

Analysing SAGA as the Access Layer for OCCl backed Cloud Infrastructures

Shantenu Jha, Andre Merzky, Thijs Metsch

Outline



- . Motivation
- . Use Cases
- . Standards based approach to UC scenarios

Motivation



- . lessons from the Grid experience SHOULD be
 - . transferred as infrastructure evolve...
 - and extend to the Cloud paradigm.
-
- . Complex Systems fail for complex reasons
 - . Complex Systems fail for simple reasons
 - . Standards simplify systems
 - . Standards support interop

Why SAGA + OCCI?

- . This is an OGF workshop! ;-)
- . We are biased
- . Note: this is *one* possible approach to a standards stack for applications to use IaaS



Outline



- . Motivation: interoperation
- . Use Case
- . Standards based approach to support Use Case
- . Discuss!

Motivation: Interop



- . System Level Interop:
 - . Services communicate, exchange, share
 - . Example: http, ftp, dns, posix
 - . 'Federation'
 - . mostly standards based (de-facto / de-jure)
- . Application Level Interop:
 - . application can use different systems concurrently, w/o system level support
 - . example: MPI, blast
 - . often ad-hoc, portability required

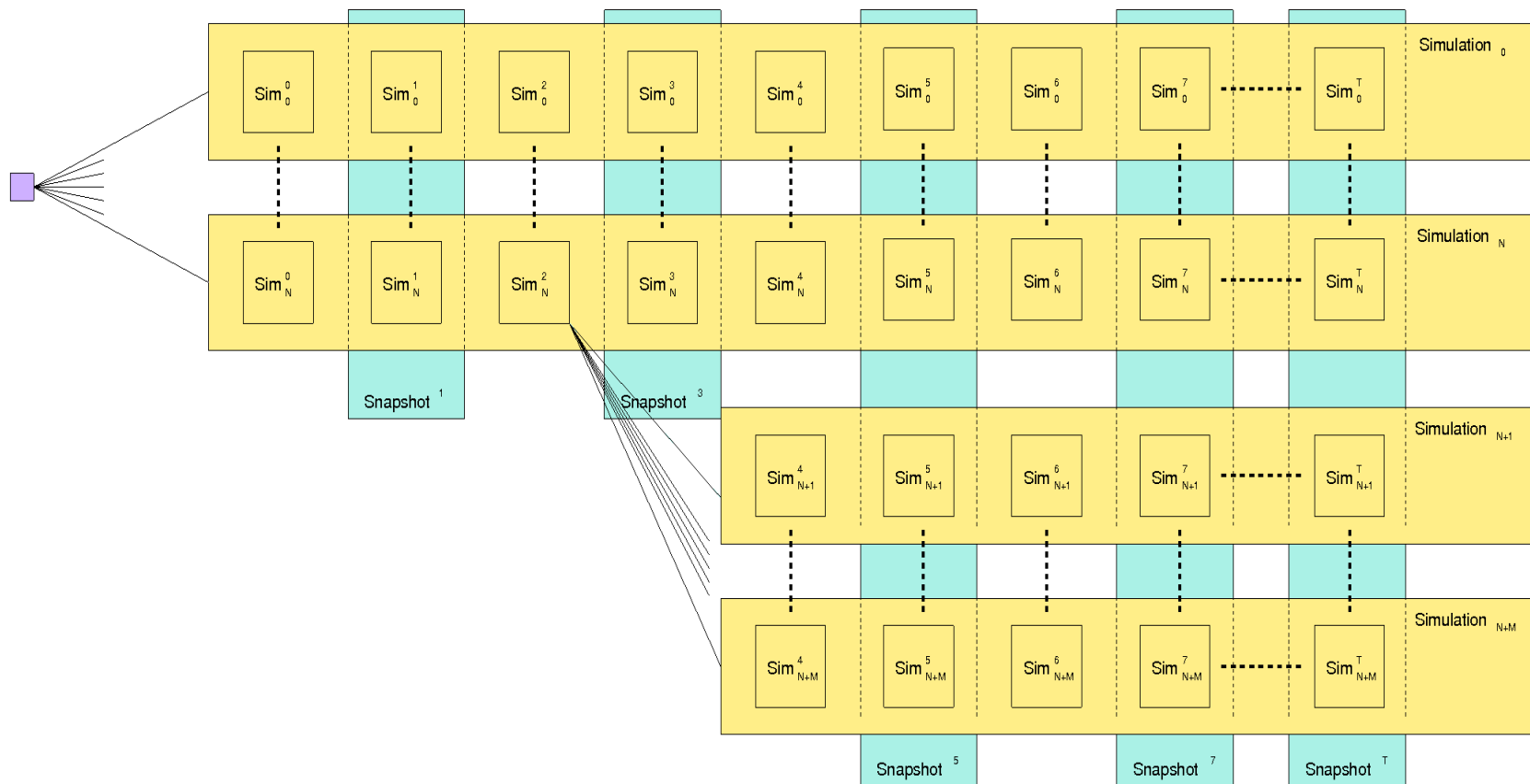
Motivation: Interop



- . SAGA
 - . standards based Application Level Interop
 - . stable syntax and semantics on client side
 - . portability of programming abstractions
- . OCCI
 - . standards bases System Level Interop
 - . stable syntax and semantics on servicer side
 - . portability of programming abstractions
- . SAGA and OCCI support different domains!

Use Case

. Ensemble based MD Simulations

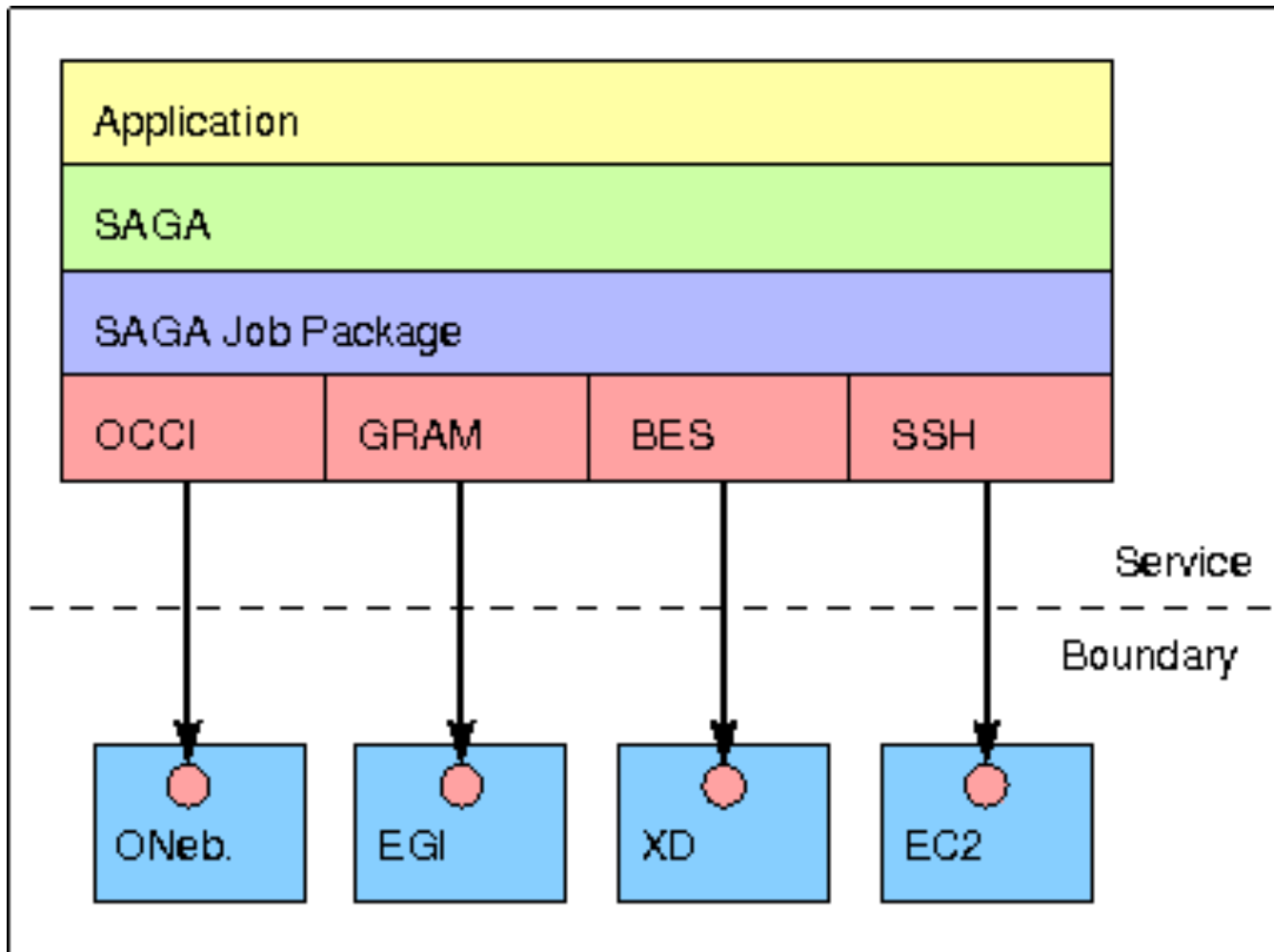


Use Case Challenges

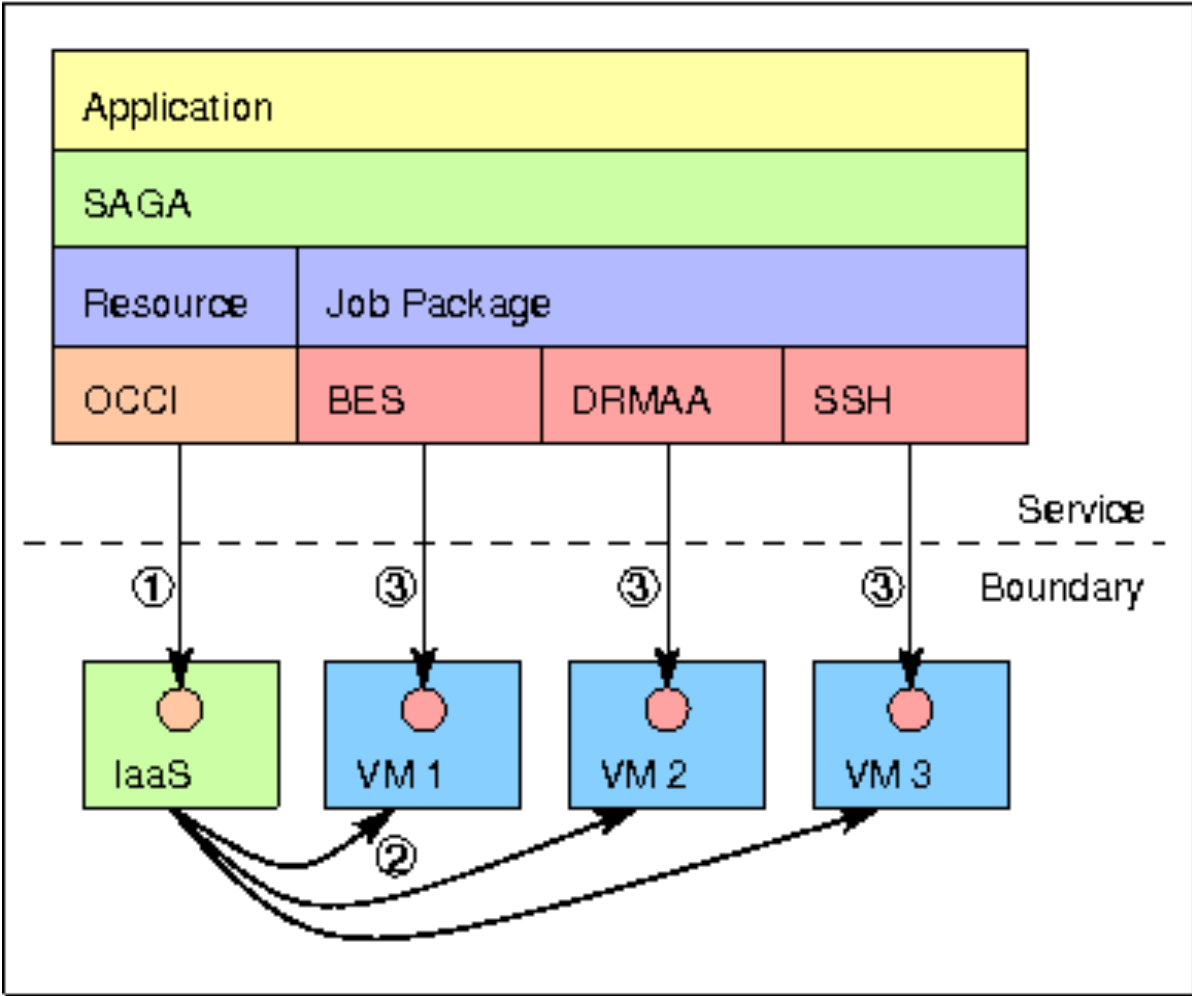


- . $O(10,000)$ simulations per ensemble
 - . 1 .. 1024 cores per simulation
 - . running min-hrs-days
 - . loosely coupled
 - . dump $O(1)$ MB/min
- . **Challenges:**
 - . job startup and management
 - . data tracking and management
 - . ***scale***
 - . interop

Approach to support UC



Approach to support UC



Summary



- . Interoperable Standards Stack is *easily* possible
- . We will be implementing that stack
- . Other stacks are very viable

Summary

