Arvados - Feature #8017

[Crunch2] support runtime constraints

12/15/2015 08:45 PM - Peter Amstutz

Status:	Resolved		**Start date:**	05/03/2016
Priority:	Normal		**Due date:**	
Assigned To:	Radhika Chippada		**% Done:**	100%
Category:			**Estimated time:**	0.00 hour
Target version:	2016-05-11 sprint			

Description

Propagate runtime constraints from Container to slurm in crunch-dispatch-slurm.

See runtime_constraints at **Containers API**

We should support (at least) the following cases:

- request 12 GB RAM, do not specify number of CPU cores: {"ram":12000000000}
- request 12 GB RAM and 4 CPU cores: {"ram":12000000000, "vcpus":4}
- do not propagate any constraints: {}

The Container record's runtime_constraints hash is expected to have a numeric value (or null/missing) for each element -- never a range of acceptable values like the ContainerRequest examples.

Every Container record is guaranteed to have a value for "ram" and "vcpus" by the time it's eligible for dispatch.

Subtasks:

Task # 9088: Implement in slurm dispatcher	**Resolved**
Task # 9087: Specify minimum constraints	**Resolved**
Task # 9089: Review branch: 8017-slurm-runtime-constraints	**Resolved**

Associated revisions

Revision a32c69b8 - 05/10/2016 05:35 PM - Radhika Chippada

closes #8017
Merge branch '8017-slurm-runtime-constraints'

History

#1 - 04/27/2016 08:01 PM - Tom Clegg

- Target version set to 2016-05-11 sprint

#2 - 04/27/2016 08:01 PM - Tom Clegg

- Assigned To set to Peter Amstutz

- Story points set to 1.0

#3 - 04/27/2016 08:25 PM - Radhika Chippada

- Assigned To changed from Peter Amstutz to Radhika Chippada

#4 - 04/28/2016 01:31 PM - Tom Clegg

- Description updated

#5 - 05/03/2016 01:40 PM - Peter Amstutz

http://slurm.schedmd.com/sbatch.html

--mem=<MB>

--cpus-per-task=<ncpus>

#6 - 05/03/2016 02:13 PM - Tom Clegg

- Description updated

#7 - 05/03/2016 06:52 PM - Radhika Chippada

- Status changed from New to In Progress

#8 - 05/03/2016 07:16 PM - Radhika Chippada

The story description said: (1) The Container record's runtime_constraints hash is expected to have a numeric value for each element, (2) Every Container record is guaranteed to have a value for "ram" and "vcpus" by the time it's eligible for dispatch.

- Based on this, I updated the slurm dispatch code to expect these numeric runtime_constraints in the Container record and pass them to sbatch command.

- I used strconv.Itoa to pass the numeric values as strings to sbatch. Please let me know if this needs any corrections.

Commit f1adedeb

#9 - 05/09/2016 02:12 PM - Peter Amstutz

A careful reading of the SLURM page suggests that we should be using --mem-per-cpu instead of --mem. So, you need to divide ram by the number of cpus and round up. Also, the slurm --mem-per-cpu option takes MegaBytes but the crunch v2 API gives RAM in bytes. You need to divide by 2^20 and round up.

#10 - 05/09/2016 04:10 PM - Radhika Chippada

Thanks Peter. Updated per note 9 at b5e2bbb9

#11 - 05/10/2016 02:49 PM - Peter Amstutz

One more tweak, this should be int64 instead of int because int in Go can be either 32 or 64 bits.

```
    RuntimeConstraints map[string]int `json:"runtime_constraints"`
```

#12 - 05/10/2016 04:12 PM - Radhika Chippada

Updated to RuntimeConstraints to use int64. Thanks.

#13 - 05/10/2016 05:40 PM - Radhika Chippada

- Status changed from In Progress to Resolved

- % Done changed from 0 to 100

Applied in changeset arvados|commit:a32c69b81296860a30cc33909226d9294f411adf.