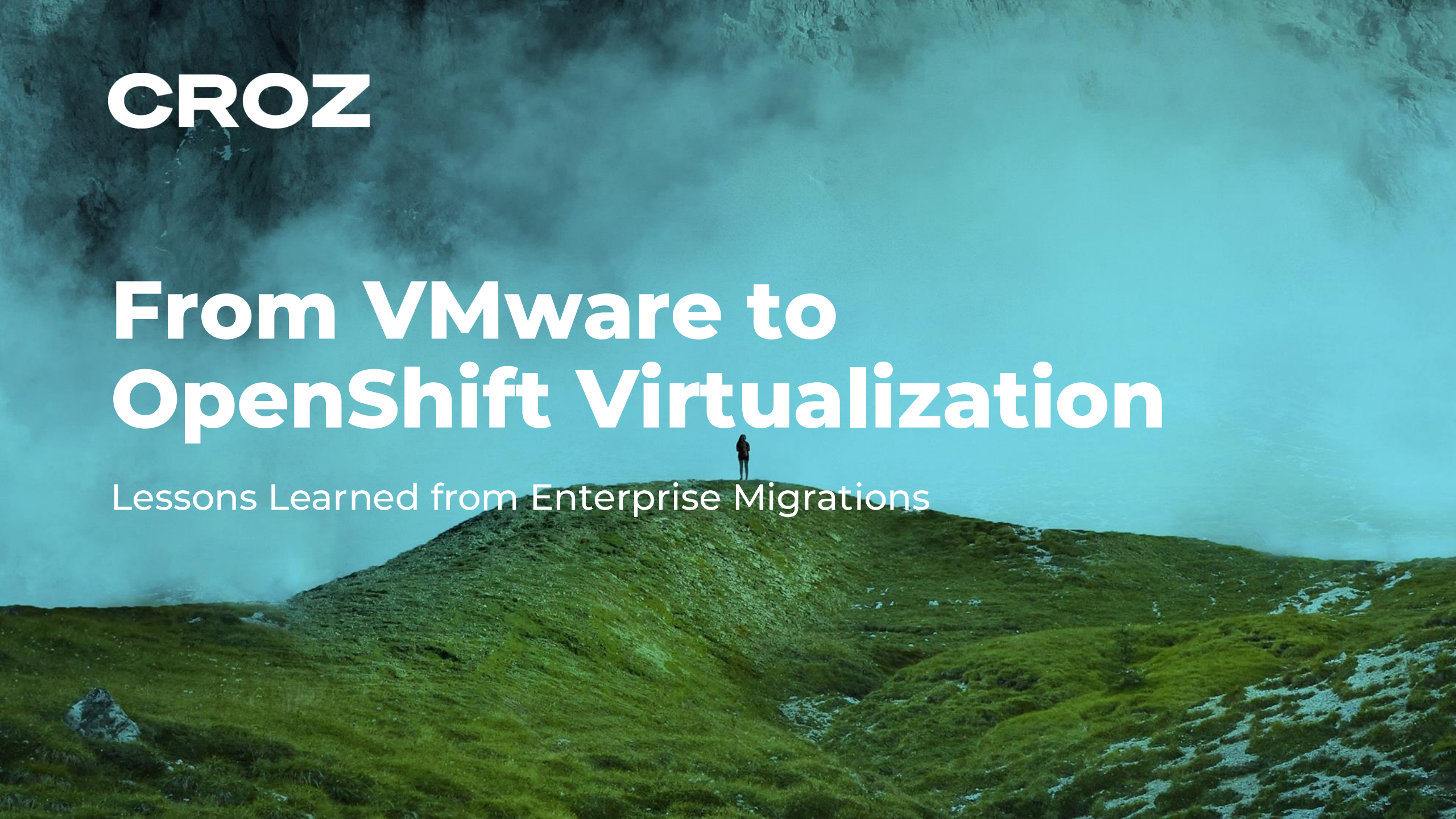
CROZ
From VMware to OpenShift Virtualization
Lessons Learned from Enterprise Migrations

CROZ is a Croatian–German BizTech consulting company.

We're revolutionizing complex organizations, gearing them up for the future's challenges with the might of cutting-edge technology and lightning-fast service delivery.

In the realm of BizTech consulting, merging business and technology with a client-first approach is key to global growth and industry leadership.

CONTEXT

- We assume you are already familiar with OCP-V
- Red Hat Premier Solution Provider
  - Collaborating with Red Hat to deliver customer value
- The following lessons learned are from recent migration projects
  - Siemens – Digital Industries
    - 600 (+450) VMs currently in production
    - 160 VMs in QA, validating processes before migration
    - 1300 VMs in queue

Architectural Considerations

- Don’t forget logging
- When designing hardware BOM, think about Kubelet system reservations
- NVMe for etcd is highly recommended

Networking Design

- Implement network segmentation
  - Use a management network for OpenShift itself
  - Untagged workload network for VMs
- Configure a dedicated network for migrations
  - Direct to ESXi/vCenter
  - Verify the network route that MTV will use
    - sneaky 1Gbps switch/router are typically root cause of slow migrations later
- Storage should be over SAN (ideally)
  - If not, design a dedicated network for storage

Storage Integration

- Storage will be challenging
  - Current solutions we use
    - Portworx (Pure), Dell CMS (Powerstore), ODF, LVM (flashed vxrail)
- Expect a concept shift compared to VMware
  - VMware - 1 LUN per DataStore
  - OpenShift - 1 LUN per PVC
- When mixing storage providers, be aware of possible constraints
- StorageProfile configuration for default PVC access and volume modes

Common Pitfalls

NETWORKING

AUTOMATION

MIGRATIONS

PERFORMANCE

Common Pitfalls

NETWORKING

- Missing network access to ESXi nodes
  - vCenter alone is not enough
- Non-FQDN hostnames for ESXi nodes can cause issues
- Always verify the network route that MTV uses
  - Hidden 1 Gbps switches/routers are a common cause of slow migrations

AUTOMATION

MIGRATIONS

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NETWORKING

AUTOMATION

- Use Ansible to automate high-impact tasks
  - Especially important for repeated manual tasks
    - Even if they occur only every few months
- Large volume migration planning should be automated

MIGRATIONS

PERFORMANCE

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MIGRATIONS

- Large VM migrations (15+ TB)
  - Ensure nodes have sufficient disks for ephemeral storage
    - v2v pod logs
- Critical for troubleshooting failed migrations

PERFORMANCE

Common Pitfalls

NETWORKING

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MIGRATIONS

PERFORMANCE

- Default CPU overcommitment in OCP-V is 10:1
  - Migrated VMs may experience CPU performance impacts
  - vCPU topology might be wrong after migration
- High-intensity VMs can block cluster upgrades
  - Live migration may not keep up with workload changes
    - use MigrationPolicy to enable post-copy migrations

INTERESTING CHALLENGES

- Some VM migrations failed after two days
  - Traced to a malfunctioning SFP module on an ESXi host
- Slow console UI caused by (mis?)configured Cluster Role Bindings
  - Adding cluster-monitoring-view to system:authenticated might not be advisable at moment
    - RFI for console has been created


CROZ
Thank you!
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