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**Design Plan: OpenHFT as Off-Heap (/dev/shm) Provider of Agg Engine ReferenceData (POC)**

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Details

* Type:Task Task
* Status:In Analysis and Review In Analysis and Review
* Priority:High High
* Resolution:Unresolved
* Affects Version/s:None
* Fix Version/s:[Future Release - TBD](https://issuetracking.jpmchase.net/jira8/browse/LRISS/fixforversion/25279)
* Component/s:[LINUX-Agg Engine](https://issuetracking.jpmchase.net/jira8/browse/LRISS/component/24015)
* Labels:

None

* Work Calendar:

Standard - 40 hr/week

* Proj. Task Type:

Effort driven

* Release Date:

DECEMBER 31 2014

Description

This JIRA will document the ambition to deliver a POC deployment that soundly/completely exercises the potential veracity of OpenHFT ([http://www.openHFT.net](http://www.openhft.net/)) being an Off-Heap (/dev/shm/) provider of Agg Engine ReferenceData.

This JIRA continues the work started by JIRA<https://issuetracking.jpmchase.net/jira8/browse/LRISS-1142>

The central purpose of this JIRA is to document OpenHFT's demonstrated capability to affect

1. a ZERO-COPY transport whenever any Agg Eng operators (AE user requests/tasks) interact with any centrally shared Agg Eng operands (/dev/shm/ pinned RDR\_DIMENSIONS)

2. a sub microsecond ( < 1 us) average latency that soundly/completely satisfies #1 via native Linux IPC (but coded by AggEng application programmers via the OpenHFT ChroniclMap Java API). I.e. we get the **full** native Linux IPC capability via the OpenHFT provided Java API.

3. a solution that resolves the need to redundantly copy RDR\_DIMENSION specific data amongst multiple Java VM processes' address spaces (i.e demonstrate the efficacy of a 1 x instance @ /dev/shm soundly/completely resolves the need of any redundancy of any kind)

4. a solution that brings to the native Linux process view an accommodating symmetry for MP (multi-process) synchronization/volatility/CAS/lock-free operator/operand interaction that exaclty matches the symmetry for MT (multi-thread) capabilites (i.e. synchronization/volatility/CAS/lock-free operator/operand interaction) provided by the default (familiar) Java VM platform.

5. Document this POC effort using the classic 4+1 Architectural View Model of Software Development Methodology (<http://en.wikipedia.org/wiki/4%2B1_architectural_view_model> and<https://www.cs.ubc.ca/~gregor/teaching/papers/4+1view-architecture.pdf>) – yielding to LRI CS AggEng Team and other LRI teams the following views of this  
POC: (1) Logical View (2) Physical View (3) Process View (4)Development View and (4+1) Use Case/Scenarios

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People

* Assignee:

BEN COTTON

Reporter:

BEN COTTON

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Dates

* Due:

31/Dec/14

Created:

Today 11:54 AM

Updated:

Today 11:54 AM

Planned Date :

31/Dec/14

Time Tracking

Estimated:

2m

|  |
| --- |
| Original Estimate - 2 minutes |

Remaining:

2m

|  |
| --- |
| Remaining Estimate - 2 minutes |

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Not Specified

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| Time Spent - Not Specified |

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I will soon be seeking detailed counsel from Dmitry, Lev, Biao et. al. re: enumerating the full space of AggEng RDR\_DIM RefData potential data structure anatomy(s) … and accommodating that space with a ZERO-COPY capable OpenHFT representation.

The JIRA URL above will document this effort.

Thanks,

Ben

Ben D. Cotton III

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