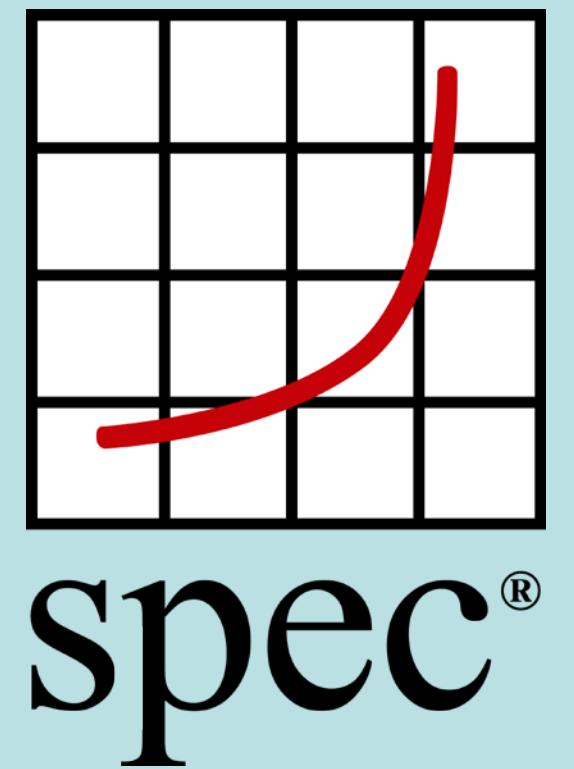


# Stimulating Virtualization Innovation

## SPECvirt\_sc2013 and beyond



Developed by the SPEC Virtualization Committee  
[http://www.spec.org/virt\\_sc2013](http://www.spec.org/virt_sc2013)



### Demonstrating Server Virtualization Technology – SPECvirt\_sc2013

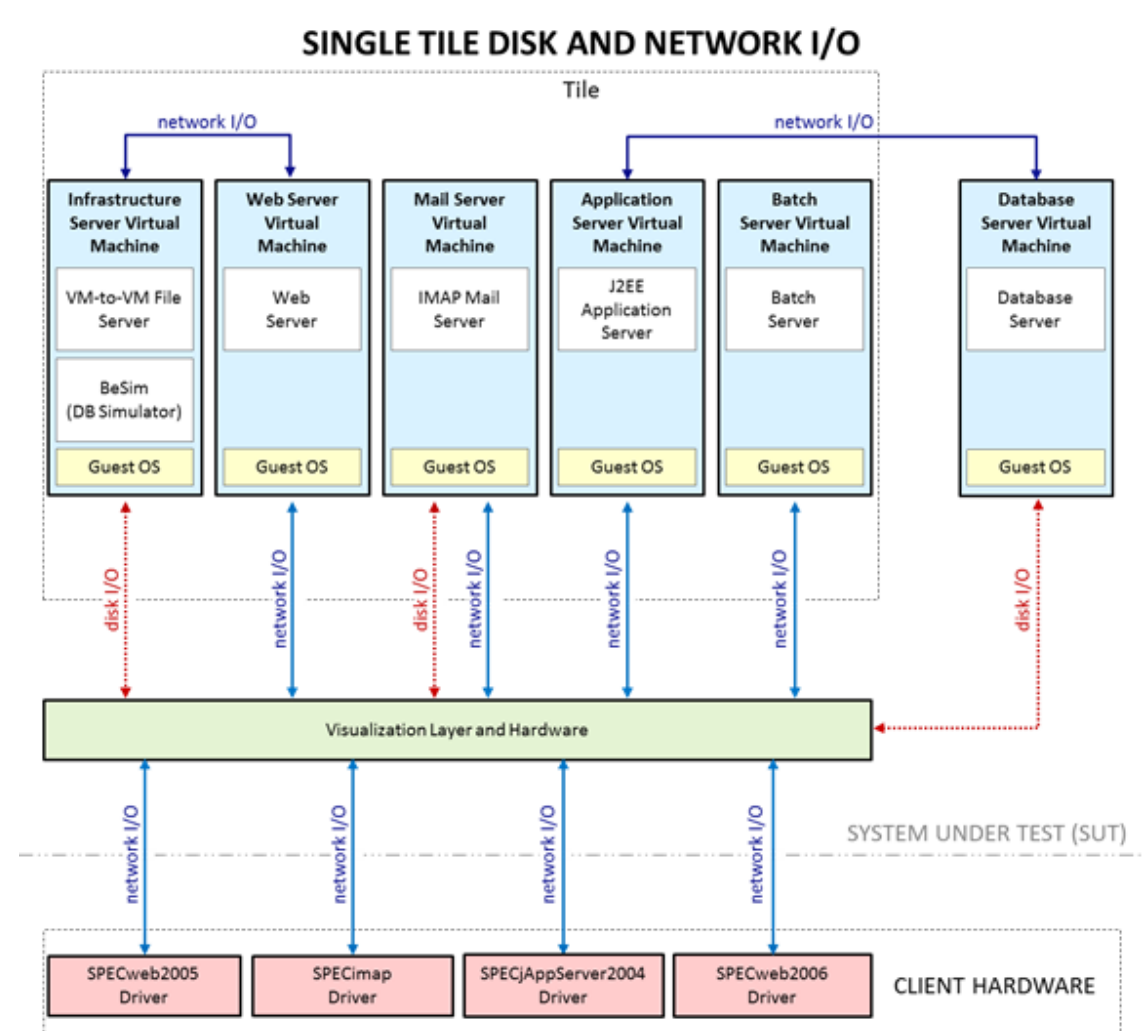
- Modeling server consolidation of commonly virtualized systems such as mail, database, application, web, and file servers
- Supporting hardware and operating system virtualization as well as hardware provisioning for server consolidation scenarios
- Exploits SPEC's Power and Performance Benchmark Methodology to measure power efficiency of hypervisor solutions as an optional metric

### Driving Innovation – SPECvirt\_dc

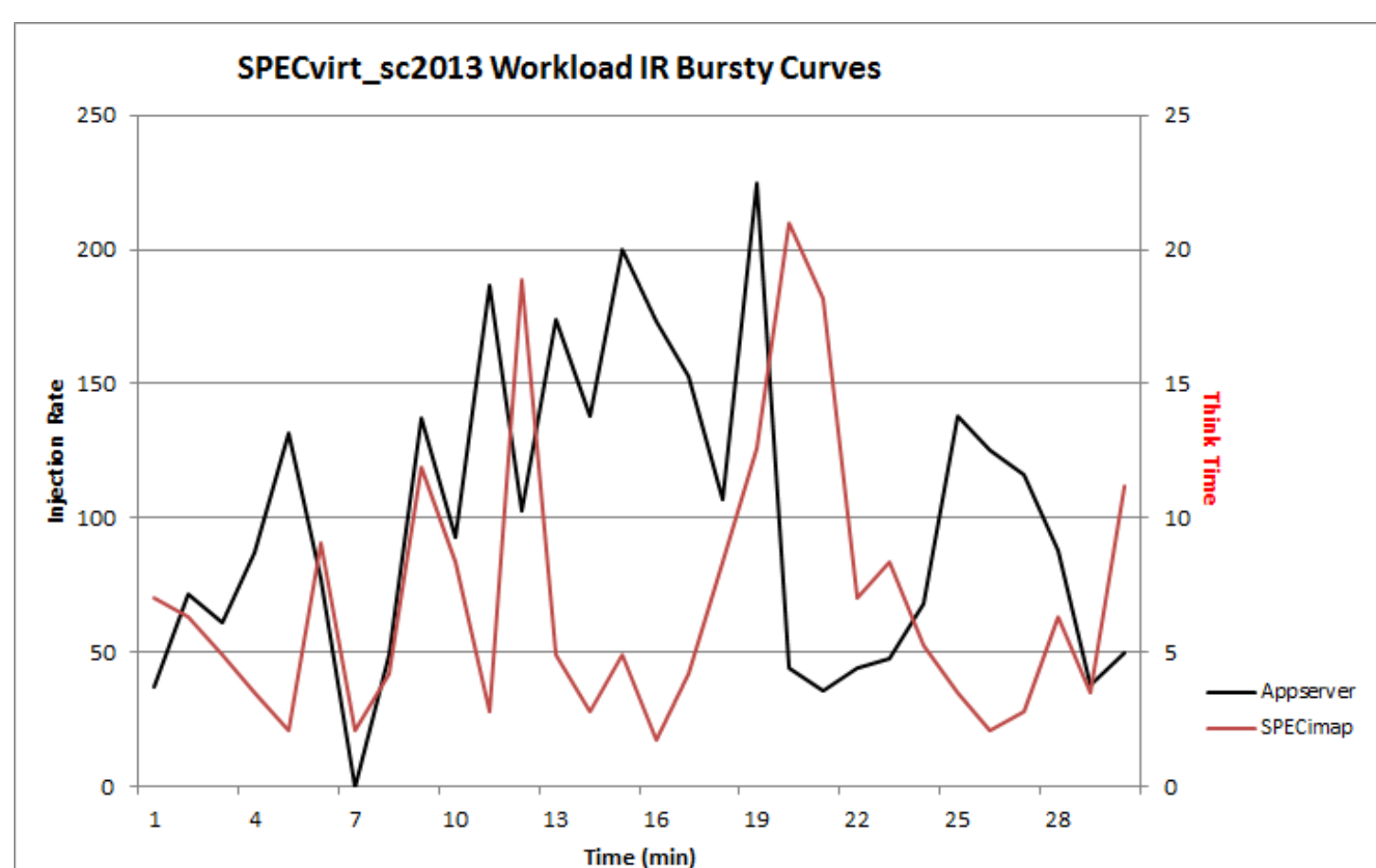
- Will be multi-host benchmark to exercise more complex virtualization functions
- Will model datacenter-level virtualization environment, measuring performance of operations such as VM resource provisioning, cross-node load balancing, and forced VM migrations.

### SPECvirt\_sc2013

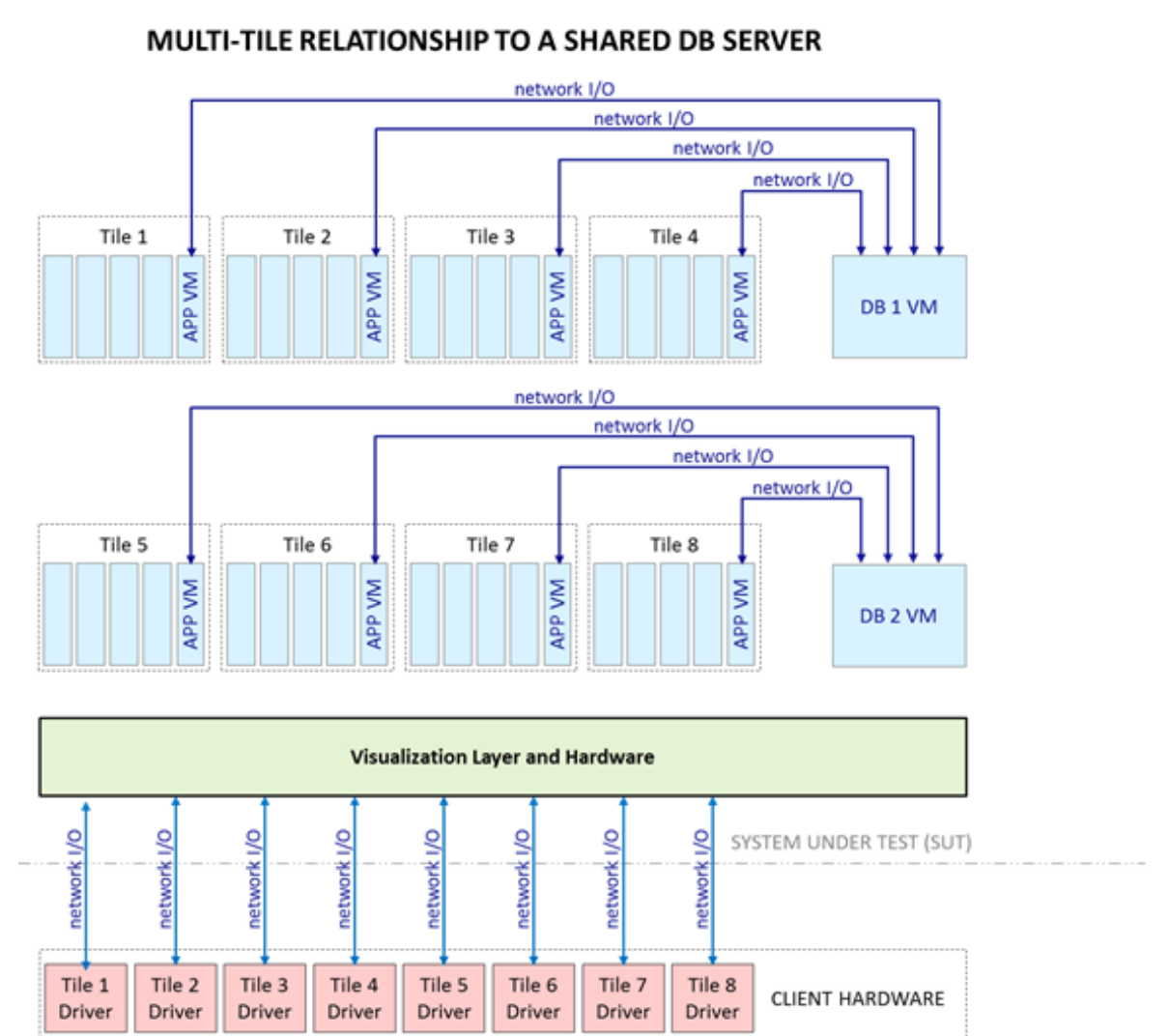
- Models dynamic workload variations of real-world servers
- Measures throughput and quality of service (QoS) for each workload
- Supports a wide range of systems, scaling to 2, 4, and 8 processors and beyond
- Each Database Server VM is shared by up to four Appserver VMs to ensure that there is a VM requiring multiple vCPUs (SMP)
- Web Server uses SSL (HTTPS) to more accurately mimic real-world environments
- Batch Server runs periodic parallelized “jobs” using SPEC CPU2006 benchmark harness



SPEC Virtualization Benchmark Workloads



SPECvirt\_sc2013 Workload Injection Rates



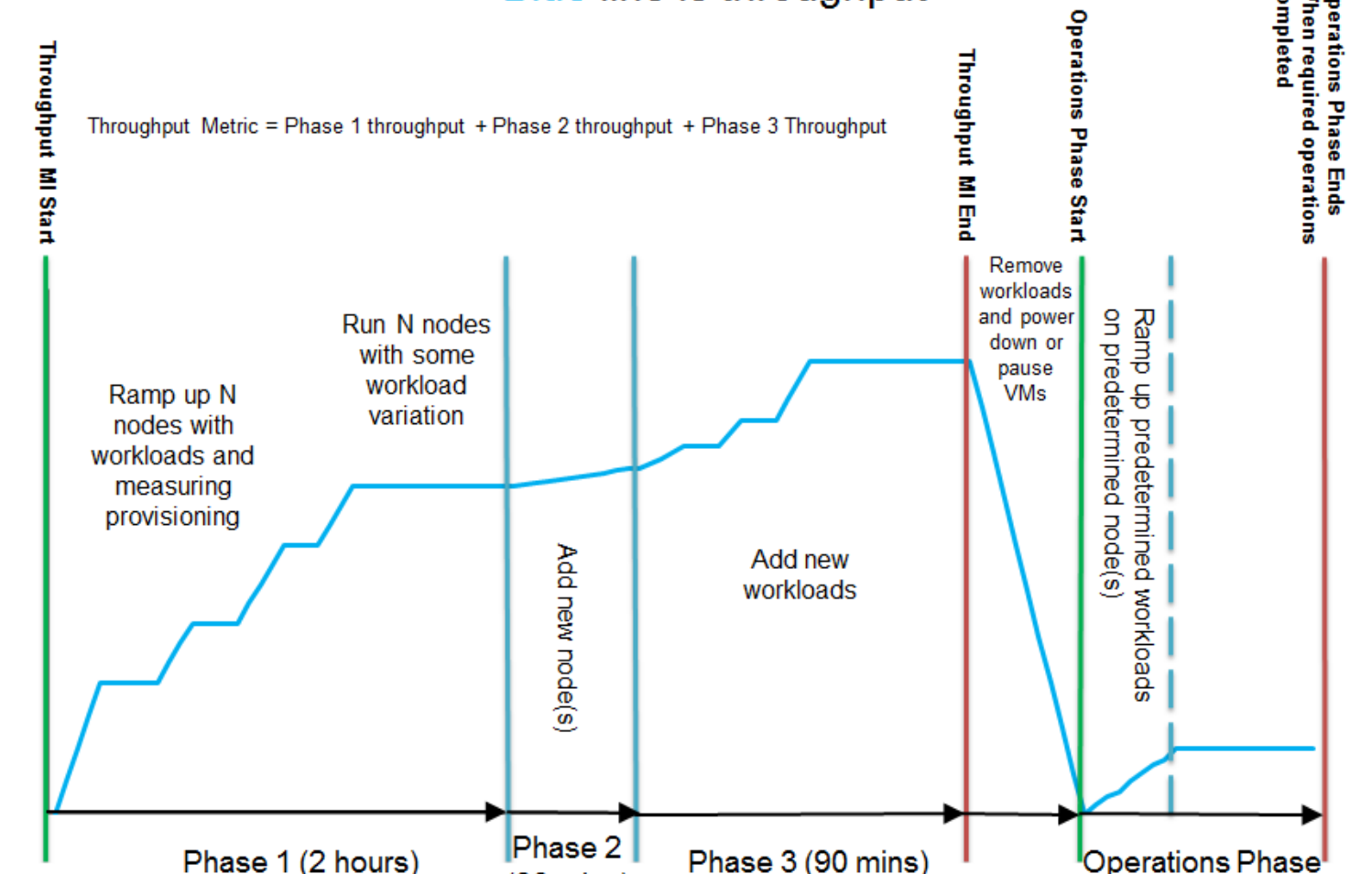
SPEC Virtualization Benchmark Multiple Tile Design

### The Future – SPECvirt\_dc

- Development underway of new benchmark to model datacenter virtualization environment, including VM provisioning and VM migration
- Benchmark to contain multiple phases focusing on different datacenter operation scenarios
- Considering discrete workload tiles containing different number of VMs (small, medium, and large tiles) – tile mix would be added in pre-defined combinations during ramp-up phases
- Working to de-emphasize effect of application stack within tiles to focus on performance of overall virtualization solution

### SPECvirt Datacenter Measurement Run

Throughput Measurement Interval Phases + Operations Phase



SPECvirt\_dc Workload Profile Under Consideration