet, specifications
 - Training material / tutorials
 - Source code, suites, applications downloads
- **Conferences / workshops / mailing list(s)**

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To get involved

- Subscribe to the OpenSHMEM mailing list

<https://email.ornl.gov/mailman/listinfo/openshmem>

- OpenSHMEM web site
 - ***COMING SOON!***

Introducing OpenSHMEM

- **Birds of a Feather meeting**
 - **“OpenSHMEM”**
 - **Wednesday, 5:30pm – 7:00pm, Room TCC 303**
- **Booth presence**
 - **PGAS (#124)**
 - **Oak Ridge National Laboratory (#1831)**
 - **Gulf Coast Academic Supercomputing (#3009)**
 - **SGI (#1841)**

Contact

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