

# Scalable-IOV Contribution

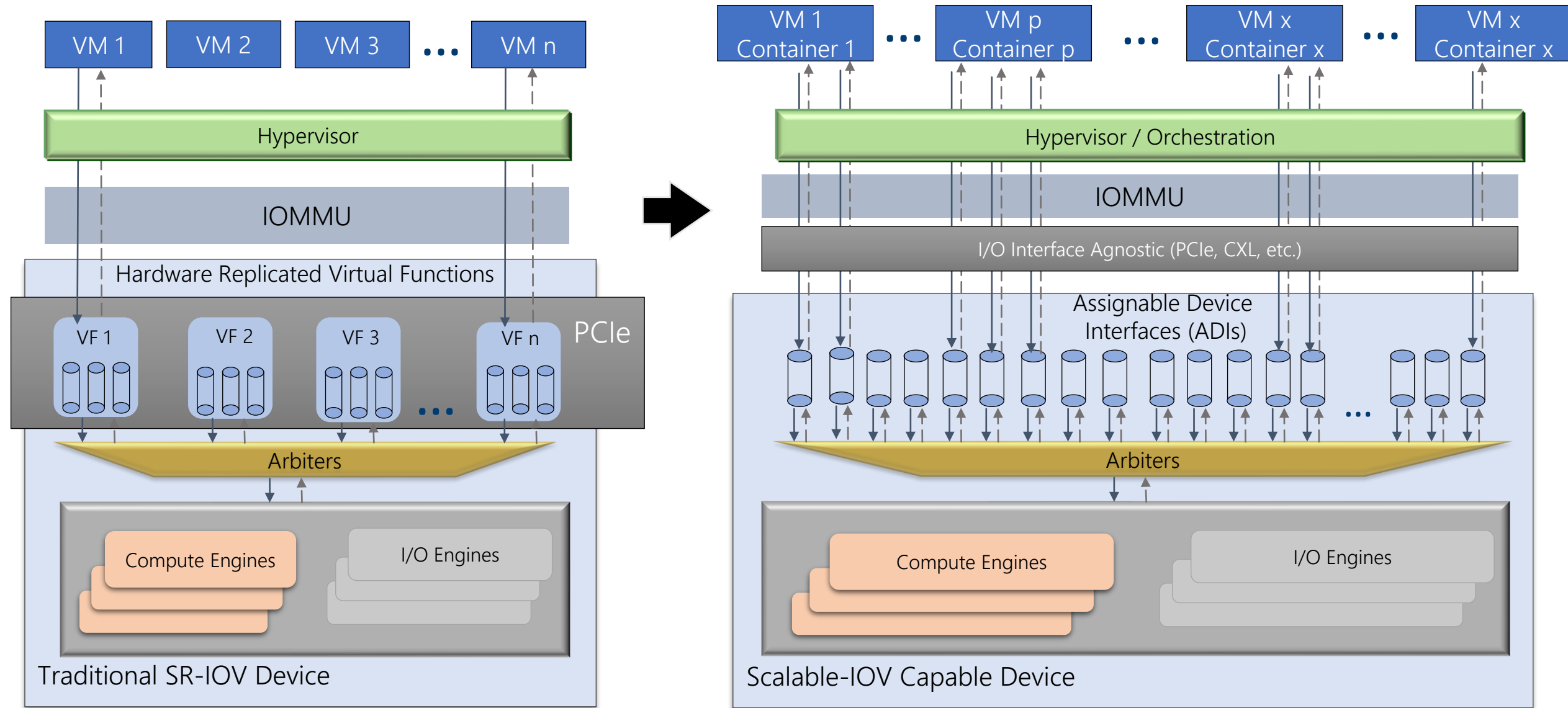
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OCP: Server Project Meeting, October 27, 2021

*Disclaimer: The current [Scalable-IOV specification](#) is posted on the Intel web site with a granted copyright license. Intel is in process of developing the CLA to contribute this to OCP.*

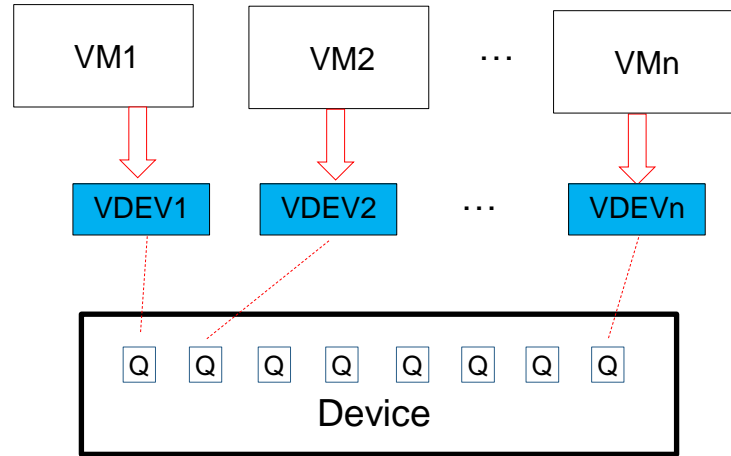
# SR-IOV (Single-Root I/O V) → Scalable I/O Virtualization (Scalable-IOV)



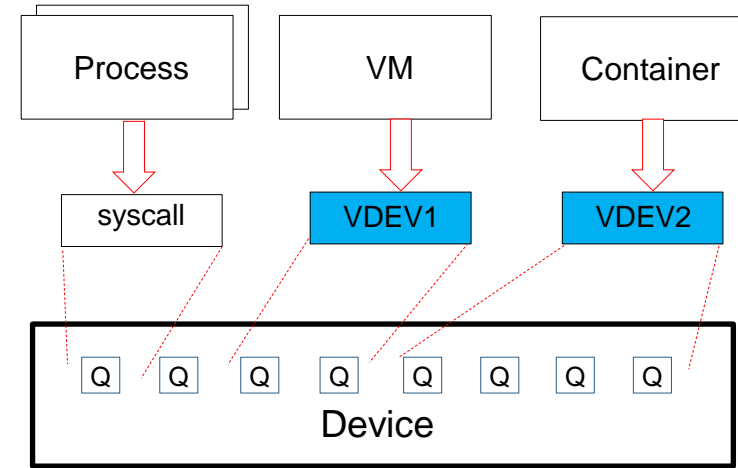
- While SR-IOV maps virtual devices as Virtual Functions (VFs) in HW, S-IOV composes virtual devices through light-weight and scalable Assignable Device Interfaces (ADIs) for fast-path operations and software mediated slow-path operations

# Scalable IOV Benefits

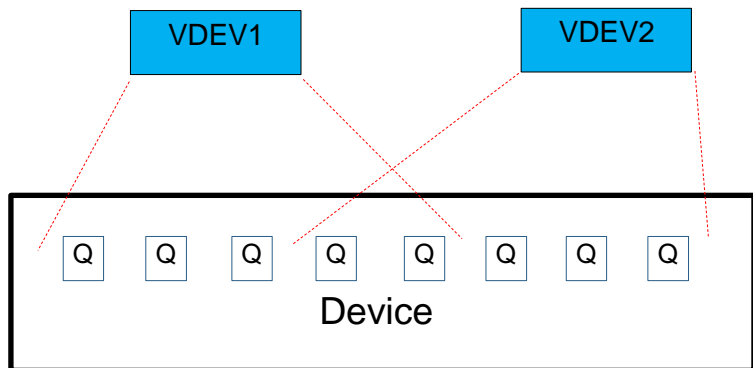
## Scalability



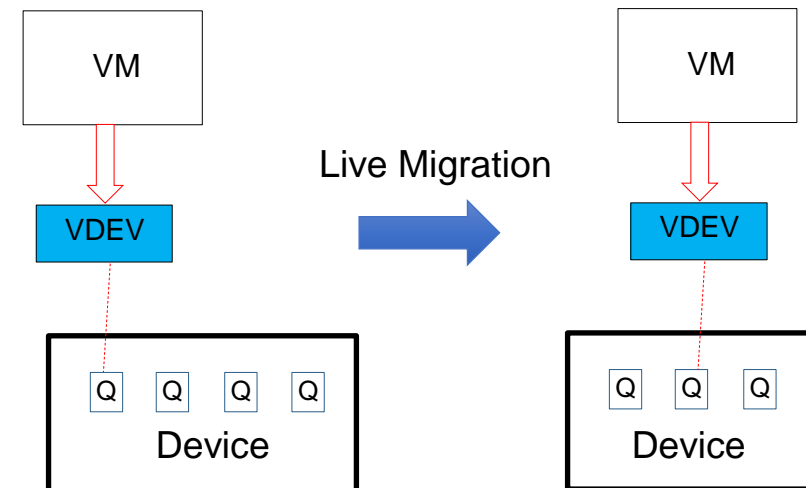
## Flexibility



## Over-provisioning



## Composability



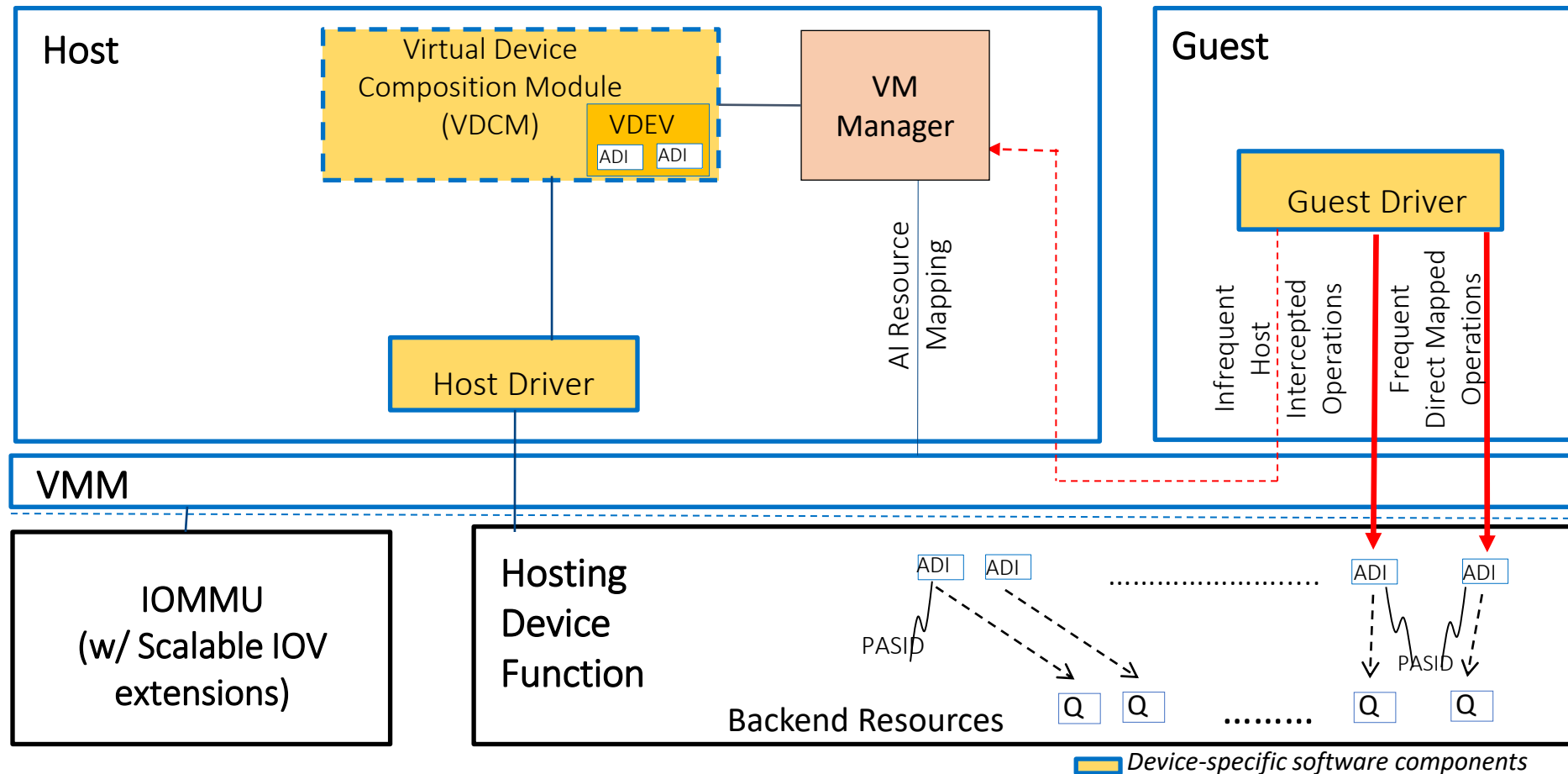
# Proposed Scalable I/O Virtualization (S-IOV) Path

1. Contribute Scalable-IOV to OCP
  - Intel in process of drafting CLA for [Scalable-IOV specification](#) contribution
2. Create workstream with interested stakeholders to define next version of Scalable-IOV. Example areas of scope (to be formalized in workstream):
  - Standard method for S-IOV enumeration and ADI identification
  - Standard method for scaling interrupt message storage for ADIs
  - Extensions to support confidential computing (trusted execution) with ADIs
  - Extensions to optimize live migration of virtual devices backed by ADIs
  - Considerations for CXL devices supporting ADIs
  - QoS associations and management for ADIs
  - Enhancements to Address translation services (ATS) for ADIs

Output of the workstream could include ECRs to be submitted for extensions to relevant specifications such as PCI-Express and CXL

BACKUP

# Scalable IOV: High Level Software Architecture



Device specific VDCM to decide what to intercept vs direct map  
Emulating infrequent operations in VDCM simplifies device without compromising performance