

A Resource-aware Scheduling Concept for an OpenStack-based VDI

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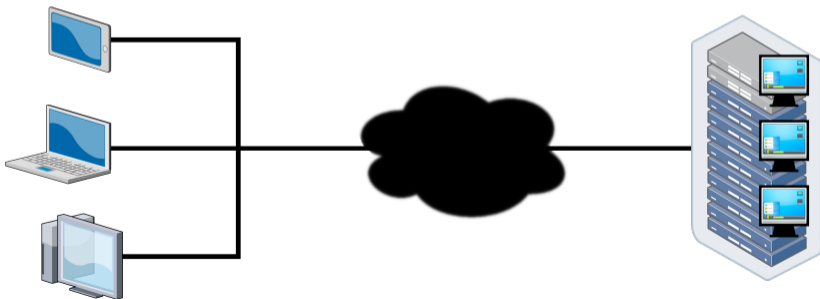
² 7bulls.com, Warsaw, Poland

26. September 2024

What is Virtual Desktop Infrastructure (VDI)?



- Infrastructure to provide virtual desktops
- Virtual desktops are (usually) hosted in a data center
- Access takes place remotely, often via thin clients



How do VDI use cases look like?



Traditional desktop workplaces for single-user access

- For *office work* of employees and researchers
- *Persistent and stateful* virtual machines



Discardable desktop workplaces for temporary sessions

- For *courses, training and E-assessments*
- *Discardable and stateless* virtual machines



Powerful desktop workplaces for graphic-intensive visualizations

- For *3D modeling and media editing*
- *Dedicated graphic rendering*

What are the characteristics of VDI use cases?



On-demand desktop workplaces

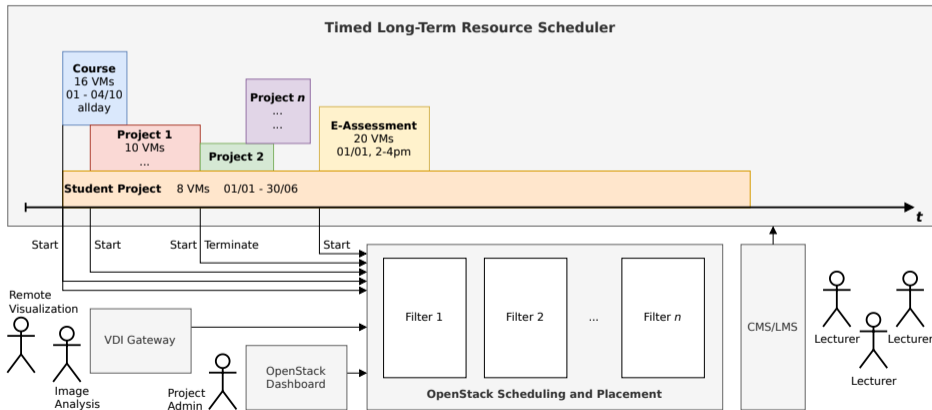
- Allocate and provision resources on demand
- Reuse OpenStack's on-demand resource scheduling and placement



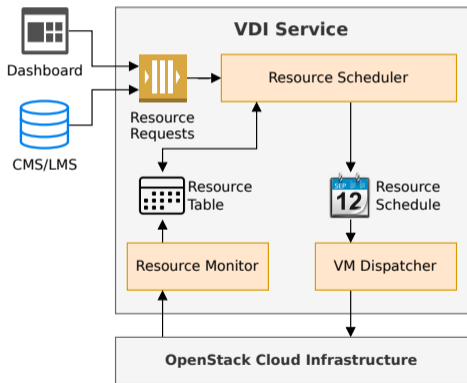
Timed (long-term) desktop workplaces

- Allocate and provision resources immediately or just before a timed event starts
- Time schedule can be obtained from a resource reservation system (e.g. campus management system)

How does timed long-term scheduling work?



How does the VDI service architecture look like?



- Separate VDI service for OpenStack
- Orchestrator composed of a
 - VM dispatcher
 - Resource scheduler
 - Resource monitor
- Resource monitor keeps track of the current resource allocations and placements in the cloud

What OpenStack bits & pieces are missing for VDI?



- Unified and broad graphic rendering resource management
 - Resource accounting for graphic adapters
 - More fine-grained vGPU partitioning support
- Live migration of vGPUs and other accelerator resources
- Timed (long-term) resource reservations of vGPUs and other accelerator resources

Thank you for your attention!



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