



IT COMPASS

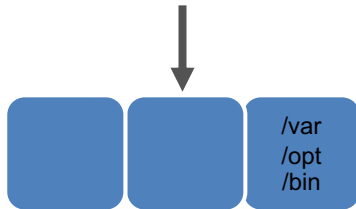
**Infrastructure Matters and directly
impacts your business results**

Agenda

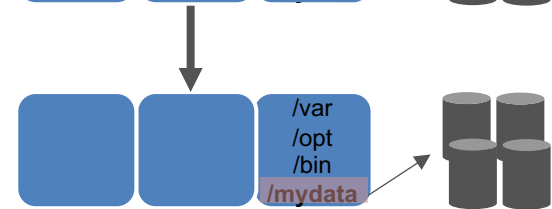
- IBM Storage for containers
- IBM Power 9 for containers
- VMware vSAN vs. Classic Storage
- Brain food

Container Storage challenge

Stateless Environment



Stateful Environment



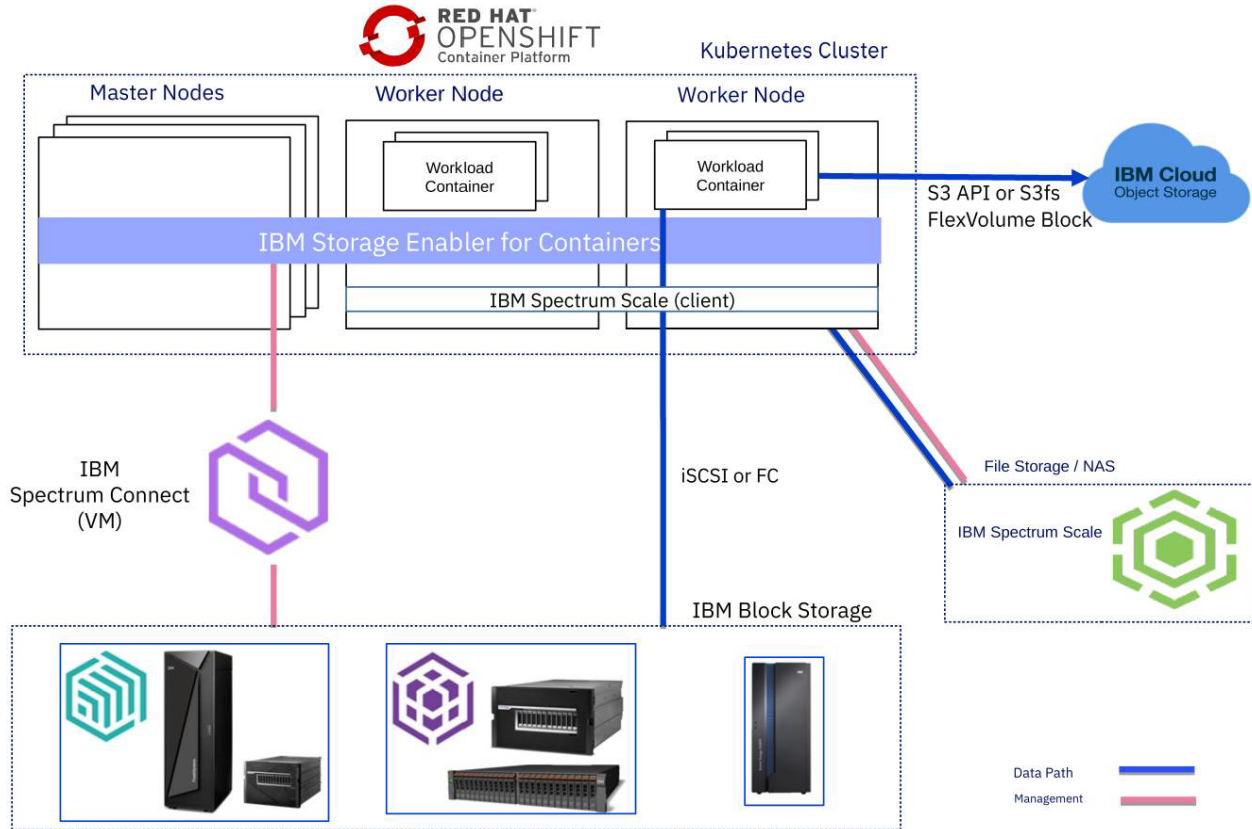
Kubernetes Types of Drivers

- FlexVolume

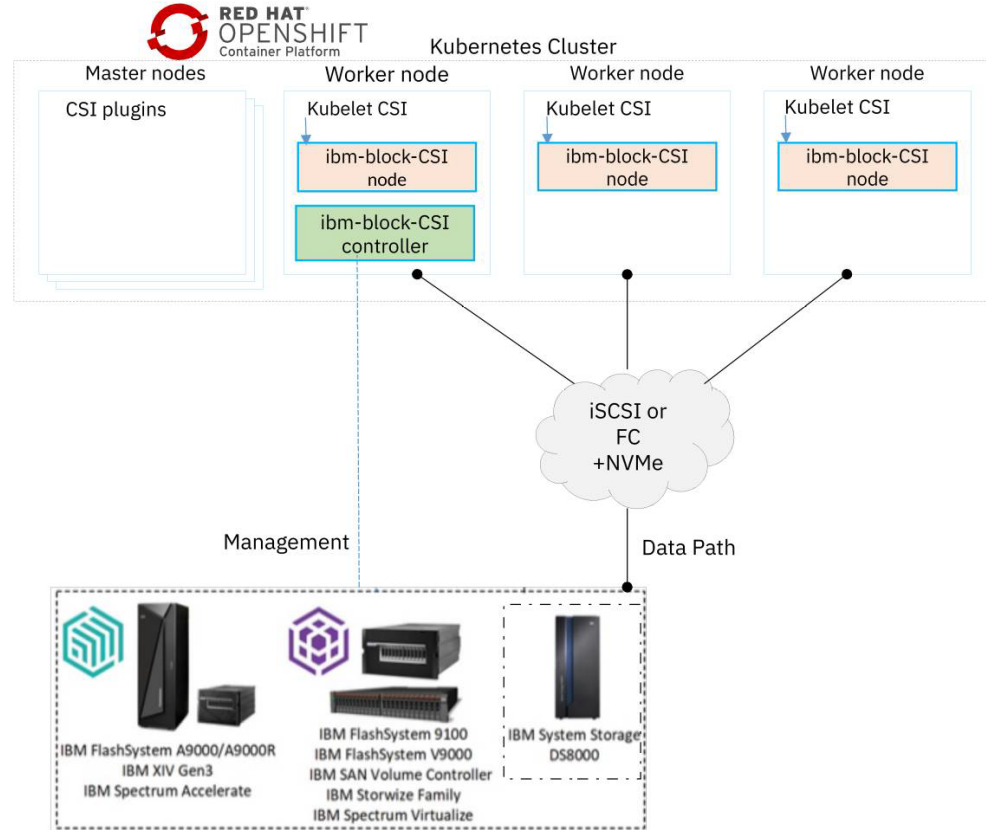
- Container Storage Interface (CSI)



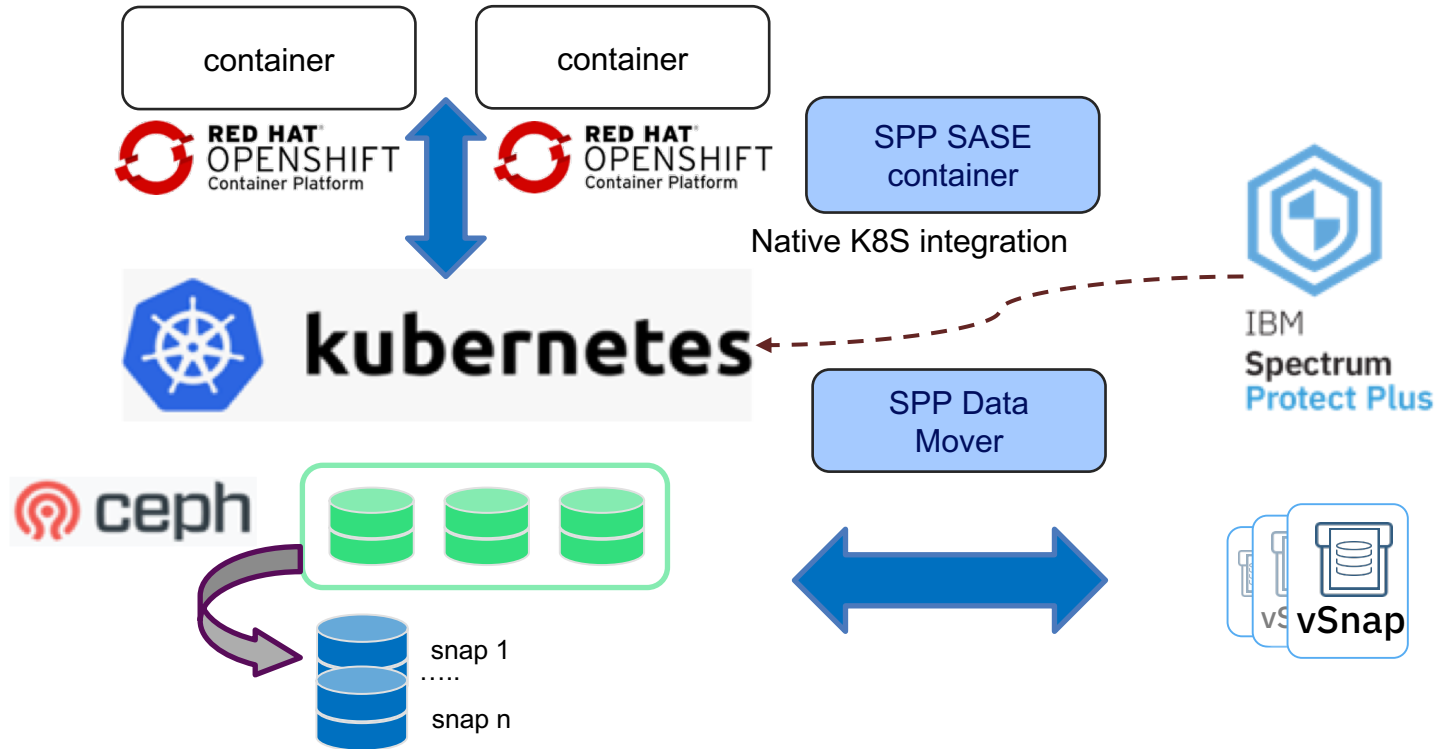
Persistent Storage Architecture OpenShift 3.x

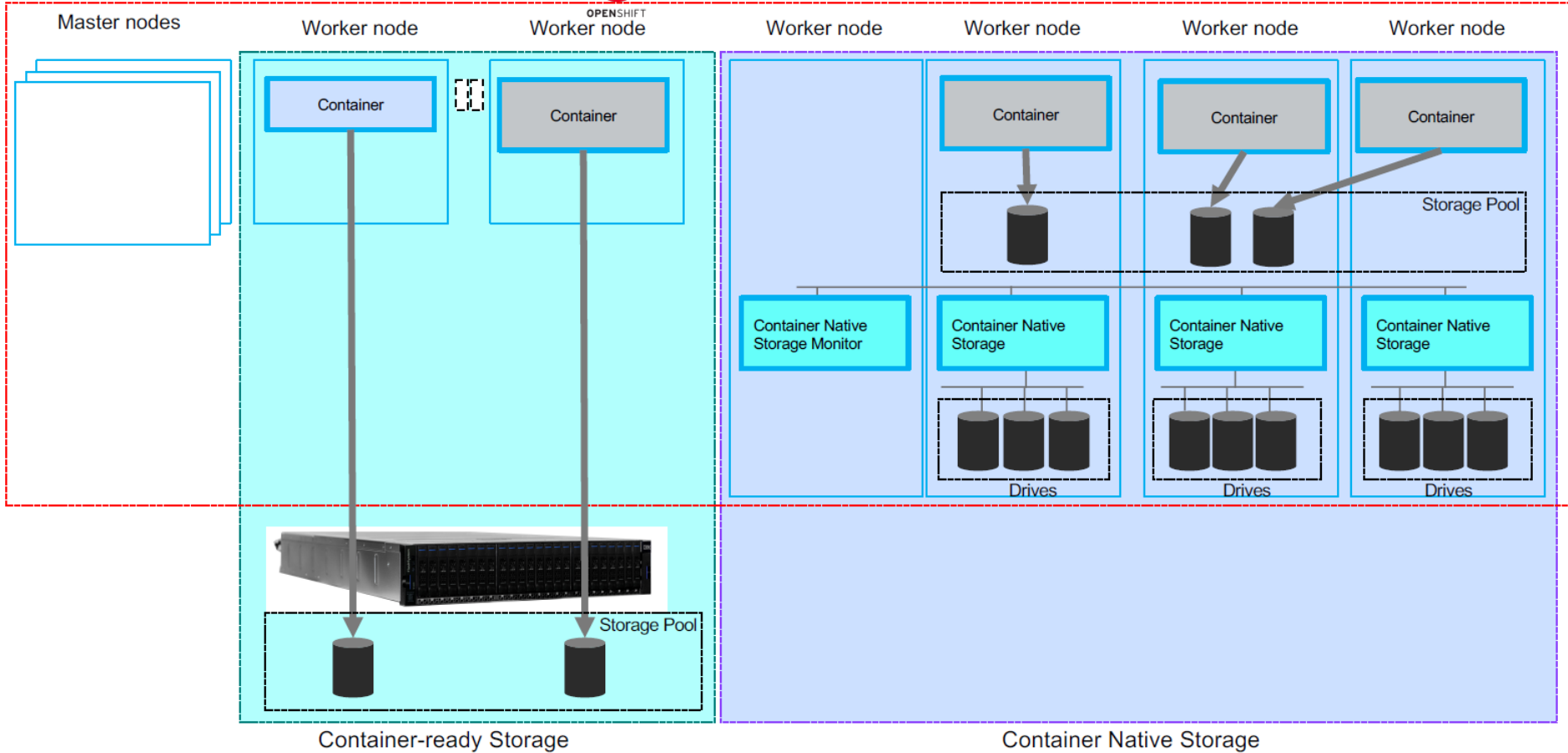


Persistent Storage Architecture OpenShift 4.x



Data Protection for Red hat OpenShift 4.x





IBM Storage with Red Hat OpenShift

- Block – Storwize, FlashSystem, DS8k
- File – Spectrum Scale, ESS
- Object – Cloud Object Storage
- Data protection – Spectrum Protect Plus

Agenda

- IBM Storage for containers
- **IBM Power 9 for containers**
- VMware vSAN vs. Classic Storage
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IBM Power 9 back in 2017



50%



- 10%

IBM Power 9 for containers



3.6X
containers/core



IBM Power 9 for containers

Cloud Pak for Data		IBM Power L922 (10-core, 256GB)		Intel Xeon 2-socket server (36-core, 256GB)
Total Containers		73		72
Server Cost		EUR 26 040		EUR 9 859
Software Cost OpenShift, Cloud Pak for Data (50% disc.)		EUR 79 152 (21600 + 57552)		EUR 284 949 (77760 + 207189)
Total Cost		EUR 105 192		EUR 294 808

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VMware vSAN vs. Classic Storage

- Workload
 - 85TB
 - IOPS – 80 000
 - Read/Write ratio – 70/30
 - Read/Write block size (Kb) – 32/32
 - Random
 - 64 VMs

VMware vSAN vs. Classic Storage

	VMware vSAN	IBM V7000
Read Latency, ms	0,69	0,21
Write Latency, ms	1,39	0,22
Server Nodes	5 32 cores, 256GB RAM	3 28 cores, 384GB RAM
Software	Vmware vSphere Enterprise Plus, vSAN Advanced	Vmware vSphere Enterprise Plus
Cost	EUR 212 502	EUR 130 612

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Brain food

IBM Storwize, FlashSystem, SVC	
Controller CPU	Intel Xeon
Controller OS	Linux

What we can run on it?

Вместо финал



IBM V50x0E Double the Cache