Revisiting storage virtualization for modern devices

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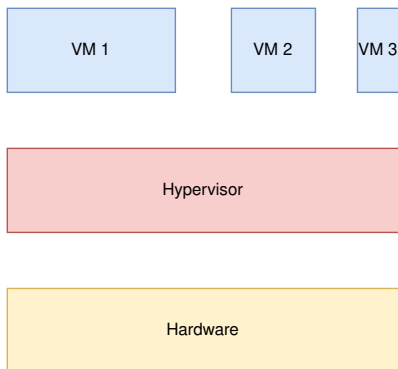
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Virtualization

Basic

- Multiple operating systems running in parallel
- Maximazing the use of resources

Xen : Hypervisor that run directly on the hardware, creates Dom0 while booting

Dom0

Dom0 is a special VM used to control HW devices
What devices is not handled by Xen directly is given to this VM, i.e. network, storage etc...
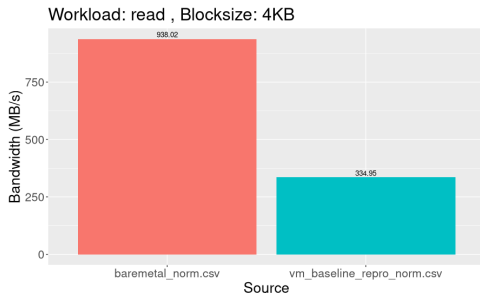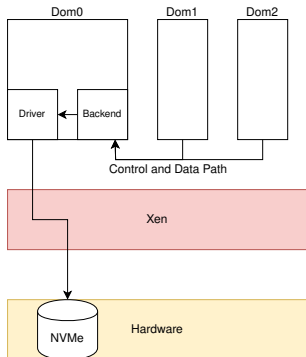
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Problem

Figure – Comparison of baremetal and virtualized storage read access performance

$\Rightarrow$ New storage technologies availability shows the limitations of the current storage virtualization solution
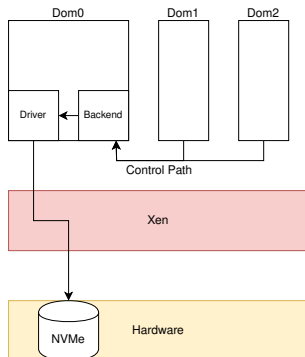
The Old Way

- Control path in the Dom0
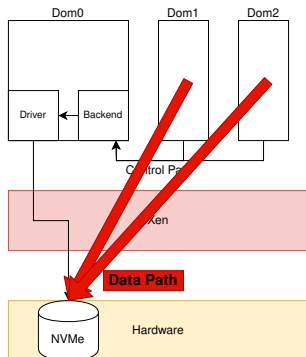- Data using the Dom0 block storage layer path

Our proposal

- Control path in the Dom0

Our proposal

- Control path in the Dom0
- Data using a more direct path, DMA from disk $\Rightarrow$ zero-copy of data

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Thank you !