Parallel Processing in ROSA II

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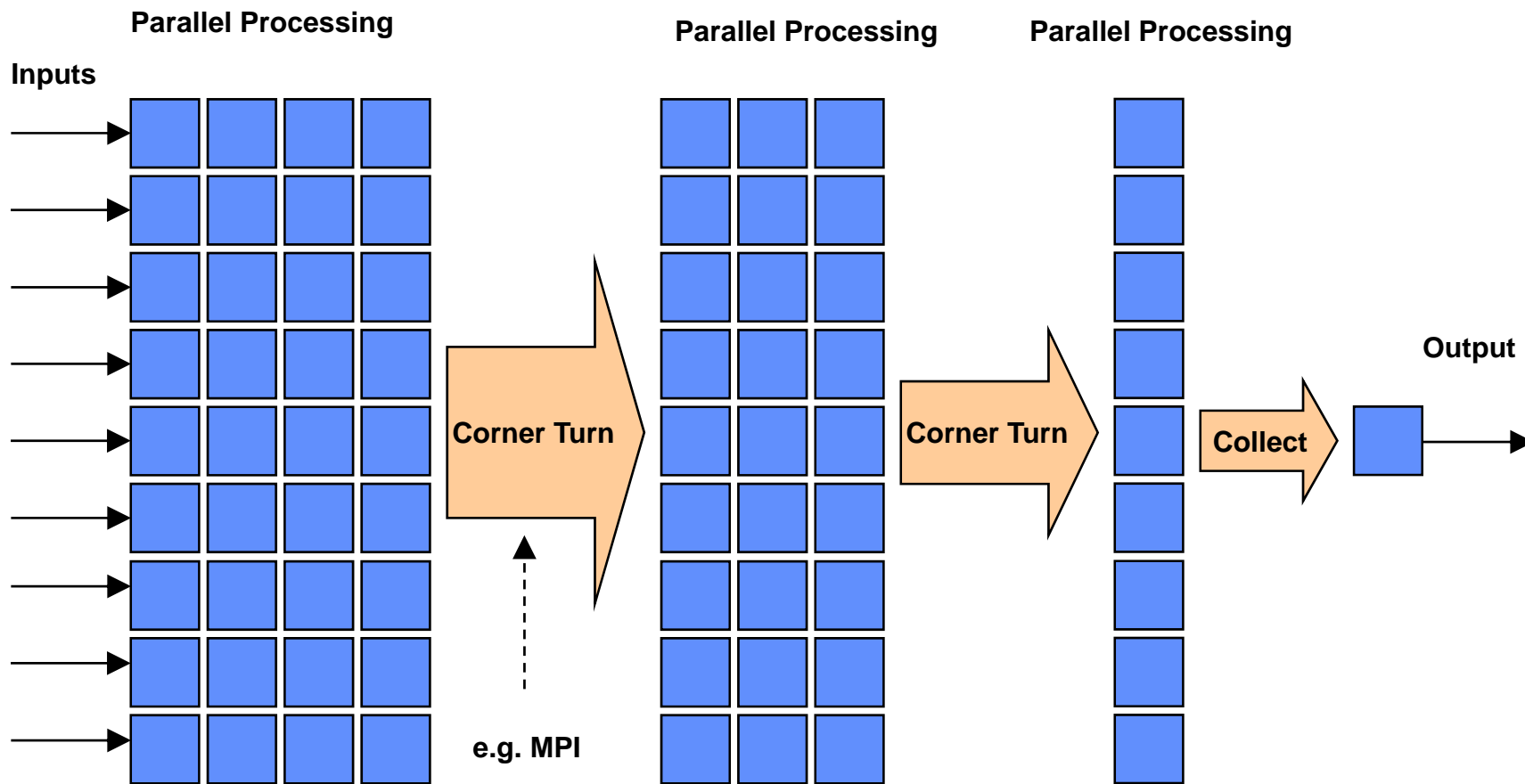
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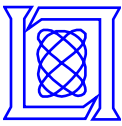
09/22/2009

Typical Parallel System

Parallel Processing

Inputs

Parallel Processing

Parallel Processing
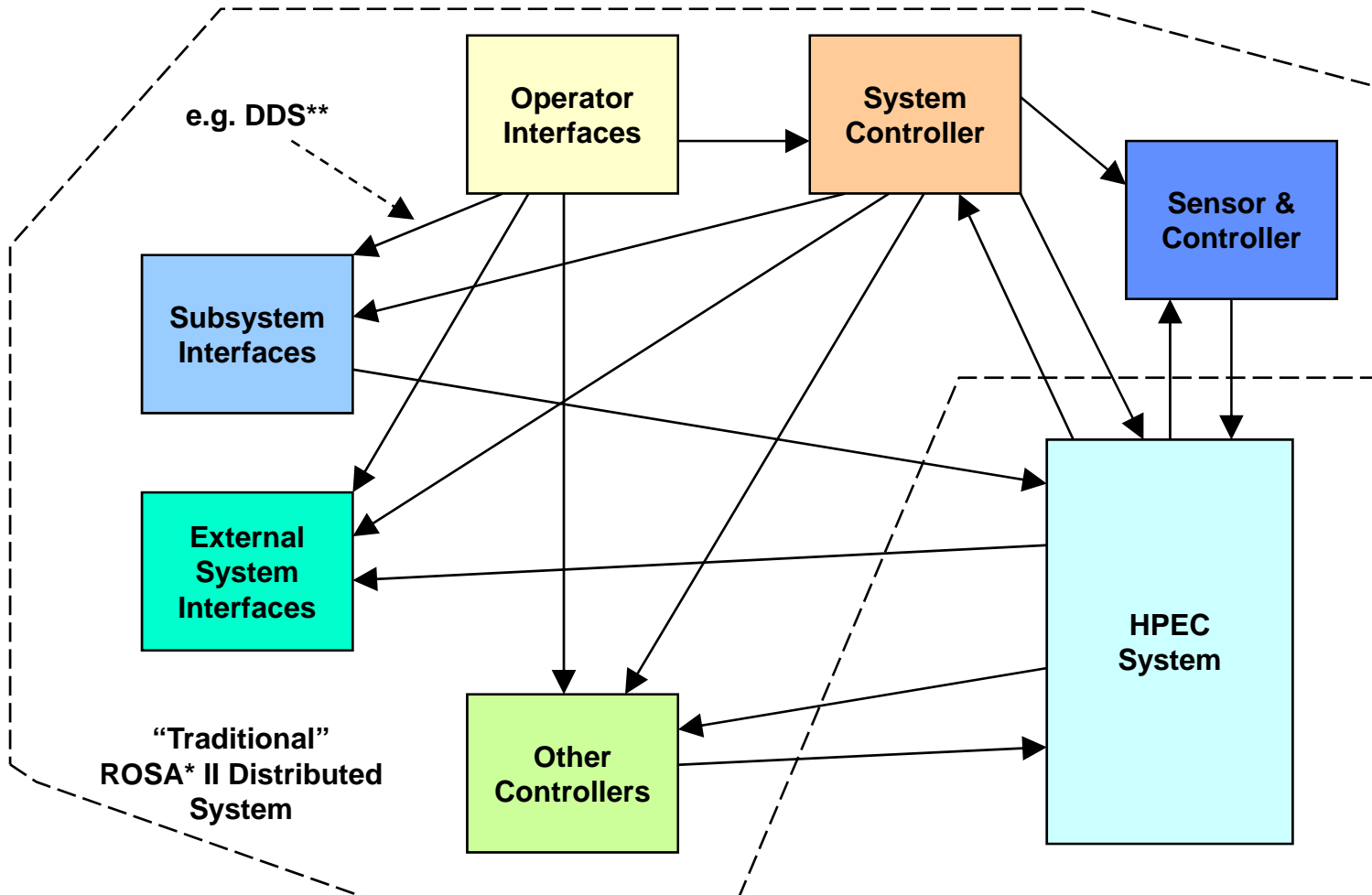
Corner Turn
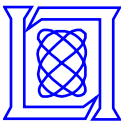
e.g. MPI

Corner Turn

Collect

Output

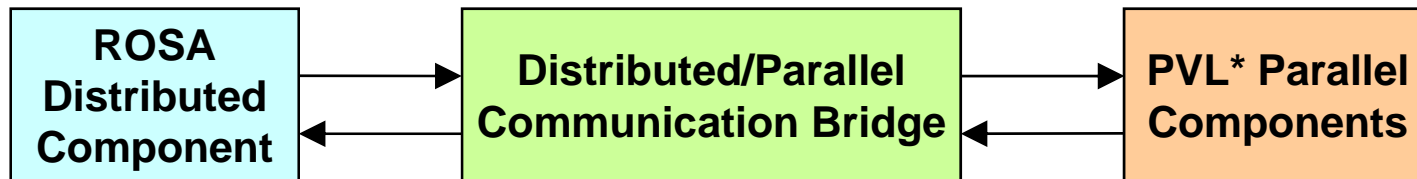Parallel Processing "View of the World"

HPEC Within A Larger System

HPEC Systems are usually a component within a larger system. The larger system tends to look more like a "distributed" system rather than a "parallel" system.

*Radar Open System Architecture
**Distributed Data Standard

Approach

- **This presentation shows results from a case where a LL developed system level middleware and another LL developed HPEC middleware were required to inter-operate**

- **Distributed / parallel component interaction can be implemented via a communication bridge**

ROSA Distributed Component	→ ←	Distributed/Parallel Communication Bridge	→ ←	PVL* Parallel Components

- **Testing approach**
  - **Interaction between distributed and parallel components is a communication problem**
  - **Comm is typically described in terms of latency & bandwidth**
  - **Tests measure round-trip latency and max bandwidth**

*Parallel Vector Library

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