Charm++ - Feature #982

Gather reduction operation using Tuple/Set reducers

02/15/2016 04:58 PM - Sam White

Status:	Merged	**Start date:**	07/17/2016
Priority:	Normal	**Due date:**	
Assignee:	Steve Hoelle	**% Done:**	100%
Category:		**Estimated time:**	0.00 hour
Target version:	6.8.0-beta1	**Spent time:**	0.00 hour

Description
This is CkReduction::set with source identifiers per contribution. We could have 2 arrays with the same number of elements, one with source indices and one with delimited contributions. Or we could have a source field in each contribution struct...

Subtasks:	
Documentation # 1140: Document tuple/stats reducers	**Merged**

Related issues:		
Related to Charm++ - Feature #985: Make AMPI_Gather and its variants use Tupl...	**Merged**	**02/17/2016**

History

#1 - 02/18/2016 11:01 AM - Eric Bohm

- Tracker changed from Bug to Feature

this is not a bug, it is a new feature request.

#2 - 05/23/2016 01:25 PM - Sam White

This could be implemented using the new Tuple reducer type with two CkReduction::set reducers, one containing the array index of the contributor and the other containing the data contributed. However, this is much less elegant than having a native CkReduction::gather type with gatherElements forming a linked list where each element contains the array index of the contributor, the data size, and the actual data.

#3 - 05/26/2016 10:07 PM - Sam White

- Status changed from New to Implemented

- Target version set to 6.8.0

- Assignee set to Steve Hoelle

Steve Hoelle's fix for using set reductions inside tuple reductions: https://charm.cs.illinois.edu/gerrit/#/c/1219/

This enables straightforward implementation of unordered gather operations, which can be reordered as needed on the receiver's side. This is adequate for AMPI's use case, and I don't know of any other current use cases in our applications.

Edit: Eric B expressed interest in a gather operation for OpenAtom. See AMPI_Allgather for the contribution and gatherResult for the ordering of messages by contributor's rank: https://charm.cs.illinois.edu/gerrit/#/c/1220/

#4 - 06/16/2016 11:42 AM - Phil Miller

We can close this as 'Merged' now, right?

#5 - 06/16/2016 11:48 AM - Sam White

I'm fine with closing it, though I think the documentation should be updated for Tuple/Stats reducers, and perhaps an example of a gather (tuple/set) would be useful as a replacement for the current example of set reducers here:
http://charm.cs.illinois.edu/manuals/html/charm++/4.html#SECTION01361000000000000000

#6 - 08/05/2016 09:31 AM - Sam White

- translation missing: en.field_closed_date set to 2016-08-05 09:31:28.926867

- Status changed from Implemented to Merged

- Subject changed from CkReduction::gather operation with source chare idx identifiers per contribution to Gather reduction operation using Tuple/Set reducers

Closing this now since there is an open issue for the documentation, #1140.

#7 - 09/28/2016 01:32 PM - Phil Miller

- Target version changed from 6.8.0 to 6.8.0-beta1